



›THIS IS THE WAY

WE DELIVER MISSION-CRITICAL SERVICES

›THIS IS NORTEL™

Solution Brief

Multiservice switching for mission-critical services

What services are critical to the operation of your organization? What communications are absolutely essential to your ability to carry out these services? What are the applications that allow you to conduct these communications? Regardless of the answers to these questions, and of the nature of your operations — whether enterprise, public safety, transportation or another government agency — Nortel's Multiservice Switches (MSS) can ensure the delivery of the mission-critical applications you require to fulfill your day-to-day responsibilities.

Nortel has a long and proven track record in securing and protecting the world's most critical information. Simply put, the customer choice for mission-critical applications is Nortel. Nineteen countries and scores of regional and municipal governments — including the United Kingdom Ministry of Defence, the Taiwan National Police Agency and the Commonwealth of Kentucky —

have turned to Nortel for assistance in protecting their critical data and in reliably delivering services and information to their citizens.

Critical objectives

When it comes to critical data, enterprises and government agencies share a common objective: get it where it needs to go, every time, securely and cost-effectively, thereby fulfilling an essential service. A service is considered mission-critical if — just to cite a few examples — an enterprise is unable to conduct its

day-to-day operations without it, an emergency medical team is unable to respond without it, a financial institution is unable to guarantee the security of its clients' account information without it. The loss of service availability might prevent a traveler from arriving at his destination safely or on time. A crime may not be detected in time. In the corporate world, network downtime has two negative impacts: poor customer satisfaction and revenue loss — neither of which a successful business can abide.



Whose operations involve mission-critical applications?

- > 911 services
- > Air traffic control
- > Military networks
- > Local, state and federal agencies
- > Railways
- > Transportation
- > City halls
- > Banks
- > Healthcare facilities
- > Utilities
- > Manufacturers
- > Most everyone in the business of protecting the public, providing essential services or realizing a profitable bottom line



Beyond these daily imperatives, organizations in both the public and private sectors must build and maintain networks capable of responding to two primary concerns:

- > Identity theft and fraud is reaching critical mass. The U.S. Federal Trade Commission logged 635,000 consumer complaints in 2004, 61 percent of which were for fraud and 39 percent for identity theft.¹
- > Today, government budgets are under intense scrutiny from taxpayers, just as corporate budgets are being closely monitored by shareholders. Taxpayers are requesting more advanced services, such as e-government access, while demanding more efficient operations. Corporations are under pressure to maximize their profits and increase shareholder value.

Complicating governments' efforts at responding to these demands is the fact that they are often burdened with legacy network infrastructures that limit their ability to share files between departments and to deploy new online applications that will provide more efficient service to their constituents, such as license renewals, small-business applications and activities registration. Many agencies/ministries within a government have several disparate networks, leading to operational inefficiencies, redundant spending and excessive paperwork, and, consequently, to inadequate service to citizens and businesses.

And while enterprises appear ready and willing to start investing more heavily in telecom products and services, given the pressures mentioned above, they are constantly trying to find ways to reduce their costs.

What all this means is that government agencies and enterprises are recognizing the absolutely essential nature of a network infrastructure that will deliver their mission-critical data *reliably, securely and cost-effectively*.

A critical choice

Nortel's Multiservice Switching (MSS) portfolio of switches offers reliable and secure solutions with a high quality of service at a cost-effective price. With more than 45,000 systems shipped to over 1,500 customer networks, the MSS family has proven field experience in delivering carrier-grade reliability and service flexibility for mission-critical network needs worldwide. Nortel has been the global market-share leader in multiservice switching revenue for 15 consecutive quarters.²

The MSS portfolio helps keep 19 countries safe and protects their critical information. And it helps to ensure that each year in the United Kingdom more than 2 million flights carrying over 180 million passengers are successfully completed.

There are three essential reasons why multinational enterprises and governments at every level are deploying MSS solutions to deliver their mission-critical services:

Reliable and secure — The MSS 7400 and 15000 platforms deliver "five 9s" availability, securing maximum uptime. Not only is the equipment fully redundant but its networking capabilities can reroute information around failures, resulting in no downtime. MSS reliability assurance extends from reliable security through reliable OA&M to reliable comprehensive support services.

