



## Product Brief

### Communication Server 1000E

*The foundation of your unified communications experience*

Nortel Communication Server 1000E is a full-featured IP-distributed telephony communications system that delivers the benefits of network convergence and collaborative communications, providing the foundation for a unified communications environment.

The Communication Server 1000E is a highly-scalable communications platform that can evolve and grow with your business needs. Designed with the experience of Nortel's carrier-grade telephony heritage, it incorporates comprehensive resilience and security capabilities — ensuring the protection of your network, its traffic and your users. Primarily a software-based solution configured with Nortel's latest Unified Communications Management tool suite, the Communication Server 1000E consists of the following three key elements:

- The **Communication Server 1000E Call Server** provides reliable call and connection management service. It controls the system software and is capable of supporting up to 22,500 clients per server, as well as enabling geographically redundant configurations to ensure business continuity.
- The **IP Signaling and Network Routing Servers** perform important IP call control services such as registration of IP terminals and IP endpoints, IP address translation and bandwidth control. They enable the

streamlining of the network dialing plan and simplify the scalability and management of Communication Server 1000 networks.

- **Enterprise Media Gateways** support a complete range of analog and digital line and trunk interfaces across LAN or WAN infrastructures.

Supporting both Standard Availability (SA) and High Availability (HA) options, the Communication Server 1000E comes in multiple deployment configurations. These can include co-resident call and signaling server applications, TDM-only options for SA configurations, or integrated hardware to run call server and IP Signaling and Network Routing applications. Alternatively, you can choose commercial off the shelf (COTS) servers for running the IP Signaling and Network Routing applications with full support of all features and capabilities, including multiple redundancy configurations.



**Communication Server 1000E**

The Communication Server 1000E supports a broad portfolio of business-critical applications including unified messaging, web-based contact center applications, SIP-based multimedia services, integration with Microsoft Office Communications Server 2007 and over 750 world-class business telephony features designed to keep your enterprise competitive.

The Nortel Communication Server 1000E delivers the capabilities, feature richness and evolution flexibility enterprises need to lay the foundation for a reliable, secure unified communications environment.



