NORTEL NETWORKS

Preside MDM

Planning

Guide

241-6001-102

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Contents

About this document

This Preside Multiservice Data Manager (MDM) document describes:

- various MDM workstation topologies
- the purpose of each MDM workstation in each topology
- the hardware requirements of an individual MDM workstation
- the communications bandwidth requirements between an MDM workstation and network devices
- network connection methods
- collecting the information required to configure the MDM software

This section contains information about the following topics:

Who should read this document and why

This document is intended for network planners and engineers responsible for the planning and deployment of Preside Multiservice Data Manager (MDM) workstations.

For information about installing the MDM software, see 241-6001-100 *Preside MDM Installer Guide*.

For information that describes how to use the MDM applications, refer to 241-6001-000 *Preside MDM Documentation Guide* which will direct you to the correct document.

What you need to know

Before using this document we recommend that you

- be familiar with the FCAPS model of network management (fault, configuration, accounting, performance, and security)
- be familiar with the network management applications provided with the Preside MDM software. For information about these applications and their purposes, see 241-6001-801 *Preside MDM Overview*.
- determine the number and types of Passports and SNMP devices to be managed by Preside MDM
- be aware of future projections for expanding your network
- be aware of organizational requirements, such as the need to manage your network according to regions, or the need to provide network management redundancy in case of workstation failure
- be familiar with Oracle database installation and administration procedures if you intend to use an Oracle database with MDM for Passport service provisioning and circuit management

How this document is organized

This document contains the following sections:

- “Job aids” (page 97)
- “Glossary” (page 103)

What’s new in this document

R14.3 is the first release of this document. This document will eventually replace 241-6001-101 *Preside MDM Engineering Guide* and will provide additional Preside Multiservice Data Manager (MDM) planning information.

Related documents

This section identifies documents related to the Preside Multiservice Data Manager (MDM).

Preside Multiservice Data Manager (MDM)

For a list of Preside MDM documents, see 241-6001-000 *Preside MDM Documentation Guide*.

Passport 6400

For a list of Passport 6000 documents, see 241-6401-001 *Passport 6400 Documentation Guide*.

Passport 7400/15000/20000

For a list of Passport 7000/15000/20000 documents, see 241-5701-001 *Passport 7400, 15000, 20000 Documentation Guide*.

Oracle

If you plan to use an Oracle database for Passport service provisioning and circuit management, Oracle installation instructions can be obtained from the *Oracle Administrators Reference for SUN SPARC Solaris*, part number A85349-01.

Chapter 1
Planning tasks

Deployment of a Preside Multiservice Data Manager (MDM) workstation involves requirements other than the installation and configuration of the Preside MDM software. You must also

- understand how the MDM implements: fault management, configuration management, and data collection
- define your current network architecture and the projected pattern of growth
- define your network management requirements in terms of fault management, configuration management, data collection, performance monitoring, network management redundancy, and backup requirements
- determine the number of MDM workstations required to manage your network and resource requirements of each workstation
- determine the MDM software licensing requirements on each MDM workstation

To plan and prepare to implement your network management architecture, complete the tasks in the following task lists. Each task refers you to another section in this document. Complete the tasks in the referenced section, then return to this tasklist. Upon completion of all of these tasks, proceed to 241-6001-100 *Preside MDM Installer Guide*.

Figure 1
Planning tasks (sheet 1 of 2)

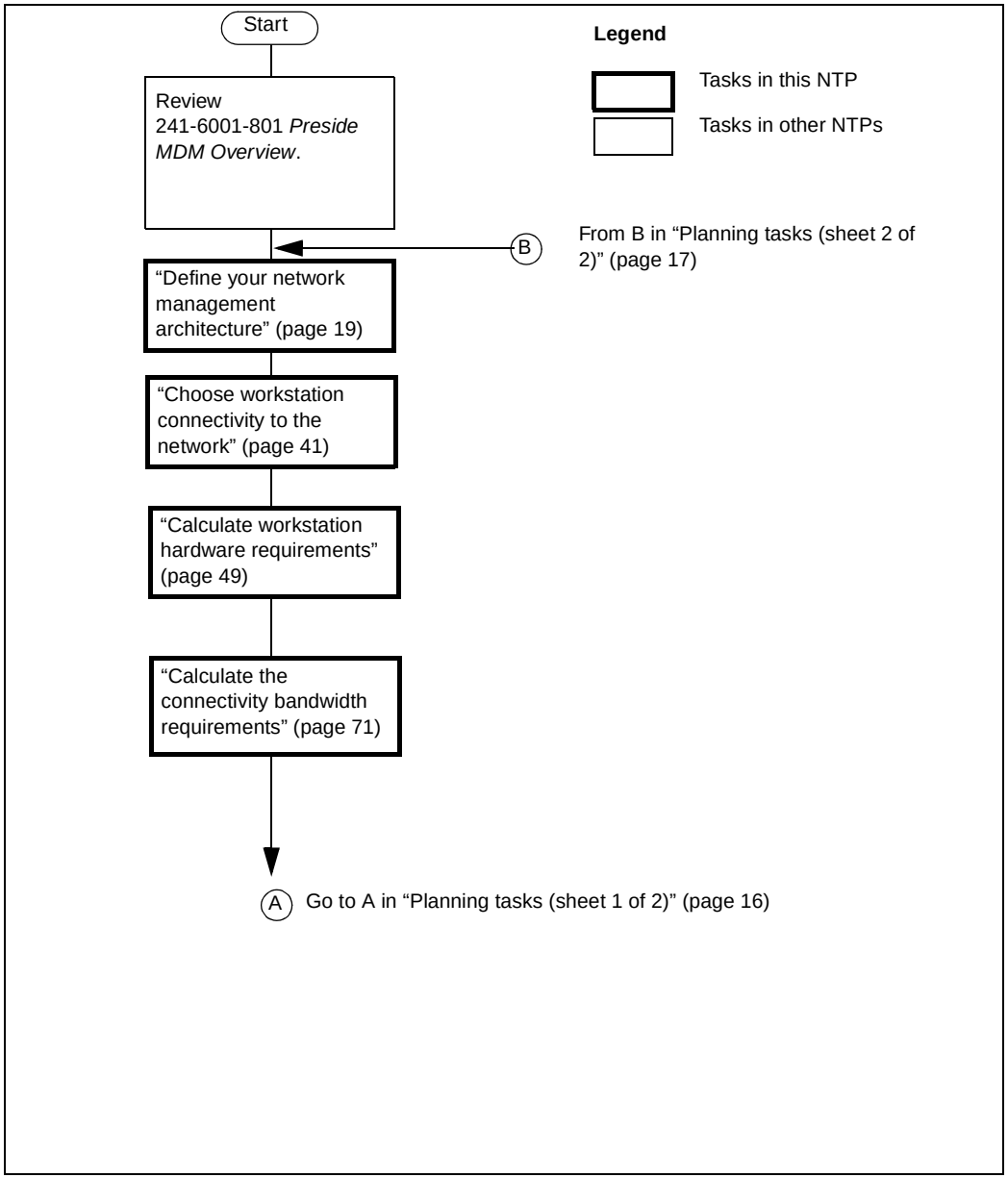
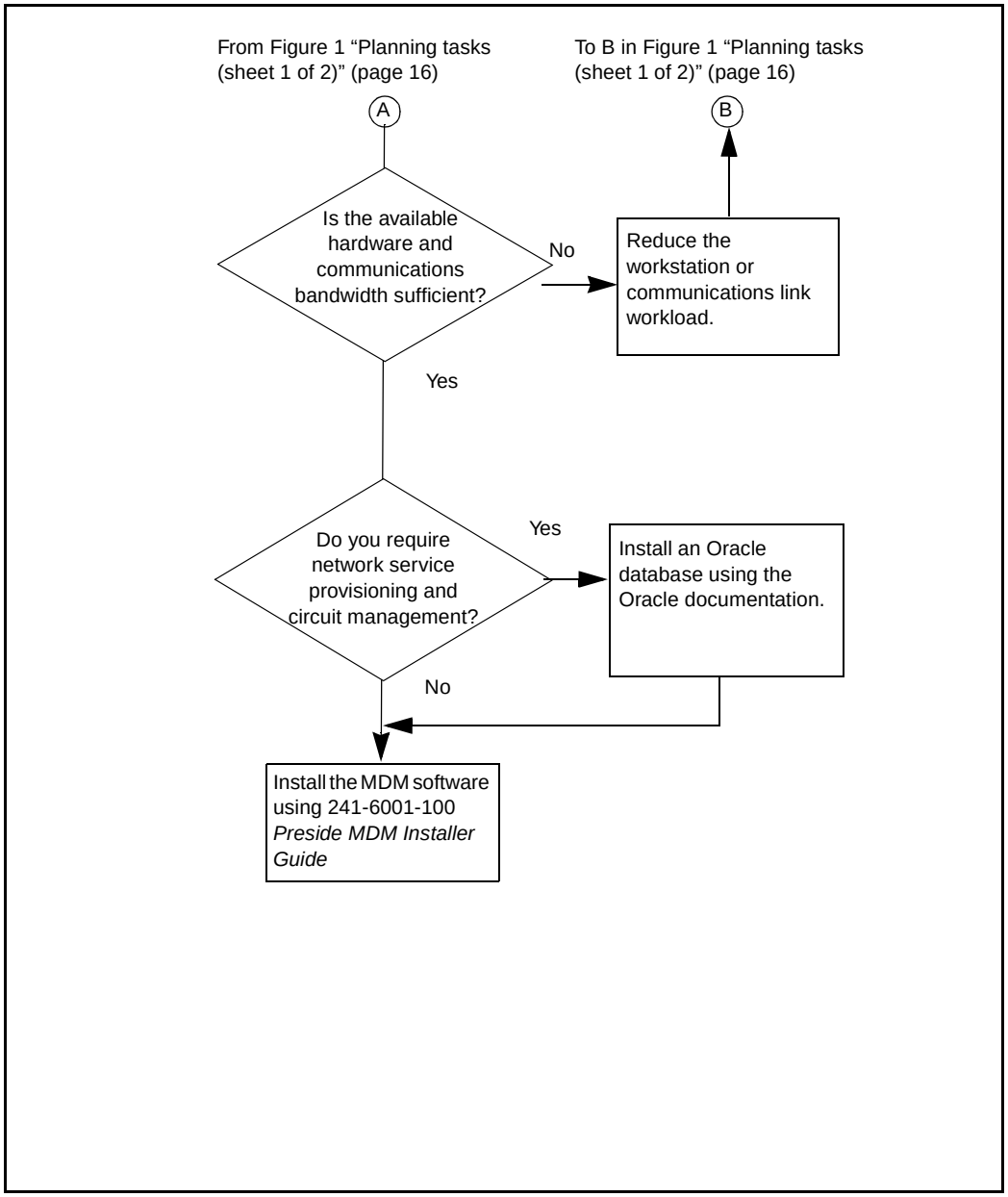


Figure 2
Planning tasks (sheet 2 of 2)



Chapter 2
Define your network management architecture

This section introduces network architectures as implemented using the Preside Multiservice Data Manager (MDM).

After reading this section you should be able to select the network management architecture that is right for your situation and proceed to the determination of the requirements for implementing the selected architecture.

All of the network management functions (fault management, configuration management, and data collection) can be deployed on a single workstation or each of the network management functions can be distributed over multiple workstations. Fault management can be deployed using multiple workstations for improved management efficiency.

This section includes

Fault management

The Preside Multiservice Data Manager (MDM) supports fault management using fault collectors (such as the Passport Fault Management Data Router (FMDR) and the SNMP Data Collection Daemon (DCD)).

The fault collectors collect fault information from the network devices and forward this information to a single, or multiple, General Management Data Router (GMDR).

Each GMDR aggregates fault information for each network device within its scope and determines the overall state of the device. This information is then provided to MDM fault applications (such as the Network Viewer and Alarm Display).

The GMDR can also forward information to other GMDRs located on the local workstation or remote workstations. This capability is useful to ensure fault management reliability and for allocating your resources according to your fault management requirements (for example, geographic regions).

The following are typical fault management architectures using MDM software:

- “Standalone fault management” (page 21)
- “Redundant fault management” (page 23)
- “Aggregated fault management” (page 25)
- “Redundant fault management with fault aggregation” (page 27)
- “Client-server fault management” (page 29)

Standalone fault management

In a standalone fault management architecture the Preside MDM software is installed on a single network management workstation, only.

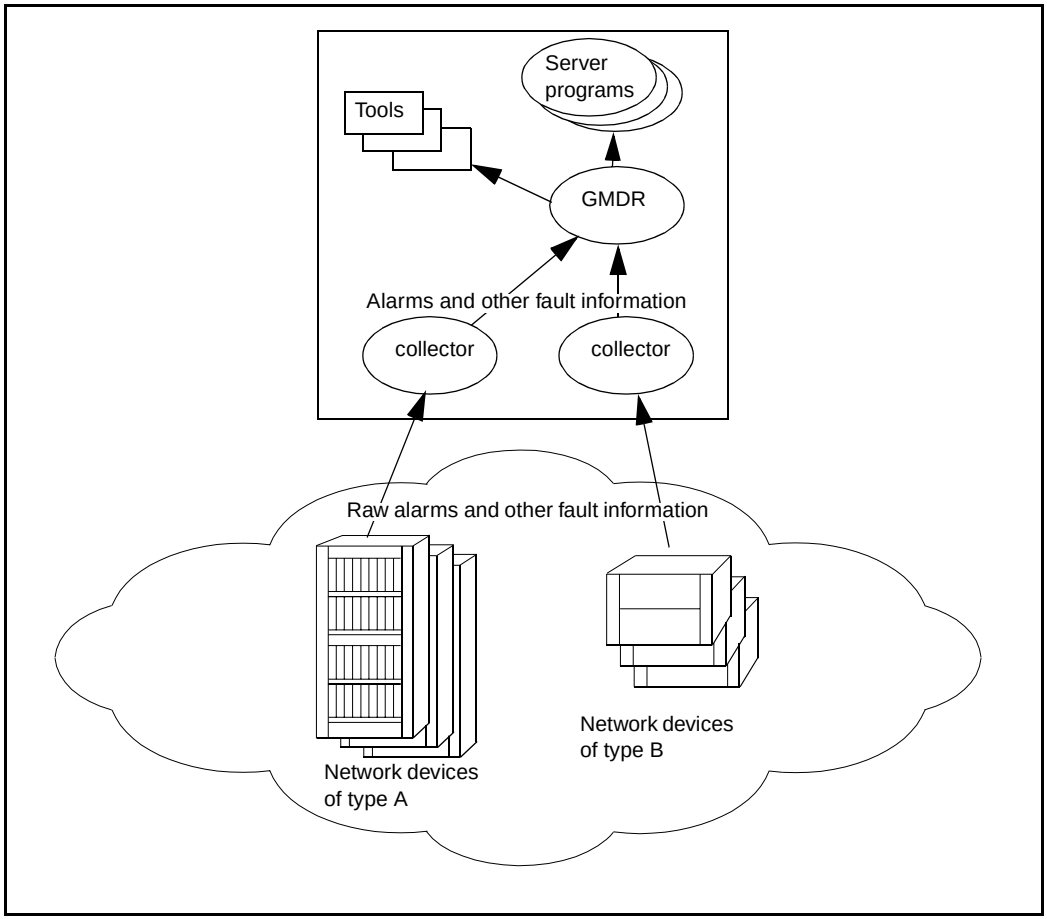
All of the applications required for fault management including the fault collectors, the General Management Data Router (GMDR), and the MDM client applications are deployed on a single workstation.

