NORTEL NETWORKS

Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks

Configuration Overview

PT-AAL1/UA-AAL1/UA-IP

NN10114-511

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Contents

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About this document

This document provides a high-level overview of configuration for the three solutions in the Succession Network:

- Packet Trunking - AAL1 (PT-AAL1)
- Universal Access - AAL1 (UA-AAL1)
- Universal Access - IP (UA - IP)

This document gives an overview of the configuration of the Nortel Networks Multiservice Switch 15000 equipment. For an overview of the configuration of the Nortel Networks Preside Multiservice Data Manager (MDM) software that manages these network elements, see NN10185-111 *Nortel Networks Preside MDM in Succession Networks Basics PT-AAL1/UA-AAL1/UA-IP*.

This document also gives an overview of the configuration for the UA - IP Succession solution: Multiservice Switch 15000 and Media Gateway node.

> ***Note:*** Nortel Networks recommends that all configuration changes contained in the Global Bulletin System (GBS) and the Method of Procedure (MOP) for the current Succession release be reflected on the Multiservice Switch 15000 nodes before you perform the configuration described in this document.

All configuration tasks need to be performed using a copy of a completed Network Engineering Specification Book for your site. The Network Engineering Specification Books contain all the customer and site-specific information that the installer is likely to be prompted for when using the Nodal Provisioning templates or entering information marked as customer

defined in the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

This document is intended for use with NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. This document contains sections with overview information for each aspect of the Succession Network configuration. The *Configuration Attribute Summary* contains tables of Succession-specific values for each of the sections relating to Multiservice Switch 15000 software configuration in this document.

The following topics are discussed in this section:

Who should read this document and why

This document is intended for people who want an overview of the configuration of Nortel Networks Multiservice Switch 15000 nodes within the Succession Network's PT-AAL1, UA-AAL1, and UA - IP solutions. It also provides background information for the tables of values contained in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

What you need to know

Before you read this document, it would be helpful to have a general understanding of the concept of the Succession Network, the solutions within that portfolio, and the roles that ATM nodes play in these solutions. For more information, see the following:

- NN10320-100 *ATM Solutions Basics*
- NN10028-111 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*
- NN10300-100 *IP Solutions Basics*
- 241-5701-805 *Passport 7400, 15000, 20000 Understanding IP*

Some familiarity with the operating principles of Nortel Networks Multiservice Switch systems and ATM is also beneficial. For more information, see NN10600-030 *Nortel Networks Multiservice Switch 7400/ 15000/20000 Overview* and NN10600-700 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals*.

How this document is organized

This document begins with a high-level description of the base software of the Nortel Networks Multiservice Switch 15000, including Media Gateway 15000, and configuration of the Nortel Networks Preside Multiservice Data Manager (MDM) software application. It then provides an overview of the configuration of Multiservice Switch 15000 function processors, and the link distribution between the various Succession Network components for the following solutions:

- Packet Trunking - AAL1
- Universal Access - AAL1
- Universal Access - IP

Task flows for deploying the Preside MDM servers in a Succession Network according to either the dedicated or centralized network management approach are provided next followed by an overview of the configuration of the interface between a Multiservice Switch 15000 node and an EdgeLink 1000 multiplexor.

A section with high-level overviews of the steps for adding new components to an existing Succession network is next. Finally, this document includes an appendix containing a procedure to update the time of day for seasonal time changes on Multiservice Switch 15000 nodes.

This document contains the following sections:

- "Overview of shelf-wide and CP configuration" (page 27)
- "Overview of Multiservice Switch 15000 function processor configuration" (page 39)
- "Overview of Multiservice Switch 15000 interface configuration" (page 45)
- "Overview of Preside MDM server deployment and configuration" (page 89)
- "Overview of the EdgeLink 100 multiplexor to Multiservice Switch 15000 interface configuration" (page 127)
- "Use cases for Succession Network incremental growth" (page 131)
- "Time-of-day updates for seasonal time changes" (page 181)

What's new in this document

This document includes the new features for release SN07 as follows:

- "Multiservice Switch 15000 configuration for Succession UA-IP" (page 20)
- "MG9000 Multiservice Switch 15000 Core interface on 12-port DS3 FP for Succession (UA-AAL1/UA - IP)" (page 21)
- "Preside MDM enhancements in Succession" (page 22)

Multiservice Switch 15000 configuration for Succession UA-IP

The Succession UA - IP solution delivers an end-office solution, including plain ordinary telephone service (POTS) and other access services, that use IP as the packet technology. A Nortel Networks Multiservice Switch 15000 is positioned as the IP aggregation router of choice. A standardized configuration is defined for the Multiservice Switch 15000 node in order to ensure reliability, performance, and capacity requirements for a Succession UA - IP solution.

The Multiservice Switch 15000 node aggregates IP traffic from four potential sources as follows:

1 MG9000. The node aggregates IP traffic from a number of MG9000 line gateways. It accesses the line media gateway (MG) using any of the interfaces as follows: 1+1 automatic protection switching (APS) OC-3, DS3, or DS1 inverse multiplexing for ATM (IMA) IP over ATM.

2 Media Gateway voice services processor (VSP) cards. The Multiservice Switch 15000 node aggregates IP traffic from primary rate interface (PRI) trunks off of Media Gateway cards. These trunk MG cards reside in the shelf, and connect to the virtual router (VR) via 2 or 3 links.

3 Direct subscriber line (DSL). The node aggregates traffic from MG9000 gateways and DSLAMs, then sends it back to DSL aggregators. The nodes carry this traffic as ATM traffic.

4 Communications Server LAN (CS-LAN). The Passport 15000 routes packets to and from the CS-LAN, particularly MG9000 and Media Gateway control and OAM packets. It also routes voice packets for calls that require legacy time division multiplexing (TDM) peripherals, and for DPT calls that must traverse the carrier's IP Core network.

For more information, see the chapters as follows:

- Chapter 1, "Overview of shelf-wide and CP configuration," (page 27)
- Chapter 2, "Overview of Multiservice Switch 15000 function processor configuration," (page 39)
- Chapter 3, "Overview of Multiservice Switch 15000 interface configuration," (page 45)
- Chapter 6, "Use cases for Succession Network incremental growth," (page 131)
- Appendix, "Time-of-day updates for seasonal time changes" (page 181)

MG9000 Multiservice Switch 15000 Core interface on 12-port DS3 FP for Succession (UA-AAL1/UA - IP)

Succession Networks is introducing an MG9000 Multiservice Switch 15000 Core interface on a 12-port DS3 function processor (FP), in a SuccessionUA-AAL1 or UA - IP solution. This is a less costly interface to an ATM backbone than, for example, OC-3, while still meeting bandwidth requirements.

Additional cost savings are available where a fibre data path is not available for linking of the Multiservice Switch 15000 nodes and the MG9000. Previously, the 12-port DS3 FP only supported the PNNI interface. Now, the 12-port DS3 FP also supports the MG9000 UNI interface. Nodal Provisioning (NP) templates with appropriate configuration values are available.

Preside MDM enhancements in Succession

Nortel Networks Preside Multiservice Data Manager (MDM) server configuration and engineering for the Succession Universal Access - IP solution is performed the same way as for the Succession UA-AAL1 and PT-AAL1 solutions.

As well, the Management Data Provider (MDP) Administration feature now simplifies the configuration of MDP by taking advantage of the existing MDM services SVM, HGDS, and MNSD, and by simplifying the configuration of the MDP servers. You now use the Server Administration tool to manage the MDP servers.

> ***Note:*** You must still use the Management Data Provider Configuration tool (gmdpconfig) to configure the MDP specifications for data collection, and so on.

With the use of the Server Administration tool to manage MDP servers, the MDP servers must start in a particular order. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

In Preside MDM release 15.1, the following servers are now obsolete:

- MDP administration tool (mdpadm)
- MDP configuration daemon (mdpconfigd)

The descriptive name of the Passport Shelf View Agent has changed to the Fault Dev Access Agent.

The chapter “Overview of Preside MDM server deployment and configuration” (page 89) has been updated.

Branding changes

The terms Passport 15000 and PVG have been rebranded in conjunction with the new Nortel Networks brand simplified naming format:

- The Passport 15000 is now referred to as the Nortel Networks Multiservice Switch 15000.
- The packet voice gateway (PVG) is now referred to as the Media Gateway 15000.

The Multiservice Switch 15000 and Media Gateway 15000 network elements continue to share common hardware and software aspects. Hybrid systems can combine these network element capabilities despite the fact that no specific brand exists for such hybrids.

For more information on product rebranding, refer to NN10600-000 *Nortel Networks Multiservice Switch 7400/15000/20000 What's New in PCR6.1*.

Text conventions

This document uses the following text conventions:

- `nonproportional spaced plain type`

  Nonproportional spaced plain type represents system generated text or text that appears on your screen.

- **`nonproportional spaced bold type`**

  Nonproportional spaced bold type represents words that you should type or that you should select on the screen.

- *italics*

  Statements that appear in italics in a procedure explain the results of a particular step and appear immediately following the step.

  Words that appear in italics in text are for naming.

- [`optional_parameter`]

  Words in square brackets represent optional parameters. The command can be entered with or without the words in the square brackets.

- <general_term>

  Words in angle brackets represent variables which are to be replaced with specific values.

- UPPERCASE, lowercase

  In Preside Multiservice Data Manager, uppercase and lowercase letters that appear in UNIX commands and parameters must be matched exactly. The system matches upper and lowercase characters differently.

- UPPERCASE, lowercase

  Nortel Networks Multiservice Switch system commands are not case-sensitive and do not have to match commands and parameters exactly as shown in this document, with the exception of string options values (for example, file and directory names) and string attribute values.

- |

  This symbol separates items from which you may select one; for example, ON|OFF indicates that you may specify ON or OFF. If you do not make a choice, a default ON is assumed.

- ...

  Three dots in a command indicate that the parameter can be repeated.

The term absolute pathname refers to the full specification of a path starting from the root directory. Absolute pathnames always begin with the slash (/) symbol. A relative pathname takes the current directory as its starting point, and starts with any alphanumeric character (other than /).

Related documents

See the following documents for related information:

- NN10028-111 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*

- NN10419-461 *Upgrading Nortel Networks Multiservice Switch 15000 and Media Gateway 15000/20000 in Succession IP Solutions*
- NN10070-461 *Upgrading Nortel Networks Multiservice Switch 15000 in Succession Networks PT-AAL1/UA-AAL1*
- NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*
- NN10185-461 *Upgrading Preside MDM in Succession Networks*
- NN10300-100 *IP Solutions Basics*
- 241-6001-015 *Preside MDM Network Model Administrator Guide*
- 241-6001-100 *Preside MDM Installation*
- 241-6001-101 *Preside MDM Engineering Guide*
- 241-6001-303 *Preside MDM Administrator Guide*
- 241-6001-309 *Preside MDM Management Data Provider User Guide*
- 241-6001-310 *Preside MDM Server Reference Guide*
- 241-6001-801 *Preside MDM Overview*
- 241-6001-600 *Preside MDM Service Provisioning for ATM User Guide*
- 241-6001-611 *Preside MDM Nodal and Service Provisioning Reference Guide*
- NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview*
- NN10600-710 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management*
- Nortel Networks SuperNode Data Manager (SDM) documentation suite for this Succession release
- Nortel Networks Integrated Element Management System (IEMS) documentation suite for this Succession release
- 241-5701-805 *Passport 7400, 15000, 20000 Understanding IP*
- 241-5701-810 *Passport 7400, 15000, 20000 Configuring IP*

- NN10600-780 *Nortel Networks Media Gateway 7480/15000 Technology Fundamentals*
- NN10600-782 *Nortel Networks Media Gateway 7480/15000 Switched Service Configuration Management*

How to get more help

For information on training, problem reporting, and technical support, see the "Nortel Networks support services" section in NN10600-030 *Nortel Networks Multiservice Switch 7400/15000/20000 Overview*.

Chapter 1
Overview of shelf-wide and CP configuration

This section is an overview of the shelf-wide and control processor (CP) configuration required by the Nortel Networks Multiservice Switch 15000 software installed in your Succession Network. This section is intended for use with the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. The Configuration Attribute Summary contains tables of all the Succession-specific values to use when configuring Multiservice Switch 15000 nodes.

The descriptions of Multiservice Switch 15000 software in this section contain cross-references to the corresponding sections in the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

Overview of Multiservice Switch 15000 software

Nortel Networks Multiservice Switch 15000 software includes system functions for command processing, shelf management, file storage, data collection, and network management interfaces.

In a Succession PT-AAL1 or UA-AAL1 solution, configure the shelf software applications of Multiservice Switch 15000 nodes using the PT-AAL1, or *WUA-AAL1 CPeD_Commissioning* template.

In a Succession UA - IP solution, configure the shelf software applications as follows:

- for Multiservice Switch 15000 nodes use the UA - IP *SH-CPED* template to configure ATM routing
- for Media Gateway 15000-only node, use the UA - IP *SH-CPED-PVGnoARTG* template when ATM routing is not required

A shelf commissioning template defines shelf-wide parameters for the following:

- CP-based configuration
- network synchronization with building-integrated timing supply (BITS)
- time of day synchronization
- the data collection system (DCS)
- the network management interface system (NMIS)
- asynchronous transfer mode (ATM) routing
- management virtual router (VR)
- voice services

This chapter provides more information about the functions of the base software applications and their configurations for the Multiservice Switch 15000.

Before you apply a shelf commissioning template, you must manually configure some applications. For information, see the following sections:

- “LP feature configuration” (page 32)
- “OAM connectivity” (page 34)

Next, apply one of the shelf commissioning templates as follows:

- *PT-AAL1 CPeD_Commissioning*
- *WUA-AAL1 CPeD_Commissioning*
- *UA-IP SH-CPED*
- *UA-IP SH-CPED-PVGnoARTG*

The shelf commissioning template configures the components described in the following sections:

- "Access control" (page 29)
- "ATM routing" (page 30) (not the *SH-CPED-PVGnoARTG* template)
- "IP networking (UA-IP)" (page 31)
- "Data collection system" (page 32)
- "Shelf/Module data" (page 33)
- "Network clock synchronization" (page 34)
- "time of day" (page 38)

You may need to perform additional configuration after applying a shelf commissioning template. For more information see your Network Engineering Specification Book. As well, the components for which you must perform additional configuration are described in the following sections:

- "Access control" (page 29)
- "ATM routing" (page 30)
- "IP networking (UA-IP)" (page 31)
- "OAM connectivity" (page 34)

Access control

Network access control restricts user access to your network and keeps your data secure. Access control on Nortel Networks Multiservice Switch 15000 nodes limits access to those users with the following:

- valid user IDs
- valid passwords
- authorized remote IP access

Access control is set through the configuration of the *AccessControl* component and subcomponents. For the Succession-specific values to configure for the *AccessControl* components and subcomponents see:

NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

For information on how to administer access control, see NN10180-611 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Security and Administration PT-AAL1/ UA-AAL1/UA-IP*.

ATM routing

The ATM routing system is a connection-oriented system that provides dynamic runtime connection setup between Nortel Networks Multiservice Switch 15000 nodes. The system allows them to interwork with other non-Multiservice Switch ATM equipment. In a Succession Network, Multiservice Switch ATM routing provides the addressing, signaling, and routing facilities to support permanent and switched virtual connections (PVCs and SVCs). These networking facilities allow you to set up ATM connections in real-time.

Hitless ATM routing for CP equipment protection is also supported within the Succession Network, in the PT-AAL1 and UA-AAL1 solutions only. This capability reduces interruptions to node call processing during

- a Hitless Software Migration (HSM)
- a CP equipment failure (including failure of the OAM Ethernet port or link)
- any maintenance actions resulting from a CP switchover

Hitless ATM routing for CP equipment protection, when provisioned, continuously synchronizes the standby CP routing database to the active CP routing database. The FPs also communicate with the active and standby CPs to ensure that both CPs get all the required port, address, and RCC information.

Configure the *AtmRouting (ARtg)* component to set ATM routing in a Succession PT-AAL1, UA-AAL1, or UA - IP solution. For the Succession-specific values to configure this component, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/ UA-IP*.

For more information on Multiservice Switch ATM routing system see, NN10600-700 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Technology Fundamentals* and NN10600-702 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Routing and Signalling Fundamentals*.

IP networking (UA-IP)

Nortel Networks Multiservice Switch 15000 Virtual Router (VR) system supports industry-standard IP networking for connectionless networking. Succession supports static routing as well as the dynamic routing protocol open shortest path first (OSPF). With OSPF, Multiservice Switch 15000 nodes learn dynamically, from neighboring routers, which routing paths through the network are available. This allows the node to adapt dynamically to faults elsewhere in the network and to calculate the most efficient path for all IP packets.

Succession supports Hitless OSPF for CP equipment protection. Hitless OSPF allows FP cards to continue forwarding, uninterrupted, over OSPF calculated routes during any of the following:

- Hitless Software Migration (HSM)
- CP equipment failure (including failure of the OAM Ethernet port or link)
- any maintenance actions resulting in a CP switchover

Hitless OSPF for CP equipment protection, when provisioned, continuously synchronizes the OSPF routing database of the standby CP with the routing database of the active CP.

Multiservice Switch 15000 nodes support Protected Default Routes. You can specify two next hops, reachable through two different 4pGE FP cards, as the default route when you use Protect Default Routes. This allows the node to change packet forwarding from one next hop to the other in under a second if a 4pGE card, a link, or an adjacent router fails.

In a Succession UA-IP solution, provision IP networking under a Multiservice Switch 15000 Virtual Router component. For the specific values to provision for the Virtual Router component in UA - IP see:

- NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*
- NN10600-800 *Nortel Networks Multiservice Switch 7400/15000/20000 IP Technology Fundamentals*
- NN10600-801 *Nortel Networks Multiservice Switch 7400/15000/20000 IP Configuration Management*

Data collection system

The data collected from each node by the data collection system (DCS) is information that is generated for troubleshooting, performance tuning, and billing. After the DCS collects alarms, logs, state change notifications (SCNs), and real-time statistics from nodes, it can either send the data to an external network management system for analysis or spool the data to the file system (for example, accounting data). In some cases, such as alarms data, the DCS will both spool and send data off-switch.

The DCS on Nortel Networks Multiservice Switch 15000 nodes is controlled through the *Collector* component. For the Succession-specific values that need to be configured for the *Collector* component, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

For more information on the data collection system, see NN10600-561 *Nortel Networks Multiservice Switch 7400/15000/20000 Data Management*.

LP feature configuration

The Software avList is intended to contain only those software applications that are supported in Succession Networks. The software applications in the avList for the PT-AAL1/UA-AAL1 solutions include:

- base_XXXX
- networking_XXXX

- atmNetworking_XXXX
- ip_XXXX
- wanDte_XXXX (for in-band OAM only)

The *wanDte* option depends on whether in-band OAM using AtmMpe is configured or not. If in-band OAM is configured, then *wanDte* needs to be configured as well.

> ***Note:*** Do not include a fabric application version (AV) in the Software avList. The fabric AV is not required in the avList.

The software applications in the avList for the UA - IP solution include:

- base_CF01XXX
- networking_CF01XXX
- atmNetworking_CF01XXX
- ip_CF01XXX
- wanDte_CF01XXX
- ethernet_CF01XXX
- pvg_CF01XXX
- aal1Ces_CF01XXX (Required only if VSP3 and 4pOC3TDM cards are to be configured)

Shelf/Module data

Usually, a Nortel Networks Multiservice Switch 15000 shelf name in a Succession network should contain the Common Location Language Identifier (CLLI). CLLI is an industry-standard alphanumeric string to identify equipment location. The CLLI is, at most, 11 characters long. When the CLLI does not uniquely identify a single shelf instance, a twelfth character should be added to the CLLI from the valid character set to make the string unique.

Network clock synchronization

Network clock synchronization (NCS) ensures the accurate transmission and reproduction of synchronous data. NCS is used to synchronize the clocking of multiple ports and nodes in a Succession Network by synchronizing to the signal originating from a single internal source or to a source external to the Succession Network.

For structured services, the transmit and receive interfaces must be timed from a single, common clock. With structured services, NCS forces the terminating equipment to transmit and receive at the same frequency.

Network clock synchronization is set through the configuration of the *NetworkSynchronization* component. For the Succession-specific values that need to be configured for the *NetworkSynchronization* components, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

> ***Note:*** NCS is responsible for clocking on synchronous data links but not with synchronizing the time of day. Network Time Synchronization (NTS) synchronizes the time of day on Nortel Networks Preside Multiservice Data Manager workstations and Nortel Networks Multiservice Switch 15000 nodes. For more information on NTS, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

OAM connectivity

This section discusses the OAM management topologies, for Nortel Networks Preside Multiservice Data Manager (MDM) and Nortel Networks Multiservice Switch 15000 MSS/MG15000, in a Succession PT-AAL1, UA-AAL1 or UA-IP solution. There are two types of OAM management topologies: out-of-band OAM and in-band OAM.

A Succession out-of-band topology is generally regarded as the typical management topology. Out-of-band management uses dedicated interfaces for management connectivity access via CP Ethernet links.

Out-of-band OAM connectivity

Connectivity can be established through a Communications Server LAN (CS LAN).

The CS LAN links are through the Ethernet ports on each Control Processor card in the Multiservice Switch 15000 shelf. The standard initial commissioning procedures configure out-of-band OAM connectivity, using Startup. Once connectivity is established to a Preside MDM workstation, apply the nodal provisioning (NP) template *PT-AAL1 CPeD_Commissioning, WUA-AAL1 CPeD_Commissioning, UA-IP SH-CPED,* or *UA-IP SH-CPED-PVGnoARTG.* These templates modify the Ethernet port configuration according to the recommended parameters.

In-band OAM connectivity

In a Succession in-band management topology, Nortel Networks Multiservice Switch 15000 nodes can act as a gateway for remote nodes for the purpose of sending or receiving OAM data.

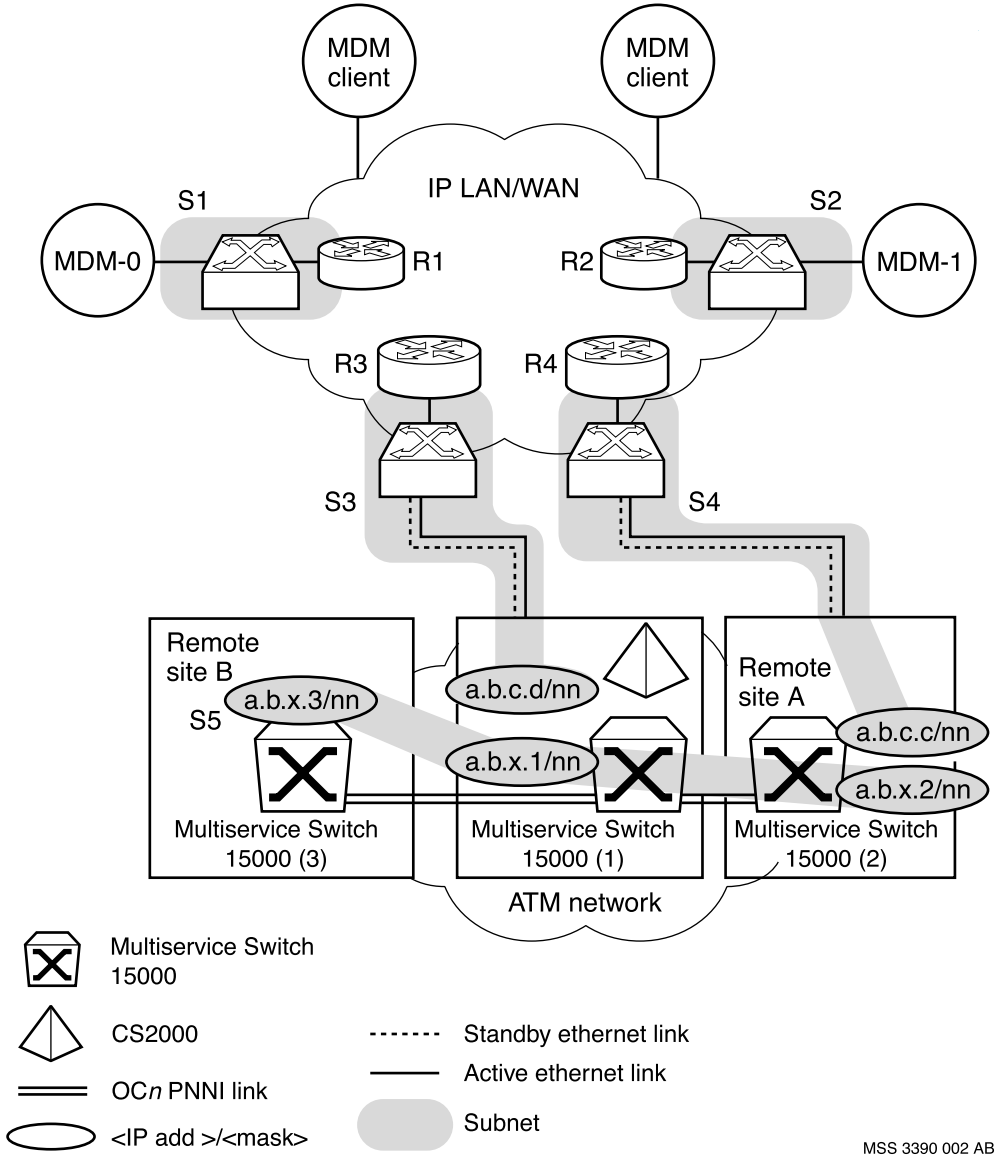
For information on the supported in-band OAM topology and for definitions of terms, such as gateway node, used to describe in-band OAM configurations, see NN10028-111 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*.

"A sample in-band OAM configuration" (page 36) illustrates a typical in-band OAM configuration. Multiservice Switch 15000 nodes are numbered 1, 2, and 3. Multiservice Switch 15000 node1 and 2 identify Gateway nodes. Multiservice Switch 15000 3 identifies a Remote node.

S1, S2, S3, S4 and S5 identify IP subnets. For each node there are two diverse static routes configured. For example, in the diagram, Multiservice Switch 15000 1, which is a Gateway node has the following diverse routes to MDM-0 and MDM-1: a.b.c.d/nn and a.b.c.c/nn. In the diagram, Multiservice Switch 15000 3, which is a Remote node, has the diverse routes to MDM-0 and MDM-1 through a.b.x.1./nn and a.b.x.2/nn.

In the diagram, node/routers are identified as R1 and R2.

Figure 1
A sample in-band OAM configuration



The remote Multiservice Switch 15000 nodes are managed by way of in-band connectivity to each other and to the gateways.

> ***Note:*** Where multiple gateways exist for redundancy, one gateway can appear as a remote to another.

In-band connectivity uses ATMMPE (ATM Multi-Protocol Encapsulation) to encapsulate the OAM IP traffic over PNNI trunks. ATMMPE can be configured on the following cards, for all Succession solutions, except where otherwise noted:

- 16pOC3SmIrAtm (PT-AAL1 and UA-AAL1 only)
- 4pOC3SmIrAtm
- 4pOC12SmIrAtm
- 12pDS3Atm (UA-AAL1 only)

Within the ATMMPE subnet, a Gateway node must have a direct ATMMPE ATM (PVC) link to every other node, including the other Gateway node.

The customer-owned IP LAN/WAN must be configured with dynamic routing. Each Preside MDM server must have a diverse path (when compared to the other server) through the IP LAN/WAN to the nodes. The routers connected to the Gateway node (identified in the diagram as R3 and R4) must each have a static route to the underlying ATMMPE subnet.

The dynamic routing protocol must be configured within the IP LAN/WAN such that it routes around any single failure of equipment or facilities within the domain.

> ***Note:*** In-band connectivity is only supported over the ATM inter-shelf links. It is not supported over Gigabit Ethernet (GE) links.

time of day

The accurate tracking of time, both in the Succession Network and on each Nortel Networks Multiservice Switch 15000 node, is essential for the proper functioning of performance data collection, accounting records, and other functions. There are three types of time to consider when configuring the time of day on Multiservice Switch 15000 nodes:

- Reference time is the date and time that is the official reference around the world. The universally accepted reference time is Coordinated Universal Time (UTC).
- Network time is the date and time to which all nodes in the network synchronize internally.
- Module time is the time on a particular node.