## Communication Server 1000M technical specifications

Call Server				
Call Server Capacity	22,500 IP users			
Operating system	VxWorks V5.5.19, Red Hat Linux 5.1 for Co-Resident system			
CPU	CPPM with Intel Pentium M 738			
Memory	2GB DDR RAM			
Mass storage media	40 GB Fixed Media Disk			
Busy Hour Call Completions*	CPP IV 750,000, CPPM 950,000 * BHCC ratings are nominal only; actual capacity is dependent on site configuration and application features.			
Maximum number of IP phones	22,500 IP / 11,250 SIP			
Maximum number of digital phones	5,000			
Maximum number of analog phones	5,000			
Call Control APIs supported	TAPI, SIP TR-87			
Software features	Over 750 features including: Six Party Conference (62 Party Conference with Integrated Conference Bridge), Attendant Recall, Automatic Busy Redial, Call Duration Display Timer, Call Forward (nine types), Call Join, Call Park, Call Transfer, Call Waiting, Calling Line Identification, Calling Party Name Display, Charge Account Codes, Controlled Class of Service, DID Route Control, Flash, Hold, Hunting (six types), IP Call Recording, Malicious Call Trace, NAT Traversal, Network Virtual Office Login, Override Position Busy, Personal Directory, Redial List and Callers List, Remote Message Waiting, Ring Again, Trunk Route Optimization - Call Modification, Mobile extension, SIP Hospitality, Dynamic Call Redirect, Bandwidth Management, Active Call Fail-Over, Alternate Call Routing, PVQM, Automatic QoS.			
Signaling Server				
	CPPM	DELL R300	IBM x3350	
Hardware  Software (limits per signaling server)	CPU	Intel Pentium M 738	Intel Quad Core CPU 2.5GHz	Intel Core 2 Quad CPU 2.66GHz
	Memory	2 GB DDR Dram	4GB DDR RAM	4GB DDR RAM
	Mass Storage Media	40GB Fixed Media Disk	250GB GB HDU	250 GB HDU
	Operating System	Linux RedHat V5.1	Linux RedHat V5.1	Linux RedHat V5.1
	IP Sets	5,000	5,000	5,000
	H323 Virtual Trunks	1,200	1,200	1,200
	SIP Virtual Trunks	1,800	1,800	1,800
	Personal Directory, Recall List, Call List	22,500	22,500	22,500
	H323 call per hour	40,000	80,000	80,000
	SIP calls per hour	40,000	80,000	80,000
	NRS calls per hour	100,000	200,000	300,000
	Endpoints per NRS	5,000	5,000	5,000
	Routing entries per NRS	20,000	20,000	20,000
	SIP line gateway / SIP Clients	1,800	1,800	1,800
Trunking				
Supported Trunks	<ul style="list-style-type: none"> <li>IP: IP Virtual Trunks using IP Peer Networking over H.323 or SIP</li> <li>Digital: DTI, ISDN-PRI, ISDN-BRI</li> <li>Analog: Loop and Ground Start CO, FX, WATS, two or four wire E&amp;M, four wire DX, DID, TIE, RAN Paging</li> </ul>			
Network Signaling Protocols	H.323v4, MCDN, SIP, LDAP, QSig, QSS, in band and DPNSS			
Phones and Clients				
IP Phones and Clients	<ul style="list-style-type: none"> <li>IP Phone 1100 Series, IP Phone 1200 Series, IP Phone 2000 Series</li> <li>IP Phone 1535</li> <li>IP Audio Conference Phone 2033</li> <li>IP Softphone 3456, IP Softphone 2050 for Windows PC and IP Softphone 2050 for Windows Mobile</li> <li>WLAN Handset 2200 Series, WLAN Handset Series 6100</li> <li>IP Phone/Client Accessories: Expansion Module for IP Phone 1100 Series (18-button); Expansion Module for IP Phone 2000 Series (24-button); Expansion Modules for IP Phone 1200 Series (12/18Key); Enhanced USB Headset Adapter (desktop) and Mobile USB Headset Adapter for IP Softphone 2050</li> </ul>			
IP Phone Powering Options	802.3af Power over Ethernet, Power over LAN Hub and local AC adapter			
Digital Phones	M3900 Series, DECT Handset 4000 series			
Attendant Services compatibility	M2250 Attendant Console; PC Console Interface Unit (PCCIU) (The PCCIU supports PC-based Attendant software from various third-parties)			
Applications				
IP Remote Services	<ul style="list-style-type: none"> <li>Survivable Remote Gateway 50: Supports 5-80 survivable IP users</li> <li>Survivable Remote Gateway 200/400: Supports 5-90 survivable IP users</li> <li>Enterprise Media Gateway 1000B: Supports up to 400 survivable IP users in addition to Digital and Analog users</li> <li>Survivable Media Gateway: Supports up to 22,500 IP users</li> <li>Remote Gateway 9150: Supports up to 32 survivable Digital Telephones</li> <li>Remote Gateway 9115: Supports one survivable Digital Telephone</li> </ul>			
Unified Messaging	<ul style="list-style-type: none"> <li>CallPilot 202i IPE: 32 channel/32 MPU capacity, in-skin server</li> <li>CallPilot 600r: 96 channel/96 MPU capacity, rack mount server</li> <li>CallPilot 1005r: 192 channel/288 MPU capacity, rack mount server, available redundancy with automatic failover</li> <li>Unified Messaging 2000: A carrier-grade unified messaging application designed to meet the needs of large enterprise customers (25,000 - &gt;100,000 users)</li> <li>Microsoft Exchange 2007 Unified Messaging</li> </ul>			
Contact Center	<ul style="list-style-type: none"> <li>Contact Center - Express: Can be configured for up to 300 agents with up to 100 actively logged on. Busy-hour capacity is 5,000 CPH (configuration dependent). Single server solution, Windows 2003 Enterprise Edition, nodal only.</li> <li>Contact Center 7.0: Single CS 1000: 3 applications, each configurable up to 10,000 agents with up to 3,350 actively logged on (configuration dependent). Busy-hour capacity: 66,000 calls per hour per application (configuration dependent). Architecture: Attached Server, Windows 2003 Standard or Enterprise Edition. Networked CS 1000s: 30 applications configurable to 300,000 agents with up to 100,000 actively logged on (configuration dependent).</li> </ul>			
Interactive Voice Response	<ul style="list-style-type: none"> <li>Media Processing Server 500: Scalable up to eight T1/E1 spans (192/240 ports) in a single system. Multiple systems can be networked together for additional capacity.</li> <li>Media Processing Server 1000: A single MPS 1000 system starts at 4 digital spans and grows to 384 spans. 96 - 9,216 T1 channels or 120 - 11,520 E1 channels. 120 - 11,520 VoIP channels. Mixed T1/VoIP or E1/VoIP configuration. An extremely compact solution, the MPS 1000 requires approximately 1/8 the floor space of a similarly configured VPS/is system. A system supporting up to 1,536 T1 or 1,920 E1 channels can be deployed in a single cabinet.</li> </ul>			

