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Product/Service Brief

DMS-100 Wireless System

The DMS-100 Wireless system offers unprecedented wireline and wireless system integration, maximizing existing network assets, increasing operating efficiency, and opening the door to new revenue opportunities.

NORTEL NETWORKS™

About this document.

This document is an advance-planning tool for executives, network planners, engineers, and marketers who need information about Nortel Networks DMS-100 Wireless solutions. It has been designed to complement—not replace—more detailed technical documents.

For more information.

For more detailed information about the DMS-100 Wireless system or other Nortel Networks products and services, please visit our Web site at www.nortelnetworks.com or call the Nortel Networks Sales and Marketing Information Center at 1-800-4 NORTEL (1-800-466-7835). For training information, call 1-877-662-5669.

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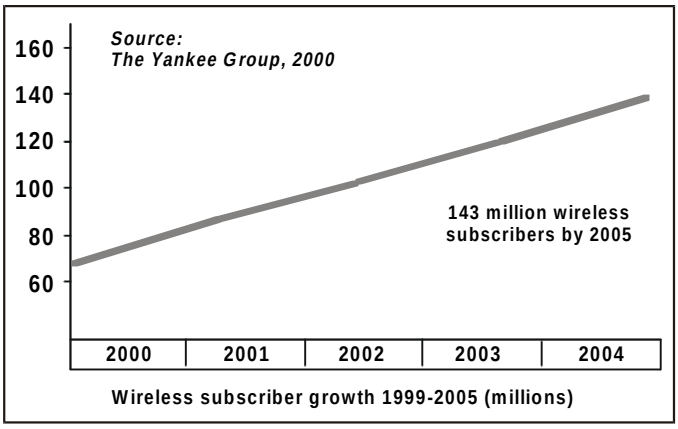
THE DMS-100 WIRELESS SYSTEM

A cost-effective switching solution for opening new markets and expanding revenues in wireline and wireless services

The DMS-100 Wireless system offers the following business and market solutions:

- *Service providers can increase revenue and market differentiation with new integrated service offerings*
- *Wireline service providers can leverage existing switching platform*
- *Wireless cellular service providers can leverage system assets in wireline opportunities*
- *Service providers can lower operating costs by using system trunking and signaling resources more effectively*

The market for cellular services and personal communications services (PCS) is undergoing rapid expansion. Market research firms have backed up these assertions with bold projections: U.S. wireless subscribers will grow from 68 million at the end of 1999 to 143 million by 2005, says market research firm The Yankee Group.



Similarly, deregulation in the local telephone market is enabling established service providers to expand their service areas, and new service providers to offer more telecommunication services to business and residential markets by becoming competitive local exchange carriers (CLECs).

One Platform, Multiple Markets

The DMS-100 Wireless system from Nortel Networks enables service providers to capitalize on these exciting new opportunities for expanded revenues. It integrates the industry's highly respected DMS-100/200 wireline and DMS-MTX wireless switching systems onto a single platform. A single DMS-100 Wireless system can provide a full suite of wireline (local, toll, and access tandem capabilities), wireless mobility, and fixed access services.

The DMS-100 Wireless system is designed for maximum flexibility. It can help broaden service offerings and dramatically increase revenues. It allows service providers to expand their service areas by offering retail wireless services to their existing customer base and to potential new customers. The platform also enables service differentiation with advanced service integration—including Integrated Wireless Centrex, single voice mail box and single number service—and extends important Advanced Intelligent Networks (AIN) functionality to wireless phones.

Benefits of the DMS-100 Wireless System

- **Enables Service Expansion and Increased Revenue Opportunities**

  The DMS-100 Wireless system increases revenue potential by allowing service providers to capitalize on the rapid growth in the wireless and CLEC markets.

- **Leverages Existing Switching Assets**

  The DMS-100 Wireless system allows service providers to upgrade existing DMS-100/200 and DMS-MTX switches to provide a full suite of wireline and wireless mobility and fixed access services.

- **Provides Service Differentiation**

  Service providers can offer integrated wireline/wireless services such as Integrated Wireless Centrex, single voice mail box, and simultaneous/sequential ringing. These services provide a major competitive differentiator and allow the operator to provide bundled services, which positions the service provider as the innovation leader in the marketplace.

- **Supports Advanced Wireline Capabilities**

  The DMS-100 Wireless system supports a full suite of wireline capabilities available today with the DMS-100/200 system. These capabilities include National ISDN, Automatic Call Distribution (ACD), Nortel Networks Centrex, Local Number Portability (LNP), wideband data services such as 1-Meg Modem, Centrex IP, and many more.

- **Supports Advanced Wireless Capabilities**

  The DMS-100 Wireless system provides wireless customers with a full suite of wireless features available today with the DMS-MTX system, the Nortel Networks flagship wireless switching system. These features include Short Message Service, Wireless Data, Fixed Wireless Access, and many more.

- **Supports Multiple Standardized Air Interfaces**

  The DMS-100 Wireless system supports Code Division Multiple Access (CDMA), Advanced Mobile Phone Systems (AMPS), and Time Division Multiple Access (TDMA) wireless technologies at PCS and cellular frequencies, allowing operators to leverage the efficiencies provided by the DMS-100 Wireless system, regardless of the technology required.

- **Reduces Network Operating Costs**

  The DMS-100 Wireless system's integrated platform allows common usage of existing SS7 facilities, network trunking, and operations, administration, and maintenance (OAM) interface, allowing service providers to reduce the cost of providing wireline and wireless services.

- **Supports Integrated HLR/VLR and IS-41 Capabilities**

  Service providers can manage wireless services and capabilities from the integrated DMS-100 Wireless Home Location Register (HLR)/Visitor Location Register (VLR) mobility databases. The DMS-100 Wireless system also integrates wireless IS-41 networking capabilities into the core platform. These capabilities eliminate the need for buying expensive standalone, offboard systems.

1 MARKET INTRODUCTION

The DMS-100 Wireless system from Nortel Networks offers a cost-effective way to pursue exciting opportunities for increased revenue. It integrates the industry's most reliable and robust wireline and wireless switching systems onto a single platform, making it possible to provide a full suite of wireline and wireless services—without adding significantly to existing infrastructure (Figure 1). Additionally, there is no need for a large initial investment of capital or for extensive training, since the DMS-100 Wireless system builds on existing technology.

The DMS-100 Wireless system enables the service provider to capitalize on new markets by adding wireline and wireless capabilities to the existing base.

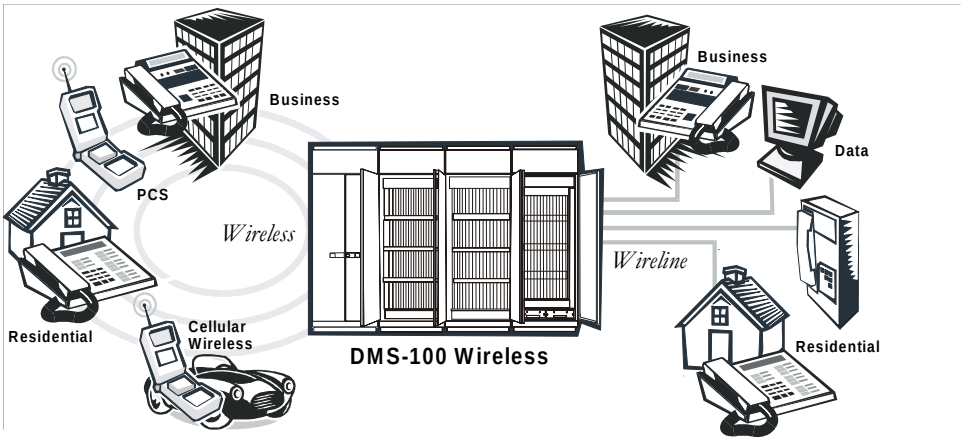


Figure 1. DMS-100 Wireless System

New Markets and New Opportunities

The DMS-100 Wireless system allows service providers to establish a single point of presence in both traditional wireline and wireless markets. It enables incumbent local exchange carriers (ILECs) and independent operating companies (IOCs) to profitably add revenue-generating, wireless capabilities to their existing equipment. Similarly, competitive local exchange carriers (CLECs) can offer revenue generating wireless and wireline services, and exciting new integrated services. This, in turn, leverages their installed assets and customer base, while enabling them to cost-effectively compete in both wireline and wireless markets.

