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> Business Communications Manager (BCM) 50/450 Solutions eBook

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> Overview

What is BCM?

Business Communications Manager (BCM) is a sophisticated, reliable integrated voice and data solution for enterprise branch offices and small to medium-sized businesses (SMBs).

It offers voice processing and feature-rich business telephony applications that interwork with data-networking services to offer an integrated platform run by a single, intuitive management tool. As a platform, it is a cost-effective solution that will grow with a customer's business.

The BCM portfolio provides secure, cost-effective solutions with feature rich capabilities for the traditional voice-plus applications, converged and pure-IP system market segments. And it meets our SMB customers' Hyperconnectivity challenges by getting them on the right path to Unified Communications (UC).

This Solutions eBook looks at two products: BCM50 and BCM450.

SMB Challenges

The Realities for SMB Customers

SMBs across all verticals face common challenges, including:

- **Mobility:** Two-thirds of SMB employees travel for business – so mobile policies are a priority.
- **Dispersed workplace:** 27% of SMBs have multiple locations, while 35% of SMBs have employees who telecommute.
- **Employee satisfaction:** Attracting, developing and retaining talent is a constant concern.
- **Efficiency and productivity:** Managing cash flow and reducing costs are always top of mind.
- **Technological expertise:** SMBs have limited IT resources available to deploy and support new technology.



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BCM: The Nortel Converged SMB Solution

BCM is Nortel's response to SMB challenges and needs.

As the foundation to a complete SMB solution, both BCM50 and BCM450 are based on a hardened Linux operating system. They provide extensive telephony features and value-added applications that are integrated, reliable and secure. BCM also offers diverse networking options for interworking with other systems, including SIP trunking.

BCM supports a full range of Nortel phones. The BCM client list includes a wide variety of fixed or mobile sets, both IP and digital based, as well as conference phones and soft clients.

On the data side, Nortel's Data portfolio drives the solution's networking capabilities with certified tested and proven Ethernet switches, routers and wireless access – providing high-speed data transfer, secure Internet access, VPN connectivity, VoIP Quality of Service (QoS) and Power over Ethernet (PoE).

Tying these elements together are the Business Element Manager (BEM) and Network Configuration Manager (NCM). These software tools allow centralized configuration and monitoring of all these devices, both on premises or remotely.

The result is a standards-based, single-source solution built from the ground up with the unique challenges of SMBs in mind: growth, converged capabilities, ease of use, form-factor, security and pricing.





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Business Communications Manager: Business Made Simple for SMBs



BCM50



BCM450

BCM50 vs. BCM450: Capacity

	# of Users	Target Sites
BCM50	3-30	- Standalone site or small branch
BCM450	30-250	- Headquarters site or large branch - Legacy Norstar MICS deployments

BCM50

BCM50 is an easy-entry platform for converged voice and data communications. It's ideal for small to medium businesses with 3 to 30 users. BCM50 provides advanced capabilities such as robust telephony features, voice messaging and unified messaging, IP networking, Internet access, contact centers, mobility solutions and IP telephony. With an easy-to-use and highly flexible architecture, the BCM50 enables small sites to benefit from unified communications capabilities that were previously only available to much larger organizations.

BCM450

The BCM450 is a new addition to the BCM family. It delivers a more scalable version of the BCM400 while leveraging the high-quality BCM50 Release 3.0 software stream. BCM450 expands Nortel's addressable market to 100-300 stations – a market previously unreachable with the BCM400. As a result, the BCM450 enables an easy, affordable IP transition for Norstar MICS customers and opens up new Greenfield opportunities for Nortel and its partners.

BCM450 is compatible with existing digital, IP and mobility client offers, MBMs and the BCM Expansion Cabinet. In addition, applications expertise developed for BCM50, BCM200 and BCM400 is fully applicable to the BCM450.



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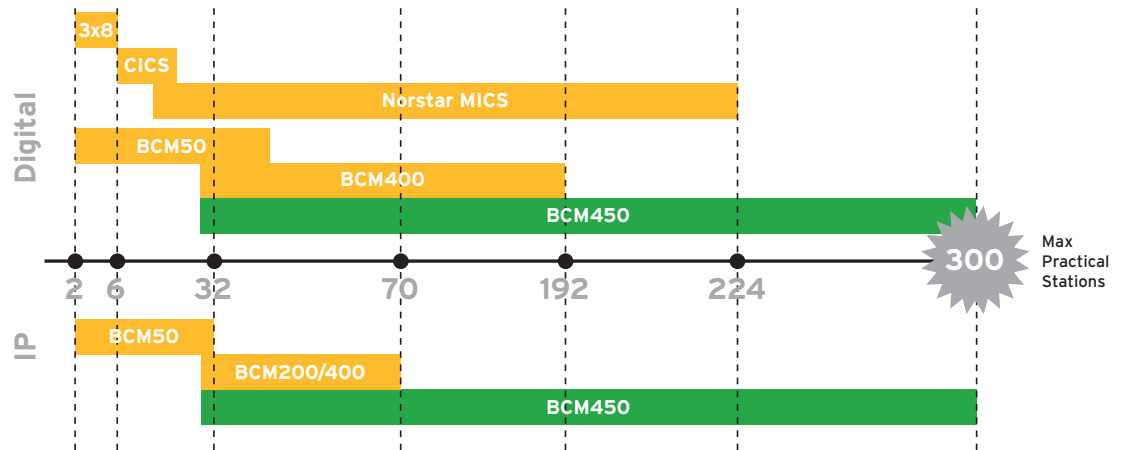
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MORE ABOUT BCM450

BCM Positioning

Market Coverage

The chart shows how BCM50 and BCM450 span the range of line sizes. BCM50 easily meets the needs of Norstar 3x8 and CICS customers to deliver unified communications to very small businesses. As a hybrid IP platform, BCM450 extends beyond the Norstar MICS capacity to accommodate the needs of up to 300 users with either IP or digital sets. This is a very simple, clear value statement that also reflects Nortel's consideration for future growth requirements.





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Customer Value Proposition: How BCM Meets SMB Needs

SMB Solution Criteria: What SMBs are looking for?

