PRODUCT GUIDE TO
- CONVERGED NETWORKS
- DATA CENTER SWITCHING

A COMPREHENSIVE OFFER BY ALCATEL-LUCENT ENTERPRISE

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Alcatel·Lucent
Enterprise

PRODUCT GUIDE TO
- CONVERGED NETWORKS
- DATA CENTER SWITCHING
INTRODUCTION

Alcatel-Lucent Enterprise provides exceptional value in highly available, secure and easy-to-manage IP networks with a comprehensive, standards-based product portfolio. This product guide contains an overview of network infrastructure, management and security products. These products were conceived and designed according to the Alcatel-Lucent Application Fluent Network vision. The products are the building blocks for these solutions:

- Converged wired and wireless area networks for small- and medium-sized businesses (SMBs) as well as medium- and large-sized enterprises

- Data center switching for both compact and large data centers

THE NETWORK INFRASTRUCTURE PRODUCT LINE INCLUDES:

- Manageable layer 2/layer 3 LAN switches, both stackable and chassis-based, supporting power over Ethernet (PoE) and interface speeds from 100 Mb/s up to 40 Gb/s for office, campus and data center networks

- A highly scalable, wireless LAN (WLAN) solution that supports the latest high-speed (IEEE 802.1n) access for small, medium and large networks, as well as unique remote worker features

- Enterprise services routers enabling WAN access while providing a wealth of services from a single box

- Multi-Protocol Label Switching (MPLS) switches for private WANs and data center interconnect, supporting standardized Virtual Private LAN Services (VPLS) technology (invented by Alcatel-Lucent), providing virtualization of networks without the overhead of complicated routing protocols

- Wavelength multiplexers switches for data center interconnect, supporting very high bandwidth to multiplex both Ethernet LANs and fiber channel storage networks in a very resilient way.

THE MANAGEMENT PRODUCT LINE INCLUDES:

- Network and network element management systems

- Data center fabric management system

- IP Address Management (IPAM) system

- Consolidated service level and performance management system

THE SECURITY PRODUCT LINE INCLUDES:

- Host integrity check solution to enforce end-system compliance

- Unified Threat Management (UTM) solutions

Alcatel-Lucent is proud to provide you with this interactive product guide representing our enterprise networking, management and security products, their key benefits, key features and technical information.

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OmniSwitch™ 10K

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The Alcatel-Lucent OmniSwitch 10K Modular LAN Chassis Switch is a high-capacity, high-performance switch based on our state-of-the-art Alcatel-Lucent Operating System (AOS), which is field-proven in enterprise, service provider and data center environments. The OmniSwitch 10K delivers uninterrupted network uptime with non-stop Layer 2 and Layer 3 forwarding and in-service software upgrades (ISSUs). Deep packet buffers, a lossless virtual output queuing (VOQ) fabric, and extensive traffic management capabilities improve application performance and user experience. Its scalability – beyond 5.12 Tb – will meet

bandwidth requirements for today and tomorrow. OmniSwitch 10K Multi-Chassis Link Aggregation (MC-LAG), Virtual Chassis (VC), Shortest Path Bridging (SPB-M), Virtual Network Profile (vNP) and Ethernet Ring Protection (ERP) simplify Layer 2 network deployments and provide better performance and resiliency. OmniSwitch 10K with support of lossless Ethernet: Priority Flow Control (PFC), Enhanced Transmission Selection (ETS) and Data Center Bridging (DCBX) together with Edge Virtual Bridging (EVB) make it ideal for emerging data center solutions.

The OmniSwitch 10K class-leading, low power consumption, front-to-back cooling, compact form factor, and all front-accessible components make it a perfect fit for data center applications and as a long-term upgrade to any network.

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OmniSwitch 10K

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• Maximum network performance delivers quality bandwidth for improved application and user experience. Reduces network layers and investment/operating costs

• MC-LAG and VC optimize/simplify Layer 2 network designs, reduce administration overhead while increasing network resiliency; work with any Ethernet device that supports IEEE 802.3ad standard; and provide interoperability, investment protection, and flexibility.

• Multi-Protocol Label Switching (MPLS) and data center-ready architecture expand deployment capabilities, reduce vendor sprawl and lower operating costs.

• Chassis size, component accessibility and compatibility with existing platforms provide a painless replacement upgrade. Front-to-back cooling and dense 10GigE ports (256 ports per chassis) meet stringent data center application needs.

• Increased system redundancy and resiliency provide maximum uptime in the network core.

• vNP support to manage applications as services and automatically adapt to optimize application performance and server utilization, including automating the movement of virtual machine within the fabric

• SPB-M for maximum resiliency and fast reconvergence, as well as active/active dual homing capability

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OmniSwitch 10K

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- Smart continuous switching for non-stop operation in redundant Chassis Management Module (CMM) and fabric configuration
- ISSU for hitless operating system patches
- System virtualization with MC-LAG and VC
- Passive backplane and redundant active components (power supply units, fans, CMMs)
- Extensive Layer 2 and Layer 3 protocol support for spatial resiliency

HIGH PERFORMANCE AND SCALABILITY

- Wire-rate processing for simultaneous Layer 2/IPv4/IPv6 traffic (unicast and multicast)
- High density with GigE (up to 384 ports), 10GigE (up to 256 ports) and 40GigE (up to 64 ports)
- Best network response time through hardware-based forwarding at first packet
- Layer 2 multi-path support with Shortest Path Bridging (SPB)
  ¬ IEEE 802.1aq
- Data Center Networking
- Virtual Machine automation support with vNPs
- Lossless Ethernet Protocols support with PFC
  ¬ IEEE 802.1Qbb, ETS
  ¬ IEEE 802.1Qaz and DCBX
- VEPA support with EVB
  ¬ IEEE 802.1Qbg

CONVERGED NETWORKS

- Enhanced VoIP and video performance with policy-based quality of service (QoS) and VOQ
- Queue management with configurable scheduling algorithm
- Congestion avoidance: Support for End-to-end Head of Line (E2E-HOL) blocking prevention and flow control

LARGE CAMPUS AND METRO NETWORK

- Layer 2 deployment using stacked virtual LANs (VLANs), including operations, administration and maintenance (OA&M) toolbox and multicast support
- ERP support
- Layer 3 deployment using multiple virtual routing and forwarding (VRF)

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Chassis models	CMM module slots	CFM module slots	NI module slots	Power supply bays	Power supplies AC/DC	Fan tray slots	Height rack units	Fabric capacity Tb/s	Max GigE ports	Max 10GigE ports	Max 40GigE ports
OmniSwitch 10K	2	2	8	4	AC or DC	2	16	5.12	384	256	64

Network Interface modules	GigE RJ-45 ports	GigE SFP ports	10GigE SFP+ ports	40GigE ports	100GigE ports	Standard version	Extended version				
OS10K-QNI-U8E***	0	0	0	8			X				
OS10K-QNI-U4E***	0	0	0	4			X				
OS10K-XNI-U32S	0	0	32*			X					
OS10K-XNI-U32E***	0	0	32*				X				
OS10K-XNI-U16E***	0	0	16*				X				
OS10K-XNI-U16L***	0	8**	8*				X				
OS10K-GNI-C48E	48	0	0				X				
OS10K-GNI-U48E	0	48	0				X				

Remarks
*Supports both Gigabit and 10GigE transceivers
**License upgradeable to 10GigE SFP+ port
***Available in future software release

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OmniSwitch™ 9000E

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The Alcatel-Lucent OmniSwitch 9000E Chassis LAN Switch (CLS) family is comprised of the OmniSwitch™ 9700E, OmniSwitch™ 9702E and the OmniSwitch™ 9800E. The OmniSwitch 9000E family has a common set of network inter-faces, power supplies and fan trays to accommodate various connectivity needs and simplify inventory.

The OmniSwitch 9000E family of products is fully featured, highly available, high performance chassis-based LAN switches designed to be used in the core as well as in LAN access.

The OmniSwitch 9000E family supports both high-density 10 Gigabit Ethernet (10GigE) configurations for core networking and high-density GigE with or without Power over Ethernet (PoE) following the latest high power (IEEE 802.3at) standards.

Operational network availability is supported by the use of hot-swappable and redundant components. It is further enhanced by MC-LAG active-active dual homing using IEEE 802.3ad (LACP) interfaces distributed across nodes enabling highly resilient architectures and in-service software upgrade (ISSU) capability, which allows a network to remain operational during patch upgrades of the core operating system.

The OmniSwitch 9000E family has native and full support of IPv4/IPv6, addressing the need for migration from IPv4 to IPv6 or new IPv6 deployments. It also brings carrier technology such as Multi-Protocol Label Switching (MPLS) into the enterprise campus, featuring Virtual Private LAN Service (VPLS). VPLS is a standardized protocol invented by Alcatel-Lucent to virtualize local networks over MPLS without the need for Border Gateway Protocol (BGP).

The OmniSwitch 9000E family provides advanced security and quality of service (QoS) features at an attractive price and is fully supported by the Alcatel-Lucent OmniVista™ 2500 Network Management System (NMS).
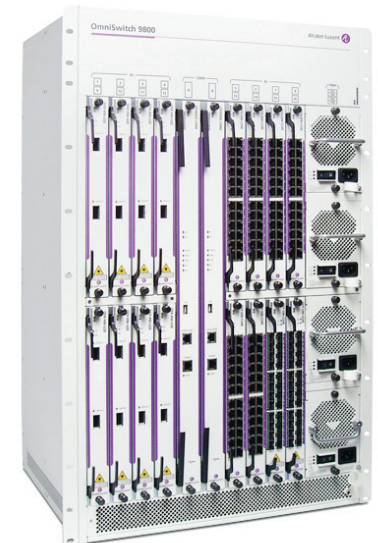
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• Prevents business interruption from failures with a combination of redundancy and resilient topology protocols:

¬ The system redundancy protects all critical functions, such as powering (redundant power supplies with AC and DC options), cooling (redundant fans) and switch management (redundant CMMs), with transparent failover and ISSU.

¬ Multi-chassis link aggregation (MC-LAG) increases system redundancy and resiliency by providing maximum uptime and high availability in the network. Increases network capacity with resilient multipath active-active dual homing.

¬ The extensive support of Layer 2 and Layer 3 protocols provides a highly available infrastructure.

• Protects investment with a modular and scalable connectivity (GigE and 10GigE), but also with regular software updates to keep on track with evolving standards (IEEE, IETF and ITU), such as IPv6 and MPLS

• Protects business assets against direct attacks on the infrastructure (malicious and denial of service [DoS] attacks) and enforces IT policy for pre- and post-admission control (unique traffic anomaly detection)

• Reduces energy costs through the system's low power dissipation (less than 2000 W in the most powerful case configuration)

OmniSwitch 9000E

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HIGH AVAILABILITY

- Smart continuous switching for non-stop operation in redundant CMM configuration

- ISSU for hitless operating system patches

- Passive backplane and redundant active components (power supply units, fans, CMMs)

- Extensive Layer 2 and Layer 3 protocol support for spatial resiliency

HIGH PERFORMANCE AND SCALABILITY

- Wire-rate processing for simultaneous Layer 2/IPv4/IPv6 traffic (unicast and multicast)

- High density with GigE (up to 384 ports) and 10GigE (up to 192 ports)

- Best network response time through hardware-based forwarding at first packet

- MC-LAG provides increased system resiliency with node level redundancy and increased network scalability with multipath active-active dual homing

COMPREHENSIVE SECURITY

- Flexible device/user authentication with Alcatel-Lucent Access Guardian™ (IEEE 802.1X/MAC/captive portal) with host integrity check (HIC)

- Built-in intrusion detection system (IDS) with traffic anomaly detection (TAD)

- Extensive support access features such as learned port security (LPS), port mapping, Dynamic Host Configuration Protocol (DHCP) binding tables and user network profile (UNP)

- Microsoft Active Directory authentication snooping (Kerberos)

LARGE CAMPUS AND METRO NETWORK

- Layer 2 deployment using stacked virtual LANs (VLANs), including operations, administration and maintenance (OA&M) toolbox and multicast support

- Layer 3 deployment using multiple virtual routing and forwarding (VRF)

- IP/MPLS deployment using VPLS

CONVERGENCE

- Enhanced VoIP and video performance with policy-based QoS

- Future-ready support for multimedia applications with wire-rate multicast

- IEEE 802.3at PoE+ support for IP phones, wireless LAN access points and video cameras

- Fluent network for Voice and Video: Session Initiation Protocol (SIP) detection, monitoring and tracking

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OmniSwitch 9000E

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Chassis models	CMM module slots	NI module slots	Power supply bays	Power supplies AC/DC	Height rack units	Fabric capacity Gb/s	Max GigE ports	Max 10GigE ports
OmniSwitch 9700E	2	8	3	AC or DC	11	384	192	96
OmniSwitch 9702E	2	8	3	AC or DC	11	768	192	96
OmniSwitch 9800E	2	16	4	AC or DC	17	768	384	192
Network Interface modules	**GigE RJ-45 ports**	**GigE PoE+ ports**	**GigE SFP ports**	**10GigE XFP ports**	**10GigE SFP+ ports**			
OS9-XNI-U2E	0	0	0	2	0			
OS9-XNI-U12E	0	0	0	0	12			
OS9-GNI-C24E	24	0	0	0	0			
OS9-GNI-P24E	0	24	0	0	0			
OS9-GNI-U24E	0	0	24	0	0			
Power over Ethernet Power Shelf	**Fits 9700E**	**Fits 9702E**	**Fits 9800E**	**Power supply bays**	**Height rack units**	**Max PoE power**	**Power supplies AC/DC**	
OS9-IPS-600A	Yes	Yes	Yes	4	3.5	2400 W	AC	

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OmniSwitch™ 6900

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Alcatel-Lucent OmniSwitch™ 6900 Stackable LAN family consists of compact, high-density 10 Gigabit Ethernet (GigE) and 40GigE switches designed for the most demanding networks. They offer unmatched versatility to deliver on the promise of the next-generation virtualized data center. Because of their modularity these switches accommodate the exact rack configuration and lowest oversubscription ratio required by the application flows in the data center.

In addition to its high performance and extremely low latency, the OmniSwitch 6900 family offers extensive quality of service (QoS), Layer 2 and Layer 3 switching, as well as system- and network-level resiliency.