¹According to Network World, 03/28/05

²According to Synergy Research Group, as of year-end 2004

The MSS offers secure networking by providing protection from intrusion, hacking and denial-of-service attacks through on-switch and off-switch tools that manage access authorization and scope. The MSS isolates individual departments so that if a virus hits, only one department would be affected.

Quality of service for voice and data communications — Quality of service (QoS) is certainly important to every organization, but it's vital for mission-critical applications. Unclear communications between an air traffic control tower and a pilot, for example, can result in disastrous consequences. Military networks likewise require the best available quality of service, especially in tactical deployments.

Among the primary reasons customers worldwide choose the MSS portfolio is the assurance that it will deliver the quality of service and performance their operations demand. The MSS 7400's feature-rich voice services ensure toll-quality voice with features such as low bit-rate voice compression, dynamic

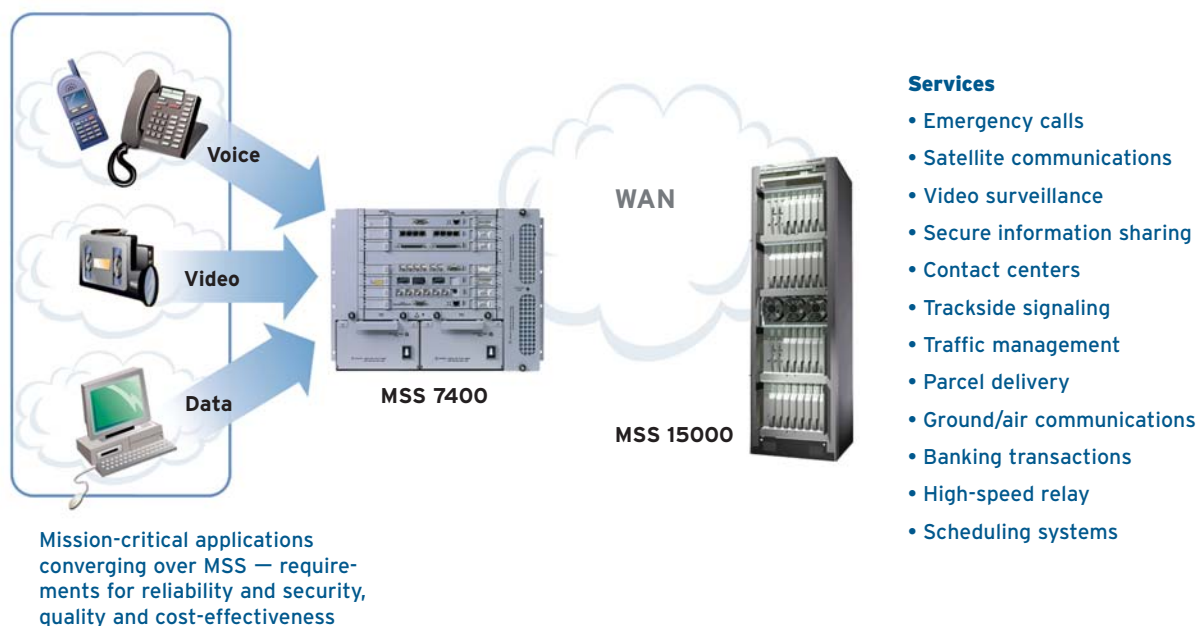
down-speeding, silence suppression, on-board echo cancellation, class of service and priority queuing. The MSS 7400 provides the voice quality of a TDM network with the ability to program higher quality communication for the most critical staff.

End-to-end performance is another key attribute of the MSS portfolio, in that the product maximizes the use of network resources and minimizes the impact of congestion and failures. An advanced queuing and scheduling system is used to ensure that the maximum amount of traffic is transmitted on the link, while still ensuring that higher-priority traffic gets transmitted first during periods of congestion. These features are used for all types of applications — video surveillance for interstate traffic management, satellite communications between military vehicles, intranet voice calls between employees or data sharing between a department of justice and correctional services department.