A standalone fault management architecture provides a simple method for introducing fault management to a network. This is the best scenario for new networks or small networks with a low projected growth rate.

If your network does expand, consider migrating to a client-server fault management architecture or aggregated fault management architecture.

Figure “Standalone fault management” (page 22) shows a standalone fault management architecture using MDM software.

Figure 3
Standalone fault management



Redundant fault management

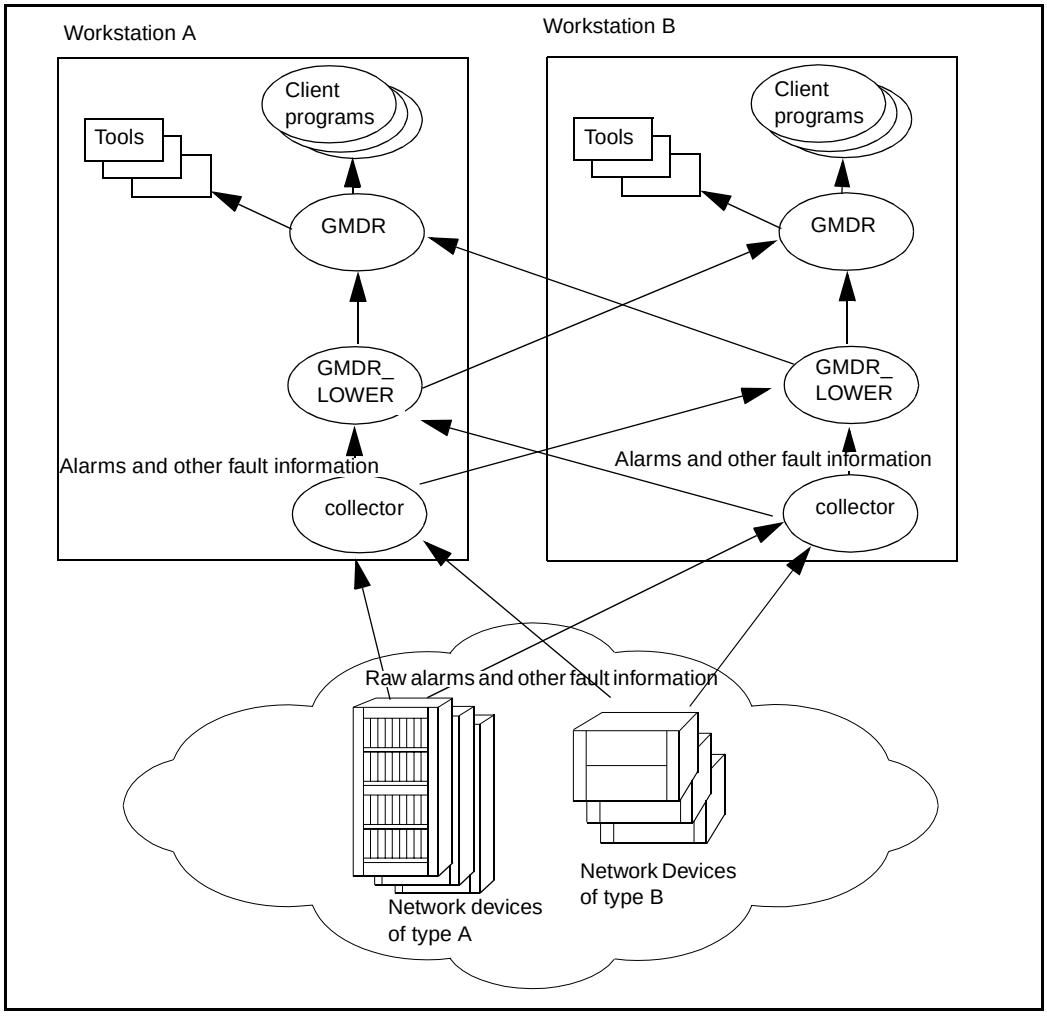
In a redundant fault management architecture the Preside MDM software is installed on multiple network management workstations.

Fault collectors on multiple network management workstations collect fault information from the same network devices. General Management Data Routers (GMDRs) exist on multiple network management workstations to aggregate the collected fault information from both the local workstation fault collectors and the fault collectors on the other network management workstations.

A redundant fault management architecture eliminates the ‘single point of failure’ that exists with a standalone fault management architecture. This reduces potential fault management downtime.

Figure “Redundant fault management” (page 24) shows a redundant fault management architecture using MDM software.

Figure 4
Redundant fault management



Aggregated fault management

A Preside MDM General Management Data Router (GMDR) can obtain fault information and device states from a GMDR on the local network management workstation or from a GMDR on a remote network management workstation. This architecture enables you to allocate your resources according to your fault management requirements (for example, geographic regions).

In figure "Aggregated fault management" (page 26), workstation A is a centralized fault management workstation that obtains fault information and device states from workstation B and workstation C; each of which manages network devices in different regions. The GMDR on workstation A receives the aggregate of faults from workstation B and workstation C. Workstation A is considered an aggregated fault management workstation.

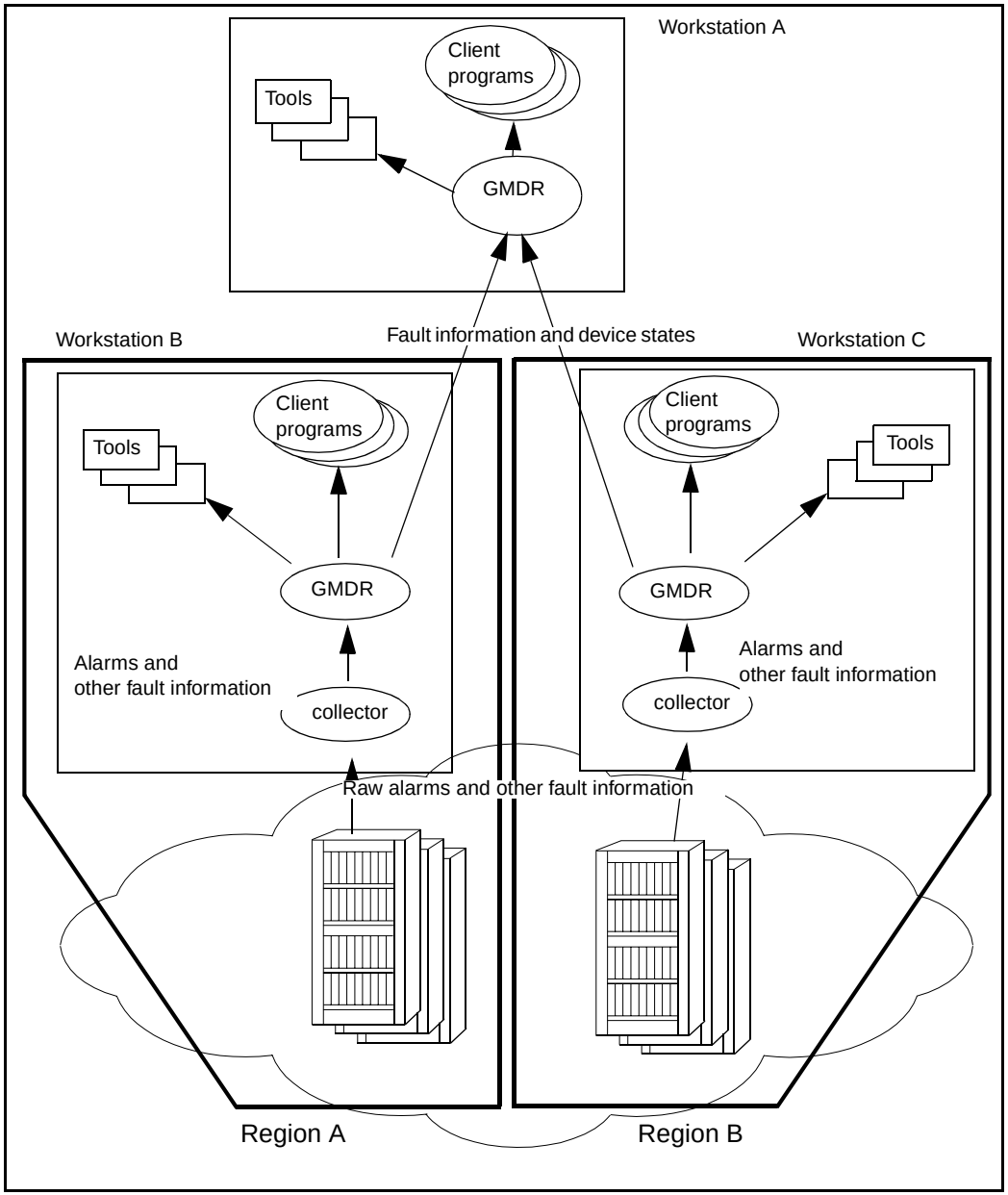
Network administrators at workstation B and workstation C can view only the alarms from network devices in their own regions, but a network administrator at workstation A can view the aggregate of alarms for all network devices in all regions.

Aggregated fault management can be used to

- allocate individual workstations for the management of specific network device types. For example, one fault management workstation could manage Passports and another fault management workstation could manage DPNs.
- manage fault management workstations that are directly connected to network devices in a controlled environment (for example, in a locked switching office). In the figure "Aggregated fault management" (page 26), workstation B and workstation C might not be easily accessible while workstation A could be in a normal office environment.
- minimize X11 messaging across the network in network management architectures where a network administrator is managing faults on a workstation on a WAN and the network devices are across the WAN.

"Aggregated fault management" (page 26) shows an aggregated fault management architecture using MDM software.

Figure 5
Aggregated fault management



Redundant fault management with fault aggregation

Redundant fault management and aggregated fault management can be deployed together to provide very high reliability in mission-critical networks.

In figure “Redundant fault management with fault aggregation” (page 28), workstation A and workstation B are in a centralized network management center. Workstations A and B obtain fault information and device states for region A using workstation C and workstation D and for region B using workstation E and workstation F. Workstation A and workstation B are each considered aggregated fault management workstations.

Network administrators at workstation A and workstation B can view alarms from both regions.

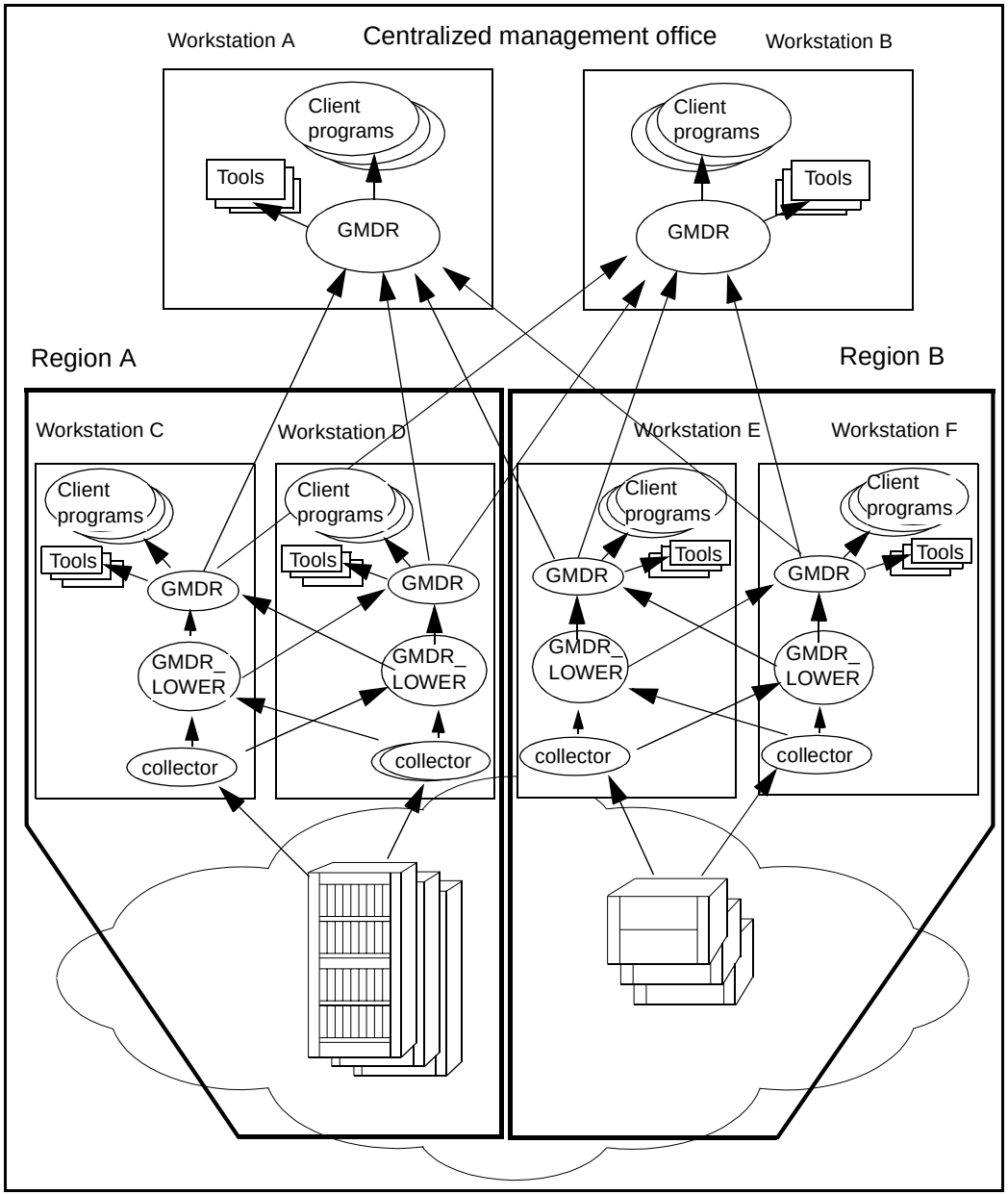
Workstation C and workstation D have redundant fault collectors that collect information from the same network devices in Region A. Workstation E and workstation F have redundant fault collectors that collect information from the same network devices in Region B.

