



## Product Brief

### Nortel Business Ethernet Switch 100 and 200 Series

Give employees the power to share information, ideas and resources securely for greater productivity and better bottom-line results.

Set your business on a course for success with a data network infrastructure that can deliver wireless and IP technologies such as voice over wireless/IP, messaging, collaboration and mobility.

Do it with an Ethernet switch that can provide an intensive data network for your business — reliably, securely and affordably.

Whether you're a small or medium-sized business, profitability and long-term sustainability depend on some key things: your ability to focus on delivering profitable products and services, maintaining a competitive advantage, reducing expenses

and increasing employee productivity. How can you do all of this? Through a robust yet simple and economical network infrastructure that supports the advanced wireless and IP communications required to connect your employees.

#### Nortel Business Ethernet Switch 100 and 200 family

The Nortel Business Ethernet Switch 100 and 200 portfolio provides the building blocks for a data information infrastructure that will help increase workforce productivity, reduce operating expenses and simplify network management.

Each Business Ethernet Switch 100/200 supports IP communications technologies such as voice over wireless/IP, Unified Messaging, conferencing and collaboration, video, Customer Relationship Management and mobility — resulting in

increased user productivity and better business results. The built-in Power over Ethernet (PoE) feature also enables support for IP phones and wireless access points. All switches can be configured to recognize voice traffic, enabling it to receive the high-priority treatment it requires.

The Business Ethernet Switch portfolio includes the 100 Series and the new 200 Series — a stackable solution that enables you to grow your network using the same IP address, for easy configuration and management.

All products within both series are available at a low cost per port and require very little power. Switches come in a standard 1U form factor, in 24- or 48-port models and are rack-mountable. Their compact design requires only one unit of rack space.

All products include support for a recessed reset button as well as a DB9 Console port for local management access.

Nortel Business Ethernet Switch 100 and 200 Series		
100 Series	200 Series*	Port configurations
BES110-24T	BES210-24T	24 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports
BES110-48T	BES210-48T	48 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports
BES120-24T PWR	BES220-24T PWR	24 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports + PoE on ports 1 - 12
BES120-48T PWR	BES220-48T PWR	48 x 10/100 Mbps ports + 2 Dual Personality SFP or 10/100/1000 Mbps ports + PoE on ports 1 - 24

\* BES200s have an additional pair of 1 Gigabit RJ45 ports on the back to support up to 4 units in a stack.



Nortel Business Ethernet Switch 100

## Installation made easy

When adding new equipment to your network, one of the most daunting tasks can be installation. With the Business Ethernet Switch, installation and connectivity to desktop PCs, printers and other networked devices is simplified thanks to support for auto-negotiation of speed and duplex mode, auto-MDI/MDIX, easy-to-read LEDs and default IP address. If the default address is not used, IP addresses can be allocated automatically across the network using a BootP server. Additionally, the Business Ethernet Switch 200 offers single IP address management for simplified configuration and manageability across the stack.

## Simplified management with Nortel Business Element Manager

With the Business Ethernet Switch, dealing with complex management issues is a thing of the past. The Nortel SMB product portfolio offers a unique management experience through the Nortel Business Element Manager. This powerful tool enables management for the entire small to mid-sized business

portfolio including the Business Ethernet Switch Family. You can simplify all your management needs through the use of one consistent, familiar interface.

## Reduce costs with Power over Ethernet (PoE)

The Business Ethernet Switch 100/200 comes complete with support for Power over Ethernet (PoE) on the Business Ethernet Switch 120/220-24T PWR and the Business Ethernet Switch 120/220-48T PWR. These products have the capability to provide power to PoE devices such as Voice over IP (VoIP) handsets or wireless access points, and depending on the number of attached devices, can supply up to 15.4W of power per port.