These high port density 10GigE LAN switches are also effectively positioned at the aggregation and core layer of a converged campus network.

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- Up to 1.28 terabits per second (Tb/s) of wire-rate capacity, sub-microsecond latency for high-performance server and core connectivity. Outstanding performance when supporting real-time voice, data, and video applications for converged scalable networks

- Offers excellent investment protection and flexibility by supporting a variety of expansion modules used to increase the number of 10GigE port density or add 40GigE ports as needed. Ensures efficient power management, reduces operating expenses and lowers total cost of ownership (TCO) through low power consumption

- Unifies physical and virtual infrastructures providing network operators with a comprehensive end-to-end network view for VM inventory, location tracking, event and log auditing and provisioning operations. This enables error-free network administration operations and simplifies the deployment of new services.

- Comprehensive and flexible fabric architecture designed to automate and simplify the end-to-end deployment of campus, data center, cloud-based services while preventing host address explosion and flooding with built-in SLA service support at low capital and operating costs

- The OmniSwitch virtual chassis increases system redundancy and resiliency by providing maximum uptime and high availability in the network. Optimizes/simplifies Layer 2 and Layer 3 network designs and reduces administration overhead while increasing network capacity with resilient multipath active-active dual homing multi-chassis support. Works with any Ethernet device that supports standard IEEE 802.3ad (LACP) or static LAG to provide interoperability, investment protection, and flexibility

- Extends the lossless capability beyond Fiber Channel over Ethernet (FCoE) to any traffic type in many class of service (CoS) queues simultaneously in the same port. Allows the administrator to have a hands-off operation using application-based dynamic lossless configuration using Enhanced Transmission Selection (ETS) or manually engineered to fit the application needs

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OmniSwitch 6900

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- High 10GigE port density in one rack unit (1 RU) form factor that offers up to 64 10GigE SFP+ ports
- Flexible modular design supporting up to two extension modules to provide maximum of six 40GigE quad small form factor pluggable (QSFP+) ports
- Wire-rate, non-blocking at 640 Gb/s bidirectional
- GigE and 10GigE on all ports of the system for smooth Gig to 10GigE transition
- Redundant hardware system architecture. Internal, hot-swappable power supplies, fans. Front-to-back and back-to-front cooling

- Class-leading low power consumption per 10GigE port
- Wire-rate processing for simultaneous Layer 2/IPv4/IPv6 traffic (unicast and multicast) and Layer 3 routing at Gigabit and 10GigE speeds
- Built-in, shared packet buffer, dynamically allocated to handle burst traffic without packet drops
- Advanced services incorporated in the operating system: QoS, Access Control Lists (ACLs), Layer 2 and Layer 3, VLAN stacking and IPv6

- Scalable network virtualization architecture for guaranteed service level agreement (SLA) delivery over standard Ethernet fabric: Edge Virtual Bridging (EVB), Shortest Path Bridging (SPB) and dynamic Virtual Network Profiles (vNP)
- Unified virtual chassis, simplified management, Multi-Chassis Link Aggregation (MC-LAG), hardware-based virtual routing and forwarding (VRF) support
- Data center bridging (DCB) support: Lossless Ethernet for all traffic

OmniSwitch 6900

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	10GigE SFP+ ports	40GigE QSFP ports	Network module slots	Power supply bays	Power supply AC/DC	Optional backup PSU	Height rack units
Standard models							
OmniSwitch 6900-X20	20*		1	2	AC or DC	AC or DC	1
OmniSwitch 6900-X40	40*		2	2	AC or DC	AC or DC	1
Network Interface modules							
OS-XNI-U12	12*						
OS-XNI-U4	4*						
OS-HNI-U6	4*	2					
OS-QNI-U3	0	3					
Remarks *SFP+ port supports both Gigabit and 10GigE transceivers. **All models offer front-to-back and back-to-front cooling configuration.							

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OmniSwitch™ 6855

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Alcatel-Lucent OmniSwitch™ 6855 Ethernet Hardened LAN Switch models are industrial grade, managed, Gigabit Ethernet switches designed to operate reliably in harsh electrical and severe temperature environments.

This superior, rugged hardware design coupled with the widely deployed and field proven Alcatel-Lucent Operating System (AOS), makes it ideal for the following:

• Industrial and mission-critical applications - locations that require devices to operate at wider operating temperatures, have more stringent EMC/EMI requirements and have an optimized feature set for high security, reliability, performance and easy management.

• Applications requiring Gigabit backbone connectivity - power utilities, transportation and traffic control systems, industrial factory floor installations, video surveillance systems and outdoor installations,

The target applications for these versatile LAN switches are power utilities, transportation and traffic control systems, industrial factory floor installations, video surveillance systems and outside installations, all requiring the benefits and performance of IP and Gigabit Ethernet

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OmniSwitch 6855

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- Designed to operate in a wide temperature range and harsh EMI/EMC environments with uninterrupted traffic and zero communication errors

- Withstands industrial/military shock and vibration tests

- Designed with redundancy and availability in mind

- Environmentally-friendly product

- Wire-rate performance for IPv4 and IPv6 traffic

- PoE support that enables converged networks in challenged environments to connect and power security cameras, IP phones, wireless access points

- Fully secures the network at the edge, at no additional cost, by supporting the network proactive and reactive capabilities that are provided through the Alcatel-Lucent Access Guardian, traffic anomaly detection, and the Alcatel-Lucent OmniVista™ 2500 Network Management System Quarantine Manager

- Supports cost-effective installation and deployment by automated switch setup and configuration, and end-to-end VLAN provisioning

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OmniSwitch 6855

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- Purpose built, industrial strength hardware design, engineered to operate in temperatures ranging from -40 ˚C up to + 75 ˚C

- Convection cooling fan-less design that offers increased reliability and lower acoustic levels

- Diverse power supply options: external, redundant, hot swappable, AC and DC

- Wide choice of models offering different port densities: 10, 14, 24GigE copper and support variety of fiber types: single-mode, multi-mode, short- and long-haul optics allowing distances of up to 70 km

- Power over Ethernet (PoE) support on all copper models

- Advanced quality of service (QoS) to support triple-play applications

- Integrated security features for network access control, policy enforcement and attack containment

- Wire rate IPv4/v6 layer 2 and 3 switching at gigabit speeds for future proof investment

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Chassis models	GigE RJ-45 ports	GigE PoE ports	GigE SFP ports	GigE combo ports	10GigE SFP+ ports	PoE power budget	Power supply AC/DC	Optional backup PSU	Height rack units
AC models									
OmniSwitch 6855-14	8	4	2**	0	0	60 W	AC	AC or DC	1
OmniSwitch 6855-P14	8	12	2**	0	0	185 W***	AC	AC	1
OmniSwitch 6855-24	16	4	0	4	0	60 W	AC	AC or DC	1
OmniSwitch 6855-U10	2	0	8**	0	0	NA	AC	AC or DC	1
OmniSwitch 6855-U24X	0	0	22**	2	2*	NA	AC	AC or DC	1
DC models									
OmniSwitch 6855-14D	8	4	2**	0	0	60 W (-48 V DC)	-48 V/24 DC	AC or DC	1
OmniSwitch 6855-U10D	2	0	8**	0	0	NA	-48 V/24 DC	AC or DC	1
OmniSwitch 6855-24D	20	0	0	4	0	NA	-48 V DC	AC or DC	1
OmniSwitch 6855-24DL	20	0	0	4	0	NA	24 V DC	AC or DC	1
OmniSwitch 6855-U24XD	0	0	22**	2	2*	NA	-48 V DC	AC or DC	1
OmniSwitch 6855-U24XDL	0	0	22**	2	2*	NA	24 V DC	AC or DC	1

Remarks
*Ports can be used for uplink or stacking
**SFP port supports both Fast Ethernet and Gigabit Ethernet transceivers
***185 W at up to 60 C°; 66 W at higher temperatures
NA - Not available

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The Alcatel-Lucent OmniSwitch 6850E Stackable LAN Switch (SLS) family offers versatile, fixed configuration Layer 3 gigabit and 10 Gigabit Ethernet (10GigE) switches, which provide advanced services, high performance, and IEEE 802.3at-compliant Power over Ethernet (PoE). All models in the family are stackable and perform wire-rate, gigabit switching and routing for both IPv4 and IPv6, delivering intelligent services to the edge of the network with optimal quality of service (QoS) and integrated security as well as network admission control (NAC).

These versatile LAN switches can be positioned at the edge of mid to large size converged enterprise networks, at the aggregation layer, and in a small enterprise core. They are aslo suitable as advanced CPE for the Ethernet access for metro and managed services.

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OmniSwitch 6850E

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- With the variety of interfaces and models, the OmniSwitch 6850 family meets any customer configuration need and offers excellent investment protection and flexibility, as well as ease of deployment, operation and maintenance

- Outstanding performance when supporting real-time voice, data, and video applications for converged scalable networks

- The low power consumption and the efficient power management of OmniSwitch 6850E reduces operating expenses and lowers total cost of ownership (TCO)

- By supporting long reach multimode (LRM) SFP+ optical interface, the OS6850E allows customers to re-use their existing MMF fiber installations to cost effectively upgrade from 1 gigabit to 10 Gigabit

- Ensures that the new devices such as CCTV cameras, WLAN access points, and full featured desktop sets can be supported

- Fully secures the network at the edge, at no additional cost

- Enterprise-wide cost reduction through hardware consolidation to achieve network segmentation and security without additional hardware installation

- Automated switch setup and configuration, and end-to-end VLAN provisioning support cost-effective installation and deployment

- Simplifies Metro Ethernet network OA&M for service providers

- Supports application fluency for multi-media traffic with automated controls for providing differentiated service levels for different traffic type thus reducing operational complexity and costs.

OmniSwitch 6850E

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Versatile features and models offering Gigabit and up to 4 10 Gigabit interfaces

- IEEE 802.3af and 802.3at –compliant capable of delivering up to 30W PoE per port

- Optional 10G plug-in module delivers additional 2 10 Gigabit ports that can be used as uplinks or for remote stacking

- Wire-rate performance for switching and routing at 10G and gigabit speeds

- Low power consumption and smart PoE allocation

- Redundancy at all levels including power supplies, software and hot-swappable Small Form Factor Pluggable (SFP) modules

- Advanced services are incorporated in the operating system (OS): quality of service (QoS), access control lists (ACLs), L2/L3, VLAN stacking, and IPv6

- Extensive security features for network access control (NAC), policy enforcement and attack containment

- Hardware-based virtual routing and forwarding (VRF) support

- Advanced, out-of-the-box auto-configuration, Link Layer Discovery Protocol (LLDP) network policies and dynamic VLAN allocation

- Ready for Metro Ethernet access: VLAN stacking, multicast switching, Dynamic Host Configuration Protocol (DHCP) snooping/option 82, ITU-T Y.1731, IEEE 802.1ag, IEEE 802.3ah and MAC-Forced Forwarding

- Application fluency for multi-media traffic: dynamic QoS treatment and monitoring on a SIP based conversations on the network; The switch also records real-time conversation quality information concerning packet loss, delay, jitter, MOS score, and R-Factor

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OmniSwitch 6850E

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	GigE RJ-45 ports	GigE PoE+ ports	GigE SFP ports	GigE combo ports	10GigE SFP+ ports	10G stack ports*	Network module slots	PoE power budget	Power supply AC/DC	Optional backup PSU	Height rack units
Standard models											
OmniSwitch 6850E-24	20	0	0	4	0	2	1	NA	AC	AC or DC	1
OmniSwitch 6850E-24X	20	0	0	4	2	2	1	NA	AC	AC or DC	1
OmniSwitch 6850E-48	44	0	0	4	0	2	1	NA	AC	AC or DC	1
OmniSwitch 6850E-48X	46	0	0	2	2	2	1	NA	AC	AC or DC	1
OmniSwitch 6850E-24D	20	0	0	4	0	2	1	NA	DC	AC or DC	1
OmniSwitch 6850E-24XD	20	0	0	4	2	2	1	NA	DC	AC or DC	1
OmniSwitch 6850E-48D	44	0	0	4	0	2	1	NA	DC	AC or DC	1
OmniSwitch 6850E-48XD	46	0	0	2	2	2	1	NA	DC	AC or DC	1
Power over Ethernet+ models											
OmniSwitch 6850E-P24	0	20	0	4***	0	2	1	240 W	AC	AC	1
OmniSwitch 6850E-P24X	0	20	0	4***	2	2	1	240 W	AC	AC	1
OmniSwitch 6850E-P48	0	44	0	4***	0	2	1	240 W	AC	AC	1
OmniSwitch 6850E-P48X	0	46	0	2***	2	2	1	240 W	AC	AC	1
OmniSwitch 6850E-P24H	0	20	0	4***	0	2	1	390 W	AC	AC	1
OmniSwitch 6850E-P24XH	0	20	0	4***	2	2	1	390 W	AC	AC	1
OmniSwitch 6850EP24T	0	20	0	4***	0	2	1	780 W	AC	AC	1
OmniSwitch 6850EP24XT	0	20	0	4***	2	2	1	780 W	AC	AC	1
OmniSwitch 6850E-P48H	0	48	0	4***	0	2	1	780 W	AC	AC	1
OmniSwitch 6850E-P48XH	0	48	0	2***	2	2	1	780 W	AC	AC	1
Fiber optic models											
OmniSwitch 6850E-U24X	0	0	22**	2	2	2	1	NA	AC	AC or DC	1
OmniSwitch 6850E-U24XD	0	0	22**	2	2	2	1	NA	DC	AC or DC	1
Network Interface modules											
OS6-XNI-U2	0	0	0	0	2	0	NA	NA	NA	NA	NA

Remarks
*Standard CX4-Copper Stack ports are compatible with OmniSwitch 6850 and can be exchanged with OS6-XNI-U2 module
**SFP port supports both Fast Ethernet and Gigabit Ethernet transceivers
***Combo port supports PoE+
NA - Not available

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OmniSwitch™ 6450-24/48

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniSwitch 6450 Value Fast and Gigabit Ethernet Stackable LAN family offers versatile, 24/48-port fixed configuration switches with optional upgrade paths Gigabit Ethernet (GigE) access, for 10 gigabit stacking, 10 GigE uplinks and metro Ethernet services.