Wireless Carriers can pursue the emerging CLEC market by converting their installed base of DMS-MTX switches to DMS-100 Wireless (by way of a simple software upgrade process) to offer advanced data and voice services.

As a new system, the DMS-100 Wireless solution allows the service provider to pursue new business opportunities by effectively using their switching system resources in a much larger telecommunications scope.

Whether deployed initially, or as an upgrade, the DMS-100 Wireless system offers significant flexibility and service capabilities including, but not limited to:

- Full Mobility Services
- Wireless Local Loop (WLL)/Fixed Wireless Service
- Nortel Networks Centrex
- ISDN Primary Rate Interface/Basic Rate Interface (PRI/BRI)
- 1-Meg Modem
- Advanced Intelligent Networks (AIN)
- Enhanced Residential Services and Custom Local Area Subscriber Services (CLASS)
- Centrex IP

The platform also enables service differentiation with advanced feature integration in wireless Centrex, single voice mail box and personal number services, and extends important AIN functionality to wireless phones.

Retail and Wholesale Opportunities

The DMS-100 Wireless system also offers service providers greater flexibility in how they deliver wireless services to potential subscribers in their service area. For example, they can offer retail wireless services directly to their own customers, or they can offer wholesale network services to another wireless service provider.

In addition, service providers can offer innovative service packages that mix and match retail and wholesale services.

With a major emphasis on minimizing startup costs by the new PCS licensees, an existing wireline carrier could wholesale network services to these parties. The wireless operator buys these wholesale services (such as access and network services) from the wireline carrier, which are then used in conjunction with the radio subsystem to provide PCS services to subscribers.

The DMS-100 Wireless system opens the door to a variety of innovative relationships between service and network providers, thus helping them to realize the vision of ubiquitous, cost-effective PCS.

The flexibility of the DMS-100 Wireless system allows an owner to wholesale a customized network solution for PCS service entrants and cellular providers at varying levels, including:

- Basic switching and end user services
- Mobility database support
- Intelligent networking platforms
- Back-office support functions (e.g., billing, order entry, and maintenance)

Wireline Operator Opportunities

The DMS-100 Wireless system allows an existing wireline operator to leverage their assets, infrastructure, and expertise to best pursue wireless market opportunities regardless of whether or not they own a wireless license.

If a service provider owns a wireless license or system, they can cost-effectively deploy the DMS-100 Wireless system and leverage its capital and operating cost efficiencies across both markets.

If a service provider does not own a wireless license, but wants to capitalize on the emerging market for digital wireless services, they can leverage their existing wireline network by either upgrading a DMS-100/200 system or adding a DMS-100 Wireless system. In doing so, service providers are able to pursue new wireless opportunities including:

- **Affiliation/Franchisee Programs**

  By leveraging a license holders' nationwide marketing campaign and brand name awareness, service providers can minimize their marketing and sales costs by purchasing or leasing the necessary spectrum.

- **Partnerships**

  By using a wireline partner's installed assets and operation, service providers can obtain important operational and market advantages. These advantages include lower startup costs, operating efficiencies (e.g., minimal additional power requirements and sharing of trunking and signaling resources), and ability to leverage the operations support system and experience of a wireline partner.

- **Partitioning of Spectrum**

  Many of the larger PCS license holders have sold a portion of their spectrum to smaller partnering service providers for them to build out areas not covered by the larger operator. This divestiture of spectrum is being done to share the demands associated with deploying a new PCS system and to increase the service coverage area in a more timely manner.

Service Expansion Opportunities

In today's competitive market, assets that are flexible and offer a wide array of options are a major advantage. The DMS-100 Wireless system offers advanced wireline services such as the 1-Meg Modem and multiple, standardized wireless technologies, resulting in the most flexible, feature-rich telecommunications platform in the market. Strategically positioning the DMS-100 Wireless system in new and existing markets allows service providers to maintain, grow or secure new wireline access opportunities and wireless overlay applications in these territories.

Wireless Operator's CLEC Opportunities

By strategically positioning the DMS-100 Wireless system in his markets, the wireless operator has an immediate capital and operating cost advantage over other operators. Additionally, the key factor for success in the CLEC business is the availability and opportunity to offer valuable new services. The DMS-100 Wireless system offers service providers this competitive, market differentiation with the support of:

- Advanced wireline services such as high-speed data access (1-Meg Modem), ISDN, and advanced business services
- Unique services including Integrated Wireless Centrex, one number services, single voice mail box, and message waiting indicator to both wireline and wireless phones

No matter what the opportunities in a service provider's market, upgrading a DMS-MTX system (by way of a simple software upgrade) or adding the DMS-100 Wireless system offers the best flexibility and system integration available in the market today.

2

SERVICES AND FEATURES

The DMS-100 Wireless system provides an extensive list of revenue-generating wireless and wireline services. It also allows service providers to maximize marketplace differentiation and revenue potential by offering subscribers the convenience of integrated services such as wireline/wireless single voice mail box, and simultaneous/sequential ringing. Figure 2 shows several of the high-level services and features offered by the DMS-100 Wireless system.

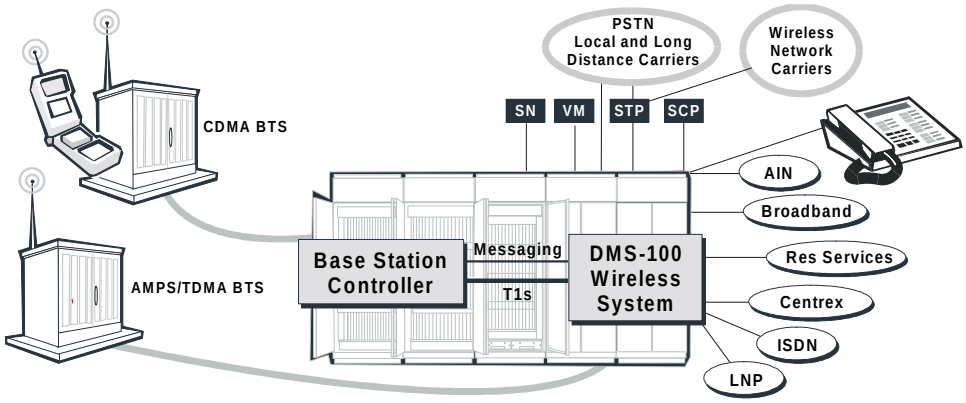


Figure 2. Key DMS-100 Wireless Services and Features

Wireline Services

For a more detailed list of wireline services, refer to the DMS-100 Feature Planning Guide (50004.11). Call 1-800 4 NORTEL to order the latest issue.

The Nortel Networks portfolio offers network providers a competitive edge with high-demand services so they can attack new opportunities aggressively. With our current switch software and hardware, Nortel Networks introduces new revenue-generating services faster; enabling providers to market them to subscribers sooner and help expand all markets for these services. All features currently offered on the DMS-100 and 200 class 4 and 5 systems are available on the DMS-100 Wireless system. Below is a sample listing of these attractive wireline services.

- Centrex IP *
- Advanced Residential and CLASS Services
- Nortel Networks Centrex
- Enhanced Emergency Number Services *
- High Speed Data Services such as the 1-Meg Modem
- Automatic Call Distribution
- National ISDN-2/3 BRI and PRI *

- Local Number Portability
- Advanced Intelligent Networking
- TR-303 Access Interface

* These features and capabilities are described in greater detail in the following pages.

Wireless Services

The DMS-100 Wireless system offers an impressive portfolio of wireless subscriber services that enable service providers to gain a distinctive competitive advantage, including:

For a more detailed list of wireless services, refer to the Wireless Planner (66016.08). Call 1-800 4 NORTEL to order the latest issue.

- Account Code Billing*
- Call Forwarding and Call Transfer
- Call Waiting
- Calling Line ID Presentation/Restriction
- Credit Card Calling*
- Distinctive Call Screening*
- Enhanced Selector Card with EVRC *
- Group Conferencing*
- Message Waiting Notification (audio and visual)*
- Over-the-Air-Provisioning
- Personal Number Service
- Real Time Billing*
- Service Code Dialing*
- Short Message Service*
- Three-Way Calling
- Tiered Billing*
- Voice Mail Callback
- Wireless Circuit Switched Data and Fax*
- Wireless Hotline
- Wireless Prepaid Service*

* These features and capabilities are described in greater detail in the following pages.