## Convergence-ready functionality

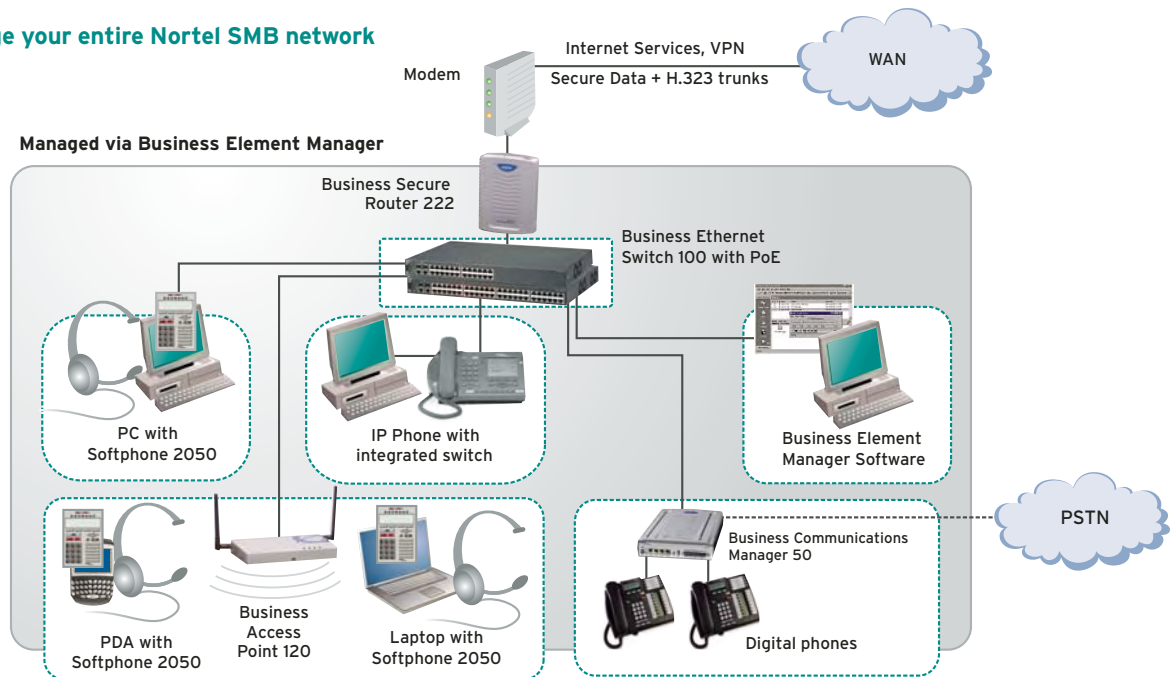
Quality voice calls is something most people consider table stakes, if not a birthright. Prioritization of the data on the network is essential in order to ensure that mission-critical applications such as voice are delivered in a timely manner and treated differently than

non-time sensitive data. The Business Ethernet Switch is able to put traffic into different priority queues by reading a packet's 802.1p or DSCP prioritization value, ensuring that data is properly classified. Servicing each of the priority queues can be done by either using Weighted Round Robin or Strict Priority Queuing.

## Complete SMB solution

Nortel provides an end-to-end solution for small and medium-sized businesses. Recognizing that one size doesn't fit all, Nortel has designed solutions that allow you to build networks that best align with your business needs. Figure 1 shows how the Business Ethernet Switch 120-24T PWR can be used in conjunction with the Nortel Business Secure Router 222 for access to the Internet; the Nortel Business Access Point 120 for wireless connectivity; and the Nortel Business Communications Manager 50 for voice integration. The Business Element Manager manages the entire Nortel SMB network from a single management station within the network.