With an optimized design for flexibility and scalability as well as low power consumption, the OmniSwitch 6450 Stackable Fast and Gigabit Ethernet Switch runs the field-proven Alcatel-Lucent Operating Software (AOS), providing an outstanding edge solution for highly available, secure, self-protective, easily managed and eco-friendly networks.

The Alcatel-Lucent OmniSwitch 6450 family is embedded with the latest technology, AOS innovations and offers maximum investment protection.

Solutions benefiting from the OmniSwitch 6450 family of switches are:

• Edge of small to medium-sized networks

• Branch office enterprise and campus workgroups

• Residential and commercial managed services applications

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OmniSwitch 6450-24/48

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Meets any customer configuration need and offers excellent investment protection and flexibility, as well as ease of deployment, operation and maintenance

- Outstanding performance when supporting real-time voice, data and video applications for converged scalable networks

- Ensures efficient power management, reduces operating expenses (OPEX) and lowers total cost of ownership (TCO) through energy efficient Ethernet and dynamic Power over Ethernet (PoE) allocation, which delivers only the power needed by the attached device

- A field-upgradeable solution that makes the network highly available and reduces OPEX

- Fully secures the network at the edge, at no additional cost

- Enterprise-wide cost reduction through hardware consolidation to achieve network segmentation and security without additional hardware installation

- Supports cost-effective installation and deployment with automated switch setup and configuration and end-to-end virtual LAN (VLAN) provisioning

- Simplifies metro Ethernet network operations, administration and maintenance (OA&M) for service providers

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OmniSwitch 6450-24/48

VERSATILE FEATURES AND MODELS

- 24 and 48 ports, PoE, non-PoE and 24-port fiber models with two fixed SFP+ 10G ready interfaces

- Scalability from 24 to 384 Gigabit Ethernet ports and 16 10GigE ports

- Optional SFP+ stacking module, supports local and remote stacking

- Optional 10GigE uplink license option

- Optional metro services feature license option for service provider deployments

- Support for IEEE 802.3af as well as IEEE 802.3at-compliant PoE

- Internal AC or DC redundant power supplies

MANAGEMENT

- AOS field-proven software with management through web interface (WebView), command line interface (CLI) and Simple Network Management Protocol (SNMP)

- Ethernet OA&M support for service configuration and monitoring

- Support by Alcatel-Lucent OmniVista 2500 Network Management System (NMS)

- Alcatel-Lucent 5620 Service Aware Manager (SAM) applications for service providers

SECURITY FEATURES

- Flexible device/user authentication with Alcatel-Lucent Access Guardian (IEEE 802.1x/MAC/captive portal) with Host Integrity Check (HIC)

- Advanced quality of service (QoS) and Access Control Lists (ACLs) for traffic control, including an embedded denial of service (DoS) engine to filter out unwanted traffic attacks

- Extensive support of AOS user-oriented features such as learned port security (LPS), port mapping, Dynamic Host Configuration Protocol (DHCP) binding tables and unified network profile (UNP)

PERFORMANCE AND REDUNDANCY FEATURES

- Advanced Layer 2+ features with basic Layer 3 routing for both IPv4 and IPv6

- Model dependent
  - ¬ Fast Ethernet (10/100) access ports upgradeable to Gigabit Ethernet (10/100/100)
  - ¬ Gigabit Ethernet (10/100/1000) access ports
  - ¬ SFP based access ports supporting 100Base-X or 1000Base-X optical transceivers

- SFP uplinks, supporting GigE and 10 GigE with upgrade license installed

- Wire-rate switching and routing performance

- High availability with virtual chassis concept, redundant stacking links, primary/secondary unit failover, hot-swappable power options and configuration rollback

CONVERGENCE

- Enhanced VoIP and video performance with policy-based QoS

- Future-ready support for multimedia applications with wire-rate multicast

- IEEE 802.3at PoE+ support for IP phones, wireless LAN (WLAN) access points and video cameras

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OmniSwitch 6450-24/48

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

OmniSwitch 6450 24/58 family	FE*** RJ-45 ports	GigE RJ-45 ports	GigE SFP ports	GigE combo ports	GigE/10GigE SFP+ ports*	10G stacking ports**	PoE power budget	Main power supply	Optional backup PSU	Height rack units
Standard models, AC and DC										
OmniSwitch 6450-24L	24	0	0	0	2	2	NA	AC	AC or DC	1
OmniSwitch 6450-48L	48	0	0	0	2	2	NA	AC	AC or DC	1
OmniSwitch 6450-24	0	24	0	0	2	2	NA	AC	AC or DC	1
OmniSwitch 6450-48	0	48	0	0	2	2	NA	AC	AC or DC	1
Power over Ethernet models										
OmniSwitch 6450-P24L	24	0	0	0	2	2	390 W	AC	AC	1
OmniSwitch 6450-P48L	48	0	0	0	2	2	700 W	AC	AC	1
OmniSwitch 6450-P24	0	24	0	0	2	2	390 W	AC	AC	1
OmniSwitch 6450-P48	0	48	0	0	2	2	700 W	AC	AC	1
Fiber optic models										
OmniSwitch 6450-U24	0	0	22	2	2	2	NA	AC	AC or DC	1

Remarks
*10 Gigabit speed requires OS6450-SW-PERF license
**10 Gigabit stacking requires OS6450-XNI-U2 expansion module and cables
***Fast Ethernet ports can be upgraded to Gigibit Ethernet by software licenses
All main power supplies are internal.
All non-PoE model power supplies are internal.
NA - Not available

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OmniSwitch™ 6450-10

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniSwitch 6450-10 Value Gigabit Ethernet LAN family is designed for classroom, enterprise workgroups and managed services segments. With an optimized small design as well as low power consumption, the OmniSwitch 6450-10 runs the field-proven Alcatel-Lucent Operating System (AOS), providing an outstanding edge solution for highly available, secure, self-protective, easily managed and eco-friendly networks.

The Alcatel-Lucent OmniSwitch 6450 family is embedded with the latest technology, AOS innovations and offers maximum investment protection.

Solutions benefiting from the OmniSwitch 6450-10 family of switches are:
• Classroom and workgroup networks
• Branch office enterprise workgroups
• Metro Ethernet managed services applications

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6450-10**

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OmniSwitch 6450-10

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Small form factor and fanless design (zero noise output) make the OmniSwitch 6450-10 models ideal for workgroup, library and classroom environments.

- Starts with the Fast Ethernet (FE) models (10L/P10L) and later migrates to gigabit user port speeds with license upgrade

- Power over Ethernet (PoE) models offer 120 W of PoE power and are IEEE 802.3at compliant

- Creates advanced managed services customer premises equipment (CPE) when adding the metro license option

- Low power consumption reduces operating expenses (OPEX) and cooling costs, resulting in faster return on investment (ROI)

- Leads the industry in price/feature-performance ratio and offers customers a cost-efficient advanced Layer 2+ network technology solution either in FE or Gigabit Ethernet (GigE) options

- Provides outstanding features and performance for supporting scalable, real-time voice, data and video applications for converged networks

- Allows existing AOS customers/users immediate familiarity with the product from day one, reducing their total cost of ownership (TCO) and training costs. New users may choose the method of switch access most beneficial to their needs.

- Limited lifetime hardware warranty eliminates service program costs and ongoing service renewals, lowering TCO and allowing customers to quickly reach their ROI targets.

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OmniSwitch 6450-10

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

VERSATILE FEATURES AND MODELS

- Offers 10/P10 gigabit models or FE 10L/P10L models with upgrade path to gigabit speeds

- All models have small, optimized form factor and are fanless.

- Optional metro services feature license option for service provider deployments

- Support for IEEE 802.3af as well as IEEE 802.3at-compliant PoE

- Internal AC power supply on all models

MANAGEMENT

- AOS field-proven software with management through web interface (WebView), command line interface (CLI) and Simple Network Management Protocol (SNMP)

- Ethernet operations, administration and maintenance (OA&M) support for service configuration and monitoring

- Support by Alcatel-Lucent OmniVista 2500 Network Management System (NMS)

- Alcatel-Lucent 5620 Service Aware Manager (SAM) applications for service providers

SECURITY FEATURES

- Flexible device/user authentication with Alcatel-Lucent Access Guardian (IEEE 802.1x/MAC/captive portal) with Host Integrity Check (HIC)

- Advanced quality of service (QoS) and Access Control Lists (ACLs) for traffic control, including an embedded denial of service (DoS) engine to filter out unwanted traffic attacks

- Extensive support of AOS user-oriented features such as learned port security (LPS), port mapping, Dynamic Host Configuration Protocol (DHCP) binding tables, and unified network profile (UNP)

PERFORMANCE AND REDUNDANCY FEATURES

- Advanced Layer 2+ features with basic Layer 3 routing for both IPv4 and IPv6

- Triple speed (10/100/1000) user interfaces and GigE fiber interfaces (SFPs) supporting 100Base-X or 1000Base-X optical transceivers

- Wire-rate switching and routing performance

- High availability with virtual chassis concept, redundant stacking links, primary/secondary unit failover, hot-swappable power options and configuration rollback

CONVERGENCE

- Enhanced VoIP and video performance with policy-based QoS

- Future-ready support for multimedia applications with wire-rate multicast

- IEEE 802.3at PoE+ support for IP phones, wireless LAN (WLAN) access points and video cameras

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OmniSwitch 6450-10

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

OmniSwitch 6450-10 port models	Fast Ethernet RJ-45 ports	GigE RJ-45 ports	GigE SFP ports	GigE combo ports	PoE power budget	Main power supply	Optional backup PSU	Height rack units
Standard models								
OmniSwitch 6450-10L	8	0	2	2	NA	AC	NA	1
OmniSwitch 6450-10	0	8	2	2	NA	AC	NA	1
Power over Ethernet models								
OmniSwitch 6450-P10L	8	0	2	2	120 W	AC	NA	1
OmniSwitch 6450-P10	0	8	2	2	120 W	AC	NA	1
Remarks 10 port models are 1/2 rack width. 19" rack mounting options sold separately. All 10 port models are fanless. NA - Not available								

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**OMNISWITCH
6250**

OmniSwitch™ 6250

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniSwitch 6250 Stackable Fast Ethernet Switch is a Layer 2+ LAN family of switches for both the enterprise and Ethernet access segments. Enterprise models address the small and medium-sized enterprise edge and branch office environments, while the metro models address the residential and business Ethernet access supplied by service providers.

With an optimized design for flexibility and scalability as well as low power consumption, the OmniSwitch 6250 runs on the field-proven Alcatel-Lucent Operating System (AOS), providing an outstanding edge solution for highly available, self-protective, easily managed and eco-friendly networks.

The Alcatel-Lucent OmniSwitch 6250 family is an evolution of the current Alcatel-Lucent OmniStack™ 6200 Stackable LAN Switch family, embedding the latest technology and AOS innovations.

Solutions benefiting from the OmniSwitch 6250 family of switches are:

• Edge of small to medium-sized networks

• Branch office enterprise workgroups

• Residential and commercial managed services applications

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OMNISWITCH
6450-10

**OMNISWITCH
6250**

OmniSwitch 6250

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Provides simplified selection with only two enterprise models (PoE and non-PoE):
  - ¬ Reduces sparing and inventory costs
  - ¬ Allows for any mix of PoE and non-PoE, up to 192 ports
- Small form factor and low noise output make the OmniSwitch 6250 ideal for collocation environments. The low power consumption reduces operating expenses and cooling costs, lowering OPEX and resulting in faster return on investment (ROI).

- Leads the industry in price/feature performance ratio and offers customers a cost-effective network technology upgrade without the necessity of moving to a higher priced Layer 2+ gigabit solution
- Provides outstanding features and performance for supporting scalable, real-time voice, data and video applications for converged networks

- Allows existing AOS customers/users immediate familiarity with the product from day one, reducing their total cost of ownership (TCO) and training costs. New users may choose the method of switch access most beneficial to their needs.
- Lifetime warranty eliminates service program costs and ongoing service renewals, lowering TCO and allowing customers to reach ROI targets more quickly.

OmniSwitch 6250

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Innovative models with half-rack width for greater variety of switch combinations

- Highly efficient and optimized in their form factor, power consumption and acoustic output

- Developed to satisfy customer requests for a feature-rich, cost-effective, 10/100 stackable switch built on the latest technologies

- AOS-based, field-proven software with management through web interface (WebView), command line interface (CLI) and Simple Network Management Protocol (SNMP)

- Supported by Alcatel-Lucent OmniVista 2500 Network Management System (NMS) and Alcatel-Lucent 5620 Service Aware Manager (SAM) applications for service providers

SECURITY FEATURES

- Auto-sensing network access control (NAC) through the Alcatel-Lucent Access Guardian framework (multi-client/VLAN 802.1X, MAC, rules)

- Advanced quality of service (QoS) and Access Control Lists (ACLs) for traffic control, including an embedded denial of service (DoS) engine to filter out unwanted traffic attacks

- Web-based authentication (captive portal)

PERFORMANCE AND REDUNDANCY FEATURES

- Advanced Layer 2+ features with basic Layer 3 routing for both IPv4 and IPv6 wire-rate switching and routing performance

- High availability with virtual chassis concept, redundant stacking links, primary/secondary unit failover, hot-swappable power options and configuration rollback

FEATURES FOR SMALL TO MEDIUM-SIZED ENTERPRISE EDGE, BRANCH OR SMALL BUSINESS SCENARIOS

- Feature-rich Fast Ethernet switches at the LAN edge where gigabit speed is not required

- Very flexible media options with PoE and non-PoE

- Two combo ports on each unit, individually configurable for connectivity to servers, aggregating switches or data centers

- Scalable up to 192 10/100 and 16GigE ports per 4 RU rack space

- Highly optimized in their form factor and acoustic output for collocation environments

- Wire-speed Layer 2+ and basic Layer 3 switching

- Intelligent, secure and available networking for demanding applications

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OmniSwitch 6250

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

FEATURES FOR RESIDENTIAL AND BUSINESS ETHERNET ACCESS SERVICES

- Ethernet services: Virtual LAN (VLAN) stacking, SVLAN, CVLAN

- Ethernet OA&M (ITU-T Y.1731 and IEEE 802.1ag (v8.1)) for management and troubleshooting

- TR-101 PPPoE Intermediate Agent allowing for the Point-to-Point Protocol over Ethernet (PPPoE) network access method