Cost-effectiveness — The Nortel MSS 7400 and 15000 platforms are designed to reduce the cost and complexity of enterprise wide area networking by converging voice and data applications onto a common infrastructure. Customers can also realize a fast return on investment with efficient use of bandwidth. Enterprises can save up to 79 percent of leased line costs with payback in less than two months by deploying an MSS 7400 solution to replace a TDM network.³ Also, selecting a more reliable platform can significantly reduce costs because it maximizes network uptime. A platform with five 9s availability, such as the Multiservice Switch versus one with a 99.99 percent available router, can lead to cost savings of up to \$1 million a year in a large enterprise due to reduced network downtime and other avoided outage costs.⁴

Recent enhancements to the MSS 7400 series include a new space-saving eight-slot chassis, the MSS 7460, which is more cost-effective and attractive for space-constrained deployments. Nortel has also announced a set of high-density

Figure 1. MSS for mission-critical services



³ Results are based on MSS 7400 list price versus the existing TDM solution.

⁴ Results derived from Network Strategy Partners, "Reliable IP Nodes," 2002

interface cards that effectively double the port capacity of the entire MSS 7400 series and allow for any service/any port functionality that further reduces capital and operational costs.

Missions accomplished: real-world successes

A wide variety of organizations from all over the world have selected the Nortel MSS portfolio to deliver myriad mission-critical services:

Taiwan National Police Agency

Scenario: The national police wished to modernize their network with a new infrastructure to enhance police inspection and citizen protection. They needed a platform that would offer reliability and high quality of service for mission-critical services.

Solution: The Taiwan National Police Agency purchased a Nortel solution comprised of MSS, MDM, optical, microwave and DSLAM equipment. They will be deploying 40 MSS 7400s

in 2005. The MSS network includes new hardware and enhanced features such as the MSS 7460, new MSA32 line cards and Ethernet Function Processors.

Results: The MSS 7400 provides small, high-performance packaging and a robust mix of Layer 2, Layer 3 and voice capabilities. MDM network management integrates Nortel products with third-party devices.

Greater Manchester Police

Scenario: Reliability, resiliency and voice quality were required for the core area of the network to handle emergency calls. They were willing to use Voice over IP for internal and non-emergency traffic.

Solution: An MSS 7400 ATM network was deployed in the core HQ and divisional sites to carry voice, data and radio calls, including 911 calls. A converged solution uses Succession, Symposium, the Ethernet Switch 460, the Ethernet Routing Switch 8600 and IP phones for non-emergency traffic across 120 sites.

