



Portfolio Brief

## Nortel Networks

# Contivity Secure IP Services Gateways

### The need for Secure IP Services

**The rise of the Internet and IP-based applications provides enterprises with a unique opportunity to realize cost savings in their corporate communications. But the Internet was not originally designed with security in mind. Enterprises with mission-critical Internet applications must secure the data they transmit, as well as protect their internal networks from outside intrusion. Legacy routers—the traditional means of Internet connection—do not easily scale to meet these enterprise security needs without expensive add-ons and performance overhead. Contivity Secure IP Services Gateways are architected to deliver security required by enterprise IP networks with the ability to scale to address a complete range of high-performance IP services.**

The Contivity Secure IP Services Gateways are a next-generation family of products delivering security and IP services in a single integrated platform. Designed for the enterprise edge—the intersection of an enterprise’s private and public IP networks—the Contivity family is optimized to leverage the cost advantages of the Internet while providing secure communications across the public IP infrastructure. With a comprehensive set of software-based IP services, Contivity allows enterprises to easily deploy needed services today with the flexibility to add new ones in the future—all without costly hardware upgrades. Service providers similarly can deliver new revenue-generating IP and security services without “truck rolls” or disruption to existing customer-based or carrier infrastructure.



## What is Secure Routing Technology (SRT)?

*SRT is a software framework that underlies all Contivity IP services. Its design embeds security within all Contivity operational components providing the following benefits:*

**Secure Routing**—SRT enables dynamic routing over secure IPsec tunnels. Legacy routers—as well as many VPN/firewall devices—often require separate encrypted tunnels for each IP address pair or only allow static routes over tunnels forcing manual configuration of reachable IP subnet addresses. Conforming to the IPsec standard, Contivity can map a “virtual IP interface” to the IPsec tunnel making it appear simply as another routing path to RIP or OSPF. Contivity’s dynamic routing approach both avoids additional state processing and packet overhead (as much as 24 bytes per packet) when transmitting IP traffic through the tunnel.

**Secure Access**—All access to and through Contivity, whether for tunneled or non-tunneled connections, can be secured. Users, groups, and remote sites each have a unique filtering profile. Profiles are stored in an LDAP database to enable common policy provisioning within a single device or across multiple Contivity devices. Authentication is supported via a wide variety of techniques, including RADIUS, digital certificates, smart card and token card technology.

**Secure Policies**—SRT is policy-aware, allowing each user, group, or branch office to be provisioned with a unique security profile. This profile remains with the individual regardless of whether he logs in from his PC at home across the public Internet or connects locally on the enterprise Ethernet within the corporate office. Furthermore, authentication and access rights are applied in the same manner whether running over tunneled or non-tunneled connections.

**Secure Management**—Contivity is designed without back doors that might compromise the device or the management interface. Configuration via a secure encrypted tunnel is the only mode supported on the Contivity Internet (or public) interface, with extensive Denial of Service (DOS) protection built into this interface. Contivity also logs all security/authentication transactions and events which can be stored on Contivity’s local hard drive or stored off-device depending on the security practices of the enterprise.

A single hardware device provides IP routing, Virtual Private Networking (VPN), stateful firewall, encryption, authentication, policy services, QoS, and bandwidth management services in a highly integrated fashion. With its comprehensive IP services, a single Contivity can address what normally takes multiple purpose-built IP and security devices to solve. Further, a flexible software licensing system allows enterprises to turn up IP services as they are needed. For example, Contivity can be installed initially as an IP access router, then VPN or firewall services can be added later via a simple license key.

Built on Nortel Networks Secure Routing Technology (SRT) framework, Contivity is designed with security inherent to its operation. SRT integrates the major functional components of Contivity—such as management, access, routing, and policies—weaving a consistent security structure across these services. This provides scalability and high performance even when running multiple IP services in the same device. SRT also enables key features, such as dynamic routing (RIP/OSPF) over secure IPsec tunnels, common user security policies across VPN, firewall and routing services, and the ability to turn up new IP services on demand without impacting overall performance.

As a highly scalable family of devices, Contivity Secure IP Services Gateways offer a complete IP Services portfolio, from low-end Contivity 1010 to high-end Contivity 5000, meeting specific enterprise network requirements. This enables Contivity to address the smallest branch site or largest headquarters, and every environment in between. With a flexible licensing scheme, Contivity can be purchased and installed as an IP access router, IP VPN gateway, or stateful firewall device depending on enterprise need and budget. Its range of LAN/WAN interfaces makes it an easy fit into existing enterprise networks.