With SMB realities in mind, here are the key requirements that customers often use when they assess a particular vendor or technology. According to Gartner, SMB owners have requirements for:

- **Compatibility:** Will it work with the investments I've already made?
- **Flexibility:** Will it grow and adapt to my changing business challenges?
- **Efficiency:** Will it stretch my dollar further? Will it allow me to generate more revenue?
- **Familiarity:** Does my vendor understand resource-constrained companies like mine?

Here's how BCM – and BCM450 in particular – meets those needs.

Compatibility

- Norstar customers can keep their phones, fiber trunk and station modules.
- BCM customers can retain their phones, MBMs, Expansion Cabinet and most of their software investment.
- No user training required – base telephony features and user interface remain the same.

Flexibility

- Customers can add capacity or deploy new features with the optional field installable Capacity Enhancement Card and easy to enable keycodes.
- BCM450 scales up to 300 total stations with any mix of digital or IP phones.
- Offers full-feature parity and interoperability as BCM50 Rls. 3.0 with the same software.

Efficiency

- Offers all the benefits of VoIP: toll savings, easier setup, improved portability, call features.
- Operability enhancements improve installability, usability and supportability.
- Architectural changes deliver a high quality and reliable platform that reduces lifecycle costs.
- Simplifies communications with a high quality and reliable hardware platform that reduces lifecycle costs.

Familiarity

- Nortel has 20 years' experience in the SMB market with Norstar and the award-winning BCM portfolio.
- We have sold nearly 200,000 BCM systems worldwide.
- Nortel SMB solutions support 15 million customers in over 80 countries.



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The BCM Portfolio and Unified Communications

The BCM portfolio offers an approach to IP that literally transforms multiple networks into a single multi-service network and drives unified communications (UC) to the desktop. BCM offers increased application performance and enhancements in the areas of converged voice, data and multimedia, along with security, mobility, management and serviceability.

As a standalone solution for small and medium businesses (SMBs), BCM can be combined with a full range of Nortel mobility and data products to create a complete, converged business communications system that meets the unique requirements, challenges and budgets of that sector.

As part of a large enterprise network, BCM interworks seamlessly with UC solutions such as Nortel Communication Server (CS) 1000 and Multimedia Communications Server (MCS) 5100 to extend full headquarters-based applications and capabilities to branch and remote offices.

Why Nortel for SMB?

Nortel has more than 20 years experience with SMBs in all sizes, industries and regions, with over 15 million SMB users globally. It offers the award-winning and performance-proven products that have been designed from the ground up for the SMB market. And Nortel continues to be a leader in voice, data, applications and UC to bring them all together.

As the market continues evolving towards IP, Nortel will continue to invest heavily in innovative, value-added IP-based applications – both internally and with world-class partners, such as Microsoft®, IBM® and Dell®.

On the services side, Nortel Global Services offers pre-packaged, consultative Nortel Express Services available exclusively through Nortel Authorized Partners. Global Services packages address business-critical integration, maintenance, managed services, optimization and security needs.

Proof Points

Nortel continues to set the bar high, especially as IP and SIP-based technologies bring new capabilities that extend and enrich communications. Here are just a few recent accolades for BCM that builds on a long list of awards.

- Among Top 3 leaders in voice, data, applications
- Gartner Magic Quadrant Unified Communications – Leader
- Gartner Magic Quadrant Corporate Telephony – Leader
- Extensive partner community operating in 150 countries around the world.

The Tolly Group, a leading provider of third-party validation services, recognized Nortel for the performance, features and value of our SMB-class Business Ethernet Switches (BES). It also tested and proved the performance and energy efficiency of our Ethernet Router Switches (ERS) and Secure Routers against rival offerings from Cisco and other vendors. Further, Tolly tested and certified the Gigabit throughput, voice quality and energy efficiency of our IP Phone 1140E.



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> BCM Components

BCM Platforms

BCM50

BCM50 is a compact, easy to install “business in a box” for SMBs that offers a suite of productivity-enhancing applications such as:

- Intelligent Contact Center
- Unified Messaging
- Auto Attendant
- Computer Telephony Integration
- SIP trunking capabilities
- Meet-Me conferencing
- And more.

With support for 12 simultaneous IP-trunk gateway sessions, 32 IP clients and two media bay modules – not to mention a full range of standard telephony features – BCM50 packs a lot of power in a small form factor.

BCM450

The new BCM450 achieves a capacity increase over the BCM200/400 through powerful, yet simplified hardware architecture and increased computing power. Importantly, BCM450 offers full feature parity with BCM50 Rls. 3.0.

Capacity Improvements

The BCM450 also supports a BCM Expansion Cabinet to house an additional 6 bays for media bay modules. The following compares the capacity limits using the Expansion Cabinet for BCM400 vs. BCM450 and BCM450 with the capacity expansion card (CEC) plugged in.

	BCM400	BCM450	BCM450 w/CEC
IP Stations	90	100	300
Digital Stations	192	100	300
Analog Stations	48	48	48
H.323 or SIP Trunks	60	48	130
T1 Digital Trunks	72	48	130
E1 Digital Trunks	90	60	130
Analog Trunks	80	60	130
T1 Interfaces	3	2	6**
E1 Interfaces	3	2	5**
BRI Loops	4	16	16
Conference Ports	40	60	120
Voicemail Hrs	200	400	400
UM Seats	200	300	300
Fax Ports	2	4	8
Expansion Cabinet	1	1	1
MBMs	4/10*	4/10*	4/10*
FEMS	1	1	1

*Without/With Expansion Cabinet. ** Last T1/E1 not fully loaded since the maximum trunk channels is 130. Above specifications include Expansion Cabinet where needed and no FEM connected. Total stations/trunks of any type not to exceed 300/130.



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Operability Improvements: Highlights

BCM50 and BCM450 offer a number of operability improvements over the BCM200/400. Here are a few highlights that SMB customers will find compelling.

Business Element Manager (BEM)

BEM provides an intuitive, easy-to-use management interface for setting up the BCM and all related devices and applications.