Integrated Wireline/Wireless Services

In addition to the many revenue-generating wireline and wireless service offerings, the DMS-100 Wireless system offers advanced integrated wireline/wireless services including:

- Integrated Wireless Centrex*
- Integrated Voice Mail System with Multiple Message Waiting indicators*
- Group/Simultaneous and Sequential Ringing*
- Voice-Activated Dialing Shared Directories
- Integrated Text Messaging
- Wireless Advanced Intelligent Network (AIN)*

Wireless System Features

The DMS-100 Wireless system uses the following integrated wireless components to provide full mobility that extends subscriber access anywhere within the provider's allowable service area. These capabilities are supported regardless of the air interface technology deployed and are equivalent to those provided on a DMS-MTX platform.

- Advanced IS-41 Networking*
- Inter- and Intra-System Handoff*
- Integrated Home and Visitor Location Registers (HLR and VLR)*

*These features and capabilities are described in greater detail in the following pages.

Wireline and Wireless Subscriber Service Descriptions

The features listed in this section are listed in alphabetical order and describe the features and capabilities marked by an asterisk (*) from the previous lists.

Account Code Billing

This service allows subscribers, charging calls to individual accounts or sharing a wireless phone (such as sales force personnel, attorneys, or contractors), to differentiate charges on their monthly bill by entering an account number prior to placing a call.

Centrex IP

This service delivers carrier-grade reliability and voice quality over managed Internet Protocol (IP) network and transparently supports calls going from the pubic switched telephone network (PSTN) to an IP network, IP to PSTN, PSTN to PSTN, and IP to IP—with circuit-switched or IP-specific phones and PC applications. Also, the network provider can mix IP and traditional Centrex services and can add IP members to Centrex groups from anywhere.

Credit Card Calling

With this service, subscribers can charge calls to a credit card using a wireless phone with an attached credit card reader. The subscriber simply inserts the card into the reader and dials the number. The system adds the credit card number to the Call Detail Record for billing. With credit card calling, rental car agencies and taxi cab companies can offer wireless telephone service to their customers.

Distinctive Call Screening

This feature empowers subscribers to predetermine call treatment based on incoming calling line information. Distinctive Call Screening offers an easy-to-use, powerful package of features that enables subscribers to pre-screen calls by maintaining lists of numbers in their subscriber profiles and send unwanted calls to an announcement or voice mail.

Enhanced Emergency Number Services

This feature delivers a twenty-digit wireless 911 call to an eight-digit Public Safety Answering Point with the use of either an ASCII-based link or AIN query data link.

Enhanced Selector Card with EVRC

This feature increases traffic capacity and reduces Base Station Controller (BSC) costs and footprint requirements while providing excellent voice quality. The Enhanced SELector (ESEL) card with Enhanced Variable Rate Codec (EVRC) is a hardware and software upgrade to the BSC.

Group Conferencing

This service allows AMPS, TDMA, and CDMA operators to provide a vendor-independent and handset-independent conferencing service to their wireless subscribers.

ISDN Basic Rate Interface (BRI)

This service assists field technicians in faster resolution of problems in the network and simplifies programming of ISDN features to help make the services more attractive to ISDN end users.

ISDN Primary Rate Interface (PRI)

This service helps increase call-completion rates when all B-channels are unavailable, while generating a new source of tariff revenue for incumbent and competitor local access carriers. This service also makes use of PRI trunks so emergency-service personnel can view the actual directory number that is requesting E911 service from the customer premises equipment (CPE).

Message Waiting Notification (Audio and Visual)

This service provides a visual or audio indicator to both analog and digital mobiles to notify subscribers of waiting voice mail and text messages. Subscribers will therefore be more likely to retrieve messages and make callbacks from their wireless phones, increasing air time.

Real Time Billing

This service provides billing and call detail information immediately upon call completion. Real-time billing enables new service revenue in the mobile phone rental arena, enhances customer care by providing immediate billing inquiries, and enables fraud applications associated with unusual calling pattern detection.

Service Code Dialing

This feature dynamically routes calls based on the mobile's service profile by using the ANSI-41D Origination Request message to provide seamless interworking within a multi-vendor network.

Short Message Service

The DMS-100 Wireless system supports Short Message Service, which enables the service provider to generate new streams of revenue from two-way delivery of alphanumeric messages. The subscriber can receive calls as well as predefined or tailored alphanumeric messages, email, and pages, eliminating the need to carry both a mobile phone and a pager. The mobile-originated portion of this feature allows a subscriber to create an alphanumeric message and send it from a mobile terminal camped on a Digital Control CHannel (DCCH) or in a digital voice call.

Tiered Billing

This feature enables Cellular/PCS operators to offer more flexible billing arrangements, tailoring them to subscribers' calling patterns (i.e., where subscribers typically would like to make and receive calls). This feature is available for both CDMA and TDMA (IS-136 PSID/RSID) subscribers.

Wireless Circuit Switched Data/Fax

This feature allows a service provider to provide access for mobile-originated, asynchronous circuit-switched data calls via the PSTN. This capability extends the explosion of data services to the wireless environment providing new opportunities for revenue growth.

Wireless Prepaid Service

Nortel Networks Wireless Prepaid allows subscribers to keep their existing handsets and phone numbers. Subscribers can dial local, long-distance, and international numbers directly without any special access codes or account numbers. To replenish a prepaid account, a subscriber simply uses a credit card or a "voucher" to add more money in the account. This service offers an opportunity to expand an existing wireless subscriber base and increase revenue in a rapidly growing market.

Integrated Service Descriptions

Single Voice Mail System

With the DMS-100 Wireless system, wireline and wireless subscribers can subscribe to an integrated voice mail service (VMS), allowing them to access their voice mail messages from either their wireline or their wireless telephones. The DMS-100 Wireless system supports voice mail by connecting to an external voice mail system via lines and Station Message Desk Interface (SMDI) links the same way that a DMS-100/200 office is configured for the service.

Simultaneous Ringing

The DMS-100 Wireless system allows the service provider to offer group ringing services to single, family, or business users. Up to five phones can be associated with a single pilot directory number to create a group. The system will ring the phones simultaneously or sequentially. With this service, subscribers can share the same number for incoming calls, be reached at any time, or be alerted in a "Call Delivery Wide" scenario. Subscribers can turn their participation in the group on or off at any time.

Integrated Wireless Centrex

Integrated Wireless Centrex offers a powerful wireless office-mobility solution in the Centrex environment. It includes offering wireless extensions and twinning of standard cellular and PCS phones with existing wireline business sets. And the flexibility of the DMS-100 Wireless system allows for integration into AIN- and WIN-based Centrex offerings, or all the capabilities can be offered by using software included on the platform.

Although other expensive off-board solutions are available, the Nortel Networks DMS-100 Wireless system offers a cost-effective wireless Centrex solution for business users. This solution is built upon the industry-leading DMS-100/200 Centrex service offering and the wireless access capabilities introduced with the DMS-100 Wireless product.

The new Integrated Wireless Centrex service includes an important subset of the DMS-100/200 Centrex feature set including:

- Custom Dialing Plan
- Three-Way Calling
- Calling Line ID
- Call Forwarding
- Business set/wireless phone twinning (including voice mail and phone number)
- Multiple Message Waiting Indicators

Wireless Advanced Intelligent Networking (AIN)

The DMS-100 Wireless system supports not only all of the wireline AIN capabilities available on the DMS-100/200 switch, but also all of the Wireless Intelligent Network (WIN) capabilities available with the DMS-MTX product line for wireless subscribers. Additionally, the DMS-100 Wireless integration strategy allows Nortel Networks to extend multiple AIN triggers to wireless subscribers, allowing service providers to offer many AIN-based services to both wireline and wireless subscribers.

DMS-100 Wireless System Features

IS-41 Networking

The DMS-100 Wireless system supports IS-41, Revisions 0, A, B, and a growing subset of Revision C, allowing for network-wide feature and call delivery and inter-system handoff. Additionally, the DMS-100 Wireless system supports Nortel Networks proprietary messaging, which provides enhanced networking capabilities and services with other DMS-100 Wireless and DMS-MTX switches. The system supports X.25, SS7, and Transaction Capabilities Application Part (TCAP) messaging, allowing cost-effective and flexible connectivity to the SS7 network.

