

Nortel Networks Alteon Application Switch

Qualified Sales Professional Module

Thank you for joining us today.

This training module focuses on Alteon Switches: What they do and how they provide benefit to our customers.

Today's Agenda

- **Why sell Alteon Application Switches?**
- **An Introduction to Alteon Application Switching**
- **The Competition**
- **Selling Alteon Application Switches**
- **Business Cases**
- **Sales Tools**

This slide highlights the agenda for the day. We will answer your questions about the following subjects and prepare you to sell the benefits of Alteon switches to your customers. We'll look at:

Why you want to sell Alteon Application Switches?

An Introduction to Alteon Application Switching

Competition

Selling Alteon Application Switches

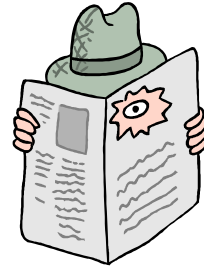
Business Cases

Sales Tools

Why sell Alteon Switches?

They are your secret weapon

- **High growth, high margin market**
 - Market size
 - Design and installation
- **Great Incentive programs**
 - Security (Alteon) Expert Advantage Program
 - Partner Advantage Promotions and SPIFFs
 - Competitive displacement and customer loyalty programs
 - Nortel Networks Lead Sharing
- **Door opener for other products**
 - Penetration strategy
 - Expand footprint from this base



First, we will talk about how you benefit when you sell Alteon Switches. To begin, there is lots of money to be made in this high growth, high margin business. The market size was \$690M in 2003 and it's estimated to grow to over \$1.2B by 2007. As well, an Alteon switch sale can drive high margin professional services business such as design and installation.

Nortel also makes it easy for you with customer loyalty and competitive displacement programs, and other programs, such as the Security (Alteon) Expert Advantage Program, the Partner Advantage Programs and, of course, lucrative SPIFFS. We also offer Nortel Networks Lead Sharing.

Alteon Switches are great products to use as a network penetration sale and generating follow on network sales. They offer interoperability, competitive pricing and a small footprint, which add up to a low amount of customer commitment. From here, it's simple to expand from this footprint to other areas such as PP8600, security, Contivity, etc.

Agenda

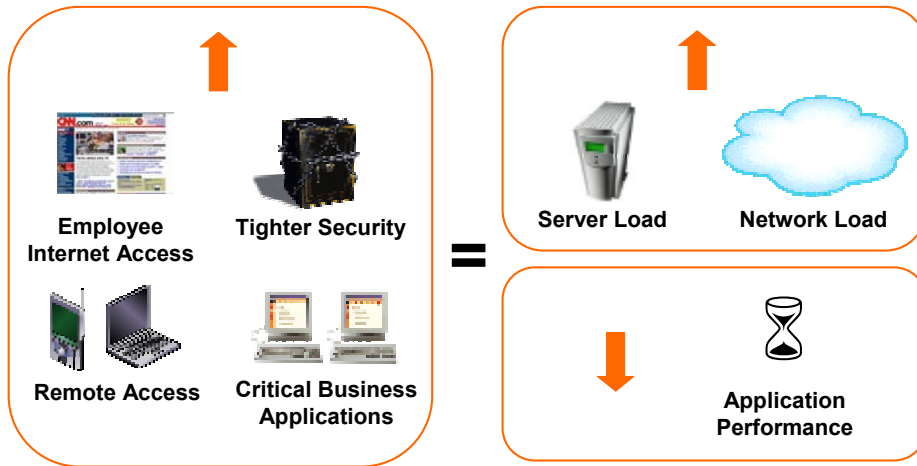
- **Why sell Alteon Application Switches?**
- **An Introduction to Alteon Application Switching**
 - Customer Drivers
 - Switch Close up
 - Marketing the Technology
- **Competition**
- **Selling Alteon Application Switches**
- **Business Cases**
- **Sales Tools**

Now we have answered the first question on the agenda, we will take a look at the Alteon Switch in more detail. Within this agenda item there are three areas I'd like you to consider:

- customer drivers,
- specific details about the switches we have available and
- ways to market the technology.

First we'll consider customer drivers.

Strains on the IT department



What's driving customers to invest in technology. Before I can answer that question I'm going to briefly highlight some of the problems IT managers face.

More and more critical business applications are Web-enabled and being run across networks (intranets, extranets, etc.) to drive efficiency and productivity within enterprises and other large organizations. These applications include ERP (SAP, Oracle), CRM (Siebel, Clarify), finance, HR, inventory management, procurement, customer service and support, eLearning, IP telephony.

In addition, employee Internet access – wireline and wireless – is increasing (for business and non-business reasons), as is the need for security measures to shut down denial of service (DoS) attacks, unwanted intruders, viruses and other security threats.

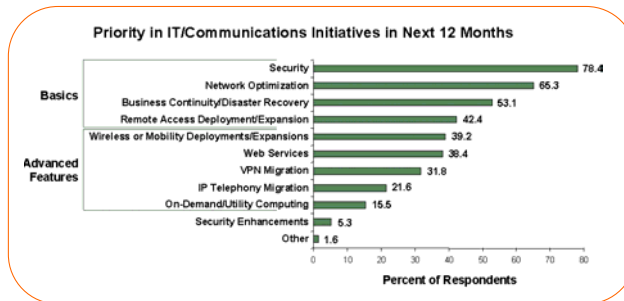
These trends translate to increasing load on servers, increasing traffic on enterprise WANs, resulting in reduced overall application performance. For the IT department, their job is becoming more complex when budget cutting and belt tightening are the norm.

A critical balance between security and performance and cost

What we are seeing

- IT projects must clearly support business requirements
- Internet, intranets and extranets are central to business operations
- Network and data security are essential
- Graceful evolution to future IT requirements is required

Yankee survey results



Yankee Nov. '03

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We have just looked at some of the issues that keep CIOs awake at night. Now let's look a more deeply into what's driving IT spending in today's IT environment.

Nortel has seen that Enterprise IT organizations continue to invest in data center projects in 2003, though tighter budgets do require that any spending is closely linked with business requirements. To support a decentralized workforce, many companies are pursuing increased use of the Internet for business applications. Use of the public Internet for private business applications not only requires investment in servers, bandwidth and storage, but also requires that Enterprises take a careful look at how they are protecting the company's data as it crosses the WAN. Companies also have to look ahead so that they can gracefully and cost effectively upgrade their IT requirements as needed.

A recently published Yankee survey confirms this anecdotal view. The Yankee asked their Enterprise clients about spending plans for various project categories. The results of the survey show that the top five planned IT spending areas are security, network optimization, business continuity, and remote access deployment or expansion, and wireless or mobility deployment or expansion. From the graph, between 39% and 78% of business will be considering spending in these areas.

All of these project areas can benefit from Alteon switches to enhance the performance of the IT infrastructure.

Alteon application switches

Ultra-fast Ethernet switch with integrated application intelligence

- Uses application intelligence and health checking to enable a Dynamic Data Path
- Provides multiple layers of security functionality
- Plugs into existing infrastructure to boost performance, reliability and scalability, extending asset life

Common application switch functions include load balancing, security and bandwidth management

If you aren't familiar with Layer 4-7 switching, I will explain what an application switch does and how it can help with security, storage requirements and managing Web-based applications.

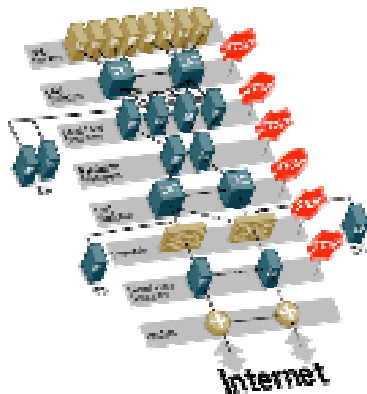
An application switch is an ultra-fast Ethernet switch with integrated application intelligence. It joins sophisticated traffic management and application support within a high-speed switch to optimize networks for application performance.

It enables **Dynamic Data Paths** and **Routes** to manage data traffic using unique attributes found in HTTP headers, Universal Resource Locators (URLs) and cookies. It directs entire HTTP session requests to a specific server (or network device) using information about availability, content attributes, user preferences or geographic location. It then allocates network resources based on sophisticated load-balancing algorithms, content and policies to ensure that requests are efficiently sent to and served by the most appropriate network device.

These sophisticated application switches provide multiple layers of security within a network, so-called multi-layer security. They can be used for security acceleration (via firewall, IDS, VPN load balancing), offloading NAT from firewalls (in addition to load balancing the firewalls), performing SSL encryption and decryption and preventing DoS attacks. They also provide application-level security by protecting applications from abuse, and enabling secure remote access to specific applications (more on this in SSL VPN slides).

Most important, application switches are cost-effective solutions that can be used in many networking or data center environments to boost performance of existing assets (thus extending asset life and deferring capital expenses), increase reliability and ensure efficient plug and play scalability.

Yesterday's Solution



Previous solutions featured:

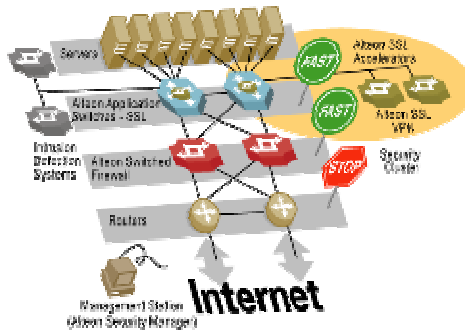
- Multiple devices to accomplish individual tasks
- Complex architecture
- Low performance
- Many single points of failure

Yesterday's solutions were difficult to manage and security was a challenge

Before application switches, yesterday's solution for optimizing network traffic required multiple devices to accomplish individual tasks. Networks contained many disparate inspection nodes. This created networks with a complex architecture, many single points of failure and low performance.