<b>Conferencing</b>	<ul style="list-style-type: none"> <li>Nortel Multimedia Conferencing: A standalone SIP-based reservation-less audio/video conferencing solution for the Communication Server 1000 and also interoperable with Microsoft OCS. Operates on Nortel or customer supplied COTS hardware. Single conference capacity to 300 participants, single server capacity to 800 ports and cluster capacity to 5,600 ports. Audio conference recording supported.</li> </ul>
<b>Multimedia</b>	<ul style="list-style-type: none"> <li>The Multimedia Communication Server (MCS) 5100 transforms the way users communicate by providing multimedia and collaborative applications that enhance communications, making users more productive and enabling the virtual enterprise. It will support 50 to 20,000 users and is available in redundant or non-redundant configurations. The core system supports IP Telephony, call logs (in/out), directories, click to call, instant messaging, rich dynamic presence, advanced call and IM screening and routing, video telephony, file transfer, whiteboarding, web push and web co-browsing. Supports multiple media application servers (MAS) for optional applications, including Ad hoc and Meet Me Conferencing, Video Conferencing, web collaboration (application sharing), IM Chat, recorded announcements and music on hold.</li> <li>The Nortel Converged Office solution for Communication Server 1000 integrates Nortel business-grade telephony with Microsoft Office Communications Server 2007 desktop collaboration and communication systems in an open-SIP, standards-based environment. This robust, enterprise-class architecture provides a winning solution that goes beyond the complexity of competitive middleware offerings.</li> </ul>
<b>IP Telephony applications</b>	<ul style="list-style-type: none"> <li>The Application Gateway 2000 delivers practical, converged voice and data applications on Nortel IP phones that enable organizations to benefit more fully from IP Telephony. The pre-packaged, easy-to-learn, easy-to-use Voice Office applications help increase productivity and enhance organizational communications. Voice Office includes Express Directory, Zone Paging and Broadcast Alerts. The Guest Services Application package allows graphically-based custom 9-button display and promotional advertisements on screens of the IP Phone 2007 in guest rooms. Access Services also enables custom development and delivery of content to the IP Phone 2007.</li> <li>The Application Gateway 2000 supports up to 500 IP Phones. Up to 4 gateways can be networked, increasing capacity to 2,000 IP Phones on a single Communication Server 1000. One Application Gateway 2000 can also support multiple Communication Server 1000 systems.</li> </ul>
<b>Integrated applications</b>	<ul style="list-style-type: none"> <li>Integrated Conference Bridge: Capacity per card – up to ten simultaneous three-party conference calls, a conference with up to 32 participants or any combination thereof. 24- and 32-port configurations and the dual card 42-, 50- and 62-port configurations supported. Ten languages supported. Supports conference scheduling through Microsoft Outlook. Conferences can be scheduled or ad hoc (reservationless).</li> <li>Integrated Recorded Announcement: Small (five channel), Medium (six channel) and Large (ten Channel) configurations available supporting up to 20, 36 or 40 concurrent calls per card. With the RAN Broadcast software option, the number of concurrent calls equals 136, 152 and 242 per card, respectively. Eight minutes of voice or music memory standard; expandable up to five hours. Netscape Communicator 3.0 or later and Microsoft Internet Explorer 3.0 or later are supported.</li> <li>Integrated Call Director: Extensive find me/follow me capabilities for one number dialing, Remote dial access. Eight port/50 user expandable to 100 users, 16 port/100 user expandable to 150 users, 24 port/150 user expandable to 200 users and 32 port/200 user expandable to 300 users are the configurations available. Seventeen languages supported. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.</li> <li>Hospitality Voice Services: Two-, four- and eight-port configurations available. Two-port configuration supports up to 200 rooms; four-port up to 500 rooms; eight-port up to 1000 rooms. Maximum of one IVS card per system. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.</li> <li>Integrated Call Assistant: 5- to 32-port configurations available. Up to 32 ports supported on CS 1000 Release 4.0 or later. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.</li> <li>Flash Card Option: Maximum of 16 voice greetings and menus, eight call screening tables, 1,000 database name capacity, 14 predefined menus. American English supported.</li> <li>Hard Drive Option: Maximum of 32 voice greetings and menus, 32 call screening tables, 10,000 database name capacity, 22 predefined menus, 3,000 personal verification recordings. Eight languages supported.</li> </ul>
<b>Wireless and Mobility</b>	<ul style="list-style-type: none"> <li><b>Hardware:</b> <ul style="list-style-type: none"> <li>Wireless LAN Handset 2200 Series, WLAN Handset 6100 Series</li> <li>WLAN IP Telephony Manager 2245</li> <li>WLAN Application Gateway 2246: Optional SVP WLAN Infrastructure</li> <li>Media Card (or software upgraded IP Line card) and Signaling Server (same requirements as for IP Phone 2004)</li> <li>128 users per IP line card; up to 5,000 IP users per Signaling Server</li> </ul> </li> <li><b>Software:</b> Minimum release of CS 1000 software supported is 4.0</li> <li><b>Hardware:</b> <ul style="list-style-type: none"> <li>DECT Handset 4000 Series</li> <li>DMC8 and DMC8-E cards, 4600, 4610 and 4610E Base Stations</li> </ul> </li> <li><b>Software:</b> All CS1000 Releases supported</li> <li><b>Hardware:</b> <ul style="list-style-type: none"> <li>SIP DECT Handset 4000 Series</li> <li>4710 and 4710E DECT Access Points</li> </ul> </li> <li><b>Software:</b> Minimum release of CS 1000 software supported is 5.5</li> <li><b>Mobile Communication 3100:</b> Extends Communication Server 1000 telephony features to mobile smart phones. Two user-side deployment options: an MC 3100 Client that supports a range of popular smartphones (cellular and Wi-Fi) including RIM/BlackBerry, Nokia/Symbian and Microsoft Windows Mobile platforms, and a 'clientless' MC 3100 WebUI that can be accessed by any browser-equipped mobile device (phone or PC) including Apple iPhone and Palm Pre.</li> </ul>
<b>Management</b>	<ul style="list-style-type: none"> <li>Nortel Unified Communications Management Solution (UCM) can support up to 1,000 elements in a Communication Server 1000 security domain. Supported elements include CS 1000 Element Manager (one per CS 1000), NRS Manager and Subscriber Manager 2.0 (optional) and are accessible using Internet Explorer web browser (Release 6.0 or above). Web Services API (SOAP over HTTP) also available from the UCM management framework. Subscriber Manager 2.0 is deployed as a plug-in in a single scalable management application for configuration and provisioning of subscriber services (i.e., CS 1000 phones). It provides provisioning workflow and navigation by subscribers rather than by boxes. Subscriber Manager 2.0 leverages templates within CS 1000 Element Manager Release 6.0 for account (i.e., phone) provisioning. Subscriber Manager currently supports 200,000 subscribers and 350,000 accounts. Required component for managing the CS 1000 Release 6.0 Unicode Name Directory feature.</li> <li>Communication Server 1000 Telephony Manager 4.0: Supported with Windows 2000/2003 Server, Windows XP Professional and Windows 2000/2003 professional and Vista clients; Web management support with MS Internet Explorer 6.x and later; HPOpenView and Nortel ENMS integration; supports up to 128,000 sets; up to 2.5 million call records per costing configuration; alarm queue can hold up to 1,360 traps (3.7 hours worth of alarms). LDAP integration with Microsoft Exchange Server 2000, 2003 and 2007, Microsoft Active Directory for Windows 2000 and 2003, and Sun Java System Directory Server.</li> </ul>