Inter- and Intra-System Handoff

The DMS-100 Wireless supports both inter- and intra-system handoff. For the CDMA radio technology support, the DMS-100 Wireless system supports both soft and hard handoff capabilities. Soft handoff is provided when the handoff occurs between two or more base transceiver station (BTS) cell sites and/or sectors on the same BTS cell site. All TDMA and AMPS handoffs are supported including advanced cell tiering architectures. Intersystem handoffs are achieved using IS-41 cellular intersystem operations standards.

Home Location Register

The DMS-100 Wireless system supports either internal or external Home Location Registers (HLRs)—a permanent database that stores the mobile subscriber's profile—depending on the configuration of the service provider's network. If the internal option is selected, the information resides in the DMS core random access memory and is part of the base software package.

Visitor Location Register

While the mobile phone is being served, subscriber information is retrieved from the HLR and stored in the Visitor Location Register (VLR)—a dynamic database used to store mobile subscriber information associated with the serving system. This database is part of the base software package and resides in the DMS-100 Wireless system's core memory for fast retrieval; thus no external database is required.

3

SYSTEM DESCRIPTION

Summary of Hardware Requirements

Common

- *DMS-100/200 with Series 60 Processor or higher; Series 70EM is recommended for larger systems*
- *DTCs to support wireless voice traffic*
- *System Load Module (SLM)*

CDMA

- *LPP or FLIS with CIUs and CAUs*
- *BSC, BSM, and cell site equipment*

TDMA/AMPS

- *ICPs to provide interconnection to cell sites*
- *EDSPM for TDMA digital voice coding*
- *Base station cell site equipment*

The DMS-100 Wireless system offers true software integration, allowing the system to support both wireline and wireless capabilities with shared hardware components as illustrated in Figure 3. This level of integration allows for significant operating efficiencies, including sharing of signaling links (i.e., SS7 and IS-41) and inter-switch trunks by wireline and wireless subscribers.

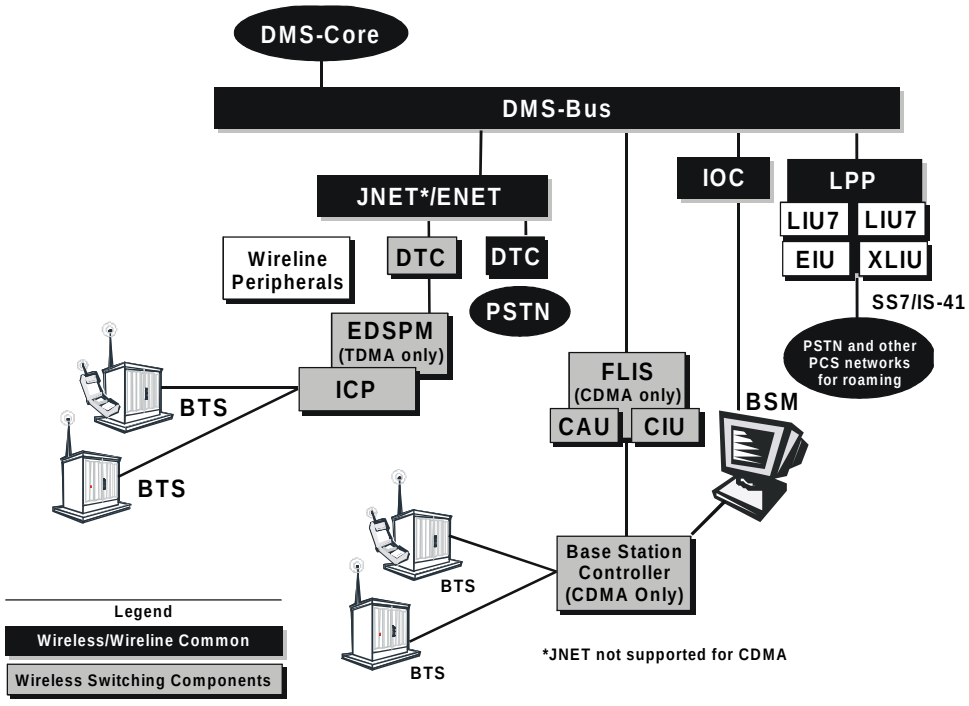


Figure 3. DMS-100 Wireless System Hardware

To support wireless on an existing DMS-100/200, a system requires as little as two new cabinets and the radio subsystem. The wireless portion of the DMS-100 Wireless switch consists of switching and cell site equipment. These components interact with the Public Switched Telephone Network (PSTN) and the mobile subscriber unit to provide a complete wireless communications system. The DMS-100 Wireless system supports the CDMA, TDMA, and AMPS radio technologies.

Common Hardware Requirements

Processor (baseline)

The Series 60 processor is the baseline processor required for DMS-100 Wireless systems. The Series 70 Extended Memory (EM) processor is required for larger wireless systems. (The 70EM processor doubles the on-board memory capacity of the Series 70 processor to 512 megabytes.)

System Load Module (SLM)

The integration of wireline and wireless software on a single platform results in a larger program and data store memory requirements. This in turn results in the need for the high capacity SLM III storage device for managing software delivery and backup

Digital Trunk Controllers (DTCs)

DTCs provide voice trunks between the DMS-100 Wireless system and the radio subsystem for CDMA, trunking to the PSTN, and inter-system service links.

CDMA Hardware Requirements

Fiberized Link Interface Shelf (FLIS) or Link Peripheral Processor (LPP)

This cabinet is equipped with CDMA Interface Units (CIUs) and CDMA Application Units (CAUs), which provide an interface to the radio subsystem components for wireless messaging. The messages include information associated with mobile phone call set-up, registration, and intersystem handoff control.

CDMA Interface Unit (CIU)

The CIU provides the messaging interface to the base station controller. Each CIU is paired with another CIU and accepts messages addressed to it.

CDMA Application Unit (CAU)

CAUs are responsible for CDMA resource allocation, CDMA call setup, and providing access utilities for applications to access the CDMA configuration data. CAUs are paired for redundancy.

Base Station Controller (BSC)

The BSC controls the message and signal routing between itself, the MTX, and the base transceiver station (BTS). It also provides call processing functions. Only one BSC is required for the DMS-100 Wireless system and is co-located with the switching system.

Base Station Manager (BSM)

The BSM provides the OAM platform for the BSC and the BTS. The base station manager's functions include maintenance testing, equipment status, configuration management, and operational measurements (OMs) and log displays.

Base Transceiver Stations (BTS)

BTSs provide the air interface to the CDMA mobile phones. Many BTSs are required to cover a given geographical area and collocated with the antenna towers that are commonly referred to as "cell sites." The DMS-100 Wireless system supports the Nortel Networks CDMA radio subsystem operating within the cellular (800 MHz) and PCS (1900 MHz) spectrum.

TDMA/AMPS Hardware Requirements

Intelligent Cellular Peripheral (ICP)—both TDMA/AMPS support

The ICP provides the interconnect to the AMPS and TDMA cell sites and communicates with the DMS-Core to provide mobility and subscriber management, handoff control, and cell site OAM connectivity.

Enhanced Digital Signal Processing Module (EDSPM)—TDMA support only

The EDSPM performs the digital voice coding required by the TDMA technology.

Base Station Cell Site Equipment—both TDMA/AMPS support

Base station cell site equipment provides the air interface to the TDMA and AMPS mobile phones. Multiple base stations are required to cover a typical geographical area and are co-located with the antenna towers which are commonly referred to as "cell sites." The DMS-100 Wireless system supports Nortel Networks TDMA radio subsystems operating with the cellular (800 MHz) and PCS (1900 MHz) spectrum, and AMPS in the cellular band.

Application-Defined Hardware Requirements

In addition to the minimum requirements outlined above, customer-defined conditions, subscriber expectations, and link capacity may drive upgrades in the following subsystems: ENET/JNET expansion, disk and tape drives, EDRAM, Input/Output Controller (IOC) interface circuit packs, and SS7 Link Interface Units (LIUs).

Commercial Power

The DMS-100 Wireless system requires commercial AC power at the central office and all remote locations. Within the central office, no special external power supply is needed beyond the standard central office power requirements.

