NORTEL

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, the Communication Sever 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 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.

The Communication Server 1000E supports a broad portfolio of business-critical applications including unified

Communication Server 1000E

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 1000E technical specifications

Call Server

Call server capacity	22,500 IP users
Operating System	VxWorks V5.5.19
CPU	CPPIV Intel Pentium Banias & CPPM with Intel Pentium M 738
Memory	512 MB DDR Ram
Mass storage media	1 GB Fixed Media Disk
Busy Hour Call Completions*	CPP IV 800,000, 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
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: Ad Hoc Conferencing (Scheduled Conferencing 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.

Signaling Server

	Signaling Server	CPPM	HP DL 320-G4	IBM x306M
Hardware	**CPU**	Intel Pentium M 738	Intel Pentium 4 3.6 Ghz	Intel Pentium 4 3.6 Ghz
	Memory	1 GB DDR Dram	2GB DDR RAM	2GB DDR RAM
	Mass Storage Media	40GB Fixed Media Disk	80 GB HDU	80 GB HDU
	Operating System	VxWorks V5.5.19	Linux MCP 9.0 or VxWorks V5.5.19	Linux MCP 9.0 or VxWorks V5.5.19
Software (limits per signalling server)	**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	1,800	1,800	1,800
	H323 call per hour	1,800	1,800	1,800
	SIP calls per hour	27,000	27,000	27,000
	NRS calls per hour	100,000	100,000	100,000
	SIP Proxy Server calls per hour	n/a	n/a	n/a
	Endpoints per NRS	5,000	5,000	5,000
	Routing entries per NRS	20,000	20,000	20,000

Trunking

Supported trunks	• IP:IP Virtual Trunks using IP Peer Networking over H.323 or SIP • Digital: DTI, ISDN-PRI, ISDN-BRI • Analog: Loop and Ground Start CO, FX, WATS, two or four wire E&M, four wire DX, DID, TIE, RAN Paging
Network signaling protocols	H.323v4, MCDN, SIP, LDAP, QSig, QSS, in band and DPNSS

Phones & Clients

IP phones and clients	• IP Phone 1100 Series, IP Phone 1200 Series, IP Phone 2000 Series • IP Audio Conference Phone 2033 • IP Softphone 2050 for Windows PC and IP Softphone 2050 for Windows Mobile • WLAN Handset 2200 Series, WLAN Handset Series 6100 • 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
IP phone powering options	802.3af Power over Ethernet, Power over LAN Hub and local AC adapter
Digital phones	M3900 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	• Survivable Remote Gateway 50: Supports 5 to 80 survivable IP users • Survivable Remote Gateway 200/400: Supports 5 to 90 survivable IP users • Enterprise Media Gateway 1000B: Supports up to 400 survivable IP users in addition to digital and analog users • Remote Gateway 9150: Supports up to 32 survivable digital telephones • Remote Gateway 9115: Supports one survivable digital telephone
Unified Messaging	• CallPilot 600ri: 96 channel, rack mount server • CallPilot 1005r: 288 MPU/192 channel capacity, rack mount server, available redundancy with automatic failover • Unified Messaging 2000 — A carrier-grade unified messaging application designed to meet the needs of large enterprise customers • Microsoft Exchange 2007 Unified Messaging
Call Center	• Contact Center — Express: Can be configured for up to 300 agents with up to 175 actively logged on (subject to capacity analysis). Busy-hour capacity is 5,000 CPH (configuration dependent). • Contact Center 6.0 — Single Communication Server 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 Communication Server 1000s: 30 applications configurable to 300,000 agents with up to 100,000 actively logged on (configuration dependent).
Interactive Voice Response	• 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. • Media Processing Server 1000: A single MPS 1000 system starts at 4 digital spans and grows to 384 spans. 96 – 9216 T1 channels or 120 — 11520 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 15,36 T1 or 1,920 E1 channels can be deployed in a single cabinet.

