

Business Connectivity via the Internet

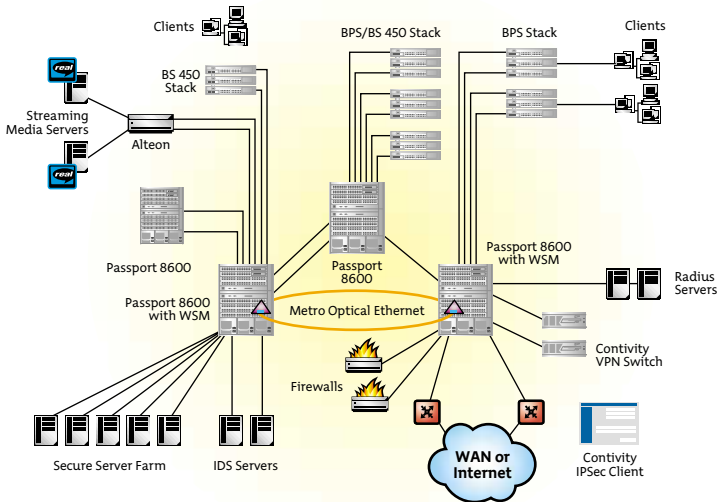
Data Centre Solution (Converged LAN and Server Performance Optimisation)



Customer Needs

- Maximise utilisation of server resources, increasing the number of hits whilst improving the end user experience
- High density, high performance, high resilience connectivity for the server farm and also extending to the metropolitan area beyond the data centre
- Increase end user service level through implementation of Disaster Recovery capabilities

Nortel Networks Solution



Nortel Networks **Passport 8600 Ethernet Switch with WSM (Web Switch Module) and Optical Ethernet (OE)** provide the capacity, scalability and stability required for performing critical functions within an Enterprise data centre.

The Passport 8600 delivers high performance, robust Ethernet switching to connect between servers, internal LANs and external WANs.

Split Multi Link Trunking (SMLT) enables network convergence in less than one second, compared to Spanning Tree which can take up to 40 seconds and Rapid Spanning Tree which can take up to seven seconds for network convergence.

With the optional WSM module installed, the 8600 offers additional server farm and data centre application-focused functions.

- Local server load balancing
- Web cache redirection
- Content-intelligent switching
- Firewall Load Balancing
- VPN Load Balancing
- Global (multi-site) server load balancing
- Bandwidth management
- Streaming Media load balancing
- Intrusion Detection server load balancing
- SSL Acceleration offload

Nortel Networks OE solution enables high speed Ethernet-based connectivity to be established over metropolitan areas. This removes the bandwidth bottleneck which can exist between end users and contents/applications residing within the Data Centre. OE is also an effective way to interconnect between multiple physically diverse data centres to enable redundancy and disaster recovery.

Solution Value Proposition

- **Maximises utilisation of server resources** – the Passport 8600 with WSM provides an integrated solution for both the connectivity (via Ethernet) of servers but also intelligent traffic and load management as well. The WSM is a direct evolution of Alteon Webswitch technology and is a proven solution already used in data centres around the world.
- **High density, high performance, high resilience connectivity** – the Passport 8600 platform has the necessary Ethernet density as well as built in redundancy and network resilience to meet the challenges of data centre operations. Furthermore, the Passport 8600 is also a cornerstone of Nortel Networks' Optical Ethernet solution. Optical Ethernet greatly increases the 'reach' of data and applications hosted by extending the reach of the Data Centre into the metropolitan area at Ethernet bandwidth levels.

For further information contact your local Nortel Networks Representative.