SS7 Network Interfaces

The DMS-100 Wireless system provides integrated SS7 messaging, allowing service providers to send wireline and wireless messages on the same SS7 link. If the service provider has an existing pair of SS7 links between the switch and a serving Signaling Transfer Point (STP) migration to the DMS-100 Wireless system does not require additional links—provided the physical messaging throughput of the existing links is not exceeded. A typical example of SS7 connectivity is shown below in Figure 4.

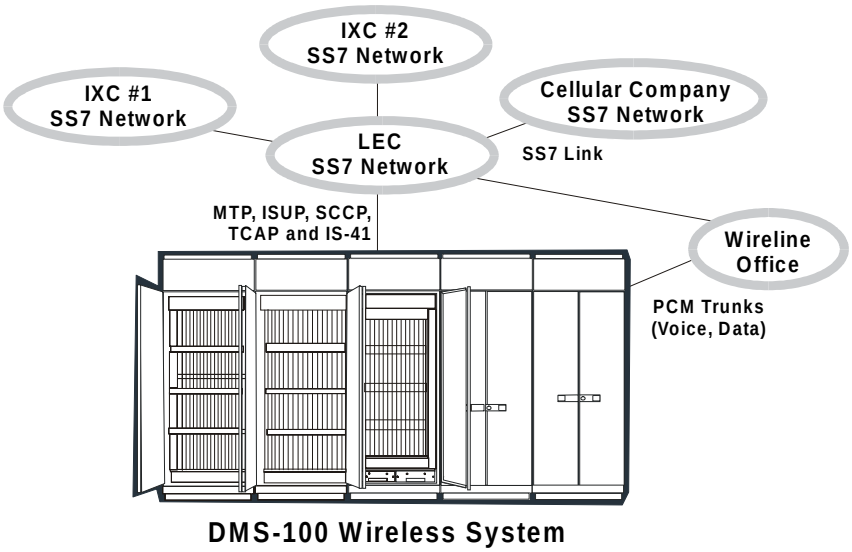


Figure 4. Example of SS7 Connectivity

External Trunks and Call Routing

Public and private switches used for wireline and/or wireless networks can be connected to the DMS-100 Wireless system using analog trunks or digital trunks. External digital trunks interface with the DMS-100 Wireless system via circuit packs mounted in a Digital Trunk Controller (DTC), Line Trunk Controller (LTC), or Remote Switching Center (RSC). Analog trunks interface with the DMS-100 Wireless system by way of circuit packs mounted in an Integrated Service Module (ISM).

The wireless or wireline subscriber can call:

- Any other subscriber within the same PCS network or connected PCS network
- Any subscriber within the North American public network or connected network (including local, long-distance, and international calls)
- Any subscriber within a connected cellular network
- Numbers with special area codes (500, 700, 800, and 900)
- 0-, 0+, and 00 calls
- Emergency 911
- 411/611 calls (directory assistance, etc.)
- Feature code calls with special prefixes defined by the service provider
- 10XXX calls to select a carrier

Operator Services

The DMS-100 Wireless system supports the following:

- LEC- or IXC-based operator services
- Direct link from the wireless subsystem

411/611 Services

The DMS-100 Wireless system can provide two configurations for routing 411/611 calls, depending on the needs of the carrier:

- LEC-based Directory Assistance
- IXC-based Directory Assistance

Equal Access

The DMS-100 Wireless system supports the following equal access trunks:

- Feature Group D (FGD)
- Feature Group B (FGB)
- Feature Group C (FGC)

In addition, the DMS-100 Wireless system:

- Maintains equal access capabilities for existing DMS-100/200 customers
- Supports existing configurations on the DMS-100/200 system for wireline customers
- Allows both wireline and wireless service providers to use the existing physical trunk facilities to other offices
- Allows evolution to provide additional equal access support in future releases

911/E911 Services

For existing DMS-100/200 wireline customers, the 911/E911 services are not affected by migration to the DMS-100 Wireless system. For wireless customers, an emergency 911 call can be routed to different seven-digit directory numbers based on the originating cell site. Emergency calls from wireless subscribers are allowed without validation or authentication and are allowed even when the subscriber has not registered.

The calling Mobile Identification Number (MIN) can be delivered depending on the trunk signaling of the circuit used to handle the call and the Calling Line Identity Restricted (CLIR) status of the caller. The service provider may set up translations to route the call to a trunk that provides calling number delivery.

The Nortel Networks CDMA Radio Subsystem

CDMA Benefits

- *High capacity*
- *Privacy*
- *Consistent high-quality transmission*
- *Soft handoff capability*
- *Prolonged mobile battery life*
- *Minimal multipath effects*
- *Increased coverage*

The DMS-100 Wireless system connects to the globally proven, performance-leading Nortel Networks CDMA radio subsystem at both the 800 MHz (cellular) and 1900 MHz (PCS) frequencies. All Nortel Networks CDMA systems are operationally compliant with IS-95A, J-STD-008 and other applicable CDMA specifications.

Key Nortel Networks CDMA Advantages

Nortel Networks has designed a CDMA radio system that ensures the highest call quality available along with significant architecture advantages, which reduce operating costs. These include:

- **Asynchronous Transfer Mode (ATM)-Based Intersystem Links**

  All messaging, signaling and voice information is distributed via highly efficient, ATM packet-ready architecture, allowing Nortel Networks to offer the highest capacity backhaul (i.e., cell site to central office) capability in the industry. Due to this capacity advantage, Nortel Networks has built into the standard system package support for fractional T1 backhaul connections and "daisy-chaining" of up to three BTSs on a single T1. Leveraging this capability in network design will significantly reduce backhaul operating requirements and costs. As public and private networks evolve to ATM-based architectures, Nortel Networks ensures a simple migration path for its wireless system.

- **Distributed Processing Design**

  The Nortel Networks radio subsystem is a purely distributed processing design—no centralized processors are used. Because resources from shared core processors are not needed, major processing speed advantages are realized. This capability, in conjunction with the short setup time facilitated by the quick ATM architecture, enables the faster handoff performance and timing that are critical to ensuring high call quality and low dropped call rates.

- **Six-Way Soft Handoff**

  The Nortel Networks CDMA radio system supports six-way soft handoff as an additional feature designed to ensure call quality and minimize dropped calls. Soft handoff is a method for a mobile phone to simultaneously communicate with multiple BTSs while transitioning between coverage areas and while in difficult radio environments. Nortel Networks exclusively allows up to six cell sites to be accessed, ensuring superior call quality.

- **Advanced Variable Rate Vocoder Support**

  The vocoders supported include the 8 kbps, the 13 kbps PureVoice™, and the Enhanced Variable Rate Codec (EVRC) to provide high-quality voice and service differentiation. CDMA voice quality is further enhanced by advanced power control and handoff management techniques unique to Nortel Networks.

The Nortel Networks TDMA Radio Subsystem

TDMA Benefits

- *Cost Effective Deployment*
- *Increased Capacity*
- *Flexibility*
- *Prolonged mobile battery life*
- *Enhanced Services*

The flexibility of the DMS-100 Wireless system offers operators the choice of several radio subsystems that includes TDMA operating in the PCS and cellular spectrum. The Nortel Networks TDMA system supports the IS-136 Digital Control CHannel (DCCH) that offers advanced subscriber advantages including: mobile sleep mode, intelligent cell selection/re-selection, private and residential system identifiers and short message services. In addition to these advanced IS-136 features, the Nortel Networks system offers many other capabilities not offered by any other vendor in the market.

Key Nortel Networks TDMA Advantages

Nortel Networks, the leader to market with TDMA, first introduced digital service in 1992. In 1996, Nortel Networks offered advanced services through IS-136, the standard for DCCH. Based on these innovative advances, the Nortel Networks TDMA radio subsystem offers several key advantages, including:

- **Dynamic Software Defined Radio**

  Nortel Networks facilitates a wireless operator's migration from analog to digital cellular services by offering the industry's first digital signaling processing-based transceiver to dynamically support AMPS and TDMA on a per-call basis. This capability greatly decreases the guesswork associated with radio system engineering, thus reducing the time and resources required to deploy and operate a cellular system.

- **Superior Audio Quality**

  With TDMA, the service provider will receive the best audio quality the TDMA industry has to offer. IS-236 and IS-641 introduces support for the Enhanced Full Rate Codec (EFRC) which allows operators the ability to offer subscribers near wireline audio quality. Additionally, Nortel Networks offers exclusive audio clarity and radio frequency (RF) management techniques to further enhance audio quality.