Among its improvements, BEM offers:

- Flexible resource allocation
- Automated renumbering
- Set templates.

The result is more flexible configuration options, faster system start-up and easier ongoing administration, yielding time savings up to 25% compared to an equivalent BCM400 R4.0 system.

System Reset

GUI-based function enables system restoration to the default factory settings using a simplified reset logic.

Troubleshooting Guide

Nortel offers comprehensive documentation with task-based procedures to troubleshoot operational issues on a BCM system, including emergency recovery tree procedures for outage recovery.

Reboot Optimization

Reboot Optimization reduces downtime by enabling faster start up and system maintenance.



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Platform Simplification

The BCM450 offers a robust, reliable and reusable system architecture.

New BCM Hardware

The BCM450 also includes new hardware components to simplify expandability and connectivity including the modular:

- **Capacity Expansion Card (CEC)** that can be optionally added for more capacity. It is pluggable into one of the three internal BFT slots.
- **Chassis Interface Board (CIB)** that connects the BFT to the chassis wiring, allowing easy removal without having to manually disconnect the peripherals.
- **Media Bay Modules (MBMs)** that can improve expandability and connectivity. With BCM450, they can be plugged in using the DS256 connectors on the CIB. Like BCM400, BCM450 supports up to 10 MBMs.

Base Function Tray (BFT)

The new Base Function Tray (BFT) offers the latest features and functionality of the BCM50 Rls. 3.0. It includes:

- A higher-capacity hard drive that employs the latest SATA technology with future hot swappable capability.
- A V.34 soft modem with the same flexible incoming and outgoing calling capabilities as the soft modem of BCM50 Rls. 3.0.
- Two high-speed USB 2.0 ports for loading patches or connecting peripherals, as well as one USB flash drive for bulk flash storage.
- The CPU and DSP scale to support potential capacity improvements down the road.
- Three internal slots, with two reserved for future technology enhancements.
- Modular, “plug and play” functionality to support future upgrades – the BFT is a field replaceable unit.



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Applications

To a customer, the real value in a BCM solution lies in the integrated business applications.

With a simple keycode activation, SMBs can pick and choose the applications that best suit the way they do business. And with feature parity across BCM50 and BCM450, there's something for every business of every size and vertical.

Meet-Me Conferencing	Larger conferences, more productive calls.
Intelligent Contact Center	Directs clients to the right person quickly and efficiently.
Unified Messaging	Single-point access to voice, fax and email messages.
Message Forwarding	Forwards an email notification when a voice or fax message arrives in a subscriber's mailbox. Includes an option for attaching a compressed WAV file of voice messages.
Auto Attendant	Answers calls 24/7 with personalized greeting and intelligent routing to the appropriate employees.
Computer Telephony Integration	Faster, more personalized customer service by routing relevant caller information to an agent.
Activity Reporter	Provides statistical and graphical reports based on communication logs for CCR, CDR, voicemail and hunt groups.
Advanced Paging Productivity Pack Note: Available in North America only.	Enables simple, one-button paging and text messaging for pre-recorded announcements and messages, customer assistance paging and scheduled announcements.



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Meet-Me Conferencing (MMC)

Meet-Me Conferencing (MMC)

Integrated Meet-Me audio conferencing provides BCM50 and BCM450 users with a powerful conferencing option that lets them hold larger conferences and enable more productive calls.

MMC supports multi-party conferencing, both unplanned (Ad-Hoc) or via a specified bridge number at an agreed-upon time (Meet-Me). A conference chairperson can view who is on the conference bridge, selectively mute or disconnect participants, and lock the conference. Conference participants can also view the list of parties on the call via the display on their phone, as well as selectively mute themselves.

MMC is secure. Each conference bridge has a chairperson password. Conferences can be set up to require participants to provide a password for entry. Additionally, the chairperson has the ability to lock and unlock a conference at any time.

MMC is:

- **Easy to use:** Reservationless – comes with convenient display/softkey commands.
- **Flexible:** Offers universal access anywhere, anytime.
- **Secure:** Password enabled and chairperson controlled.
- **Scalable:** Supports up to a maximum of 120 simultaneous participants total with a maximum of 60 participants per MMC session (on BCM450).

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Intelligent Contact Center

Intelligent Contact Center (ICC)

ICC lets SMBs deliver superior customer service, maximize employee productivity and create a professional image by directing clients to the right person quickly and efficiently. It offers advanced capabilities specifically designed to integrate with the BCM and various Nortel telephone sets.

When activated, ICC has two agents and one skillset by default. Customers can then order any combination of agents and skillsets for maximum customization and flexibility, along with advanced reporting and multimedia applications.

Some highlights of ICC include agent features such as:

- Not Ready Time Out
- Agent Configurable Break Time
- Skillset Configurable Alerts
- Silent Record-a-Call
- Auto Login.

Reporting enhancements include:

- A brand-new database engine
- Six redesigned reports plus four new reports, including the Call Audit Report (CAR) that displays information on each transaction of the call from entering the Intelligent Contact Center to completion.



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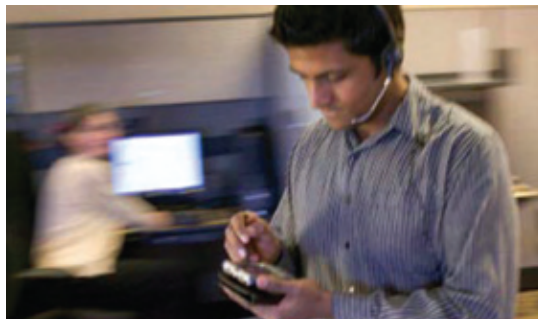


Unified Messaging

Unified Messaging

Unified Messaging (UM) provides single-point, local or remote access to voice, fax and email messages from a multimedia PC. Plus, it's easy to install and set up. UM helps SMBs be more productive by allowing users to conveniently manage their entire inbox, review messages off-line and archive messages to their computers. Users can listen to voice mail, save or forward messages, view faxes on-screen and forward them as email, or even use caller ID to go straight to the message they've been waiting for.