The time of day on a node is set through the *Time* component. For the Succession-specific values that need to be configured for the *Time* component, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

Note: For a procedure for adjusting the time of day following the seasonal time change when switching between Standard and Daylight Saving Time, see "Time-of-day updates for seasonal time changes" (page 181).

Chapter 2
Overview of Multiservice Switch 15000 function processor configuration

This chapter discusses function processors for the Nortel Networks Multiservice Switch 15000 nodes in a Succession network for the following solutions:

- Packet Trunking - AAL1
- Universal Access - AAL1
- Universal Access - IP

Function processors (FPs) provide interface ports that connect network communication facilities to Multiservice Switch nodes. FPs support and execute real-time processes that enable service delivery.

The Succession portfolio supports the use of several types of FPs.The software running on an FP determines the function of the FP.

Nortel Networks recommends that you configure each FP with as diverse a mix of component interfaces as possible. Configure a mix of links to all the network components. In addition, distribute the links to each of the different components across as many FP card pairs as possible. A wide distribution of links prevents an FP failure from adversely affecting any component connections. For more information about how to configure links, see “Overview of Multiservice Switch 15000 interface configuration” (page 45).

For more information about link distribution and the ports to cable these links on, refer to your network plan.

This chapter includes the following topics:

Multiservice Switch 15000 function processor configuration (PT-AAL1 and UA-AAL1)

For both the Packet Trunking - AAL1 and Universal Access - AAL1 solution configurations, Nortel Networks Multiservice Switch 15000 FPs are installed in 1+1 protected pairs. This means that you can install up to seven FP pairs on each shelf. A single Multiservice Switch 15000 shelf supports up to 112 1+1 APS protected OC-3 ATM ports, or an equivalent mix.

In the Universal Access - AAL1 solution, some FPs, such as the 12-port DS3 ATM FP, may provide multi-service data applications including DSL and are supported using single, unprotected FPs.

When installing FPs for SUccession, choose from the following:

- a 4-port OC-3c card (single mode), to install any of the connections to the other Succession components.

  Note: Use this FP only if you require eight or fewer ports for access or trunking. If you need more than eight, use a 16-port OC-3 card.

- a 16-port OC-3 card, with LC connectors, to install any of the connections to the other Succession components.
- a 4-port OC-12 card, to install interfaces between Multiservice Switch 15000 nodes or links to other ATM nodes.

  Note: Only 4-port OC-12c/STM-4 FP, NTHW86 can be deployed.

- a 12-port DS3 ATM card, supports DS3 Multiservice Switch ATM-to-Multiservice Switch ATM on 1:1 protected cards, or in unspared configurations for unprotected ATM services such as DSL. It also supports a DS3 ATM interface to an MG9000.
- a 4-port DS3Ch Atm card, supports hot standby equipment protection and software migration for ATM services running over IMA in one-for-one equipment protected scenarios.

To configure the FPs listed above, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 FP-4pOC3SmIrAtm*
- *PT-AAL1/WUA-AAL1 FP-16pOC3SmIrAtm*
- *PT-AAL1/WUA-AAL1 FP-4pOC12SmIrAtm*
- *WUA-AAL1 FP-12pDS3Atm*
- *WUA-AAL1 FP-4pDS3ChAtm*

Multiservice Switch 15000 function processor configuration (UA-IP)

For the Succession Universal Access - IP solution configuration, Nortel Networks Multiservice Switch 15000 FPs are installed in 1+1 protected pairs.

A Succession UA - IP solution supports the following FPs for Nortel Networks Multiservice Switch 15000 nodes:

- a 4-port OC-12 FP card, for Multiservice Switch IP over ATM inter-shelf trunk interfaces, links to Communications Server LAN (CS LAN) or to other switches and routers.
- a 4-port OC-3 FP card, for Multiservice Switch IP over ATM inter-shelf trunk interfaces, optical hairpins, and MG9000 interfaces.
- a 12-port DS3 ATM FP card, used for Multiservice Switch 15000 nodes to MG9000 links, using DS3.

- a 4-port DS3 Channelized ATM FP card, supports hot standby equipment protection and software migration for ATM services using the Multiservice Switch inverse multiplexing over ATM (IMA) feature, in one-for-one equipment protected scenarios. This is used for MG9000 links.
- a 4-port GE card, used for Gigabit Ethernet (GE) connection to a Communications Server LAN (CS LAN), or to other routers.
- a 4-port OC- 3 Channelized Single-mode (Sm) Intermediate reach (Ir) FP card (TDM), used for media gateway 15000 (MG15000) to time-division multiplexing (TDM) equipment links.
- a 2-port GE Multimode Short reach (Sr) VSP3 FP card, used to connect a Multiservice Switch 15000 nodes to a Media Gateway controller card using H.248. H.248 is the ITU-T gateway protocol.

  Note: A carrier-grade configuration does not use the GE ports. Therefore, no template is needed for these ports.

- a 2-port OC- 3 Channelized Single-mode (Sm) Intermediate reach (Ir) VSP3-o FP card, to connect a Multiservice Switch node to a Media Gateway controller card, using H.248. H.248 is the ITU-T gateway protocol.

To configure the FP cards listed above, use the Nodal Provisioning tool and the FP templates provided for a Succession UA-IP solution. The pair of FPs must be in non-configured even/odd adjacent slots. After you apply the template, you can configure any of the interfaces on the FP card.

Succession UA - IP supports the following FP templates for Multiservice Switch 15000 nodes:

- *UA-IP FP-4pOC12SmIrAtm*
- *UA-IP FP-4pOC3SmIrAtm*
- *UA-IP FP-12pDS3Atm*
- *UA-IP FP-4pDS3ChAtm*
- *UA-IP FP-4pGE*
- *UA-IP FP-4pOC3ChSmIr-TDM*

- *UA-IP FP-2pGeMmSrVsp3*
- *UA-IP FP-2pOC3ChSmIrVsp3-o*

Task list for Multiservice Switch 15000 function processor configuration

To configure a function processor (FP) in Nortel Networks Multiservice Switch 15000 nodes, configure the following:

- the physical ports on each FP pair.
- the ports on the FP pair to set the clocking source.
- any customer-defined configuration for each port, if necessary.
- the engineering and control parameters for each FP pair.
- the ATM resource control connection and buffer space for each FP pair.
- the frame (IP) resource control for each FP pair.

For more information on configuring FPs, see NN10600-551 *Nortel Networks Multiservice Switch 7400/15000/20000 FP Configuration Reference*.

Chapter 3
Overview of Multiservice Switch 15000 interface configuration

This section provides an overview of Nortel Networks Multiservice Switch 15000 interface configuration in a Succession network for the following solutions.

- Packet Trunking - AAL1
- Universal Access - AAL1
- Universal Access - IP

These interfaces are installed on your Succession Network following initial installation of the node.

This section is meant to be used with the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. The *Attribute Summary* manual contains tables of all the Succession-specific values to use for configuring Multiservice Switch 15000 nodes.

All of the descriptions of configured interfaces in this section contain cross-references to the corresponding section in the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

This section contains the following topics:

- "Overview of interface configuration between network components (UA-IP)" (page 51)
- "Link distribution (PT-AAL1 and UA-AAL1)" (page 57)
- "Link distribution (UA-IP)" (page 72)
- "TDM trunk distribution (UA-IP)" (page 84)

Overview of interface configuration between network components (PT-AAL1/UA-AAL1)

This section gives an overview of interface configuration between Nortel Networks Multiservice Switch 15000 nodes and other network components in a Succession PT-AAL1 or UA-AAL1 solution.

Succession VoA applications

Nortel Networks Multiservice Switch 15000 nodes provide the core packet connectivity layer for Succession Network Voice over ATM (VoA) applications. VoA includes the Succession PT-AAL1 and UA-AAL1 solutions. In addition to the Succession VoA application, the Core Packet Network provides connectivity for a variety of Next Generation Network services including voice, multi-media and data.

The principal Succession UA-AAL1 first office application is the Class 5 end office replacement program. This program is the first step towards evolving to a multiservice end-office built upon a distributed ATM network.

Available component interfaces

Nortel Networks recommends that you configure each function processor (FP) with as diverse a mix of component interfaces as possible.

- For both PT-AAL1 and UA-AAL1 solutions, configure a mix of interfaces to the Communication Server 2000 (CS2000), Interworking Spectrum Peripheral Module (IW-SPM), and Multiservice Gateway 4000 (MG4000), as well as to other ATM network components, for example Multiservice Switch 15000 nodes.
- For a PT-AAL1 solution, also configure interfaces to the DPT-SPM component, if required.

- For a UA-AAL1 solution, also configure interfaces to the digital subscriber line (DSL), Media Gateway 9000 (MG9000), SAM21 SC, Universal Audio Server (UAS) components, and TDM core.

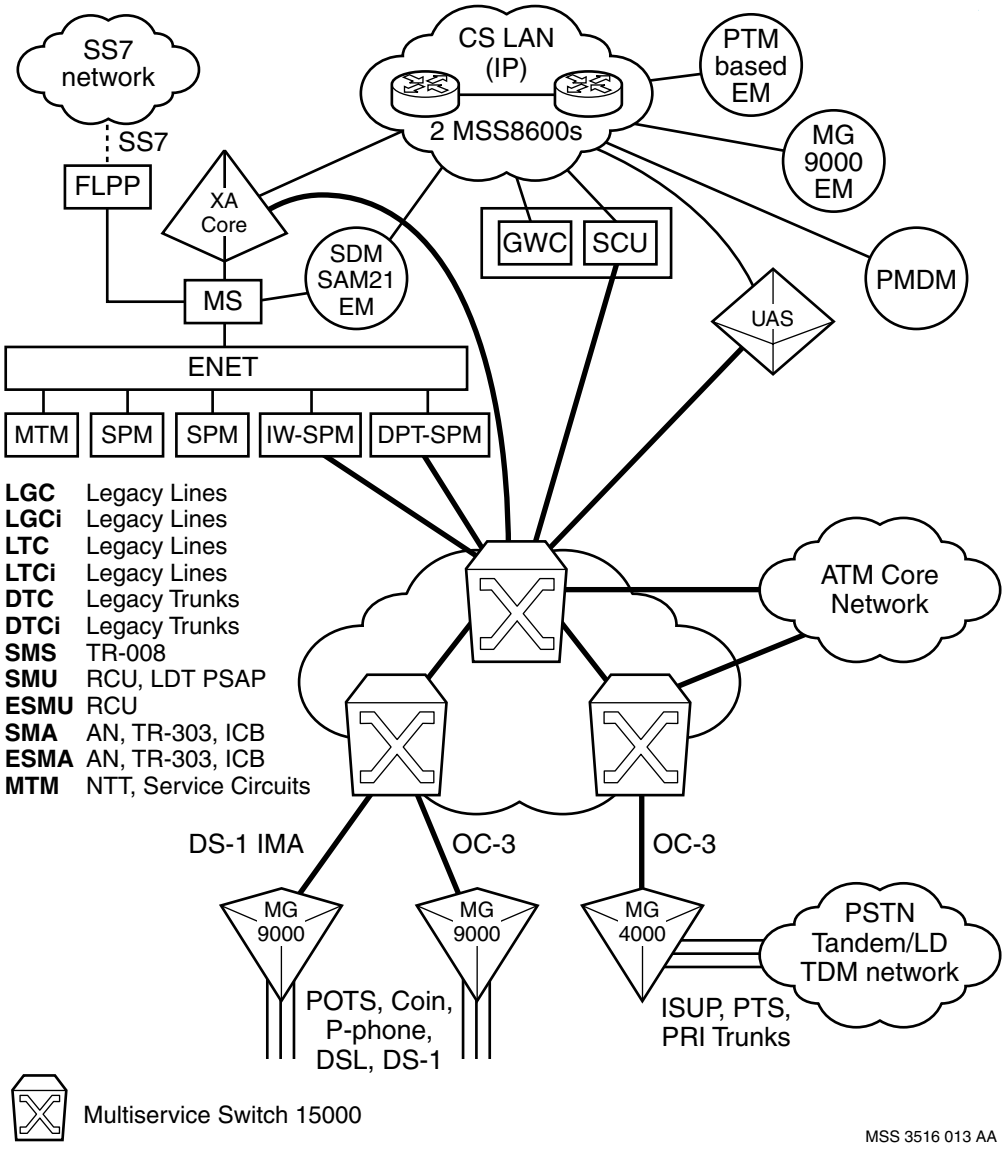
In addition, distribute the interfaces to each of the different components across as many FP card pairs as possible. A wide distribution of these interfaces can reduce the impact of a catastrophic dual FP failure, and prevent it from adversely affecting any component connections. For more information on distributing interfaces and the ports on which to cable these interfaces, refer to your network plan.

Example of Succession architecture (UA-AAL1)

The UA-AAL1 solution is a voice over ATM network solution that is equivalent to the DMS-100/500 switch. The solution provides End Office voice services using AAL1 for voice transmission. It is a hybrid solution that supports interworking with legacy ENET-based line and trunk services and peripherals. In addition to voice services, the UA-AAL1 solution provides DSL and DS-1 based private line services through the line gateway, using the ATM network for transport.

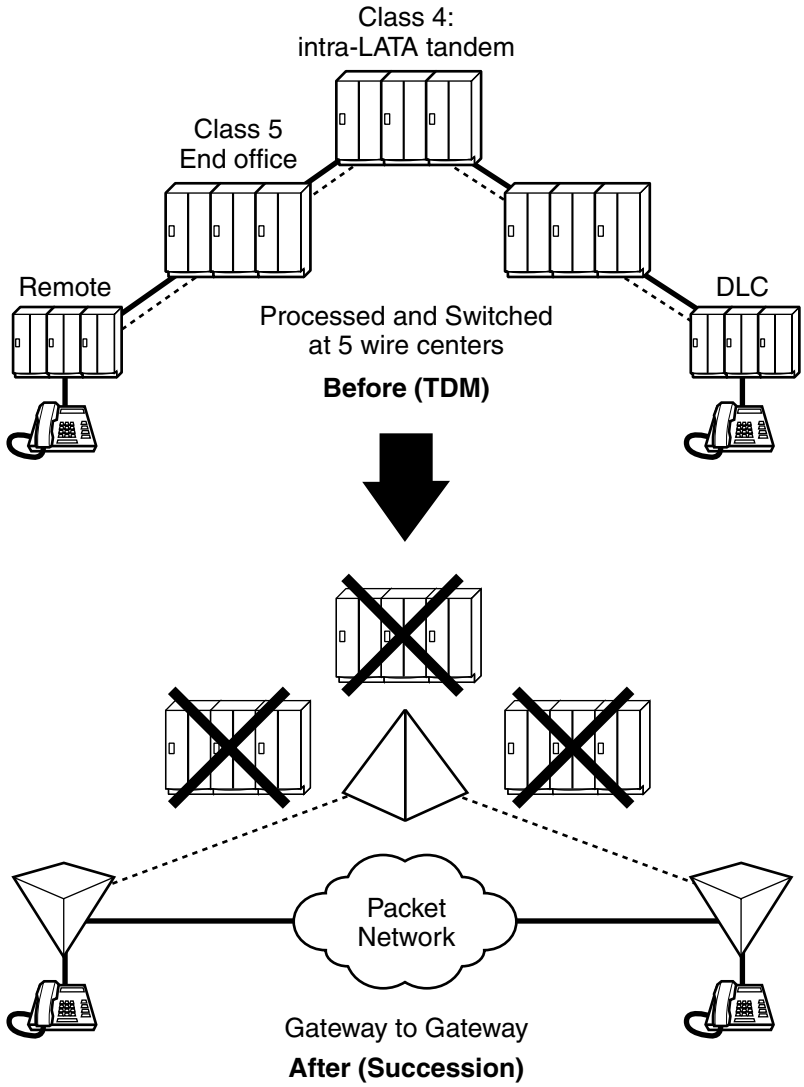
See Figure 2, “Succession Network class 5 end office (UA-AAL1 solution),” (page 48) for an example of the architecture for a Succession UA-AAL1 solution.

Figure 2
Succession Network class 5 end office (UA-AAL1 solution)



For an illustration of the evolution of a time division multiplexing (TDM) based network of class 5 and class 4 switches into a consolidated, distributed Succession UA-AAL1 office, see Figure 3, “Succession office architecture (UA-AAL1 solution),” (page 50).

Figure 3
Succession office architecture (UA-AAL1 solution)



Overview of interface configuration between network components (UA-IP)

This section gives an overview of interface configuration between Nortel Networks Multiservice Switch 15000 nodes and other network components in a Succession UA-IP solution.

Succession VoIP applications

The Succession UA-IP solution is a voice over IP (VoIP) network solution that is equivalent to the DMS-100/500 switch. It provides End-Office voice services using IP for voice transmission and signaling. It is both a greenfield and a hybrid solution. In the hybrid case, this solution supports interworking with legacy ENET-based line and trunk services and peripherals. In addition to voice services, the UA-IP solution provides DSL through the MG9000 line gateway.

Available component interfaces

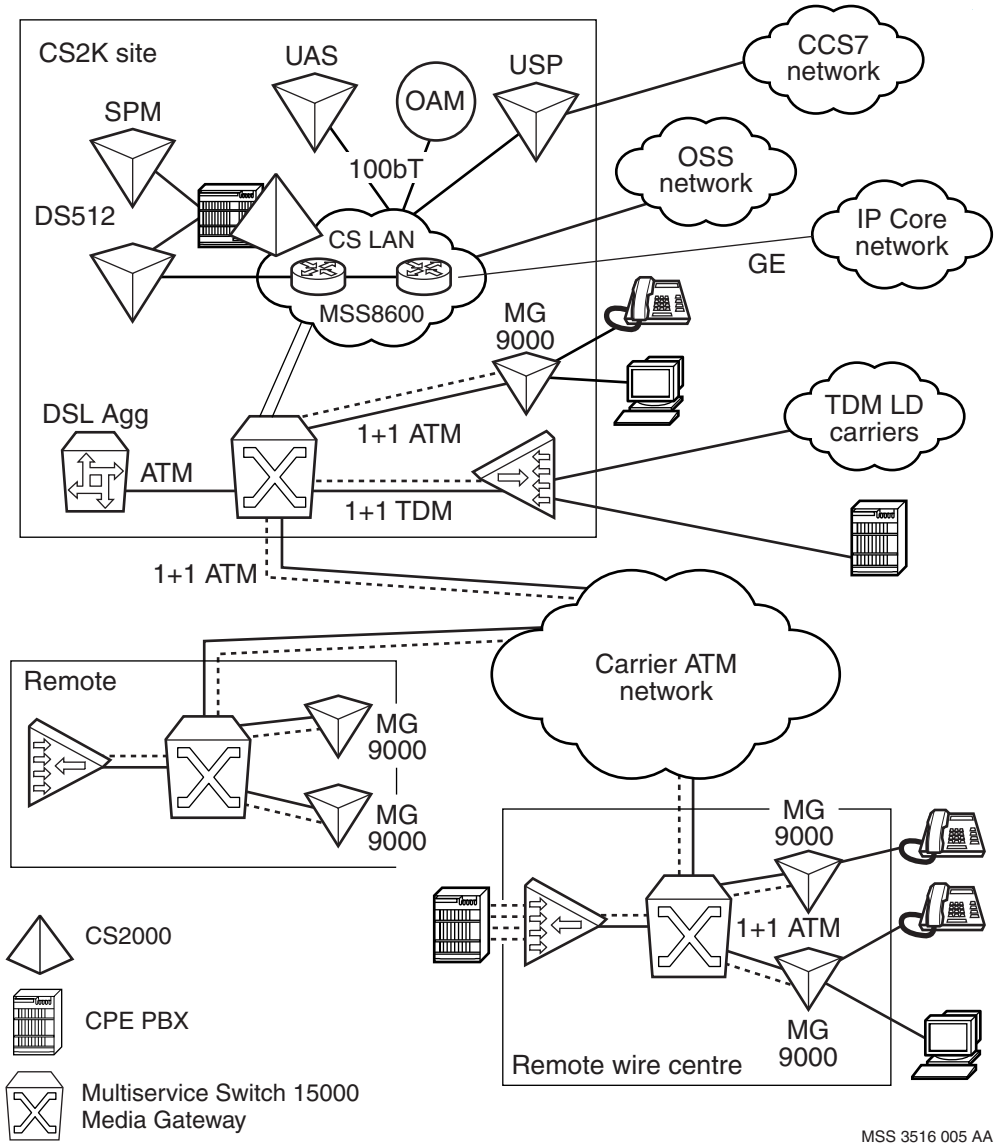
For a UA - IP solution, configure interfaces to other Multiservice Switch nodes, to CS-LAN, and MG9000 components, as well as for optical hairpins.

In addition, distribute the interfaces to each of the different components across as many FP card pairs as possible. A wide distribution of these interfaces can reduce the impact of a catastrophic dual FP failure, and prevent it from adversely affecting any component connections. For more information on distributing interfaces and the ports on which to cable these interfaces, refer to your network plan.

Example of Succession architecture (UA - IP)

See Figure 4, “Succession UA - IP architecture overview,” (page 53) for an architecture overview of a UA - IP solution. In this model, a number of end-offices are replaced by remote Nortel Networks Multiservice Switch 15000 nodes. These remote nodes aggregate IP traffic from a number of MG9000 line gateways and from primary rate interface (PRI) trunks from Media Gateway cards. Calls and signaling can go to other such offices that are also connected to either the IP Core network or the Carrier ATM Network

Figure 4
Succession UA - IP architecture overview



For an example of a configuration you can create using Multiservice Switch 15000 templates for Universal Access - IP, see Figure 6, "Example of remote wire centre and CS2000 site shelf configuration (UA-IP)," (page 56). This scenario is typical of a North American End-Office (EO) replacement configuration. Other configuration scenarios include:

- long-distance (LD) Tandem (in other words, a Class 4 office) replacement
- access Tandem replacement
- Carrier-Hosted Services (CHS) with Multimedia Communications Server (MCS)

Figure 5
Remote wire centre (UA-IP)

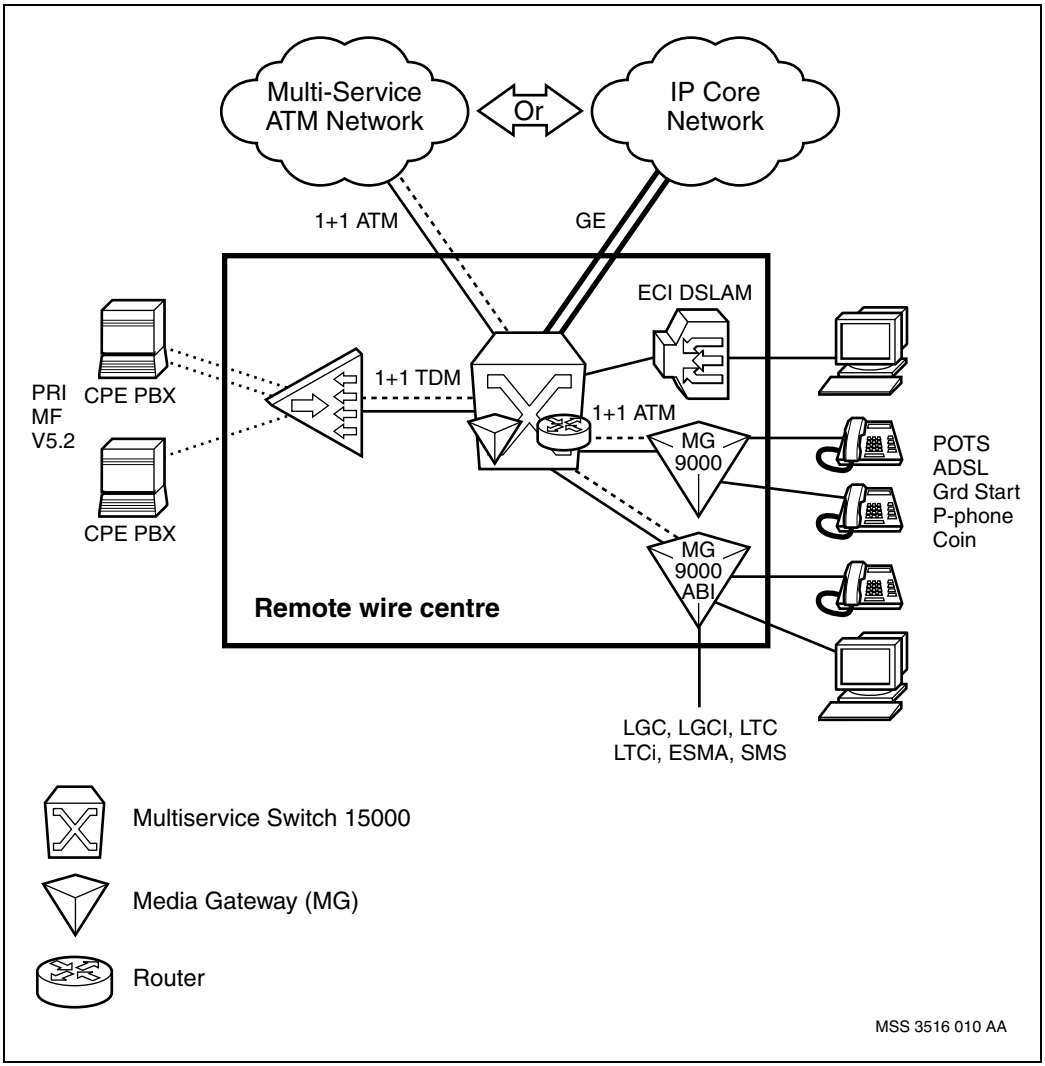
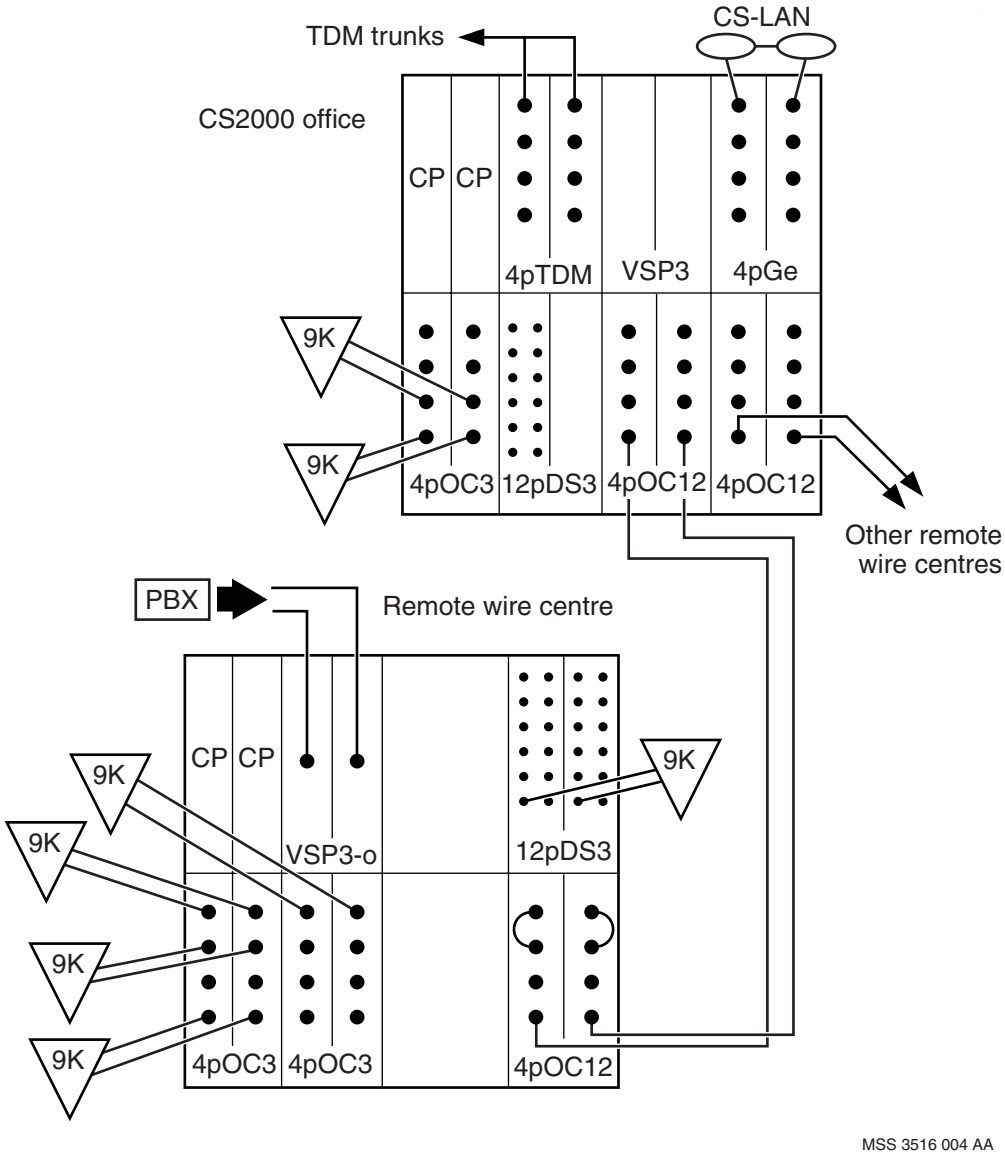


Figure 6
Example of remote wire centre and CS2000 site shelf configuration (UA-IP)



Link distribution (PT-AAL1 and UA-AAL1)

This section describes link distribution between Nortel Networks Multiservice Switch 15000 nodes and other network components, in a Succession PT-AAL1 or UA-AAL1 solution. It includes the topics as follows:

Note 1: On Multiservice Switch 15000 shelves, the ports on the cards are numbered from the bottom to the top.