The resulting networks were very difficult to manage. Security was a nightmare, with challenges associated with implementation, maintenance and management.

Today's high-performance network with the Alteon Application Switch



- Integrated applications
- Higher performance
- Improved port density
- Simplified network and security management
- Reduced capital and operating expenses

Specifically designed L4-7 switches brings simplicity to optimizing networks for application performance

In networks today, adding an Alteon Application Switch can collapse the complex networks of the past and increase network performance. The Alteon Application Switch accomplishes this with its increased port density and integrated application processors.

The switch can run integrated applications such as SSL acceleration and SSL VPN. By consolidating multiple applications onto one Alteon Application Switch, we simplify the network infrastructure and management, and reduce overall capex and opex requirements.

The integrated security applications on the application switch provide customers with immediate security solutions. Customers can then add additional security devices as demand and scalability of their networks require.

When additional external devices are added (example, SSL accelerators in the diagram here), they become part of a single security cluster. Once the SSL security policies and configuration are made to the Alteon Application Switch, any new accelerators added to the cluster will automatically be configured as part of the cluster, significantly easing security management issues.

All the applications can then be managed from a single management interface by utilizing the Alteon Security Manager.

Alteon Switching Value Proposition

Maximizing IT investment with:

- Application-optimized networks
- Security with high performance
- Scalability by design
- Fail-safe business continuity



Application Switch
(FE & GE)



PP8600 L2-7 Routing
Switch
(Web Switching
Module)



Link Optimizer



We've discussed some of the specific benefits of the Alteon application switch. Let's look at the big picture, the Alteon Switching value proposition. Simply, it maximizes IT investment.

This value proposition has propelled Alteon switches to the number 1 fixed switch position for five years straight (Dell'Oro, February 2003). The award-winning Alteon portfolio delivers next generation hardware and software to scale the performance and availability of business critical network infrastructures.

Alteon switches enable application-optimized networks by managing application and content-based traffic to improve resource utilization and performance.

High performance security accelerates traditional security applications with powerful multi-layer security features and offers integrated SSL acceleration and SSL VPN applications.

Alteon switches allow scalability. They support mission-critical applications and grow with your business while enabling high availability for today's most demanding networks.

There are multiple models to choose from, enabling any customer to choose one that meets their requirements and maximizes their ROI.

Alteon Switching Customer Benefits

Enterprise Benefits

- Simplified operations
- A secure, reliable network
- Enhanced business productivity
- Optimized access/response for distributed/mobile employees and partners
- Maximizing IT return on investment

Service Provider Benefits

- Improve performance, reliability and scalability of key services and applications
- Security enhancements
- Wireless Application Protocol (WAP) load balancing

Now that we have covered the high level value proposition, let's look at some more of the specific customer benefits of an Alteon Application Switch.


Customers buy these switches to improve application performance on their networks, thus improving productivity, ensuring business continuity, increasing security and scaling capacity gracefully as their networks grow. The payoff is simplifying the network and maximizing IT return on investment. In other words, helping enterprises to get more out of their current networking infrastructure.

I've focused on the Enterprise customer up to this point because Enterprises are the ultimate end users of a service, but it is worthwhile touching on some of the benefits to service providers. Service providers distribute Enterprise services and applications, and Alteon application switching products are very relevant in this market.


Service providers receive the same benefits as Enterprises when using Alteon Application Switches. They also can use Alteon switches to improve the reliability, scalability and performance of services they offer enterprise customers. They experience improvements in areas such as server hosting, LDAP and DNS and streaming (RTSP). They receive enhanced security (Firewall, VPN, IDS) with the prevention of DoS attacks, and rate limiting functions to combat rogue users and applications such as Napster and KaZaA. They can even load balance WAP traffic (wireless service providers), while managing network congestion generators like Peer-to-Peer traffic.

A few of Nortel Networks Alteon customers


Integrators




Service Providers




Finance



Healthcare



Enterprise

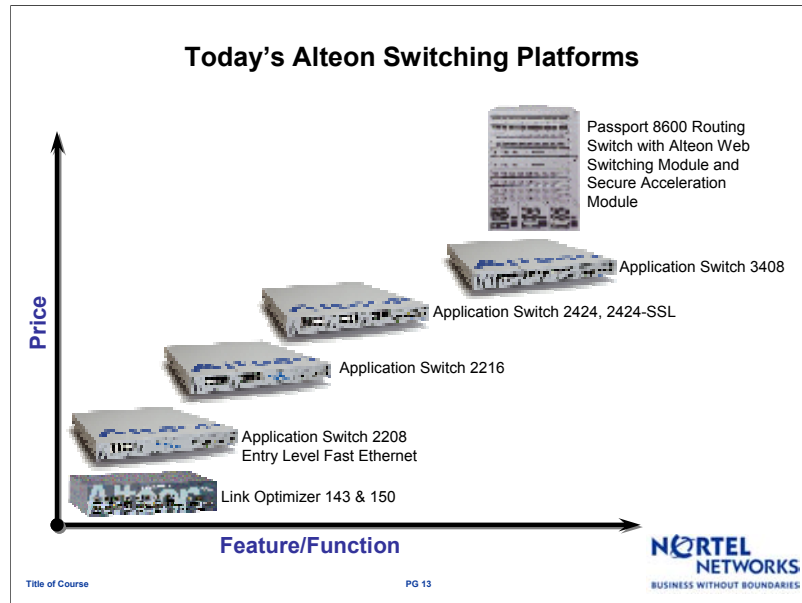


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Before we move on to talk in more detail about the new Alteon Application Switch, I'll show you a sampling of Alteon customers. From IBM to Yahoo, Alteon Switches used by thousands of customers across many different vertical segments such as healthcare, enterprise, finance and service providers.



First we'll start with an overview of the current Alteon family of Switches, which consists of two main groups: Alteon Link Optimizer and Alteon Application Switches. This diagram features all the models with price and performance increasing as you move to the top right of the chart.

Starting at the lower left, the Alteon Link Optimizer Models 143 and 150 are our entry level special function switches. They provide a targeted solution for WAN link load balancing with an integrated perimeter security.

Alteon Application switches are high density, full-featured layer 4-7 switches with optional integrated security application (SSL acceleration and SSL VPN) features. These switches have several configurations, 8 FE/2GE; 16FE,2GE; 24FE/4GE to 12 GE in a one chassis.

The Alteon Web Switching Module for the Passport 8600 is a module that fits into the Passport 8600 to provide full layer 4-7 switching and high performance in an extremely port dense platform (116 GE ports or 340 FE ports with more than 4M concurrent sessions).

The Secure Acceleration Module for the Passport 8600 provides integrated SSL acceleration capability with support for up to 3000 tps per module.

Before talking about the advantages of layer 4-7 switches we'll discuss the Alteon Link Optimizer in more detail.

Alteon Link Optimizer Value Proposition

Optimized WAN links for Business application performance

- Ensures fail-safe business continuity
- Optimizing WAN links for application performance
- Protects applications and networks with multi-layer security
- Scales network capacity efficiently
- Maximizes return on IT investment
 - Utilize existing infrastructure more efficiently
 - Utilize previously idled backup WAN links
 - Transparent to users and ISP providers

The Alteon Link Optimizer is built utilizing technology from the award-winning Alteon Switch family and delivers the performance and availability required for business critical network infrastructures. The Alteon Link Optimizer brings out the best in multi-homed network performance by efficiently load balancing WAN links.

The Alteon Link Optimizer ensures fail-safe business continuity through Constant link monitoring and fail over.

It optimizes WAN links for application performance by:

- Balancing traffic to maximize link utilization and throughput
- Simplifying the operations and deployment of multi-homing
- Removing the need for complicated BGP-based solutions
- Providing full featured load balancing, health checking and bandwidth rate limiting

The link optimizer also protects applications and networks with sophisticated perimeter security while scaling WAN capacity efficiently without downtime.

All these benefits enable customers to maximize the return on IT investment by transparently using their existing infrastructure more efficiently.

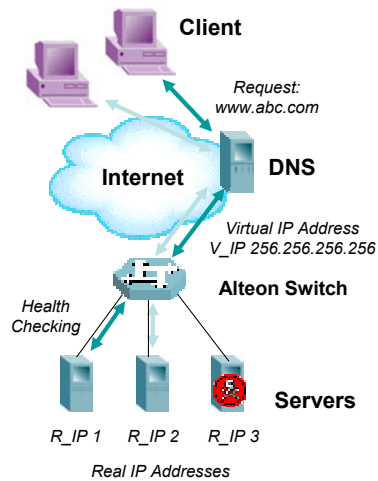
For customers who need more, there is the Alteon Application Switch, with its Layer 4-7 technology.

Alteon Application Switch – Server Load Balancing

Alteon Application Switch intelligently balances incoming requests among a group of servers

Server load balancing benefits

- Scales business applications and services
- Improves server utilization and performance
- Ensures business continuity and increases reliability
- Adds extra level of security



For those that are not familiar with primary applications of a L4-7 switch, let's look at a traditional application that an Alteon Switch might perform.