- MAC-forced forwarding support according to RFC 4562

- Embedded Customer Provider Edge (CPE) Test Head traffic generator and analyzer tool to validate the customer service level agreements (SLAs)

- Layer 2 Protocol Tunneling (L2PT)

- Service Assurance Agent (SAA) including: L2, IP, ETH-LB and ETH-DMM

- ITU-T G.8032 Ethernet Ring Protection

- Zero touch auto-configuration through Dynamic Host Configuration Protocol (DHCP) services

- Extensive QoS capability guarantees delivery: Tri-color marking, flow (policy)-based and port-based bandwidth management for both ingress rate limiting and/or egress rate shaping

- IPTV multicast for video services delivery

- Metro edge security features (private VLAN, DHCP and Internet Group Management Protocol [IGMP] snooping, Access Guardian) for traffic containment

- Supported by industry-leading Alcatel-Lucent 5620 SAM

- Compliant with MEF 9 and 14

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OmniSwitch 6250

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

	Fast Ethernet RJ-45 ports	GigE SFP ports	GigE combo ports**	2.5G stacking ports	PoE power budget	Main power supply	Optional backup PSU	Height rack units
Standard models, AC and DC								
OmniSwitch 6250-24	24	0	2	2	NA	AC	AC or DC	1
Power over Ethernet plus (PoE+) models								
OmniSwitch 6250-P24	24	0	2	2	180 W	AC	AC	1
Metro Ethernet models, AC and DC								
OmniSwitch 6250-8M	8	2*	2	0	NA	AC	NA	1
OmniSwitch 6250-24M	24	2*	2	0	NA	AC	AC or DC	1
OmniSwitch 6250-24MD	24	2*	2	0	NA	DC	AC or DC	1
Remarks *SFP ports can be used for transceiver or 2.5G stacking **Supports both Gigabit and Fast Ethernet transceivers NA - Not available								

OMNIACCESS
6000

OMNIACCESS
4000

STANDARD / REMOTE
ACCESS POINTS

INSTANT
ACCESS POINTS

OmniAccess™ 6000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess 6000 is a high-performance, fully featured, modular WLAN switch able to aggregate up to 2048 campus-connected access points (APs). The OmniAccess 6000 provides a true user-centric network experience, delivering follow-me connectivity, identity-based access and application continuity services.

The OmniAccess 6000 offers a scalable design that supports large deployments and can be easily implemented as an overlay without disruption to the existing wired network. Advanced Voice over WLAN (VoWLAN) features such as call admission control (CAC), voice-aware radio frequency (RF) management, application fingerprinting and strict over-the-air quality of service (QoS) allow the OmniAccess 6000 to deliver mobile VoIP capabilities.

The OmniAccess 6000 is managed through the integrated management capability of the Alcatel-Lucent OmniAccess Wireless Operating System or the Alcatel-Lucent OmniVista™ 3600 Air Manager.

OmniAccess 6000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Supports multiple supervisor engines designed to handle heavy traffic loads generated by IEEE 802.11n APs

- Can control up to 2048 campus-connected APs by offering a "pay-as-you-grow" model. The OmniAccess 6000 AP capacity can grow with the addition of supervisor modules and/or software licenses.

- Allows for overlay deployments without disruption to the existing wireline infrastructure

- Simplifies management by minimizing the number of network elements

- Provides analysis of the RF environment to facilitate deployment with self-tuning APs and to facilitate operation of the network with virtual real-time site survey

- Integrates both wireless networking and wireless intrusion detection and prevention, thus reducing the cost of wireless infrastructure and cost of operating the wireless network

- Provides visibility into sources of RF interference with integrated spectrum analyzer

- Prevents unauthenticated users from accessing the corporate wireless network, while safely supporting guest users, contractors and corporate users

- Decreases management burden of security through role-based security

- Allows for the real-time location tracking of wireless users to enrich presence information. Also supports location tracking of wireless asset tags throughout the enterprise

- Improves voice quality through support of quality of service (QoS) mechanisms such as Wi-Fi multimedia (WMM), differentiated services code point (DSCP) marking and prioritization, and call admission control (CAC)

- Improves end users' voice experience by maximizing battery life with protocols such as Unscheduled Automatic Power Save Delivery (U-APSD)

- Provides unmatched voice security through embedded stateful firewall

- Allows for seamless handoff of voice terminal as users move from AP to AP

- With application fingerprinting technology, enables identification of encrypted voice and video protocols and allows application of QoS

OmniAccess 6000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- High performance
- Scalable architecture
- Centralized WLAN switching
- Dynamic RF management

- Integrated wireless intrusion prevention
- Integrated spectrum analysis
- User-centric security with stateful firewall

- Real-time location tracking
- Application fingerprinting
- QoS, extended battery capabilities, seamless roaming for support of voice terminals

**OMNIACCESS
6000**

OMNIACCESS
4000

STANDARD / REMOTE
ACCESS POINTS

INSTANT
ACCESS POINTS

OmniAccess 6000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	Local access points*	Remote access points*	Mesh nodes*	Built-in access point	Fast Ethernet RJ-45 ports	Fast Ethernet PoE+ ports	GigE RJ-45 ports	GigE PoE+ ports	GigE combo ports	GigE SFP ports	10GigE XFP ports	Power supply AC/DC	Optional backup PSU	Height rack units	Redundant power supply
OmniAccess WLAN 6000, 1 x sup 3	512	1024	1024	0	0	0	0	0	0	10	2	AC	AC	2.5	Yes
OmniAccess WLAN 6000, 2 x sup 3	1024	2048	2048	0	0	0	0	0	0	20	4	AC	AC	2.5	Yes
OmniAccess WLAN 6000, 3 x sup 3	1536	3072	3072	0	0	0	0	0	0	30	6	AC	AC	2.5	Yes
OmniAccess WLAN 6000, 4 x sup 3	2048	4096	4096	0	0	0	0	0	0	40	8	AC	AC	2.5	Yes
Remarks *Needs licensing															

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OmniAccess™ 4000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess 4000 family of high-performance wireless LAN (WLAN) switches is fixed form factor controllers designed for advanced WLAN services. At the same time they offer a cost-effective price point for small to large networks.

The switches share a common set of advanced features to offer best-in-class security and accommodate demanding applications such as Voice over WLAN (VoWLAN). In addition, these WLAN switches simplify the deployment, monitoring and troubleshooting of the WLAN infrastructure.

The switches aggregate network traffic from access points (APs), process the traffic, and deliver it to the network.

The OmniAccess 4000 family includes multiple models designed to support the various requirements of differently sized wireless networks such as campus, branch office and small business networks. The OmniAccess™ 4306, 4306G/GW, 4504, 4604 and 4704 are fully featured WLAN switches designed from the ground up to support the traffic load of IEEE 802.11n high-speed wireless networks with the ability to aggregate up to 8, 16, 32, 64 and 128 LAN-connected APs respectively.

The OmniAccess 4306 and 4306G/GW are specially designed for cost-effective branch office deployment, providing advanced wireless services identical to those offered by the other 4000 family WLAN switches. The OmniAccess 4306 and 4306G/GW go beyond pure wireless services by providing 3G connectivity, built-in print and file servers and secure Ethernet connectivity.

OmniAccess 4000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Handles heavy traffic loads generated by IEEE 802.11n high-performance networks

- Supports "pay-as-you-grow" capability through software licensing model. WLAN switch AP capacity can grow with the addition of software licenses.

- Allows for overlay deployments without disruption to the existing wireline infrastructure

- Simplifies management by minimizing the number of network elements

- Provides analysis of the RF environment to facilitate deployment with self-tuning APs and to facilitate operation of the network with virtual real-time site survey

- Integrates both wireless networking and wireless intrusion detection and prevention, thus reducing the cost of wireless infrastructure and cost of operating the wireless network

- Provides visibility into sources of RF interference with integrated spectrum analyzer

- Prevents unauthenticated users from accessing the corporate wireless network, while safely supporting guest users, contractors and corporate users

- Decreases management burden of security through role-based security

- Allows for the real-time location tracking of wireless users to enrich presence information. Also supports location tracking of wireless asset tags throughout the enterprise

- Improves voice quality through support of quality of service (QoS) mechanisms such as Wi-Fi® multimedia (WMM), differentiated services code point (DSCP) marking and prioritization, and call admission control (CAC)

- Improves end users' voice experience by maximizing battery life with protocols such as Unscheduled Automatic Power Save Delivery (U-APSD)

- Provides unmatched voice security through embedded stateful firewall

- Allows for seamless handoff of voice terminal as users move from AP to AP

- With application fingerprinting technology, enables identification of encrypted voice and video protocols and allows application of QoS

- In addition, branch office WLAN switches (OmniAccess 4306, 4306G/GW) provide USB ports, which can be used to connect storage devices or printers. These devices are then accessible anywhere in the branch network.

- Has provision for 3G connectivity, allowing the rapid setup of a branch network when no wired connection (DSL, for example) is available

- Can be used as a backup connection in case of primary wired link failure

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OmniAccess 4000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- High performance

- Scalable architecture

- Centralized WLAN switching

- Dynamic RF management

- Integrated wireless intrusion
  prevention

- Integrated spectrum analysis

- User-centric security with stateful
  firewall

- Real-time location tracking

- Application fingerprinting

- QoS, extended battery capabilities,
  seamless roaming for support of voice
  terminals

- 3G connectivity, built-in print and file
  servers and secured Ethernet
  connectivity available in branch office
  WLAN switches

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OmniAccess 4000

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Standalone models	Local access points*	Remote access points*	Mesh nodes*	Built-in access point	Fast Ethernet RJ-45 ports	Fast Ethernet PoE+ ports	GigE RJ-45 ports	GigE PoE+ ports	GigE combo ports	GigE SFP ports	10GigE XFP ports	Power supply AC/DC	Optional backup PSU	Height rack units	Redundant power supply
OmniAccess WLAN 4306	8	32	32	0	4	4	1	0	0	0	0	AC	NA	1	NA
OmniAccess WLAN 4306G	16	64	64	0	0	0	2	4	0	2	0	AC	NA	1	NA
OmniAccess WLAN 4306GW	17	64	64	1	0	0	2	4	0	2	0	AC	NA	1	NA
OmniAccess™ WLAN 4505XM	32	128	128	0	0	0	0	0	4	0	0	AC	NA	1	NA
OmniAccess™ WLAN 4604	64	256	256	0	0	0	0	0	4	0	0	AC	NA	1	NA
OmniAccess™ WLAN 4704	128	512	512	0	0	0	0	0	4	0	0	AC	NA	1	NA
Remarks *Needs licensing NA - Not available															

STANDARD/REMOTE ACCESS POINTS

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess™ family of wireless access points (APs) is designed to support the various requirements of mobile enterprise networks from large campuses to small branch offices to remote offices. The APs aggregate wireless user traffic onto the enterprise network and direct this traffic to OmniAccess WLAN switches.

The OmniAccess wireless APs are offered in both indoor and outdoor models, with dual and single radio configurations. This broad portfolio of APs addresses the needs of a wide array of environments including:

- Indoor and outdoor dual radio deployments

- Indoor single radio deployments

- Challenging radio frequency (RF) indoor deployments

- Ceiling deployments

- Workspace deployments

- Telecommuter deployments

- Harsh environment/factory floor deployments

- Secure outdoor wireless bridging deployments

- Remote AP (RAP) capabilities

- Integrated Trusted Platform (TPM) for secure storage of credentials and keys

- IEEE 802.11n compliancy

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PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Multi-function APs simultaneously providing WLAN access, air monitoring, and wireless intrusion detection and prevention

- Fully featured, enterprise-grade access points

- Multi-purpose APs with the ability to support remote AP operation or mesh AP operation

- High-speed wireless with up to 300 Mb/s of throughput per radio on all OmniAccess APs (RAP-2WG supports up to 54 Mb/s and AP68 supports up to 75 Mb/s)

- IEEE 802.3af Power over Ethernet (PoE) power sourcing. Also supports IEEE 802.3at PoE+ on some models

- High availability with dual Ethernet ports on the OmniAccess AP120 series

- Support for antenna diversity for enhanced antenna sensitivity and support of multiple input multiple output (MIMO)

- Flexible mounting options with support for wall, ceiling and plenum deployments

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PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

- High-speed wireless with up to 450 Mb/s of throughput. Improved coverage compared with IEEE 802.11a/b/g technologies. Backward compatibility with 802.11a/b/g Wi-Fi® clients

- Supports key enterprise-grade functions such as Adaptive Radio Management (ARM), air monitoring over 2.5 GHz and 5 GHz spectrum, wireless intrusion prevention, Call Admission Control (CAC), quality of service (QoS), and battery life extension for portable phone equipment

- All APs support IEEE 802.11n (OmniAccess RAP-2WG only supports 802.11b/g)

- Integrated antenna supported on OmniAccess AP93, OmniAccess AP105, OmniAccess AP121 and OmniAccess AP125

- RP-SMA antenna interfaces supported on OmniAccess AP92, OmniAccess AP120 and OmniAccess AP124

- Quad N-type female antenna interfaces supported on outdoor APs

- 10/100/1000Base-T (RJ-45) auto-sensing Ethernet interfaces with support for IEEE 802.3af PoE or 802.3at, PoE+ supports

- DC power connector for external (optional) country-specific AC adapter kits

STANDARD/REMOTE ACCESS POINTS

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	IEEE 802.11n	Campus access point	Standard access point	Campus mesh	Remote mesh	Air monitor	Spectrum analysis	Number of radios	Operating frequency bands	Antennas or connector	GigE RJ-45 ports	Fast Ethernet RJ-45 ports	Power	Max power
Indoor AP models														
AP-68	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	No	1	2.4	Integrated	0	1	PoE/DC	8 W
AP-68P****	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	No	1	2.4	Integrated	0	1	PoE/DC	8 W
AP-92	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	SMA	1	0	PoE/DC	10 W
AP-93	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	Integrated	1	0	PoE/DC	10 W
AP-104	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	SMA	1	0	PoE/DC	12.5 W
AP-105	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	Integrated	1	0	PoE/DC	12.5 W
AP-120	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	SMA	2	0	PoE/DC	12 W
AP-121	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	Integrated	2	0	PoE/DC	12 W
AP-124	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	SMA	2	0	PoE/DC	16 W
AP-125	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	Integrated	2	0	PoE/DC	16 W
AP-134	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	SMA	2	0	PoE/DC	18 W
AP-135	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	Integrated	2	0	PoE/DC	18 W
Remote AP models														
RAP-2WG	No***	No	Yes*	No	No	Yes*		1	2.4	Integrated	0	2	DC	6.5 W
RAP-5WN	Yes	No	Yes*	No	No	Yes*		1	2.4/5	Integrated	1	4	DC	12 W
Outdoor AP models														
AP-175POE	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	N-type	1	0	PoE+	15 W
AP-175AC	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	N-type	1	0	AC	15 W
AP-175DC	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	N-type	1	0	DC	15 W

Remarks
*Please check operating system version for compatibility.
**Concurrent use of both radios in the same frequency band is not supported.
***Supports IEEE 802.11b/g
****Available in China only

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PRODUCT OVERVIEW

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess family of wireless instant access points (IAPs) is designed to support the various requirements of mobile enterprise networks from branch office to small offices to remote offices. IAPs do not require any OmniAccess WLAN switches/controllers. One of the IAPs within a cluster IAPs operates as a virtual controller and manages other IAPs in the cluster. Maximum number of IAPs supported in a cluster is 16.