A combination of redundant fault management and aggregated fault management can be used to

- allocate your resources according to your fault management requirements (for example, geographic regions)
- reduce potential fault management downtime
- allocate individual workstations for the management of specific network device types. For example, one fault management workstation could manage Passports and another fault management workstation could manage DPNs.
- minimize X11 messaging across the network in network management architectures where a network administrator is managing faults on a workstation on a WAN and the network devices are across the WAN.

“Redundant fault management with fault aggregation” (page 28) shows a redundant fault management with fault aggregation architecture using MDM software.

Figure 6
Redundant fault management with fault aggregation



Client-server fault management

In the client-server fault management architecture, a workstation views fault information using General Management Data Routers (GMDRs) and fault collectors running on remote fault management workstations.

Figure “Client-server fault management” (page 30) shows two fault management workstations (workstation 1 and workstation 2) collecting fault information from the same network devices.

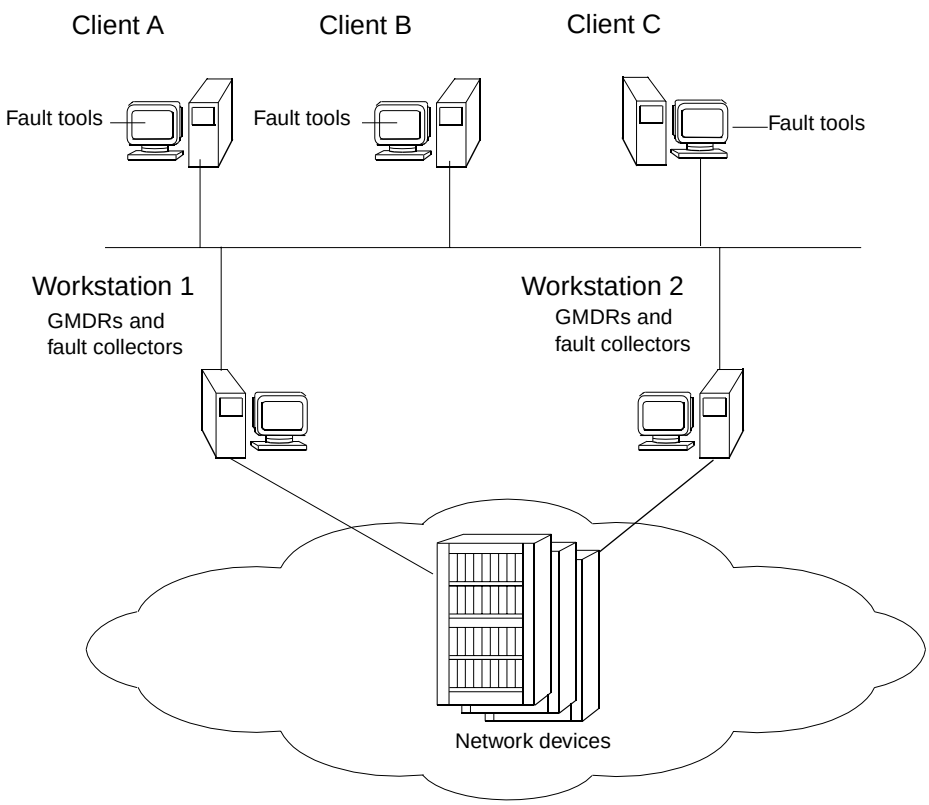
If a network administrator at one of the three client workstations is using fault management workstation 1 and determines that response time is being negatively impacted by heavy traffic or that workstation 1 is not responding, the network administrator can select the alternate fault management workstation (2) as the source of fault information.

Client-server fault management

- provides network administrators with the flexibility to compensate for high traffic loads on a fault management workstation, or the failure of a fault management workstation, by switching fault information sources
- provides cold-standby reliability. If hot-standby reliability is required, consider using aggregated fault management with, or without, redundant fault collectors.

“Client-server fault management” (page 30) shows a client-server fault management architecture using MDM software.

Figure 7
Client-server fault management



Note: Workstation 1 and workstation 2 can also be fault clients in addition to running the fault servers.

Configuration management

Configuration management provides a means of accessing network devices to perform component and service configuration.

The following are typical configuration management architectures using Preside Multiservice Data Manager (MDM) software:

- “Standalone configuration management” (page 32)
- “Client-server configuration management” (page 34)

Standalone configuration management

In a standalone configuration management architecture the Preside MDM software is installed on a single network management workstation, only.

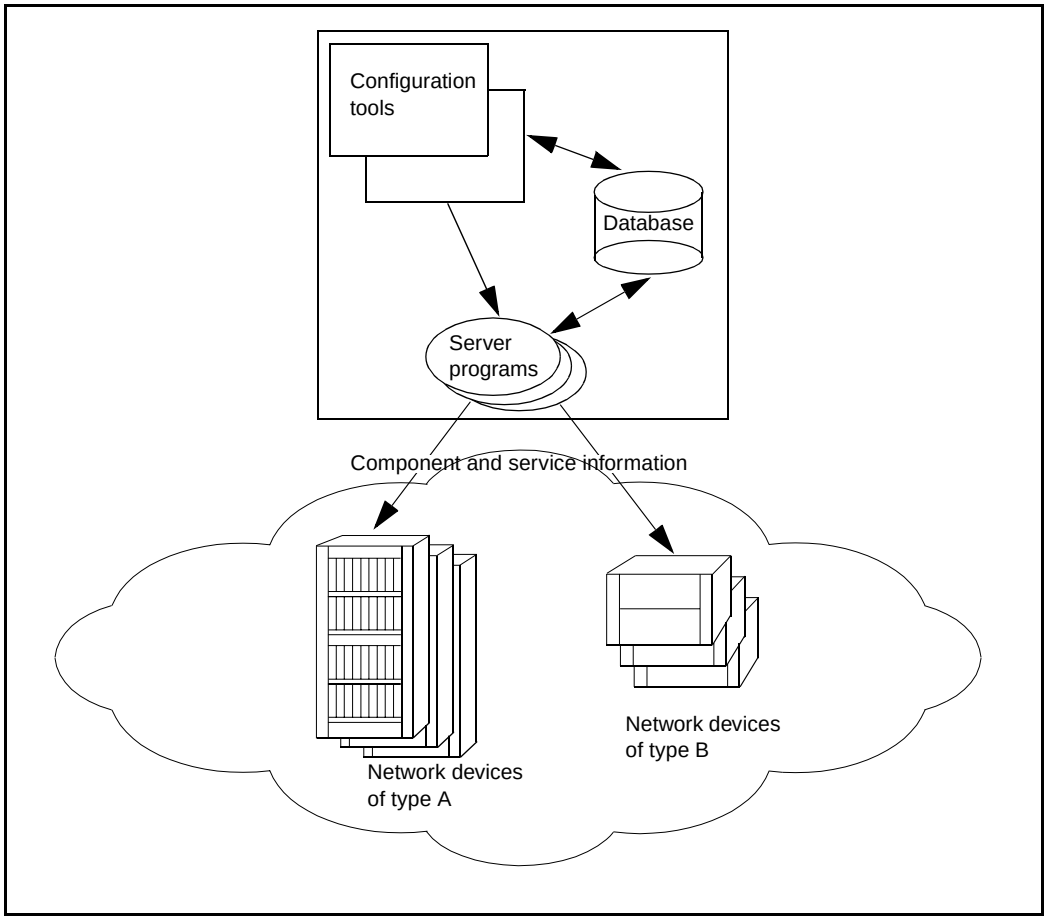
All of the configuration management components are deployed on a single workstation. These components include the configuration servers, the client applications, and the administration database.

A standalone configuration management architecture provides a simple method for introducing configuration management to a network. This is the best scenario for new networks or small networks with a low projected growth rate.

If your network does expand, consider migrating to a client-server configuration management architecture.

Figure “Standalone configuration management” (page 33) shows a standalone configuration management architecture using MDM software.

Figure 8
Standalone configuration management



Client-server configuration management

In the client-server configuration management architecture

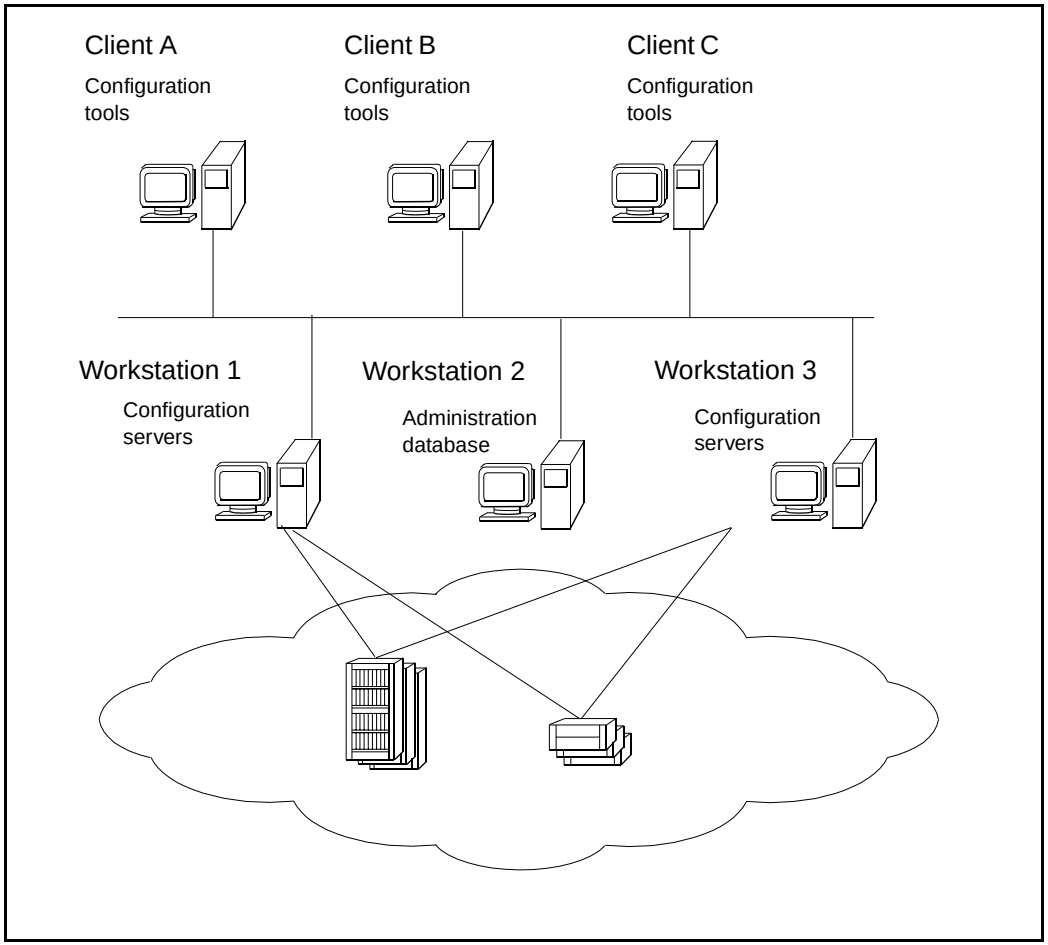
- configuration client applications deployed on local workstations use configuration servers running on remote configuration management workstations. The servers are used to provide access to the network devices.
- the administration database can be deployed on a remote workstation or on the same workstation as the configuration servers.

Figure “Client-server configuration management” (page 35) shows two configuration management workstations (workstation 1 and workstation 2) providing access to the same network devices.

If a network administrator at one of the three client workstations is using configuration management workstation 1 and determines that response time is being negatively impacted by heavy traffic or that workstation 1 is not responding, the network administrator can select the alternate configuration management workstation (3) to access the network devices and perform component or service configuration.

Client-server configuration management provides network administrators with the flexibility to compensate for high traffic loads on a configuration management workstation, or the failure of a configuration management workstation, by switching access paths to network devices.

Figure 9
Client-server configuration management



Data collection

The following are typical data collection architectures using Preside Multiservice Data Manager (MDM) software:

- “Standalone configuration management” (page 32)
- “Client-server configuration management” (page 34)

Standalone data collection

In a standalone data collection architecture the Preside MDM software is installed on a single network management workstation, only.