## Security built into the design

Virtual Private Networking (VPN) and security are hallmarks of the Contivity product line. Contivity devices are designed with security in mind—both in the secure transmission of data, as well as in the inherent security of the device and its management. For example, by default, Contivity denies all access on the public (or “secure routing”) interface, except via a secure management tunnel. Extensive Denial of Service (DOS) protection is also provided on this interface. This limits exposure to attacks from the public Internet even before Contivity has been configured for IP services operation. Also, there are no “back doors” on Contivity to circumvent device login. This security is built in, regardless of whether Contivity is installed as a basic IP access router or as a dedicated VPN switch or firewall.

## Network evolution— not revolution

Since it is standards-based, Contivity interoperates with existing routing, authentication, directory, and security services. This means Contivity can bridge the transition during the introduction of new IP services into the network. Contivity can be initially installed behind an existing IP access device (router, DSL modem, etc.) without disruption to the network. Or, an enterprise deploying Contivity as a VPN gateway can later add firewall services and/or transition Contivity to the primary Internet access device for that site.

## Features

### *Best in class Virtual Private Networking (VPN)*

As a market leader in IP Virtual Private Networking (IP VPN), Contivity has been delivering secure end-to-end IP VPNs for years. IP VPN capabilities are standard in every Contivity unit, with all base configurations shipping with a minimum of five VPN tunnels.

## Technical specifications—features and capabilities

### Contivity Gateways – models 600, 1010, 1050, 1100, 1700, 1740, 2700, and 5000

<b>Routing and network addressing</b>	<ul style="list-style-type: none"><li>• RIPv1, v2, Open Shortest Path First (OSPF), Virtual Router Redundancy Protocol (VRRP)</li><li>• PPP over Ethernet (PPPoE), DHCP Client and Server, Domain Name Services (DNS) with VPN, DNS Proxy</li></ul>
<b>VPN tunneling protocols</b>	<ul style="list-style-type: none"><li>• IPSec, including authentication header (AH), encapsulating security protocol (ESP), and Internet key exchange (IKE)</li><li>• Point-to-point tunneling protocol (PPTP), including compression and encryption</li><li>• Layer 2 Tunneling Protocol (L2TP), including L2TP/IPsec</li><li>• L2F</li><li>• Minimum 5 VPN tunnels included in all base configurations; includes support for management control tunnel</li></ul>
<b>Encryption</b>	<ul style="list-style-type: none"><li>• IPSec-certified by the TruSecure (International Computer Security Association (ICSA)</li><li>• DES, 3DES, AES, RC4</li><li>• MD5 and SHA-1 authentication</li><li>• 3DES uses 3 independent 56-bit keys; 168-bit key length (effective strength of 128 bits)</li></ul>
<b>WAN protocols and services</b>	<ul style="list-style-type: none"><li>• Point-to-Point Protocol (PPP)</li><li>• Frame Relay</li><li>• Dial back-up via integral V.90 modem, ISDN, or through management/console port with external modem/ISDN terminal adapter</li></ul>
<b>Bandwidth management</b>	<ul style="list-style-type: none"><li>• Group and user-level configurable minimum bandwidth settings</li><li>• Priority levels using random early detection (RED)</li><li>• Four admission control levels; four forwarding priority levels</li><li>• Eight Differentiated Services (DiffServ) queues; code point marking; quality of service (QoS)</li><li>• Resource Reservation Protocol (RSVP)</li></ul>
<b>Authentication services</b>	<ul style="list-style-type: none"><li>• User name and password and NT Domains Login</li><li>• Internal or external lightweight directory access protocol (LDAP)</li><li>• Remote authentication dial-in user services (RADIUS)</li><li>• Hard and soft token support (SecureID and AXENT)</li><li>• X.509 Digital Certificates and Smart Cards (support for all major vendors and MS-CAPI)</li></ul>
<b>Data compression</b>	<ul style="list-style-type: none"><li>• Lemple-Ziv Standard (LZS) compression (Hifn)</li></ul>
<b>Accounting</b>	<ul style="list-style-type: none"><li>• Internal and external RADIUS accounting</li><li>• Event, system, security, and configuration accounting</li><li>• Automatic archiving to external system</li></ul>
<b>Management</b>	<ul style="list-style-type: none"><li>• Contivity Configuration Manager software provides multi-box configuration for up to 2,500 Contivity devices</li><li>• Nortel Networks Command Line Interface (NNCLI)</li><li>• Full Web browser-based HTML configuration</li><li>• Configuration wizard for simple plug-and-play installation</li><li>• SNMP monitoring/alerts</li><li>• Four levels of administrator access; role-based management to separate service provider and end-user</li></ul>
<b>Stateful Firewall</b>	<ul style="list-style-type: none"><li>• Multi-layered stateful packet inspection at wire speed supporting over 100 network application protocols, including TCP, UDP, FTP, HTTP, H.323, RealAudio, Java, and Active X</li><li>• Defense against major "hacker" attacks, including DOS, SYN flood, Smurf, Ping, Spoofing, Fraggle, and ICMP unreachable</li><li>• Proxy authentication, extensive NAT support</li><li>• End-user firewall authentication</li><li>• Extensive and customizable logging options</li><li>• Unlimited number of firewall users and policies for either tunneled and/or clear-text traffic</li></ul>
<b>Contivity VPN Client</b>	<ul style="list-style-type: none"><li>• Microsoft Windows 95, 98, 2000, ME, NT, and XP based client (free/unlimited)</li><li>• IBM-AIX, SUN-Solaris, HP-UX, Linux, Macintosh (via software license)</li><li>• Palm and Windows CE wireless devices also supported via third-party (MovianVPN) license</li></ul>