The Nortel UM client supports Microsoft Outlook, Lotus Notes, Novell GroupWise and other email corporate solutions. BCM50 and BCM450 also add integration of Instant Messaging via MSN Messenger, so users can launch an Instant Messaging (IM) session directly from a voice or email message. Additionally, BCM450 supports up to 300 UM seats and 400 hours voicemail storage capacity.



Message Forwarding

Message Forwarding

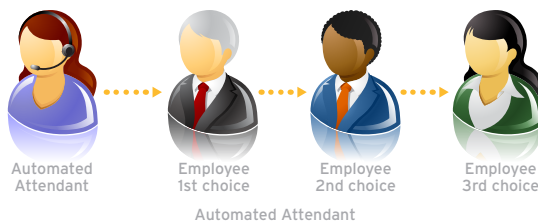
BCM Message Forwarding will be available on BCM450 soon after General Availability (GA) (via the BCM Value-Add Program). Currently available on BCM50 Rls. 3.0, Message Forwarding sends a notification email when a voice or fax message arrives in a subscriber's mailbox. It also includes an option that attaches a compressed WAV file to the forwarded email, so the user can play the voice message or display the fax message on the destination device.

Message Forwarding is compatible with:

- BlackBerry® smartphones, Windows® Mobile, Apple® iPhone, Palm®, Nokia® and other PDAs
- Mac OS™ Mail
- Thunderbird™
- Outlook® Web Access
- And more.

Message Forwarding is activated with the existing Unified Messaging authorization codes.

Intelligent Routing 24/7



Automated Attendant

Automated Attendant answers calls 24/7 with personalized greetings and intelligent routing to the appropriate employees. With features such as call transfer, calling name display, CCR levels and more, Automated Attendant helps reduce the number of dropped calls and increase customer satisfaction.



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Computer Telephony Integration (CTI)

Computer Telephony Integration (CTI)

CTI helps SMBs deliver faster, more personalized customer service by routing relevant caller information – via screen pops and automated retrieval of database records — to the specific agent who handled that customer previously. With VoIP, these transactions can be handled over a single network infrastructure.



Activity Reporter

Activity Reporter

Activity Reporter provides statistical and graphical reports based on communication logs for CCR, CDR, voicemail and hunt groups. Activity Reporter Basic is a free version that provides simple pre-formatted reports, while the full-featured Activity Reporter is a keycode-enabled application that allows greater customization in reporting format and frequency.

Activity Reporter is useful for department managers in measuring performance and identifying bottlenecks, as well as for system administrators assessing network utilization and allocating resources.



Advanced Paging Productivity (APP) Pack

Advanced Paging Productivity (APP) Pack - available in North America only

The APP Pack is a software-based application that enables simple, one-button paging and text messaging for pre-recorded announcements and messages, customer assistance paging and scheduled announcements.

The solution is designed for any environment where paging is regularly used, such as retail, manufacturing, security and education. It works with any BCM-supported desktop or mobility client, so employees can remain mobile and productive.



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BCM Client Support

No other platform compares to BCM in terms of breadth and depth of clients supported.

Nortel offers some of the most advanced digital and IP phones in the market, and continues to evolve and expand its portfolio, most recently with the new IP Phone 1200 Series.

BCM offers industry leading feature integration across these sets and superior investment protection by supporting the Nortel Business Series Terminals (BST). For example, Norstar customers can achieve savings of up to 70% when they replace their systems. This is a very compelling value proposition for cost-conscious SMBs who want to move to IP telephony at an affordable pace.

Note: The T7406E is available only in North America, Mexico and the Caribbean (except Trinidad and Jamaica). The 7439 is available in North America and Argentina only. Equivalent handsets include the 4135 (EMEA and Hong Kong), 4136 (Australia and New Zealand) and 7434 (South America). The 7449 is available in North America and Argentina only. Equivalent handsets include the 4145 (EMEA and Hong Kong), 4146 (Australia and New Zealand) and 7444 (South America). The T7000 is used primarily in EMEA (not available in North America).





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Phone 1210
(Standard level)



IP Phone 1220
(Intermediate level)



IP Phone 1230
(Premium-
Intermediate level)



12 key LCD
Expansion Module



18 key LED
Expansion Module

IP Phone 1200 Series

The Nortel IP Phone 1200 Series desk sets provide a cost-effective IP desktop solution. They improve employee productivity with efficient access to information and features while reducing the costs of moves, adds and changes.

The IP Phone 1200 Series includes two new Expansion Modules to provide even more flexibility for adding keys to the IP Phone 1220 and IP Phone 1230. The extra keys can be used for additional line appearances or to add often-used features for quicker access. They can also be programmed as autodialers for one-touch calling. They even provide busy lamp field indication for users on the BCM system. Expansion Modules allow the phones to better serve the needs of attendant and receptionist functions, as well as increase productivity for any user.

The IP Phone 1200 Series phones also come programmed with BCM feature defaults based on how SMBs will most likely use them, simplifying usability for the end customer. Additionally, they are DA Pro compatible, which allows them to be customized. As a result, end users get maximum ease of use without sacrificing sophistication.



Business Series Terminal T7406E

Business Series Terminal T7406E

The Nortel Business Series Terminal T7406E is a new cordless digital phone that is ideal for cost-conscious SMBs. Replacing the discontinued T7406, the T7406E (“E” stands for Enhanced) offers significant improvements in terms of range, voice quality, scalability, security and feature set.

The phone supports 1 to 8 users per site, and is compatible with all supported versions of Norstar ICS and BCM systems. Norstar customers can continue to use the T7406E after they migrate to BCM – making the T7406E a great investment.

**WHAT IS BCM50/450?****REFERENCE ARCHITECTURE****MORE ABOUT BCM450****Associated Data Products**

To maximize its effectiveness, the BCM portfolio integrates with the full range of Nortel SMB solutions - including security, intelligent routing, switching, management and mobility - to create a true UC experience.