This standalone workstation includes

- the network information that describes the location of each network device from which data is collected
- the servers that collect the accounting or spooled performance data from the network devices
- the storage capacity for the collected data

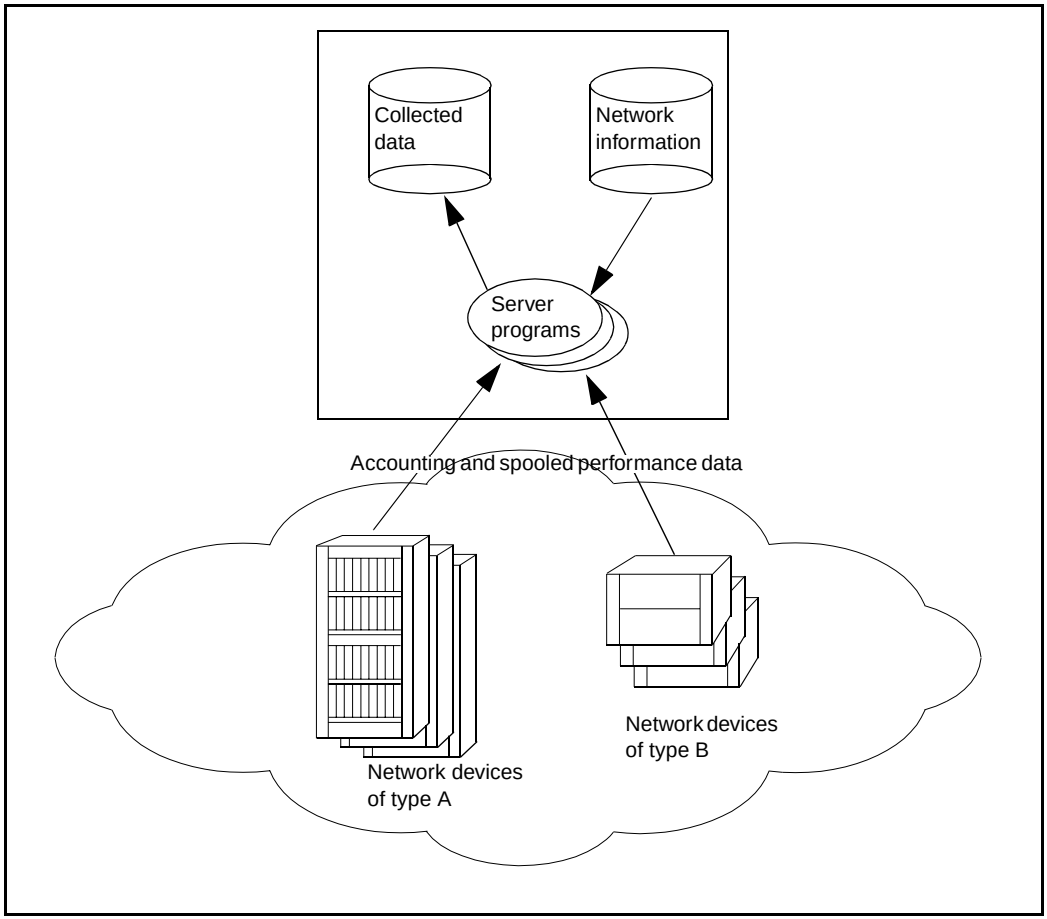
In small networks, data collection can be deployed on the same workstation as the fault management and/or configuration management applications.

A standalone data collection architecture provides a simple method for introducing data collection to a network. This is the best scenario for new networks or small networks with a low projected growth rate.

If your network does expand, consider migrating to a distributed data collection architecture.

Figure “Standalone data collection” (page 38) shows a standalone data collection architecture using MDM software.

Figure 10
Standalone data collection



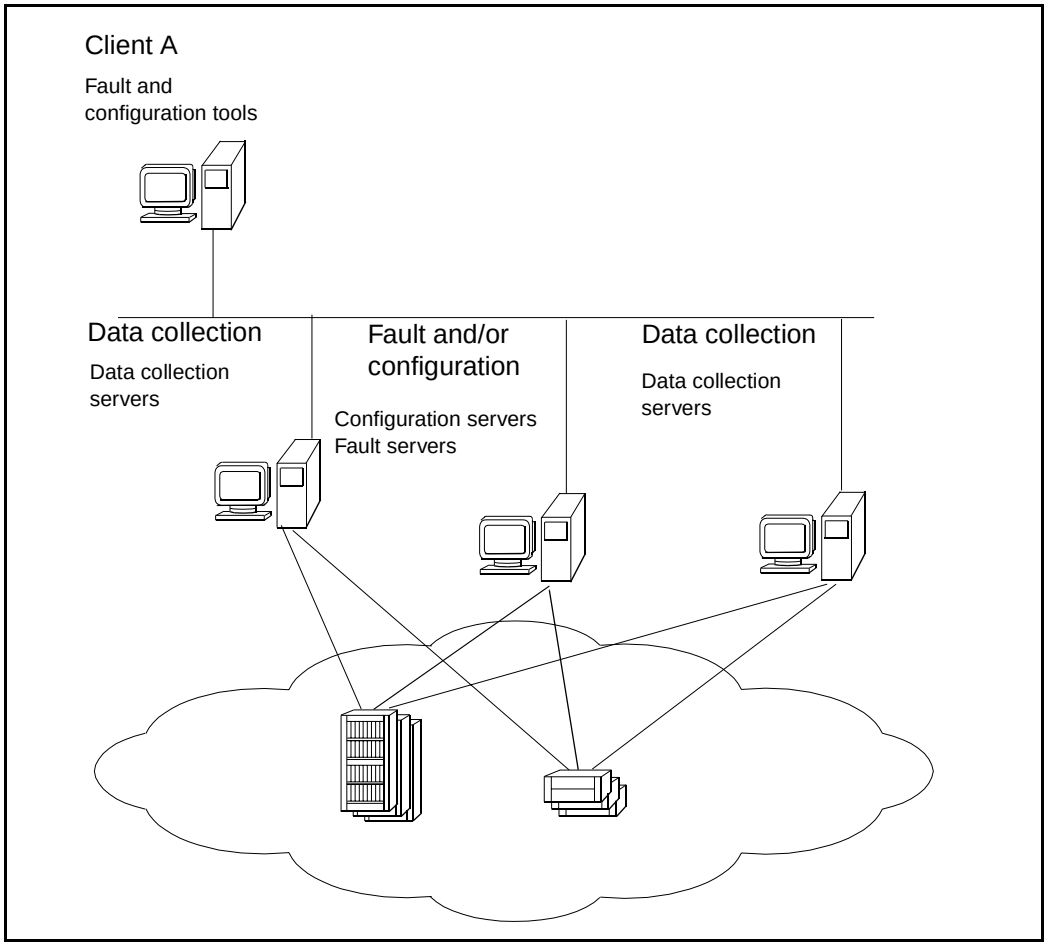
Distributed data collection

In larger networks, data collection is deployed on a separate workstation to avoid network congestion for the fault management and configuration management applications. This architecture allows the fault/configuration management workstation to act as a data collection backup.

Most large networks have data collection deployed on multiple workstations dedicated to data collection. This architecture ensures the integrity of mission-critical data.

“Distributed data collection” (page 40) shows two workstations dedicated to data collection and a third workstation deployed as a fault/configuration management workstation.

Figure 11
Distributed data collection



Chapter 3
Choose workstation connectivity to the network

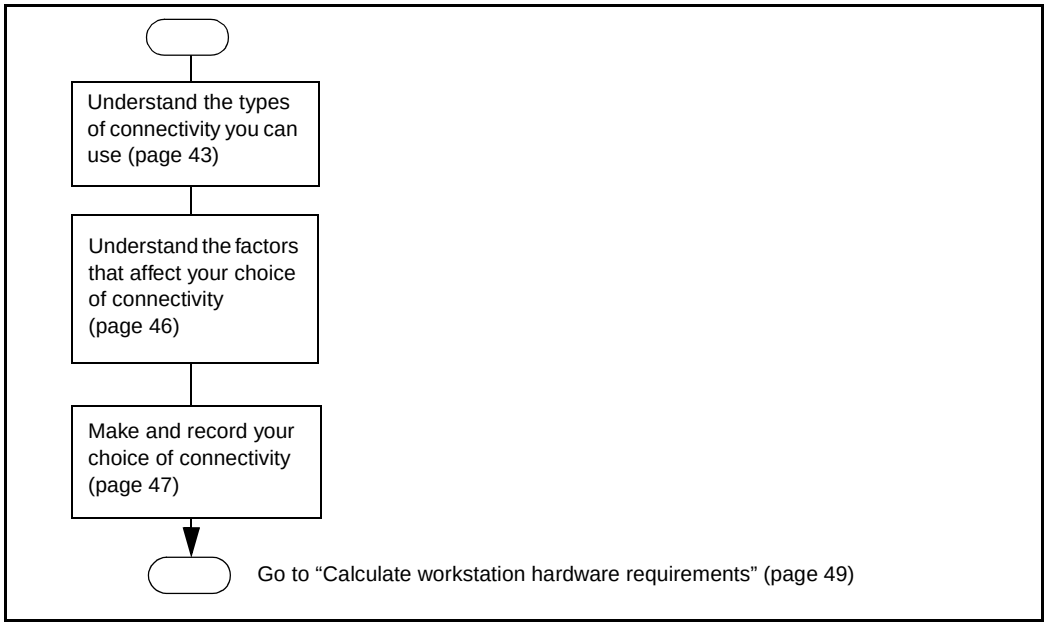
This section helps you understand the type of connectivity from a workstation that runs Preside MDM to Passports and SNMP devices in the network, and to other workstations that are running Preside MDM.

Task flow for choosing workstation connectivity

Refer to Figure 12 for the list of tasks in this section, and the order in which to perform them. For the locations of procedures to perform each task listed in the figure, see the following sections:

- “Understand the types of connectivity available” (page 43)
- “Understand factors that influence the choice of connectivity” (page 46)
- “Make and record your choice of connectivity” (page 47)

Figure 12
Task flow for choosing workstation connectivity



Understand the types of connectivity available

There are two types of connectivity to Passports and SNMP devices in the networks: in-band connectivity and out-of-band connectivity. In in-band connectivity, network management traffic is piggybacked onto network traffic. In out-of-band connectivity, network traffic is carried through its own network.

In-band connectivity

There are two types of in-band connectivity you can use for connecting to Passports: IP over frame relay (IpiFr) and IP over ATM (ATM MPE).

IP over frame relay

There are two approaches to connecting the workstation to Passports using frame relay:

- You can install a high-speed serial interface (HSSI) card and SunLink frame relay software in the workstation and connect the frame relay link from the workstation to the network.
- You install an access router between the workstation and the network to perform frame relay to IP conversion. The router acts like a frame relay access device (FRAD). Multiple workstations can share a physical frame relay link, provided that the bandwidth can support the management traffic.

To configure IP over Frame Relay you need the following information for each Passport in the network:

- IP address
- host name
- data link logical connection identifier (DLCI) of the connection between the workstation and the Passport

IP over ATM

There are two ways to connect a workstation that is running Preside MDM to Passports using ATM:

- You can install an ATM network interface card (NIC) and ATM software in the workstation and connect the ATM link to the workstation.

- You can connect the workstation to an access router that connects to a Passport switch.

Once the initial connection is made to the first Passport, you can set up ATM based permanent virtual circuit's from the first Passport to other Passports to manage them through the same Preside MDM workstation.

To be able to use IP over ATM:

- The interface must be provisioned as a Nailed-up end point (NEP) to run as a permanent virtual circuit (PVC)
- The virtual connection identifier (VCI) number on the Passport switch must match the PVC number of the workstation under the ATM network interface card (NIC) configuration.
- The static IP address provisioned as the instance of the host under the Virtual Router (VR) on the Passport switch matches the IP address assigned to the Sun ATM NIC card on the workstation

Out-of-band connectivity

Passport switches support the IP stack known as VrIp. VrIp, is also called inter-lan switching IP (ILS IP). You can use VrIp when there is an Ethernet LAN infrastructure in your network or when ATM multi-protocol encapsulation (AtmMpe) is available in your network.

If you have a LAN infrastructure, you can connect the workstation to a Passport through the local Passport Ethernet port to gain network management connectivity. A virtual router on the Passport routes traffic between the workstation and the Passport and to other Passports in the network.

If your Passport network runs ATM, you can configure AtmMpe on the Passports to convert ATM cells into IP packets. An access router, such as a virtual router on a Passport 7000 performs the AtmMpe function and accesses the other Passports by running ATM bearer services on logical trunks.

A typical deployment consists of using Passport 7000s to serve as access nodes, and Passport 15000s to function as the ATM backbone. You could also use an external access router to run the AtmMpe function, as this frees up a Passport shelf and off loads the processing workload onto the router. This leaves the Passport with higher capacity to do other work.

Understand factors that influence the choice of connectivity

There are no hard and fast rules for selecting the connectivity between a workstation that runs Preside MDM and Passports in the network. Much depends on what is already in your network. The prices of hardware and software are also changing constantly. As a result, this section can only contain guidelines to help you select the connectivity between the Preside MDM workstation and the network.

One of the main factors in choosing in-band or out-of band connectivity is cost. If you already have a populated network, it is most likely cheaper to choose in-band connectivity.

If you choose in-band connectivity:

- IP over Frame Relay is a good option when you have Frame Relay in your network backbone. Installing either the HSSI card and frame relay software or using the access router are good option.
  Exception: Solaris 8 can run in 32 bit or 64 bit mode. On most Sun workstations the firmware for frame relay is not compatible with the 64-bit mode of operation. Therefore if you are running Solaris 8 in 64-bit mode, use the access router option.
- IP over ATM is a good option when you have ATM in your network backbone. Although you can install an ATM NIC card in the workstation, its is not recommended because the NIC card is expensive and you have to connect the ATM link to an OC3 port on a Passport, which is not an economical port. We recommend instead that you use an external router.

If you choose out-of band connectivity:

- If you have a LAN infrastructure, connect the workstation to the Passport through the local Passport Ethernet port to gain network management connectivity.
- If you have an ATM network, and ATM Mpe is configured on your Passports, use it to convert ATM cells into IP packets for the workstation.

Make and record your choice of connectivity

1. Make your choice of the connectivity option based on what is available in your network and the understanding you gained in:
   - “Understand the types of connectivity available” (page 43)
   - “Understand factors that influence the choice of connectivity” (page 46)
2. Record your choice in the worksheet in “Worksheet for installing a workstation” (page 97).

Chapter 4
Calculate workstation hardware requirements

This section contains procedures to calculate the number of CPUs, RAM, amount of disk space, and other requirements for a workstation to run Preside MDM.