The OmniAccess wireless IAPs are offered with dual and single radio configurations. This broad portfolio of IAPs addresses the needs of a wide array of environments including:

• Indoor dual radio deployments

• Indoor single radio deployments

• Challenging radio frequency (RF) indoor deployments

• Ceiling deployments

• Workspace deployments

• Telecommuter deployments

• Remote AP (RAP) capabilities

• Integrated Trusted Platform (TPM) for secure storage of credentials and keys

• IEEE 802.11n compliancy

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PRODUCT OVERVIEW

KEY FEATURES

TECHNICAL INFORMATION

- High-speed wireless with up to 450 Mb/s of throughput. Improved coverage compared with IEEE 802.11a/b/g technologies. Backward compatibility with 802.11a/b/g Wi-Fi clients

- Supports key enterprise-grade functions such as Adaptive Radio Management (ARM), air monitoring over 2.5 GHz and 5 GHz spectrum, wireless intrusion prevention, quality of service (QoS), and battery life extension for portable phone equipment

- Integrated antenna supported on OmniAccess Instant AP93, OmniAccess Instant AP105, OmniAccess Instant AP134 and OmniAccess Instant AP135

- RP-SMA antenna interfaces supported on OmniAccess Instant AP92 and OmniAccess AP134

- 10/100/1000Base-T (RJ-45) auto-sensing Ethernet interfaces with support for IEEE 802.3af PoE or 802.3at, PoE+ supports

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INSTANT ACCESS POINTS

PRODUCT OVERVIEW

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	IEEE 802.11n	Campus access point	Remote access point	Campus mesh	Remote mesh	Air monitor	Spectrum analysis	Number of radios	Operating frequency bands	Antennas or connector	GigE RJ-45 ports	Fast Ethernet RJ-45 ports	Power	Max power
Indoor AP models														
IAP-92	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	SMA	1	0	PoE/DC	10 W
IAP-93	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	1	2.4/5	Integrated	1	0	PoE/DC	10 W
IAP-105	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	Integrated	1	0	PoE/DC	12.5 W
IAP-134	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	SMA	2	0	PoE/DC	18 W
IAP-135	Yes	Yes*	Yes*	Yes*	Yes*	Yes*	Yes*	2	2.4/5	Integrated	2	0	PoE/DC	18 W

Remarks
*Please check operating system version for compatibility.

OMNIACCESS™ 5800 ESR MODULAR

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The OmniAccess 5800 Enterprise Services Router (ESR) series is an innovative and revolutionary product brings together network transport and business applications in the same dual core hardware platform. It is a high-performance router and PBX with an integrated standards-based secure application server, thus providing unified management aimed at simplifying provision and maintenance tasks.

The 5800 ESR can act as an office server for files/printers/scanners, IP telephony, domotics (home automation) management, energy efficiency, Lightweight Directory Access Protocol (LDAP) backup, and many other uses. It is based on standards so any application based on GNU/Linux can be easily and quickly migrated making the OmniAccess 5800 series an integrated solution that reduces dedicated server maintenance costs.

The 5800 series is also a professional router with a advanced features and routing capacity superior to 100 Mb/S, a full network Operating System in addition to many different LAN and WAN connectivity capabilities. The router can incorporate Wi-Fi® and 4G (cellular) interfaces. Additionally, by using its two expansion slots, a myriad of interfaces can be added: VDSL2, ADSL2+, G.SHDSL (2p), 3 serial ports, 2 BRI, 2 SFP, 4 FXS/FXO, 2 E&M, or 4 E1/T1.

OMNIACCESS 5800 ESR MODULAR

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- 800 MHz dual core CPU provides full routing functionality and leaves a core available for applications

- Simplifies application management in offices by integrating it into the same box as the router

- Advanced routing functions (ex. DM-VPN, dynamic routing, VRRP)

- Superior performance when compared to much more expensive routers

- The SNMPv3 agent allows integration with network management platforms

- Embedded WLAN IEEE 802.11a/b/g/n interface (MIMO, double port for external Wi-Fi antennas), with professional security (IEEE 802.11i)

LAN   WLAN   **WAN**   MANAGEMENT   SECURITY

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**OMNIACCESS 5800   OMNIACCESS 5725   OMNIACCESS 5700   OMNIACCCESS ESR   7750 SR   7705 SAR   7450 ESS   1830 PSS
ESR MODULAR**   ESR RUGGED   ESR COMPACT   WWAN ENABLER

OMNIACCESS 5800 ESR MODULAR

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

State of the art in hardware and software

Two independent devices perfectly integrated into one box:

• Powerful modular router with advanced routing functionality

• Versatile applications server with a Debian GNU/Linux base (in selected models)

Modularity

• Two Gigabit Ethernet ports and an 8-port integrated switch (with optional PoE) are always included.

• 2 expansion slots and many card possibilities: VDSL2, ADSL2+, G.SHDSL (2p), 3 serial ports, 2 BRI, 2 SFP, 4 FXS/FXO, 2 E&M, or 4 E1/T1

Routing software oriented toward enterprises

The software is based on a recognized industry platform that has been employed for decades in the most security-conscious environments.

• Supports IP telephony with Media Gateway features (MGCP, SIP, H323) and IP telephony integrated server capable of managing up to 300 telephones with SIP, H323, Alcatel-Lucent NOE/UE or SCCP (Skinny) protocols

• QoS with CBWFQ, LLQ and WRED algorithms supporting hierarchical system with 32 different traffic classes per interface, traffic marking and profiling as well as traffic preclassification contained in VPNs and integrating QoS with MPPP and fragmentation

• Necessary routing protocols adapted to corporate networks and MPLS in general (RIP-2, BGP-4 and OSPF in addition to Policy Routing, routing activating based on polls, HSRP, VRRP, VRF)

• Management adapted to needs of carriers and large enterprises through powerful command-line interfaces (CLIs), access controlled through RADIUS/TACACS+, SNMPv3, ample level of debugs and statistics, integrated analyzer compatible with Ethereal™, now named Wireshark®

Supported applications

• Security

  ¬ Antivirus, antispam, and content filtering

  ¬ IDS (Intrusion Detection System)

• WAN optimization

  ¬ Video proxy

  ¬ Web cache

  ¬ NAS (Network Attached Storage) with cloud backup

• Network tools

  ¬ NTOP: network monitoring and deep packet inspection

  ¬ Locally detected IT inventory generation

  ¬ IT Toolkit. Server for printers, DNS, DHCP and LDAP

• Voice tools

  ¬ IP call detection and recording

• Others

  ¬ Digital signage

OMNIACCESS 5800 ESR MODULAR

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	HARDWARE FEATURES												SOFTWARE FEATURES				
	Integrated LAN-Ethernet ports (optional PoE)	WAN-Ethernet ports	External slots (WIC)	Optional WLAN	USB port	Console/Asynchronous serial port	IPSec hardware acceleration/encryption	Power supply	19" metal housing	Hard disk option	Data/voice daughter boards: VDSL2, ADSL2+, G.SHDSL (2p), 1 Serial, 2 BRI, 1 SFP, 4 FXS/FXO, 2 E&M, 2 BRI (voice)	High-density daughter boards: 4 E1/T1, 3 serial, 2 SFP, G.SHDSL (4p)	Adv. routing (BGP, VRF, VRRP)	Internet Protocol version 6 (IPv6)	IPSec tunnels (max. sessions)	ToIP support (max. terminals)	User applications (on second CPU core)
OA5840	8 x 10/100	2 x 10/100/1000	1	a/b/g/n	1	1	Yes	Internal	Yes	No	Yes	No	Yes	Yes	500	300	No
OA5850	8 x 10/100	2 x 10/100/1000	2	a/b/g/n	1	1	Yes	Internal	Yes	Yes	Yes	Yes	Yes	Yes	500	300	Yes

OMNIACCESS™ 5725 ESR RUGGED

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess 5725 Enterprise Services Router is a rugged, highly intelligent industrial-grade router that delivers secure and reliable broadband IP connectivity to vehicles, as well as SCADA telemetry and remote control networks. The possible uses include vehicle connectivity, Smart Grid deployment, pipelines, and other industrial environments.

Because of the integrated Ethernet switch, OmniAccess ESR routers are capable of serving several Ethernet and serial devices devices at the remote site without additional equipment. They contain the full top-of-the-line routing and switching features of all the OmniAccess ESR router line. This includes support of IPv6, dynamic routing protocols, DMVPN, GET-VPN, multi-VRRP, advanced QoS, VLANs, SNMPv3, etc..

The router can guarantee optimum performance and maximum security in communications among multiple services in different IP networks. It multiplexes remote site communications using embedded cellular broadband or digital subscriber line (DSL) links. Maximum reliability communication is guaranteed due to a full range of management, supervision and backup functions.

Alcatel-Lucent OmniAccess ESR routers are equipped with the intelligence required for the efficient implementation of highly secured, scalable and permanently available communication services based on broadband links. Communications security is supported with state-of-the-art low latency hardware encryption, and the most complete stack of VPN protocols and firewall techniques.

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**OMNIACCESS 5725
ESR RUGGED**

OMNIACCESS 5700
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OMNIACCCESS ESR
WWAN ENABLER

7750 SR

7705 SAR

7450 ESS

1830 PSS

OMNIACCESS 5725 ESR RUGGED

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Rugged designs provide protection against extreme temperatures, vibrations, over voltages, and electromagnetic interference.

- Complete suite of IP networking protocols, security VPN and firewall features, professional router management tools

- Top-grade management. The SNMPv3 agent allows easy integration with network management platforms

- 4-port or 6-port Ethernet switch (10/100M) (depending on model)

- Embedded WLAN IEEE 802.11a/b/g/n interface (MIMO, double port for external Wi-Fi® antennas), with professional security (IEEE 802.11i) (on selected models)

- Wide array of variants with additional interfaces to select from, including cellular (LTE), VDSL, GPS, and a serial port (asynchronous)

- Powered from batteries or industrial voltage ranges (depending on model)

- Hardware encryption, optimizing transmission of encrypted traffic

- WWAN (Wireless WAN)+ proprietary optimization of network protocols for improved communication over cellular networks

LAN   WLAN   **WAN**   MANAGEMENT   SECURITY

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ESR MODULAR   ESR RUGGED   ESR COMPACT   WWAN ENABLER

OMNIACCESS 5725 ESR RUGGED

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

ADVANCED ROUTING FUNCTIONS AND QUALITY OF SERVICE

- Complex network routing, such as route balancing, routing protocols orientated to corporations, routing based on policies, multiple instant routing or routing depending on real-time measured quality on the line

- Border router for different dynamic routing domains (RIP, OSPF, or BGP), administrative distance in IP routes, route filtering based on maps and policy-based routing (PBR)

- Multi-HSRP and Multi-VRRP for network resilience and load balancing applications

- Link quality monitoring through the Alcatel-Lucent NSM/NSLA system.

SECURE COMMUNICATIONS

- Encryption processor incorporated; optimizes device performance in scenarios with IPSec tunnels

- Fully parameterized IPSec client/server with advanced IPSec features guaranteeing compatibility with other commercial VPN solutions

- Latest generation meshed topology VPN networks (Dynamic Multipoint VPN technology)

- IP filtering, MAC filtering and the SPI firewall protect the router from DoS attacks

MECHANICAL AND HARDWARE DESIGN OPTIMIZED FOR IN-VEHICLE INSTALLATION

- Anti-shock and anti-vibration protection, and high temperature dissipation

- Fed from the vehicle battery or industrial power source using robust connector

- User configurable power turnoff delays for vehicle deployments

- Optimized power consumption expands the vehicle battery autonomy

EFFICIENT COMMUNICATIONS MANAGEMENT

- A Syslog client reports any events detected by the ESR Events Logging System.

- SNMPv3 agent provides the ability to send traps and read MIB2 and Private-MIB depending on the defined management communities.

- Telnet, SSH2, FTP, TFTP, and RADIUS client

LAN   WLAN   **WAN**   MANAGEMENT   SECURITY

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OMNIACCESS 5725 ESR RUGGED

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KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Chassis models	LAN-Ethernet ports	External slots (WIQ)	VDSL port	a/b/g/n Wi-Fi	WWAN	GPS	USB port	Console/Asynchronous serial port	Sync/Async serial port	Power over Ethernet	IPSec hardware acceleration/ encryption	Power supply	19" metal housing	Fanless	rugged	Adv. routing (BGP, VRF, VRRP)	Internet Protocol version 6 (IPv6)	IPSec tunnels (max. sessions)	ToIP support (max. terminals)
									HARDWARE FEATURES							SOFTWARE FEATURES			
OA5725A	4 x 10/100	–	–	1	3G/3.7G/4G	Yes	–	1	–	–	Yes	–	–	Yes	Yes	Yes	Yes	40	400
OA5725R	6 x 10/100	–	1	–	–	–	–	1	–	–	Yes	–	–	Yes	Yes	Yes	Yes	40	100
OA5725R-4*	6 x 10/100	–	–	–	3G/3.7G	Yes	–	1	–	–	Yes	–	–	Yes	Yes	Yes	Yes	40	100

OMNIACCESS™ 5700 ESR COMPACT

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent OmniAccess 5700 Enterprise Services Router (ESR) compact router product line comprises state-of-the-art Enterprise Access Routers. The OmniAccess 5700 ESR routers deliver fast and uninterrupted network communications with the most complete networking features. A variety of network interfaces are offered on the different compact models, including 4G cellular (LTE), VDSL, SHDSL, E1/T1 CSU/DSU WAN, SFP and universal serial port (synchronous) (V.35, X.21, V.24). These routers incorporate an advanced protocol stack, including support for dynamic routing, multi-VRRP, link quality management, redundant links, VLANs, quality of service (QoS), bridging, VPNs, and Simple Network Management Protocol (SNMP) among others.