Note 2: On Multiservice Switch 15000 shelves, the two control processors (CPs) are located in slots 0 and 1 and are correspondingly numbered 0 and 1.

CS2000 link (PT-AAL1/UA-AAL1)

The Communication Server 2000 (CS2000) is comprised of a number of platforms, including the XA-Core and one or more SAM21. It processes all call requests within the network and provides centralized call control between the media gateways (MG4000 and, in the case of the UA-AAL1 solution, MG9000), as well as between the TDM-based nodes and the ATM network.

CS2000 is connected to Nortel Networks Multiservice Switch 15000 nodes by a minimum of four unprotected OC-3 links. Since the CS2000 has a load sharing protection mechanism, the OC-3 links are not 1+1 protected by Automatic Protection Switching (APS).

XA-Core link distribution (PT-AAL1/UA-AAL1)

A sub-platform of the CS2000, the XA-Core processes all call requests within the network. It provides centralized call control between the media gateways (MG4000 and, in the case of the UA-AAL1 solution, MG9000), as well as between the TDM-based nodes and the ATM network.

XA-Core connects to a Nortel Networks Multiservice Switch 15000 shelf through two unprotected OC-3c links. The XA-Core provides the required link protection at the application layer.

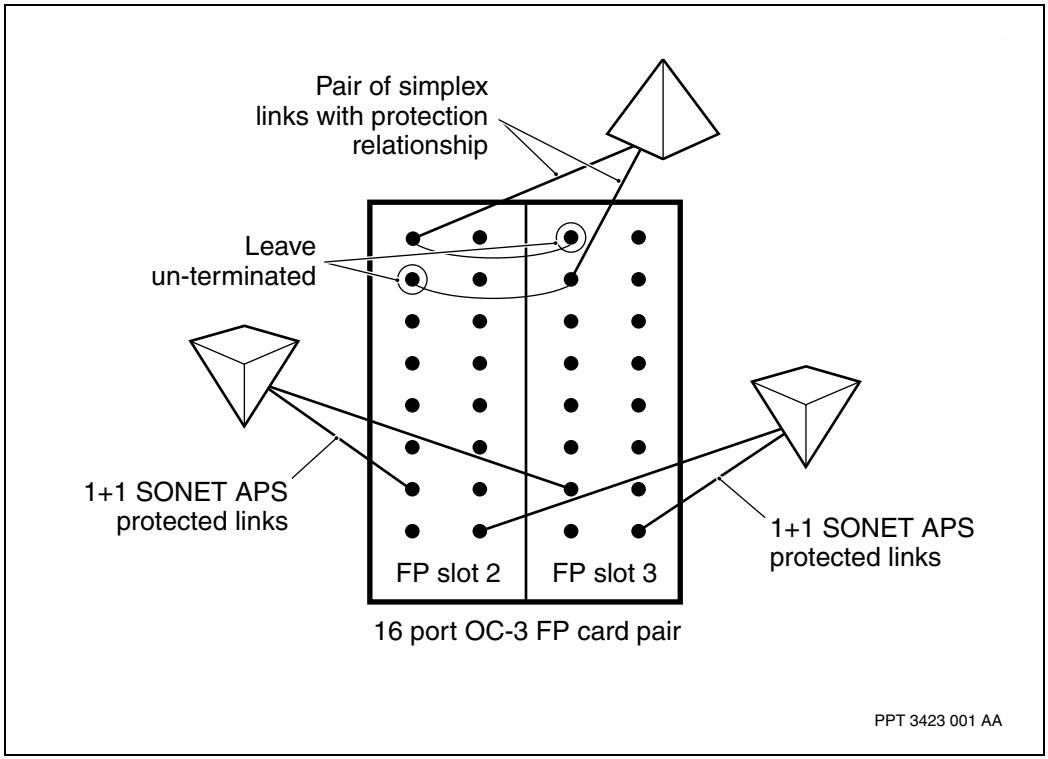
Nortel Networks recommends that the two links between the XA-Core and the Multiservice Switch network be connected to different Multiservice Switch 15000 nodes in order to create redundancy.

When both XA-Core links are connected to the same node, the XA-Core links can be configured to support hitless software migration (HSM) using the *WUA-AAL1 BridgedCS2k-ATM Interfaces-16pOC3* template.

OC-3 ATM link pairs must be connected to the Multiservice Switch 15000 node in a specific configuration to maintain service during a software upgrade (HSM). “OC-3 ATM link pairs” (page 59) illustrates the required configuration, and the following list identifies the specifics:

- OC-3 ATM links must be connected to 16pOC3SmIrATM FP cards. (Connection to 4pOC3SmIrATM FP card is not supported.)
- The two OC-3 from XA-Core links must not be connected to the same FP card. They must be connected to two adjacent cards that have a sparing relationship, for example, to the 16pOC3SmIrATM FP cards in slots 2 and 3; port 0 on card 2, port 1 on card 3.
- The corresponding SONET port on the mated FP card must be left unterminated. During HSM, mated FP cards upgrade one at a time, and the cell forwarding hardware behind the unterminated port is used to bring the link connected to the corresponding port on the mate card back into service during the migration.

Figure 7
OC-3 ATM link pairs



To configure the XA-Core interface, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 CS2000 Interface 4pOC3*
- *PT-AAL1/WUA-AAL1 CS2000 Interface 16pOC3*
- *WUA-AAL1 Bridged CS2K-ATM Interfaces-16pOC3*

To configure the XA-Core interface, configure the following:

- an appropriate FP pair, if not already done
- the engineering and control parameters for each FP pair, if necessary
- the interface for XA-Core or SAM21 SC

- any customer-defined customizing for ports on the FP pair, if necessary

For the Succession-specific values that need to be configured for XA-Core interface, see the table of values for XA-Core interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

SAM21 SC link distribution (UA-AAL1)

A sub-platform of the CS2000 in the Universal Access - AAL1 solution, the SAM21 is a 21 slot shelf that houses the Gateway Controllers (GWC) used for MG9000s. Each SAM21 shelf has two redundant Shelf Controllers (SC) each with a connection to the ATM network.

SAM21 SC links can be configured to support hitless software migration (HSM) using the *WUA-AAL1 BridgedSam21-ATM Interfaces-16pOC3* template.

OC-3 ATM link pairs must be connected in the Nortel Networks Multiservice Switch 15000 node to maintain service during a software upgrade (HSM) of the node. The specific configuration is described in the list below. For a graphical representation, see “OC-3 ATM link pairs” (page 59).

- The OC-3 ATM links must be connected to 16pOC3SmIrATM FP cards. (Connection to 4pOC3SmIrATM FP card is not supported.)
- The two OC-3 from a SAM21 shelf links must not be connected to the same FP card. They must be connected to two adjacent cards that have a sparing relationship, for example, to the 16pOC3SmIrATM FP cards in slots 2 and 3; port 0 on card 2, port 1 on card 3.
- The corresponding SONET port on the mate FP card must left un-terminated. During HSM, mated FP cards upgrade one at a time, and the cell forwarding hardware behind this unterminated port is used to bring the link connected to the corresponding port on the mate card back in service during the migration.

To configure the SAM21 SC interface, use the Nodal Provisioning tool and the following templates:

- *WUA-AAL1 SAM 21 SC Interface-4pOC3*
- *WUA-AAL1 SAM 21 SC Interface-16pOC3*
- *WUA-AAL1 Bridged SAM21-ATM Interfaces-16pOC3*

To configure the SAM21 SC interface, configure the following:

- an appropriate FP pair
- the ATM interfaces
- the connection admission controls for each ATM interface
- the connection map for each ATM interface for a 16 port OC-3 FP
- the user network interface (UNI)
- traffic management parameters for each UNI

For the Succession-specific values that need to be configured for the SAM21SC interface, see the table of values for the SAM21 SC interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

IW-SPM link distribution (PT-AAL1 and UA-AAL1)

The interworking SPM (IW-SPM) is a multi-applications high-speed platform used to provide bearer traffic interconnection between the time division multiplexing (TDM) core and the ATM fabric.

The IW-SPM acts as a bridge between the TDM core ENET using DS-512 connections and the ATM network using OC-3 links.

Each IW-SPM connects to the Nortel Networks Multiservice Switch 15000 shelf over a protected OC-3 link. Each IW-SPM also communicates with the CS2000 over DS-512 links that run through the ENET.

To configure the IW-SPM interface, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 IW-SPM Interfaces 4pOC3*
- *PT-AAL1/WUA-AAL1 IW-SPM Interfaces-16pOC3*

Note: You can configure these links with the values in the templates listed above or you can refer to the appropriate section of the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP* for the values. Regardless of which method you use, have a Network Engineering Specification Book at hand as a reference when determining which values to enter into the templates.

To configure the IW-SPM interface, configure the following:

- an appropriate FP pair, if necessary
- the engineering and control parameters for each FP pair, if necessary
- the IW-SPM interface (which includes configuring any necessary customer-defined customizing for each port on the FP pair, line protection for the port, ATM interfaces, and user network interface)

For the Succession-specific values to configure for the IW-SPM interface, see the table of values for IW-SPM in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

DPT-SPM link distribution (PT-AAL1 and UA-AAL1)

The dynamic packet trunking SPM (DPT-SPM) is a class designation of the IW-SPM and is similar in all respects, including configuration.

To configure the DPT-SPM interface, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 DPT-SPM Interfaces-4pOC3*
- *PT-AAL1/WUA-AAL1 DPT-SPM Interfaces-16pOC3*

Note: You can configure these links with the values in the templates listed above or you can refer to the appropriate section of the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP* for the values. Regardless of which method you use, have a Network Engineering Specification Book at hand as a reference when determining the values to enter into the templates.

For the Succession-specific values that need to be configured for the DPT-SPM interface, see the table of values for DPT-SPM interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG4000 link distribution (PT-AAL1 and UA-AAL1)

The Multi-service Gateway 4000 (MG4000) is the trunk gateway between the TDM-based network and the ATM network.

The MG4000 collects TDM traffic and carries it into the ATM network through TDM-based OC-3 connections to the OC-3c interfaces in the ATM network. Two permanent virtual circuit (PVC) connections are configured between the CS2000 and the MG4000.

The MG4000s connect to the Nortel Networks Multiservice Switch 15000 shelf over protected OC-3 links. To configure these links, first configure the ATM interfaces, and then configure two PVC connections between each MG4000 and the communication server (CS2000).

When configuring the PVCs, keep the following items in mind:

- The CS2000 has four unprotected OC-3 links into Multiservice Switch 15000 shelves. When creating the two PVC connections from one MG4000 to a CS2000, configure both of these PVC connections to go to the same pair of unprotected links, one to each of the two ports in the same FP pair. Each of the two PVC connections from one MG4000 cannot go to a different FP pair.
- Half of the PVC connections from the MG4000s must go to one of the pairs of protection group CS2000 links, while the other half must go to the other pair of protection group CS2000 links.
- The two PVC connections from each MG4000 should take the shortest route possible between the MG4000s and the CS2000. However, the two routes should also be as diverse as possible within your network topology. Each of the PVC connections should connect across different shelves, FP pairs, or physical links to decrease the common points of failure on each PVC.
- If the PVC needs to go across a link between Multiservice Switch 15000 shelves, select the link with the least number of PVC connections already running across it. Choose this link to ensure that the inter-shelf links load-share the PVC control connections.
- Define the PVC relay points as follows:
  - The relay points at the CS2000's ATM interface must be identified by the same VPI.VCI used for the CS2000's link.
  - The relay points at the MG4000's ATM interface must be identified by the same VPI.VCI used for the MG4000's link.
  - The relay points at either end of an inter-shelf link over which the PVC crosses must both be identified by the same VPI.VCI (Nortel Networks recommends giving PVC1 a value or name equal to the SPM number plus 100 and PVC2 a value or name equal to the SPM number plus 300).
  - The other relay points on the PVC are selected using unused VPI.VCIs. You could chose to start at the top of the VCI range and progress downwards.

To configure the MG4000 interface, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 MG4000 ATM Interfaces 4pOC3*
- *PT-AAL1/WUA-AAL1 MG4000 ATM Interfaces 16pOC3*

To configure the MG4000 interface, configure the following:

- the FP and engineer the parameters, if not already done
- a Multiservice Switch OC-3 interface for the MG4000
- the MG4000 interface for each FP type

For the Succession-specific values that need to be configured for the MG4000 interface, see the table of values for MG4000 ATM interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 link distribution (UA-AAL1)

The Multi-service Gateway 9000 (MG9000) is a multi-service platform that is used with the Universal Access - AAL1 solution. It supports switched lines (for example, POTS), DS1 private line, and DSL services.

The MG9000 physically connects to the ATM network with OC-3, DS3 or DS1 IMA links. The MG9000 is connected logically to the Services Application Module 21 (SAM21) shelf controllers (SC) using four switched virtual circuits (SVC).

For the Succession-specific values to configure for the MG9000 interface, see the tables of values for MG9000 ATM interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 OC-3 link distribution (UA-AAL1)

The MG9000 can connect to a Nortel Networks Multiservice Switch 15000 node using a 1+1 LAPS-protected OC-3 interface. To configure the MG9000 OC-3 interfaces, use the Nodal Provisioning (NP) tool, and the templates as follows:

- *WUA-AAL1 MG9000 ATM Interfaces-4pOC3*
- *WUA-AAL1 MG9000 ATM Interfaces-16pOC3*

MG9000 DS1 IMA link distribution (UA-AAL1)

The MG9000 can connect to a Nortel Networks Multiservice Switch 15000 node using a DS1 IMA interface. This interface consists of between 2 and 8 DS1s on a DS3 port of a 1:1 equipment-protected 4-port DS3 (channelized to DS1 for IMA) ATM FP.

To configure the MG9000 DS1 IMA interfaces, use the Nodal Provisioning tool, and the following templates:

- *WUA-AAL1 DS3 port-4pDS3ChAtm*
- *WUA-AAL1 MG9000 2xDS1-IMA ATM Interface-4pDS3ChAtm*
- *WUA-AAL1 1xDS1-IMA Link - 4pDS3ChAtm*

MG9000 DS3 link distribution (UA-AAL1)

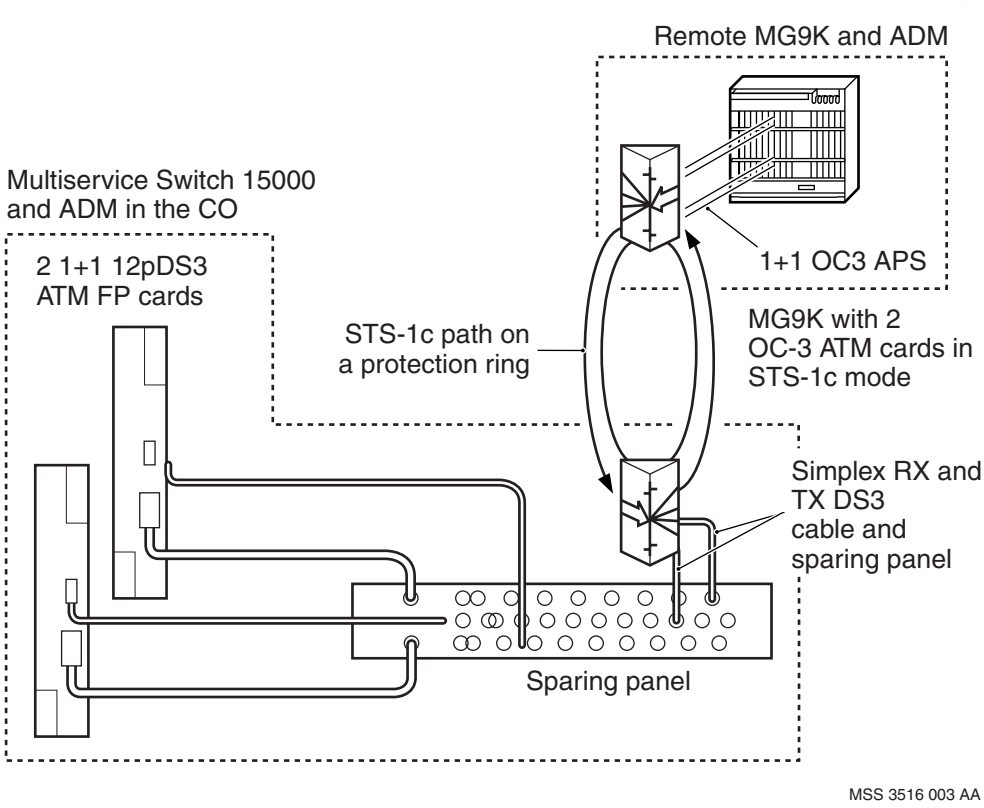
The MG9000 can connect to a Nortel Networks Multiservice Switch 15000 node using a DS3 interface, on a 1:1 equipment-protected 12-port DS3 ATM FP. To configure the MG9000 DS3 interfaces, use the Nodal Provisioning tool, and the *WUA-AAL1 MG9000 ATM Interface-12pDS3* template.

For an illustration of the MG9000 DS3 link, see Figure 8, “MG9000 DS3 to Multiservice Switch 15000 DS3 with optical transport,” (page 67).

The MG9000 DS3 interface is a less costly connection than, for example, an OC-3, to an ATM backbone. However, it still meets bandwidth requirements. Additional cost savings are available when a fiber data path between the Multiservice Switch 15000 node and MG9000 is not available for connection.

Note: Even though the MG9000 DS3 interface uses a 12-port FP, it only supports the use of ports 0 through 3. Connect the 4-port DS3 sparing panel to the p0 connector on the FP faceplate for the DS3 ports. Connect it to the P3 connector on the FP faceplate for sparing panel control.

Figure 8
MG9000 DS3 to Multiservice Switch 15000 DS3 with optical transport



Node-to-node ATM link distribution (PT-AAL1/UA-AAL1)

Nortel Networks Multiservice Switch 15000 nodes support a node-to-node ATM interface, in a Universal Access - AAL1 solution. Configure these links as protected OC links on either OC-3 or OC-12 cards. When you configure this service, the ATM Interface (AtmIf) component and its subcomponents, ConnectionAdministrator (CA) and Private Network-to-Network Interface (PNNI) are always created as well.

To configure the Multiservice Switch for ATM Interface with PNNI, use the Nodal Provisioning tool and the following templates:

- *PT-AAL1/WUA-AAL1 ATM PNNI Interfaces-4pOC3*
- *PT-AAL1/WUA-AAL1 ATM PNNI Interfaces-16pOC3*
- *PT-AAL1/WUA-AAL1 ATM PNNI Interfaces-4pOC12*
- *WUA-AAL1 ATM PNNI Interfaces-12pDS3*

To configure the Multiservice Switch for ATM Interface with PNNI in the Packet Trunking - AAL1 solution, configure the following:

- an appropriate FP pair, if necessary
- the ATM PNNI interface for the appropriate FP type
- any customer-defined customizing for each port on the FP pair, if necessary
- line protection for the FP pair
- the ATM interfaces
- the PNNI interface

To configure the Multiservice Switch 15000 node for ATM Interface with PNNI in the Universal Access - AAL1 solution, configure the following:

- an appropriate FP pair
- line protection for the port
- the ATM interfaces
- the connection admission controls for each ATM interface

For a 16 port OC-3 or 4 port OC-12 FP, configure the PNNI interface for the connection map for each ATM interface.

For the Succession-specific values that need to be configured for Multiservice Switch ATM trunks, see the table of values for ATM trunk configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

UAS link distribution (UA-AAL1)

In the Succession Universal Access - AAL1 solution, the universal audio server (UAS) is a SAM16 shelf-based peripheral that provides services such as the following:

- conferencing
- voice mail
- announcements

Currently, the UAS is limited to providing the multi-casting capabilities necessary for local Communication Assistance for Law Enforcement Act (CALEA).

The UAS is connected to the ATM network by a OC-3 link. Call control is provided by the GWC. The CS LAN the signalling between the UAS and the GWC.

To configure the UAS interface, use the Nodal Provisioning tool and the following templates:

- *WUA-AAL1 UAS ATM Interface-4pOC3*
- *WUA-AAL1 UAS ATM Interface-16pOC3*

To configure the UAS interface, configure the following:

- an appropriate FP pair
- the ATM interfaces
- the connection admission controls for each ATM interface
- the connection map for each ATM interface for a 16 port OC-3 FP

- the user network interface (UNI)
- traffic management parameters for each UNI

For the Succession-specific values that need to be configured for the UAS interface, see the table of values for UAS ATM UNI link configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

DSL services link distribution (UA-AAL1)

In a Universal Access - AAL1 solution, you can configure Nortel Networks Multiservice Switch 15000 nodes to support digital subscriber line (DSL) service. Each MG9000 supports DSL subscriber line access. The MG9000 then transfers the DSL connections across a Multiservice Switch ATM network using only the following virtual connections:

- permanent virtual connection (PVC)
- permanent virtual path (PVP)
- soft permanent virtual connection (SPVC)
- soft permanent virtual path (SPVP)

These DSL connections terminate at an Internet Service Provider (ISP).

There are some restrictions on the DSL service in the Succession Network. These restrictions are designed to ensure the quality and reliability of Public Switched Telephone Network (PSTN) voice traffic. The following restrictions apply to this interface:

- no signaling, routing or ILMI control channels are supported
- must be provisioned as an I.610 OAM segment boundary to prevent OAM segment cells from entering the Multiservice Switch network from the ISP network
- no connections between the ISP network and an FP that supports any Succession device
- DSL ISP UNI interfaces require at least one ATM End System Address (AESA) to be provisioned when SPVCs and SPVPs are used to connect with the MG9000s

Connections between the Succession Network and ISP networks are left unprotected, therefore, an unprotected FP is used for all these connections or any similar connections to data-only networks.

In order to configure DSL connections across the Multiservice Switch ATM network, use Nortel Networks Preside Multiservice Data Manager (MDM) ATM Service Provisioning tool to provision the connections. For more information on this tool, see 241-6001-600 *Preside MDM Service Provisioning for ATM User Guide*. In conjunction with this tool, Preside MDM has a circuit management database and circuit viewer application that allows you to track all virtual circuits (VCs) and virtual paths (VPs) that have been created in the network.

Configure the UNI connection using the command line interface (CLI) with the 241-6001-710 *Preside MDM Service Activation Installation and Administration Guide* as a reference. How you configure the UNI is dependent on the type of DSL aggregator being used.

To configure a subscriber's DSL service, perform the following tasks:

- Provision the Vcc endpoints into the MG9000 and the ISP DSL aggregator.
- Use the ATM Service Provisioning tool to provision the PVC or SPVC in the Multiservice Switch network from the MG9000 to the ISP.
- Alternatively, the Vcc can be carried by an existing PVP or SPVP between the MG9000 and the ISP, or a new PVP or SPVP can be added to carry the subscriber's DSL traffic.

For more information on ATM configuration, see NN10600-710 *Nortel Networks Multiservice Switch 7400/15000/20000 ATM Configuration Management*.

Link distribution (UA-IP)

This section describes link distribution between Nortel Networks Multiservice Switch 15000 nodes and other network components, in a Succession UA - IP solution. It includes the topics as follows:

- "Multiservice Switch IP over ATM inter-shelf trunk interface (UA-IP)" (page 73)
- "MG9000 OC-3 interface (UA-IP)" (page 76)
- "MG9000 DS1 IMA interface (UA-IP)" (page 77)
- "MG9000 STS-1/DS3 interface (UA-IP)" (page 78)
- "CS-LAN OC-12 interface (UA-IP)" (page 79)
- "CS-LAN GE interface (UA-IP)" (page 80)
- "Hairpin ATM/IP OC-3/OC-12 interfaces (UA-IP)" (page 81)
- "TDM OC-3 interfaces on the Multiservice Switch 15000 Media Gateway 15000 (UA-IP)" (page 82)
- "Media Gateway 15000 to MGC with H.248 (VSP3) interface (UA-IP)" (page 83)
- "Media Gateway 15000 to MGC with H.248 (VSP3-o) interface (UA-IP)" (page 83)

Note 1: On a Multiservice Switch 15000 shelf, the ports on the cards are numbered starting at the bottom and working up.

Note 2: On a Multiservice Switch 15000 shelf, the two control processors (CPs) are located in slots 0 and 1 and are correspondingly numbered 0 and 1.

Note 3: The names of the templates you use to create the interfaces in a Succession UA - IP solution include the prefix IF. This denotes a template that sets up parameters for an interface which usually (but not always) corresponds to physical facilities. This can be a single port, a pair of protected ports, a logical interface such as an ATM interface to another network element (NE, for example MG9000), or an IP interface (for example to a media gateway controller or MGC), and so on.

Multiservice Switch IP over ATM inter-shelf trunk interface (UA-IP)

In a Succession UA - IP solution, you can link a remote Nortel Networks Multiservice Switch 15000 node with IP over ATM to another Multiservice Switch 15000 node at a CS2000 site, in a Succession UA - IP solution. This requires a Multiservice Switch IP over ATM inter-shelf trunk interface.The Multiservice Switch 15000 node is used as a packet core network element. Multiservice Switch 15000 nodes can connect either directly through fiber, or through a synchronous optical network (SONET).

Generally, in a Succession UA - IP solution, one primary Multiservice Switch 15000 node is situated in the office with the CS-LAN. It is connected to the CS-LAN via Gigabit Ethernet (GE), or OC-12. Other Multiservice Switch 15000 nodes are at the same site, but are not necessarily connected to the CS-LAN for IP control/bearer traffic. The remaining Multiservice Switch 15000 nodes are situated in Remote Wire Centres (RWCs).

The primary Multiservice Switch 15000 node connected to the CS-LAN likely has an inter-shelf IP interface to each of the other nodes. The other nodes are not necessarily directly linked to another RWC. In most cases, an IP over ATM connection is used for bearer path IP between each RWC and every other RWC.

To configure Multiservice Switch IP over ATM inter-shelf trunk interface, use the Nodal Provisioning tool and either of the following templates:

- *UA-IP IF-MSS-IPoATM-4pOC3SmIrAtm*
- *UA-IP IF-MSS-IPoATM-4pOC12SmIrAtm*

For Multiservice Switch IP over ATM inter-shelf trunk interface in a Universal Access - IP solution, configure the following and then activate the changes:

- an appropriate FP pair
- line protection for the port
- the ATM interfaces

- apply the *UA-IP AC-RWC-Bearer* template for each RWC-to-RWC bearer path connection (See "RWC bearer VCC distribution (UA-IP)" (page 74) for more information.)
- the connection admission controls for each ATM interface
- the ATM private network-to-network interface (PNNI)
- the connection maps for each ATM interface
- manually create IP routing (for example static route) entries

Apply either of the *UA-IP IF-MSS-IPoATM-4pOC3SmIrAtm* or *UA-IP IF-MSS-IPoATM-4pOC3SmIrAtm* templates to the remote end of the link. Then apply the template to the CS2000 end of the link.

Apply the *UA-IP AC-RWC-Bearer* template to each remote Multiservice Switch 15000 node, on the new node n-1 times and one on each remote node. Also, configure the nailed-up relay points (NRPs) on the CS2000 site node.