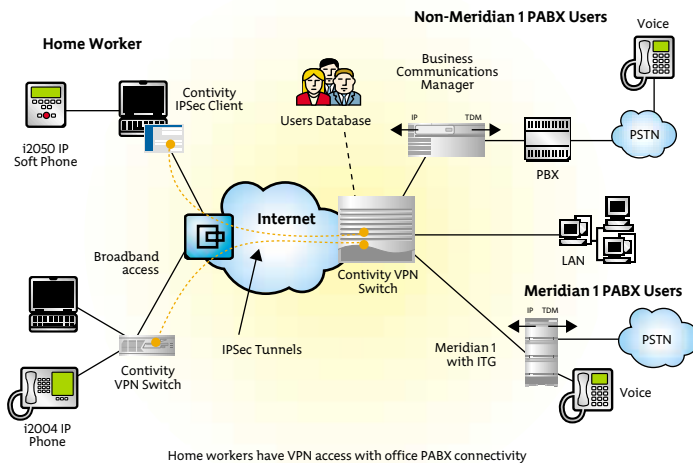
Business Connectivity via the Internet

Secure Remote Connectivity Home Worker Solution

Customer Needs

- Extend coverage of LAN and phone network to home users
- Provide secure high performance access to home users via any IP transport
- Extend PABX dialling plan to remote users
- Provide in-office phone functionality to home users
- Enable home-worker calls to be made on internal network (carrier arbitrage)

Nortel Networks Solution



The Nortel Networks Home Worker solution is built from a range of IP-capable products. Secure access into the corporate LAN is provided by the **Contivity** suite of VPN switches. Contivity integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. Home-side telephony is provided by the

Nortel Networks suite of IP telephony solutions, including the **i2050 Soft Client** (can be used with a USB headset), USB phones that connect into the PC and the **i2004 IP phone**.

In the office, Enterprises can leverage the evolution of their existing **Meridian-1 PABX** solutions by adding a line-side ITG (Internet Telephony Gateway) card to enable connectivity of IP clients to the PABX. For non-Meridian-1 users, a **Business**

Communications Manager IP PABX solution can be added as an interface to control IP handset traffic and to provide the IP-TDM gateway functionality.

For home workers using the i2050 soft client, an IPSec session can be initiated from the home PC, through the Internet to the corporate Contivity. All VoIP traffic from the soft client traverses the secure tunnel into the Enterprise where it exits the terminated IPSec tunnel at the Contivity and progresses forward to either the Meridian-1 ITG or Business Communications Manager. Users can utilise the microphone and speakers of their PC, or plug in a USB headset for improved quality.

Home workers utilising the i2004 IP phone for a more permanent and "telephony-like" solution are challenged by the need to create a secure tunnel. If the PC creating the tunnel has routing functionality and multiple network interfaces, the phone can plug directly into the PC's second Ethernet port. For most situations, a Contivity VPN switch at the home office provides an easier solution. The Contivity switch opens up a branch tunnel between the home office and the office, and secures all traffic between the two sites. Everything that plugs into the Contivity (phone and PC) is therefore encrypted and has IP access to the corporate LAN – effectively creating an Intranet VPN link to the home office.

Solution Value Proposition

- Work becomes an activity not a location
- Seamless usage transparency between office and home
- Bypasses carrier tariffs on voice calls
- Allows use of internal dialling plans for simplicity in dialling
- Gives access to productivity tools such as conference calling, call forward etc.

For further information contact your local Nortel Networks Representative

■ Business Connectivity via the Internet

Secure Remote Connectivity - Intranet IP-VPN (Virtual Private Network) Solution

Customer Needs

- Integrate inter-office communications across an IP infrastructure
- Minimise expense of leased lines and international private line circuits
- Leverage Internet economics in the WAN
- Provide encryption and strong authentication between sites
- Implement a low-cost mesh between sites