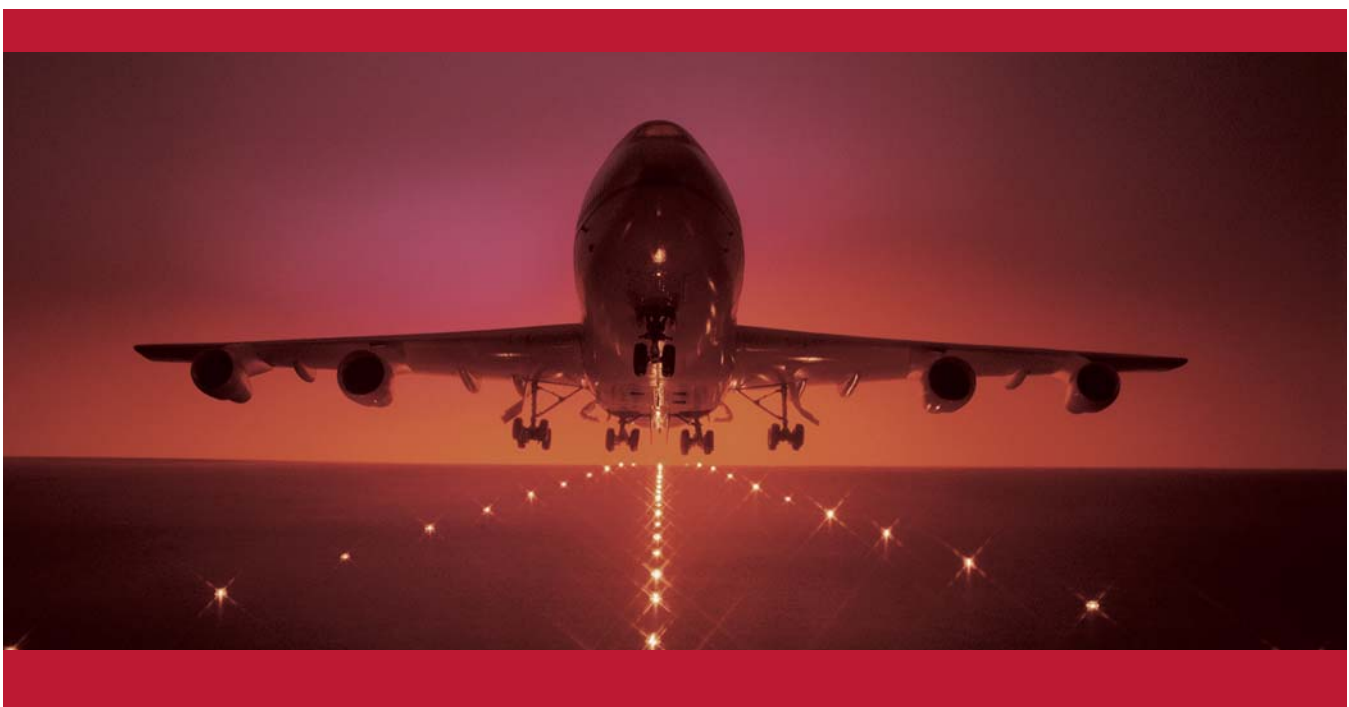
Results: The ATM network is fully resilient for mission-critical applications such as command and control. Superior voice for radio calls is delivered by the MSS Multipurpose Voice Processor.

Cadence Design Systems, Inc.

Scenario: The world's largest supplier of electronic design automation technologies with R&D centers in the U.S., Europe, the U.K., India and Asia Pacific required a platform with guaranteed availability to transport calls from designers to contact-center specialists. They sought to reduce total cost of ownership, including cost of transport.

Solution: Cadence deployed nine MSS 7400s in the U.S., the U.K. and India. They now have four Symposium sites functioning as multiple-function call centers for customer and internal support.

Results: Overall voice transport costs have been reduced. Overall network reliability and quality of customer support calls improved significantly while carrying 500,000 minutes a month.



With more than 45,000 systems shipped to over 1,500 customer networks, Nortel's Multiservice Switching (MSS) family has proven field experience in delivering carrier-grade reliability and service flexibility for mission-critical network needs worldwide.



Critically acclaimed

Solutions based on Nortel's Multiservice Switch portfolio are chosen by enterprise and government agencies worldwide to meet very different mission-critical requirements. What most particularly distinguishes the MSS portfolio from its competitors?

- › Carrier-grade reliability for both hardware and software. MSS switches feature redundant equipment protection, quick and accurate fault detection

and in-service software upgrades. In the event of a failure, the MSS reroutes calls without disruption, ensuring high service availability.

- › Unsurpassed quality of service throughout the network for feature-rich voice service that reduces bandwidth consumption without compromising voice quality.
- › Cost-effective, converged networks in which bandwidth optimization and intelligent voice networking significantly reduce leased line costs.

The Nortel Multiservice Switch portfolio delivers reliable Layer 2 and Layer 3 services today that promote profitability while offering flexible evolution options. Optimize your existing investments with the assurance that your mission-critical requirements are being met with a solution that's future ready.

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Nortel is a recognized leader in delivering communications capabilities that enhance the human experience, ignite and power global commerce, and secure and protect the world's most critical information. Serving both service provider and enterprise customers, Nortel delivers innovative technology solutions encompassing end-to-end broadband, Voice over IP, multimedia services and applications, and wireless broadband designed to help people solve the world's greatest challenges. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at www.nortel.com.

For more information, contact your Nortel representative, or call 1-800-4 NORTEL or 1-800-466-7835 from anywhere in North America.

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