This slide highlights server load balancing. In this example, the client inputs URL (e.g., www.abc.com). The DNS resolves www.abc.com to the advertised IP address (e.g., 256.256.256.256). The Advertised IP address is a virtual IP (V_IP) address that assigned to the Alteon Switch. The Alteon Switch then translates the V_IP to the selected server's real IP (R_IP) address via network address translation (NAT).

With server load balancing, client requests are sent to the Alteon switch. It connects a number of real servers containing the desired content or applications. The Alteon switch balances the data load among those real servers. In addition, it constantly health checks those real servers and servers that are not performing can be removed from the load balanced rotation.

This allows an Enterprise to efficiently scale server farms with demand requirements and improve overall server utilization and performance, thereby increasing the reliability of business applications and ensuring business continuity. As well, the switches provide an extra layer of security for the operation.

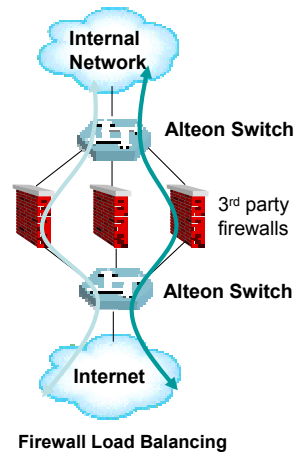
Alteon Switch Application – Security Acceleration

Security Acceleration applications

- Firewall load balancing
- Virtual Private Network (VPN) load balancing
- Intrusion Detection System (IDS) load balancing

Benefits

- Improves business continuity by eliminating single points of failure
- Allows graceful scalability from existing platforms
- Enables high-performance security through multiple active devices operating in parallel



In the same way that Alteon switches can load balance servers, they can also load balance various security devices, including firewalls, VPN devices and intrusion detection system servers. This significantly improves the reliability of the security solution, allows an Enterprise to scale as requirements dictate and boosts performance by allowing multiple active security devices to operate in parallel.

Alteon Switch Applications



Server Load Balancing

Application LB
Global Server LB
Application Health Checks

Network Device Load Balancing

Firewall/VPN/IDS
WAN Links
WAP Gateways

Application Redirection

Web Site
Cache
Web Services
Streaming Media

Advanced Filtering

Layer 2-7 Attributes
VLAN Filtering
Accept, Deny, NAT, Redirect

Content Intelligence

Layer 7 Inspect
Cookie, URL, HTTP Header
User Agent (PDA, Browser)

Just as with security devices, Alteon switches can support other multiple concurrent applications. This slide shows a broad range of those applications.

Whether a customer wants to provide load balancing, health checking across servers, firewalls, VPNs, intrusion detection systems, WAN links, caches, LDAP servers, WAP gateways and others, Alteon switches can help solve application performance, scalability and reliability problems. Application redirection and the integrated SSL acceleration enables secure fault tolerant Web services and highly available and efficient streaming architectures.

With the inherent intelligence of Alteon switches, they can also be used to support advanced filtering and application redirection based on information such as cookies, URLs, HTTP headers, access device or application payload. This allows enterprises and service providers to apply differentiated services, manage traffic based on application, and a whole host of other value-added services.

Alteon Switch Applications



Embedded Security Svcs

DoS Attack Prevention
Application Abuse Protection
SSL Acceleration & VPN



Traffic Management

Bandwidth Mgt.
P2P Application Mgt.
ToS Marking



Persistence Support

Source IP
Cookies
SSL Identifier



Network Services

Network Address Translation
VLAN Tagging
Trunking
Layer 2/3

Sophisticated traffic management and persistence support ensures that high priority transactions, such as ecommerce, maintain their status so customers don't lose one sale. Bandwidth management can be implemented based on information such as cookies, URLs, HTTP headers, access device or application payload.

As discussed before, Alteon switches support multiple layers of security – by enhancing existing security applications such as firewalls or VPNs, providing integrated SSL Acceleration and SSL VPN or preventing advanced *DoS* attacks and application abuse.

Along with all these advanced features, Alteon switches support standard Layer 2/3 features to seamlessly fit into any network.

Alteon Application Switches

Alteon Application Switches provide:

- Simplicity in building application optimized networks
- A hardened special purpose Layer 4-7 application engine
- Layer 4-7 performance and feature flexibility required to optimize networks for the most demanding applications
 - VoIP
 - Web services and database applications
 - Wireless

Use the right tool for the job.

You don't use a ruler to tighten a screw.

Then why use a router or PC to do your Layer 4-7 processing?

We have talked about Nortel's Alteon Switch portfolio and its applications. Now we can jump into a discussion about the flag ship switches. Alteon Application Switches are built from the ground up to provide:

- simplicity when building application optimized networks
- the use of a hardened special purpose Layer 4-7 application engine
- Layer 4-7 performance and feature flexibility not currently available on the market

They also provide the Layer 7 performance required to optimize networks for demanding applications such as latency sensitive VoIP; Web services and database applications with their high speed deep packet inspection; and wireless with its security, bandwidth and latency sensitive considerations.

When deciding on a device to perform Layer 4-7 processing, its success depends on using the right platform for the job. If you choose a low grade platform and you end up with a low grade result. For success, you need to find the right tool for the job.

Alteon Application Switches Flagship Model Highlights

2424



- 24 10/100 BASE-T ports
- 4 SFP-GBIC ports
- Up to 2M concurrent sessions
- 108K+ Layer 4 sessions/sec*
- 51K Layer 7 sessions/sec*
- Small form factor (1U)
- Integration of proven technology (VMA, Alteon OS)

2424-SSL



- Alteon 2424 features +
- Integration of proven market-leading technology (Alteon SSL Accelerator)
- Integrated SSL Acceleration
 - Simple Key and certificate management
 - End-to-end encryption
 - Up to 8,000 concurrent SSL sessions and 1,000 RSA operations/sec (tps) (real world)
- Integrated SSL VPN
 - Multi-application support
 - Client authentication
 - Clientless remote access

3408



- Alteon 2424 features with Gigabit Port Configuration
- Flexible 12 Gigabit port configuration
- 8 10/100/1000 BASE-T
 - 4 optional as SFP-GBIC
- 4 SFP-GBIC ports

***"Real world" testing
with zero session loss**

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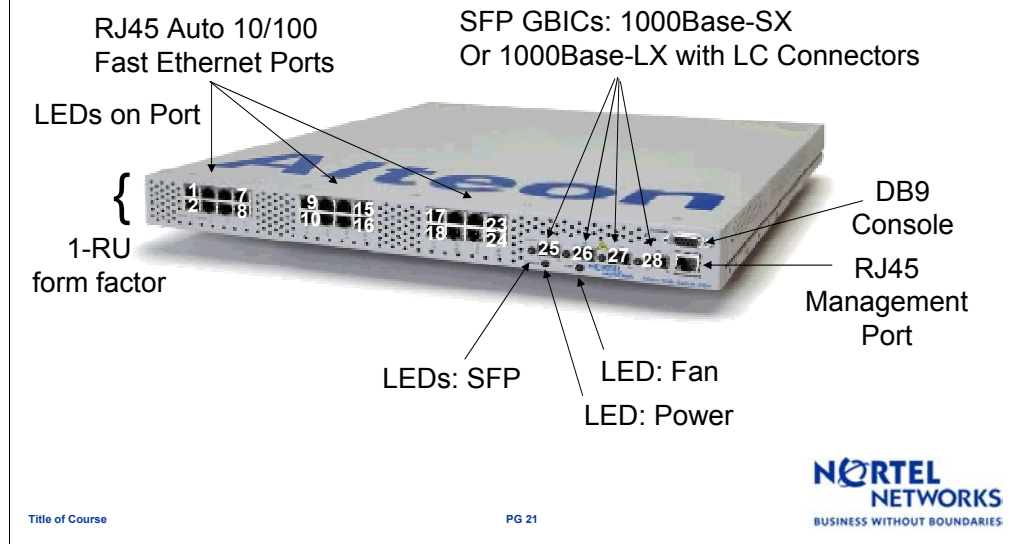
This slide introduces our three top of the line Alteon Application Switches: the Alteon 2424, Alteon 2424-SSL and Alteon 3408

The Alteon Application Switch 2424 and 2424-SSL are identical models, both with 24 Fast Ethernet ports in a 1U platform. The difference is that the 2424-SSL has integrated application processors which perform SSL acceleration and SSL VPN. The Alteon 2424 has 24 10/100 BASE-T ports and 4 SFP-GBIC ports and supports Up to 2M concurrent sessions, 108,000 plus Layer 4 sessions/sec, 51,000 plus Layer 7 sessions/sec (tested using real world scenarios without session loss).

The Alteon 2424-SSL supports up to 1,000 RSA operations/sec (real world testing scenarios) and 16,000 concurrent SSL sessions. Rich features, such as simplified key and certificate management, end-to-end encryption and multi-application SSL VPN support, are included. The Alteon 2424-SSL comes with 300 SSL tps and can be upgraded to 1000 tps. SSL VPN licenses are sold for increasing amounts of concurrent user VPN support.

The Alteon Application Switch 3408 is identical to the Alteon 2424 feature set, but with a different port configuration. It supports 12 Gigabit Ethernet ports in a 1U platform. Four ports are 10/100/1000 BASE-T, four ports are SFP-GBIC, and four ports are user selectable whether they are 10/100/1000 BASE-T or SFP-GBIC.

Alteon Application Switch 2424



Let's take a closer look at these powerful switches. Here is a close-up view of an Alteon 2424 to show the product's configuration.