## Technical specifications—branch/home office models



	Contivity 1010/1050	Contivity 1100	Contivity 600
	Up to 30 tunnels	Up to 30 tunnels	Up to 50 tunnels
<b>Components</b>	<ul style="list-style-type: none"> <li>Memory: 128 MB RAM; 32 MB Flash</li> <li>LAN/WAN interfaces:                             <ul style="list-style-type: none"> <li><i>Contivity 1010</i> <ul style="list-style-type: none"> <li>- 2 10/100Base-T Ethernet ports (RJ-45)</li> <li>- Management/console port (DB-9)</li> </ul> </li> <li><i>Contivity 1050</i> <ul style="list-style-type: none"> <li>- 1 10/100 Base-T Ethernet (RJ-45)</li> <li>- 4-port 10/100 Ethernet switch (RJ-45)</li> <li>- Management/console port (DB-9)</li> </ul> </li> </ul> </li> <li>Software:                             <ul style="list-style-type: none"> <li><i>Standard</i> <ul style="list-style-type: none"> <li>- Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)</li> <li>- Contivity VPN Client software for MS-Windows with unlimited distribution license</li> <li>- CD and on-line HTML documentation</li> </ul> </li> <li><i>Optional licenses</i> <ul style="list-style-type: none"> <li>- Contivity VPN upgrade to 30 VPN tunnels</li> <li>- Contivity Stateful Firewall</li> <li>- Contivity Advanced Routing (OSPF, VRRP, bandwidth management)</li> <li>- Contivity Multi-OS VPN Client for MAC and UNIX</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Memory: 128 MB RAM; 32 MB Flash</li> <li>Two PCI expansion slots</li> <li>LAN/WAN interfaces:                             <ul style="list-style-type: none"> <li><i>Standard</i> <ul style="list-style-type: none"> <li>- 1 10/100 Base-T Ethernet (RJ-45)</li> <li>- 4-port 10/100 Ethernet switch (RJ-45)</li> <li>- Management/console port (DB-9)</li> </ul> </li> <li><i>Optional</i> <ul style="list-style-type: none"> <li>- Additional 10/100Base-T Ethernet</li> <li>- Single-port V.35/X.21</li> <li>- T1 with integrated CSU/DSU</li> <li>- V.90 dial modem</li> <li>- ISDN BRI (S/T and U interfaces)</li> </ul> </li> </ul> </li> <li>Software:                             <ul style="list-style-type: none"> <li><i>Standard</i> <ul style="list-style-type: none"> <li>- Contivity VPN O/S software with 5 VPN tunnels and IP routing (RIPv2)</li> <li>- Contivity VPN Client software for MS-Windows with unlimited distribution license</li> <li>- CD and on-line HTML documentation</li> </ul> </li> <li><i>Optional licenses</i> <ul style="list-style-type: none"> <li>- Contivity VPN Upgrade to 30 VPN tunnels</li> <li>- Contivity Stateful Firewall</li> <li>- Contivity Advanced Routing (OSPF, VRRP, bandwidth management)</li> <li>- Contivity Multi-OS VPN Client for MAC and UNIX</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Memory: 128 MB</li> <li>One PCI expansion slot</li> <li>LAN/WAN interfaces:                             <ul style="list-style-type: none"> <li><i>Standard</i> <ul style="list-style-type: none"> <li>- 2 10/100Base-T Ethernet ports</li> <li>- Management/console port (DB-9)</li> </ul> </li> <li><i>Optional</i> <ul style="list-style-type: none"> <li>- Additional 10/100Base-T Ethernet</li> <li>- Single-port V.35/X.21</li> <li>- T1 with integrated CSU/DSU</li> <li>- ISDN BRI (S/T and U interfaces)</li> <li>- V.90 modem</li> </ul> </li> </ul> </li> <li>Software:                             <ul style="list-style-type: none"> <li><i>Standard</i> <ul style="list-style-type: none"> <li>- Contivity VPN O/S software with 50 VPN tunnels and IP routing (RIPv2)</li> <li>- Contivity VPN Client software for MS-Windows with unlimited distribution license</li> <li>- CD and on-line HTML documentation</li> </ul> </li> <li><i>Optional licenses</i> <ul style="list-style-type: none"> <li>- Contivity Stateful Firewall</li> <li>- Contivity Advanced Routing (OSPF, VRRP, Bandwidth management)</li> <li>- Contivity Multi-OS VPN Client for MAC and UNIX</li> </ul> </li> </ul> </li> </ul>
<b>Physical</b>	Length: 8 in. (20.3 cm) Width: 8.5 in. (21.6 cm) Height: 1.75 in. (4.4 cm) Weight: 2.7 lb (1.2 kg)	Length: 10.5 in. (26.9 cm) Width: 8.5 in. (21.6 cm) Height: 1.75 in. (4.4 cm) Weight: 3.8 lb (1.7 kg)	Length: 11 in. (27.9 cm) Width: 8.5 in. (21.6 cm) Height: 4.0 in. (10.2 cm) Weight: 6.0 lb (2.9 kg)
<b>Operating environment</b>	<ul style="list-style-type: none"> <li>Electrical: 100-240 VAC, 50-60 Hz</li> <li>Temperature: 32-122° F (0-50°C)</li> <li>Relative humidity: 10-90% non-condensing</li> </ul>	<ul style="list-style-type: none"> <li>Electrical: 100-240 VAC, 50-60 Hz</li> <li>Temperature: 32-122° F (0-55° C)</li> <li>Relative humidity: 10-90% non-condensing</li> </ul>	<ul style="list-style-type: none"> <li>Electrical: 90-240 VAC, 50-60 Hz</li> <li>Temperature: 32-131° F (0-55° C)</li> <li>Relative humidity: 5-85% noncondensing</li> </ul>

All Contivity Secure IP Services Gateways include the following VPN capabilities:

**Standards-Based Tunneling**—Support for IPsec, L2TP, PPTP, and L2F standard tunneling protocols provides interoperability with a wide range of multi-vendor VPN software and hardware.

**Encryption**—Support for DES, 3DES, and Advanced Encryption Standard (AES) standard provides ultimate end-to-end security for transmitted data.

**Authentication**—Support for RADIUS, LDAP, SecureID, X.509 digital certificates, as well as token and smart cards, offering the broadest range of authentication options in the industry. Enterprises

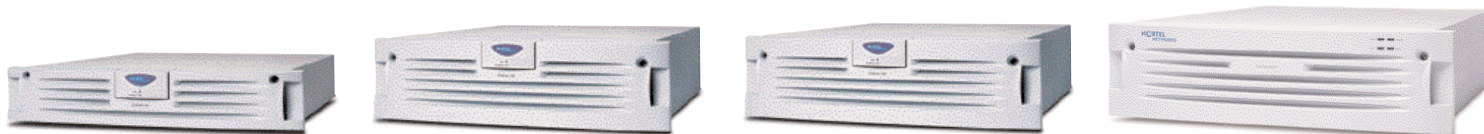
can leverage their existing directory-based services, whether Novell NDS or Microsoft Active Directory, or design their own secure authentication mechanism.