For the Succession-specific values to configure for Multiservice Switch IP over ATM inter-shelf trunk interface, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

RWC bearer VCC distribution (UA-IP)

This section describes ATM connection distribution on Nortel Networks Multiservice Switch 15000 nodes in a Succession UA - IP solution. Apply this provisioning at initial commissioning of the node, or on existing node-to-node interfaces for capacity growth.

In a Succession UA-IP solution, you can provision an asynchronous transfer mode (ATM) virtual channel connection (VCC) for IP connectivity between remote wire centres (RWCs).

To provision Multiservice Switch 15000 nodes for the RWC bearer VCC, use the Nodal Provisioning tool, and either of the following templates:

- *UA-IP AC-RWC-Bearer-4pOC12SmIrAtm*
- *UA-IP AC-RWC-Bearer-4pOC3SmIrAtm*

These templates define an ATM connection for bearer path traffic from a node at a Remote Wire Centre going to a node at another Remote Wire Centre. The ATM connection is over either an existing OC-12 IPoATM trunk or an existing OC-3 IPoATM trunk.

To configure the RWC bearer VCC on a Multiservice Switch 15000 node in a UA - IP solution, configure the following:

- an appropriate FP pair, if necessary
- Multiservice Switch IP over ATM inter-shelf trunk interface on 4pOC12SmIrAtm or 4pOC3SmIrAtm FP cards
- the LAPS STS on the above FP cards

For the Succession-specific values to configure an ATM connection - RWC bearer VCC, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 interface (UA-IP)

The Multi-service Gateway 9000 (MG9000) is a multi-service platform that is used with the UA - IP solution.

The MG9000 physically connects to the Succession network with OC-3, DS1 IMA, or STS-1 DS3 links.

For the Succession-specific values to configure for the MG9000 link distribution, see the tables of values for MG9000 interface configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 OC-3 interface (UA-IP)

The MG9000 can connect to Nortel Networks Multiservice Switch 15000 nodes using an optical link (1 + 1 OC-3).

The MG9000 carries IP traffic to the virtual router (VR) over 2 or 3 virtual channel connections (VCCs) as follows:

- MG9000 carries IP traffic over an rt-VBR Vcc that carries all voice traffic plus the H.248 control traffic. This Vcc requires a /27 subnet, because it has up to 16 IP devices connected to it, plus the Multiservice Switch 15000 node's protocol port address.
- MG9000 carries IP traffic over an nrt-VBR Vcc that carries the operations, administration, and maintenance (OAM) traffic for the MG9000. This Vcc requires a /29 subnet for three IP addresses: two IP addresses on the MG9000, plus the Multiservice Switch 15000 node's protocol port addresses.
- MG9000 carries IP traffic over an optional rt-VBR that carries other signalling (PPVM) and control traffic for MG9000 ABI cards.

To configure the MG9000 OC-3 interface, use the Nodal Provisioning tool and the *UA-IP IF-MG9000-4pOC3SmIrAtm* template

> ***Note:*** In a Succession UA - IP solution, the NP templates for the MG9000 interfaces do not configure an ABI connection, just the basic CC (bearer and H.248) and OAM Vccs. For these Vccs, the maximum traffic contract is the default. For example, by default, it assumes that 2

shelves are configured on the MG9000 OC-3 port. It is up to the installer to change this if necessary, using the values in the Network Engineering Specification Book.

For the Succession-specific values to configure for an MG9000 OC-3 link, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 DS1 IMA interface (UA-IP)

The MG9000 can connect to Nortel Networks Multiservice Switch 15000 nodes using a DS1 IMA interface. This interface is an ATM interface that uses a DS1 line standard format, and inverse multiplexing for ATM (IMA).

The difference between the MG9000 DS1 IMA interfaces in a UA-IP versus a UA-AAL1 solution is that the NP template for UA-IP does not configure an ATMIf Uni Sig Vcd subcomponent. Also for UA-IP, the AtmIf component attributes have different values.

To configure the MG9000 DS1 IMA link, use the Nodal Provisioning tool and the following templates:

- *UA-IP IF-DS3port- 4pDS3ChAtm*
- *UA-IP IF-MG9000-8xDS1-4pDS3ChAtm*

The *UA-IP IF-DS3port- 4pDS3ChAtm* template creates a DS3 port on 4pDS3ChAtm FPs. This template is preparation for adding IMA-linked interfaces.

The *UA-IP IF-MG9000-8xDS1-4pDS3ChAtm* template creates an interface to an MG9000 on 4pDS3ChAtm FP cards. It provisions an IMA group of 8 DS1s with an ATMIF on the FP cards. If you require less than 8 DS1s, manually delete the extra ones.

Note: The MG9000 DS1 IMA interface requires an optical hairpin. You must configure the hairpin components first, before configuring the MG9000 DS1 IMA link. For more information, see “Hairpin ATM/IP OC-3/OC-12 interfaces (UA-IP)” (page 81).

For the Succession-specific values to use for the MG9000 DS1 IMA interface configuration, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

MG9000 STS-1/DS3 interface (UA-IP)

The MG9000 can connect to Nortel Networks Multiservice Switch 15000 nodes using a Synchronous Transport Signal level (STS-1) interface. This interface terminates on the node as a DS3 line standard format. The DS3 format is used to carry information over a T3 trunk.

To configure an MG9000 STS1/DS3 interface on Multiservice Switch 15000 nodes use the Nodal Provisioning tool and the *UA-IP IF-MG9000-12pDS3Atm* template.

The UA-IP version of the NP template, unlike the UA-AAL1 version, does not require an ATMIf Uni Sig Vcd subcomponent. Also, the values for AtmIf component attributes in the UA-IP solution are different.

> ***Note:*** The MG9000 STS-1 DS-3 interface requires the use of an optical hairpin. For more information, see "Hairpin ATM/IP OC-3/OC-12 interfaces (UA-IP)" (page 81).

For the Succession-specific values to configure for the STS1/DS3 interface, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

CS-LAN OC-12 interface (UA-IP)

In a Succession UA - IP solution, you can add CS-LAN interfaces to Nortel Networks Multiservice Switch 15000 nodes. This provides IP connectivity from the node to the CS-LAN. A CS-LAN consists of a pair of Passport 8600s.

One of the supported interfaces to the CS-LAN is via OC-12 links, unprotected, from each of two Multiservice Switch 15000 nodes. The two nodes are connected with a 1+1 protected inter-shelf link.

> ***Note:*** For a new customer deployment, Nortel Networks recommends that you use a GE interface, not an OC-12 interface, to a CS-LAN.

The Multiservice Switch 15000 node connects to the CS-LAN via a synchronous optical network (SONET) port on a 4pOC12SmIrAtm FP card. The two Passport 8600s must be connected to two different Multiservice Switch 15000 nodes, via OC-12.

To configure the Multiservice Switch 15000 node for CS-LAN OC-12, use the Nodal Provisioning tool, and the *UA-IP IF-CSLAN-4pOC12SmIrAtm* template.

For the Succession-specific values to configure for a CS-LAN OC-12 link, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

CS-LAN GE interface (UA-IP)

In a Succession UA-IP solution, you can connect Nortel Networks Multiservice Switch 15000 nodes to a Communications Server LAN (CS-LAN), via a Gigabit Ethernet (GE) link. A CS-LAN consists of a pair of Passport 8600s.

This interface provides IP connectivity from a Multiservice Switch 15000 node to a CS-LAN. The interface is via GE links on a single Multiservice Switch 15000 node with protected routes.

> ***Note:*** For a new customer deployment, Nortel Networks recommends that you use a GE interface, not an OC-12 interface, to a CS-LAN.

To configure the Multiservice Switch 15000 node for CS-LAN GE, use the Nodal Provisioning tool, and the following templates:

- *UA-IP IF-CSLAN-noLAG-4pGE*
- *UA-IP IF-CSLAN-LAG-4pGE*

For the Succession-specific values to configure for a CS-LAN GE link, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

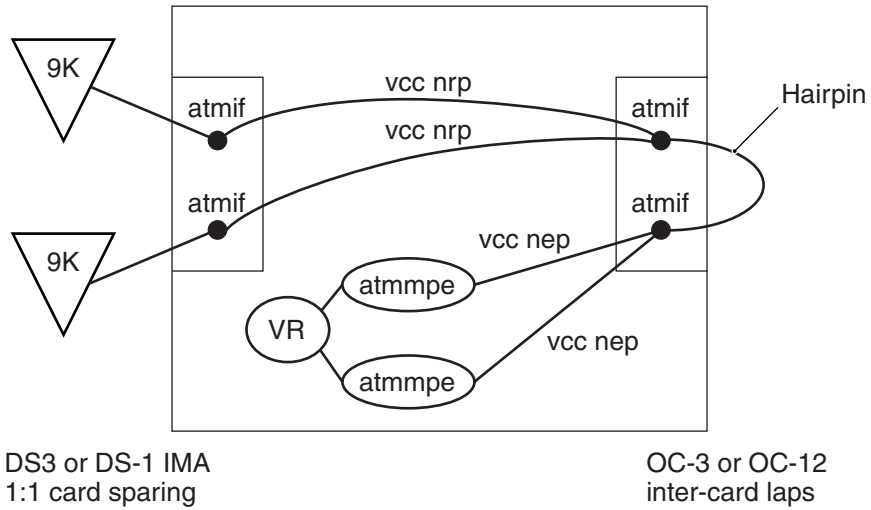
Hairpin ATM/IP OC-3/OC-12 interfaces (UA-IP)

In a Succession Universal Access - IP solution, you must define an optical hairpin for a Nortel Networks Multiservice Switch 15000 link to an MG9000 that uses either DS3 or inverse multiplexing for ATM (DS1-IMA). Deploy the optical hairpin in a Multiservice Switch 15000 node on a 4-port OC-3 or OC-12 ATM FP card.

An MG9000 STS-1/DS3 link uses a 12pDS3ATM FP card. An MG9000 DS1 IMA link uses a 4pDS3ChAtm (DS1 IMA) FP card. Neither of these FP cards supports carrier grade IP. Therefore, these FPs can only terminate the ATM layer. For IP forwarding, you must use an optical hairpin.

For an illustration of a hairpin IP connection see Figure 9, "Optical hairpin IP connection," (page 81).

Figure 9
Optical hairpin IP connection



For an illustration of a hairpin IP connection used in a remote wire centre configuration, see Figure 6, "Example of remote wire centre and CS2000 site shelf configuration (UA-IP)," (page 56).

Deploy the optical hairpin on a pair of FP cards available expressly for this purpose, or else on a pair of optical cards with spare capacity.

To configure a Hairpin ATM/IP interface, use the Nodal Provisioning tool, and either of the following templates:

- *UA-IP IF-Hairpin-4pOC12SmIrAtm*
- *UA-IP IF-Hairpin-4pOC3SmIrAtm*

For the Succession-specific values to configure for a Multiservice Switch 15000 hairpin ATM/IP interface, see the section on Hairpin ATM/IP link configuration in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM OC-3 interfaces on the Multiservice Switch 15000 Media Gateway 15000 (UA-IP)

In a Succession UA-IP solution, you can connect the Media Gateway 15000 of a Nortel Networks Multiservice Switch 15000 node to TDM equipment, with a pair of OC-3 TDM links.

To configure the OC-3 TDM, use the Nodal Provisioning tool, and either of the following templates:

- *UA-IP IF-TDM-4pOC3ChSmIr*
- *UA-IP IF-TDM-2pOC3ChSmIrVsp3-o*

For the Succession-specific values to configure for an OC-3 TDM link, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

Media Gateway 15000 to MGC with H.248 (VSP3) interface (UA-IP)

In a Succession UA-IP solution, you can connect Nortel Networks Multiservice Switch 15000 nodes to a Media Gateway Controller (MGC) with H.248 via a pair of VSP3 FP cards. H.248 is the ITU-T gateway control protocol, one of the control interfaces used between the MGC and the Media Gateway.

To configure the interface of the Media Gateway card of a Multiservice Switch 15000 node to MGC with H248, use the Nodal Provisioning tool, and the *UA-IP IF-MGC-H248-2pGeMmSrVsp3* template.

For the Succession-specific values to configure for this link to MGC with H.248, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

Media Gateway 15000 to MGC with H.248 (VSP3-o) interface (UA-IP)

In a Succession UA-IP solution, you can connect the Media Gateway card of a Nortel Networks Multiservice Switch 15000 node to a Media Gateway Controller (MGC) with H.248 via a pair of 2-port VSP3-o FP cards. H.248 is the ITU-T gateway control protocol, one of the control interfaces used between the MGC and the Media Gateway.

To configure the interface of the Media Gateway card of a Multiservice Switch 15000 node for MGC with H248, use the Nodal Provisioning tool, and the *UA-IP IF-MGC-H248-2pOC3ChSmIrVsp3-o* template.

For the Succession-specific values to configure for an MGC with H.248 link, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM trunk distribution (UA-IP)

This section describes TDM trunk distribution on a Nortel Networks Multiservice Switch 15000 Media Gateway node, in a Succession UA - IP solution. It includes the following topics:

TDM trunk preparation (LAPS STS) (UA-IP)

In a Succession UA-IP solution, you can provision TDM trunks on VSP cards on a Media Gateway. First, you must set up the STS components for the TDM trunks. The TDM trunks must be on either 4pOC3ChSmIr (TDM) or 2pOC3ChSmIrVsp3 (VSP3-o) FP cards.

Apply this provisioning at initial commissioning of Nortel Networks Multiservice Switch 15000 nodes or on TDM slots, that are not in use, for later capacity growth.

To prepare the node for the TDM trunks on a TDM card, use the Nodal Provisioning tool and the *UA-IP TT-LapsSts-TDM* template:

For the Succession-specific values to configure for TDM trunk preparation, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM ISUP trunk (VSP3-o) (UA-IP)

In a Succession UA-IP solution, you can provision TDM ISUP trunks on the VSP3-o cards of Media Gateway.

To configure the node with the TDM ISUP trunks on a VSP3-o card, use the Nodal Provisioning tool and the *UA-IP TT-ISUPTrunk-2pOC3ChSmIrVsp3-o* template.

For the Succession-specific values to configure for a TDM ISUP trunk, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM ISUP trunk (VSP3) (UA-IP)

In a Succession UA-IP solution, you can provision an ISUP trunk on the VSP3 cards of Media Gateway.

Note: On a VSP3 card, the ISUP and PRI trunk settings are common.

To provision Nortel Networks Multiservice Switch 15000 nodes for a TDM ISUP (VSP3) trunk, use the Nodal Provisioning tool, and the *UA-IP TT-ISUPTrunk-2pGeMmSrVsp3* template.

For the Succession-specific values to configure for a TDM ISUP trunk (VSP3), see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PRI trunk profile (VSP3-o) (UA-IP)

In a Succession UA-IP solution, you can provision a TDM primary rate interface (PRI) trunk profile on the VSP3-o cards of Media Gateway. The PRI trunk profile is common to all PRI trunks on a VSP3-o FP card.

To provision Multiservice Switch 15000 nodes for the TDM PRI trunk profile, use the Nodal Provisioning tool, and the *UA-IP TT-PRIProfile - 2pOC3ChSmIrVsp3-o* template.

For the Succession-specific values to configure for a TDM PRI trunk profile, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PRI trunk (VSP3-o) (UA-IP)

In a Succession UA-IP solution, you can provision a TDM primary rate interface (PRI) trunk on the VSP3-o cards of Media Gateway.

To provision Multiservice Switch 15000 nodes for the TDM PRI trunk on VSP3-o, use the Nodal Provisioning tool, and the *UA-IP TT-PRITrunk - 2pOC3ChSmIrVsp3-o* template.

For the Succession-specific values to configure for a TDM PRI trunk, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PRI trunk profile (VSP3) (UA-IP)

In a Succession UA-IP solution, you can provision a TDM primary rate interface (PRI) trunk profile on the VSP3 cards of a Media Gateway.

To provision Multiservice Switch 15000 nodes for the TDM PRI (VSP3) trunk profile, use the Nodal Provisioning tool, and the *UA-IP TT-PRIProfile-2pGeMmSrVsp3* template.

For the Succession-specific values to configure for a TDM PRI trunk profile (VSP3), see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PRI trunk (VSP3) (UA-IP)

In a Succession UA-IP solution, you can provision a PRI trunk on the VSP3 cards of Media Gateway.

> ***Note:*** On a VSP3 card, the ISUP and PRI trunk settings are common, or in other words, used for both.

To provision Nortel Networks Multiservice Switch 15000 nodes for a TDM PRI (VSP3) trunk, use the Nodal Provisioning tool, and the *UA-IP TT-PRITrunk-2pGeMmSrVsp3* template.

For the Succession-specific values to configure for a TDM PRI trunk (VSP3), see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PTS trunk profile (VSP3-o) (UA-IP)

In a Succession UA-IP solution, you can provision a Per-Trunk Signaling (PTS) trunk profile on the VSP3-o cards of Media Gateway. A PTS trunk profile is common to all PTS trunks using a specific profile on a VSP3-o FP card.

To provision Multiservice Switch 15000 nodes for the TDM PTS trunk profile (VSP3-o), use the Nodal Provisioning tool, and the *UA-IP TT-PTSProfile-2pOC3ChSmIrVsp-o* template.

For the Succession-specific values to configure for a TDM PTS trunk profile (VSP3-o), see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

TDM PTS trunk (VSP3-o) (UA-IP)

In a Succession UA-IP solution, you can provision a Per-Trunk Signaling (PTS) trunk on the VSP3-o cards of Media Gateway.

To provision Multiservice Switch 15000 nodes for the TDM PTS trunk (VSP3-o), use the Nodal Provisioning tool, and the *UA-IP TT-PTSTrunk-2pOC3ChSmIrVsp3-o* template.

For the Succession-specific values to configure for a TDM PTS trunk (VSP3-o), see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

Chapter 4
Overview of Preside MDM server deployment and configuration

Nortel Networks Preside Multiservice Data Manager (MDM) is one network element management tool used in the Succession Network. It performs:

- data collection
- fault management
- configuration management
- performance management
- security management

It does this for the ATM network and the IP network in the following solutions:

- Packet Trunking - AAL1
- Universal Access - AAL1
- Universal Access - IP

In addition, Preside MDM provides data feed of fault and performance information to the higher-level management system for additional processing. Preside MDM software is installed on servers that are connected through IP connectivity to Nortel Networks Multiservice Switch 15000 nodes.

The term higher-level management system, as used in this document, refers to the application that provides additional processing of fault and performance information. In a voice over IP (VoIP), or UA-IP, solution, this

is the Integrated Element Management System (IEMS). In a voice over ATM (VoA), or PT-AAL1 or UA-AAL1, solution, this is the SuperNode Data Manager (SDM). The higher-level management system can also be a customer operational support system (OSS), the nature of which depends on the particular customer environment.

For more information about IEMS, see the IEMS documentation suite for this Succession release.

For more information about SDM, see the SDM documentation suite for this Succession release.

For more information about performance data flow to a higher-level management system, see NN10158-711 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Performance PT-AAL1/UA-AAL1/UA-IP*.

Preside MDM configuration and engineering is performed the same way in the Succession Universal Access - IP solution as in the Succession UA-AAL1 and PT-AAL1 solutions.

The following sections contain information about Preside MDM server deployment and configuration:

- "Preside MDM server deployment scenarios" (page 91)
- "Overview of Preside MDM server deployment in the Succession Network" (page 100)
- "Deployment of servers using the dedicated network management approach" (page 102)
- "Deployment of Preside MDM servers using the centralized network management approach" (page 106)
- "Preside MDM server configuration for Passport 8600 fault management (PT-AAL1 and UA-AAL1)" (page 118)

Preside MDM server deployment scenarios

The tables in this section list Nortel Networks Preside Multiservice Data Manager (MDM) server deployment scenarios for the management of Nortel Networks Multiservice Switch nodes. These tables also list Preside MDM software applications that need to be running on the servers for each of these scenarios.

For more information on the Preside MDM server deployment scenarios, see 241-6001-310 *Preside MDM Server Reference Guide*.

The following sections contain tables with Preside MDM server and software application information:

- "Servers required on all workstations" (page 91)
- "Fault servers" (page 92)
- "Configuration servers" (page 95)
- "MDP servers" (page 97)

Servers required on all workstations

For more information about the software applications appearing in the table "Required servers on all workstations" (page 91), refer to 241-6001-310 *Preside MDM Server Reference Guide*. Other documents with information about specific software applications are noted in the table where applicable.

Table 1
Required servers on all workstations

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation
OAM log collector [1]	Yes	Yes	Yes	Yes	Yes
Context server [2]	Yes	Yes	Yes	Yes	Yes
Workstation surveillance [3]	Yes	Yes	Yes	Yes	Yes

(Sheet 1 of 2)

Table 1 (Continued)
Required servers on all workstations

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation
IMDR [4]	Yes	Yes	Yes	Yes	Yes
XNTP [5]	Yes	Yes	Yes	Yes	Yes
MNSD level 2 [6]	Yes	Yes	Yes	Yes	Yes
DMA [7]	Yes	Yes	Yes	Yes	Yes
MNSD agent [8]	Yes	No	No	Yes	Yes

[1] OAM log collector collects logs from background server and displays them on the System Log Display tool for use in debugging Preside MDM applications.

[2] Context server allows the sharing of information between applications to reduce keystrokes.

[3] Workstation surveillance monitors the disk, CPU, and both the memory and Ethernet utilization on the local system. It also monitors connectivity to other Preside MDM systems. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[4] IMDR injects alarms into the workstation for servers. This functionality is most often used by SVM upon failure of a server.

[5] XNTP synchronizes the time in Preside MDM with a central time server as well as supporting Multiservice Switch nodes requesting time synchronization. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[6] MNSD level 2 enables all the Preside MDM workstations to recognize one another.

[7] DMA is part of the IMDR process.

[8] MNSD agent exchanges service names between applications so that socket numbers do not need to be configured elsewhere.

(Sheet 2 of 2)

Fault servers

This section applies to all the Succession solutions that this manual describes.

For more information about the software applications appearing in the table "Fault servers" (page 93), refer to 241-6001-310 *Preside MDM Server Reference Guide*. Other documents with information about specific software applications are noted in the table where applicable.

Table 2
Fault servers

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation
Communication Manager [1]	Yes	Yes	Yes	No	No
NM coordinator [2]	Yes	Yes	No	No	Yes
NM server [3]	Yes	Yes	No	No	Yes
NM edit server [4]	Yes	Yes	No	No	Yes
NM updater server [5]	Yes	Yes	No	No	Yes
FMDR_ [6]	Yes	Yes	Yes	No	No
GMDR [7]	Yes	Yes	Yes	No	Yes
RTAC [8]	Yes	Yes	Yes	No	No
HGDS [9]	Yes	Yes	Yes	No	No
FTPD [10]	Yes	Yes	Yes	No	No
PV agent [11]	Yes	No	No	Yes	Yes
NDAM [12]	Yes	Yes	Yes	No	No
Pserver [13]	Yes	Yes	Yes	No	No
Fault Dev Access Agent [14]	Yes	No	No	Yes	Yes
SMDR [15]	Yes	Yes	Yes	No	No
TSVR [16]	Yes	Yes	Yes	No	No
idi_PP8600DCD [17]	Yes	Yes	Yes	No	No

(Sheet 1 of 3)

Table 2 (Continued)
Fault servers

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation

[1] Communication Manager manages all the Multiservice Switch connections. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*

[2 3 4 5] NM software applications are part of the Network Model support system. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide* and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[6] FMDR_ provides surveillance connections between Preside MDM and Multiservice Switch 15000 nodes. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[7] GMDR is part of the fault surveillance stack that merges all the data flow from IMDR and FMDRs, on both the local and redundant workstation. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[8] RTAC collects all the alarms received by Preside MDM servers that originated on Multiservice Switch nodes, and stores them in a file. The operator can access this file to perform historical searches.

(Sheet 2 of 3)

Table 2 (Continued)
Fault servers

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation

[9] HGDS defines groupings of Multiservice Switch nodes into Succession offices. This application is used by FMDR, PMSP, and the Command Console. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

[10] FTPD is the secure FTP daemon between Preside MDM servers and Multiservice Switch nodes, which encrypts the FTP transmissions.

[11] PV agent collects real-time performance information from Multiservice Switch or SNMP devices for use by the Data Viewer tool. For more information, see 241-6001-031 *Preside MDM Performance Management User Guide*.

[12] NDAM filters information between multiple levels of GMDR.

[13] Pserver connects a Preside MDM API (Network Model, Alarms and Status) to a specific IP socket on the Preside MDM workstation. For more information, see 241-6001-201 *Preside MDM Network Model API Reference Guide*. For Succession-specific use, this application communicates alarms to the higher-level management system.

[14] Fault Dev Access Agent supports the collection and distribution of node real-time statistics. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP* and NN10158-711 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Performance PT-AAL1/UA-AAL1/UA-IP*.

[15] If MDM manages the Passport 8600, SMDR provides surveillance connections between Preside MDM servers and Passport 8600 nodes.

[16] If MDM manages the Passport 8600, TSVR receives traps from Passport 8600 nodes.

[17]If MDM manages the Passport 8600, idi_PP8600DCD provides Passport 8600 modelling used by SMDR.

(Sheet 3 of 3)

Configuration servers

For more information about the software applications appearing in the table "Configuration servers" (page 96), refer to 241-6001-310 *Preside MDM Server Reference Guide*. Other documents with information about specific software applications are noted in the table where applicable.

Table 3
Configuration servers

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation
NP Config server [1]	Yes	Yes	Yes	No	No
NP Config Manager [2]	Yes	Yes	No	No	No
End-to-end server [3]	Yes	Yes	No	No	No
Backup server [4]	Yes	Yes	No	No	No
Restore server [5]	Yes	Yes	No	No	No
Config Model server [6]	Yes	Yes	No	No	No
Backup provider [7]	Yes	Yes	Yes	No	No
Restore provider [8]	Yes	Yes	Yes	No	No

(Sheet 1 of 2)

Table 3 (Continued)
Configuration servers

Software application	Standalone server	Server-set or PM server		Client-set server	
		Access funnel	Network consolidation	Access funnel	Network consolidation
Data Sync server	Yes	Yes	Yes	No	No

[1] [2] NP Config server and NP Config Manager support the Multiservice Switch nodal provisioning applications.

[3] End-to-end server establishes communication between nodal provisioning and the CMCFUN session server.

[4] Backup server supports Multiservice Switch/SNMP backup and restore function. For more information, see 241-6001-807 *Preside MDM Network Backup and Restore*.

[5] Restore server supports Multiservice Switch/SNMP backup and restore function. For more information, see 241-6001-807 *Preside MDM Network Backup and Restore*.

[6] Config Model server controls shared memory for Multiservice Switch nodal provisioning applications.

[7] Backup provider supports Multiservice Switch/SNMP backup and restore function. For more information, see 241-6001-807 *Preside MDM Network Backup and Restore*.

[8] Restore provider supports Multiservice Switch/SNMP backup and restore function. For more information, see 241-6001-807 *Preside MDM Network Backup and Restore*.

(Sheet 2 of 2)

MDP servers

To manage the Management Data Provider (MDP) servers, use the Server Administration tool. See the table "MDP servers" (page 98) for information about the Server Administration tool options.

For more information about using the Server Administration tool to manage MDP servers, see 241-6001-309 *Preside MDM Management Data Provider User Guide*. Also, in the table "MDP servers" (page 98), see the Comments column for names of other useful reference documents, where available.

Table 4
MDP servers

Server Administration tool option	Standalone server	Server-set or PM server		Comment
		Access funnel	Network consolidation	
MDP Disk Manager (mdpdiskmgr)	Yes	Yes	Yes	This server manages the disk utilization of MDP files on Preside MDM servers. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/ UA-IP*.
MDP PP File Manager (mdpppmgr)	Yes	Yes	Yes	This server manages the node file manager used by MDP. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/ UA-IP*.
MDP PP Prober Manager (mdpfpmgr)	Yes	Yes	Yes	This server manages the collection of spooled node data. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/ UA-IP*.

(Sheet 1 of 2)

Table 4 (Continued)
MDP servers

Server Administration tool option	Standalone server	Server-set or PM server		Comment
		Access funnel	Network consolidation	
MDP Data Model Manager (mdpdmm)	Yes	Yes	Yes	This server manages the MDP Data Model Manager.
MDP File Mover Manager (mdpfmmgr)	Optional	Optional	Optional	This server manages the MDP File Mover. For more information, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/ UA-IP*.