Business Secure Router (BSR) 222/252



Secure Router 3120



VPN Router 1750

Security Solutions**Business Secure Router (BSR) 222/252**

- Delivers reliable high-speed connectivity to the Internet with the security of a standards-based VPN, embedded firewall protection and encryption.
- BSR252 offers the same features as the BSR222 with the additional benefit of a built-in ADSL2+ modem.

Secure Router 3120

- Converges routing, security and multimedia traffic forwarding in a single, cost-effective platform for enterprises.

VPN Router 1750

- Provides IP access routing or secure VPN access for office centers, campuses and large branch offices requiring up to 500 IPsec tunnels.
- Supports standard IPsec, LTPP, PPTP and L2F tunneling protocols to interoperate with a wide range of multivendor VPN software and hardware.
- Encrypts outgoing traffic with DES, 3DES or Advanced Encryption Standard (AES) to prevent eavesdropping of data en route.



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Business Ethernet Switch (BES) 50



Business Ethernet Switch (BES) 100



Business Ethernet Switch (BES) 200



Business Ethernet Switch (BES) 1000

Data Networking Solutions

Business Ethernet Switch (BES) 50

- A converged networking solution for less than 50 network users
- Available in 12- and 24-port high-speed configurations with 12 ports PoE enabled.

Business Ethernet Switch (BES) 100

- Offered in 24- and 48-port Fast Ethernet models
- The BES120 series has half the ports PoE enabled.

Business Ethernet Switch (BES) 200

- Available in 24- and 48-port Fast Ethernet configurations
- Intelligent QoS with priority-based packet differentiation.

Business Ethernet Switch (BES) 1000

- Offers high performance and robust features specifically for medium-sized businesses in need of high bandwidth
- Available in 24- and 48-port Gigabit Ethernet models, with half the ports PoE enabled (BES1020 only).

Network Management Solutions

Business Element Manager (BEM)

- An intuitive Web-based tool for management of Nortel SMB solutions including SMB Data (BSR, BES and BAP), BCM50/200/400 and associated applications.

Network Configuration Manager (NCM)

- A client-server software package that enables centralized configuration and management of up to 2000 BCM systems either locally or remotely over a LAN or WAN.



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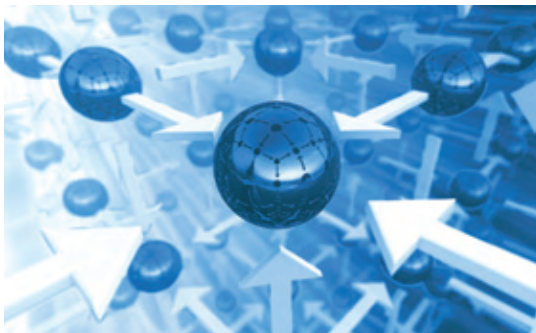
Business Access Point (BAP) 120



WLAN Access Point (AP) 2330



WLAN Security Switch 2360/2361



Mobility Solutions

Business Access Point (BAP) 120

- Provides users secure network access from anywhere within range, at any time.

WLAN Access Point (AP) 2330

- Controlled by the WLAN 2300 Security Switches
- Provides multi-mode 802.11 a/b/g service for mobile clients.

WLAN Security Switch 2360/2361

- Controls up to 12 access points either connected directly to one of the eight Ethernet ports or indirectly through a Layer 2 or 3 network.

SIP Trunking

In addition to H.323, BCM450 supports the SIP signaling standard to enable VoIP communication with other systems, extend partnerships with third-party vendors and allow service providers to develop new converged offerings.

Session Initiation Protocol (SIP) is an open standard for interactive communications, allowing the cost-effective exchange of information and extension of features between different networks and devices. SIP support future-proofs a customer's network by allowing more flexible networking options as needs grow and evolve.

SIP trunk enhancements introduced with BCM50 Rls. 3.0 enable interoperability with converged IP access services from service providers. This enables exciting new offerings to be developed for SMBs, while improving networking capabilities – whether operating in a homogenous or mixed-vendor environment.



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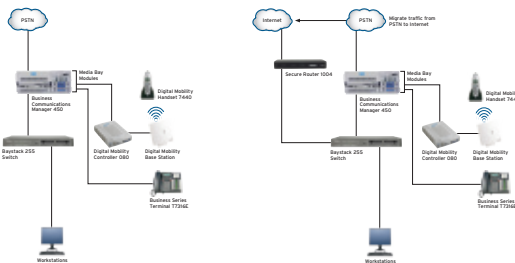
BCM450 Migration Path

This section of the ebook will provide an example of how the transition to a BCM450 might work and the value provided in the process.

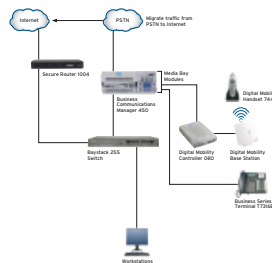
It is a simplified, hypothetical model to show a customer the key changes in their business communications system. When the time comes to actually replace a Norstar MICS with a BCM450, a Nortel sales engineer would complete a thorough assessment and develop a detailed transition plan. Please emphasize to your customers that this is a conceptual view for discussion purposes only.

Until recently, Norstar MICS customers have not had a compelling migration path for adopting next generation business communications. Now they do. As a hybrid IP platform, BCM450 is capable of extending beyond the MICS capacity to accommodate the needs of up to 300 stations with either IP or digital sets. This is a very simple, clear value statement that also reflects Nortel's consideration for future growth requirements.

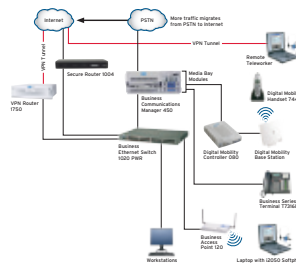
By retaining their digital phones, MICS customers transitioning to BCM450 can save up to 70% of their original telephony investment. This is a very compelling value proposition for cost-conscious SMBs, because it allows them to transition to IP telephony at an affordable pace without the need for a complete infrastructure forklift.