**Comprehensive VPN client support**—Contivity VPN client software for MS Windows systems—including Windows 95, 98, 2000, NT, Millennium, and XP—are provided free of charge with every Contivity unit. Contivity VPN clients are also available for UNIX and Macintosh operating systems. Secure access from wireless and hand-held devices is additionally supported via third-party IPsec clients.

### Stateful Firewall

The Contivity Stateful Firewall combines an easy-to-use interface with rich filtering rule sets to provide multiple lines of defense for an enterprise's private network. With extensive logging, a wide range of application layer gateways (ALGs) and built-in protection against hacker attacks, the Contivity Stateful Firewall delivers wire-speed throughput while protecting the enterprise network and its data from unauthorized access. The Contivity Stateful Firewall can further be combined with VPN termination and network address translation (NAT) services to flexibly apply filtering policies to data sent across either tunneled or non-tunneled interfaces.

## Technical specifications—corporate/enterprise models



### Contivity 1700

#### Up to 500 tunnels

- Memory:  
*Standard*—128 MB  
*Maximum*—256 MB
- 850 MHz processor
- One PCI expansion slot
- LAN/WAN interfaces:  
*Standard*
  - 2 10/100 Base-T Ethernet ports
  - Management/console port (DB-9)*Optional*
  - Additional 10/100 Base-T Ethernet
  - Single-port V.35/X.21
  - T1 with integrated CSU/DSU
  - ISDN BRI (S/T and U interfaces)
  - V.90 modem
  - High Speed Serial Interface (HSSI)
- Encryption accelerator card (option)
- Software:  
*VPN Bundle (max. tunnels)*
  - Contivity VPN O/S with 500 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN client for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Secure Router Bundle*
  - Contivity VPN O/S with 5 VPN tunnels and RIPv2 routing
  - Contivity VPN client for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Optional licenses*
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
  - Contivity VPN Upgrade to 500 VPN tunnels (for Secure Router Bundle)
  - Contivity Multi-OS VPN Client for MAC and UNIX

Length: 21 in. (53.3 cm)  
Width: 17.25 in. (43.8 cm)  
Height: 3.5 in. (8.9 cm)  
Weight: 10.0 lb (4.5 kg)

- Electrical: 90-264 VAC, 2.0 @ 90 VAC, 47-63 Hz
- Temperature: 32-104°F (0-40°C)
- Relative humidity: 10-90% noncondensing

### Contivity 1740

#### Up to 500 tunnels

- Memory:  
*Standard*—128 MB  
*Maximum*—256 MB
- 850 MHz processor
- Four PCI expansion slots (Secure Router bundle)/Three PCI expansion slots (VPN bundle)
- LAN/WAN interfaces:  
*Standard*
  - 2 x 10/100 Mbps Ethernet ports (VPN bundle)/1 x 10/100 Mbps Ethernet port (Secure Router bundle)
  - Management/console port (DB-9)*Optional*
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - Single-port T1 with integrated CSU/DSU
  - High Speed Serial Interface (HSSI)
  - ISDN BRI (S/T interfaces)
  - V.90 modem
- Encryption accelerator card (option)
- Software:  
*VPN Bundle (max. tunnels)*
  - Contivity VPN O/S with 500 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN client software for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Secure Router Bundle*
  - Contivity VPN O/S with 5 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN client software for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Optional licenses*
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX

Length: 21 in. (53.3 cm)  
Width: 17.25 in. (43.8 cm)  
Height: 5.25 in. (13.3 cm)  
Weight: 28.0 lb (12.7 kg)

- Electrical: 90-264 VAC, 2.0 @ 90 VAC, 47-63 Hz
- Temperature: 32-104°F (0-40°C)
- Relative humidity: 10-90% noncondensing