Multimedia	• 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 a redundant or non-redundant configuration. 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.
	• 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
IP Telephony applications	• The Application Gateway 1000/2000 delivers practical, converged voice and data applications on Nortel IP phones that enable organizations to benefit more fully from IP telephony. The prepackaged, easy-to-learn, easy-to-use Voice Office applications help increase productivity and enhance organizational communications. Voice Office includes Express Directory, Visual Voicemail, Zone Paging and Broadcast Alerts. The Guest Services Application package allows graphically based custom 9-button display and promotional advertisments on screens of the IP Phone 2007 in guest rooms.
	• The Application Gateway 1000: Supports up to 500 IP Phones.
	• The Application Gateway 2000: Supports up to 1,000 IP Phones, up to 4 Application Gateway 2000s can be networked, increasing the number of IP Phones supported to 4,000 IP Phones on a single Communication Server 1000.
Integrated Applications	• Integrated Conference Bridge: Capacity per card — 500 users, 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. Netscape Communicator 4.01 or later browser and Microsoft Internet Explorer 4.5 or later are supported. Supports conference scheduling through Microsoft Outlook. Conferences can be scheduled or adhoc (reservationless).
	• 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 RAN Broadcast software option, 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.
	• 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.
	• 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 1,000 rooms. Maximum of one IVS card per system. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.
	• Integrated Call Assistant: 5 to 32 port configurations available. Up to 32 ports supported on X11 RLS 22 or later. Netscape Communicator 4.01 or later and Microsoft Internet Explorer 4.5 or later are supported.
	• 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.
	• 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.
Wireless and Mobility	• Hardware: Wireless LAN Handset 2200 Series, WLAN Handset 6100 Series, DECT Handset 4000 Series
	• WLAN IP Telephony Manager 2245
	• WLAN Application Gateway 2246: Optional SVP WLAN Infrastructure
	• Media Card (or software upgraded IP Line card) and Signaling Server (Same requirements as for IP Phone 2004)
	• 128 users per IP line card; up to 5,000 IP users per Signaling Server
	• Software: Minimum release of Communication Server 1000 software supported is 4.0
	• Mobile Communication 3100: Extends Communication Server 1000 telephony features to mobile smart phones including RIM/BlackBerry, Nokia/Symbian and Microsoft Windows Mobile platforms
Management	• CS 1000 Telephony Manager 3.1 SU2 — Supported with Windows 2000/2003 Server, Windows XP Professional and Windows 2000/2003 professional clients; Web management support with MS Internet Explorer 6.x and later; HP OpenView 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 and 2003, Microsoft Active Directory for Windows 2000 and 2003, and SunONE Java System Directory Server.
	• CS 1000 Subscriber Manager 1.0 — A single scalable management toolset for configuration and provisioning of subscriber services (phones, mailboxes, conferencing, etc.) providing management provisioning workflow and navigation by subscribers rather than by "boxes".

System capabilities

Standards and protocols supported	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.
Mechanical standards	Call Servers and Media Gateways (including Expansion and PRI) comply with Bellcore GR-63-CORE. Signaling Server complies with Mil Std 810E Method 516.

System redundancy and survivability options

Signaling Server	• Unistim TPS — Load balanced with active failover
	• Network Redirect — Primary, Secondary, Failsafe Automatic Failover
	• SIP Proxy — Primary, Alternate — Active/Active Failover
	• SIP and H.323 Gateways — Automatic Trunk Failover
Call Server • Call processor(s) • Geographic redundancy • Campus redundancy	 Optionally redundant Yes Yes
Media Gateways • MG 1000E and MG 1000E PRI • MG 1000B (Branch)	 Survivable Call Server Survivable

Environmental	
Operating environment	**COTS Signaling Server** **HP DL 320-G4** Operating ambient temperature 50° to 95° F (10° to 35° C), temperature derating: 1.8° F per 1000 ft to 10,000 ft (1° C per 300 m to 3000 m), relative humidity 10% to 90% (non-condensing), maximum wet bulb temperature 82° F (28°C) **IBM x306M** Ambient temperature: – Server on: 10° to 35ºC (50.0° to 95.0°F); altitude: 0 to 914 m (2998.7 ft) – Server off: -40° to 60°C (-104° to 140°F); Humidity: – Server on: 8% to 80% – Server off: 8% to 80% **Call Server and Media Gateway, Expansion and PRI** Ambient temperature: Recommended: 15° to 30° Celsius (59° to 86° Fahrenheit) – Absolute 0° to 45° Celsius (32° to 113° Fahrenheit) – Relative Humidity (%) without condensation: Recommended: 20%-55% – Absolute: 10%-95%

Input voltage	**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

Power consumption	**COTS Signaling Server**
	HP DL 320-G4
	– Watts: 450
	– Heat output: Maximum 1710 BTU/hr
	
	IBM x306M
	– Watts: 350
	– Heat output: Typical: 682 Btu/hr (200 watts), Maximum: 1024 Btu/hr (300 watts)
	
	External Call Server
	– Watts: 300
	– Heat (BTU/hr): 1024
	
	Media Gateway
	– MG 1000 and Expansion
	  – Watts: 300
	  – Heat (BTU/hr): 1024
	– MG 1000E PRI
	  – Watts: 80
	  – Heat (BTU/hr): 342

Dimensions and weights	**COTS Signaling Server** **HP DL 320-G4** – 19" rack mount - Width 42.62 cm (16.78 in) – Height (1U) 4.32 cm (1.70 in) – Depth 60.96 cm (24 in) – Weight (maximum) 12.27 kg (27 lb) **IBM x306M** – 19" rack mount - Width: 44.0 cm (17.32 in) – Height: (1U) - 4.3 cm (1.75 in) – Depth: 55.9 cm (22 in) – Maximum weight: 12.7 kg (28 lb) **External 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) **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.) **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.)

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