You can see the small footprint 1-RU form factor and standard Fast Ethernet ports mentioned on the last slide. Also note the LEDs to indicate function.

Alteon Application Switch 2424-SSL – Load balancing and security in one package

Alteon OS 21.0

- ✓ Intelligent traffic management
- ✓ DoS attack protection
- ✓ Peer-to-peer blocking
- ✓ Application-layer filtering
- ✓ Bandwidth management

SSL V4.1

- ✓ Access control/policy enforcement
- ✓ Web portal user interface
- ✓ Application address translation
- ✓ Content parsing/rewriting
- ✓ Application proxying
- ✓ SSL termination/acceleration
- ✓ Private-side encryption



L2-7 switch-based SSL VPN

24 FE Ports for external services

Greater value through
feature integration

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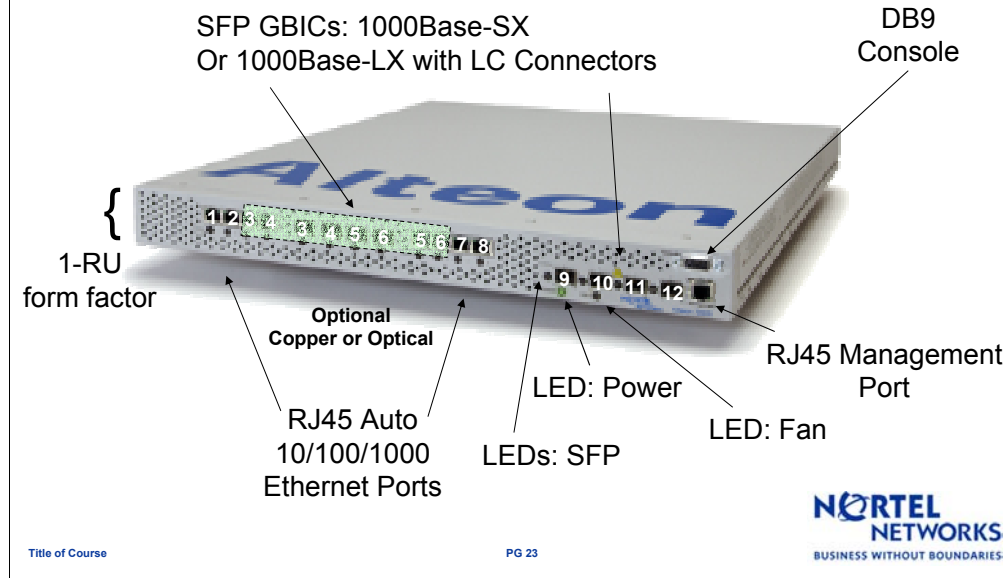
As I mentioned earlier the Alteon Application Switch 2424-SSL features all the benefits of the 2424 model. It also includes integrated SSL acceleration and SSL VPN, to give you the full feature benefits of a market-leading application-layer security gateway and application switch in one box. As this chart shows the 2424-SSL model enables the best in: intelligent traffic management, DoS attack protection, peer-to-peer blocking, application-layer filtering and bandwidth management.

Using the SSL VPN gateway feature and integrated SSL Acceleration enables market-leading secure remote access, access control and policy enforcement, web portal user interface, application address translation, content parsing and rewriting, application proxying, SSL termination/acceleration and private-side encryption. The Layer 2-7 Switch-based SSL VPN features a full switch backplane, four switch processors, dedicated application processors and a dedicated management processor.

With the high port density of the Alteon Application Switch – 24 FE ports for external services – you can also accelerate off-board security applications such as intrusion detection/prevention, firewalls and anti-virus scanning, as well as enhance the performance of application servers through application traffic management and load balancing of remote access gateways and public web servers.

The bottom line is that this product offers huge value via dense feature integration.

Alteon Application Switch 3408



Our other flag ship switch is the Alteon 3408. Here's a closer look at the face plate. You can clearly see the subset of optional dual copper and optical gig ports, ports 3 to 6. The rest of the ports are 10/100/1000 Mbps copper connections with the exception of the four optical GBIC uplinks.

New Alteon Application Switches Entry and Midrange Model Highlights

Alteon 2208



- 8 10/100 BASE-T ports
- 2 SFP-GBIC ports
- Up to 600K concurrent sessions
- 20K Layer 4 sessions/sec*
- 15K Layer 7 sessions/sec*
- Small form factor (1U)
- Integration of proven technology (VMA, Alteon OS)

Alteon 2216



- 16 10/100 BASE-T ports
- 2 SFP-GBIC ports
- Up to 1M concurrent sessions
- 40K Layer 4 sessions/sec*
- 30K Layer 7 sessions/sec*
- Small form factor (1U)
- Integration of proven technology (VMA, Alteon OS)

* "Real world" testing with zero session loss

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To meet the needs and price considerations of our clients we have introduced two new switches. Here we have our new entry and mid-range Alteon Application Switches: the Alteon 2208 and Alteon 2216

The Alteon Application Switch 2208 and 2216 are similar models with the exception of performance and port configuration. They both run the same rich Alteon OS feature set.

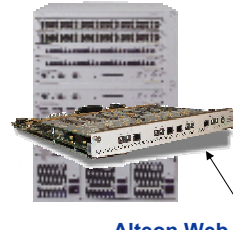
The entry level Alteon 2208 provides eight 10/100 BASE-T ports and two SFP-GBIC ports. The switch can handle up to 600K concurrent sessions within its small form factor (1U). When you look at its load balancing capabilities, it can manage 20,000 Layer 4 sessions per sec and 15,000 Layer 7 sessions per second, based on "real world" testing with zero session loss. The Alteon 2208 also offers integration of proven technology with VMA and Alteon OS.

The Alteon 2216 offers more in terms of performance and port configuration with its 16 10/100 BASE-T ports. This adds up to one million concurrent sessions and 40,000 layer 4 sessions per sec and 30,000 layer 7 sessions per sec, again based on "real world" testing with zero session loss.

Passport 8600 Routing Switch with Alteon Web Switching Module

- A complete Layer 2-7 switching solution
- Featuring the Alteon Web Switching Module for the Passport 8600
- Integrated platform provides a higher level of intelligent networking for LAN/WAN/MAN and data center requirements
- Lower total cost of ownership with Layer 2-7 integration and device consolidation

Passport 8600 L2-7
Intelligent Routing Switch



Alteon Web
Switching Module (WSM)

"It's the Swiss Army Knife of high-performance core Ethernet switching products."
David Passmore, NetReference Inc.

If something more than an application switch is needed, Nortel Networks offers the Passport series of intelligent routing switches. This slide features a quick overview of the Passport 8600 L2-7 Intelligent Routing Switch, Nortel Networks Highest Density L4-7 Switching Solution. Passport 8600 delivers wire-speed intelligent Ethernet switching and routing, with L4-7 applications and services enabled by the Alteon Web Switching Module. A full service Layer 2-7 switch, the Passport 8600 supports MAN and WAN connections, and 10 gigabit Ethernet interfaces, all with five nines reliability and industry-leading content management and QoS.

It is built for today's high-performance enterprise, carrier and internet data center networks, providing lower cost of ownership through L2-7 integration and device consolidation (e.g., L2-3 plus L4-7).

Passport 8661 SSL Acceleration Module



- Adds SSL processing to the Passport 8600 Layer 2-7 Routing Switch
- SSL Acceleration/Server Offload
 - Move costly SSL processing to optimized hardware
 - Free server cycles to run applications
 - Lower cost of SSL processing
- Secure Application Services
 - Perform load balancing and other Layer 4-7 services on encrypted sessions
 - Maintain security to the back-end servers

The Passport 8661 SSL Acceleration module is another option. It provides integrated SSL Acceleration and server offload for the Passport 8600. Each blade enables up to 3,000 SSL transactions per second and 64,000 concurrent sessions with 260 Megabits per second of bulk encryption. Because each Passport 8600 chassis can scale up to an industry-leading 12,000 SSL transactions per second and 256,000 concurrent sessions with 1.04 Gigabits per second of bulk encryption. This translates into great scalability for clients who need to consider future growth.

With SSL Acceleration/Server Offload, you can move Move costly SSL processing to optimized hardware, free server cycles to run applications and lower cost of SSL processing. The platform also offers a secure application services that perform load balancing and other Layer 4-7 services on encrypted sessions. It helps maintain security to the back-end servers.

Alteon Switches Technical Specifications

Alteon Switches	3408	2424	2424-SSL	2216	2208	ALO 143	ALO 150	PP8600 w/WSM
Total Ports	12	28	28	18	10	9	9	NA
10/100 BASE-T	-	24	24	16	8	8	8	NA
10/100/1000 BASE-T	8	-	-	-	-	-	-	NA
SFP-GBIC (Fiber GE)	4	4	4	2	2	1	9	NA
IP Routing Interfaces	256	256	256	256	256	256	256	256
Virtual Server Support	1,024	1,024	1,024	1024	1024	256	256	256
Real Server Support	1,024	1,024	1,024	1024	1024	255	255	1024
Policy Filters	2,048	2,048	2,048	2,048	2,048	224	224	2,048
Concurrent Sessions	2M	2M	2M	1M	600K	336K	336K	>4M
Layer 7 Performance (sessions/second)	51K*	51K*		30K*	15K*	N/A	N/A	>1.5M
Layer 4 Performance (sessions/second)	108K*	108K*		40K*	20K*	24K*	24K*	>2.4M
Integrated SSL Acceleration (tps.)	No	No	Base: 300 Max: 1000	No	No	No	No	SAM Blade
Integrated SSL VPN	No	No	Yes	No	No	No	No	No
Height (inches/RU)	1.75/1	1.75/1	1.75/1	1.75/1	1.75/1	3.5/2	3.5/2	NA

*Using real world scenarios with zero session loss

Title of Course

PG 27



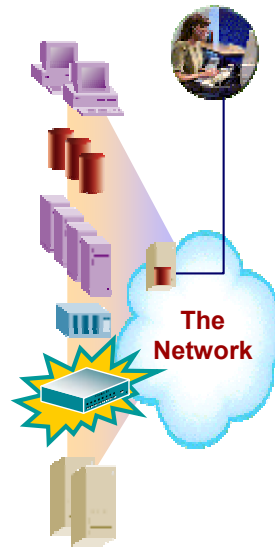
This Technical specification slide gives a good overview comparison of Alteon Switches. I have covered most of this information already and have placed this in the deck for your future reference.