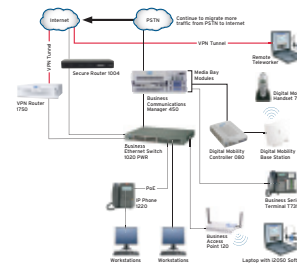
Step 1: Making the First Step to IP



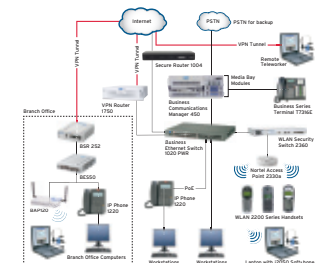
Step 2: Introduce IP on the Trunking Side



Step 3: Enabling Access from Anywhere



Step 4: Introducing IP to the Desktop



Step 5: Converged IP Network - Voice and Data



WHAT IS BCM50/450?

REFERENCE ARCHITECTURE

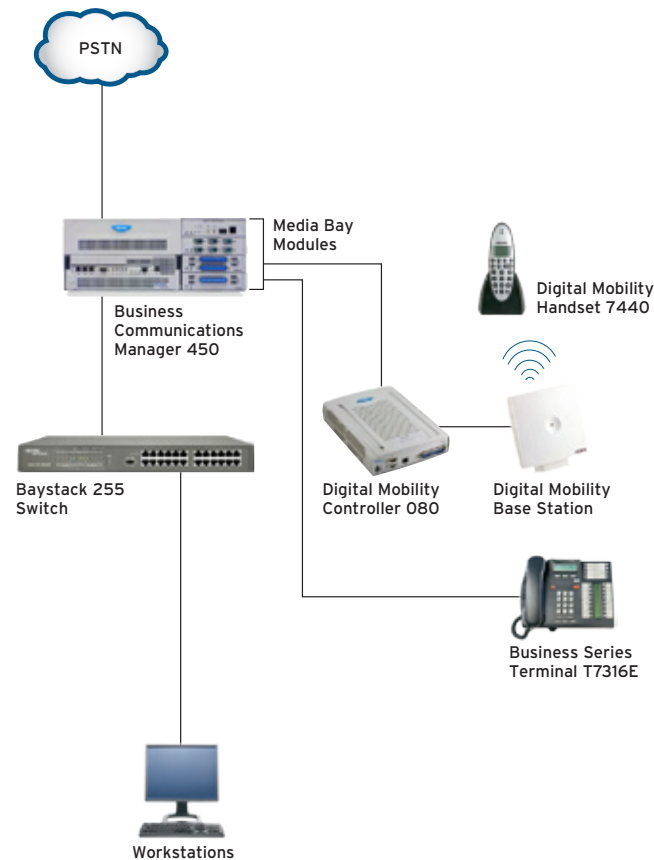
MORE ABOUT BCM450

Step 1: Making the First Step to IP

During the installation phase, the BCM450 is introduced to a legacy site, replacing the existing Norstar MICS. There is likely no interaction between the Norstar MICS and internal data networks or the Internet. Any activity between desktop PCs and digital handsets will be mediated by a Norstar Computer Telephony Adapter (CTA). Once the BCM450 is installed, there is no longer a need for the Norstar CTA devices as the BCM is able to support many of the same CTI applications through its integrated LAN Computer Telephony Engine (CTE) application.

If on-site voice mobility exists within the legacy deployment, it's safe to assume that it is enabled by legacy Companion digital wireless sets and base stations. The BCM supports an integrated Digital Mobility solution, providing a dedicated, multi-cell wireless voice network, as shown above.

Result: BCM450 has now replaced Norstar as the call server. The customer has gained the ability to integrate new, advanced applications, such as unified messaging, that let employees manage their voicemail, email and incoming faxes directly from their PCs, without sacrificing their digital sets or trunks.





WHAT IS BCM50/450?

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MORE ABOUT BCM450

Step 2: Introduce IP on the Trunking Side

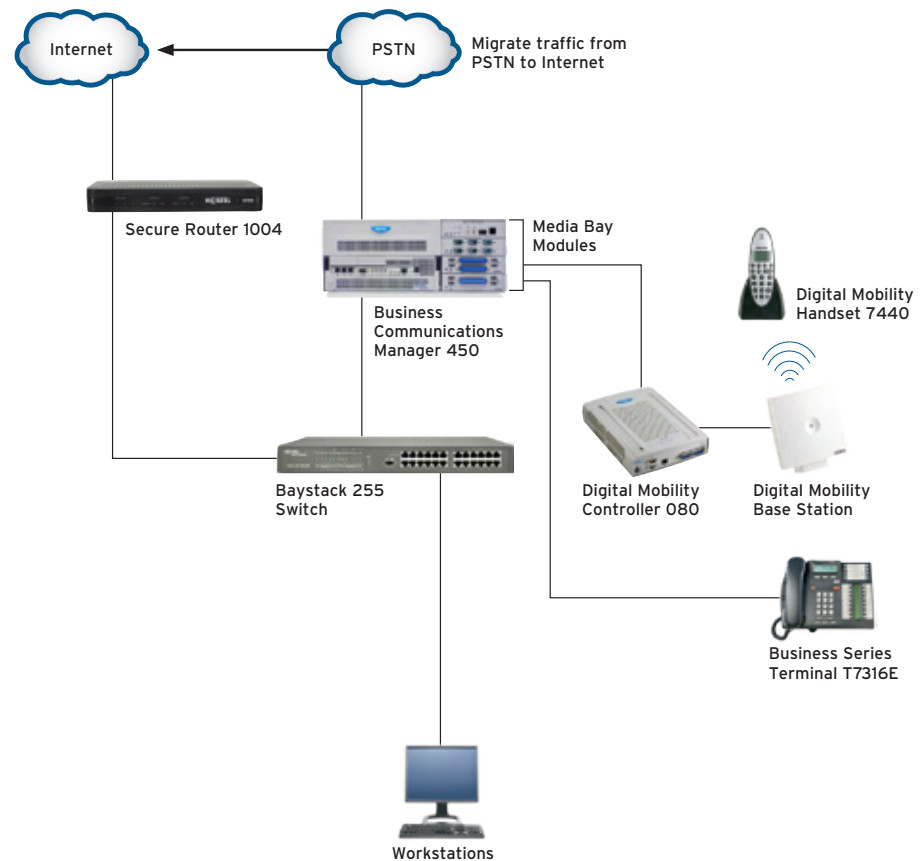
Phase 2 introduces SIP-based IP trunks (H.323 is also available), giving customers the option of transitioning their network from digital to IP. Alternately, BCM450 enables customers to keep their TDM trunks (or a combination of TDM and IP trunks) and migrate to IP desk sets within their business environment.