Nortel Networks Solution

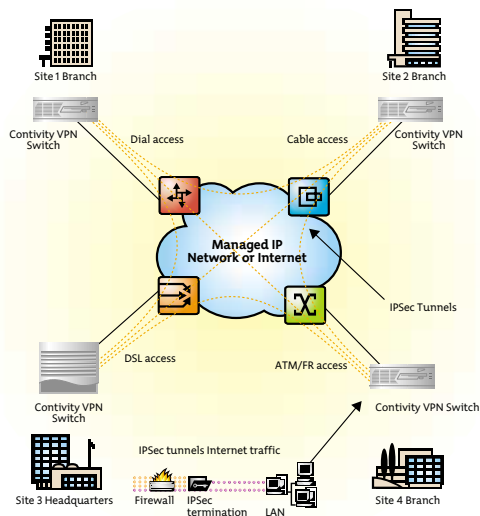


Figure 1: Nortel Networks Intranet IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio

allows the implementation of solutions tailored to fit small, medium and large companies.

- Contivity switches are placed at each branch office
- Connectivity into the managed IP network is via any available transport technology
- Secure IPsec tunnels encrypt and encapsulate traffic between sites

- Firewalls in each Contivity switch protect the site LAN from outside threats
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Secure Routing Technology (SRT) enables dynamic packet re-routing should a fault occur on the Internet, without compromising the secure tunnel.

Solution Value Proposition

- Provides the performance and security of a private network with the bandwidth and cost of a shared network
- Decreases the cost of wide area networking between 30-80%
- Faster activation of new sites
- Ability to extend inter-office network to all sites, regardless of size
- Harnesses ubiquity of the Internet for almost-global connectivity
- Single connection into the IP network for VPN, Internet and IP services
- Delivers confidentiality, integrity, privacy and non-repudiation to all transactions

- Simple to configure, simple to maintain
- Provides a competitive advantage through enabling new business models, allowing the adoption of e-business, improving communication between the workforce, introducing more efficient work practices and increasing profitability
- Foreign sites are a "no-brainer" cost saver
- Replace expensive international circuits
- Centralises key applications and staffing functions
- SRT returns dynamic re-routing to the Internet without compromising security

For further information contact your local Nortel Networks Representative

Business Connectivity via the Internet

Secure Remote Connectivity - Extranet IP-VPN (Virtual Private Network) Solution

Customer Needs

- Establish e-relationships with external business partners, suppliers and dealers
- Controlled access of information between interested parties
- Protection for private, sensitive data
- Leverage Internet economics in the WAN
- Provide encryption and strong authentication between sites

Nortel Networks Solution

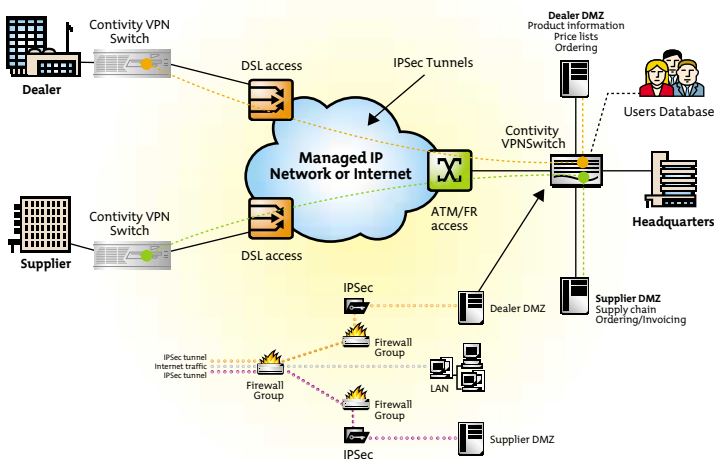


Figure 1: Nortel Networks Extranet IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio allows the implementation of solutions tailored to fit small, medium and large companies.