- **Capacity**

  TDMA brings an immediate threefold increase over AMPS capacity into traditional macrocellular networks. Greater capacity through scaleable frequency reuse is virtually unlimited with hierarchical cell structures of IS-136 digital signaling and traffic management.

- **Dual Mode/Tri-Mode Handsets**

  These terminals provide service continuity for subscribers operating across all states of analog to digital networks at both 800 MHz and 1900 MHz, thus providing full interoperability between AMPS/TDMA networks.

- **Roaming**

  The shared AMPS/TDMA worldwide network infrastructure currently supports over 80 million subscribers through North and South America, Asia, Australia, New Zealand, and European and Middle East countries.

The Nortel Networks AMPS Radio Subsystem

SuperAMPS Benefits

- *More advanced services for analog subscribers*
- *Low terminal costs*
- *Maximizes analog capacity*
- *Combats fraudulent cloning*

The DMS-100 Wireless system also supports the AMPS analog radio subsystem at 800 MHz. AMPS was the first radio subsystem introduced to the cellular marketplace, and Nortel Networks has continued to support the evolution of this technology. This is evident in our support of the IS-91A SuperAMPS standard. In addition to support the legacy of AMPS, the DMS-100 Wireless system supports Nortel Networks SuperAMPS as described below.

Key SuperAMPS Advantages

SuperAMPS allows service providers to deliver advanced services and capacity enhancements to analog cellular subscribers within existing analog networks.

- **Authentication**

  Authentication verifies coded information in each mobile handset prior to granting network access by checking each handset during call origination, registration, and activation of Three-Way Calling or Call Transfer.

- **Adaptive Channel Allocation and Cell Tiering**

  Adaptive Channel Allocation automatically manages busy hour and cell capacity requirements and assists in frequency planning. Cell Tiering divides each clear channel set into two distinct tiers and then assigns channels to each based on the probability of interference or static. Through intelligent voice channel assignment, these features ensure that subscribers receive the best quality voice channel available; provide enhanced management capabilities; and simplify channel provisioning.

- **Short Message Service**

  Short Message Service allows mobile and fixed wireless access operators to deliver one-way messages to subscribers with wireless terminals by enabling the transfer of alphanumeric and predefined personalized messages.

4 OPERATIONS, ADMINISTRATION AND MAINTENANCE

The DMS-100 Wireless system, designed to maximize the revenue-generating potential of an existing DMS-100/200 network infrastructure, has the added benefit of keeping operations, administration, and maintenance (OAM) procedures simple and, therefore, less costly.

A single terminal provides a common view of switch OAM functionality for both wireline (Maintenance and Administration Position [MAP]) and wireless operations. Procedures are based on familiar DMS-100/200 and DMS-MTX practices, so only minimal new training and resources are required for existing DMS-100/200 system owners. Depending on customer requirements, separate terminals, one for radio functions and one for MAP functions, can be configured.

Operations—System Software

If the service provider is providing DMS-100/200 wireline services with an LECxxx software release or DMS-MTX wireless services with an MTXxxxx software release, the existing subscribers will not perceive any change in ongoing service due to an upgrade to the comparable LWWxxx DMS-100 Wireless load. If the DMS-100/200 is running an earlier LECxxx release, the changes would be the same as upgrading to the LECxxx release associated with the new LWWxxx software load. The following table illustrates these relationships.

DMS-100 Wireless Software Load	MTX Software Load	LEC Software Load
LWW0005	MTX07	LEC010
LWW0006	MTX08	LEC012
LWW0007	MTX09	LEC013

Software delivery, upgrades, and patching via post release software manager (PRSM), switch of activity (SWACT), and one night process (ONP) are fully integrated for all switch functions, so the existing processes currently established in these areas remain unchanged.

Craft Personnel Terminals

Common Craftsperson Terminal

The primary OAM interface for the DMS-100 Wireless switching components is the MAP. This interface is shared across the wireless and wireline switching system, providing consistent interfacing of the maintenance displays, commands, alarms, logs, and operational measurements. This integration results in a common feel across wireline and wireless switching system components. Wireline and wireless OAM can be performed from a single terminal screen using many of the same commands, navigation, and syntax. This results in fewer training requirements, simpler system OAM, and reduced operating costs.

CDMA Craftsperson Terminals

For the Nortel Networks CDMA System, the MAP is complemented by the new CDMA Base Station Manager (BSM). The BSM resides on a UNIX workstation and provides a graphical user interface (GUI) for OAM of the CDMA Systems' radio subsystems including the Base Station Controller (BSC) and the Base Transceiver Stations (BTSs). The BSM performs initialization, configuration, diagnostic monitoring, and detection of faulty equipment on the CDMA BSC and BTSs. Depending on customer requirements, the BSM can be configured as separate terminals (one for BSM functions and one for MAP functions) or integrated on a single terminal. A view of a complete OAM configuration, with a single terminal, is shown in Figure 5.

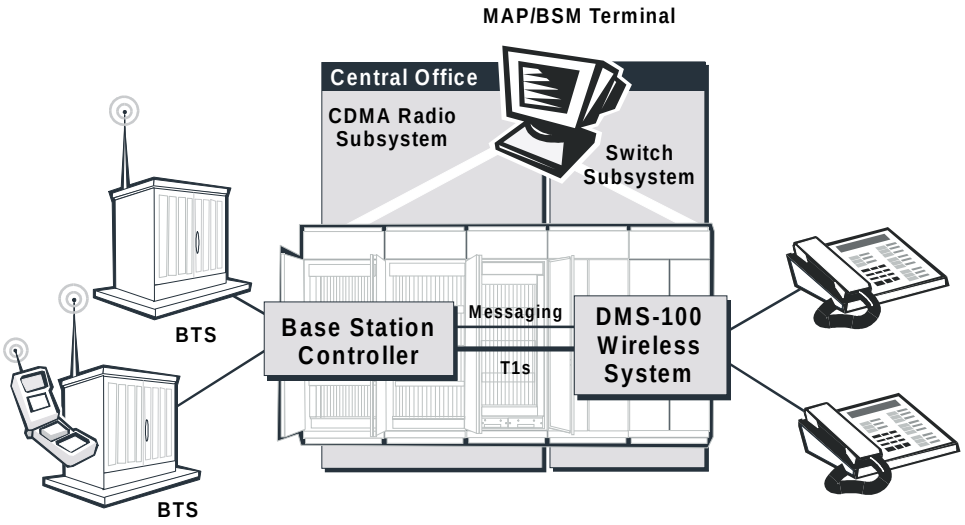


Figure 5. DMS-100 Wireless CDMA OAM View

DMS-100 Wireless system integrated OAM functions

- *Wireline and wireless billing streams use the same DIRP to record billing data*
- *Service order commands for wireline lines are the same as those used for the DMS-100/200*
- *Integrated log system records significant events for both wireline and wireless switch functions*

A passthrough window to the MAP is available at the BSM workstation. Information from both the wireless and the wireline subsystems is displayed on the same workstation. Furthermore, the BSM and the BSC are collocated in the central office for easy access by craft personnel.

TDMA/AMPS Craftsperson Terminals

For TDMA/AMPS, the radio subsystems share MAP interfaces with the DMS-100 Wireless switching components. This capability allows all OAM functions to be performed at the MAP. This provides a consistent interface for all switch and TDMA/AMPS radio subsystem components related to security, office alarms, maintenance displays, commands, logs, and OMs. Additional commands, logs, and OMs specific to the wireless components and functions are provided to ensure they can be properly operated, evaluated, and maintained.

Administration and Maintenance

DMS-100 Wireless system integrated OAM functions

- Wireline and wireless billing streams use the same Device-Independent Recording Package (DIRP) to record billing data
- Service order commands for wireline lines are the same as those used for the DMS-100/200
- Integrated log system records significant events for both wireline and wireless switch functions

Line and Trunk Testing

Generally, wireline and wireless tests are independent and separately managed. Line testing procedures for the DMS-100 Wireless switch are the same as those for the DMS-100/200 system. Similarly, trunk testing for wireless and wireline trunks are generally the same as DMS-100/200 trunk testing with differences only on trunks used for wireless-specific purposes. Diagnostics on switching system components are accessible from the integrated MAP terminal. For all common and wireline equipment, they are identical to those performed on a DMS-100/200 system. However, wireless switching components may involve new test commands, but will have the same look and feel as the DMS-100/200 switch.