(Sheet 2 of 2)

Overview of Preside MDM server deployment in the Succession Network

Nortel Networks Preside Multiservice Data Manager (MDM) servers in your Succession network are deployed using either the dedicated or centralized network management approach during the initial installation. In the dedicated network management approach, each Succession office requires a pair of Preside MDM servers while in the centralized network management approach, a single pair of Preside MDM servers can manage the Nortel Networks Multiservice Switch 15000 nodes in several Succession offices.

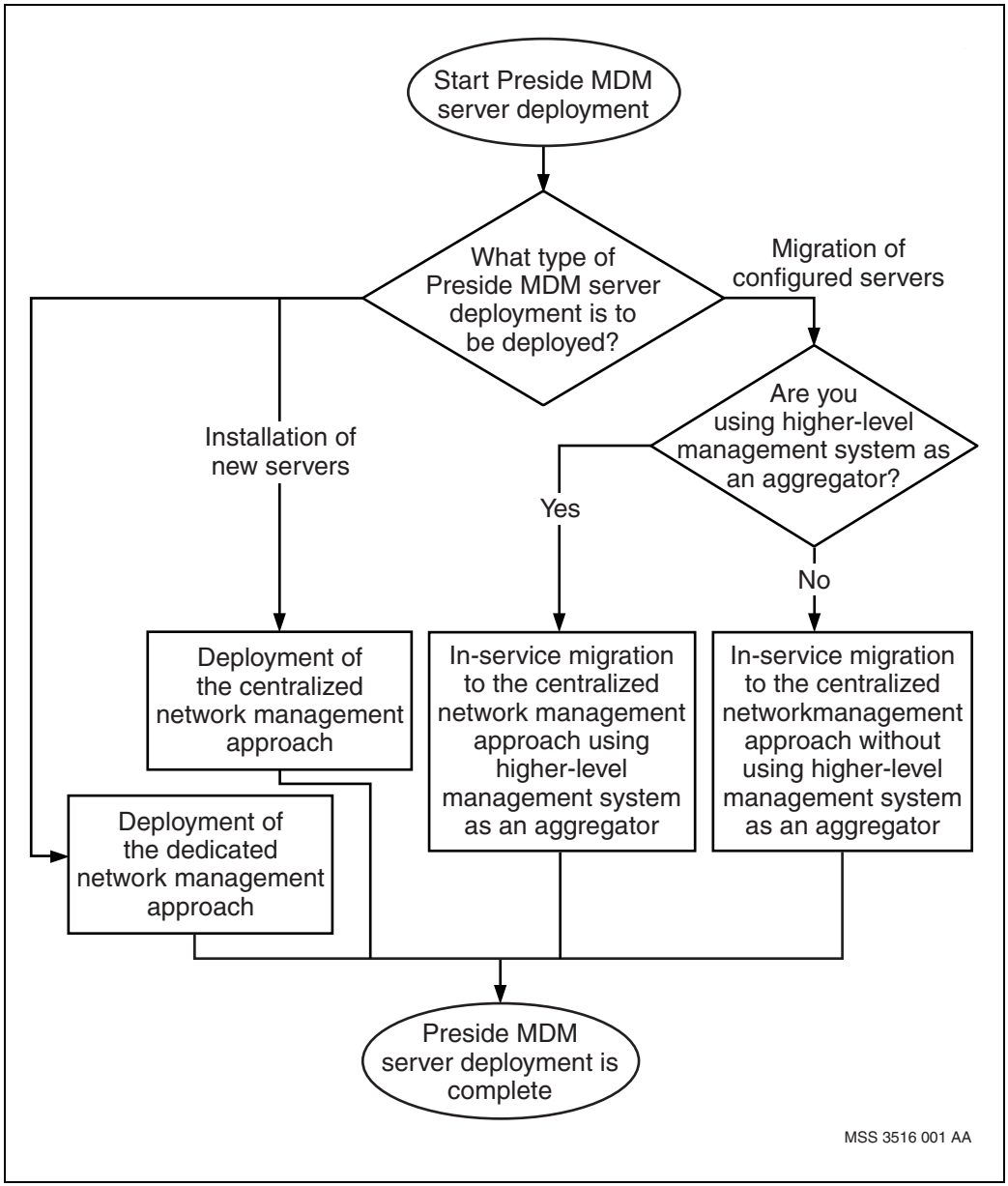
Preside MDM servers in your Succession network can be migrated from the dedicated to the centralized network management approach while in-service if you want only one pair of Preside MDM servers to manage the Multiservice Switch nodes in several Succession offices.

In-service migrations of Preside MDM servers from the dedicated to centralized network management approach follow one of two methods. The choice of method to follow depends on whether you want to use the higher-level management system as an aggregator. See “Deployment of servers” (page 100).

Deployment of servers

This section shows you the sequence of tasks involved in deploying Nortel Networks Preside MDM servers in either the dedicated or centralized network management approach during an initial installation or as part of an in-service migration. To link to any procedure, go to “Methods for deploying servers” (page 102).

Figure 10
Deployment of servers



Prerequisites for deploying servers using the dedicated network management approach

- See the requisite information in the Installation Method document that describes Nortel Networks Preside Multiservice Data Manager software loading and configuration.

Methods for deploying servers

- "Deployment of servers using the dedicated network management approach" (page 102)
- "Deployment of Preside MDM servers using the centralized network management approach" (page 106)
- "In-service migration of Preside MDM servers to the centralized network management approach without using the higher-level management system as an aggregator" (page 112)
- "In-service migration of Preside MDM servers to the centralized network management approach using the higher-level management system as an aggregator" (page 114)

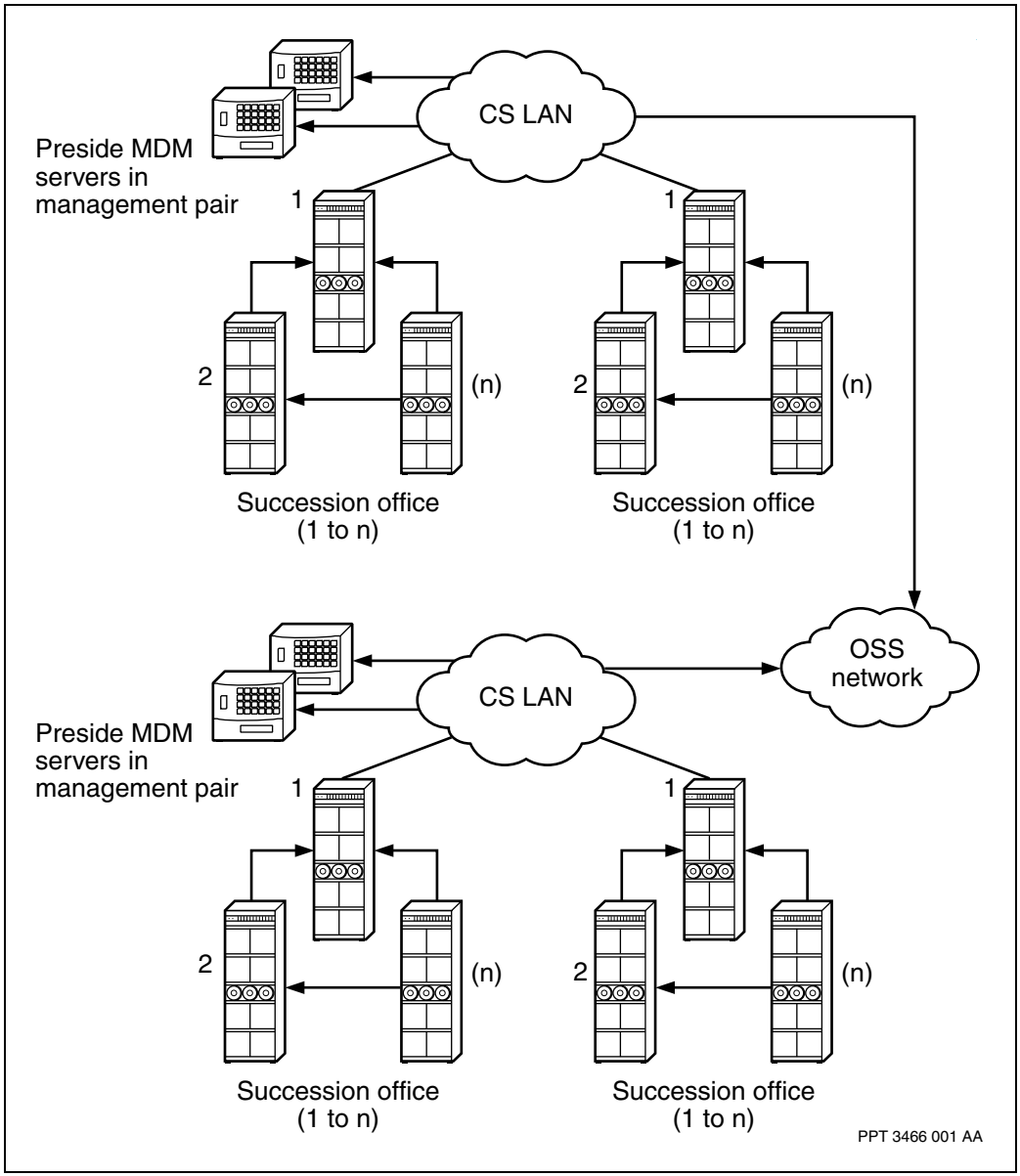
Deployment of servers using the dedicated network management approach

In the dedicated network management approach, each Succession office requires a pair of Nortel Networks Preside Multiservice Data Manager (MDM) servers to manage the Nortel Networks Multiservice Switch nodes in that office. See the figure "Servers deployed using the dedicated network management approach" (page 103).

- "Prerequisites for deploying servers using the dedicated network management approach" (page 102)
- "Deploying servers using the dedicated network management approach task" (page 104)

Note: Deployment of Preside MDM servers is performed by representatives from Nortel Networks GNPS as part of the initial installation of the Succession Network.

Figure 11
Servers deployed using the dedicated network management approach



Prerequisites for deploying servers using the dedicated network management approach

- See the requisite information in the Installation Method document that describes Nortel Networks Preside Multiservice Data Manager software loading and configuration.

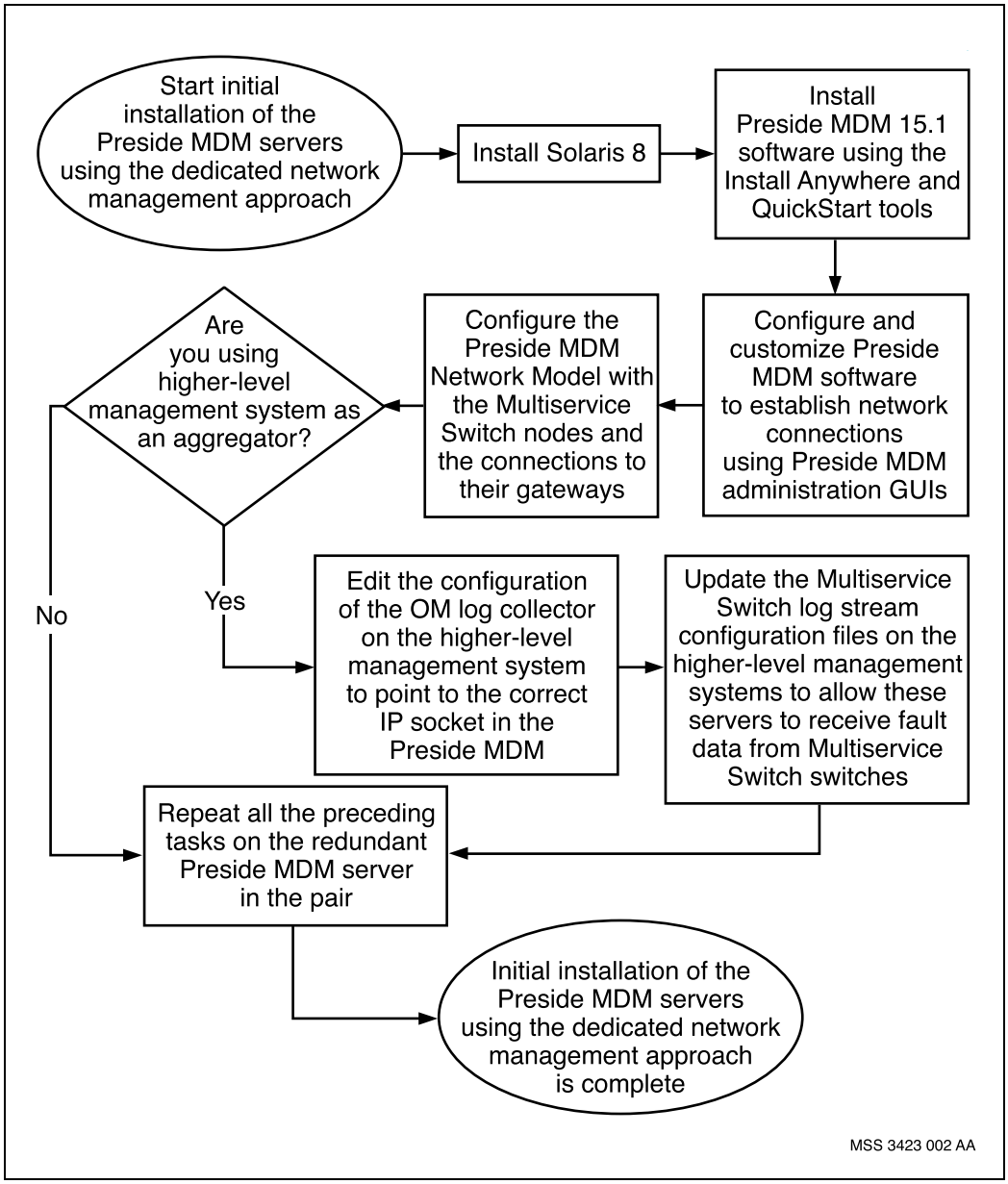
Deploying servers using the dedicated network management approach task

The "Deployment of servers using the dedicated network management approach task flow" (page 105) shows you the sequence of tasks performed to deploy Nortel Networks Preside Multiservice Data Manager (MDM) servers using the dedicated network management approach for the following solutions:

- Packet Trunking - AAL1
- Universal Access - AAL1
- Universal Access - IP

For additional information on the tasks, go to "Task flow references" (page 106).

Figure 12
Deployment of servers using the dedicated network management approach task flow



Prerequisites to deploying servers using the centralized network management approach

- See the requisite information in the Installation Method document that describes Preside MDM software loading and configuration.

Task flow references

- Installing Solaris 8. See 241-6001-100 *Preside MDM Installation*.
- Loading MDM software. See 241-6001-100 *Preside MDM Installation*.
- Configuring server software with the QuickStart tool. See 241-6001-100 *Preside MDM Installation*. Configuring servers for Nortel Networks Multiservice Switch nodes. See 241-6001-303 *Preside MDM Administrator Guide*. Configuration. See 241-6001-309 *Preside MDM Management Data Provider User Guide*.
- Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.
- Installing and configuring the log delivery application. For voice over ATM (VoA) (UA-AAL1 and PT-AAL1), see Configuration Management in the SDM documentation suite for this Succession release. Log delivery application overview. See Product Overview in the SDM documentation suite for this Succession release. For voice over IP (VoIP) (UA-IP), see the IEMS documentation suite.

Deployment of Preside MDM servers using the centralized network management approach

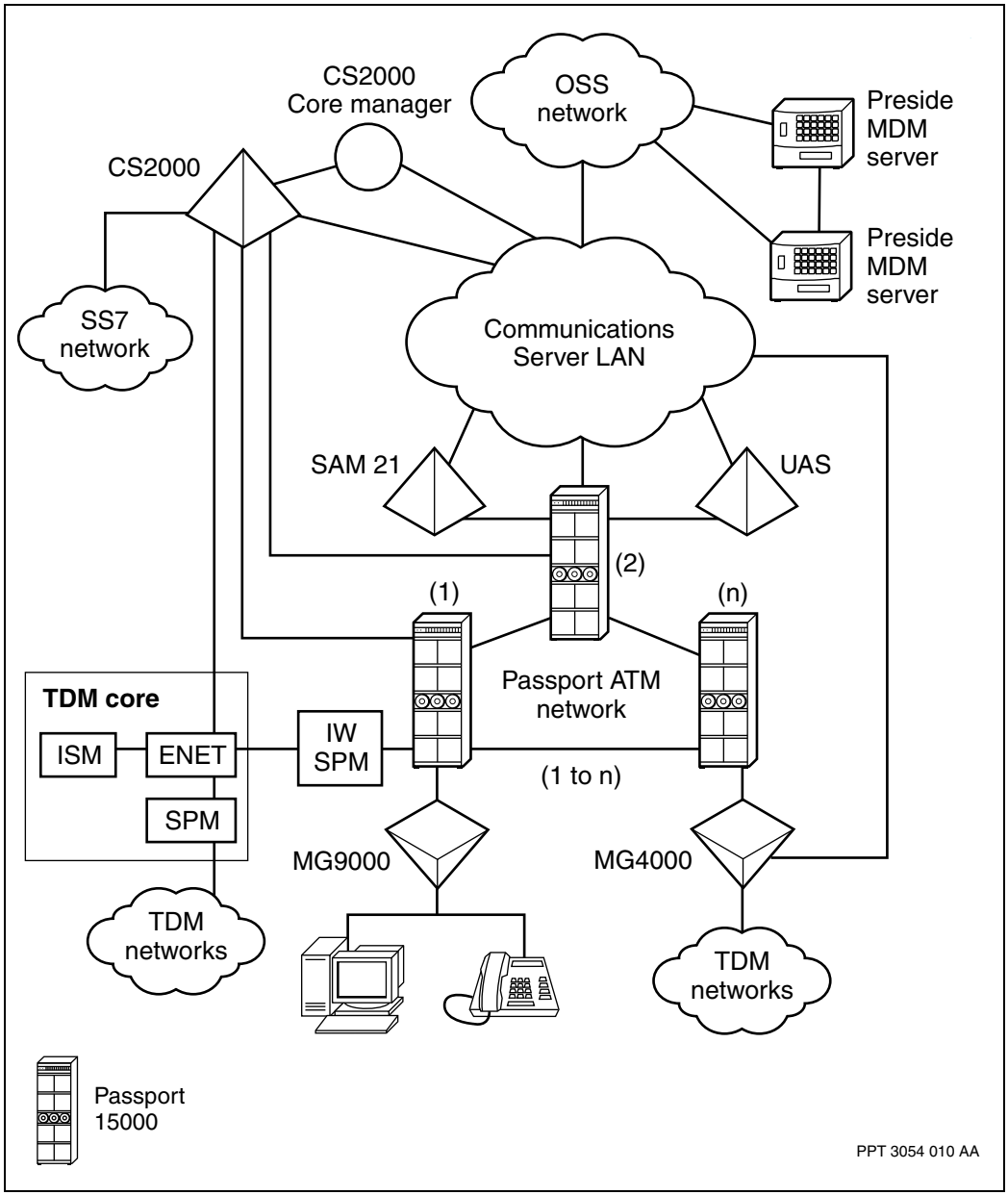
In the centralized network management approach for deploying Nortel Networks Preside Multiservice Data Manager (MDM) servers a single pair of servers can manage the Nortel Networks Multiservice Switch nodes in several Succession offices. The reduction of the number of pairs of servers needed to manage the Succession offices in a network results in a cost reduction for the customer.

See the figure "Deployment of servers using the centralized network management approach task flow" (page 110). This figure displays the centralized OAM for a Succession network consisting of one office. A second office could be connected to the pair of servers pictured in the figure.

- "Prerequisites to deploying servers using the centralized network management approach" (page 106)
- "Deploying servers using the centralized network management approach task" (page 109)

Note: Deployment of Preside MDM servers is performed by representatives from Nortel Networks GNPS as part of the initial installation of the Succession Network.

Figure 13
Servers deployed using the centralized network management approach



Prerequisites to deploying servers using the centralized network management approach

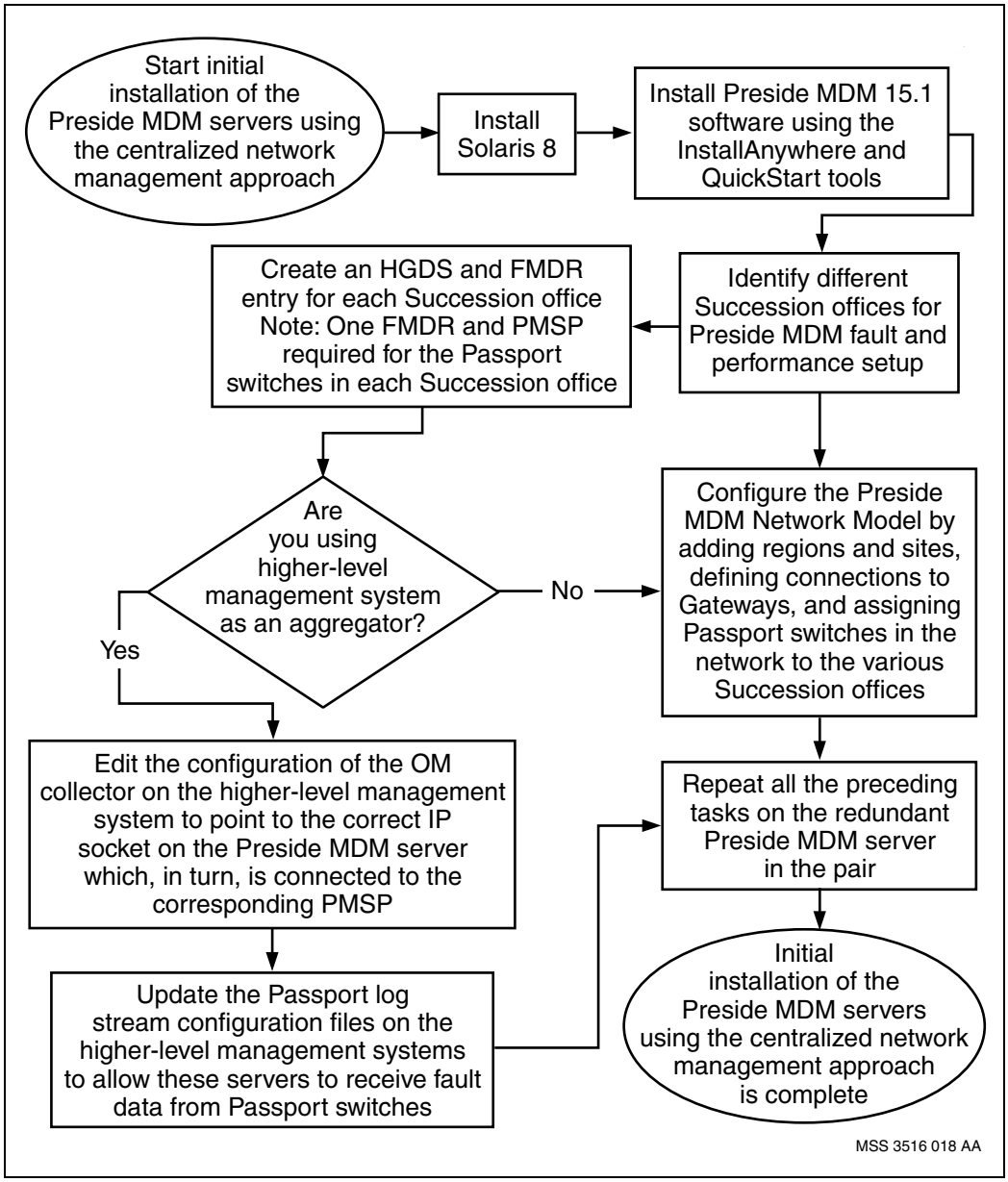
- See the requisite information in the Installation Method document that describes Preside MDM software loading and configuration.

Deploying servers using the centralized network management approach task

The "Deployment of servers using the centralized network management approach task flow" (page 110) shows you the sequence of tasks performed to deploy Nortel Networks Preside Multiservice Data Manager (MDM) servers using the centralized network management approach for the Packet Trunking - AAL1, Universal Access - AAL1, or Universal Access - IP solutions. For additional information on the tasks, go to "Task flow references" (page 111).

Note: The centralized network management approach for deploying Preside MDM servers can be used with the Packet Trunking - AAL1 solution which employs higher-level management system aggregation. This approach can also be used with the Universal Access - AAL1 and Universal Access - IP solutions, in which the server is directly connected to the OSS network.

Figure 14
Deployment of servers using the centralized network management approach task flow



Task flow references

- Installing Solaris 8. See 241-6001-100 *Preside MDM Installation*.
- Loading Preside MDM software. See 241-6001-100 *Preside MDM Installation*.
- Configuring Preside MDM software with the QuickStart tool. See 241-6001-100 *Preside MDM Installation*. Configuring servers for Nortel Networks Multiservice Switch nodes and FMDR server redundancy for surveillance access. See 241-6001-303 *Preside MDM Administrator Guide*. Configuration. See 241-6001-309 *Preside MDM Management Data Provider User Guide*.
- Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.
- Edit the configuration of the OM log collector. See the SDM documentation.
- Installing and configuring the log delivery application. See Configuration Management in the SDM documentation suite for this Succession release. Log delivery application overview. See Product Overview in the SDM documentation suite for this Succession release. For voice over IP (VoIP) (UA-IP), see the IEMS documentation suite.
- Select if Preside MDM alarms are sent to every SDM server in the Succession network or only one. See the SDM documentation.

In-service migration of Preside MDM servers to the centralized network management approach without using the higher-level management system as an aggregator

Migrate Nortel Networks Preside Multiservice Data Manager (MDM) servers in your Succession network from the dedicated to the centralized network management approach while in-service if you want one pair of servers to manage the Nortel Networks Multiservice Switch nodes in several Succession offices. Follow this method if your Succession network does not use the higher-level management system as an aggregator.

Note: An in-service migration of Preside MDM servers to the centralized network management approach is not a hitless software migration. While the migration has no effect on network service and causes no service outage, it may result in the interruption of the operator's view of the Multiservice Switch network.

- "Prerequisites for an in-service migration to the centralized network management approach without using the higher-level management system as an aggregator" (page 112)
- "In-service migration to the centralized server network management approach without using the higher-level management system as an aggregator task flow" (page 112)

Prerequisites for an in-service migration to the centralized network management approach without using the higher-level management system as an aggregator

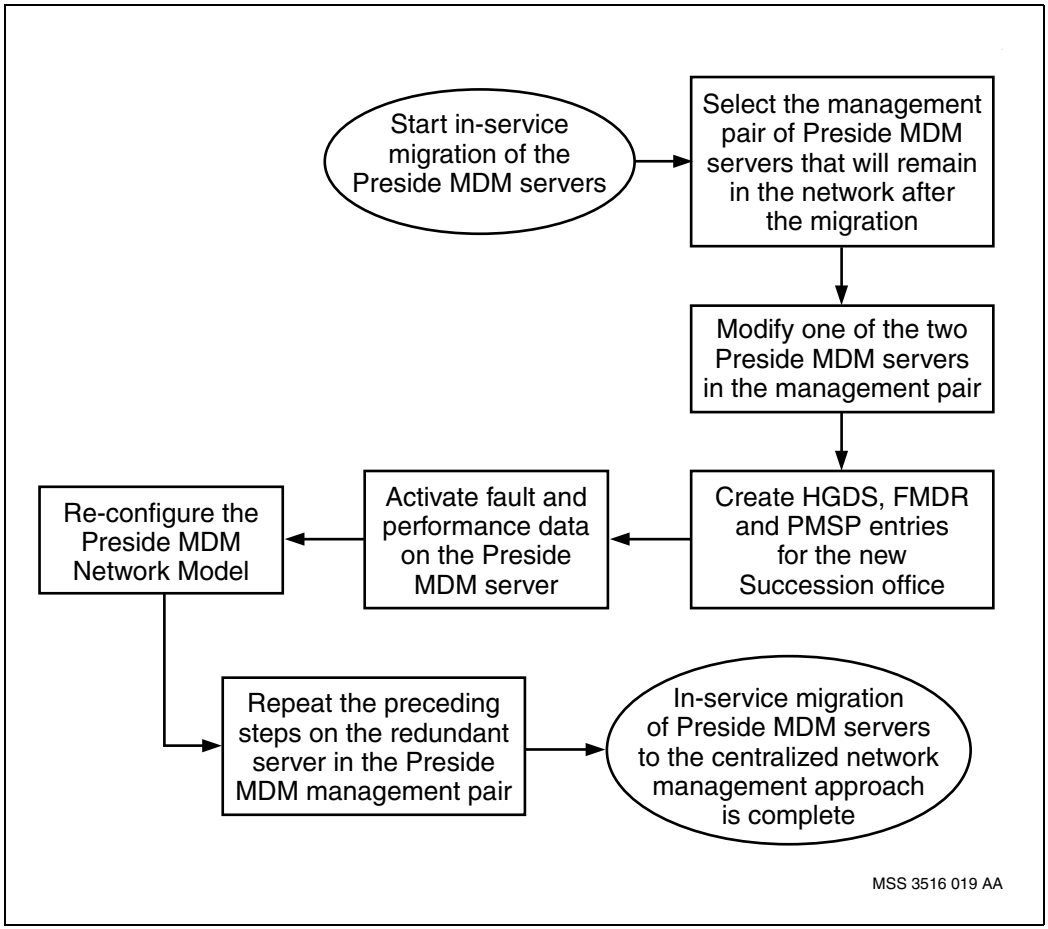
See the prerequisite information in NN10185-461 *Upgrading Preside MDM in Succession Networks*.