[read slide]

Alteon Switching Network Management

Alteon switching supports many system management options:

- Element Management – Alteon Element Management System (EMS)
 - Off-box Java application that provides an intuitive GUI
 - Integration with HP Open View on Windows and Solaris
 - Optional integration with Optivity
 - Greater configuration flexibility and real time monitoring
- Centralized management – Nortel Networks Optivity Network Management System
- CLI administration
- SNMP administration
- Alteon Security Manager



There are several management options to support Alteon switches. These options include the Alteon Element Management System (EMS), Nortel Networks Optivity Network Management System (ONMS Alteon OIT v2), CLI, SNMP and the Alteon Security Manager.

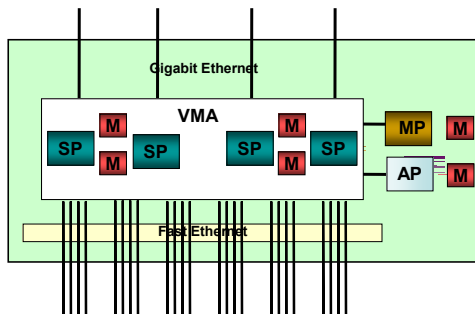
The EMS is a Java-based system that provides an intuitive GUI to manage and configure individual Alteon switches. It integrates HP OpenView on Windows and Solaris or offers optional integration with Optivity. It permits greater configuration flexibility with its filter insert feature and easier interface. The EMS allows real time monitoring to gather statistics and create graphs.

For centralized management needs, Nortel Networks Optivity Network Management System (ONMS Alteon OIT v2) provides fault and performance management support. It can auto discover Nortel Networks switches and offers simplified displays of logical network infrastructure.

Alteon switches all support standard CLI (SSH- and Consol-based) and SNMP administration. CLI support gives the reassurance of familiar CLI across switching families. CLI also provide secure shell, secure copy and console port.

The Alteon Security Manager is also an option for the consolidated management of Alteon switches and Alteon security appliances.

Alteon Application Switch Technology Highlight: Virtual Matrix Architecture



Architecture allows for flexibility in future software feature and application development

- High-performance distributed processing architecture
- Allows rapid application integration within the chassis
 - Compute intensive applications
 - Enables rapid innovation
- Initial applications
 - SSL Acceleration
 - Application Level SSL VPN
- Future application possibilities
 - IDS, Web Services and more
- External appliances for additional capacity
 - Same security cluster with single system image

To begin, the Alteon Application Switch architecture uses proven virtual matrix (VMA) architecture. With VMA, Alteon switches can use distributed processing for maximum performance without losing the benefits of centralized processing. We call it VMA-NG for next generation, because it optimizes the new switch architecture.

Before we move onto the benefits of this architecture, we'll take a look at the diagram. There you see switch processors, the SPs, are used for Layer 2-7 processing, MP are used for health checking, start-up, configurations and other functions, and the application processor, AP, are dedicated to processing integrated applications (SSL in the case of the 2424-SSL). The total memory on the switch is 640 MB, with four chips of 128 MB fast SDRAM.

VMA enables high-performance distributed processing architecture with resource aggregation and flexibility of centralized architecture. All processing and memory resources on the switch are applied to ports handling the traffic. No single processor will be overloaded with all traffic, even if that processor is supporting all the ports with traffic.

Because Alteon Application Switches have so much memory, they offer maximum flexibility in feature and application development moving forward.

The initial application for the integrated application processor is the integration of proven Alteon security solutions, SSL Acceleration and application level SSL VPN. Future application possibilities being investigated are IDS, Web Services (XML, etc.), among others. This architecture also allows for external appliances to be added in a plug-and-play fashion for additional capacity. These new devices would be in the same security cluster and have a single image profile.

Alteon Application Switch Technology Highlight: Dynamic Data Path

Alteon switches dynamically alter the data path by:

- monitoring the health and performance of the entire data path
- simultaneously inspecting and classifying packets
- seamlessly integrating out-of-path services

You can now adapt the network to achieve your needs instead of adjusting business applications to compensate for network limitations

They provide:

- High availability for business continuity
- Increased network efficiency and performance
- The ability to apply different service levels based on attributes

Another unique feature of Alteon switches is the Dynamic Data Path (DDP) technology. In a pure routing environment, a packet's destination is a foregone conclusion.

DDP allows Alteon switches to dynamically alter the data path. They monitor the health and performance of the entire data path while simultaneously inspecting and classifying packets, using information such as TCP port, URLs, HTTP headers and cookies to determine the best path.

DDP allows Alteon switches to change the data path (locally or globally) to:

- send traffic to the healthiest or highest performing device
- seamlessly integrate out-of-path services
- supply different service levels based on attributes such as application, user and user access device.

This provides the benefits of:

- high availability for business continuity (send traffic to the healthiest or highest performing device)
- increased network efficiency and performance
- applying different service levels based on attributes such as application, user and user access device.

DDP allows the network to adapt to achieve business requirements instead of adjusting business applications to compensate for network limitations.

Alteon Application Switch

Technology Highlight: Application- and Multi-Layer Security

- Supports multiple network security applications for acceleration and scalability
 - SSL acceleration
 - Application-layer SSL VPN
 - Firewall load balancing
 - VPN load balancing
 - IDS load balancing
- Provides sophisticated application-layer security features
 - Refined filtering and pattern matching
 - NAT
 - Comprehensive DoS protection and alarms
 - Intelligent peer-to-peer application management
 - Application abuse protection
 - Layer 7 deny filters
 - ACL list
 - Management using SSH
 - Port mirroring for troubleshooting



Application and multi-layer security are built into the Alteon Application Switch. Here is a partial list of the sophisticated Security features offered by Alteon Application Switches. These features increase security infrastructure performance, availability and scalability.

On board the switch supports SSL acceleration/server offload and SSL VPN. You can concurrently add additional firewalls, VPN gateways, SSL accelerators or IDSs to an existing device pool and massively scale security resources without any downtime.

In addition to security device load balancing, Alteon Application Switches provide proactive application-layer security. They offer sophisticated filtering and pattern matching for maximum control and intrusion prevention. They also have other security features such as network address translation (NAT), denial of service (DoS) protection with alarms (TCP, IP, UDP, ICMP), intelligent peer-to-peer management, application abuse protection and Layer 7 deny filters. Several alarm and monitoring features and access lists are also supported, along with port mirroring for troubleshooting.

Alteon Application Switch Technology Highlight: SSL Acceleration

Features

- End-to-End Encryption Key and Certificate Management
- Client Request Re-write
- Intrusion Detection
- Detailed Logging
- Auditing

- Enables cost savings
 - Offload costly SSL processing from servers, freeing servers for application use and reducing server costs
- Improves performance for secure sessions
 - Perform load balancing and other traffic management services on encrypted sessions
 - Maintain encryption to back-end servers
- Scales efficiently
 - Plug and play external appliance to increase session capacity

The new Alteon 2424-SSL features SSL acceleration capability as we have discussed. I'd like to review in more detail what this means.

SSL acceleration benefits include end-to-end encryption. This removes expensive public key operations from servers. Another feature is Key and Certificate Management. This creates and Import Keys (PKCS8/12) and certificates (X.509). For instance, you can generate a certificate signing request to a Certificate Authority (CA). The Client Request Re-write triggers a redirect to a particular web page or script instead of dropping the session. Another great security feature is Intrusion Detection, which blocks access based on URL, IP Address or cookie information.

To keep track what is happening with the system, SSL Acceleration includes Detailed Logging to capture lost alerts and fields and support for site/performance management. It also features auditing to track application usage.

Its performance is pretty impressive with up to 1000 RSA public key operations per second, over 200 Mbps of encrypted throughput and up to 16,000 concurrent sessions, all measured in real-world testing scenarios.

For additional detail on SSL Acceleration features, please see the Nortel Networks Alteon SSL Accelerator product brief.

With all these features, SSL Acceleration offers cost savings, improved performance and scalability. Cost savings are achieved by offloading costly SSL processing from servers, thereby freeing servers for application use and reducing server costs. It generates improves performance for secure sessions through load balancing and other traffic management services. And it scales efficiently so that external appliances can plug and play external appliance to increase session capacity.