Billing

The DMS-100 Wireless system uses two separate streams for billing, one for wireline and one for wireless. This is due to the different billing formats; wireline billing uses the Telcordia Automatic Message Accounting (AMA) format, whereas wireless billing uses Call Detail Recording (CDR). Both streams, however, use the same DIRP system to record billing data. If the operator uses a hard disk (or other device that can have multiple files open) for billing storage, both streams can share the same device. However, if the office uses a magnetic tape drive for billing storage, two separate magnetic tape drives are required.

Service Orders

The DMS-100 Wireless system uses a single integrated terminal and Input/Output Controller (IOC) interface for end-to-end provisioning of wireless subscribers and wireline lines via the traditional service order system. Service order commands for wireline are the same as those used for the DMS-100; commands for provisioning wireless subscribers are the same as those used for the DMS-MTX.

Security

Security for access to the DMS-100 Wireless system is common for both wireline and wireless switch functions. Access to the system through the DMS-100/200 MAP terminal is controlled by the following procedures and software restrictions:

- Command privilege classification table
- Database access restrictions
- Position control restrictions
- User-level restrictions
- Login controls and restrictions
- Password aging
- User access monitoring

In addition to the common security capabilities associated with the DMS-100 Wireless switching components, the CDMA radio subsystem has an additional security access system provided via the BSM through the use of UNIX passwords. This security access system is consistent with CDMA systems operating with the Nortel Networks DMS-MTX platforms.

Administration Log Report

The DMS-100 Wireless system has an integrated log system, which records all significant switching system events making them visible to the service provider through a log reporting application. These switching system events include equipment fault, equipment status transitions, manual/system test results, and operational summation reports. DMS logs may be classified and directed to various output devices based on the customer's desired criteria. In addition to many common logs, both wireline and wireless components generate independent logs that share the same syntax and format but convey specific wireline and wireless events.

System Alarm Reporting

- **Common Alarm Reporting**

  System alarms for both wireline and wireless switch subsystems (including loss of communication with the radio subsystem) appear on the MAP's alarm banner. Audible and visual alarms are available to office personnel via the office alarm system. These include:

  - *DMS Office Alarm System*, which provides external scan and distribution points.
  - *Dead System Alarms*, which result when office monitor circuits lose communication to the DMS central processor software.
  - *CDMA Alarm Reporting*

  System alarms for both wireline and wireless switch subsystems (including loss of communications with the radio subsystem) appear on the alarm banner on the MAP. If the alarm is unique to the radio subsystem, the craftsperson uses the BSM for troubleshooting the radio equipment. Whenever a fault is detected, it is reported with its classification to the BSM. The BSM then notifies the operator.

- **TDMA/AMPS Alarm Reporting**

  In addition to the common system alarming provided at the MAP interface, there are additional alarm notifications and alarm points at the different cell sites (i.e., NT800DR and NT1900) to provide the operator with information as to the equipment fault and the recovery procedures. These alarm points are hardwired to the ACU (Alarm Control Unit) located at the cell site.

Operational Measurements

- **Common Operational Measurements**

  The DMS-100 Wireless system provides an integrated OM system for both wireline and wireless switch functions that includes OMs for wireline, wireless, and common equipment. The common set of OM administrative controls currently used in the DMS-100/200 system is also used for defining measurement classes, scheduling reports, and routing reports. Whenever hardware and software resources are shared by wireless and wireline functions in the office, a single OM is generated. For example, a single call processing occupancy value is generated rather than one value for wireless calls and another value for wireline calls. Similarly, the office traffic measurement section shows the total number of line-to-trunk calls rather than one number for wireless and another for wireline calls.

- **Radio Subsystem Operational Measurements**

  In addition to the common switch operational measurements that the DMS-100 Wireless system provides, additional OMs associated with all the radio technologies including HLR and IS-41 networking events, mobile registration, access, paging statistics, and radio interface equipment statistics.

  For TDMA/AMPS radio subsystems additional OMs specific to BTS and radio controller performance are provided using the same mechanisms and tools. These OMs include events that are related to mobile access, handoff, cell site backhaul event, and other important radio subsystem specific performance criteria.

  For the CDMA radio subsystem, an additional set of OMs are generated and stored at the BSM. The BSM allows the craftsperson to decide which OMs are polled and at what interval. The BTS supports the collection of statistics related to mobile access, handoff, BTS backhaul utilization, BTS statistics and BSC performance. This information is forwarded to the BSM for storage and evaluation of system performance.

Database Management

The DMS-100 Wireless system uses a MAP interface into the DMS Table Editor system for manipulation of office data for both wireline and wireless translations, including switch mobility functions such as Home Location Register (HLR) and Visitor Location Register (VLR). Journal File and TRAVER (Translation Verification) functions are common to both applications. New data tables for new wireless-specific functions are also supported on the DMS-100 Wireless switch.

Feature Packaging

In addition to a large set of standard features and services, optional software is available via software optionality control (SOC) as it is for the DMS-100/200 and DMS-MTX systems.

Recovery Management

The four types of system recovery supported in the DMS-100 Wireless system are the same as those in the DMS-100/200: Warm, Cold, Reload, and SWACT restarts.

5 DOCUMENTATION, TRAINING AND SUPPORT

As with all Nortel Networks products, the DMS-100 Wireless system is supported by a full complement of technical expertise and information. Nortel Networks offers technical instruction and assistance directly, over the phone, and through a variety of print-based and computer-based materials to help service provider personnel—from network planners to engineers—provide high-quality service to their customers.

Documentation

To support the DMS-100 Wireless system, Nortel Networks provides a wide array of instructional and technical documentation. The familiar set of technical manuals—Northern Telecom Publications (NTPs)—is available electronically through our state-of-the-art CD-ROM delivery system—HELMSMAN. In addition, a user-friendly method for educating technical personnel in configuring switch applications is scheduled to be available for the DMS-100 Wireless system.

Key documentation sources supporting the DMS-100 Wireless system are:

- **Interactive information on CD-ROM (Macintosh or DOS)**

  This is a specially designed interactive guide describing the innovations of the DMS-100 Wireless system and providing instructional modules.

- **NTPs on CD-ROM (HELMSMAN)**

  Customers can search, read, and print "electronic" documentation using HELMSMAN. Only electronic versions of technical documents can be ordered by customers. The Nortel Networks delivery method for NTPs is CD-ROM.

More information regarding documentation for the DMS-100 Wireless system is available through Nortel Networks Unified Training and Documentation at 1-877-662-5669.

Training

Nortel Networks has two major training facilities in the United States and offers an extensive training curriculum to choose from based on the service provider's training needs. The facilities include:

- **The Nortel Networks Technical Education Center (TEC) in Raleigh, North Carolina** offers a full slate of courses associated with the wireline capabilities of the DMS-100 Wireless system.

- **The Wireless Networks Training and Documentation in Richardson, Texas** provides customer education associated with the wireless switching and radio subsystem components of the DMS-100 Wireless system.

Key course groupings supporting the DMS-100 Wireless system are:

- Product and Technology Overview
- Engineering and Provisioning
- Translations
- Operations, Administration, and Maintenance

Training includes:

- Traditional classroom instruction
- Specially designed hands-on activities and techniques
- Self-paced computer-based training (CBT) at the TEC or customer location

These different instructional approaches are designed to meet a variety of customer needs, and can be further customized for individual requirements. For more information about this or any Nortel Networks Training Education course:

- Contact your company's training coordinator, or
- Call 1-877-662-5669, or
- Access AdvisorNOW! at **http://www.nortelnetworks.com/advisor**.

Support

The DMS-100 Wireless system is backed by an array of services—from ordering to service start-up to emergency repair. Key services are as follows:

- All customers are supported by their current Nortel Networks comprehensive Customer Service Center (CSC), either in Raleigh, North Carolina, or in Richardson, Texas.
- Return and Repair procedures:
  - Emergency repairs handled within 24 hours
  - Routine requirements handled within 30 days
- Routine technical support:
  - available from 8 a.m. to 8 p.m. (EST), Monday through Friday
  - normal response within 4 hours of a customer request

- Emergency technical support:
  - available 24 hours a day, 7 days a week
  - continuous until pre-incident operating conditions are restored
- A standard warranty is available for the DMS-100 Wireless system, with optional Extended Service Plans (ESPs) available beyond the standard warranty period.