## System capabilities

<b>Standards and protocols supported</b>	802.1d, 802.1p, 801.1q, 802.3, 802.3af, 802.11a/b/g, DCL, DHCP, DiffServ, DNS, FAX, FAX Group 3/4, G.711, G.726, G.728, G.729, G.729a, H. 225, H.245, H.323v4, IP Precedence, LDAP, SNMP, NAT, NTP, RSVP, RTP, RTCP, SIP, SSH, T.120, T.37, TCP/IP, Q.931, UDP/IP, VPIM, W RED and the following RFCs:2401, 2402, 2406, 2408, 2409, 2412, 2617, 2833, 2976, 3261, 3262, 3263, 3264, 3265, 3311, 3323, 3325, 3326 and 3515 with MCS 5100 Multimedia Communication Server, 3602, 3686, 3711.
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<b>Mechanical standards</b>	Call Servers and Media Gateways (including Expansion, PRI and MG 1010) comply with Bellcore GR-63-CORE. Signaling Server complies with Mil Std 810E Method 516.
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## System redundancy and survivability options

Signaling Server	<ul style="list-style-type: none"> <li>Unistim TPS - Load balanced with active failover</li> <li>Network Redirect - Primary, Secondary, Fail-safe Automatic Failover</li> <li>SIP Proxy - Primary, Alternate - Active/Active Failover</li> <li>SIP and H.323 Gateways - Automatic Trunk Failover</li> </ul>
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<b>Call Server</b>	Optionally Redundant
• Call Processor(s)	Yes
• Geographic Redundancy	Yes
• Campus Redundancy	Yes