Alteon Application Switch

Technology Highlight: SSL VPN (2424-SSL)

Features

- Multiple modes of operation for deployment flexibility
 - Clientless
 - Enhanced Clientless
 - Transparent
- Authentication
- Session management
- Access control
- Application tunneling
- Global load balancing
- Auditing

- Unrestricted mobility
 - Use any Web browser from any location to access corporate applications
 - Traverse firewalls/NAT/proxies
- Simplicity
 - Intuitive, customizable Web portal
 - No additional client software
 - Changes to applications not required
- Lower total cost of ownership
 - Improved remote connectivity and low operations costs
 - Lower Internet costs

SSL VPN is another feature of the Alteon Applications switches that we have talked about briefly. Here I'll talk about some of its key attributes. One is its multiple modes of operation for deployment flexibility. Its Clientless option requires a web browser only and supports web applications. The Enhanced Clientless features a Java applet running inside the browser; it supports complex Java script, dynamic HTML and client/server applications. The third option is Transparent, a client-based option for managed PCs.

It supports native client configurations for virtually all applications.

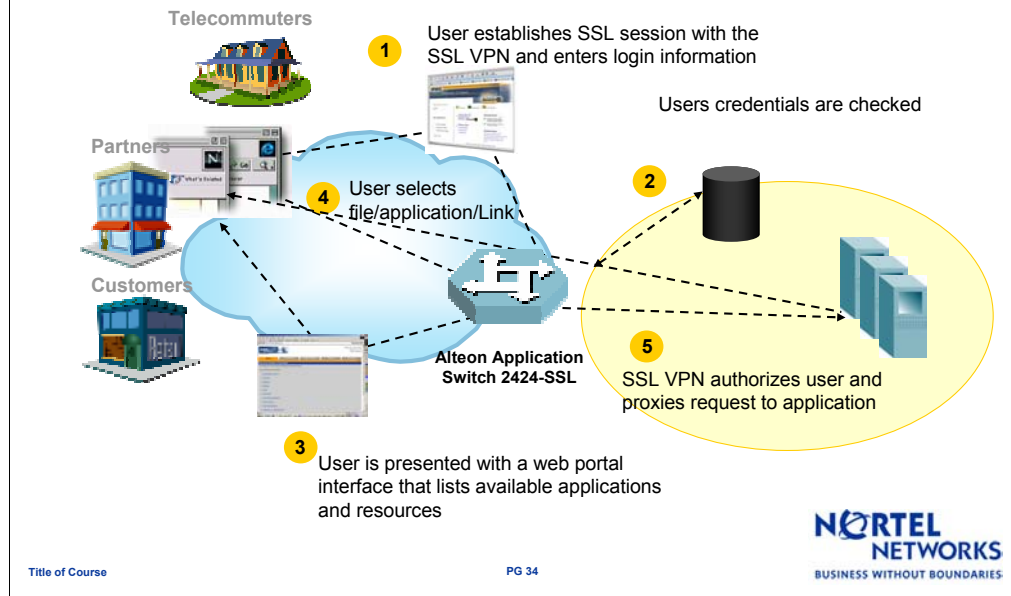
SSL VPN also features authentication, session management and access control. Global Load Balancing provides multiple network access points for global networks. Users are transparently redirected to the 'best' access point. This improves reliability and performance.

Other features of SSL VPN include auditing and application tunneling.

These features translate into unrestricted mobility, simplicity and a lower cost of ownership. You can use any web browser, from any location, to access corporate applications and share files. It traverse firewalls, NAT services and proxies. Simplicity has been added to this mobility with an intuitive web portal that doesn't require end-user training and it seamlessly deploys into any network. There's no need for additional policing for controlled partner access, no need for additional client software and no need to mirror applications or rewrite code or addresses. Finally this means lower cost of ownership. Our customers achieve lower costs from improved remote connectivity, lower operations costs with a clientless solution, and lower connectivity costs using the Internet.

Alteon Application Switch

Application Level SSL VPN



You may ask who would use the SSL VPN. It's effective for companies with remote workers, be they telecommuters, partners or customers. Here we will walk through a sample login using SSL VPN.

Step 1 – Utilizing a standard browser, a user establishes an SSL session to the SSL VPN URL, for example 'sslvpn.corporation.com', establishes a secure HTTPS session with the Alteon 2424-SSL and is asked to enter a username and password.

Step 2 – The users' credentials are checked against an authentication database

Step 3 - Once authenticated, the user is presented with a web portal that includes links to the applications and resources they have been authorized to access.

Step 4 – The user selects an application, for example 'eMail' from the web portal

Step 5 – The Alteon 2424-SSL checks access privileges against its access control list (ACL) and if authorized, forwards the request to the application on behalf of the user. The Alteon 2424-SSL subsequently receives a response from the eMail server and then passes it along to the user on behalf of the application.

Then the user is ready to go.

Alteon Application Switch Technology Highlight: Plug and Play Deployment

- Multi-application support enables the use of one Alteon Application Switch for multiple applications
 - Integrated application processor
 - No need for multi-box implementations
- Servers, firewalls and other devices can be added into VIP pool for additional capacity without reconfiguration
 - Support for VIP addresses
- All processors support all ports with VMA
 - Simplified provisioning
- Application acceleration scalability means single system image for configuration
 - Devices are automatically configured to match on-board configuration

There's one last technology feature we'd like to highlight. To help reduce opex, it is essential that devices are simple and that they help simplify the network. Alteon Application Switches provide multi-application support that enables the use of one Alteon Application Switch for multiple applications. Its integrated application processor supports SSL Acceleration and SSL VPN. So there's no need for multi-box implementations and the associated headaches.

There are other advantages to this plug and play deployment ability. Support for VIP addresses allows IT administrators to add servers, firewalls and other devices into a VIP pool for additional capacity without reconfiguration or network downtime.

VMA simplifies provisioning by ensuring that all processors support all ports. There is no need for administrators to worry about avoiding specific ports that might cause processor overload when engineering their network.

Last but not least, because of the Alteon single system image capability, application acceleration scalability is plug and play. Integrated devices appear on the network in the same security cluster. As external devices are added for additional capacity, the devices are automatically configured to match the on-board configuration.

Agenda

- **Why would you want to sell Alteon Application Switches?**
- **An Introduction to Alteon Application Switching**
- **Competition**
- **Selling Alteon Application Switches**
- **Business Cases**
- **Sales Tools**

We've looked at the great promise of Alteon Switching technology. Now we turn our attention to the market and the competition.

Nortel Networks standing 2002

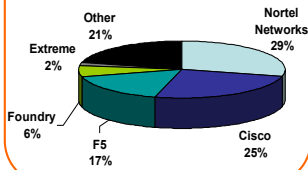
Alteon Application Switches

- #1 L4-7 SLB Switch – Fixed
- #1 L4-7 SLB Switch – Gigabit Ethernet
- #2 L4-7 SLB Switch – Total Modular & Fixed
- #2 L4-7 SLB Switch – Fast Ethernet
- #2 L4-7 SLB Switch – Modular (Modules)

#1 Five years straight!

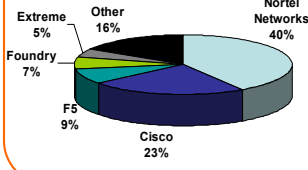
Alteon Switches—maintaining worldwide Layer 4-7 market share leadership

Fixed L4-7 Market Share 2002

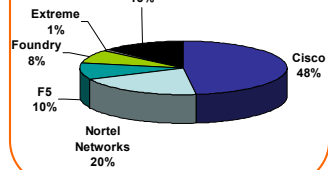


Source: Dell'Oro Q1 '03

GbE L4-7 Market Share 2002



Total L4-7 Switches 2002



Title of Course

PG 37

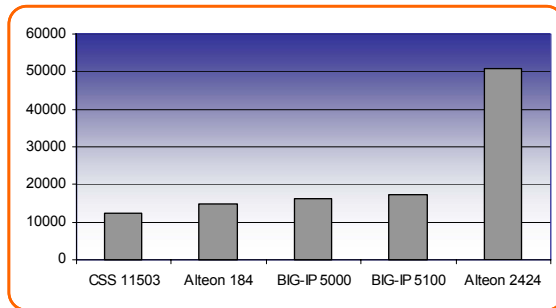
NORTEL
NETWORKS
BUSINESS WITHOUT BOUNDARIES

Nortel Networks extends Web Switch Market Share lead over Cisco, worldwide leader in L4-7 Gigabit and L4-7 Fixed Switching for five straight years.

As you can see by 2002 results we continue to maintain worldwide leading market share over Cisco, FS and other competitors in the fixed Layer 4-7, and the GbE Layer 4-7 switches markets.

On the next slide, we'll look at the results from our Tolly report.

Layer 7 Performance Tests



L7 Performance, in Maximum Sessions/Second, with 0% Session Loss, 1 Rule, 1-Byte

*The Tolly Group, Test No. 203100

Alteon Application Switch
2424 Performance

Summary:

- 4.1X reliable performance advantage over Cisco CSS 11503
- 3.1X reliable performance advantage over F5 BIG-IP 5000
- 2.9X reliable performance advantage over F5 BIG-IP 5100

As you can see, Nortel has an overwhelming performance advantage in processing compute-intensive requests using application-level information, e.g., URL, header designators, etc. These tests were conducted in January 2003 and tested Layer 7 performance by maximum sessions per second, with 0% session loss (1 Rule, 1-byte). The Alteon Application Switch was three times as fast as the F5 and four times as fast as the Cisco 11503. We included the Alteon 184 and F5 5100 for reference purposes. Our proven Alteon Web Switch 184, if included in this test, would have performed at 15,000 sessions/second, on par with F5's new products and 20% faster than the new Cisco CSS 11503.