> ***Note:*** The calculations in this section provide a close approximation and were up to date when this document was released. However information is continually being updated and there may be updated information available. Before using the information in this section, check for updated information at the following Web page:
> http://www130.nortelnetworks.com

Task flow for calculating workstation hardware requirements

Refer to Figure 13 for the list of tasks in this section and the order in which to perform them. See the following sections for the locations of the procedures needed to perform these tasks:

- “Calculate the baseline CPU and RAM requirements” (page 53)
- “Calculate CPU and RAM requirements for more than 5 users” (page 56)
- “Calculate the CPU requirements for data collection” (page 59)
- “Calculate the disk space requirements for Oracle” (page 63)
- “Calculate the disk space requirements for backup and restore” (page 65)
- “Add up the disk space requirements” (page 66)
- “Determine the physical workstation hardware” (page 68)

- “Calculate the disk partition sizes” (page 69)

Figure 13
Task flow for this section (Sheet 1)

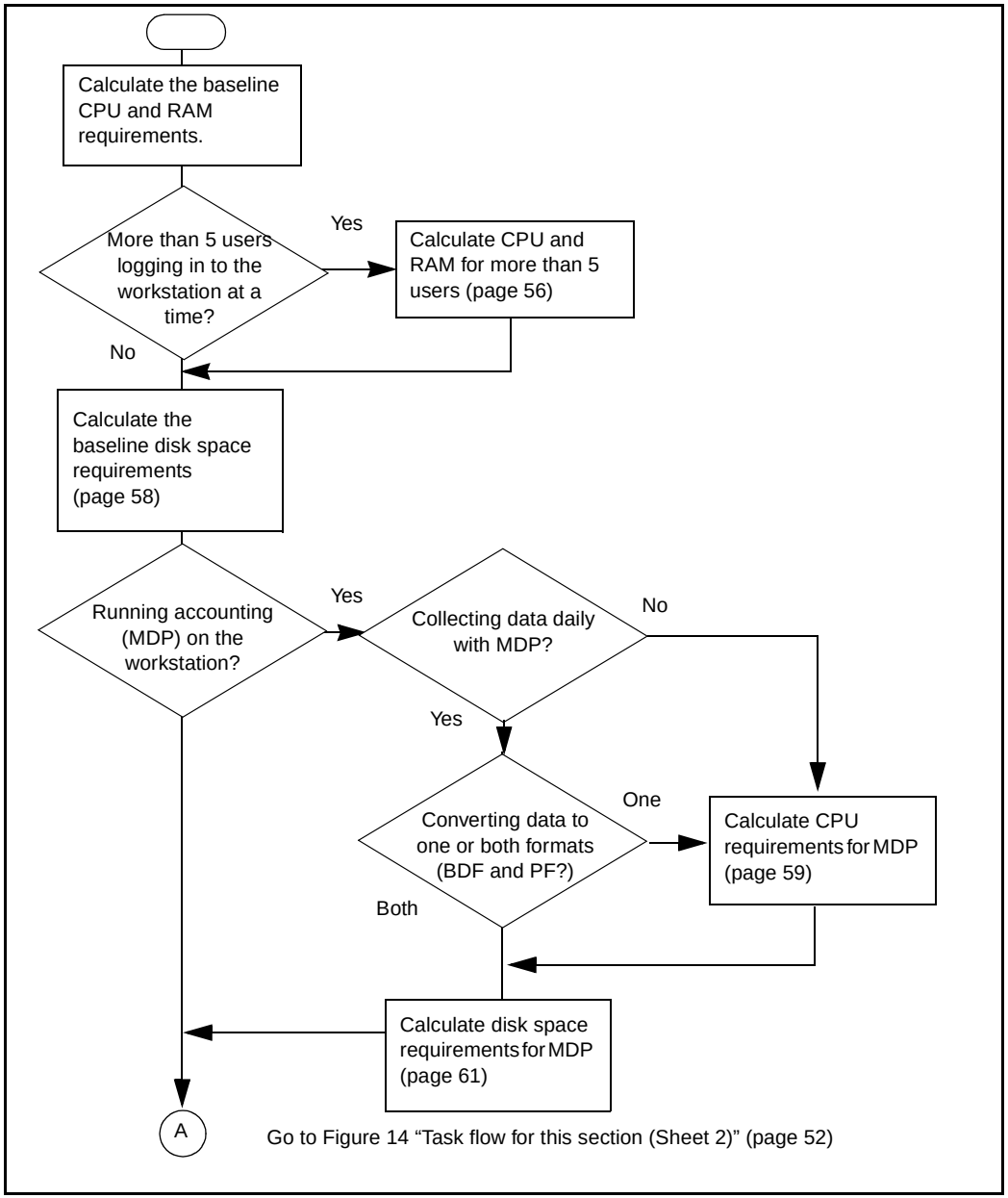
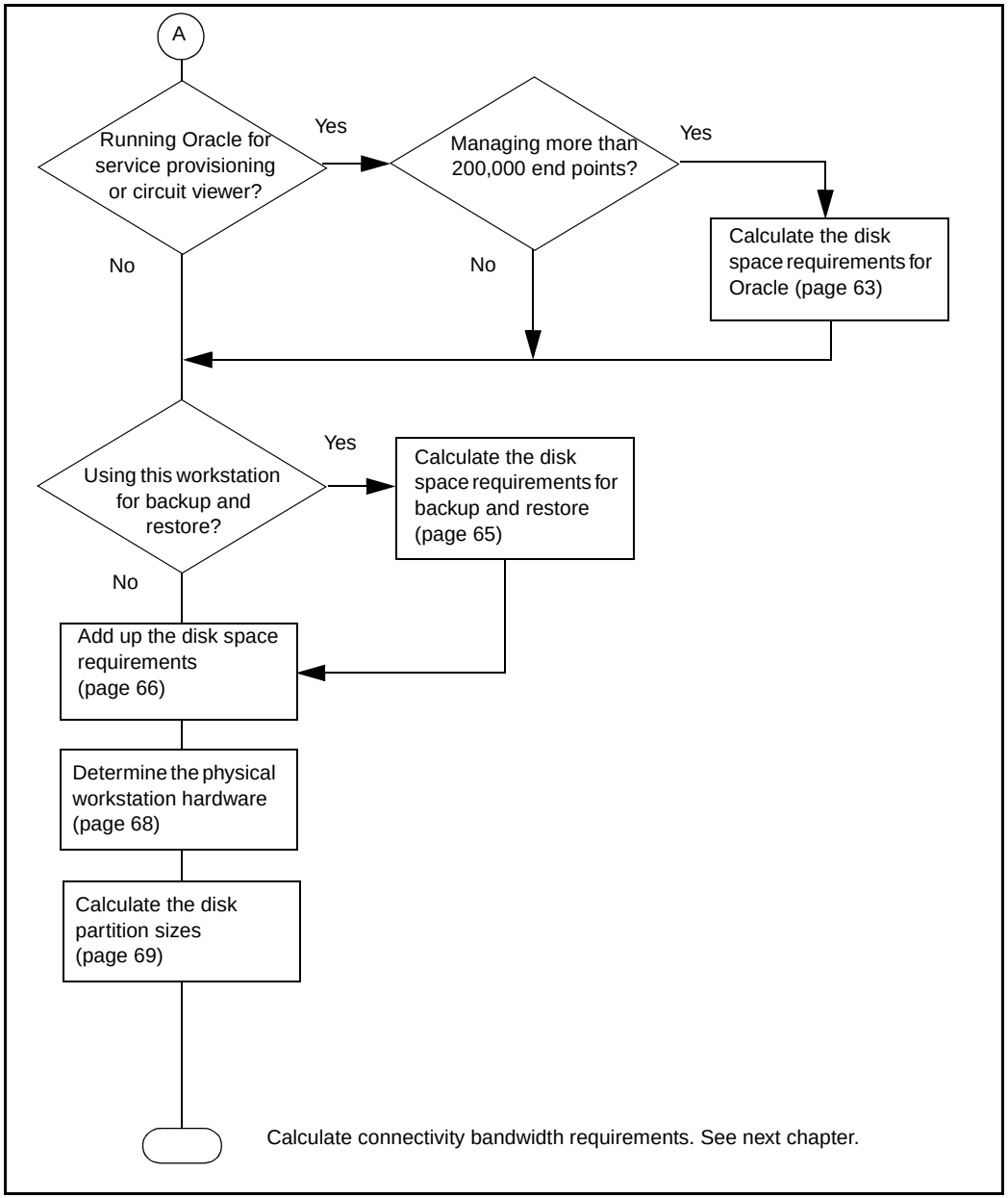


Figure 14
Task flow for this section (Sheet 2)



Calculate the baseline CPU and RAM requirements

Perform this procedure as the first step in calculating the hardware requirements to run Preside MDM on a workstation.

The data you calculate with this procedure represents a starting point (baseline) which you may need to modify by performing other procedures in this chapter, according to what you are running on the workstation (fault, configuration or collecting accounting and performance data (MDP).

Prerequisites

You need the following information:

- the numbers and types of devices you are going to manage with this workstation
- an estimate of the devices that you plan to add to your network over the next one or two years, to allow for expansion
- what you are going to try to run on the workstation: fault management, configuration, management, MDP, and whether you need a database

Procedure steps

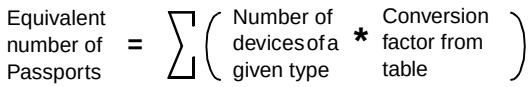
1 Add up the number of devices of each type (Passports and SNMP devices) that you plan to manage with the workstation.

Example:

2 Passport 15000
10 Passport 7480
3 Passport 6420

2 To each of these totals, add the number of additional devices you expect you will need to add over the next one or two years to allow for expansion.

3 Use the following formula to calculate the equivalent number of Passports represented by the devices.



`Equivalent number of Passports` is a factor used to compare one device against another, expressed as a number of Passport 7480s. For example, one Passport 4400 is the equivalent of 0.3 Passport 7480 so it

takes three Passport 4400s represent the same load as one 7480 Passport.

Device	Conversion factor
Passport 4400	0.3
Passport 6420	0.3
Passport 6480	1.0
Passport 7440	0.4
Passport 7480	1.0
Passport 15000	1.5
Shasta	1.5

```
(2*1.5)+(10*1.0)+(3*.3)= 13.9
```

4 Use the number of equivalent Passports and the following table to determine a baseline number of CPUs, and RAM requirements for the workstation.

Use	Number of equivalent Passports				
	<50	**51-100**	**101-200**	**201-300**	**301-400**
Fault and/or configuration No Oracle database	1 CPU 512 M RAM	2 CPU 1G RAM	3 CPU 2G RAM	4 CPU 3G RAM	5 CPU 4 G RAM
Note: The equivalents in this table are based on an UltraSparc 3 with a 900-1100 MHz CPU. If you are planning to use a slower CPU, adjust the requirements accordingly. For example, if you are using a 400 MHz CPU, multiply the requirements by 2.					

Use	Number of equivalent Passports				
	<50	**51-100**	**101-200**	**201-300**	**301-400**
Accounting (MDP) only	1 CPU 512 Mbyte RAM	2 CPU 1 G RAM	3 CPU 2 G RAM	4 CPU 3 G RAM	5 CPU 4 G RAM
Fault and/or configuration with Accounting (MDP) but no Oracle	1 CPU 512 M RAM	2 CPU 1G RAM	3 CPU 2G RAM	5 CPU 4G RAM	6 CPU 5 G RAM
Note: The equivalents in this table are based on an UltraSparc 3 with a 900-1100 MHz CPU. If you are planning to use a slower CPU, adjust the requirements accordingly. For example, if you are using a 400 MHz CPU, multiply the requirements by 2.					

5 Enter the base requirements into the worksheet we supplied in "Worksheet for installing a workstation" (page 97).

Example

- A network contains 2 Passport 15000, 10 Passport 7480, 3 Passport 6420s.
- It is expected that you are going to add 3 Passport 15000s in the next two years
- You are going to manage it with one workstation and you are going to run fault management, configuration management, and accounting management on the workstation.

1 Calculate the equivalent number of Passports, including the three proposed Passport 15000s:

```
(2+3)*1.5+(10*1.0)+(3*.3)= 18.4 equivalent Passports
```

2 From the table, you need a workstation with 1 CPU and at least 512 Mbytes of RAM.

Calculate CPU and RAM requirements for more than 5 users

The baseline CPU and RAM requirements you determined in "Calculate the baseline CPU and RAM requirements" (page 53) allow for up to 5 users to log in at one time to the workstation. Use this procedure to adjust the amount of CPU and RAM for more than 5 users to log in.

A user means a person, or a software program such as RNCS that logs into the workstation to run Preside MDM tools.

Prerequisites

You need the baseline figures for number of CPUs and the amount of RAM from "Calculate the baseline CPU and RAM requirements" (page 53).

Procedure steps

1. From the following table determine the number of extra CPUs and the amount of RAM.

Factor	Additional CPU	Additional RAM
Base amount	0.25	256 MBytes
Each extra 50 passports	0.5	256 MBytes
Each user.	0.1	128 MBytes

2. Round up the number of CPUs and the amount of RAM to the nearest 32 Mbytes.
3. Update the worksheet in "Worksheet for installing a workstation" (page 97).

Example

A workstation has baseline requirements of 1 CPU and 512 Mbytes of RAM to manage 50 Passports and support 5 users. Three additional users are going to log into the machine and you are going to manage an additional 50 Passports.

CPU = 0.25 (base) + 0.5 (50 extra Passports)
+ 0.3 (3 users @ 0.1 each) = 1.05
~=1 CPU

RAM = 256 MBytes (base) + 256 MBytes (50 extra Passports)
+ 384 (3 users @ 128 MBytes each) = 896 MBytes
~= 1GB

The workstation should be configured with 2 CPUs and 1.5 Gigabyte of RAM to support 100 Passports and 8 users.

Calculate the baseline disk space requirements

You need a minimum amount of disk space to store information for the Preside MDM and MDP software, the documentation, and for swap. Use this procedure to calculate the basic minimum amount. The result of the calculation in this procedure produces a baseline (a starting point), to which you need to add extra disk space, according to what you are running on the workstation.

Prerequisites

You need to have determined the amount of RAM required on the workstation,

Procedure steps

1 Use the following formula to calculate the baseline amount of disk space:

Disk space (MBytes)	=	MDM software and documentation	+	User accounts and operating system files	+	swap

`MDM software and documentation` is the disk space in MBytes for MDM software, MDP software and documentation. Allow 3000 MBytes for this parameter.

User accounts and operating system files is the disk space for UNIX user accounts and the operating system files. Allow 2000 Mbytes for this parameter.

`Swap` is the amount of disk space required for the swap partition.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

You have determined that a workstation requires 512 MBytes of RAM. The baseline amount of disk space is:

```
3000 + 2000 + (512 * 3) = 6536 MBytes = 6 GBytes
```

Calculate the CPU requirements for data collection

The CPU requirements you calculated in "Calculate the baseline CPU and RAM requirements" (page 53) assume that:

- you are collecting data from the Passports on a daily basis
- you are converting the collected data into two formats: bulk data format (BDF) and published format (PF).

If you are collecting data on anything other than on a daily basis, or if you are converting to only BDF or PF, you need to use this procedure to adjust the CPU requirements for collecting MDP.