In-service migration to the centralized server network management approach without using the higher-level management system as an aggregator task flow

The "In-service migration to the centralized network management approach without using the higher-level management system as an aggregator task flow" (page 113) shows you the sequence of tasks needed to perform an in-service migration of Nortel Networks Preside Multiservice Data Manager

(MDM) servers from the dedicated to the centralized network management approach in a Succession network without using the higher-level management system as an aggregator. For additional information on the tasks, go to "Task flow references" (page 114).

Figure 15
In-service migration to the centralized network management approach without using the higher-level management system as an aggregator task flow



The pair of servers not selected to remain in the network following the in-service migration are now available for redeployment.

Task flow references

- Deploying Regionalized Models and Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.
- Performance Measurement Stream Processor (PMSP) and FMIP Management Data Router. 241-6001-310 *Preside MDM Server Reference Guide*. Configuring MDM servers for Nortel Networks Multiservice Switch nodes and FMDR redundancy for surveillance access. See 241-6001-303 *Preside MDM Administrator Guide*.
- Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.

In-service migration of Preside MDM servers to the centralized network management approach using the higher-level management system as an aggregator

Migrate Nortel Networks Preside Multiservice Data Manager (MDM) servers in your Succession network from the dedicated to the centralized network management approach if you want one pair of servers to manage the Nortel Networks Multiservice Switch nodes in several Succession offices. Follow this method if your Succession network uses the higher-level management system as an aggregator.

Note: An in-service migration of Preside MDM servers to the centralized network management approach is not a hitless software migration. While the migration has no effect on network service and causes no service outage, it can interrupt the operator's view of the Multiservice Switch network.

- See "Prerequisites for an in-service migration to the centralized network management approach using the higher-level management system as an aggregator" (page 115)
- See "In-service migration to the centralized server network management approach using the higher-level management system as an aggregator task flow" (page 115)

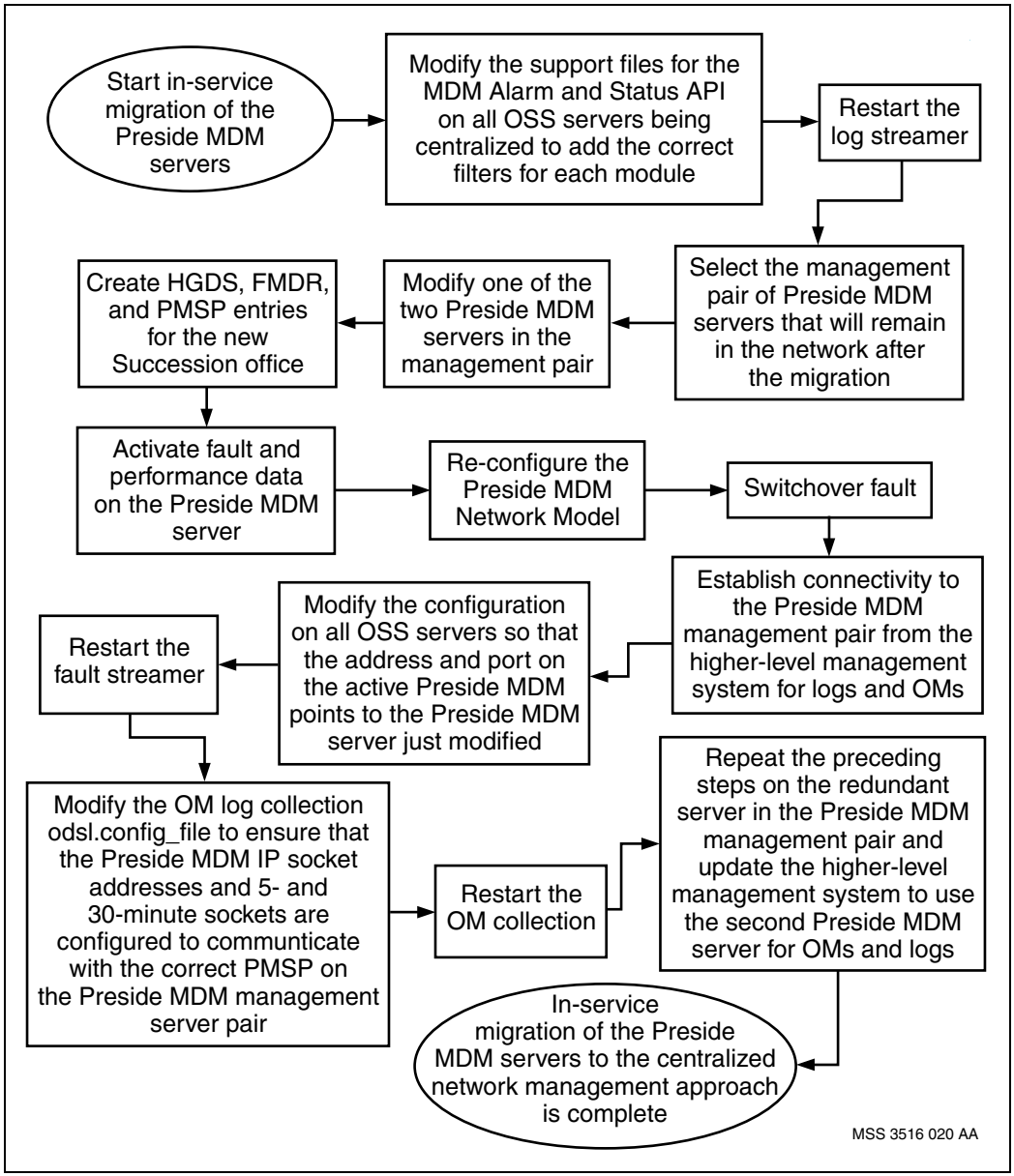
Prerequisites for an in-service migration to the centralized network management approach using the higher-level management system as an aggregator

See the prerequisite information in NN10185-461 *Upgrading Preside MDM in Succession Networks*.

In-service migration to the centralized server network management approach using the higher-level management system as an aggregator task flow

The "In-service migration to the centralized network management approach using the higher-level management system as an aggregator task flow" (page 116) shows you the sequence of tasks needed to perform an in-service migration of Nortel Networks Preside Multiservice Data Manager (MDM) servers from the dedicated to the centralized network management approach in a Succession network using the higher-level management system as an aggregator. For additional information on the tasks, go to "Task flow references" (page 114).

Figure 16
In-service migration to the centralized network management approach using the higher-level management system as an aggregator task flow



The pair of servers not selected to remain in the network following the in-service migration are now available for redeployment.

Task flow references

For the documentation references for the tasks as follows, see the table "Reference documentation for task flow" (page 118).

- See the SDM documentation. [If you are using SDM as an aggregator, modify the *RegMsg.API*, *CreateMsg.API*, *GetMsg.API* log streamer files on both SDM servers to have the correct filters for the modules that are specific to them.]
- Install and configure higher-level management system application.
- Deploying Regionalized Models and Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.
- Activate higher-level management system application.
- See the SDM documentation. [Establish the connection to the management Preside MDM server pair from the SDM server.
  - If you are using SDM as an aggregator, modify the log streamer *plslog.cfg* file so that the address and port on the currently in use Preside MDM server point to the primary Preside MDM server of the management pair that will remain in the network following the migration.
  - Restart the fault streamer as specified in the SDM documentation.]
- Performance Measurement Stream Processor (PMSP) and FMIP Management Data Router. See 241-6001-310 *Preside MDM Server Reference Guide*. Configuring MDM servers for Multiservice Switch nodes and FMDR redundancy for surveillance access. See 241-6001-303 *Preside MDM Administrator Guide*.
- Using Network Viewer to build a Network Model. See 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Table 5
Reference documentation for task flow

Task	SDM reference (VoA)	IEMS reference (VoIP)
Install and configure the log delivery application	See Configuration Management in the SDM documentation suite for this Succession release.	See the IEMS documentation suite for this Succession release.
Log delivery application overview	See Product Overview in the SDM documentation suite for this Succession release.	See the IEMS documentation suite for this Succession release.
Activate log delivery application	See Upgrades in the SDM documentation suite for this Succession release.	See the IEMS documentation suite for this Succession release.

Preside MDM server configuration for Passport 8600 fault management (PT-AAL1 and UA-AAL1)

This section describes fault management when using the higher-level management system in a Succession voice over ATM (VoA) solution only. VoA refers to Packet Trunking - AAL1 (PT-AAL1) or Universal Access - AAL1 (UA-AAL1) only.

In a Succession voice over IP solution (VoIP), the Integrated Element Management System (IEMS) handles Passport 8600 faults directly, without involving Nortel Networks Preside Multiservice Data Manager (MDM) servers. It does not handle Nortel Networks Multiservice Switch 15000 or Media Gateway faults directly. For those faults, IEMS uses Preside MDM. For more information about fault management for VoIP, refer to the IEMS documentation suite for this Succession release.

Customers with Preside MDM servers in a Succession Network have the option of configuring the servers to receive SNMPv2c traps from a set of Passport 8600 nodes that are performing as the CS LAN in a Succession office. These traps are merged into the same stream of alarms, originating from Multiservice Switch 15000 nodes and Preside MDM servers, that is being forwarded to the higher-level management system where they are converted into the SCC2 format.

Note: Fault collection is the only aspect of Passport 8600 network management that is integrated into Preside MDM in the Succession solution. All other aspects of Passport 8600 network management continue to be supported as before. For the details on OAM tasks and access for managing Multiservice Switch nodes, see NN10028-111 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*.

- "Downloading the Passport 8600 DCD cartridge from the ESD web site" (page 119)
- "Configuring Preside MDM for Passport 8600 fault management" (page 122)
- "Verifying Preside MDM configuration for Passport 8600 fault management" (page 125)

Downloading the Passport 8600 DCD cartridge from the ESD web site

After verifying that Nortel Networks Preside Multiservice Data Manager (MDM) server has sufficient disk space, you can begin to download the Passport 8600 cartridge and accompanying documentation from Nortel Networks ESD web site. When you download the software, a copy of the software is placed in the directory you specify.

- "Prerequisites" (page 119)
- "Procedure steps" (page 120)
- "Variable values" (page 121)

Prerequisites

- Ensure that there is enough disk space on the Preside MDM server.
- You need to have root access to login to the Preside MDM servers.
- You need a Nortel Networks Web access account with a user ID and password to enter into the appropriate fields when prompted to log in. Contact your Nortel Networks customer representative for more information on accessing the web site.

- Refer to the software downloads area of the Nortel Networks web site (www.nortelnetworks.com) to determine the software load that you must install to manage Passport 8600 nodes.
- The software you need to download may be composed of more than one file. Ensure that you download all software files that belong to the release you require.

Procedure steps

1. Login to the Preside MDM server as the root user.
2. Open an xterm session.
3. Start Netscape and go to *www.nortelnetworks.com*.
4. In the Technical Support section of the window, click *Software Downloads*.

   The Technical Support window opens.
5. In the *Select from* section of the Technical Support window, select *Product Families* and *Preside* from the items contained in the list boxes.

   The *... choose a product ...* list box fills with item names.
6. In the *... choose a product ...* section, select *Preside Multiservice Data Manager Device Integration Cartridges* from the items contained in the list box.

   The *... and get the content* list box fills with item names.
7. In the *... and get the content* section, select *Software* from the items contained in the list box and click *Go*.

   The Preside Multiservice Data Manager Device Integration Cartridges window opens.
8. In the Preside Multiservice Data Manager Device Integration Cartridges window, click on *MDM Passport 8600 Cartridge V3.1.0.*

   Note 1: If version 3.1.0 of the software does not appear in the window, contact your Nortel Networks account prime.

   Note 2: The software you want to download may be composed of more than one file. Ensure that you download all software files that belong to the release you require.

   The Software: Software Detail Information window opens.
9. Click on the load name listed beside the File Download heading.

   A File Download dialog opens.

10 In the File Download dialog, select the Save this file to disk option.

A Save As dialog opens.

11 Specify a folder in the home directory of the userID of the Preside MDM user to indicate where you want the software placed. This is typically:

/tmp/pp8600DCDSW

12 Click *Save*.

13 Repeat step 5 to step 12 except download 241-6003-100 *Preside Generic Device Integration Installation Guide* by selecting *Documentation* rather than *Software* in step 7 and specify the `/tmp/pp8600DCDdoc` rather than `/tmp/pp8600DCDSW` folder in step 11.

14 On the Preside MDM server, use the xterm window to change directories to the directory containing the software. (This is the same directory you specified in step 11.):

cd /tmp/pp8600DCDSW

15 Untar the software:

tar -xvf <load_name>.tar

16 Repeat step 1 through step 15 on the other Preside MDM server to download the software.

Variable values

Variable	Value
`<load_name>`	The name of the software load file that you want to download.

Configuring Preside MDM for Passport 8600 fault management

After downloading and untarring the software for the node's DCD cartridge, configure Nortel Networks Preside Multiservice Data Manager (MDM) servers to receive SNMPv2c traps from Passport 8600 nodes.

Prerequisites

- Install the Passport 8600 DCD cartridge on the Preside MDM servers. For details, see "Downloading the Passport 8600 DCD cartridge from the ESD web site" (page 119).
- The DCD cartridge needs to support the version of the software that is running on the Passport 8600 nodes.
- Prior to configuring Preside MDM servers, use the Succession Release Update GUI to delete the Succession release version number (SNxx). To delete it, leave the Succession Release blank. The GUI modifies the */opt/MagellanNMS/system/info/release.name* file. If you do not delete the release information, the *packageadd* process fails and an error message is produced.
- You need to have root access to login to Preside MDM servers.
- You need a list of the nodes that you are going to manage with Preside MDM servers. Include the device name and IP address for each node on that list as well.
- You need to know the SNMP community string for each node that you are going to manage with Preside MDM.
- You need to know the host name or IP address of the Preside MDM servers when establishing cross-connectivity between the servers.

Procedure steps

1. Login to the server as the root user.
2. Open an xterm session.

3 In the xterm window, change directory to the newly untarred directory containing the software file you downloaded in step 14 of "Downloading the Passport 8600 DCD cartridge from the ESD web site" (page 119). Generally, the newly untarred file is in the `./Passport8600` directory.

4 Add the DCD cartridge to the SVMList by executing the following command:

`pkgadd -d . <filename>`

5 Add the SMDR and TVSR fault servers to the Server Administration configuration using the GUI of the Server Administration tool.

For details on using the Server Administration tool, see 241-6001-303 *Preside MDM Administrator Guide*.

6 Add the SMDR fault server to your General Management Data Router server configuration using the GUI of the GMDR Administration tool.

For details on using the GMDR Administration tool, see 241-6001-303 *Preside MDM Administrator Guide*.

7 Add the following line to the `/opt/MagellanNMS/cfg/smdr.svr` file:

`:<host>:idi_PP8600dcd:0:0:`

8 Re-enter the Succession release version number in the */opt/MagellanNMS/system/info/release.name* file.

Use the Succession MDM Software Migration GUI to set Succession Release. Use the format: SNxx.y. For example, SN06.2 or SN07. The release number is the same one that you deleted prior to beginning this procedure.

9 Repeat step 1 to step 8 on the other Preside MDM server.

10 Establish server cross-connectivity between the two servers using the GUI of the GMDR Administration tool.

For details, see the procedure for configuring GMDR to access surveillance data servers in 241-6001-303 *Preside MDM Administrator Guide*.

Note: When you enter the server name of the other server in the Server Name field of the GMDR Add Server dialog, use the SMDR suffix.

11 Repeat step 10 on the other server.

12 From the Fault menu in the main Preside MDM dialog, select *IP Discovery* in order to use the IP discovery application to find the nodes.

The IP Device Discovery dialog opens.

For details on using the IP Discovery application, see 241-6001-011 *Preside MDM Fault Management User Guide*.

13 In the IP Device Discovery window, select the *Network Settings* tab and specify the IP address, community string, port, device type, and SNMP version information in the provided fields.

14 From the Device menu in the IP Device Discovery dialog, select the *Discover ...* option.

The Discovery dialog opens.

15 Enter the IP address of the node you wish to find in the IP Address field.

16 Select both the Register to Receive Traps check box and PP8600 option from the Discover As drop-down menu in the Options area of the Discovery window.

Note: You may need to expand the Options area of the Discovery window in order to see the Register to Receive Traps check box and Discover As drop-down menu.

17 Click *Start*.

When the Discovery process is finished, click *Close*.

18 Exit the IP Discovery tool by closing all the windows and returning to the Preside MDM main window.

19 Repeat step 12 to step 18 on the other server.

20 Configure a trap receiver for each Preside MDM server on each node.

For details on configuring a trap receiver, see the Configuring SNMP settings in Passport 8600 NTP 315545-B *Managing Platform Operations and Using Diagnostic Tools.*

Note: The new configuration can be de-activated by stopping the *idi_PP8600DCD* process.

Variable values

Variable	Value
`<filename>`	The <filename> is the name of the file containing the DCD cartridge software.
`<host>`	The <host> is the name of the server on which the Preside MDM application is currently running.

Verifying Preside MDM configuration for Passport 8600 fault management

After completing the procedures for downloading the Passport 8600 DCD cartridge and configuring Nortel Networks Preside Multiservice Data Manager (MDM) servers to receive SNMPv2c traps from the nodes, verify that the servers are set up properly for fault management by using the Preside MDM Network Model.

- "Prerequisites" (page 125)
- "Procedure steps" (page 125)

Prerequisites

- You need to know a password to enable the Network Model Editing feature.

Procedure steps

1. From the Preside MDM Fault menu, select *Network Viewer*.

   Verify that the icon for the node appears in the display of the Network Model.

2. From the Network Model Edit menu, select *Enable Network Model Editing*.

   An Enable Editing dialog opens and prompts you for a password.

3. Enter the password at the prompt to enable Network Model editing.

4. From the Network Model Edit menu, select *Show Excluded Modules ...* to list the unassigned network elements.

   The unassigned network elements appear in the Excluded Modules window in the Component List dialog.

5. Assign the new nodes to the appropriate site using drag and drop in the Network Viewer display.

6. Position the node icons in the network using the Network Viewer display.

7. From the File menu, select *Save View* to save the Network Model.

8. From the File menu, select *Exit* to close the Network Viewer display.

9. Repeat step 1 to step 8 on the other Preside MDM server.

10. New router - green (on) & grey (no connectivity)

Chapter 5
Overview of the EdgeLink 100 multiplexor to Multiservice Switch 15000 interface configuration

The EdgeLink 100 multiplexor (MUX) is a Telco Systems broadband multiplexor. For more general information about the EdgeLink 100 MUX, see NN10028-111 *Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks Product and Technology Basics PT-AAL1/UA-AAL1/UA-IP*. For information on connecting a Nortel Networks Multiservice Switch 15000 node to an EdgeLink 100 MUX, see NN10600-130 *Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade*.

For diagrams depicting a logical view of the connection between the EdgeLink 100 MUX and a pair of 4-port DS3Ch ATM FPs and DS3 sparing panel on a Multiservice Switch 15000 node, see the following figures:

- "Connection between one EdgeLink 100 MUX and a Multiservice Switch 15000 node" (page 128)
- "Connection between four EdgeLink 100 MUXs and a Multiservice Switch 15000 node" (page 129)

Note: You can also support two or three EdgeLink 100 MUXs from the same pair of 4-port DS3Ch ATM FPs and DS3 sparing panel.

Figure 17
Connection between one EdgeLink 100 MUX and a Multiservice Switch 15000 node

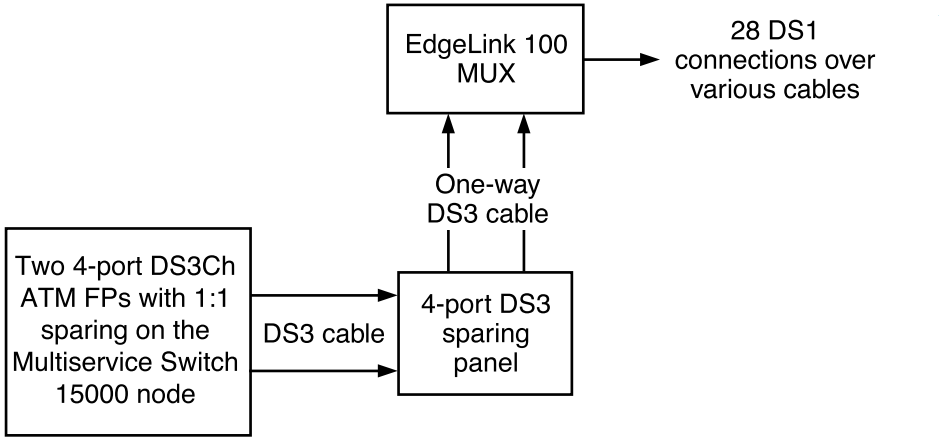
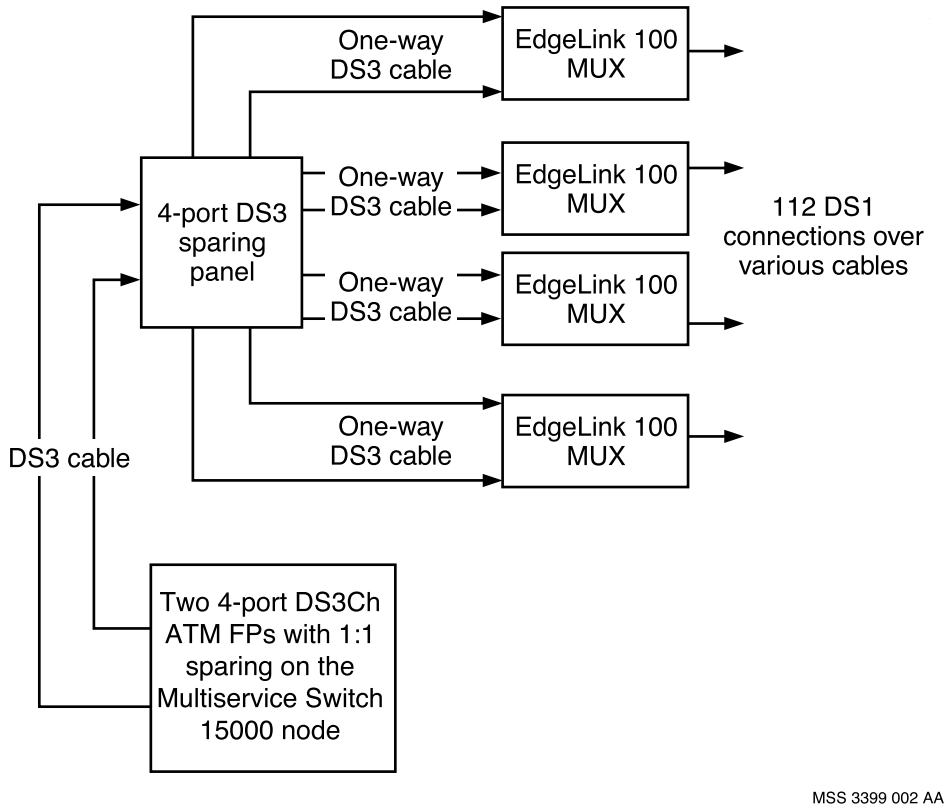


Figure 18
Connection between four EdgeLink 100 MUXs and a Multiservice Switch 15000 node



To configure the EdgeLink 100 MUX to interface with a Multiservice Switch 15000 node, refer to the following tables:

- "DS1 provisioning parameters" (page 130)
- "DS3 provisioning parameters" (page 130)

Table 6
DS1 provisioning parameters

DS1 interface status	Options
channel name = default	none
line code = B8ZS	ami or B8ZS
line buildout = 0-133 feet	0-133 feet, 133-266 feet, 266-399 feet, 399-533 feet, or 533-655 feet
loopback = none	none
service mode = in-service	in-service or out-of-service
equipped state = equipped	equipped, unequipped, or disabled
input activity = activity present	cannot be set because it is operational or out-of-service
mask state = monitoring	cannot be set because it is operational

Table 7
DS3 provisioning parameters

DS3 interface status	Options
operation mode = c-bit parity mode (data link disabled)	c-bit parity mode (data link enabled), c-bit parity mode (data link disabled), or M13 mode
line code = B3ZS	cannot be set
line buildout = 0-100 feet	0-100 feet, 100-200 feet, or 200-450 feet
transmit timing = local	local or loop
BER threshold = 10^{-9}	10 -9, 10 -8, 10 -7, or 10 -6
BER value = 7.5E - 11	none
loopback = none	none
service mode = in-service	in-service or out-of-service

Chapter 6
Use cases for Succession Network incremental growth

This section presents use cases for Succession Network incremental growth. It gives a high-level overview of the steps for adding new components to an existing Succession network solution as follows:

- Packet Trunking - AAL1 (PT-AAL1)
- Universal Access - AAL1 (UA-AAL1)
- Universal Access - IP (UA - IP)

This chapter includes the following sections:

Use cases for incremental growth of a Succession network (PT-AAL1/UA-AAL1)

This section presents use cases for incremental growth of an existing Succession Packet Trunking - AAL1 (PT-AAL1) or Universal Access - AAL1 (UA-AAL1) solution. It gives a high-level overview for the addition of new components to a network.

This section includes the topics as follows:

Note: The installation, configuration, and connectivity of the component hardware is beyond the scope of this chapter.

Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)

Nortel Networks assumes that the new FP pair is being added to a Nortel Networks Multiservice Switch 15000 node configured as part of an existing Succession PT-AAL1 or UA-AAL1 network.

- "Prerequisites to adding a new FP pair" (page 133)
- "Adding a new FP pair to a node" (page 134)
- "Considerations for adding a new FP pair to a node" (page 134)

Prerequisites to adding a new FP pair

- Prior to starting to add the new FP pair, consult your completed network and site plans. Network planning is usually performed by the customer with assistance from representatives from the Nortel Networks network engineering group. Record the type and version of the FPs that are being installed as well as the slot numbers in the site plan. For more information on choosing FP slots, see NN10600-130 *Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade*.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.
- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new FP pair is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

Adding a new FP pair to a node
Procedure steps

1. Identify the available slots for a new pair of FPs. Once you have installed the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the new FPs on the Multiservice Switch 15000 node by applying any of the templates as follows:
   a. *PT-AAL1/WUA-AAL1 FP-4pOC3SmIrAtm*
   b. *PT-AAL1/WUA-AAL1 FP-4pOC12SmIrAtm*
   c. *WUA-AAL1 FP-4pDS3ChAtm*
   d. *PT-AAL1/WUA-AAL1 FP-16pOC3SmIrAtm*
   e. *WUA-AAL1 FP-12pDS3Atm*
3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. If you are adding more than one new FP pair, repeat step 1 to step 3 for each new pair of FPs added to the node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.
6. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified nodes and save the new model.

Considerations for adding a new FP pair to a node

The following considerations were kept in mind by Nortel Networks network engineering group when adding a new FP pair to a node:

- At initial installation of the node, FP pairs can be put through the full suite of available card or port tests. However, when adding an FP pair to an existing shelf that is currently providing service, the set of recommended card or port tests should be limited to those that are guaranteed not to effect other parts of the system.
- Adding a 16-port OC3 ATM FP pair with in-band connections over an ATM PNNI link requires different configuration procedures than those used when adding any other FP pair.