More than just pure Layer 7 performance, this testing also encompassed reliability. As the Tolly summary testing report so aptly states "Given the intense load on switches performing the Layer 7 deep packet inspection required for managing demanding applications like VoIP, database applications, Web Services, etc. a switch's reliable Layer 7 performance is critical to performing its function without adding latency to a network."

The Tolly report also goes on to state: "The order of magnitude increase in the session rate of the Alteon 2424 over the Cisco and F5 Networks products means that organizations deploying Layer 7 switches for Internet/intranet applications and other enterprise applications can confidently use the Alteon devices in high-volume TCP/UDP traffic scenarios."

Note that the F5 BIG-IP 5100 results were extrapolated from the F5 5000. The only difference found was a slightly faster processor, i.e., from 1 Ghz to 1.2 Ghz. Based on this result, the 5100 was estimated to produce a theoretical 5% performance increase.

Head to Head with Cisco – Nortel wins!

Cisco CSS11503



Alteon Application Switch 2424-SSL



Alteon 2424-SSL is 50% less expensive per port than Cisco's CSS 11503

The Alteon Application Switch has:

- 8% lower cost
- 4X Layer 7 performance
- 5X Layer 4 performance
- SSL VPN
- No additional licensing costs
- Broadest range of features
- 50% less rack space

* 0 session loss, No Filters

** 0 session loss, 1 Filter (Tolly)

Title of Course

PG 39

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Ultimately, it comes down to a head-to-head product comparisons. Here with the Cisco CSS 11503, the Alteon 2424-SSL wins every time. The 2424-SSL provides 50% more ports for 8% less money and half the rack space.

It also offers SSL VPN functionality that Cisco does not. All this with the broadest range of special function features and up to four times more Layer 7 processing power. Adding Cisco's enhanced NS charge and the 2424-SSL is almost 50% less expensive per port.

When you look at the Alteon Application switch 2424-SSL with the 24FE +4GbE, the direct costs come in at \$31,995. The switch provides more than 108,000 Layer 4 connections per second (0 session loss and no filters) and more than 51,000 Layer 7 con/second (0 session loss, 1 filter), all in a compact 1 RU case.

The cost of the CSS 11500 with 16 FE plus 2 GbE plus SSL is \$34,954 with another \$7,995 for the license fee. That's a total of \$42,949. Its performance doesn't match the Alteon 2424-SSL, with its less than 22,000 Layer 4 con/second (0 session loss and no filters) and less than 13,000 Layer 7 con per second (0 session loss, 1 filter). But its height is greater than the Alteon 2424-SSL at 2RU.

Head to Head with F5 – Nortel wins!

F5 Solution BIG-IP 5100



To receive L4 and L7 performance, a BIG-IP 2400 for L4 traffic and a BIG-IP 5100 for L7 packet inspection is needed – adding 75% to cost!

* 0 session loss, No Filters
** 0 session loss, 1 Filter (Tolly)

Alteon Application Switch 2424-SSL



The Alteon Application Switch has:

- 3X Layer 7 performance
- 4X Layer 4 performance
- 65% lower \$/Layer 7 performance (session/second)
- SSL VPN
- Broadest range of features
- 50% less rack space

Title of Course

PG 40

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Our other major competitor is F5. Again when going head to head with the F5 Big-IP 5100, the 2424-SSL wins by providing, a switch in half the rack space, with three times the Layer 7 performance and three times the SSL offload capacity. That's all for 65% lower price per performance. It also offers SSL VPN functionality that F5 does not. All this with the broadest range of special function features and a case that's 50% smaller than the F5 solution.

When you look at the Alteon Application switch 2424-SSL with the 24FE +4GbE, the direct costs come in at \$31,995. The switch provides more than 108,000 Layer 4 con per second (0 session loss and no filters) and more than 51,000 Layer 7 con/second (0 session loss, 1 filter), all in a compact 1 RU case.

The cost of the F5 Solution BIG-IP 5100 with 24 FE plus four GbE is \$31,990. But its performance doesn't match the Alteon 2424-SSL, with its less than 25,000 Layer 4 con/second (0 session loss and no filters) and less than 17,000 Layer 7 con per second (0 session loss, 1 filter). But its height is greater than the Alteon 2424-SSL at 2RU.

To achieve F5's maximum L4 and L7 processing you have to buy a Big IP 2400 and a Big IP 5100. This adds 75% to the solution cost.

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- **Selling Alteon Application Switches**
- **Business Cases**
- **Sales Tools**

We've looked at the competition. Now we will focus on who should be buying Alteon Switches.

Who can benefit from the Alteon Application Switch?

Organizations that show any of these characteristics

- Increasing reliance on network-based applications
- Internet and application availability is business critical
- Data on servers needs to remain available even in the event of a server failure
- Rising Internet access network costs and complexity
- Relies on Internet/intranet as a critical means for delivering information and application access
- Concerned with how to scale network for increases in users and traffic
- Needs bullet-proof perimeter security without performance degradation
- Uses SSL for secure transactions
- Concern about overuse of Peer-to-Peer applications

When deciding which organizations can benefit from the Alteon family, you need to consider the following. Organizations that show any of these characteristics are fertile ground. Ask if the organization is becoming increasingly reliant on network-based (Internet, intranet, extranet) applications? Is having Internet and application availability is business critical, such as keeping an ecommerce site always available? Do their servers hold critical application data and must remain available even in the event of a server failure? Are rising Internet access network costs and complexity posing a challenge? Is the IT department concerned with how to scale network for increases in users and traffic? Do they rely on the Internet/intranet as a critical means for delivering information and application access? Would they like to scale network or Internet access infrastructure without downtime? Would they like to make effective use of high performance server farms? Does the organization need a bullet-proof perimeter security that won't degrade performance. Do they use SSL for secure transactions? Or are Peer-to-peer applications wasting network resources and affecting customer performance?

If the organization answers yes to any of the above, then the Alteon is a way to solve their dilemma.

A few other important qualifying questions

1. Do you experience sudden increases in network traffic?
2. Are you interested in attaining maximum speed and scalability from your application and security infrastructure?
3. Are you considering load-balancing solutions to help?
4. Have you or are you considering Layer 4 switching devices?
5. Is Gigabit Ethernet a concern?
6. Would you like to have the ability to manage performance levels or bandwidth?
7. Do you have multiple firewalls?

Before we move on, I'd just like to bring up some more specific questions to help you target potential customers.

- Ask if any of the following applies. Does your company manage and/or deploy applications which require more volume than a single server can handle? Do you experience sudden increases in traffic?
- Are you interested in attaining maximum speed and scalability from your application and security infrastructure?
- Are you considering load-balancing solutions to help in scaling these solutions? If not, how are you going to manage traffic between these multiple servers? How will that solution scale?
- Have you or are you considering Layer 4 switching devices (a.k.a. load balancing, application redirection)? What's the time frame?
- Is Gigabit Ethernet a concern? Or will it be in the future; do you have a server upgrade planned?
- Would you like to have the ability to manage performance levels or bandwidth by URL, user type, class type? Are you having problems with Peer-to-Peer applications hogging bandwidth?
- Do you have multiple firewalls and are they configured for High Availability, Resiliency and Redundancy? Are those firewalls a bottleneck and are they load balanced?

Again, organizations that answer yes, are potential customers.

Agenda

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Now let's look at a few business cases.

Alteon Application Switching – The Business Case

- Capex savings from more efficient use of rack space and extended server life
- Capex and Opex savings from improved server utilization
- Opex savings and revenue enhancement from application and network high performance/availability
- Lower Capex and Opex from integrated SSL acceleration
- Lower Capex and Opex through clientless SSL VPN
- Enables purchasing servers at the price/performance 'sweet spot'
- Lower Opex through bandwidth optimization

Here are just some of the many ways that an Alteon switch can provide positive business benefits for an enterprise. There is a more detailed Business Case Brief available on our web site. A couple of these will also be dealt with in detail in the next couple of slides.

First, the Alteon Application Switch provides up to 28 ports in a small one-RU form factor. The extra port density eliminates the need for additional Layer 2 switches in many cases and the small form factor means less real estate needs to be used in a rack.

Alteon switches provide savings by extending server life. Because an Alteon switch can intelligently switch only certain types of requests to servers (based on URL, for example), older servers can be utilized longer than would have otherwise been the case for content (e.g., static images) that don't require heavy-duty server power.

With intelligent load balancing, Alteon switches improve server (or network device) utilization. So, for example, some servers or devices aren't sitting idle while another is overloaded. This allows enterprises to get more out of their current networking assets.

Additional revenues and lower expenses come when applications are always available. Intelligent load balancing improves the performance and reliability of important business applications.

Significant savings can come from the integration of SSL acceleration and simple remote access enabled by the integrated SSL VPN application.

As well, because servers or other network devices (e.g., firewalls, VPN) can be easily added to a load balanced rotation with no service impact, Alteon switches allow enterprises to scale very efficiently. This means that an enterprise does not have to buy a big server now to handle anticipated demands three years hence. Instead, the enterprise can purchase the server requirements needed to handle today's demands and then purchase additional servers in the future as needed. As a result, the enterprise will spend less money overall for server infrastructure (Moore's law states the price of computing infrastructure is constantly being driven down, so purchasing in the future is more beneficial).

Finally, enterprises can reduce operating expenses by controlling bandwidth usage on the network. Alteon switches, through bandwidth management and rate limiting functionality, enable enterprises to do just that.