The OmniAccess 5700 ESR product line delivers many features in a compact form factor with no moving parts. It is ready to cover any need which could arise in enterprise access networks.

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- Hardware encryption, optimizing transmission of encrypted traffic

- Gigabit Ethernet port (10/100/1000M, RJ-45 connector) and 4-port switch (10/100/1000M)

- Embedded WLAN IEEE 802.11b/g/n interface (multiple-input multiple-output [MIMO], double port for external Wi-Fi® antennas), with professional security (IEEE 802.11i)

- Wide array of variants with additional interfaces to select from, including 4G cellular (LTE), VDSL, SHDSL, E1/T1 CSU/DSU WAN, SFP and universal serial port (synchronous) (V.35, X.21, V.24)

- USB Host 2.0 port for additional cellular connectivity

- External power supply (90 V to 240 V AC adaptor) or through Ethernet client integrated on selected models)

- Top-grade management. The SNMPv3 agent allows easy integration with network management platforms.

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ADVANCED ROUTING FUNCTIONS AND QOS

Series targeting small and medium branches with advanced features such as:

- Complex network routing, such as route balancing, routing protocols oriented to corporations, routing based on policies, multiple instant routing, or routing depending on real-time measured quality on the line

- Border router for different dynamic routing domains (RIP, OSPF, or BGP); administrative distance in IP routes; route filtering based on maps; etc.

- Multi-HSRP and Multi-VRRP for network resilience and load balancing applications

- Link quality monitoring through the Alcatel-Lucent NSM/NSLA system. Routing policy based on link quality (RTT, erroneous frame rate and UDP jitter)

SECURE COMMUNICATIONS

- Encryption processor incorporated; optimizes device performance in scenarios with IPSec tunnels

- Fully parameterized IPSec client/ server. Advanced IPSec features such as PKI encryption (Digital Certificates), extended authentication, and Reverse-Route Injection

- Latest generation meshed topology VPN networks (Dynamic Multipoint VPN technology)

EFFICIENT COMMUNICATIONS MANAGEMENT

- A Syslog client reports any events detected by the ESR Events Logging System.

- SNMPv3 agent provides the ability to send traps and read MIB2 and Private-MIB depending on the defined management communities.

CONNECTIVITY OPTIONS AND ADVANCED FUNCTIONALITIES:

- Cellular (up to LTE), Wi-Fi, complete serial port, ADSL2+/VDSL2, SHDSL (ATM 4p), SFP, and E1/T1

INTEGRATED VOIP SOLUTION, UNIVERSAL VOIP MEDIAGW

- Universal B2B-UA SIP Server, compatible with Alcatel-Lucent Enterprise Unified Communications and NOE/UA

- Service provided for up to 10 IP telephones in the branch

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Chassis models	HARDWARE FEATURES													SOFTWARE FEATURES			
	LAN-Ethernet ports	WAN-Ethernet ports	DSL port	Optional b/g/n Wi-Fi activated by license	WWAN (and GPS)	SFP interface	E1/T1 interface	Console/Asynchronous serial port	Sync/Async serial port	USB port	IPSec hardware acceleration/ encryption	Power supply	Fanless	Adv. routing (BGP, VRF, VRRP)	Internet Protocol version 6 (IPv6)	IPSec tunnels (max. sessions)	ToIP support (max. terminals)
OA5710V	4 x 10/100/1000	1 x 10/100/1000	1 x VDSL2	Yes	3G/3.7G/4G (optional)	–	–	1	–	1	Yes	External	Yes	Yes	Yes	50	300
OA5720S	4 x 10/100/1000	1 x 10/100/1000	1 x SHDSL	Yes	3G/3.7G/4G (optional)	–	–	1	–	1	Yes	External	Yes	Yes	Yes	50	300
OA5720T	4 x 10/100/1000	1 x 10/100/1000	–	Yes	3G/3.7G/4G (optional)	–	–	1	–	1	Yes	External	Yes	Yes	Yes	50	300
OA5720F	4 x 10/100/1000	1 x 10/100/1000	–	Yes	3G/3.7G/4G (optional)	1	–	1	–	1	Yes	External	Yes	Yes	Yes	50	300
OA5720L	4 x 10/100/1000	1 x 10/100/1000	–	Yes	3G/3.7G/4G (optional)	–	–	1	1	1	Yes	External	Yes	Yes	Yes	50	300
OA5720E	4 x 10/100/1000	1 x 10/100/1000	–	Yes	3G/3.7G/4G (optional)	–	1	1	1	1	Yes	External	Yes	Yes	Yes	50	300

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The Alcatel-Lucent OmniAccess Enterprise Services Router (ESR) Cellular WAN Enabler is an external interface card that enables the enterprise router with cellular connectivity (up to 4G LTE). This cutting-edge peripheral does not require available interface card slots, or PCMCIA or USB slots in the router. The unique interface between the ESR Cellular WAN Enabler and the router is the Ethernet.

The management of this new interface is seamlessly integrated into the router engine, so that the service intelligence offered by the router for the landline WAN service is fully available for the new wireless WAN (WWAN) service. The standards-based communication over the Ethernet between the Enabler and the router guarantees compatibility with most existing enterprise routers.

This innovative device offers an easy and cost-effective solution for boosting cellular coverage for indoor scenarios. Enterprise routers are usually hosted in the server room or in the data center room where typically there is a lack of cellular coverage or, if present, the radio signal is not strong enough to guarantee broadband speeds at LTE frequency bands. Addressing this challenge, the ESR Cellular WAN Enabler is placed outside the server room in the spot with the best available cellular coverage and delivers connectivity to the router over the corporate Ethernet network. This new approach overrides the need for expensive coaxial cables and repeaters to boost the cellular coverage, while at the same time improving reception quality.

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- Cost reduction and easy indoor cellular deployment. No expensive coaxial wiring or amplifiers are required to link the enterprise network platform to the cellular antenna, just the existing firm's Ethernet wiring.

- Reuse of the enterprise router installed base. No need for available expansion slots in the router or router upgrades.

- Compatible with third party enterprise routers. The standards-based communication with the router guarantees compatibility with a large range of third party enterprise routers.

- Fully managed from the enterprise router engine.

- Flexible traffic flow distribution policies can be implemented in the router for the efficient use of the router land-line WAN and Wireless WAN resources.

- Easy migration to future cellular technologies. The enterprise cellular technology is upgraded by just replacing the OmniAccess ESR Cellular WWAN Enabler, not the entire router.

- Best in class scalability. A single router can manage multiple OmniAccess ESR Cellular WWAN Enabler devices, allowing for coexistence of independent Wireless WAN services in the enterprise for disaster recovery.

- Fast installation. It can also be used to provide immediate office connectivity, until the fixed line is installed.

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- Auto-provisioning (no manual programming required in the Enabler). A new point-to-point interface is configured into the router to manage the OmniAccess ESR Cellular WAN Enabler. When the Enabler boots up, it receives the full Ethernet and 3G/4G programming using Dynamic Host Configuration Protocol (DHCP).

- Advanced cellular link failure detection and reporting. Detection mechanisms based on control traffic flow tracking and inactivity timers permit the Enabler to report the cause of the 3G/4G failure back to the router.

- World-class 3G/4G diagnostics. The most complete radio interface monitoring information is available for an accurate service quality auditing and accounting, such as the signal strength history report on the past hour, the serving and neighbor cell received instant power, transmission speed, detailed UTRAN info and AT command-line interface (CLI).

- Small form factor, desktop or wall mounted

- Powered by Power over Ethernet (PoE) (IEEE 802.3af) or by an external power supply (included)

- SMA external antenna ports allow for the use of a wide range of external RF antennas

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	HARDWARE FEATURES				SOFTWARE FEATURES		
	Power	Connection to router	WAN interface	Inconspicuous design	Zero-management (configured by router)	Compatible with third-party routers	Connection monitoring
ESR-WWAN-*	PoE/DC	Ethernet	LTE	Yes	Yes	Yes	Yes

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The Alcatel-Lucent 7750 Service Router (SR) is a superior multiservice edge router that is purpose-built for mission-critical enterprise and vertical market customers, service providers and cable multiple system operators (MSOs) looking to deliver a new wave of services on a single IP/Multi-Protocol Label Switching (MPLS) network.

Optimized for the delivery of high-performance data, voice and video services, the Alcatel-Lucent 7750 SR is available in four chassis sizes whose capacities range from 90 Gb/s to 2 Tb/s. All offer a wide range of interfaces with unmatched density and service performance. The four models offered are the 7750 SR-12, 7750 SR-7, 7750 SR-c12 and the 7750 SR-c4.

Leveraging the strength of the Alcatel-Lucent Service Router Operating System (SR OS), the 7750 SR delivers the flexibility to achieve the service continuity, service richness and service assurance critical to customer satisfaction and market leadership.

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- **Purpose-built platform:** IP/MPLS based, enables the efficient and cost-effective delivery of a new generation of differentiated voice, video, and data services

- **Reliability:** Integrates full system redundancy and industry-leading non-stop routing and non-stop switching

- **Investment protection:** Flexible form factors and network asset portability across the service router portfolio results in optimal CAPEX investment with extended asset longevity and depreciation cycles

- **Performance:** Market-leading packet processing capabilities and service headroom results in maximized network asset yields with no hidden CAPEX owing to line card or platform proliferation

- **Efficiency:** Reduced OPEX and accelerated time to market through rapid service provisioning and advanced OA&M tools

- **Speed and security:** Improved service level guarantees through a comprehensive approach to high availability using purpose-built hardware and software, which provides industry-leading performance and comprehensive security capabilities

- **Consistency:** Creates service and operational continuity by using a common operating system, SR OS, across all service routers to minimize approval for use test cycles, eliminates all issues related to release and features backward compatibility and allows for rapid fault isolation

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- **Advanced services:** Enables Virtual Private LAN Service (VPLS), Virtual Private Wire Service (VPWS), Virtual Private Routed Networks (VPRNs) based on RFC 4364 and IPv6 services

- **Service tunneling:** Enables Layer 2 and Layer 3 services on a single platform with the flexibility of any service over any port (ASAP) over a wide range of interfaces, including DS3/E3, Ethernet, SDH/SONET (PoS), Frame Relay and ATM interfaces.

- **Multiservice edge:** Comprehensive service continuity with Frame Relay/ATM/Ethernet pseudowire services (VPWS), Ethernet/Frame Relay/ATM service interworking, Ethernet, Frame Relay and ATM access to VPLS, IP VPNs and Internet services with service-aware quality of service (QoS) to maintain stringent service level agreements (SLAs) and ensure a seamless migration to emerging services

- **Quality of service:** Service-based QoS allows for service-based queuing,

which enables shaping, policing and marking of different traffic flows on a per-service, per-user basis.

- **Hierarchical QoS:** H-QoS uses an advanced scheduling mechanism, with multiple levels and instances of queuing, shaping, policing and marking to prioritize different services over the same connection and combines all services into overall SLAs.

- **Service scaling:** Concurrently supports tens of thousands of Layer 2 and Layer 3 services, more than 2 million Border Gateway Protocol (BGP) routes and up to 32,000 LSPs per system.

- **High availability:** Supports non-stop services and non-stop routing, MPLS, Fast Reroute and in-service software upgrade (ISSU) to guarantee network uptime and provide unparalleled availability and reliability.

- **Operations, administration and maintenance (OA&M):** Service assurance capabilities such as administration and maintenance toolkit and mirroring are integrated to

reduce mean-time-to-repair (MTTR) and ensure a predictable end-user experience.

- **Enhanced troubleshooting tools:** ISSU minimizes downtime between minor release upgrades.

- **Security:** Critical path method queuing eliminates the effect of one peer consuming the system resources, and service-based filtering uses Access Control Lists (ACLs) to filter on a per-service or per-interface basis.

- **Accounting and billing:** Service-based accounting and billing collects statistics on a per-service basis, not just a per-port basis.

- **Network management:** The Alcatel-Lucent 7750 SR is fully supported by the Alcatel-Lucent 5620 Service Aware Manager (SAM) and Alcatel-Lucent 5650 Control Plane Assurance Manager (CPAM).

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Chassis models	CPM/CFM slots	Number of MDAs	Number of CMAs	Power supply bays	Power supplies	Height rack units	Max fabric capacity
7750 SR-12	2	20	0	3	DC	14	2 Tb/s
7750 SR-7	2	10	0	2	DC	8	1 Tb/s
7750 SR-c12	2	6	12	2	DC	5	90 Gb/s
7750 SR-c4	1	2	4	2	DC	3	90 Gb/s

Port types	Fast Eth RJ-45	Fast Eth fiber	GigE RJ-45	GigE SFP	10GigE XFP	10GigE SFP+	100GigE CFP	40GigE QSFP+	OC-3c STM-1c	OC-12c STM-4c	OC-48c STM-16c	OC-192c STM-64	DS3/E3	T1/E1 ATM IMA	DS1/E1 channel
7750 SR-c12 and SR-c4 interface options															
Ethernet MDA-XP	20				10/20	1/2/4									
Ethernet MDA	60	20													
POS MDA									8	8	2				
CMA	8			1/5					2	2			4	8	8
ASAP MDA									4	1			4/12		
CES MDA									1**/4	1			1/4		
ATM MDA									4	4					
7750 SR-12 and SR-7 Media Dependent Adapters															
Ethernet MDA-XP	20			20/48*	10/20	1/2/4									
Ethernet MDA	60	20													
High Scale MDA (IMM)					10	1	1	3							
POS MDA									8/16	8/16	2/4	1			
ASAP MDA									4	1			4/12		
CES MDA									1/4	1					
ATM MDA									4/16	4					
7750 SR Integrated Media Modules (IMM - full slot cards - No MDAs)															
IMM	48	48	48	48	4/5/8	12	1								

Remarks
*6 x mini RJ-21
**On CMA

7705 SAR

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The Alcatel-Lucent 7705 Service Aggregation Router (SAR) delivers industry-leading IP/Multi-Protocol Label Switching (MPLS) and pseudowire capabilities in compact platforms that have the ability to reliably groom and aggregate multiple media, service and transport protocols onto an economical packet transport infrastructure.