- Both types of 4-port OC-12c/STM-4 FP, NTHW11 and NTHW86, can be deployed in a mixed pair of redundant FPs. The *ipRoutesPoolCapacity* attribute for the FP needs to be configured with a value of zero before the NTHW11 FP is installed as a replacement FP. For more details on the required configuration for this deployment, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

  Note: The NTHW11 version of the 4-port OC-12 FP cannot be deployed in Succession Network configurations employing in-band OAM.

Addition of new node-to-node ATM interface in Succession network (PT-AAL1/UA-AAL1)

This section is a high-level overview of the steps involved in adding a new node-to-node ATM link to an existing Succession PT-AAL1 or UA-AAL1 network.

- "Prerequisites to adding a new Multiservice Switch ATM PNNI" (page 135)
- "Adding a new Multiservice Switch ATM PNNI" (page 136)
- "Considerations for adding a new Multiservice Switch ATM PNNI" (page 136)

Prerequisites to adding a new Multiservice Switch ATM PNNI

- Prior to starting to add a new Nortel Networks Multiservice Switch ATM PNNI, consult your completed network and site plans. Network planning is usually performed by the customer with assistance from representatives from the Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.
- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

- Information on using Nortel Networks Preside Multiservice Data Manager Nodal Provisioning templates to configure new FPs is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

Adding a new Multiservice Switch ATM PNNI

Procedure steps

1. Identify the available ports on a pair of 4-port or 16-port OC-3, 4-port OC-12 or 12-port DS3 FPs. If you are unable to identify any available ports, see "Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)" (page 133). Once you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the new interfaces on the Multiservice Switch 15000 node by applying any of the templates for ATM PNNI interfaces, as follows:
   a. *PT-AAL1/WUA-AAL1 ATM PNNI Interface-4pOC3*
   b. *PT-AAL1/WUA*-AAL1 *ATM PNNI Interface-16pOC3*
   c. *WUA-AAL1 ATM PNNI Interface-12pDS3*
3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. If you are adding more than one new ATM PNNI, repeat step 1 to step 3 for each new ATM PNNI.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.
6. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

Considerations for adding a new Multiservice Switch ATM PNNI

The following considerations were kept in mind by the Nortel Networks network engineering group when adding a new Nortel Networks Multiservice Switch ATM PNNI:

- If you are using in-band management over the PNNI link, additional configuration is required.

- You may wish engineer bandwidth pools rather than accept the default values.
- Engineer the virtual path connection (VPC) space if you are running digital subscriber line (DSL) virtual paths (VPs).
- Adding a 16-port OC3 ATM FP pair with in-band connections over an ATM PNNI link requires different configuration procedures than those used when adding any other FP pair.
- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "EM/<remoteNodeName> ATMIF/<remote AtmIfinstance>", where <remoteNodeName> and <remote AtmIfinstance> are customer-defined.

Addition of new MG4000 to Succession network (PT-AAL1/UA-AAL1)

Nortel Networks assumes that the new MG4000 is being added to an existing Succession Network that includes a Nortel Networks Multiservice Switch 15000 node already loaded with either a 4-port OC-3 or 16-port OC-3 function processor (FP) pair with an available pair of protected ports.

- "Prerequisites to adding a new MG4000" (page 137)
- "Adding a new MG4000" (page 138)
- "Considerations for adding a new MG4000" (page 139)

Prerequisites to adding a new MG4000

- Prior to starting to add the new MG4000, you need to have completed your network planning. Network planning is usually performed by the customer with assistance from representatives from the Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.

- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new MG4000 is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity between Preside MDM servers and Multiservice Switch 15000 nodes is assumed to have been established before the new MG4000 is added to the network.
- Before a new MG4000 is added to the network both the Preside MDM servers and Multiservice Switch 15000 nodes are assumed to be running compatible software loads. For more information, see Nortel Networks GIS Installation Methods documents.
- Preside MDM servers need to have downloaded the most recent patches for the software release running on the server.

Adding a new MG4000

Procedure steps

1. Identify the available ports on a pair of 4-port or 16-port OC-3 FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). Once you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG4000 and the Multiservice Switch 15000 node by applying either the *PT-AAL1/WUA-AAL1 MG4000 ATM Interfaces 4pOC3* or *PT-AAL1/WUA-AAL1 MG4000 ATM Interfaces 16pOC3* template.
3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. Repeat step 1 to step 3 for each new MG4000 ATM Interface added to the Multiservice Switch 15000 node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

6 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG4000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG4000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

7 Link the newly created MG4000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

8 Using the Preside MDM Network Model tool, create an entry or icon for the new MG4000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

9 Regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

10 Using the Preside MDM Nodal Provisioning tool, create two control PVCs connecting the Multiservice Switch 15000 node and the CS2000. Perform any necessary modifications to the Multiservice Switch 15000 nodes in the network after creating these PVCs.

11 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.

Considerations for adding a new MG4000

The following considerations were kept in mind by the Nortel Networks network engineering group when adding a new MG4000:

- The signaling PVCs connected to the MG4000 need to be routed as diversely as possible.
- On 16-port OC3 FP pairs with in-band connections, MG4000 connection space must be engineered to remain within the connection space capacity for this FP.
- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of “GEN/MG4K-<SPMID> - <CLLI>”, where <SPMID> and <CLLI> are customer-defined.

Addition of new MG9000 with OC-3 to Succession network (UA-AAL1)

Nortel Networks assumes that the new MG9000 is being added to an existing Succession UA-AAL1 solution that includes a Nortel Networks Multiservice Switch 15000 node already loaded with either a 4-port OC-3 or 16-port OC-3 function processor (FP) pair with an available pair of protected ports.

Prerequisites to adding a new MG9000 with OC-3

- Prior to starting to add the new MG9000, you need to have completed your network planning. Network planning is usually performed by the customer with assistance from representatives from the Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.
- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new MG9000 is contained in the Nortel Networks GIS Installation Methods documents and the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity between Preside MDM servers and Multiservice Switch 15000 nodes is assumed to have been established before the new MG9000 is added to the network.
- Before a new MG9000 is added to the network both the Preside MDM servers and Multiservice Switch 15000 nodes are assumed to be running compatible software loads.

- Preside MDM servers need to have downloaded the most recent patches for the software release running on the server.

Adding a new MG9000 with OC-3

Procedure steps

1. Identify the available ports on a pair of 4-port OC-3 or 16-port OC-3 FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). After you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node by applying either the *WUA-AAL1 MG9000 ATM Interfaces-4pOC3* or *WUA-AAL1 MG9000 ATM Interfaces-16pOC3* template.
3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. Consult the table with values for MG9000 non-IMA interfaces.
4. Repeat step 1 to step 3 for each new MG9000 ATM interface added to the Multiservice Switch 15000 node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
6. Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
7. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.
8. Using the Preside MDM Network Model Editor tool, choose either the FDMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

9 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

10 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.

Considerations for adding a new MG9000 with OC-3

The following considerations were kept in mind by the Nortel Networks network engineering group when adding a new MG9000:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "GEN/MG9K-<SPMID>-<CLLI>", where <SPMID> and <CLLI> are customer-defined.

Addition of new MG9000 with DS1 IMA to Succession network (UA-AAL1)

Nortel Networks assumes that the new MG9000 with inverse multiplexing for ATM (IMA) is being added to an existing Succession UA-AAL1 solution that includes a Nortel Networks Multiservice Switch 15000 node already loaded with 4-port DS3ChAtm FPs and available DS3 ports.

- "Prerequisites to adding a new MG9000 with DS1 IMA" (page 142)
- "Adding a new MG9000 with DS1 IMA" (page 143)
- "Considerations for adding a new MG9000 with DS1 IMA" (page 145)

Prerequisites to adding a new MG9000 with DS1 IMA

- Prior to starting to add the new MG9000, you need to have completed your network planning. Network planning is usually performed by the customer with assistance from representatives from the Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.

- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new MG9000 is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity between the Preside MDM servers and the Nortel Networks Multiservice Switch 15000 nodes is assumed to have been established before the new MG9000 is added to the network.
- Before a new MG9000 is added to the network both the Preside MDM servers and Multiservice Switch 15000 nodes are assumed to be running compatible software loads.
- Preside MDM servers need to have downloaded the most recent patches for the software release running on the server.

Adding a new MG9000 with DS1 IMA

Procedure steps

1. Identify the available ports on a pair of 4-port DS3ChAtm FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). Once you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the required DS3 ports on the 4-port DS3ChAtm FP. You need to configure the DS3 port first using the *WUA-AAL1 DS3 port - 4pDS3ChAtm* template and values from the Network Engineering Specification Book before configuring the IMA interface. Repeat this step for each DS3 port that needs to be configured.
3. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node by applying the *WUA-AAL1 MG9000 2xDS1 - IMA ATM Interface - 4pDS3ChAtm* template once and the *WUA-AAL1 1xDS1- IMA Link - 4pDS3ChAtm* template for each additional interface.

Note: The *WUA-AAL1 MG9000 2xDS1 - IMA ATM Interface* template configures a 2xDS1 IMA MG9000 link to another Multiservice Switch 15000 node using a DS3 port on a 4-port DS3ChAtm FP. The *WUA-AAL1 1xDS1-IMA Link - 4pDS3ChAtm* template provisions a DS1-IMA link on the IMA virtual port of a DS3 port of a 4-port DS3ChAtm FP.

4 Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. Consult the table with values for MG9000 ATM IMA interfaces.

5 Repeat step 1 to step 4 for each new MG9000 ATM IMA interface added to the Multiservice Switch 15000 node.

6 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

7 Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

8 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

9 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

10 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

11 Using the Command Console, activate and commit the service data changes.

Considerations for adding a new MG9000 with DS1 IMA

The following considerations were kept in mind by Nortel Networks network engineering group when adding a new MG9000 with ATM IMA:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of “GEN/MG9K-<SPMID> - <CLLI>”, where <SPMID> and <CLLI> are customer-defined.

Addition of new MG9000 with DS3 ATM to Succession network (UA-AAL1)

This section gives an overview of the steps for adding a new MG9000 with a 12pDS3 user-to-network interface (UNI) interface to an existing Succession UA-AAL1 network.

The Succession network must include a Nortel Networks Multiservice Switch 15000 node already loaded with 12-port DS3 ATM type FP cards, with an available pair of DS3 ports.

- "Prerequisites to adding a new MG9000 with DS3 ATM" (page 146)
- "Adding a new MG9000 with DS3 ATM" (page 147)
- "Considerations for adding a new MG9000 with DS3 ATM" (page 148)

Prerequisites to adding a new MG9000 with DS3 ATM

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book.The customer and Nortel Networks' network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity must exist between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new MG9000 with DS3 ATM

Procedure steps

1. Identify the available ports on a pair of 12-port DS3 Atm FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). Install and configure the new FP pair, then continue to the next step.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node. Do this by applying the *WUA-AAL1 MG9000 DS3 ATM Interface-12pDS3Atm* template.
3. Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the *Attribute Summary*, consult the table that contains values for MG9000 DS3 ATM interfaces.
4. Repeat step 1 to step 3 for each new MG9000 DS3 ATM interface you add to the Multiservice Switch 15000 node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
6. Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
7. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.
8. Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
9. Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
10. Using the Command Console, activate and commit the service data changes.

Considerations for adding a new MG9000 with DS3 ATM

Nortel Networks network engineering group considers the following when adding a new MG9000 with DS3 ATM:

- This interface requires use of a 4pDS3 sparing panel (code NTHR79xx-xx). Use only ports 0 through 3, and connect a single panel to P0 (data), and P3 (control). Therefore, one FP is deployed with one NTHR79 4-port 1:1 sparing panel.
- Unlike the DS3 private network-to-network (PNNI) interface between Nortel Networks Multiservice Switch 15000 nodes, with this interface only one channel can exist between the MG9000 and the Multiservice Switch 15000 node. If that channel is lost, the MG9000 is in ESA until the channel is returned to service.
- You can use deployed 12pDS3 cards on which PNNI interfaces are already provisioned to provision new MG9000 interfaces.
- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "GEN/MG9K-<SPMID> - <CLLI>", where <SPMID> and <CLLI> are customer-defined.

Addition of new IW-SPM to Succession network (PT-AAL1/UA-AAL1)

Nortel Networks assumes that you are adding the new Interworking-Spectrum Peripheral Module (IW-SPM) to an existing Succession solution.

The Succession network must include a Nortel Networks Multiservice Switch 15000 node already loaded with an 4-port OC-3 or 16-port OC-3 function processor (FP) pair, with an available pair of protected ports.

- "Prerequisites to adding a new IW-SPM" (page 149)
- "Adding a new IW-SPM" (page 149)
- "Considerations for adding a new IW-SPM" (page 150)

Prerequisites to adding a new IW-SPM

- Prior to starting to add the new IW-SPM, you need to have completed your network planning. Network planning is usually performed by the customer with assistance from representatives from Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.
- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new IW-SPM is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity between Preside MDM servers and Multiservice Switch 15000 nodes is assumed to have been established before the new IW-SPM is added to the network.
- Before a new IW-SPM is added to the network both the Preside MDM servers and Multiservice Switch 15000 nodes are assumed to be running compatible software loads.
- Preside MDM servers need to have downloaded the most recent patches for the software release running on the server.

Adding a new IW-SPM

Procedure steps

1. Identify the available ports on a pair of 4-port OC-3 or 16-port OC-3 FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). Once you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the IW-SPM and the Multiservice Switch 15000 node by applying either the *PT-AAL1/WUA-AA*L1*IW-SPM Interface 4pOC3* or *PT-AAL1/WUA-AAL1 IW-SPM Interface 16pOC3* template.

3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. Repeat step 1 to step 3 for each new IW-SPM Interface added to the Multiservice Switch 15000 node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
6. Using the Preside MDM Network Model tool, create an entry or icon for the new IW-SPM and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
7. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.
8. Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new IW-SPM in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the IW-SPM while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
9. Link the newly created IW-SPM icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
10. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

Considerations for adding a new IW-SPM

The following considerations were kept in mind by Nortel Networks network engineering group when adding a new IW-SPM:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of “GEN/IW-SPM-<SPMID> - <CLLI>”, where <SPMID> and <CLLI> are customer-defined.

Addition of new DPT-SPM to Succession network (PT-AAL1/ UA-AAL1)

Nortel Networks assumes that the new Dynamic Packet Trunking-Spectrum Peripheral Module (DPT-SPM) is being added to an existing Succession solution that includes a Nortel Networks Multiservice Switch 15000 node already loaded with either a 4-port OC-3 or 16-port OC-3 function processor (FP) pair with an available pair of protected ports.

- "Prerequisites to adding a new DPT-SPM" (page 151)
- "Adding a new DPT-SPM" (page 152)
- "Considerations for adding a new DPT-SPM" (page 153)

Prerequisites to adding a new DPT-SPM

- Prior to starting to add the new DPT-SPM, you need to have completed your network planning. Network planning is usually performed by the customer with assistance from representatives from Nortel Networks network engineering group.
- You will need to refer to some customer-specific values that are found in the Network Engineering Specification Book. This book is the product of co-operation between the customer and Nortel Networks network engineering group.
- You will need to refer to some Succession Network-specific values that are found in NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- Information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new DPT-SPM is contained in the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- Connectivity between Preside MDM servers and Nortel Networks Multiservice Switch 15000 nodes is assumed to have been established before the new DPT-SPM is added to the network.
- Before a new DPT-SPM is added to the network both the Preside MDM servers and Multiservice Switch 15000 nodes are assumed to be running compatible software loads.

- Preside MDM servers need to have downloaded the most recent patches for the software release running on the server.

Adding a new DPT-SPM

Procedure steps

1. Identify the available ports on a pair of 4-port OC-3 or 16-port OC-3 FPs. If you are unable to identify any available ports, see “Addition of new FP pair in Succession network (PT-AAL1/UA-AAL1)” (page 133). Once you have installed and configured the new FP pair, continue this task.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the DPT-SPM and the Multiservice Switch 15000 node by applying either the *PT-AAL1/WUA-AAL1 DPT-SPM Interfaces-4pOC3* or *PT-AAL1/WUA-AAL1 DPT-SPM Interfaces-16pOC3* template.
3. Perform any necessary additional network-specific configuration using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. Repeat step 1 to step 3 for each new DPT-SPM interface added to the Multiservice Switch 15000 node.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
6. Using the Preside MDM Network Model tool, create an entry or icon for the new DPT-SPM and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
7. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.
8. Using the Preside MDM Network Model Editor tool, choose either the FNmode or Gen icon to represent the new DPT-SPM in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
9. Link the newly created DPT-SPM icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

10 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.

Considerations for adding a new DPT-SPM

The following considerations were kept in mind by Nortel Networks network engineering group when adding a new DPT-SPM:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "GEN/DPT-SPM-<SPMID> - <CLLI>", where <SPMID> and <CLLI> are customer-defined.

Use cases for incremental growth of a Succession network (UA-IP)

This section presents use cases for incremental growth of an existing Succession Universal Access - IP (UA-IP) solution. It gives an overview of the steps for adding new components to a network.

This section includes the topics as follows:

Note: The installation, configuration, and connectivity of the component hardware is beyond the scope of this chapter.

Addition of new FP pair to a Succession network (UA - IP)

This section is an overview of the steps for adding a new FP pair to a Nortel Networks Multiservice Switch 15000 node in an existing Succession UA - IP network.

This section includes the topics as follows:

Prerequisites for adding a new FP pair to a node

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- Consult your completed network and site plans. Record the type and version of the FPs that you are installing, as well as the slot numbers in the site plan. For more information on choosing FP slots, see NN10600-130 *Nortel Networks Multiservice Switch 15000/20000 Hardware Installation, Maintenance, and Upgrade*.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

Adding a new FP pair to a node

Procedure steps

1. Identify the available slots for a new pair of FPs. Install the new FP pair, then continue to the next step.
2. Using the Preside MDM Nodal Provisioning tool, configure the new FPs on the Multiservice Switch 15000 node. Apply any of the templates as follows:
   a. *UA-IP FP-4pOC3SmIrAtm*
   b. *UA-IP FP-4pOC12SmIrAtm*
   c. UA-IP *FP-12pDS3Atm*
   d. UA-IP FP-4pDS3ChAtm
   e. *UA-IP FP-4pGE*
   f. UA-IP *FP-4pOC3ChSmIr-TDM*
   g. UA-IP *FP-2pGeMmSrVsp3*
   h. *UA-IP FP-2pOC3ChSmIrVsp3*-o
3. Configure the network, as required. Use values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
4. To add more than one new FP pair to the node, repeat step 1 through step 3 for each new pair of FPs added.
5. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.
6. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified nodes and save the new model.

Considerations for adding a new FP pair to a node

The network engineering group at Nortel Networks considers the following when adding a new FP pair to a Nortel Networks Multiservice Switch 15000 node:

- At initial installation of the Multiservice Switch shelf, FP pairs can be put through the full suite of available card or port tests. However, when adding an FP pair to an existing shelf that is currently providing service, limit the set of recommended card or port tests to those that are guaranteed not to affect other parts of the system.

Addition of new MG9000 with OC-3 to Succession network (UA - IP)

This section is an overview of the steps for adding a new MG9000, with an OC-3 interface, to an existing Succession UA - IP network.

The Succession network must include a Nortel Networks Multiservice Switch 15000 node already loaded with a 4-port OC-3 function processor (FP) pair, with an available pair of protected ports.

In UA - IP, the MG9000 is supported on the same interfaces as in PT-AAL1 and UA-AAL1. However, the 12pDS3Atm and 4pDS3ChAtm FP cards do not support IP. Therefore, when configuring interfaces to the MG9000 on these cards, you must set up an optical hairpin. The optical hairpin terminates the IP from the MG9000.

> ***Note:*** This procedure creates two host entries only, one for MG9000 OAM, and another for MG9000 Call Control. You must create the other 16 entries manually.

This section includes the topics as follows:

Prerequisites to adding a new MG9000 with OC-3

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new MG9000 with OC-3

Procedure steps

1. Identify the available ports on a pair of 4-port OC-3 FPs. If you are unable to identify any available ports, see "Addition of new FP pair to a Succession network (UA - IP)" (page 155). Install and configure the new FP pair. Then continue to the next step.
2. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node. Do this by applying the *UA-IP IF-MG9000-4pOC3SmIrAtm* template.
3. Configure the network, as required. Use values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the Attribute Summary, consult the table that contains values for MG9000 OC-3 interfaces.
4. For each new MG9000 OC-3 interface you add to the Multiservice Switch 15000 node, repeat step 1 to step 3.
5. Manually create the remaining address resolution protocol (ARP) Host entries.
6. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
7. Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

8 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

9 Using the Preside MDM Network Model Editor tool, choose either the FDMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

10 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Considerations for adding a new MG9000 with OC-3

The network engineering group at Nortel Networks considers the following when adding a new MG9000 with OC-3:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. For the MG9000, Nortel Networks recommends a name format of "GEN/MG9K-<SPMID>-<CLLI>", where <SPMID> and <CLLI> are customer-defined. For the optical hairpin, Nortel Networks recommends a name format of "EM/<remoteNodeName> ATMIF/<remote AtmIf instance>", where <remoteNodeName> and <remote AtmIf instance> are customer-defined.

Addition of new MG9000 with STS-1/DS3 to Succession network (UA-IP)

This section is an overview of the steps for adding a new MG9000 with STS-1/DS3 interface to an existing Succession UA - IP network.

The Succession network must include a Nortel Networks Multiservice Switch 15000 node already loaded with 12-port DS3 ChAtm FPs and available DS3 ports.

This section includes the topics as follows:

- "Prerequisites to adding a new MG9000 with STS-1/DS3" (page 160)

Prerequisites to adding a new MG9000 with STS-1/DS3

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks' network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of the Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Both the Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new MG9000 with STS-1/DS3

Procedure steps

1. Identify the available ports on a pair of 12-port DS3Atm FPs. If you are unable to identify any available ports, see "Addition of new FP pair to a Succession network (UA - IP)" (page 155). Install and configure the new FP pair, then continue to the next step.
2. If required by the Network Engineering Specification Book only, add a new hairpin interface. To configure a new hairpin interface, use the Preside MDM Nodal Provisioning tool. If the optical hairpin is on a 4pOC3 FP, apply the *UA-IP IF-Hairpin-4pOC3SmIrAtm* template. If the optical hairpin is on a 4pOC12 FP, apply the *UA-IP IF-Hairpin-4pOC12SmIrAtm* template .
3. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node. Do this by

applying the *UA-IP IF-MG9000-12pDS3Atm* template. Apply it for each of the MG9000 DS3 interfaces in the Network Engineering Specification Book.

Note: The *UA-IP IF-MG9000-12pDS3Atm* template creates an interface to an MG9000 on 12psDS3Atm FPs. It provisions DS3s with an ATMIF on 12pDS3Atm FPs. The DS3s, ATMIF, and so on must not be configured previously.

4 Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the *Attribute Summary*, consult the tables that contain values for Hairpin ATM/IP interfaces, and for MG9000 STS-3/DS1 interfaces.

5 Repeat step 1 to step 5 for each new MG9000 STS-1/DS3 interface you add to the Multiservice Switch 15000 node.

6 Manually create the remaining address resolution protocol (ARP) Host entries.

7 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

8 Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

9 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

10 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

11 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

12 Using the Command Console, activate and commit the service data changes.

Considerations for adding a new MG9000 with STS-1/DS3

The network engineering group at Nortel Networks considers the following when adding a new MG9000 with STS-1/DS3:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. For the MG9000, Nortel Networks recommends a name format of “GEN/MG9K-<SPMID>-<CLLI>”, where <SPMID> and <CLLI> are customer-defined. For the optical hairpin, Nortel Networks recommends a name format of “EM/<nodeName> atmif/<n>”, where <nodeName> and <n> are customer-defined.

Addition of new MG9000 with DS1 IMA to Succession network (UA-IP)

This section is an overview of the steps for adding a new MG9000 with DS1 IMA to an existing Succession UA - IP network.

The Succession network must include a Nortel Networks Multiservice Switch 15000 node already loaded with 4-port DS3 ChAtm FPs and available DS3 ports, with at least 8xDS1 available within the DS3 port.

This section includes the following topics:

Prerequisites to adding a new MG9000 with DS1 IMA

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of the Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between the Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new MG9000 with DS1 IMA

Procedure steps

1. Identify the available ports on a pair of 4-port DS3ChAtm FPs. If you are unable to identify any available ports, see “Addition of new FP pair to a Succession network (UA - IP)” (page 155). Install and configure the new FP pair, then continue to the next step.

2. If required by the Network Engineering Specification Book only, add a new hairpin interface. Use the Preside MDM Nodal Provisioning tool to configure the new hairpin. If the hairpin is on a 4pOC3 FP, apply the *UA-IP IF-Hairpin-4pOC3SmIrAtm* template. If the hairpin is on a 4pOC12 FP, apply the *UA-IP IF-Hairpin-4pOC12SmIrAtm* template,

3. Using the Preside MDM Nodal Provisioning tool, configure the required DS3 ports on the 4-port DS3ChAtm FP. Configure the DS3 port first using the *UA-IP IF-DS3port- 4pDs3ChAtm* template and values from the Network Engineering Specification Book. Click Multiple creations to create all required DS3 ports, as per the Network Engineering Specification Book.

4. Using the Preside MDM Nodal Provisioning tool, configure the interface between the MG9000 and the Multiservice Switch 15000 node. Do this by applying the *UA-IP IF-MG9000-8xDS1-4pDS3ChAtm* template. Apply it for each of the MG9000 DS1 IMA interfaces in the Network Engineering Specification Book.

5. Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the *Attribute Summary*, consult the table that contains values for MG9000 DS1 IMA interfaces.

6. Repeat step 1 to step 5 for each new MG9000 DS1 IMA interface you add to the Multiservice Switch 15000 node.

7. Manually create remaining address resolution protocol (ARP) Host entries.

8. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

9. Using the Preside MDM Network Model tool, create an entry or icon for the new MG9000 and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

10 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 node and save the new model.

11 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

12 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Considerations for adding a new MG9000 with DS1 IMA

The network engineering group at Nortel Networks considers the following when adding a new MG9000 with DS1 IMA:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "GEN/MG9K-<SPMID>-<CLLI>", where <SPMID> and <CLLI> are customer-defined.

Addition of new Multiservice Switch inter-shelf IP interface to Succession network (UA-IP)

This section gives an overview of the steps for adding a new remote Nortel Networks Multiservice Switch 15000 node, linked with IP over ATM to another Multiservice Switch 15000 node at the CS2000 site, in a Succession UA-IP solution. This is known as a Multiservice Switch IP over ATM inter-shelf trunk interface.

Generally, in a Succession UA-IP solution, one primary Multiservice Switch 15000 node is situated in the office with the CS-LAN. It is connected to the CS-LAN via Gigabit Ethernet (GE), or OC-12. Other Multiservice Switch 15000 nodes can also be in the CS-LAN site, but are not necessarily connected to the CS-LAN for IP control/bearer traffic. The remaining Multiservice Switch 15000 nodes are situated in Remote Wire Centres (RWCs).

The primary Multiservice Switch 15000 node connected to the CS-LAN likely has an inter-shelf IP interface to each of the other Multiservice Switch 15000 nodes. Each of the other nodes is not necessarily directly linked to another RWC. However, in most cases, an IP over ATM connection exists that is used for bearer path IP between each RWC and every other RWC.

This section includes the topics as follows:

Prerequisites to adding a new Multiservice Switch IP over ATM inter-shelf trunk interface

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks. Consult the completed network and site plans.
- For customer-specific values, see the Network Engineering Specification Book.The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of the Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.

Adding a new Multiservice Switch IP over ATM inter-shelf trunk interface

Procedure steps

1 Identify the available ports on a pair of 4-port OC-3 or 4-port OC-12 FPs. If you are unable to identify any available ports, see "Addition of new FP pair to a Succession network (UA - IP)" (page 155). Install and configure the new FP pair, then continue to the next step.

2 Add the interface to the CS2000 site end of the new link. Use the Preside MDM Nodal Provisioning tool to configure the new interfaces on the Multiservice Switch 15000 node. Configure each of the inter-shelf Multiservice Switch IP over ATM interfaces in your Network Engineering Specification Book. If the interface is on a 4pOC3 FP, apply the *UA-IP IF-MSS-IPoATM-4pOC3SmIrAtm* template. If the interface is on a 4pOC12 FP, apply the *UA-IP IF-MSS-IPoATM-4pOC12SmIrAtm* template .