Our evergreen policy assures you that your investment in the DMS-100 Wireless system is protected well into the future.

Support Services

Multiple support services for the DMS-100 Wireless system are also available for purchase through Nortel Networks-supplied customer- and network-based support and consultation services.

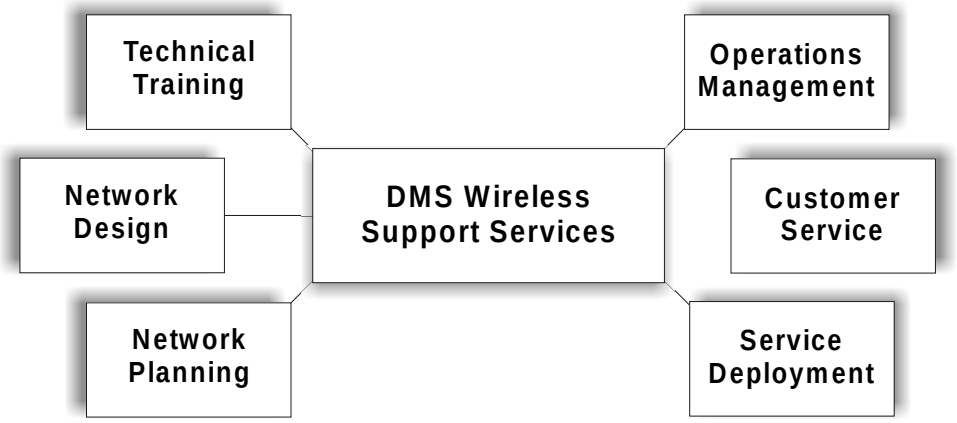


Figure 6: Top-to-Bottom Services Meeting the Demands of a Dynamic and Competitive Market

Support services are designed to help in all phases of the upgrade, from planning to deployment to operations. They include the following:

- **Network planning**—Nortel Networks can assist you with wireless market analysis, business cost models, business case analysis models, and project management.
- **System design**—Nortel Networks offers network design, radio frequency (RF) engineering, spectrum clearing, and site acquisition services.

- **Deployment**—Nortel Networks assists in system provisioning and deployment activities to ensure the DMS-100 Wireless system can meet network operational and service demands. Network equipment supply and installation, network rollout, site construction, and technical training services are available.
- **Third-party integration**—Nortel Networks will work directly with third-party vendors to integrate their equipment into your network. Business administration systems integration, system verification, and project management services are available.
- **Operations**—Nortel Networks offers network operations (maintenance), network management and surveillance, product development support, inventory management, solutions studies, and customer management support services.
- **Service warranty**—Nortel Networks supplies service-based warranties to complement standard equipment warranties, covering the DMS-100 Wireless system from top to bottom.
- **Post-sale services**—From switch operations to billing systems to service marketing, Nortel Networks possesses the industry expertise to succeed in a competitive market.

6

AVAILABILITY

DMS-100 Wireless Program

The current DMS-100 Wireless system offers a unique integrated software load supporting all DMS-100/200 features and all DMS-MTX features for CDMA, TDMA, and AMPS wireless technologies. The ability to choose from three radio technologies enables network providers to select the most appropriate technology solution to meet their particular network needs. The most recent loads are defined below.

LWW00005
4Q98
800, 1900 MHz CDMA
800 MHz AMPS, TDMA—*NEW*
1900 MHz TDMA—*NEW*

LWW00006

The LWW00006 release, available now, combines the wireline LEC012 and the wireless MTX08 software loads. Highlights of this software load include the following:

LWW00006
4Q99
800, 1900 MHz CDMA
800 MHz AMPS, TDMA
1900 MHz TDMA

- CDMA Enhanced Variable Rate Coder (EVRC)
- Mobile Originated SMS (TDMA and CDMA)
- Wireless Distinctive Call Screening and Ringing
- TDMA Circuit Switched Data
- Integrated Wireless Centrex and Integrated Voice Mail Enhancements
- Universal Edge 9000 Peripheral Support (wireline xDSL support)
- Star Remote Switching Module Support (wireline)

LWW00007

The LWW00007 release, scheduled for availability in 4Q00, combines the wireline LEC013 and the wireless MTX09 software loads. Highlights of this software load include:

LWW00007
4Q00
800, 1900 MHz CDMA
800 MHz AMPS, TDMA
1900 MHz TDMA

- Account Code Billing Enhancements
- Shared Wireless Access
- Enhanced Call Waiting and Three-Way Calling
- Intelligent Paging
- HLR/AC Mated Pairs
- Communications Assistance for Law Enforcement Act (CALEA): Core J-STD-025
- AIN Service Enablers, Release 7: Create Call Phase I, Originating Call Model Nested Transactions
- Number Plan Evolution: 1000 Block Number Pooling
- NI-1/2 PRI: Call Forward Busy

- Residential Services: Who's Calling, Generic Name Parameter, Call Redirect
- Nortel Networks Centrex: Hunt Line Overflow to DN Expansion
- Integrated Call Management: Called Party DN in ICM messages, Increased ACD DN, Association Limits
- Spectrum: NI-1 PRI, LEC Echo Cancellation, OC-3 Line Timing
- Many other enhanced features

7

ABBREVIATIONS AND ACRONYMS

ACD	Automatic Call Distribution
ACU	Alarm Control Unit
AIN	Advanced Intelligent Network
AMA	Automatic Message Accounting
AMPS	Advanced Mobile Phone Systems
ATM	Asynchronous Transfer Mode
BRI	Basic Rate Interface
BSC	Base Station Controller
BSM	Base Station Manager
BTS	Base Transceiver Station
CALEA	Communications Assistance for Law Enforcement Act
CAU	CDMA Application Unit
CDMA	Code Division Multiple Access
CDR	Call Detail Recording
CIU	CDMA Interface Unit
CLASS	Custom Local Area Signaling Services
CLEC	Competitive Local Exchange Carrier
CLIR	Calling Line Identity Restricted
CPE	Customer Premises Equipment
CSC	Customer Service Center
DA	Directory Assistance
DCCH	Digital Control CHannel
DIRP	Device-Independent Recording Package
DN	Directory Number
DTC	Digital Trunk Controller
EDSPM	Enhanced Digital Speech Processing Module
EFRC	Enhanced Full Rate Codec

EM	Extended Memory
ESEL	Enhanced SELector
EVRC	Enhanced Variable Rate Codec
FGB	Feature Group B
FGC	Feature Group C
FGD	Feature Group D
FLIS	Fiberized Link Interface Shelf
HLR	Home Location Register
ICP	Intelligent Cellular Peripheral
ILEC	Incumbent Local Exchange Carrier
IOC	Independent Operating Company
IOC	Input/Output Controller
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISM	Integrated Service Module
IXC	Interexchange Carrier
LEC	Local Exchange Carrier
LNP	Local Number Portability
LPP	Link Peripheral Processor
LTC	Line Trunk Controller
MAP	Maintenance and Administration Position
MIN	Mobile Identification Number
MTX	Mobile Telephone Exchange
NTP	Northern Telecom Publication
OAM	Operations, Administration, and Maintenance
OM	Operational Measurement
ONP	One Night Process
PCS	Personal Communications Services

PRI	Primary Rate Interface
PSTN	Public Switched Telephone Network
PRSM	Post Release Software Manager
RF	Radio Frequency
RSC	Remote Switching Center
SLM	System Load Module
SMDI	Station Message Desk Interface
SOC	Software Optionality Control
SS7	Signaling System No. 7
STP	Signaling Transfer Point
SWACT	Switch of Activity
TCAP	Transaction Capabilities Application Part
TDMA	Time Division Multiple Access
TEC	Technical Education Center
TRAVER	Translation Verification
VMS	Voice Mail Service
XPM	Enhanced Peripheral Module
VLR	Visitor Location Register
WIN	Wireless Intelligent Network
WLL	Wireless Local Loop

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DMS-100 Wireless System (50171.16/10-00 Issue 3)

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   (Check one rating for each category)

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Graphics and charts are helpful ►				
Document is well organized and easy to use ►				
Information is timely ►				
OVERALL RATING ►				

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