- Contivity switches are placed at each partner's office
- Connectivity into the managed IP network is via any available transport technology
- Secure IPSec tunnels encrypt and encapsulate traffic between sites
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Group policies on the firewalls control which partners have what access

- Establishes a Demilitarised Zone (DMZ) which allows extranet data to be isolated from LAN data
- Secure Routing Technology (SRT) enables dynamic packet re-routing should a fault occur on the Internet, without compromising the secure tunnel

Solution Value Proposition

- Harnesses improved e-business models and B2B commerce
- Enables on-line interaction between customers and suppliers, opening up access to a segment worth US\$1.3 trillion by 2003
- Increases transactional performance
- Better customer service

- Reduces costs and delays of dealing with suppliers and customers
- Reduces administration complexity, turn-around time and potential for human error
- Better achieves JIT operating principles
- Removes psychic-distance for transactions
- Lessens human dependence of e-partnerships
- SRT returns dynamic re-routing to the Internet without compromising security

For further information contact your local Nortel Networks Representative

Business Connectivity via the Internet

Secure Remote Connectivity - Remote Access IP-VPN (Virtual Private Network) Solution

Customer Needs

- Replace dedicated dial-up access equipment with Internet-based alternative
- Remove PRI circuits and RAS infrastructure
- Integrate replacement solution with existing authentication systems
- Provide global access
- Provide encryption and strong authentication between users and the core sites
- Support Windows, Unix and Macintosh operating systems
- Extend PABX dialling plan to remote users
- Provide in-office phone functionality to home users
- Enable home-worker calls to be made on internal network (carrier arbitrage)

Nortel Networks Solution

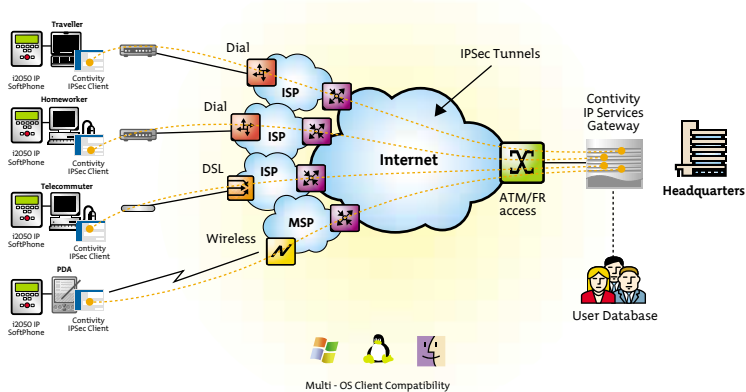


Figure 1: Nortel Networks Remote Access IP-VPN Solution

The Nortel Networks **Contivity VPN Switch** integrates all of the elements needed to build a high performance, scalable and secure VPN – routing, firewall, bandwidth management, encryption, authentication and data integrity – into one single platform for secured tunnelling across the Internet. The range of VPN solutions in the Contivity portfolio allows the implementation of solutions tailored to fit small, medium and large companies.

Telephony is provided by the Nortel Networks i2050 Soft Client (can be used with a USB headset).

- Contivity switches are placed at the core location
- User machines have secure client software installed
- Users connect to local ISP / Internet via whatever mechanisms are available – dial, DSL, cable, wireless or Ethernet

- Secure IPSec tunnels are initiated between the user and the core Contivity
- Contivity authentication tunnel initiation request against local data stores – may be RADIUS from old RAS infrastructure, LDAP etc.
- Secure IPSec tunnels encrypt and encapsulate traffic between the user and the Contivity
- Firewalls in each Contivity switch protect the site LAN from outside threats
- Split-tunneling on the IPSec client protects customer's machine from outside threats while tunnel is up
- Gain anywhere access with minimal access charges
- Reduces ongoing expense of dial access
- Eliminates costly toll-free access numbers
- Eliminates dedicated RAS infrastructure
- Secures access from anywhere where the Internet is
- Allows use of broadband access, increasing productivity
- More effective use of work at home models
- Increases geographic coverage

Solution Value Proposition

- Reduces corporate remote access expenses by 60-80%
- Accommodates an increasing dispersed and mobile workforce, estimated to be 83% of all employees by 2003

For further information contact your local Nortel Networks Representative