### Contivity 2700

#### Up to 2000 tunnels

- Memory:  
*Standard*—256 MB  
*Maximum*—512 MB
- 1.33 GHz processor
- Three PCI expansion slots
- LAN/WAN interfaces:  
*Standard*
  - 2 10/100Base-T Ethernet ports
  - Management/console port (DB-9)*Optional*
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - T1 with integrated CSU/DSU
  - High Speed Serial Interface (HSSI)
  - ISDN BRI (S/T and U interfaces)
  - V.90 modem
- Encryption accelerator card (option)
- Software:  
*VPN Bundle (max. tunnels)*
  - Contivity VPN O/S with 2000 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN client for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Secure Router Bundle*
  - Contivity VPN O/S with 5 VPN tunnels and RIPv2 routing
  - Contivity VPN client for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Optional licenses*
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, bandwidth management)
  - Contivity VPN Upgrade to 2000 VPN tunnels (for Secure Router Bundle)
  - Contivity Multi-OS VPN Client for MAC and UNIX

Length: 21 in. (53.3 cm)  
Width: 17.25 in. (43.8 cm)  
Height: 5.25 in. (13.3 cm)  
Weight: 28.0 lb (12.7 kg)

- Electrical: 90-264 VAC, 2.0 @ 90 VAC, 47-63 Hz
- Temperature: 32-104°F (0-40°C)
- Relative humidity: 10-90% noncondensing