Since the LAN is now open to external networks (via the Internet), Nortel Secure Router (SR) 1004 is introduced to ensure secure communications across the IP network.

Additionally, the SR 1004 enables headquarters-to-branch office connectivity, resulting in higher efficiency and, in the case of a geographically distant branch, lower costs.

Results: The customer gains branch office connectivity that costs less and enables greater productivity than traditional PSTN connections. The customer can also run all BCM450 applications. Importantly, the customer can manage a phased approach to introducing IP at the desktop at a pace that's appropriate for their business goals.

Note: Nortel offers a number of different solutions for connecting a customer to the Internet, including the Business Secure Router and the Business Services Gateway (among others). The SR 1004 has been chosen for this scenario.





WHAT IS BCM50/450?

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MORE ABOUT BCM450

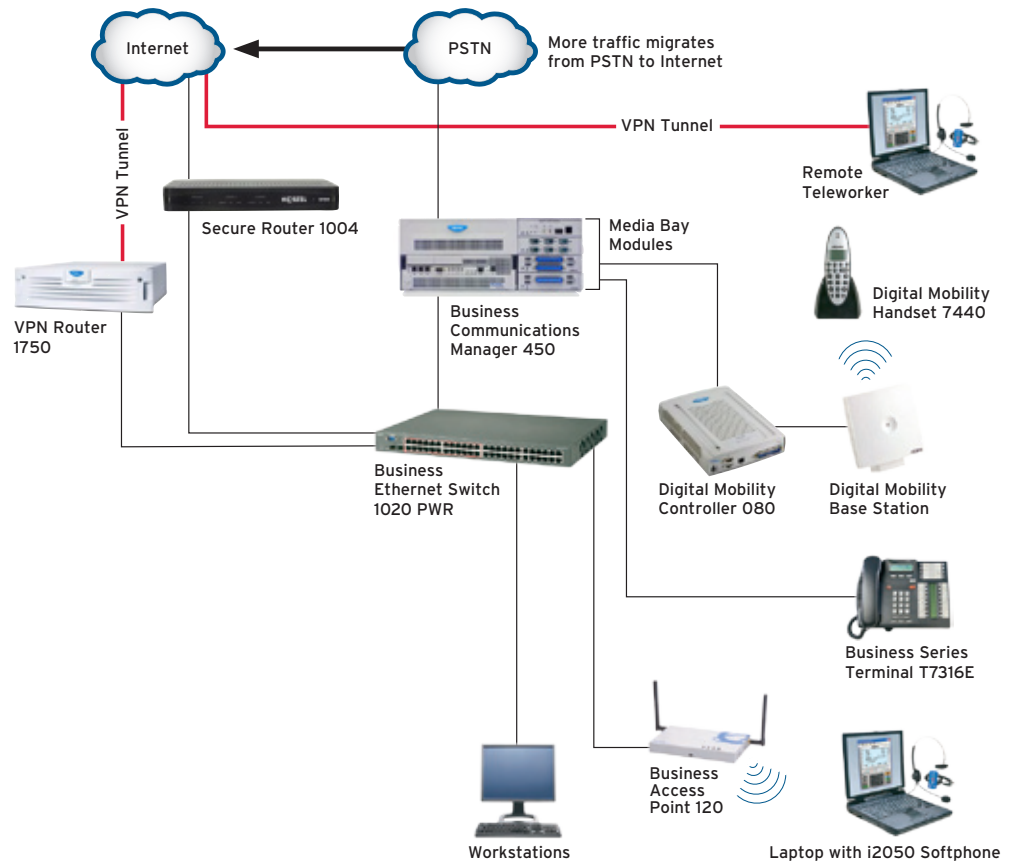
Step 3: Enabling Access from Anywhere

This phase introduces internal wireless network access and remote network access to mobile employees.

Within the network, Nortel switches such as the BES1020 allow connectivity of the Business Access Point (BAP) 120-A with simplified wiring through the use of Power over Ethernet (PoE). Incorporating the BAP120-A in the network enables wireless data networking. Nortel Softphones 2050s installed on laptops offer remote voice with full desktop phone functionality.

For remote workers, laptops are equipped with VPN endpoint software to enable remote access via the IPSec protocol. A Nortel VPN Router 1750 enables the secure VPN tunnel.

Results: The customer enables increased productivity by allowing remote employees to connect in a secure way. Local employees also increase their productivity by being able to connect wirelessly from anywhere in the office environment. Concurrently, the organization is continuing its overall transition from digital to IP.





WHAT IS BCM50/450?