3 Add the interface to the remote site end of the new link, using the same templates as in step 2.

4 Using the Preside MDM Nodal Provisioning tool, configure the *UA-IP AC-RWC-Bearer -4pOC3SmIrAtm* template for each of the RWC-to-RWC bearer path connections in your Network Engineering Specification Book.

Alternatively, apply the *UA-IP AC-RWC-Bearer-4pOC12SmIrAtm* template if the inter-shelf link is on a 4pOC12 FP.

5 Manually create the nailed-up relay points (NRPs) on the CS2000-site Multiservice Switch 15000 shelf.

6 Manually create the IP routing (for example, static route) entries on the CS2000-site Multiservice Switch shelf, as specified in the Network Engineering Specification Book.

7 Perform additional network configuration, as required. Use values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

8 To add more than one new Multiservice Switch IP over ATM inter-shelf trunk interface, repeat step 1 to step 6 for each new interface.

9 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the service data changes.

10 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

Considerations for adding a new Multiservice Switch IP over ATM inter-shelf trunk interface

The network engineering group at Nortel Networks considers the following when adding a new Multiservice Switch IP over ATM inter-shelf trunk interface:

- If you are using in-band management over the private network-to-network interface (PNNI) link, additional configuration is required.
- You can engineer bandwidth pools rather than accept the default values.
- Engineer the virtual path connection (VPC) space if you are running digital subscriber line (DSL) virtual paths (VPs).
- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of "EM/<remoteNodeName> ATMIF/K<remote AtmIf instance>", where <remoteNodeName> and <remote AtmIf instance> are customer-defined.

Addition of new CS-LAN with GE (LAG and no LAG) to Succession network (UA-IP)

This section is an overview of the steps for adding a new CS-LAN with Gigabit Ethernet (GE), to an existing Succession UA - IP network. The interface can either use, or not use, a Link Aggregation Group (LAG).

The purpose of this procedure is to provide IP connectivity from a Nortel Networks Multiservice Switch 15000 node to the CS-LAN. A CS-LAN consists of a pair of Passport 8600 nodes, connected to a Multiservice Switch 15000 node.

Multiservice Switch 15000 nodes support GE links to a CS-LAN, using either of the configurations as follows:

- Single GE links on separate 4pGE FP cards, on a single Multiservice Switch 15000 node, using Protected Routes.
- Pairs of GE links in a Link Aggregation Group (LAG), with each pair on separate 4pGE cards, on a single Multiservice Switch 15000 node, using Protected Routes.

The existing network must include a Multiservice Switch 15000 node already loaded with 4-port GE FPs and available GE ports.

Generally, in the UA - IP solution, one primary Multiservice Switch 15000 node is situated in the office with the CS-LAN. It is connected to the CS-LAN via GE or OC-12. Other Multiservice Switch 15000 nodes are also in the CS-LAN site. However, they are not necessarily connected to the CS-LAN for IP control/bearer traffic. The remaining nodes are in Remote Wire Centres (RWCs).

This section includes the topics as follows:

- "Prerequisites to adding a new CS-LAN GE interface" (page 169)

  Note: This section does not discuss how to convert from single GE links without LAG, to two or more GE links in a LAG.

Prerequisites to adding a new CS-LAN GE interface

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new CS-LAN GE interface

Procedure steps

1. Identify the available ports on a pair of 4-port GE FPs. If you are unable to identify any available ports, see “Addition of new FP pair to a Succession network (UA - IP)” (page 155). Install and configure the new FP pair, then continue to the next step.
2. For GE links without LAG, using the Preside MDM Nodal Provisioning tool, configure the interface to the CS-LAN on the Multiservice Switch 15000 node. Do this by applying the *UA-IP IF-CSLAN-noLAG-4pGE* template for each of the CS-LAN GE interfaces in the Network Engineering Specification Book.
3. For pairs of GE links in a LAG, using the Preside MDM Nodal Provisioning tool, configure the interface to the CS-LAN on the Multiservice Switch 15000 node. Do this by applying the *UA-IP IF-CSLAN-LAG-4pGE* template for each of the CS-LAN GE with LAG interfaces in the Network Engineering Specification Book. If you require a third GE link in the LAG, add it manually.
4. Manually create IP routing (for example, static route) entries specified in the Network Engineering Specification Book.
5. Manually create OSPF including export rules for advertising local address and static routes to the CS-LAN.
6. Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the *Attribute Summary*, consult the table that contains values for CS-LAN GE interfaces, with or without LAG.
7. Repeat step 1 to step 6 for each new CS-LAN GE interface you add to the Multiservice Switch 15000 node.
8. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
9. Using the Preside MDM Network Model tool, create an entry or icon for the new CS-LAN and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
10. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

11 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

12 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Addition of new CS-LAN with OC-12 to Succession network (UA-IP)

This section is an overview of the steps for adding a new CS-LAN with an OC-12 link, to an existing Succession UA - IP network. A CS-LAN consists of a pair of Passport 8600 nodes.

The existing network must include a Nortel Networks Multiservice Switch 15000 node already loaded with 4-port OC-12 FPs and available OC-12 ports.

Multiservice Switch 15000 nodes support an OC-12 link to a CS-LAN. The interface consists of single OC-12 links, unprotected, from each of two Multiservice Switch 15000 nodes. The nodes are connected with a 1+1 protected IP over ATM inter-shelf link.

Generally, in the UA - IP solution, one primary Multiservice Switch 15000 node is situated in the office with the CS-LAN. It is connected to the CS-LAN via GE or OC-12. Other Multiservice Switch 15000 nodes are also in the CS-LAN site. However, they are not necessarily connected to the CS-LAN for IP control/bearer traffic. The remaining nodes are in Remote Wire Centres (RWCs).

> ***Note:*** For OC-12 CS-LAN links, the *UA-IP FP-4pOC12SmIrAtm* template configures a pair of OC-12 cards with default connectionPoolCapacity settings. You must override these settings to create the unprotected VCCs required by the CS-LAN interface. If you apply the FP template initially without overriding these settings, and then change those parameters manually, an outage of both OC-12 cards occurs. If the manual override is required during incremental commissioning, coordinate the change to minimize or eliminate traffic outages on any interfaces currently in use on the OC-12 cards.

This section includes the topics as follows:

Prerequisites to adding a new CS-LAN with OC-12

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using Nortel Networks Preside Multiservice Data Manager (MDM) Nodal Provisioning templates to configure the new CS-LAN with optical link, see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- You must download the most recent patches for the software release running on the Preside MDM servers.

Adding a new CS-LAN with OC-12 link

Procedure steps

1 Identify the available ports on a pair of 4-port OC-12 FPs. If you are unable to identify any available ports, see “Addition of new FP pair to a Succession network (UA - IP)” (page 155). Install and configure the new FP pair, then continue to the next step.

Note: In this case, a pair of 4pOC12 FPs must have other ports with LAPS-protected interfaces, in order for the HSM and EP switchovers to meet carrier-grade standards.

1 Using the Preside MDM Nodal Provisioning tool, configure the interface to the CS-LAN on the Multiservice Switch 15000 node. Apply the *UA-IP IF-CSLAN-4pOC12SmIrAtm* template.

2 Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession*

Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP. In the *Attribute Summary*, consult the table that includes values for CS-LAN OC-12 interfaces.

3. Repeat step 1 to step 4 for each new CS-LAN OC-12 interface you add to the Multiservice Switch 15000 node.
4. Manually create IP routing (for example, static route) entries specified in the Network Engineering Specification Book.
5. Manually create OSPF including export rules for advertising local address and static routes to the CS-LAN.
6. Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.
7. Using the Preside MDM Network Model tool, create an entry or icon for the new CS-LAN and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
8. Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.
9. Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.
10. Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Considerations for adding a new CS-LAN with OC-12 link

The network engineering group at Nortel Networks considers the following when adding a new CS-LAN with OC-12 link:

- The reporting for the REMOTEATMIFLABEL NTM statistic field is only useful if you give the *remoteAtmInterfaceLabel* attribute a meaningful name that is consistent with the naming conventions used at

your company. Preside MDM surveillance also uses this field. Nortel Networks recommends a name format of “GEN/8600_<ID>”, where <ID> is customer-defined.

Addition of new VSP and TDM physical interface to Succession network (UA-IP)

This section is an overview of the steps for adding new voice services processor (VSP) or time division multiplexing (TDM) physical interfaces, to an existing Succession UA - IP network.

The purpose of adding VSP and TDM physical interfaces is to create the component infrastructure for a VSP pair, including its packet interfaces to the media gateway controller (MGC). This procedure also creates physical interfaces for later adding the TDM trunks. For information about adding TDM trunks, see “Addition of new TDM trunk interface to Succession network (UA-IP)” (page 177).

For VSP3 FP cards, the TDM interfaces must be on 4pOC3 TDM cards.

For VSP3-o FP cards, the TDM interface must be on VSP3-o FP cards, using port 0 only.

This section includes the topics as follows:

- “Prerequisites to adding a new VSP or TDM physical interface” (page 175)
- “Adding a new VSP or TDM physical interface” (page 176)

Prerequisites to adding a new VSP or TDM physical interface

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.

- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- The network must use H.248 as the protocol between the MGC and the Media Gateway 15000, and virtual router access point (VRAP) as the connectivity scheme.
- You must download the most recent patches for the software release running on Preside MDM servers.

Adding a new VSP or TDM physical interface

Procedure steps

1. For a new TDM FP OC-3 interface, identify the available ports on a pair of 4-port OC3ChSmIr FPs. If you are unable to identify any available ports, see "Addition of new FP pair to a Succession network (UA - IP)" (page 155). Install and configure the new FP pair, then continue to the next step.
2. For each of the TDM interfaces in the Network Engineering Specification Book, use the Preside MDM Nodal Provisioning tool to configure the required OC-3 ports on the 4-port OC-3 TDM FPs. To do this, use the *UA-IP IF-TDM-4pOC3ChSmIr* template along with values from the Network Engineering Specification Book. Repeat this step for each OC-3 TDM port to configure.
3. For each of the VSP3-o interfaces in the Network Engineering Specification Book, use the Preside MDM Nodal Provisioning tool to configure the required OC-3 ports on the 2-port OC-3 Vsp3-o FP cards. To do this, apply the UA-IP IF-TDM-2pOC3ChSmIrVsp3-o template along with values from the Network Engineering Specification Book. Repeat this step for each VSP3-o port to configure.
4. Configure the network, as required, using values from the Network Engineering Specification Book and NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*. In the *Attribute Summary*, consult the table that includes values for VSP and TDM interfaces.

5 Repeat step 1 to step 5 for each new TDM interface you add to the Multiservice Switch 15000 node.

6 Manually create the associated IP routing (for example, static route) entries specified in the Network Engineering Specification Book.

7 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

8 Using the Preside MDM Network Model tool, create an entry or icon for the new VSP or TDM physical interface and links to the specific pair of ports selected on the Multiservice Switch 15000 node. For more information on creating and editing links in the Preside MDM Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

9 Using the Preside MDM Network Model tool, regenerate the Network Model for the modified Multiservice Switch 15000 nodes and save the new model.

10 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

11 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Addition of new TDM trunk interface to Succession network (UA-IP)

This section is an overview of the steps for adding a new time division multiplexing (TDM) trunk interface, to an existing Succession UA - IP network. The purpose of adding new TDM trunk interfaces is to create individual profiles and DS1-based TDM trunks. You must add the trunks one at a time.

For some trunk types, you must add profiles before adding the associated trunks. After that, you can add the trunks in order, as specified by the Network Engineering Specification Book.

This section includes the topics as follows:

Prerequisites to adding a new TDM trunk interface

- Complete your network planning. For assistance, contact your representatives from the network engineering group at Nortel Networks.
- For customer-specific values, see the Network Engineering Specification Book. The customer and Nortel Networks network engineering group produce this book jointly.
- For Succession Network-specific values, see the NN10225-512 *Nortel Networks Multiservice Switch 15000 and Media Gateway 15000 in Succession Networks Configuration Attribute Summary PT-AAL1/UA-AAL1/UA-IP*.
- For information on using the Nodal Provisioning application of Nortel Networks Preside Multiservice Data Manager (MDM), see the 241-6001-610 *Preside MDM Nodal Provisioning User Guide*.
- There must be connectivity between Preside MDM servers and the Nortel Networks Multiservice Switch 15000 nodes.
- Preside MDM servers and Multiservice Switch 15000 nodes must be running compatible software loads.
- The network must use H.248 as the protocol between the MGC and the Media Gateway 15000 (MG15000), and virtual router access point (VRAP) as the connectivity scheme.
- You must download the most recent patches for the software release running on the Preside MDM servers.
- The VSP and TDM physical interfaces must be already applied and activated. For more information, see "Addition of new VSP and TDM physical interface to Succession network (UA-IP)" (page 175).

Adding a new TDM trunk interface

Procedure steps

1 For a new PRI trunk on a VSP3 FP, first create a PRI trunk profile. Apply the *TT-PRIProfile-2pGeMmSrVsp3* template for each of the VSP3s that

contain PRI trunks, as specified in the Network Engineering Specification Book.

2 For a new PRI trunk on a new VSP3-o FP, first create a PRI trunk profile. Apply the *TT-PRIProfile-2pOC3ChSmIrVsp3-o* template for each of the VSP3s that contain PRI trunks, as specified in the Network Engineering Specification Book.

3 For a new PTS trunk on a VSP3-o FP, first create a PTS trunk profile. Apply the *TT-PTSProfile-2pOC3ChSmIrVsp3-o* template for each of the VSP3-os that contain PTS trunks, as specified in the Network Engineering Specification Book.

4 Activate the changes.

5 For a new TDM port, first configure the LAPS STS component. Apply the *TT-LapsSts-TDM* template for each of the TDM ports (4pOC3TDM or VSP3-o) as specified in the Network Engineering Specification Book. You can click Multiple creations to create all the STS components under the LAPS for a port pair.

Note: You cannot activate the changes until you add at least one Trunk under each STS you create.

6 For each ISUP trunk on VSP3, apply the *TT-ISUPTrunk-2pGeMmSrVsp3* template. Repeat this step for each ISUP trunk on VSP3, as specified in the Network Engineering Specification Book.

7 For each PRI trunk on VSP3, apply the *TT-PRITrunk-2pGeMmSrVsp3* template. Repeat this step for each PRI trunk on VSP3, as specified in the Network Engineering Specification Book.

8 For each ISUP trunk on VSP3-o, apply the *TT-ISUPTrunk-2pOC3ChSmIrVsp3-o* template. Repeat this step for each ISUP trunk on VSP3-o, as specified in the Network Engineering Specification Book.

9 For each PRI trunk on VSP3-o, apply the *TT-PRITrunk-2pOC3ChSmIrVsp3-o* template. Repeat this step for each PRI trunk on VSP3-o, as specified in the Network Engineering Specification Book.

10 For each PTS trunk on VSP3-o, apply the *TT-PTSTrunk-2pOC3ChSmIrVsp3-o* template. Repeat this step for each PTS trunk on VSP3-o, as specified in the Network Engineering Specification Book.

11 Using the Preside MDM Nodal Provisioning tool or Command Console, activate and commit the new service data.

12 Using the Preside MDM Network Model Editor tool, choose either the FNMOD or GEN icon to represent the new MG9000 in the Succession network and link it to the specific pair of ports selected on the Multiservice

Switch 15000 node. The FNMOD supports one link that terminates on the MG9000 while GEN supports multiple links. For more information on creating and editing links in the Network Model, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

13 Link the newly created MG9000 icon to the Multiservice Switch 15000 node in the Network Model. For more information, see 241-6001-015 *Preside MDM Network Model Administrator Guide*.

Appendix A
Time-of-day updates for seasonal time changes

Seasonal time changes, such as the change from Standard Time to Daylight Saving Time (DST) or back again, require that the time kept by the Nortel Networks Multiservice Switch ATM Core and Packet Core networks in the Succession solution be updated using the procedure documented here. Typically in North America, seasonal time changes occur at approximately 2:00 AM on a Sunday in the spring and fall.

Prerequisites to updating the time of day for seasonal time changes

- Nortel Networks Multiservice Switch ATM Core network needs to use a supported version of the Network Time Protocol (NTP) to synchronize the network time of day.
- All Nortel Networks Preside Multiservice Data Manager (MDM) servers and Multiservice Switch nodes must be configured according to the standard configuration and recommendations specified in the Succession documentation.
- Preside MDM servers need to be configured with a valid time zone that has an enabled seasonal time changeover capability. Such a configuration ensures that the server's local time will handle the time change automatically, using the standard Solaris-based mechanism.
- All Preside MDM servers and Multiservice Switch nodes within a region need to belong to the same time zone.
- The script needs to be installed on both Preside MDM servers. Installing the script on both servers provides redundancy in case one of the servers is unavailable while the script is executing. If you are installing the script on more than one server, Nortel Networks recommends leaving an interval of one minute before running the script on each server. The exception to this rule is Preside MDM servers running as client-servers. Preside MDM client-servers do not require the script to be installed.
- During the execution of the script, no configuration or operational tasks can run on the Multiservice Switch nodes or Preside MDM servers. For example, there should not be a software migration nor disk cleanup running while the script is executing.
- This procedure needs to be repeated on a regional-basis in order to ensure all the Preside MDM servers and Multiservice Switch nodes are updated.

Updating the time of day for seasonal time changes task flow

This task flow displays the sequence of tasks you need to perform to update the time-of-day on Nortel Networks Multiservice Switch nodes for seasonal time changes. To link to any task, go to "Task flow navigation" (page 183).

Figure 19
Updating the time of day for seasonal time changes task flow

Task flow navigation

- “Updating the time of day for seasonal time changes” (page 184)
- “Monitoring the script” (page 189)

Updating the time of day for seasonal time changes

Nortel Networks recommends that a System Administrator (“root”) perform the procedures that comprises this task.

Prerequisites

Prior to executing the script, perform the following recommended steps to ensure no system surveillance outage occurs:

- Start the nmstool application and configure it to be administering the session servers. If the system administrator is remotely accessing the system the correct settings for the display variables must be met. (Where would the user find the correct display variable settings?)
- Enable Log mode in the Alarm Display tool and make the alarms for all nodes in the region viewable by removing all filters.
- Verify that the seasonal time change has occurred in the region in question. Typically in North America, seasonal time changes occur at approximately 2:00 AM on a Sunday in the spring and fall.

Have the following information available before executing the script:

- The new offset value for the *todchangeover* attribute. For example, -300 is Eastern Standard Time (5 hours earlier than UTC) and -240 is Eastern Daylight saving time (4 hours earlier than UTC).
- The name of the HGDS group to be specified in the procedure. This information is only needed if you are not using the default HDGS group name.
- A valid Nortel Networks Multiservice Switch user ID and password with an impact-level of at least service is needed for Preside Multiservice Data Manager (MDM) group authentication.

Configuration

Configuration needs to be performed annually per server.

1. Determine the dates of the seasonal time change.

   For example, during the fall of 2002, October 27th was the date of the seasonal time change and Nortel Networks recommended running the script at 2:01 AM. During the spring of 2003, April 6th was the date of the seasonal time change and Nortel Networks recommended running the script at 3:01 AM. On each subsequent Preside MDM server upon which the script is run, add one minute to the time when you set it to begin running originally.

2. Run the crontab editor (crontab -e) to edit the crontab entry under your administration userid:

   <minute hour day month> * /todchangover.script <new offset value> -auth <Passport group> <Passport userid for groupname> <Passport password for groupname>

   Note: This step needs to be repeated annually. Nortel Networks recommends that you program the time change each year on January 1st for both the spring and fall time-of-day change.

   For an example of the command used in this step complete with sample values that reset the time offset for the spring and fall seasonal change, see “Example steps” (page 187).

3. Verify the crontab has been updated by listing the contents of the cron file:

   more /var/spool/cron/crontabs/root

4. Log out of the Preside MDM server.

5. Repeat step 1 through step 4 on the redundant Preside MDM server. Configuring both servers provides redundancy in case the primary server is not available during the time changeover period specified in the command in step 2. Once you have completed these steps on the second server, configuration is complete.

Execution

Execution needs to be performed twice annually.

1. Log on to a Preside MDM server just prior to the seasonal time changeover.
2. Select Log mode from the nmstool set menu to set the GUI of the Alarm Display tool. Use this GUI to monitor the execution of the script.

   Note: For more information about enabling Log mode in the Alarm Display tool, see 241-6001-011 *Preside MDM Fault Management User Guide*.
3. Set the filters for the 70150001 and 301007* series of alarm messages to display using the Alarm Display tool. You can follow the progress of the tochangeover script by viewing the node time change alarms (70150001) and todchangeover script alarms (301007* series).
4. The 70150001 alarm is the alarm you want to see because it indicates that the node's time offset has changed by more than 100 seconds. You should expect one of these alarms for each node in the group specified on the script command line (see step 2). You will not see the 70150001 alarm when the script executes on the second Preside MDM server if the script running on the first server was successful in changing the node time offset. The 301007* alarm indicates that some sort of error occurred during the execution of the script and intervention by an operator is required to complete the time offset change.
5. Begin monitoring the alarms produced by the script just prior to the seasonal time change. For more information about monitoring the alarms generated by the script, see "Monitoring the script" (page 189).
6. Ensure that the script has successfully executed without any unexpected errors by reviewing the content of the `/tmp/tod_output` file.

   Note 1: The records in this temporary file are appended to every time the script or executable is run; however, they are overwritten following a server reboot. To save your records prior to a reboot, create a new non-temporary file for storing them.

   Note 2: During the time changeover period during which the server changes its time offset until the node changes its time offset (in the fall, 62 minutes from 1:59 DST to 2:01 EST and in the spring, 1 minute from 2:00 EST to 3:01 DST), Performance Management Stream Processor (PMSP) data is lost. PMSP data will be accurate again at the next 5 or 30 minute interval after the interval featuring the time changeover (in the fall, the 5-minute data from 2:10 EST and 30-minute data from 3:00 EST and in the spring, the 5-minute data from 3:10 DST and 30-minute data from 4:00 DST).

Example steps

The following steps are examples of Nortel Networks Preside Multiservice Data Manager (MDM) server cron entry for changing the time offset on a node as in the command appearing in step 2 of the "Updating the time of day for seasonal time changes" (page 184). The sample variable values used in these example steps are based on the seasonal time changes mentioned in step 1 of "Updating the time of day for seasonal time changes" (page 184).

1 Set the values for making the time-of-day change occurring at 2:01 AM on October 27th, 2002 for the Eastern time zone:

```
1 2 27 10 * /todchangeover.script -300 -auth ACCESS
fred samsam
```

2 Set the values for making the time-of-day change occurring at 3:01 AM on April 6th, 2003 for the Eastern time zone:

```
1 3 6 4 * /todchangeover.script -240 -auth ACCESS fred
samsam
```

Note 1: These steps are only an example. The values you use in your configuration might differ from the values shown here. Consult your network engineer to ensure the values you are using are accurate for your configuration.

Note 2: Remember that for additional Preside MDM servers the times specified for running the script should be one minute later.

Variable values

Variable	Value
<minute hour day month>	The exact time, down to the minute, when you want to set the change of the time offset value to occur. It is not necessary to use more digits than necessary for each of these values. For example, represent April with `4` and October with `10`.
<new offset value>	The new time offset value applied to Multiservice Switch nodes. This value is the time in minutes that the node is being offset from UTC. The range of possible is -720 to 720. There is no default value.

Variable	Value
<Passport group>	The name of the HGDS group to be used to communicate with the nodes.
<Passport password for groupname>	The node password for the user ID specified in the command
<Passport userid for groupname>	The node user ID for the group specified in the command.

Monitoring the script

The script executes after the time you specified in step 2 of "Updating the time of day for seasonal time changes" (page 184) is passed. This section documents what happens when the script runs. Steps are used in order to break the information down into small units, however, the script runs automatically without input from the system operator. The script provides two types of output, one to a log file, `/tmp/tod_output`, and the other to the Alarm Display tool. For important events occurring during the execution of the script, both types of outputs are shown below in "Script process" (page 190).

- "Prerequisites" (page 189)
- "Script process" (page 190)

Prerequisites

Prior to executing the script, perform the following recommended steps to ensure there is no system surveillance outage:

- In addition to normal operations, open windows for the display of the alarms generated by the execution of the script prior to the 2:00 AM seasonal time change.
- Enable Log mode in the Alarm Display tool and set the filters for the 7015 0001 alarm and the 301007* series of alarms.

Script process

1 The script begins executing.

Figure 20
Sample log output

```
                    ... Welcome to the Time Of Day change tool. This
                    tool is used to change

                    ... Passports time offset value


                    ... Note that this tool should be run after MDM has
                    completed its time

... change to/from Daylight Savings Time.


on error

                    Thu Sep 5 15:27:27 EDT 2002

                    The UTC time offset value must be specified.
```

Figure 21
Sample Display Alarm tool output

```
Nothing unless an input parameter error


On error

Warning MSG 30100703 02-07-24 15:27:27 NMS/FT1400-2 APPL/TODCHANGEOVER

ID-FFFFC929 Type: environmental CAUSE:unexpectedInfo

NMS/ft1400-2 TOD script failed to execute due to bad parameters
```

2 The todchangeover script authenticates the node's group. In the example used here, the group is ACCESS (seen in the output below as "group ACC") as specified in the command line of step 2 of "Updating the time of day for seasonal time changes" (page 184). Successful authentication results in the display of the following messages.

Figure 22
Sample log output

```
No message if authentication successful

on error

Unable to connect to group ACC. Exiting. Operation
failed:

CM: error - APPLICATION_ERROR 1136 Fdtr - Invalid
group requested ACC
```

Figure 23
Sample Display Alarm tool output

No message if authentication is successful

On error

Warning MSG 30100700 02-07-24 15:27:27 NMS/FT1400-2 GROUP/ACC

ID-FFFFC929 Type: security CAUSE:authenticationFailure

3 The todchangeover script displays the current time offset value for each node in the group. If the script is successful, you will see the actual time offset value for each node within the log. If the script is unable to display an time offset value for a node, an alarm is sent to the alarm browser.

Figure 24
Sample log output

```
... Displaying Passports with their current offset.

... If a Passport is missing or showing the wrong
offset it will need to be manually updated or a
different group should be selected. Use the Command
Console tool and use the Passport command 'set time
offset nnnn' to correct.

CHRISPC - time offset = Unable to query the time
offset

SUCCESSION_1 - time offset = -240 minutes
```

Figure 25
Sample Display Alarm tool output

```
WARNING MSG 30110701 02-09-05 15:27:27 NMS/FT1400-
2 PP/CHRISPC

ID: FFFFF8A0 TYPE: communications CAUSE: congestion

CO: TOD script failed to get response from Passport
```

4 The todchangeover script changes the time offset value on each node. If the script is unable to set the new time offset value, an alarm is sent to the alarm browser.

Figure 26
Sample log output

```
... About to change the Passport time to the new
offset

on error
```

Figure 27
Sample Display Alarm tool output

No message if authentication is successful

On error

```
WARNING MSG 30110702 02-09-05 15:27:27 NMS/FT1400-
2 PP/CHRISPC

ID: FFFFF8A0 TYPE: communications CAUSE:
```

5 The todchangeover script displays the results of the setting of the new time offset value. If the time offset value has been successfully changed, you will see the actual offset value of the node within the log. If the script is unable to display an offset time value, an alarm is sent to the alarm browser.

Figure 28
Sample log output

```
... Displaying Passports with their current offset.

... If a Passport is missing or showing the wrong
offset it will need to be manually updated or a
different group should be selected. Use the Command
Console tool and use the Passport command 'set time
offset <new_offset>' to correct.

CHRISPC - time offset = Unable to query the time
offset

SUCCESSION_1 - time offset = -240 minutes
```

Figure 29
Sample Display Alarm tool output

```
WARNING MSG 30110701 02-09-05 15:27:27 NMS/FT1400-
2 PP/CHRISPC

ID: FFFFF8A0 TYPE: communications CAUSE: congestion

CO: TOD script failed to get response from Passport
```

6 The script terminates. The `/tmp/tod_output` log file should be reviewed to ensure that all the nodes had their time offset value changed. The following message indicating that the process is complete is added to the log.

Figure 30
Sample log output

```
... Passport time offset change macro completed.
```

Nortel Networks Multiservice Switch 15000, Media Gateway 15000 and Preside MDM in Succession Networks

Configuration Overview

PT-AAL1/UA-AAL1/UA-IP

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