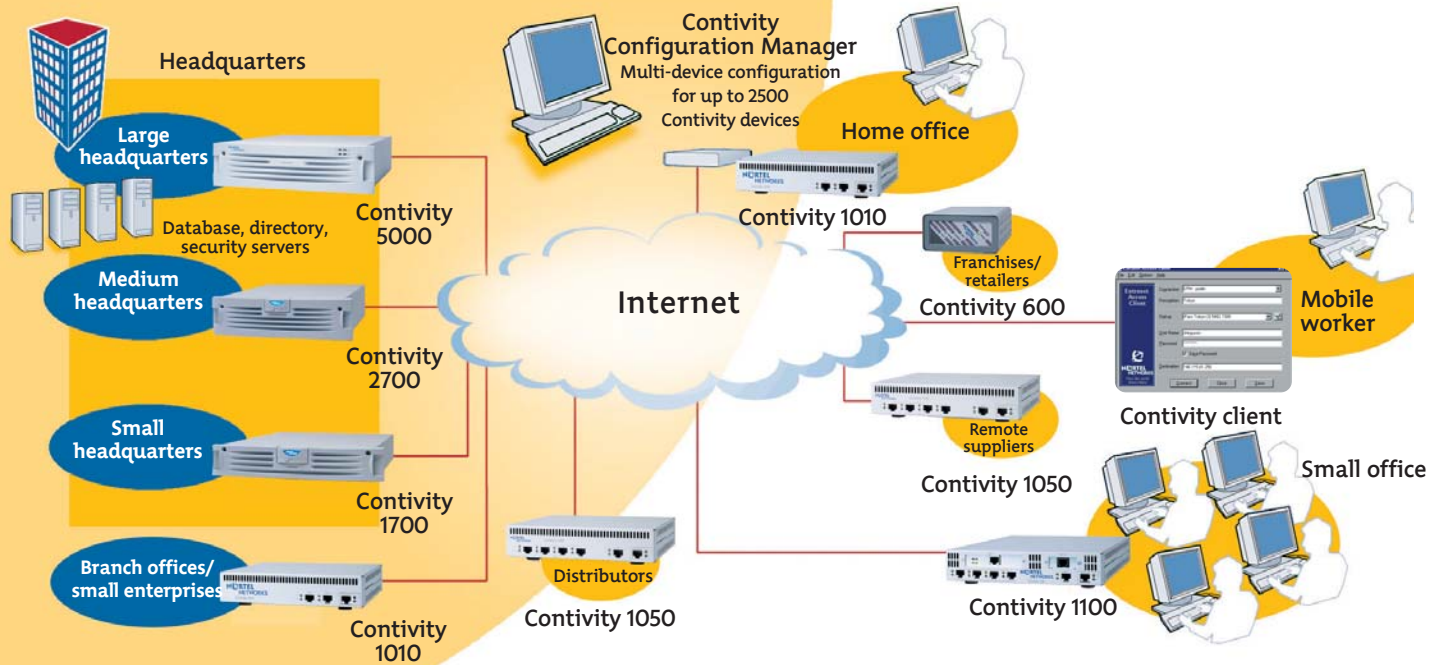
### Contivity 5000

#### Up to 5000 tunnels

- Memory:  
*Standard*—512 MB  
*Maximum*—1.5 Gigabyte
- Dual 2.2 GHz processors
- Five PCI expansion slots
- LAN/WAN interfaces:  
*Standard*
  - 1 x 10/100 Mbps Ethernet port
  - 1 x 10/100/1000 Mbps (GigE) port
  - Encryption accelerator card
  - Management/console port (DB-9)*Optional*
  - Additional 10/100Base-T Ethernet
  - Single-port V.35/X.21
  - T1 with integrated CSU/DSU
  - ISDN BRI (S/T and U interfaces)
  - V.90 modem
  - High Speed Serial Interface (HSSI)
- 2nd Encryption accelerator card (option)
- Dual, redundant, auto-switching power supply system with dual line cords
- Dual, redundant storage system
- Software:  
*Standard*
  - Contivity VPN O/S software with 5000 VPN tunnels and IP routing (RIPv2)
  - Contivity VPN client software for MS-Windows with unlimited distribution license
  - CD and on-line HTML documentation*Optional licenses*
  - Contivity Stateful Firewall
  - Contivity Advanced Routing (OSPF, VRRP, Bandwidth management)
  - Contivity Multi-OS VPN Client for MAC and UNIX

Length: 23.0 in. (58.4 cm)  
Width: 17.25 in. (43.8 cm)  
Height: 5.25 in. (13.3 cm)  
Weight: 43 lb (19.5 kg)

- Electrical: 100-127/200-240 VAC (x2), 6.2/3.1 A, 50-60 Hz
- Temperature: 32-104°F (0-40°C)
- Relative humidity: 10-90% noncondensing



### Secure routing services

Standards-based IP routing services enable Contivity to be integrated into an existing router network, or be deployed on its own to build a highly redundant and flexible secure network. With support for Open Shortest Path First (OSPF), Routing Information Protocol (RIPv1 and v2), and Virtual Route Redundancy Protocol (VRRP), Contivity can dynamically route traffic around failed connections or devices, as well as load balance traffic across parallel paths—whether for tunneled or non-tunneled traffic. Secure Routing Technology (SRT) on Contivity avoids complex encapsulation protocols and associated overhead when forwarding IP traffic through secure IP VPN tunnels.

### Bandwidth management/Quality of Service

Powerful Quality of Service (QoS) features allow Contivity to deliver on the promise of highly optimized IP networks. With advanced services—Differentiated Services (DiffServ), RSVP, and sophisticated queue management—Contivity can ensure