The 7705 SAR-8 provides industry-leading scalability and density in a two-rack unit (2 RU) version that supports a variety of adapter cards including T1/E1 any service any port (ASAP), serial data interfaces, Ethernet, microwave, CWDM OADM, and more. The platform can be optionally configured with redundant control and switch modules (CSMs) and uplinks providing very high reliability. The Alcatel-Lucent 7705 SAR-8 has eight slots; two are allocated for CSMs, with the remaining six being available for user traffic adapter cards.

The 7705 SAR-M is a series of 1 RU high routers available in four different configurations. All four variants support four 10/100/1000Base-TX with small form factor pluggable optics (SFP), and three 10/100/1000Base-T auto-sensing Ethernet ports. The variable capabilities of the four variants are:
• Module slot, all Ethernet, fan cooled
• Module slot, Ethernet plus T1/E1, fan cooled
• All Ethernet, passively cooled
• Ethernet plus T1/E1, passively cooled

The 7705 SAR-F is a fixed configuration version of the SAR. Its form factor is 1 RU high and it supports up to 16 T1/E1 ASAP ports. The ASAP ports can be configured to support ATM, Inverse Multiplexing over ATM (IMA), TDM and Multilink Point-to-Point Protocol (MLPPP). The 7705 SAR-F also has six 10/100Base-T auto-sensing Ethernet ports, plus two ports that support 10/100/1000Base-TX using SFP optics.

The 7705 SAR-18 is a 10 RU version of the 7705 SAR with industry-leading scalability. It has 18 slots; two for CSMs, and the remaining 16 slots for traffic adapter cards. It is designed to support the full range of existing 7705 SAR traffic adapter cards, but in a larger scale platform it is also capable of supporting 10 Gb/s interfaces in four of the 16 slots. The 7705 SAR-18 is designed to efficiently and economically address the requirements of larger aggregation hubs or points of concentration within an IP/MPLS network.

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- **Cost effective:** Transition from SDH/SONET/PDH-based connectivity to Ethernet and/or IP-based networking infrastructures to greatly reduce recurring operating expenditures such as line lease costs

- **Resilient:** Advanced resiliency features improve network uptime and allow critical services to be offered

- **Performance:** Rapid fault detection and powerful commissioning and troubleshooting tools improve productivity of operations staff and reduce network downtime

- **Compact:** Small but powerful enough to carry multiple traffic streams through multiprotocol and convergence capabilities (with flexible and granular quality of service)

- **Configurable:** Alleviates the burden of complex pre-engineering and future scenario planning with a modular, flexible architecture

- **Tough:** Compact, rugged form factors are well suited for remote sites where deployment conditions are not ideal

- **Information integrity:** Accurate synchronization avoids data underflows, overflows and transmission "slips"

- **Consistent:** Creates service and operational continuity by using a common operating system across all service routers to minimize approval for use test cycles, eliminates all issues related to release and features backward compatibility, and allows for rapid fault isolation

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TECHNICAL INFORMATION

- **Migration to packet infrastructure:** Economical upgrade path from circuit-based T1/E1 networking to economical and flexible IP/MPLS-based packet transport. Support for low-speed interfaces – V.35, X.21, RS-232, G.703 co-dir, FXS, FXO, C37.94
- **Dependability:** One-for-one hitless CSM failover (7705 SAR-8, SAR-18), synchronization redundancy, network uplink resiliency, power feed redundancy, and temperature hardening (7705 SAR-8, SAR-M, SAR-F)

- **Powerful management tools:** Service-aware operations, administration and maintenance (OA&M) capabilities complemented by the Alcatel-Lucent 5620 Service Aware Manager (SAM) management portfolio for GUI-based network and element configuration, provisioning, and fault and performance management
- **Convergence:** Dense adaptation of multiple converged services onto an economical packet infrastructure

- **Dynamic routing to the access:** Extends IP/MPLS capabilities to small sites, hubs, and network edge in compact form factors
- **Network synchronization:** Flexible synchronization options with redundancy and independent validation of accuracy

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Chassis models	CSM slots	High cap. adapter cards**	Standard adapter cards***	Expansion module	Power supply feeds	Power supplies ****	Height rack units	Max fabric capacity
7705 SAR-18	2	4	12	0	2	DC	10	140 Gb/s
7705 SAR-8	2	0	6	0	2	DC	2	12 Gb/s
7705 SAR-M (fan cooled)	0*	0	0	1	2	DC	1	5 Gb/s
7705 SAR-M (passively cooled)	0*	0*	0*	0*	2	DC	1	5 Gb/s
7705 SAR-F	0*	0*	0*	0*	2	DC	1	2 Gb/s

Port types	Fast Ethernet RJ-45	GigE SFP	OC-3/ STM-1 clear	OC-3/ STM-1 channelized	DS3/ E3	T1/E1 channelized	T1/E1 ATM IMA	E&M	Serial	CWDM Passive Optical	FXO	FSX	C37.94	G.703 co-dir	Aux alarm
7705 Adapter cards															
8-port Ethernet	6	2													
8-port GigE		8													
16- and 32-port ASAP T1/E1						16/32	16/32								
2- and 4-port OC3/STM-1			4	2											
4-port DS3/E3					4										
6-port E&M								6							
12-port Serial (RS-232, V.35, X.21)									12						
8-port Voice and Teleprotection											2	2	2	2	
1-, 2-, 4-, and 8-color CWDM OADM										1-, 2-, 4-, 8-color					
34-port Auxiliary Alarm															34

Remarks
*Fixed configuration
**10G per card slot (full duplex)
***2.5G per card slot (full duplex)
****-48 V/-60 V or +24 V (SAR-F, SAR-M, SAR-8 only), third-party AC power available (100 V AC to 240 V AC)

Port types	10G SFP+	GigE SFP
7705 SAR-18 X-Adapter card		
1-port 10G	1	
10-port 1G		10

Port types	ADSL2 ADSL2+ VDSL2	G.SHDSL ADSL2 ADSL2+ VDSL2	GPON	CWDM Passive Optical
7705 SAR-M modules				
1-port GPON ONT			1	
8-pair XDSL	8 pairs			
1-color CWDM OADM				1 color
6-pair DSL		6 pairs		

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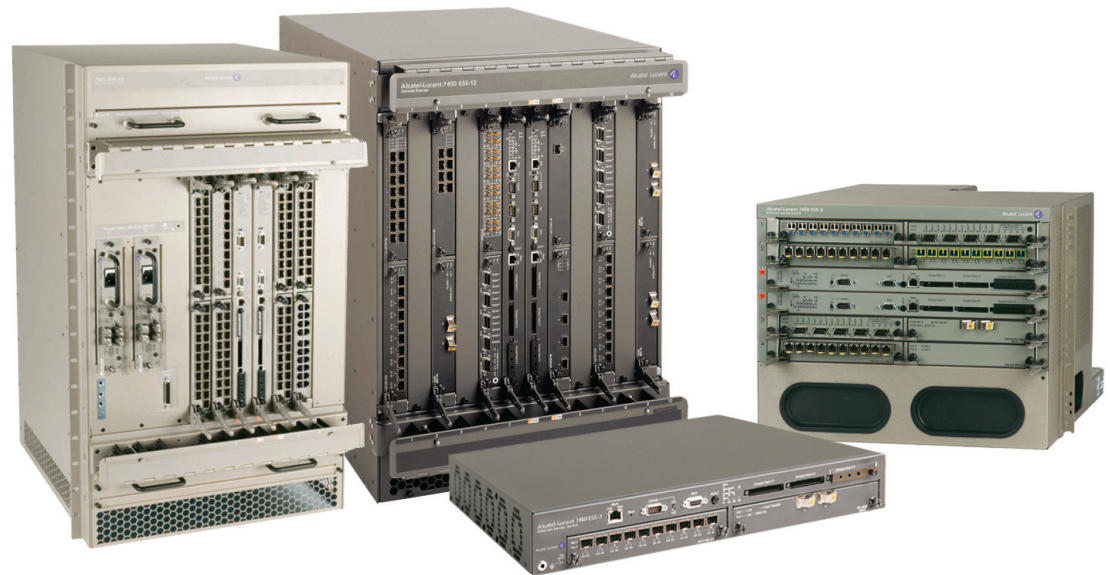**PRODUCT OVERVIEW**

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The Alcatel-Lucent 7450 Ethernet Service Switch (ESS) is a feature-rich MPLS-based switch/router designed to aggregate and switch voice, video, and data traffic in mission-critical enterprise and service provider networks. It is ideally suited as a backbone and aggregation node in a network, providing Layer 2 connectivity for multiple locations and access to the Layer 3 WAN access points.

The 7450 ESS overcomes the limitations imposed by traditional Ethernet switches with features like Hierarchical Quality of Service (H-QoS) and Multi-Protocol Label Switching (MPLS) resiliency. It sets a new market standard for the delivery of Ethernet business services such as Virtual Private Wire Service (VPWS) and Virtual Private LAN Service (VPLS).

The Alcatel-Lucent 7450 ESS provides scalable performance and port density in five chassis configurations: 12-slot 7450 ESS-12, 7-slot 7450 ESS-7, 6-slot 7450 ESS-6, 6-slot 7450 ESS-6v, and 1-slot 7450 ESS-1.

7450 ESS

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TECHNICAL INFORMATION

- **Flexibility:** QoS/H-QoS enables network managers to support users that require different service classes and maximizes the bandwidth utilization

- **Configurability:** Product sizes and densities are available to match any requirements up to terabit switching/routing capacity

- **Dependability:** Outstanding network stability, scalability, availability and performance, through a combination of MPLS, bridged Ethernet, stacked VLANs and Spanning Tree Protocols

- **Upgrade path:** Inherent product scalability coupled with a programmable architecture ensures forklift-free upgrades and reduces truck rolls (no technician deployment); upgradeable to full IP/MPLS Layer 3 capabilities

- **Fault tolerance:** Diagnostics and mirroring are implemented through built-in end-to-end Ethernet operations, administration and maintenance (OA&M) tools

- **Fast deployability:** Ethernet services with advanced provisioning tools reduce the time from installation to network operation

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- **Focus on service:** Supports a service-oriented architecture (SOA) by using service level agreement (SLA)-based Ethernet services with filtering, shaping and QoS on a per-service basis, while scaling to support tens of thousands of users
- **Virtualization:** Deploys IETF implementations of VPWS and VPLS

- **High availability:** Includes non-stop services, non-stop routing, MPLS, Fast Reroute and in-service software upgrade (ISSU) to guarantee network uptime
- **Flexible billing:** Deterministic, tiered or usage-based billing options

- **Small footprint:** Leads the industry in rack density (by two to three times per rack) when compared with competing Layer 2/Layer 3 Ethernet switches with 100 Gb/s architecture
- **Future-ready:** Enables quick and painless adaptation and upgrades to new and evolving standards using programmable fast path

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| OMNIACCESS 5800 ESR MODULAR | OMNIACCESS 5725 ESR RUGGED | OMNIACCESS 5700 ESR COMPACT | OMNIACCCESS ESR WWAN ENABLER | 7750 SR | 7705 SAR | **7450 ESS** | 1830 PSS |

7450 ESS

PRODUCT OVERVIEW

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Chassis models	CPM/ CFM slots	Number of MDAs	Number of IMMs	Power supply bays	Power supplies	Height rack units	Max fabric capacity
7450 ESS-12	2	20	10	2	DC*	14	2 Tb/s
7450 ESS-7	2	10	5	2	DC*	8	1 Tb/s
7450 ESS-6	2	8	4	2	DC*	8	320 Gb/s
7450 ESS-6V	2	8	4	2	DC*	18	320 Gb/s
7450 ESS-1	1	2	0	2	AC/DC	1.5	40 Gb/s

Port types	Fast Eth RJ-45	Fast Eth fiber	GigE RJ-45	GigE SFP	10GigE XFP	10GigE SFP+	40GigE QSFP+	100GigE CFP	OC-3c STM-1c	OC-12c STM-4c	OC-48c STM-16c	OC-192c STM-64	DS3/ E3
7450 ESS Media Dependent Adapters													
Ethernet MDA-XP	20		20/48**	10/20	01/02/04								
Ethernet MDA	60***	20		10	1								
High Scale MDA				10	1								
POS MDA									16	16	4	1	
ASAP MDA									4	1			4/12
CES MDA									1/4	1			
ATM MDA									4/16	4			
7450 ESS Integrated Media Modules (IMM - full slot cards - No MDAs)													
IMM	48	48	48	48	5/8	12	3	1					

Remarks
*AC options available
**6 x mini RJ-21
***5 x mini RJ-21

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OMNIACCESS 5800   OMNIACCESS 5725   OMNIACCESS 5700   OMNIACCCESS ESR   7750 SR   7705 SAR   7450 ESS   **1830 PSS**
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1830 PSS-1 AND 1830 PSS-4

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TECHNICAL INFORMATION

The Alcatel-Lucent 1830 Photonic Service Switch (PSS)-1 and 1830 PSS-4 represent a new type of photonic switching access platform for metro wavelength division multiplexing (WDM). They transform traditional WDM into a cost-effective, low footprint and fully flexible transport layer with complete visibility and control of individual wavelengths. This transformation simplifies broadband service delivery, speeds time-to-revenue generation, and facilitates bandwidth expansion in optical transport network (OTN)-based metro access networks.

The 1830 PSS-1/PSS-4 supports the transport and delivery of multiple services in a variety of environments:
• Metro network extension to the customer premises through cost-effective CWDM/DWDM technology up to 10G

• Secure, low latency data center interconnect for business continuity and disaster recovery

• Distributed Campus interconnect for data sharing in organizations such as universities, hospitals, banks and airports

The 1830 PSS-1 is a compact, one rack unit (RU) customer premises equipment (CPE), hardened for outdoor deployment and available in different fixed configurations. The Alcatel-Lucent 1830 PSS-4 has a 2 RU chassis with four slots available for service cards.