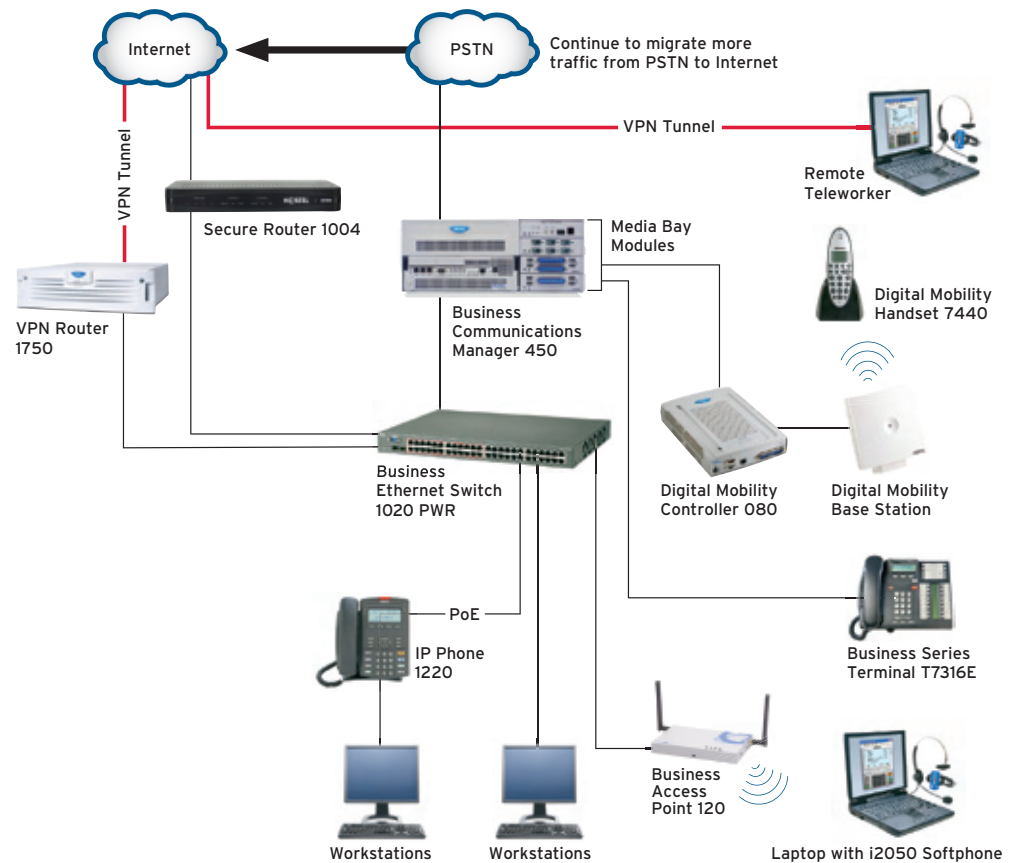
REFERENCE ARCHITECTURE

MORE ABOUT BCM450

Step 4: Introducing IP to the Desktop

The customer site features all-IP communications within a hybrid telephony environment, enabling maximum flexibility to mix and match IP versus digital sets. Additionally, peripheral devices, such as IP phones, are running on the IP network via the BES1020 PoE switch.

Results: This phase enables the full range of benefits BCM450 can offer. For example, it provides T.38 fax that can enhance delivery and reduce expenses using the VoIP network. And the introduction of IP phones, such as the new IP Phone 1200 Series, offer significant incremental value over traditional digital sets from productivity-enhancing features, cost savings from simplified moves, adds and changes, future readiness for IP applications and more.





WHAT IS BCM50/450?

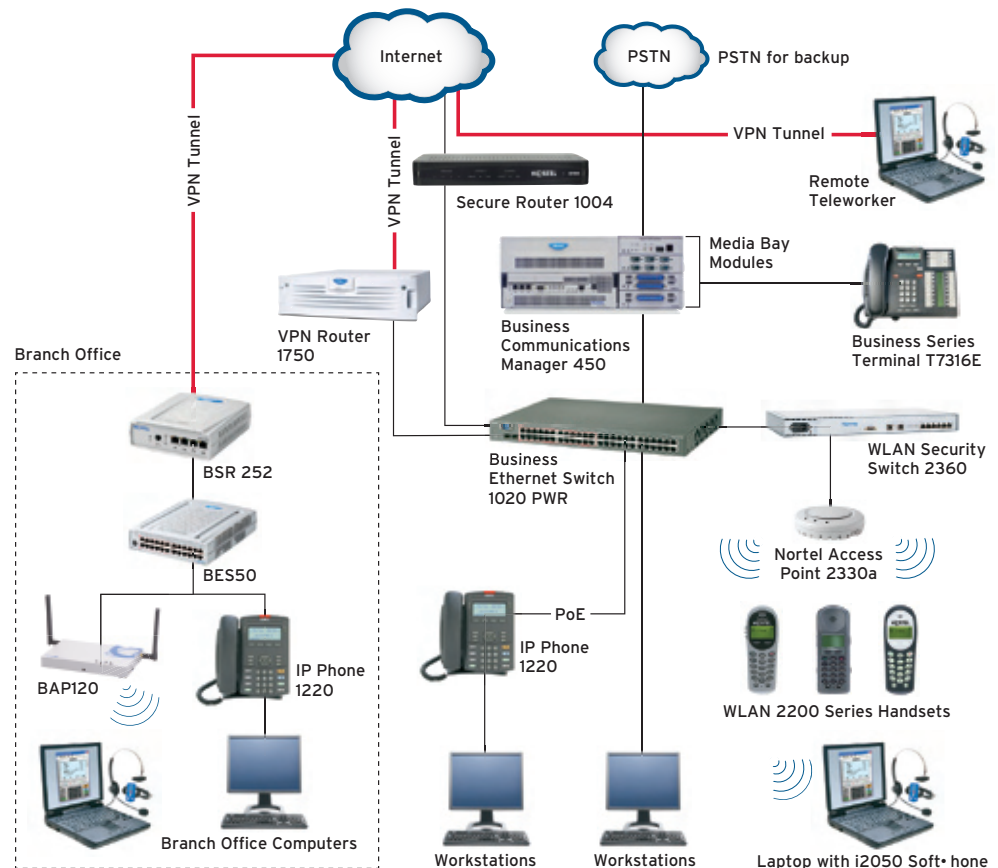
REFERENCE ARCHITECTURE

MORE ABOUT BCM450

Step 5: Converged IP Network - Voice and Data

The final phase enables full convergence within a customer's network, enhanced by voice and data mobility. The Nortel AP 2330 and WLAN SS 2360 replaces the BAP120 to enable converged mobility at the main site, while the headquarter site's BAP120 has been re-purposed at the branch site to create a dedicated WLAN. Remote Management is done via BEM and Client VPN Tunnel.

Results: The organization can allow access to road warriors and remote offices with concurrent client VPN tunnels. Additionally, if the organization reaches the base-configuration BCM450 maximum of 100 users, the customer can expand that capacity by adding the Capacity Expansion Card (CEC). Depending on the number of users at the branch utilizing the network, a customer can enhance survivability by incorporating a BCM50 at the branch site.





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