Prerequisites

You need the following information:

- The number of records and the type of data that is being collected. The types of data are:
  - Permanent Virtual Circuit (PVC) accounting
  - Switched Virtual Circuit (SVC) accounting
  - Statistics
  - Logs
  - Alarms
  - State Change Notifications (SCNs)

Procedure steps

1 Use the following formula to calculate the number of CPUs for each type of data

$$\text{Number of CPUs} = 1 + \frac{\text{Number of records (bytes)}}{\text{Records processed per day} * \text{Processing interval (min.)} / 1440}$$

`Number of records` is the total number of records to be processed in bytes

`Records processed per day` is the number of Passport records that a CPU is capable of processing in one day from Table 1

`Processing interval` is processing interval in minutes

`1440` is the number of minutes in one day

`1` is the minimum number of CPUs required for managing the FTP sessions to Passport and the remote host and MDP overhead processing.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Table 1
Number of Passport records that can be processed per day by a single CPU

Type of data	Records processed per day	
Accounting	PF	3 200 000
	BDF	1 900 000
Statistics	PF	Not available
	BDF	8 000 000
Logs	PF	Not available
	BDF	Not available
Alarms	PF	Not available
	BDF	6 700 000
SCNs	PF	Not available
	BDF	Not available
Note: The data in this table is based on fully populated Passport shelves and a Layer 2 ATM/Frame Relay network in which the operator spools and processes the majority of Passport data.		

Example

A network contains 50 Passports, the raw data spooled from the Passports is 1 MByte, the processing interval is 60 minutes, and you are converting accounting data to BDF format:

CPU = 1+ {1028 /(1,900,00 * 60/1440)} ~= 1CPU

Calculate the disk space requirements for data collection

Use this procedure to calculate disk space requirements for collecting spooled accounting and performance data.

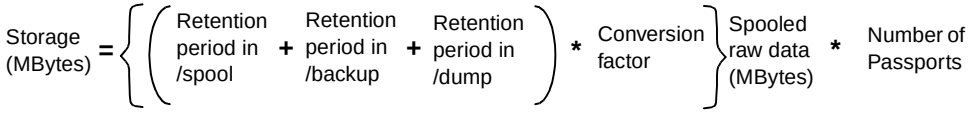
Prerequisites

You need the following information:

- The number of records and the type of data that is being collected. The number of records affects the amount of storage required for MDP. The types of data are:
  - — Permanent Virtual Circuit (PVC) accounting
  - — Switched Virtual Circuit (SVC) accounting
  - — Statistics
  - — Logs
  - — Alarms
  - — State Change Notifications (SCNs)
- The time constraints for downloading data. Downloading may need to be confined to certain hours to avoid interference with other company activities.
- The time constraints for converting the collected data.

Procedure steps

1 Use the following formula to calculate the storage requirements:



`Storage` is the disk space requirements in Mbytes

`Retention period in /spool, /backup, and /dump` is the time in days that data collected from Passports are retained in each of three directories: /spool, /backup, and /dump. When MDP collects raw data from Passports, it loads the raw data into /spool, converts it into the output format which it places into the /dump directory, and places a copy of the raw data in the /backup directory. You can configure the length of time the

information resides in these directories. How long they stay there affects the amount of disk space you need for MDP.

`Conversion factor` is a factor for converting the raw data to BDF. For BDF use a factor of 1.5. For PF conversion use a factor of 1.

`Spooled raw data` is the amount of raw data in MBytes spooled from each device.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

A network contains 50 Passports, the raw data spooled from the Passports is 1 MByte, you to retain information in the three directories for 30 days each, and you are converting the raw data to BDF format:

Storage = {(30+30+30) 1.5*1} *50 = 6750 MBytes

Calculate the disk space requirements for Oracle

You need to install Oracle if you are using the Circuit Viewer or Circuit Management tools. In all but small networks we recommend that you install the Oracle database on a separate workstation from Preside MDM.

The disk space requirements you calculated in “Calculate the baseline CPU and RAM requirements” (page 53) are based on the premise that there is no Oracle database installed on the workstation. Although the additional CPU requirements are small, the amount of disk space needs to be increased if you are running Oracle on the workstation. Use this procedure to calculate the disk space requirements for Oracle.

Procedure steps

1. Use one of the following formulas to determine disk space requirements for Oracle according to whether the circuits you are managing consist of one hop or more than one hop:

   - one hop

     Disk space (MBytes) = thousands of circuits * 5 MBytes + Oracle appn

   - two or more hops

     Disk space (MBytes) = thousands of circuits * 5 MBytes * (1.5/2) * Number of hops + Oracle appn

   `thousand of circuits` is the number of circuits x 1000 that you are going to manage

   `Oracle appn` is the disk space required for the Oracle application itself. For Oracle 8i, allow 3000 Mbytes. For Oracle 9i allow 5000 Mbytes.

2. Update the worksheet in “Worksheet for installing a workstation” (page 97).

Examples

You are going to use Oracle 8i in a network that contains 100, 000 circuits consisting of one hop:

```
Disk space = 100 * 5 + 3000 = 3500 MBytes
```

You are going to use Oracle 9i in a network that contains 210, 000 circuits consisting of an average of 3 hops

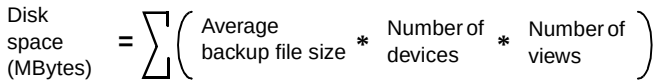
```
Disk space = 210 * 5*1.5/2*3+5000= 7362 MBytes=
7.4 GBytes
```

Calculate the disk space requirements for backup and restore

You need to perform this procedure if you are going to backup and restore Passport data from the workstation.

Procedure steps

1 Use the following formula to calculate the disk space required for backup and restore operations for Passport switches:



`Average backup file size` is the average size of the backup file in MBytes.
For Passport 6000 and Passport 7000 series use an average size of 2 MBytes.
For Passport 15000 and 20000, use an average size of 4 MBytes

`Number of devices` is the number of devices of the type you are backing up and restoring (Passport 6000 or 7000 series, Passport 15000, or Passport 20000

`Number of views` is the number of Passport views you wish to backup. We suggest a minimum of 2.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

The workstation is going to be used for backup and restore operations on 100 Passport 7420s and 6 Passport 15000s. We are going to back up and restore 2 views. The disk space requirements are:

```
(2 * 100 * 2) + (4 * 6 * 2) = 448 MBytes
```

Add up the disk space requirements

Use this procedure to total up all of the disk space requirements to determine the amount of disk space needed on the workstation

Prerequisites

You need the following information:

- Amount of disk space from:
  - — "Calculate the baseline disk space requirements" (page 58)
  - — "Calculate the disk space requirements for data collection" (page 61), if you are running MDP on this workstation and you are collecting data on anything other than a daily basis.
  - — "Calculate the disk space requirements for Oracle" (page 63) if you are running Oracle on the workstation
  - — "Calculate the disk space requirements for backup and restore" (page 65) if you are going to be using the workstation for backing up and restoring Passport data.

Procedure steps

1 Use the following formula to calculate the total amount of disk space:

Disk space (MBytes) = Baseline requirement (MBytes) + [MDP (MBytes) + Oracle (MBytes) + Backup and restore (MBytes)]

`Baseline requirement` is the amount of disk space for the MDM and MDP software and on-line documentation.

`MDP (MBytes)` is the amount of disk space for MDP. You only need to include this parameter if you are collecting data anything other than on a daily basis

`Oracle (MBytes)` is the amount of disk space for Oracle. You only need to include this parameter if you are running Oracle on the workstation.

`Backup and restore (MBytes)` is the amount of disk space required for backup up and restoring data on Passports. You only need to include this parameter if you are performing backup and restore operations on the workstation.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

- The workstation requires 6536 MBytes of disk space
- You are running MDP, but you are collecting records on a weekly basis instead of daily, so you had to use the MDP calculations to determine the disk space requirements. The result of the calculation is 6750 MBytes.
- You are not going to manage faults or configure services on circuits with the workstation, so you do not need to run the Oracle database.
- You are performing backup and restore operations, and the result of your disk space calculation for backup and restore is 448 MBytes

The total disk space requirements are:

```
6536 + 6750 + 448 = 13734 Mbytes = 14 GBytes
```

Determine the physical workstation hardware

Use this procedure to select the workstation to order when you have finished calculating the number of CPUs, the amount of RAM, and disk space for the workstation. See “Worksheet for installing a workstation” (page 97).

Many different types of workstations are available from Sun, including low-end workstations and Enterprise workstation, desktop, rack-mount, and NEBs compliant workstations suitable for installation in a lab or switching office. An example of a NEBS compliant workstation is the Netra t1400 workstation. The key is to consult with Sun to choose one that matches the requirements.

Procedure steps

1. Access the Sun web page at: http://store.sun.com for high-level description of the model of workstation available.
2. Choose a NEBs compliant or desktop workstation that has the disk space, CPU, RAM, communications cards, and operating system requirements written in “Worksheet for installing a workstation” (page 97).

Calculate the disk partition sizes

Once you have determined the overall disk space requirements for the workstation and the sizes of disk drive available from Sun Microsystems, you need to determine the disk partition sizes.

In previous releases, we recommended dividing the disk into multiple slices and allocating space for those slices. This method presents a major disadvantage during upgrades of the operating system. Should any one of the partitions be too small for the upgraded operating system, the upgrade will fail. This can often happen with the /usr partition. To avoid this possibility, we now recommend using only three slices: /, /var, and swap.

If you have an existing workstation that is already partitioned with more than these 3 partitions, we recommend that you contact Nortel Networks to determine if the disk can be used with the existing partitions.

Prerequisites

You need to have calculated the total amount of disk space required using “Add up the disk space requirements” (page 66).

Procedure steps

1 See the following table for the partition sizes:

Partition	Partition size
swap	3 * RAM
/var	1 GByte
/ (root)	Whatever is left over after allocating space for swap and /var

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

From previous calculations, you have determined that the workstation requires 14 GBytes of disk space and 512 MBytes of RAM. Assuming Sun can supply a disk drive with a capacity of 14 GBytes, the partitions are as follows:

```
swap = 3 * 512 = 1536 MBytes = 1.5 GBytes
/var = 1 GByte
/root = 11.5 GByte
```

Chapter 5
Calculate the connectivity bandwidth requirements

This section contains procedures to calculate the bandwidth for the connection between the workstation and devices in the network.

Note: The calculations in this section provide a close approximation and were up to date when this document was released. However information is continually being updated and there may be updated information available. Before using the information in this section, check for updated information at the following Web page:
http://www130.nortelnetworks.com

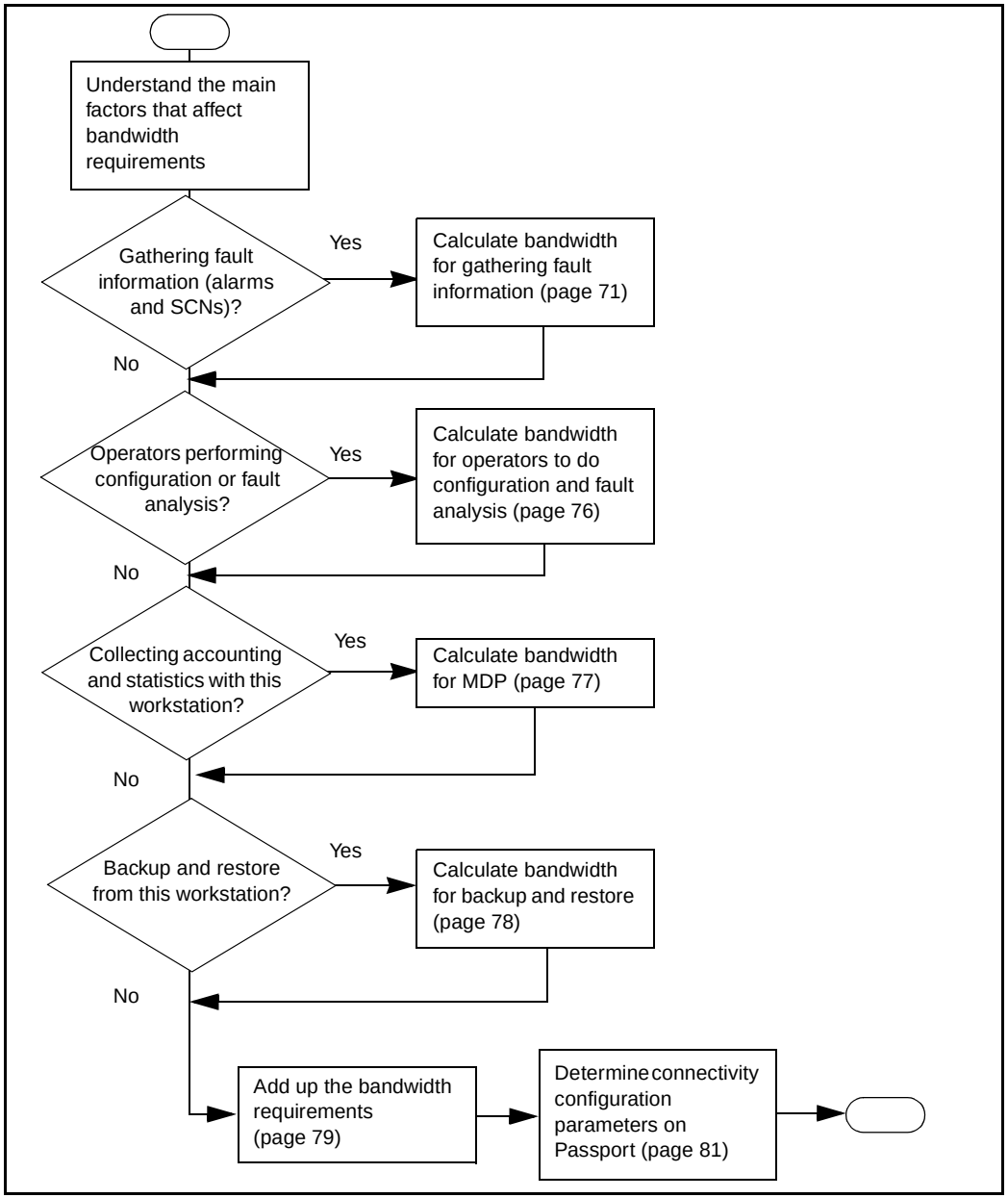
Task flow for calculating connectivity requirements

Refer to Figure 15 for the list of tasks to calculate connectivity bandwidth and the order in which to perform them. See the following sections for the locations of the procedures to perform each of the tasks.

