Nortel Networks

Product Brief

Voice over IP Solutions

Succession Multi-service Gateway 4000

A carrier-grade TDM-to-packet gateway that reduces tandem/transit trunking congestion and lowers network operating costs

Now there's a cost-effective way to transform Time Division Multiplexing (TDM) networks into a packet-based infrastructure—without abandoning legacy end offices/local exchange offices and their associated line-side services and revenue streams. The robust Nortel Networks Succession Multi-service Gateway 4000 platform transparently bridges TDM trunks to the ATM packet network.

By providing interfaces at SONET rates and integrating key voice-over-packet functions (such as optional echo cancellation), the Succession Multi-service Gateway 4000 offers more capacity (in a smaller footprint), greater operational efficiency, and lower operating costs than today's TDM circuit-switched equipment.

The Succession portfolio of products enables customers' profitability by delivering Voice over IP (VoIP) and other packet networks that combine the best of the Internet with the best of today's telephone networks. An advanced switching and routing architecture creates an economic engine by delivering today's high-value telephony features and tomorrow's advanced multimedia services over a unified packet infrastructure, providing new revenue opportunities by reducing capital and operating expenses.

This product brief introduces the Succession Multi-service Gateway 4000 platform, one of a family of gateways in the expanding Succession portfolio.

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The Succession Multi-service Gateway 4000 accepts TDM trunks and translates the output into ATM AAL1 formats. Optimized for access tandem/transit class trunk connectivity, this gateway offers both high-speed (OC-3/STS) and low-speed (DS-1) access, with OC-3c interfaces to the ATM packet switching fabric.

Reduces trunking congestion

Maintaining sufficient capacity in the increasingly stressed narrowband, trunking, and cross-connect infrastructure has become a growing expense for service providers. Nortel Networks VoIP Solutions enabled by the Succession portfolio resolve this problem by vastly increasing the capacity in the tandem/transit office and end office/local exchange through the introduction of ATM multiplexing and switching, with dynamic SVCs replacing nailed-up TDM circuits.

Trims cost of network ownership

Based on network studies, Nortel Networks Packet Trunking/Transit Solution can reduce annual operating costs by up to 45 percent and capital expenditures by up to 50 percent. The Succession Multi-service Gateway 4000 stands as a source of significant savings. Its flexible support of DS-1, OC-3, and STS-1 TDM interfaces:

- Eliminates the need for digital cross-connects (at a savings of up to $45 U.S. per DS-0)
- Reduces power, heating, ventilation, and air conditioning requirements
- Saves valuable floor space

Supports flexible deployment options

The use of switched virtual circuits for bearer traffic and permanent virtual circuits for management makes the Succession Multi-service Gateway 4000 geographically independent. You can deploy this gateway:

- At the same site as the Nortel Networks Succession Communication Server 2000 in your VoIP Packet Trunking Solution
- Up to 950 air miles away from the Succession Communication Server 2000 at any vendor's end office/local exchange, or enterprise site

Equally at home as part of the Packet Trunking Solution, this gateway delivers a full range of traditional trunking services to continue your current revenue streams.

As an intelligent step towards your successful future, the robust Succession Multi-service Gateway 4000:

- **Delivers scalable trunking capacity—a single frame cost-effectively serves as many as 4032 DS-0s**
- **Enables a smooth transition to a packet network**
- **Maintains carrier-grade quality and reliability standards**
- **Significantly reduces overall cost of network ownership**
- **Supports switched virtual circuits (SVCs)**
- **Provides integrated echo cancellation**

Delivers high reliability

The fault-tolerant Succession Multi-service Gateway 4000 can deliver mission-critical services with proven system availability greater than 99.999 percent. Some of the gateway's key features contributing to carrier-grade performance include:

- All field-replaceable units can be hot-swapped—and software can be upgraded—with no service interruption
- Redundant processors and power deliver impressive long-term robustness. As examples:
  - —Common equipment modules operate in a 1+1 (active/standby) configuration. The gateway can switch processors without dropping current stable calls
  - —Resource modules operate in either a pooled n+1 or 1+1 active standby configuration, depending on the module
- SONET modules operate in an active/standby arrangement with Automatic Protection Switching (APS) support

Offers high densities

A single ANSI frame can house two Succession Multi-service Gateway 4000s. Together, these two gateways can yield in one cabinet:

North America

TDM side	ATM side
168 DS-1s	2 OC-3cs
2 OC-3s	2 OC-3cs
6 STS-1s	2 OC-3cs

* *a total of 4032 DS-0s (subject to engineering guidelines)*

In many carrier networks, an existing Spectrum Peripheral Module (SPM) can be cost-effectively converted to a Succession Multi-service Gateway 4000 by swapping minimal hardware (with associated cabling) and loading new software

Other specifications at a glance

Power
(each Succession Multi-service Gateway 4000)

- -48V redundant A/B power feeds
- With full TDM optical: 564 watts
- With full TDM electrical: 651 watts

Normal Operating conditions

- Temp: 5° C (41° F) to 40° C (104° F)
- Humidity: 10% to 85%, noncondensing

Other interfaces supported

- 10/100BaseT for management
- DS-1 to local BITS clock for synchronization

ATM interface protocols

- Switched Virtual Circuits for bearer traffic—and Permanent Virtual Circuits for management messaging—using UNI 4.0

ATM class of service

- AAL1 constant bit rate (CBR) for voice over packet bearer traffic
- AAL5 unspecified bit rate (UBR) for management messaging

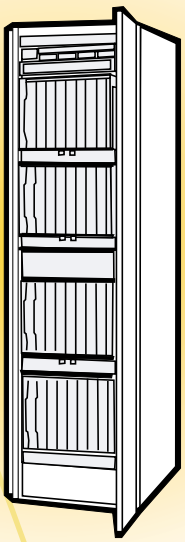
TDM trunk signaling

- ISUP
- NI-1/NI-2 Primary Rate Interface (PRI) ISDN trunking
- Per-Trunk Signaling (PTS)
- ISUP Bearer Independent Call Control (BICC) Dynamic Packet Trunking (DPT) for internetwork calls (future)

Regulatory compliance

- Telcordia: NEBS level 3; and GR-1089-CORE, Issue 2
- Seismic protection to zone 4

- **Smooth transition to a packet network**
- **Reduced cost of ownership**
- **Scalable trunking capacity**
- **Switched virtual circuits**
- **Carrier-grade reliability and performance**



Two Succession Multi-service Gateway 4000s (two shelves each) per cabinet

In the United States:
Nortel Networks
35 Davis Drive
Research Triangle Park,
North Carolina 27709
USA

In Canada:
Nortel Networks
8200 Dixie Road,
Suite 100
Brampton, Ontario L6T 5P6
Canada

In Europe:
Nortel Networks
Maidenhead Office Park
Westacott Way
Maidenhead Berkshire SL6 3QH
UK

In Asia:
Nortel Networks Singapore Pte Ltd
151 Lorong Chuan #02-01
New Tech Park,
Singapore 556741

In Australia:
Nortel Networks Australia Pty Limited
380 St. Kilda Road
5th/6th Floor
Melbourne, Victoria
Australia 3004

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

http://**www.nortelnetworks.com/succession**

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