Cost savings with improved server utilization



Immediate costs

- | | |
|---|-----------------|
| • Old Approach – 40 servers at \$3,000 each (40x\$3000) | \$120,000 |
| • New Approach – Cost of Alteon 2424 | \$28,495 |
| • Immediate Cost Savings | \$91,000 or 76% |

ROI on a four year project

- | | |
|---------------------------|-----------|
| • Total Cost Avoidance | \$171,500 |
| • Total Alteon Investment | \$39,893 |

Four year ROI **330%**

When critical business application use increases, server and application capacity requirements also increase. If an Enterprise needs to add 40 new servers to meet application demand, it has two choices, add more servers or fine tune the existing server environment to increase efficiency.

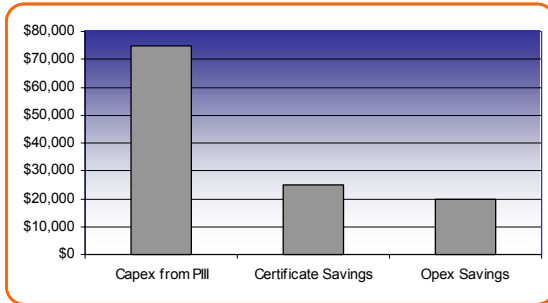
If we explore choice 1, there's the cost of the servers (\$3000 times 40) plus the cost of maintaining operations at an average 30% utilization. The total is \$120,000.

If we take choice 2, deploying an Alteon 2424 to improve server utilization to 70%, the cost is \$28,495. That's an immediate cost saving of \$91,500 or 76%.

The four year ROI makes an even stronger case. With mitigated server investment of \$120,000, the avoided server support for four years ($300 \times 40 \times 4$) of \$48,000 and the avoided server aggregation switch of \$3,500, the total cost avoidance is \$171,500. The cost of the Alteon investment at \$39,893, when you consider the cost of the switch and the support required over for four years (\$11,398). The resulting ROI is a huge 330% – $((\$171,500 / \$39,893) - 1)$.

Increasing server utilization to 70% from typical levels can cut server requirements and costs by 50%!

Cost saving with SSL Acceleration on the 2424-SSL



2424-SSL ROI

PIII Servers at 80TPS/server	
Cost of 1000TPS - PIII Servers (1000/80TPS x \$3000)	\$ 37,500
Maintenance/Operations (10% x \$37,500 x 3years)	\$ 11,250
Certificate Costs (\$800/certificate x 13 PIII servers)	\$ 31,200
Total	\$ 79,950

ROI	720%
Months Payback	4

Note: Only the incremental cost of the 2424-SSL above the 2424 was used in the calculations. PIII server cost was assumed to be \$3000 and maintenance at maintenance/operations at 10%.

In this next case we'll see the advantages of SSL acceleration via a simple base.

Here we'll look at the three year return on investment. With PIII servers at 80 tps/server, the cost of 1000TPS PIII servers is \$37,500 (1000/80TPS times \$3000). The maintenance and operations over the three years is \$11,250 (10% times \$37,500 times 3 years). Then there are the certificate costs of \$31,200 (\$800/certificate times 13 PIII servers). The total is \$79,950. The ROI is 720%.

So when comparing scaling SSL transaction capacity by purchasing additional servers versus leveraging the integrated SSL acceleration capability of the Alteon 2424-SSL, using the Alteon 2424-SSL pays back in four months with over 700% ROI.

Cost savings with SSL VPN – Remote Access Savings

10,000 employee company with deployed IPsec for 2000 users and want to increase RAS to another 1000 users.

Initial Costs	IPSec	SSL
- Equipment	\$20,000	\$59,000
- Gateway Installation	\$800	\$1,600
- Client Installation	\$16,600	N/A
Recurring Monthly Costs		
- Client support and maint.	\$5,000	N/A
- Web portal support and maintenance	N/A	\$500
3 year total costs	\$217,400	\$78,600

**Costs savings with SSL VPN -- \$138,800 or 64%
ROI -- 229%**

What about using SSL VPN on the Alteon 2424-SSL? This slide provides an example of the savings achieved when using SSL VPN for remote access compared with an IPsec solution. Comparing the costs of supporting an incremental 1000 users for remote access, the three-year total capex and opex costs of the SSL VPN solution is 36% less than that of the IPsec solution, saving over \$135K and yielding an ROI greater than 200%.

Here are the details. The initial costs are higher for the SSL VPN but the savings quickly become apparent. The equipment costs of IPsec is \$20,000 versus \$59,000 for the SSL [ASA 310 (\$19,000) plus 1000 user license (\$40,000)]. There are also tech labor cost associated with the IPsec of \$16,600 (Client installation at 10 mins/user at \$100/hr, gateway installation at 8 hrs for IPsec and 16hrs for the SSL VPN Web Portal (to configure group policies and applications)).

The total initial costs of SSL are about 60% more expensive than IPsec. But IPsec has recurring monthly costs of \$5,000 (\$5/user/month times 1000 users). SSL comparable recurring monthly costs are \$500 (5hrs/month for web portal administration)

When you look at the total cost over 3 years – lower recurring costs of SSL quickly offset upfront premium for a savings of 64% over three years, with an ROI of 229%.

This return is built on top of the already sound business case for IPsec. The usage charge savings aren't even considered in the calculation.

Agenda

- **Why sell Alteon Application Switches?**
- **An Introduction to Alteon Application Switching**
- **Competition**
- **Selling Alteon Application Switches**
- **Business Cases**
- **Sales Tools**

Lastly, we'd like to tell you about the sales tool available to help you sell the Alteon family of switches.

Nortel Networks Partner Advantage Promotions – Alteon Switching Offers

Customer Loyalty Program – Potential rebates for customers with an existing Nortel product

Competitive Displacement Program – Potential rebates for customers purchasing to displace a competitive product

Sample Customer Rebates

Qualifying Purchase	Customer Loyalty	Competitive Displacement
Alteon Application Switch 2424, 2424-SSL, 3408	\$1,500	\$2,500
Alteon Application Switch 2208, 2216	\$500	\$1,000

North America only promotion starts Q1' 2004

Offers subject to change. Please contact your Nortel Networks channel partner, sales representative, or 1-800-4NORTEL for more information and detail on these programs (Qualifying units for competitive displacement, etc.) Additional information and a claim form is available at: <http://www.nortelnetworks.com/promotions/>

This slide provides a quick view of the customer rebates Nortel has in place for you to leverage with your customers if they are an existing Nortel customer or have a competitive product that you can displace. Rebates up to \$1,700 are available for certain Alteon Switches. See the Partner Information Center Programs section for more information on these rebates. Note that the information above is from a North America Only promotion that starts in Q1 of 2004.

Nortel Networks Alteon Application Switch Sales Tools and Contacts

- **Collateral**
 - Customer and training presentations
 - Hardware Product Brief
 - Software Product Brief
 - White paper
 - Myths & Truths Competitive Brief
 - FAQs
 - Launch Brief
 - Tolly performance testing report
 - Alteon Family Testimonial Brief
 - Alteon Bcase Brief
- **CD**
 - Alteon Application Switch Customer Kit CDROM (Doc #NN103320)
- **Sales questions**
 - Contact your Nortel Networks Channel Representative
- **Partner Information Center**
 - Alteon Application Switches
 - Partner Information Center/Products by Brand/Alteon Application Switch
 - Passport 8600 Alteon Web Switching Module
 - Partner Information Center/Products by Brand/Alteon Web Switching Module

To help you, we have developed many items of collateral. These include customer and training presentations, product briefs, testimonials and bcase briefs, among others things. We are also have prepared a Customer Kit CD ROM. If you have sales questions, contact your Nortel Networks Channel Representative.

Other resources can be found on the Partner Information Center. There's a module on Alteon Application Switches and one on Passport 8600 Alteon Web Switching. Click through to the Partner Information Center/Products by Brand and choose the module you are interested in.

Alteon Application Switches

A superior solution that sells itself

- **Flexible, full portfolio**
 - Widest L4-7 platform choice
 - Reliability for business grade applications
 - Common feature set across product families
 - Strong product and feature roadmap
 - Pricing simplicity
- **Market leadership**
 - Proven track record of L4-7 switching
 - #1 Fixed and Gigabit sub-segments
 - Most advanced feature set
 - Strongest security features
 - Best architecture, best performance and best footprint
 - Best price and ROI

“Alteon has the broadest range of special-function load balancing features available on the market...”
Current Analysis, August 2002

“Delivers up to 4x more sessions/second than Cisco CSS 11503 and F5 Networks Big-IP 5000...”
The Tolly Group, January 2003

Before we end, here's just a short summary of why Alteon Applications Switches are such a superior solution that sells itself. We offer a flexible full portfolio with the widest Layer 4-7 platform choice. We have carrier-class reliability for business grade applications. The common feature set across products guarantees compatibility and easy integration. Combine the above with our strong product and feature roadmap and pricing simplicity, and it's obvious why we are the market leader.

Evidence of this can be found with our Proven track record of Layer 4-7 switching. We have been rated #1 Fixed and Gigabit sub-segments for five years running by Dell'Oro and have the most Advanced Feature Set according to Current Analysis. We have the strongest security features with our SSL VPN. We offer the best architecture, best performance (Tolly) and best footprint. We also have the best price and ROI in the market.

For your clients, a better network means a better return on investment.

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