- "Understand the main factors that affect bandwidth" (page 74)
- "Calculate the bandwidth for fault information (alarms and SCNs)" (page 75)
- "Calculate the bandwidth for operators to do configuration and fault analysis" (page 76)
- "Calculate the connectivity bandwidth for data collection" (page 77)
- "Calculate the connectivity bandwidth for backup and restore" (page 78)
- "Add up the bandwidth requirements" (page 79)

- “Determine the connectivity configuration parameters on Passport” (page 81)

Figure 15
Task flow for calculating connectivity bandwidth for a workstation



Understand the main factors that affect bandwidth

Preside MDM uses two main protocols for communicating with the Passports: FTP and a proprietary protocol called fast management interface protocol (FMIP) that is based on TCP/IP. The total traffic handled through these protocols constitutes the bulk of the load on the connection to the Passports. Here are main information handling tasks for each of the protocols:

Protocol	Main tasks
FMIP	gathering fault information such as alarms and state change notifications from Passports communicating with Passports to allow operators to perform such tasks as configuration operations and fault analysis
FTP	collecting accounting and performance data from Passports with MDP uploading and downloading software configuration data to Passports

The procedures in this section calculated the bandwidth required to support all of the main tasks. The minimum bandwidth required is 256 Kbits/s. If calculations produce a bandwidth of less than this value, use 256 Kbits/s as the bandwidth.

The following sections contain procedures for calculating the bandwidth for each of the main tasks, then adding up the bandwidth for all of the tasks to determine the total bandwidth required to support the number of Passports managed by a workstation.

Calculate the bandwidth for fault information (alarms and SCNs)

Use the approximate method of calculation if you do not have detailed figures for number of alarms you are expecting per minute and the average number of state change notifications per alarm.

Procedure steps

1. Use the following formula to calculate the approximate bandwidth required to gather fault information from Passports:

   Bandwidth (bits/s) = 8 000 bits/s * Number of Passports

2. Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

A network contains 120 Passport 7440s and 50 Passport 15000s. Using the formula, the bandwidth is:

```
8000 * 120 = 96,000 bits/s = 96 Kbits/s
```

Calculate the bandwidth for operators to do configuration and fault analysis

Use this procedure to calculate the bandwidth used by the FMIP protocol when operators use the Preside MDM tools to perform operations such as configuration and fault analysis.

Procedure steps

1. Use the following formula to calculate the bandwidth required for operators to communicate with Passports through FMIP:

   Bandwidth bits/s = 8000 * No of operators * 2

2. Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

A workstation has 6 operators logged in and using Preside MDM tools for fault analysis and configuration operations. The bandwidth used by FMIP for these 6 operators is approximately:

```
8000 * 6 * 2 = 96000 bits/s = 96 Kbits/s
```

Calculate the connectivity bandwidth for data collection

The minimum recommended bandwidth for data collection is 256 Kbits/s to manage 50 Passports. If you plan to manage more than 50 Passports, use this procedure to calculate the bandwidth for data collection. Otherwise, use a figure of 256 Kbits/s as the data collection connectivity bandwidth requirement.

If you are collecting accounting data, ensure that the network connection has sufficient bandwidth to collect data from each network device in a timely manner.

Procedure steps

1 Use the following formula to calculate the bandwidth of the connection for gathering data from Passports in the network.

$$\text{Bandwidth (bits/s)} = 60 \left(\frac{\text{Data (bytes)} * 8}{\text{Download time (min)}} \right) * \text{Number of Passports}$$

`Data (bytes)` is the total amount of data to be collected concurrently from each Passport. An FTP session is configured to one Passport at a time to retrieve data. Although a single FTP session can only gather information from one Passport at a time, it is possible to have more than one FTP session running concurrently to the same Passport provided it is collecting different types of data: PVC accounting, SVC accounting, alarms, logs, statistics, and state change notifications. For this parameter specify the total amount of data for all data types being collected simultaneously by concurrent FTP sessions.

`Download time` is the length of time you wish to take for spooling data from Passports in your network. Although the time depends on your network. To reduce the download time, we recommend that you download files during off-traffic hours.

2 Update the worksheet in “Worksheet for installing a workstation” (page 97).

Calculate the connectivity bandwidth for backup and restore

The minimum recommended bandwidth for backup and restore is 256 Kbits/s for managing up to 50 Passports. If you plan to manage more than 50 Passports, use this procedure to calculate the bandwidth. Otherwise, use a bandwidth of 256 Kbits/s for backup and restore.

Procedure steps

1. Use the following formula to calculate the bandwidth for back up and restore for more than 50 Passports.

$$\text{Bandwidth (bits/s)} = \frac{256\,000 * \text{Number of Passports}}{50}$$

2. Update the worksheet in “Worksheet for installing a workstation” (page 97).

Example

A network consists of 100 Passports. The bandwidth used by FTP for backup and restore operations is approximately:

```
(256*120)/50= 617200 bits/s = 617 Kbits/s
```

Add up the bandwidth requirements

Use this procedure to calculate the total bandwidth requirements for managing Passports from one workstation.

The procedure in this section totals the results of the bandwidth calculations for the following items:

- FMIP for alarms and state change notifications
- FMIP for operators who use the Preside MDM tools for configuration and fault analysis operations
- FTP for spooling files from Passports for MDP, and for performing backup and restore operations together

Doing all of these operations can result in large bandwidth requirements, and you may find it necessary to move MDP and/or backup and restore operations to another workstation.

Prerequisites

You need to have available the results of the calculations from the following sections:

- “Calculate the bandwidth for fault information (alarms and SCNs)” (page 75)
- “Calculate the bandwidth for operators to do configuration and fault analysis” (page 76)
- “Calculate the connectivity bandwidth for data collection” (page 77)
- “Calculate the connectivity bandwidth for backup and restore” (page 78)

Procedure steps

1 Use the following formula to determine the total bandwidth required for connecting to Passports:

$$\text{Bandwidth (bits/s)} = \text{Bandwidth for fault} + \text{Bandwidth for config and fault analysis} \; \text{Bandwidth for MDP} + \text{Bandwidth backup and restore}$$

`bandwidth for fault` is the bandwidth in bits/s used by the FMIP protocol for gathering fault information consisting of alarms and state change notifications

`bandwidth for config and fault analysis` is the bandwidth in bits/s used by the FMIP protocol for operator who are using tools to perform operations such as configuration or fault analysis

`bandwidth from MDP` is the bandwidth in bits/s used by the FTP protocol for transferring accounting data, if MDP is going to run on the workstation

`bandwidth for backup and restore` is the bandwidth in bits/s used by the FTP protocol for backup and restore operations

2 Use 256, 000 bits per second, or the results of step 1as the value for the connectivity bandwidth, whichever is greater

3 Update the worksheet in “Worksheet for installing a workstation” (page 97)

Example

Connectivity bandwidth calculations in previous sections produced the following results:

- bandwidth for fault (alarms and SCNs= 80000 bits/s
- bandwidth for operators= 96000 bits/s
- bandwidth for MDP= 512000 bits/s
- bandwidth for backup and restore= 512 000 bits/s

The total bandwidth required is:

`80000+96000+512000+512000=1200000 bits/s = 1.2 Mbits/s`

The only connection available to the workstation is a 256 Kbit/s link over a WAN. It is therefore necessary to consider moving MDP onto a separate workstation and performing backup and restore operations on a workstation with a higher bandwidth connection to the network.

Determine the connectivity configuration parameters on Passport

When using IP over frame relay (IPIFR) or IP over ATM to connect a Passport to the workstation that is running Preside MDM, we suggest that you use the settings from this procedure to set up the link.

Procedure steps

1. Use the information in the following table to determine the suggested settings according to the type of connectivity between the Passport and the Preside MDM workstation;

Connectivity	Suggested configuration parameters
IP over Frame Relay (IPIFR)	CIR = 16 Kbits/s EIR = 256 Kbits/s
IP over ATM	rt-VBR PVC 700 cells/sec Emission Priority set to EP1 Policing turned off SCR = 1/2 PCR or 350 cells/s MBS = 32 cells/s

2. Update the worksheet in “Worksheet for installing a workstation” (page 97).

Chapter 6
PC hardware requirements

Use this section to determine hardware requirements for a Personal Computer (PC). There are three reasons for which you may deploy a PC in your network management architecture:

- to display the Preside Multiservice Data Manager (MDM) desktop using a GUI-based emulator such as Hummingbird Inc.'s Exceed
- to run the MDMWeb application
- the Preside MDM UNIX workstation is located in a controlled environment with limited physical access

The recommended specifications for this Preside MDM client PC are:

- 256 MBytes of RAM
- CPU speed of 600 MHz or faster

The connection requirement between the PC and the Preside MDM workstation:

- 100 Mbits/second Ethernet connection if the PC is on the same LAN as the Preside MDM workstation
- 512 Kbits/second connection if the PC is located on a WAN. This connection is sufficient to support up to 10 remote users.

Chapter 7
Determine the software requirements

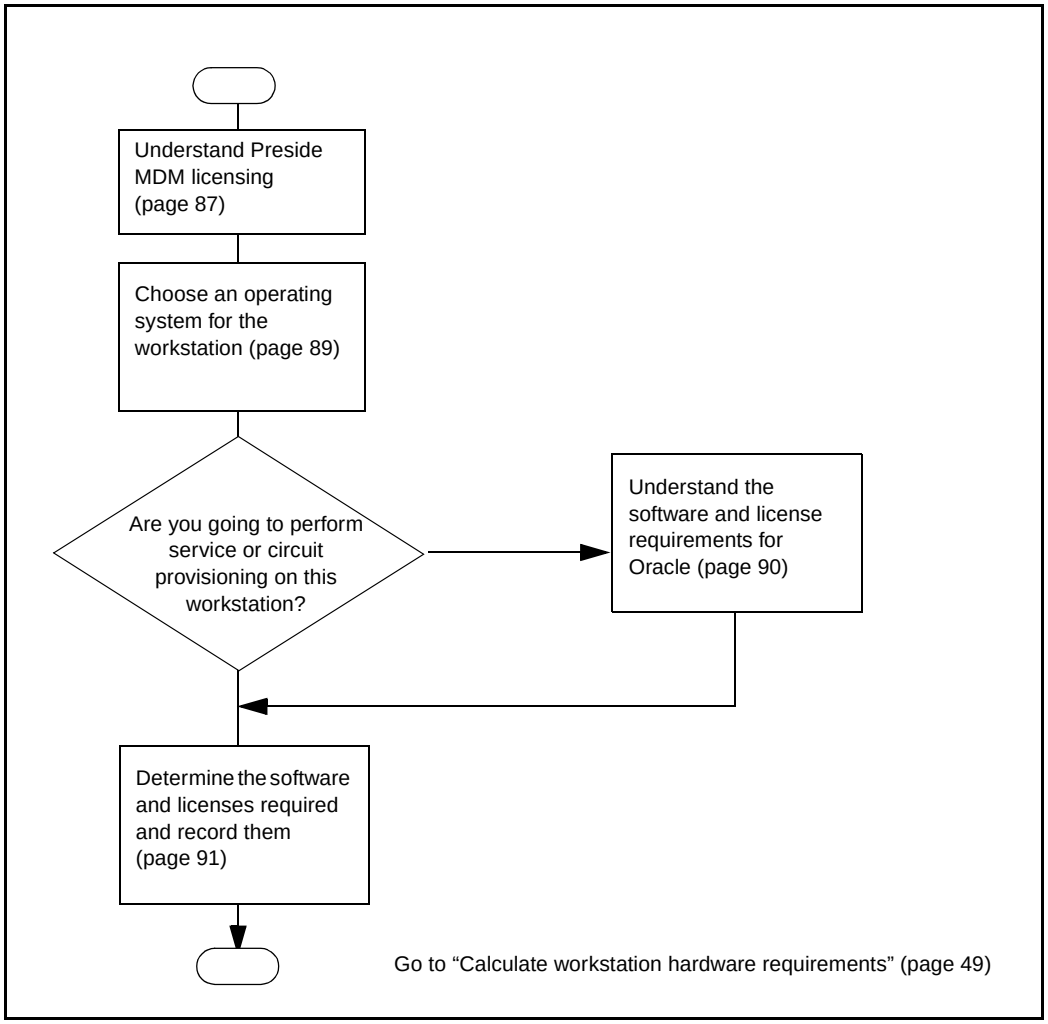
This section helps you determine your software version and licensing needs for Preside MDM software and related software.

Task flow for determining software requirements

Refer to Figure 16 for the list of tasks in this section and the order in which to perform them. See the following sections for the locations of the procedures to perform each of the tasks:

- “Understand Preside MDM licenses” (page 87)
- “Choose an operating system for the workstation” (page 89)
- “Understand software requirements for Oracle” (page 90)
- “Determine and record the software and licenses” (page 91)

Figure 16
Task flow for Determining software requirements



Understand Preside MDM licenses

You require a license to run Preside MDM software. To order a software license to run Preside MDM, you need to know:

- the number and types of devices you are going to manage (how many Passport 7000s, 15000s, 20000s and so on).
- the Preside MDM license packages you require (Entry or Comprehensive) and a set of optional packages

This section provides you guidelines to select the level of license you need. See Table 2 for basic descriptions of the packages you can order.

Table 2
Packages

Package	What it provides
Entry	Basic fault, configuration, performance, and security management for Passports
	SNMP device adapter that lets you manage SNMP devices
	Open access for operations support systems (OSSs) through applications programming interfaces (APIs), embedded programming interface (EPI)
	Passport 4400 backup and restore
Comprehensive	All of the capabilities in the Entry package
	Passport service provisioning, a means to provision services such as ATM and Frame Relay
	Passport circuit provisioning, a means to provision circuits on which the services run
	MDM Web that provides you with a Web interface that can be used for managing faults. The Web interface runs on a SUN or on a PC.
	Passport global data management, a means to let you make global changes to data on Passports throughout the network
	Network configuration reporting, a means to let you create reports related to the Passport configuration

(Sheet 1 of 2)

Table 2 (continued)
Packages

Package	What it provides
MDP (Management Data Provider)	Collection of spooled accounting and performance data from network devices. If necessary, this application converts proprietary data to a structured customizable ASCII format.
OV Desktop	The HP OpenView Desktop as an interface for managing faults
MDM Device Adapter	A means to provide fault information from Preside MDM to external systems
Device integration cartridges	A means to display fault information and to obtain help on alarms from a specific SNMP device, such as Shasta 5000. There is an expanding number of these cartridges, each of which needs to be ordered separately.
(Sheet 2 of 2)	

Choose an operating system for the workstation

If you obtain a new workstation from Sun Microsystem's Inc., this workstation will likely be deployed with the Solaris 8 operating system installed. If necessary, you can use an existing UNIX workstation with Solaris 2.7 installed as Solaris 2.7 is still supported by the Preside Multiservice Data Manager (MDM).