Figure 1. Manage your entire Nortel SMB network



## Feature specifications

<b>Hardware features</b>	<ul style="list-style-type: none"> <li>Switch fabric: 8.8 Gbps on 24 port, 13.6 Gbps on 48 port</li> <li>Forwarding rate: 10.2 Mpps on 48 port, 6.6 Mpps on 24 port</li> <li>64M Flash</li> <li>8M RAM</li> <li>8,000 MAC address table size</li> <li>Power over Ethernet</li> <li>4 hardware queues per port</li> <li>Auto-Negotiation</li> </ul>	<ul style="list-style-type: none"> <li>Auto-MDI/MDIX</li> <li>Reset button</li> <li>4 units per stack supported on BES200</li> <li>2 1000BaseT RJ45 ports at the rear for stacking on BES200</li> </ul>
<b>Layer 2 features</b>	<ul style="list-style-type: none"> <li>32 port-based VLANs</li> <li>802.3ad Link Aggregation: 6 aggregations, 4 ports per aggregation</li> <li>Spanning Tree/Rapid Spanning Tree (802.1D/802.1w)</li> </ul>	
<b>Security</b>	<ul style="list-style-type: none"> <li>MAC-based security</li> <li>Destination address filtering</li> </ul>	
<b>Traffic control</b>	<ul style="list-style-type: none"> <li>Packet Classification based on 802.1p and DSCP markings</li> <li>Weighted Round Robin or Strict Priority Queuing for queue servicing</li> <li>802.1ab core for network topology discovery</li> <li>Broadcast/multicast packet storm control</li> </ul>	
<b>Management</b>	<ul style="list-style-type: none"> <li>IGMP snooping ( v1/v2)</li> <li>Default IP address</li> <li>Support for the Business Ethernet Management</li> <li>SNMPv1/v2</li> <li>SNTp</li> <li>4 groups of RMON (Ethernet statistics (Group 1), History (Group 2), Alarms (Group 3) and Events (Group 9))</li> </ul>	

## Technical specifications

<b>Physical specifications</b>			
BES110/210-24T	Weight: 8.5 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 12.17 in (30.9 cm)	
BES110/210-48T	Weight: 10.5 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 14.53 in (36.9 cm)	
BES120/220-24T PWR	Weight: 9.4 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 12.17 in (30.9 cm)	
BES120/220-48T PWR	Weight: 11.6 lbs Width: 17.36 in (44.1 cm)	Height: 1.73 in (4.4 cm) Depth: 14.53 in (36.9 cm)	
<b>Network protocol and standards compatibility</b>	<ul style="list-style-type: none"> <li>IEEE 802.3 10BASE-T (ISO/IEC 8802-3, Clause 14)</li> <li>IEEE 802.3u 100BASE-TX (ISO/IEC 8802-3, Clause 25)</li> <li>IEEE 802.3u Autonegotiation on Twisted Pair (ISO/IEC 8802-3, Clause 28)</li> <li>IEEE 802.3x (Flow Control on the Gigabit Uplink ports)</li> <li>IEEE 802.3z (Gigabit)</li> <li>IEEE 802.1d MAC Bridges (ISO/IEC 10038)</li> <li>IEEE 802.1p (Prioritizing)</li> <li>IEEE 802.1Q (VLAN Tagging)</li> <li>IEEE 802.1D (Spanning Tree Protocol)</li> <li>IEEE 802.3ad LACP</li> <li>IEEE 802.1w (Rapid Spanning Tree Protocol)</li> <li>IEEE 802.3af (Power over Ethernet)</li> <li>IEEE 802.1AB (Link Layer Discovery)</li> </ul>		
<b>Safety Agency Approvals to the latest release of the following standards</b>	<ul style="list-style-type: none"> <li>IEC 60950, CB report and certificate with all national deviations</li> <li>UL 60950</li> <li>CSA 22.2 No. 60950950</li> <li>EN 60950</li> <li>UL-94-V1 flammability requirements for PC board</li> <li>NOM-019</li> </ul>		