<b>Media Gateways</b>	Survivable Call Server
• Survivable Media Gateway	Dual Homing
• MG 1000E	Dual Homing
• MG 1000E PRI	Survivable Call Server
• MG 1000B (Branch)	Survivable Call Server with redundant power and cooling
• MG 1010	

Environmental		
<b>Operating environment</b>	COTS Signaling Server: DELL R300 Operating ambient temperature 50° to 95° F (10° to 35° C), operating altitude to 10,000 ft (3,050m), operating relative humidity 20% to 80% [non-condensing - tw max 85° F (29°C)]	
	IBM x3350 Operating temperature 50° to 95° F (10° to 35° C) up to 3000ft (914m); operating temperature 50° to 90° F (10° to 32° C) up to 7000ft (2,133m); operating relative humidity 20% to 90% (non-condensing)	
	Call Server and Media Gateway, Media Gateway Expansion and PRI Ambient temperature: Recommended: 15° to 30° C (59° to 86° F) - Absolute 0° to 45° C (32 to 113° F) - relative humidity (%) without condensation: Recommended: 20% to 55% - Absolute: 10% to 95%	
	MG 1010 Ambient temperature: Recommended: 0° to 45° C (32° to 113° F) for a minimum of 2 hours. The system shall operate in an ambient temperature of 40° C with a relative humidity of 95% (non-condensing) for a minimum of 3 days.	
<b>Input voltage</b>	COTS Signaling Server: - AC: 110-240V, 50/60 Hz, auto-sensing - DC: N/A	
	Call Server: - AC: 110-240V, 50/60 Hz - DC: N/A	
	Media Gateway: - (MG 1000 and Expansion) AC: 110-240V, 50/60 Hz DC: -48V - (MG 1000E PRI) AC: 110-240V, 50/60 Hz DC: N/A - (MG 1010) AC: 110-240V, 50/60 Hz DC: N/A	
<b>Power consumption</b>	COTS Signaling Server: DELL R300 - Watts: 400 - Heat Output: Maximum 1365 BTU/hr	
	IBM x3350 - Maximum Watts: 400 - Heat output: Minimum 396 Btu/hr (120 watts), Maximum: 1365 Btu/hr (400 watts)	
	<b>Call Server:</b> - Watts: 300 - Heat (BTU/hr): 1024	
	<b>Media Gateway:</b> MG 1000 and Expansion: - Watts: 300 - Heat (BTU/hr): 1024 MG 1000E PRI - Watts: 80 - Heat (BTU/hr): 342 MG 1010 - Watts: 630 maximum - Heat (BTU/hr): 2150 maximum	
<b>Dimensions and weights</b>	COTS Signaling Server: DELL R300 - 19" rack mount - Width 42.62 cm (16.78 in) - Height (1U) 4.32 cm (1.70 in) - Depth 66.04 cm (26 in) - Weight (maximum) 13.45 kg (29.7 lb)	IBM x3350 - 19" rack mount - Width: 44.0 cm (17.3 in) - Height: (1U) - 4.3 cm (1.7 in) - Depth: 71.2 cm (28 in) - Maximum weight: 15.6 kg (34.5 lb)
	Call Server: - Width: 17.4 in. (442 mm) - Depth: 15.5 in. (392 mm) - Height: 5.2 in. (132 mm) - 19 Rack Mounting: 3U - Weight: 29 lb. (13.2 kg)	MG 1000E PRI: - Width: 17.5 in. (445 mm) - Depth: 11.8 in. (300 mm) - Height: 3.5 in. (88 mm) - 19 Rack Mounting: 2U - Weight: 24 lb. (10.9 kg.)
	Media Gateway: - MG 1000 and Expansion - Width: 17.2 in. (437 mm) - Depth: 12.8 in. (325 mm) - Height: 8.4 in. (213 mm) - 19 Rack Mounting: 5U - Weight: 30 lb. (13.6 kg.)	MG1010 - Width: 17.5 in. (445 mm) - Depth: 21 in. (533 mm) - Height: 15.75 in. (400 mm) - 19 Rack Mounting: 9U - Weight: 55 lb. (24.9 kg.)

For more information, visit Nortel on the Web at [www.nortel.com](http://www.nortel.com). For the latest Nortel news, visit [www.nortel.com/news](http://www.nortel.com/news).

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**BUSINESS MADE SIMPLE**