Note: Solaris 8 can operate in 32-bit mode or 64-bit mode. Most Sun workstations do not include the necessary firmware to use frame relay in 64-bit mode. If you plan to operate Solaris 8 in 64-bit mode, we recommend that you use an external router as a frame relay access device (FRAD) to connect to the Passports in your network.

Understand software requirements for Oracle

You only require Oracle and a license to run it if you are going to use the service provisioning and circuit provisioning tool to manage circuits on Passports. You can manage circuits using Preside MDM without these tools, but they provide an additional streamlined method for managing circuits. This section provides guidelines to help you choose the version of software and license options for Oracle.

Oracle licenses are based on the total number of users. They are not floating licenses that belong to a pool that users can share. Licenses are fixed to specific users. You must order one license per user.

Table 3
Versions of Oracle

Versions	What it provides	Pros and cons
Standard	Provides basic Oracle functionality. Least expensive option	Least expensive version. Cannot run on a workstation that has more than 4 CPUs
Enterprise	Offers all of the capabilities of the standard version. Includes the Oracle Replicator which lets customer backup their data. An enhancement for fast indexing Optional security features not required by MDM	More expensive version. Can run on workstations with more than 4 CPUs Recommended for high reliability or of very large databases (100 GBytes or more.

Determine and record the software and licenses

1 Determine the licenses you require based on you understanding in:

- “Understand Preside MDM licenses” (page 87)
- “Choose an operating system for the workstation” (page 89)
- “Understand software requirements for Oracle” (page 90)

2 Record your licenses requirements in the worksheet in “Worksheet for installing a workstation” (page 97).

Chapter 8
Installation tasks

Use the information gathered in the proceeding sections to determine which tasks will be required to deploy the Preside Multiservice Data Manager (MDM) software on a network management workstation. Identify those tasks for each MDM workstation in your chosen network management architecture.

For a list of the tasks, and the NTPs that contain procedures for performing these tasks, see “Next steps for installing and configuring Preside MDM (sheet 1 of 2)” (page 94).

Figure 17
Next steps for installing and configuring Preside MDM (sheet 1 of 2)

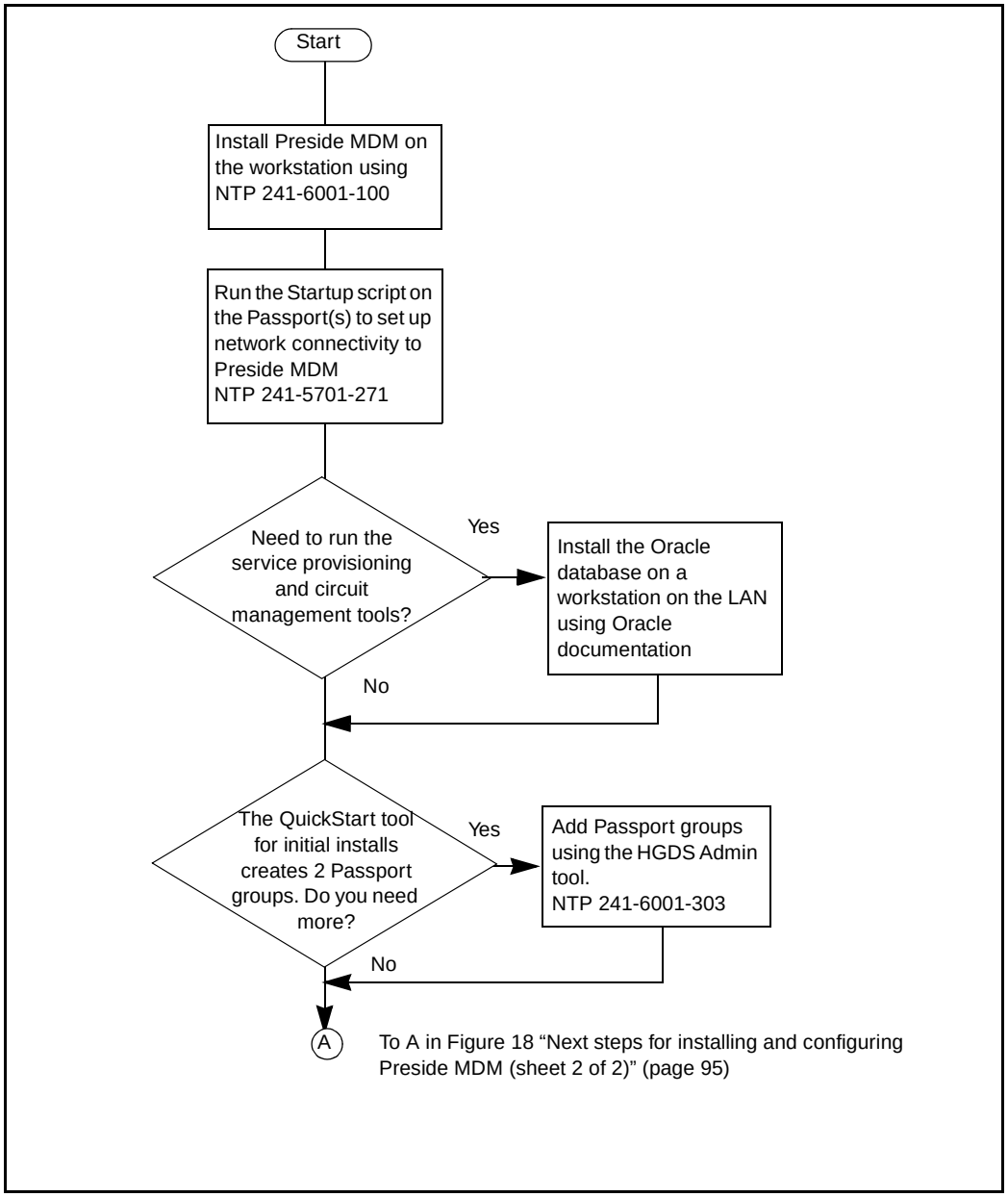
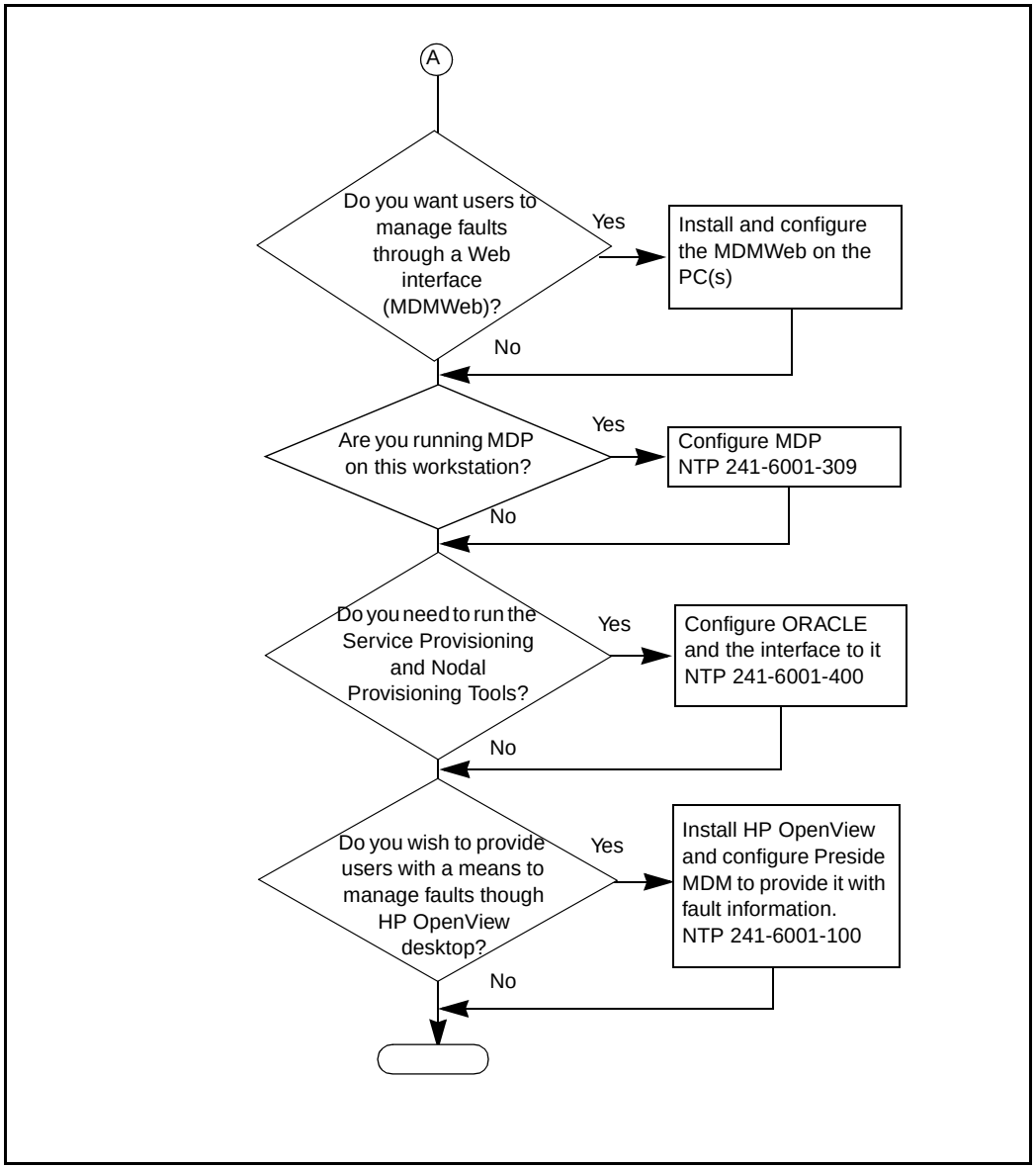


Figure 18
Next steps for installing and configuring Preside MDM (sheet 2 of 2)



Appendix A
Job aids

Worksheet for installing a workstation

Use the worksheet in Table 4 to capture the information to install a workstation while performing the procedures in this document.

Table 4
Worksheet for installing Preside MDM

Item		Value(s)
Host name and IP address of workstation		
Deployment option for workstation	Fault client only Configuration client only Fault server Configuration server (MDP) Oracle for service and circuit provisioning	
	IP address of redundant fault workstation (if you are using the workstation in a redundant FMDR configuration:)	
	IP address of workstation that runs Oracle (If you are performing the circuit provisioning or service provisioning and Oracle is on a different workstation:)	
(Sheet 1 of 3)		

Table 4 (continued)
Worksheet for installing Preside MDM

Item		Value(s)
Number of CPUs	Baseline requirements	
	Extra for more than 5 users	
	Extra for MDP	
	Total	
RAM	Baseline requirements	
	Extra for more than 5 users	
	Extra for MDP	
	Total	
Disk space	Baseline requirements	
	MDP	
	Oracle	
	Backup and restore	
	Total	
Partitions	/swap (3 * RAM)	
	/var	1 GByte
	/	
Software	Preside MDM license (Entry or Comprehensive)	
	Additional Preside MDM optional packages (MDP, OV Desktop, MDM Device Adapter, Device Integration Cartridges	
	Operating system (Solaris 2.7 or Solaris 8)	
	Oracle (Standard or Enterprise)	
(Sheet 2 of 3)		

Table 4 (continued)
Worksheet for installing Preside MDM

Item		Value(s)
Connectivity bandwidth	For gathering fault information (alarms and state change notifications)	
	For gathering fault information (alarms and state change notifications)	
	For MDP	
	For backup and restore	
	Total	
Type of connection to Passports	IP over Frame Relay IP over ATM IP to Passports in an ILS IP to Passports with AtmMpe	
(Sheet 3 of 3)		

Worksheet for collecting information about Passport groups

Use the worksheet in Table 5 to capture the information for Passport groups that are going to be managed by the workstation.

Table 5
Worksheet for collecting information about Passports to be managed by the workstation

Item		Value(s)
Passport group for gathering fault information. This Passport group should contain all Passports in the region managed by the workstation.	Passport group name	
	Host names and IP addresses of Passports who are members in the group	
	Common user id and password used for gathering fault information	

(Sheet 1 of 2)

Table 5 (continued)
Worksheet for collecting information about Passports to be managed by the workstation

Item		Value(s)
Passport group for configuration and command access. ***Note:*** This sheet contains information about only one Passport group for configuration and command access. You can have many more. For example, you can have one per region. Photocopy this page once for each Passport group.	Passport group name Host names and IP addresses of Passports who are members of the group Common user id and password used for the Passports in the group	
(Sheet 2 of 2)		

Appendix B Glossary

Client workstation

A physical workstation that makes use of server programs on another server (workstation) to accomplish tasks. An example of a client is a workstation that has no connection of its own to the network, but obtains access to the network by making use of server programs running on a server (workstation) that does have a connection to the network.

Client program

A program that makes use of a one or more server programs to perform a task. The server program can be running on the same workstation as the client program or on a different workstation. An example of a client program is the Alarm Display tool.

Device

Any kind of box that can be managed separately. Examples of devices are a Passport 15000 and a BPS2000.

Equivalent number of Passports

A factor used to compare one device against another, expressed as a number of Passport 7480s. For example, one Passport 4400 is the equivalent of 0.3 Passport 7480 so it takes three Passport 4400s represent the same load as one 7480 Passport.

Passport group

A set of Passports in the network that share a common userid and password that has the same access privileges for gathering fault information or for performing configuration operations and sending commands to Passports in the group.

Server workstation

A physical workstation that runs server programs that client programs on a client (workstation) use to accomplish tasks. An example of a server is workstation that runs programs that provide access to the network for client programs.

Server program

A program that provides services in response to requests from a client program. The short form *server* is frequently used to refer to a server program, which sometimes causes confusion. For example, GMDR is a server program.

User

A person or a program such as Exceed that logs into a workstation to run Preside MDM tools.

Index

T

W

Preside MDM

Planning

Guide

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