## Technical specifications (continued)

<b>RFC support</b>	RFC 1493 (Bridge MIB); RFC 2863 (Interfaces Group MIB); RFC 2665 (Ethernet MIB); RFC 2737 (Entity MIBv2); RFC 2819 (RMON MIB); RFC 1271 (RMON); RFC 1157 (SNMP); RFC 3412 (SNMP Message Processing); RFC 791 (IP); RFC 792 (ICMP); RFC 793 (TCP); RFC 783 (TFTP); RFC 826 (ARP); RFC 768 (UDP); RFC 951 (Bootp); RFC 2236 (IGMPv2); RFC 1112 (IGMPv1); RFC 1945 (HTTP v1.0); RFC 894 (IP over Ethernet); RFC 2674 (Q MIB); RFC 2578 (LDAPv2); RFC 3621 (PoE MIB); RFC 2579 (SMIPv2); RFC 3411 (SNMP Frameworks); RFC 2011 (MIB-II); RFC 2021 (RMON MIBBase v2 using SMIPv2); RFC 3413 (SNMP Applications); RFC 3415 (VACM for SNMP); RFC 3418 (MIB for SNMP); RFC 2933 (IGMP MIB); RFC 3584 (Co-existence of SNMP v1, v2, and v3); RFC 3291 (Textual Conventions for Internet Network Addresses); RFC 2213 (Integrated Messaging Services MIB); RFC 3289 (Differentiated Services MIB)
<b>Environmental</b>	<ul style="list-style-type: none"><li>• Operating temperature: 0° to 40°C (32° to 104°F)</li><li>• Storage temperature: -40° to 70°C (-40° to 158°F)</li><li>• Operating humidity: 10 to 95% maximum relative humidity, noncondensing</li><li>• Storage humidity: 5 to 95% maximum relative humidity, noncondensing</li><li>• All BES100/200 products are RoHS compliant to the 6/6 compliance standard</li></ul>
<b>Electrical</b>	<ul style="list-style-type: none"><li>• Input voltage (AC version): 100 to 240 VAC @ 50 to 60 Hz</li><li>• Input power consumption (AC version): Non-PoE: 45 W maximum PoE: 250 W maximum</li><li>• Input current (AC version): Non-PoE: 0.8 A @ 100 VAC, 0.4A @ 240 VAC PoE: 2.9A @ 100 VAC, 1.1A @ 240VAC</li><li>• Maximum thermal output: Non-PoE: 154 BTU/hour PoE: 853 BTU/hour</li><li>• Calculated MTBF @ 25°C:<ul style="list-style-type: none"><li>- BES110-24T: 370,792 hrs</li><li>- BES110-48T: 293,539 hrs</li><li>- BES120-24T PWR: 232,480 hrs</li><li>- BES120-48T PWR: 213,462 hrs</li><li>- BES210-24T: 356,514 hrs</li><li>- BES210-48T: 284,713 hrs</li><li>- BES220-24T PWR: 222,012 hrs</li><li>- BES220-48T PWR: 203,208 hrs</li></ul></li></ul>
<b>Accoustic Noise</b>	Noise level of 43.8dB
<b>EMC Agency Approvals to the latest release of the following standards</b>	<ul style="list-style-type: none"><li>• CISPR 22, Class A</li><li>• CISPR 24, Class A</li><li>• US: CFR47, Part 15, Subpart B, Class A</li><li>• Canada: ICES-003, Issue 3, Class A</li><li>• Australia/New Zealand. AS/NZS 3548, Class A</li><li>• Japan: VCCI, class A</li><li>• Taiwan: CNS 13438, Class A</li><li>• Europe: EN55022, Class A and EN55024</li><li>• EN61000-3-2, EN61000-3-3</li><li>• EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11</li></ul>

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. Our next-generation technologies, for both service providers and enterprises, span access and core networks, support multimedia and business-critical applications, and help eliminate today's barriers to efficiency, speed and performance by simplifying networks and connecting people with information. Nortel does business in more than 150 countries. For more information, visit Nortel on the Web at [www.nortel.com](http://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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