that service levels are met for any mission-critical data. Contivity can prioritize traffic not only by IP traffic type, but also prioritize by users, groups, and VPN tunnels, allowing fine granularity in QoS control. By reserving minimum guaranteed bandwidth, Contivity ensures that an individual user's bandwidth is preserved in a multi-user environment.

### LAN/WAN flexibility

With integrated support for 10/100 Mbps Ethernet, frame relay, PPP, T1 CSU/DSU, HSSI, V.35, X.21 and V.90 modem interfaces, Contivity offers great flexibility in its placement within the enterprise network. It can act as the primary WAN/Internet access device via frame relay, dial-up, or leased line connection, or be connected to an existing WAN or Internet access device via its standard Ethernet interface. Dial back-up allows traffic to be sent over an alternate connection in case the primary WAN or LAN link fails.

### Comprehensive management services

A rich set of integrated management tools makes it easy for enterprises or service providers to configure and monitor Contivity devices.

These include:

**Provisioning**—Contivity Configuration Manager (CCM) allows multi-element provisioning of up to 2,500 Contivity systems across a large network infrastructure. Embedded Web-based and command-line interfaces allow quick configuration of single Contivity devices.

**Remote management options**—allow Contivity to be provisioned from a data center or network operations center (NOC).

**Quick Start utility**—guides the nontechnical user through the initial configuration process, eliminating the need for an on-site installer.

**Fault management**—SNMP, alarm monitor, and a historical fault browser—quickly detect problems.

**Accounting**—a rich set of security and system logging tools lets administrators track all transactions and events.

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Canada

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#### In Asia:

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12 Taikoo Wan Road  
Hong Kong

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

[www.nortelnetworks.com](http://www.nortelnetworks.com)

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