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1830 PSS-1 AND 1830 PSS-4

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TECHNICAL INFORMATION

- Advanced CWDM and DWDM transport capabilities in a highly scalable and versatile package with multiservice capabilities including FC/SDH/SONET and Ethernet GigE/10GigE

- Cost effective, small footprint and low power consumption

- A variety of client interfaces with high port density to maximize wavelength efficiency

- Enables the transparent transport of traffic from multiple operators, all with end-to-end control and quality assurance

- Terminal, Fixed Optical Add Drop Multiplexer (FOADM) or In-line Amplifier (ILA) applications

- Strong forward error correction (FEC) technology based on OTN to improve system performance and optical link budgets

- Simplified network design, implementation and maintenance with auto power management and Wavelength Tracker™

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1830 PSS-1 AND 1830 PSS-4

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TECHNICAL INFORMATION

Optical layer intelligence

- Ring, hub and point-to-point network topologies support
- Single fiber bidirectional line transmission (CWDM)
- Optical layer path tracing and power monitoring on a per-unique wavelength service basis
- View of all wavelengths present on a selected fiber pair
- Integrated fault isolation and sectionalization at the optical layer
- Automated optical layer with dynamic power equalization
- Integrated fault correlation

Scalability

- Pluggable client interfaces enable turning up interfaces based on traffic demand
- In-service network scalability without service disruption
- Network planning independent of traffic forecast

Flexible protection options

- Diverse route protection
- E-SNCP within 50 ms

Integrated SLA support and monitoring

- Proactive service management for wavelength services
- G.709 compliant
- Flexible service level alarms

Carrier-class availability

- 99.999 percent availability
- CE, CSA, NEBS Level 3 and VCCI compliant
- Redundant power supply
- Temperature-hardened operation

Storage area networks (SANs)

- Brocade certification

Network management

- Full-featured operations, administration, maintenance and provisioning (OAM&P) functionality

- Alcatel-Lucent 1350 Optical Management System (OMS)
- Alcatel-Lucent 1340 Integrated Network Controller (INC)
- Alcatel-Lucent 1354 Photonic Manager (RM-PhM)
- Interfaces: Web graphical user interface (GUI) and command-line interface (CLI)
- Transaction Language 1 (TL1)
- Simple Network Management Protocol (SNMP)
- Ethernet port for local access
- Integrated remote management through General Communication Channel (GCC) and Optical Supervisory Channel (OSC)
- Selectable rates for OSC: 100 Mb/s or 155 Mb/s
- Auto node discovery
- Alcatel-Lucent Advanced Engineering Planning Tool simplifies network design and system installation

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1830 PSS-1 AND 1830 PSS-4

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Chassis models	Types/Service module plug-ins	Minimum release	Client ports	Line ports	Backplane capacity	Height rack units	Max CWDM channels	Max DWDM channels	C-Band amplifier	Input power dBm	Output power dBm	Variable gain dB
1830 PSS-1	1830 PSS-1 GBEH	R2.7.1	21 E1 + 4 anyrate*	2 x OTU-1/ STM-1		1 RU	8					
	1830 PSS-1 MD4H	R1.8.0	12 GE (SFP)	10 GE (XFP)		1 RU	8					
	1830 PSS-1 AHP	R1.0				1 RU						
	1830 PSS-1 MSAH	R1.1	8 anyrate*	4 x OTU-1/ STM-1		1 RU	8					
1830 PSS-4**		R3.6.5			60 Gb/s	2 RU	8	32				
	12 x GBE muxponder		12 GE (SFP)	10 GE (XFP)								
	4 x 10G transponder		4 multirate 10G***	4 x OTU-2								
	4 x any muxponder		4 anyrate****	2 x OTU-1								
	12 x any muxponder		12 anyrate*****	2 x OTU-1								
	AHPHG								Y	-30 to +7	20	13 to 29
	A2325A								Y	-33 to +7.5	23	16 to 32
	AHPLG								Y	-24 to +7	20	16 to 24

Remarks
*SDH/SONET/FE-GE/FC-FICON/HD(SDI)-SD(SDI)
**Stackable up to 8 chassis units
***4 x STM-64 and OC-192/10 GE WAN-LAN PHY/OTU-2/8G FC and 10G FC
****OC-3, OC-12 and OC-48/STM-1, STM-4 and STM-16/FE, GE/1G, 2G, 4G FC/1G, 2G FICON/HD-SDI/SD-SDI
*****OC-3, OC-12 and OC-48/OUT-1/STM-1, STM-4 and STM-16/FE, GE/1G, 2G, 4G FC/1G, 2G FICON/HD-SDI/SD-SDI/3G-SDI

OmniVista™ 2500 NMS
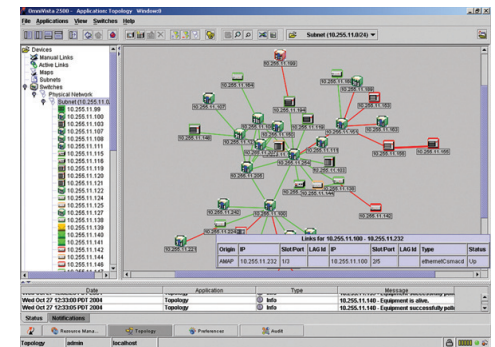
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TECHNICAL INFORMATION

The Alcatel-Lucent OmniVista™ 2500 Network Management System (NMS) provides a comprehensive set of components and tools that simplify the management of Alcatel-Lucent Enterprise portfolio and third-party networking devices.

The Alcatel-Lucent OmniVista 2500 NMS allows managers to monitor network activity, configure and troubleshoot each device, and provision and manage an entire network from a single platform. In a single application, the OmniVista 2500 NMS reduces the complex deployment and administration

of Alcatel-Lucent Enterprise solutions, from network infrastructure operations such as edge security deployment up to network management operations related to data center and virtualization deployment, with the new optional OmniVista 2500 module – OmniVista™ 2500 Virtual Machine Manager (VMM).

The OmniVista 2500 NMS has a true client/server architecture, allowing multiple users to access its services simultaneously either through a Java™-based client or through web browser applications.

OmniVista 2500 NMS

PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

- **Unified cohesive management and network-wide visibility:** Provides a single intuitive GUI for network administration, enabling monitoring and configuration operations across multiple devices, for all network activities and events

- **Scalable architecture:** Provides simultaneous client sessions based on an extensible architecture suitable and scalable for large deployment

- **Centralized control of switch administration access rights and network administrator credentials:** Offers OneTouch setup of user login, password, administration credentials and access rights

- **Configuration management:** Automates initial devices configuration provisioning, ongoing maintenance and best practices, and compliance operations across large organizations

- **Policy-based approach for network access control and QoS:** For creating, distributing and updating policies from a centralized framework, across multiple switches

- **Data center provisioning and virtualization simplification of operations with the OmniVista Virtual Machine Manager:** The optional OmniVista 2500 VMM addresses monitoring and inventorying for virtual networks resources such as virtual machines, ensuring consistent and unified management and operational simplification for data centers.

- **Role-based management with User Network Profile configuration:** For end-user network access control including authentication, host integrity compliance and resource access definition

- **Network quarantine:** Quarantine Manager™ simplifies automated enforcement and definition of a network security perimeter for quarantine and isolation.

- **Open application collaboration:** Northbound interface based on web services for external third-party application collaboration

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OmniVista 2500 NMS

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- Centralized, cohesive application covering all facets of network management operations and network security with a common, intuitive look and feel

- Intuitive, graphical topology map with extensive network adjacencies display and advanced logical filters for a more logical, business-like view of network infrastructure

- Centralized control of network device administration access rights and network administrator credentials

- Alarms monitoring and notification with advanced filtering capabilities and smart responders for fast notification and remediation

- Location-based troubleshooting tools for quick network connectivity problem resolution

- Simplified prime configuration and initial provisioning through centralized and automated network device configuration

- Network configuration change life cycle provided by identifying scope of changes across network devices and configurations and appropriate scheduled changes applied

- Best practices operations and compliance enforcement for backup/ restore operations and software version management for device configuration management operations

- Policy-based Access Control List (ACL) and quality of service (QoS) for voice, video and data performance optimized and network resource access enforced with simplified or expert modes

- Universal Network Profile definition and automated configuration assignment for data center infrastructure provisioning with extensive troubleshooting operations for constant virtual machine inventory and location tracking

- Global end-user network profile and security configured for role-based access to resources and management of credentials

- Template-like approach for simplified configuration of Traffic Anomaly Detection

- Network quarantine for security perimeter enforced to automatically contain potential threats

- Northbound interface/web services APIs for easy application integration with IT dashboard applications developed in-house

OmniVista 2500 NMS

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OmniVista 2500 NMS server-supported platforms and operating systems

- Microsoft® Windows® Server 2008 (32-bit and 64-bit versions)
- Microsoft Windows 7 Enterprise (32-bit and 64-bit versions)
- Red Hat® Enterprise Linux® ES 6.1 (32-bit and 64-bit versions)
- SUSE® Linux Enterprise Server 11.2 (64-bit version)

Virtualization system installation

- VMware® ESXi 4.0 minimum (64-bit installation)

Minimum CPU

- Intel® Pentium® Quad Core 2 GHz minimum

Minimum RAM

- 4G RAM or higher

OmniVista 2500 NMS client-supported platforms and operating systems

- Microsoft Windows 7 (32-bit and 64-bit versions)
- Red Hat Enterprise Linux ES 6.1 (32-bit and 64-bit versions)
- SUSE Linux Enterprise Server 11.2 (64-bit version)

Supported web browsers

- Microsoft Internet Explorer® 8.0 or higher
- Mozilla® Firefox® 8.0 or higher

Minimum CPU and disk space

- Intel Pentium Dual Core processor with 2 GHz minimum

Minimum RAM

- 2G RAM or higher

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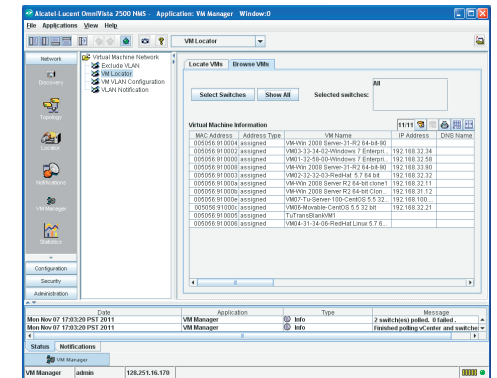
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The OmniVista™ 2500 Virtual Machine Manager (VMM), an optional component for the OmniVista 2500 Network Management System (NMS), addresses new operational requirements and new capabilities required to ensure consistent, unified management and operation simplification for the new virtualized infrastructure deployed in data centers.

The OmniVista 2500 VMM offers a comprehensive end-to-end solution unifying physical and virtual infra-structures into a single pane of glass for network operators. Network operators can monitor and control virtual networks, ensuring that virtual network policies are consistently and automatically applied across the infrastructure. This enables error-free network operations for the IT organization and simplifies deployment of value-added services such as live virtual machine migration which includes VMware® VMotion™ and Citrix® XenMotion™.

The OmniVista 2500 VMM contributes to a comprehensive manageability solution that in conjunction with the OmniVista 2500 NMS spans the Alcatel-Lucent routing and switching network portfolio.

OmniVista 2500 VMM

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TECHNICAL INFORMATION

- **Vendor agnostic architecture:** Supports and interfaces with leading enterprise virtualization vendors, VMware vCenter and Citrix XenServer

- **Virtual network resources visibility and inventory:** Automatically discovers and constantly updates the complete virtual machine inventory including all relevant information related to the network infrastructure, offering a complete single pane of glass for end-to-end physical and virtual networks, increasing operational efficiency

- **Simplified tracking and trouble-shooting:** Provides correlated information and a single pane of view on connectivity between virtual and physical networks, offering a complete current state of the network with constant synchronization. It simplifies troubleshooting operations and reduces downtime.

- **Unified provisioning with automation:** Establishes virtual network profile definition and configuration. Facilitates virtual network profile assignment to network infrastructure to ensure consistent service delivery. It reduces the need to constantly communicate between network infrastructure and the virtualization team changes related to configuration changes.

- **Event and audit logs:** Maintains a log of all critical events and actions, tracking all critical configuration changes

- **Flexible installation:** Supports all leading IT platforms and server operating systems. It leverages VMware vCenter directly out of the box, requiring no extra installation on hypervisor platform.

OmniVista 2500 VMM

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TECHNICAL INFORMATION

- Supports and interfaces with leading Enterprise virtualization vendors, VMware® vCenter™ and Citrix® XenServer™
- Automatically discovers and constantly updates the complete virtual network inventory to offer a complete single pane of glass for end-to-end physical and virtual networks

- Simplified tracking and troubleshooting capabilities with VM locator to offer a complete state of network with constant synchronization between a virtual and physical network, including real-time and historical location tracking for virtual machines
- Facilitates unified provisioning with automation for virtual network profile configuration to reduce human errors by managing virtual network profile assignment to the data center network infrastructure for maximum service availability

- Maintains event and audit logs for all critical actions for OmniVista 2500 VMM to provide historical records for compliance purposes
- Flexible installation as OmniVista 2500 VMM runs as an optional module fully integrated with OmniVista 2500 NMS, relying on the same management user interface and same cohesive workflow, and reducing the training curve

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OmniVista 2500 VMM

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Minimum OmniVista 2500 VMM software requirements (server and client)

- Microsoft® Windows® Server 2008 (32-bit and 64-bit versions) – server only

- Microsoft® Windows® 7 Enterprise (32-bit and 64-bit versions)

- Red Hat® Enterprise Server 6.1 (32-bit and 64-bit versions)

- SUSE® Linux Enterprise Server 11.2 (64-bit version)

Minimum OmniVista 2500 VMM server configuration

- For Microsoft Windows, Red Hat ES, SUSE:

  ¬ Intel® Pentium® Quad Core 2 GHz minimum

  ¬ 4 GB RAM minimum

Minimum OmniVista 2500 NMS client configuration

- For Microsoft Windows, Red Hat ES, SUSE configuration

  ¬ Intel Pentium Dual Core 2 GHz minimum

  ¬ 2 GB RAM minimum

Minimum VMware requirements for VM inventory and location features

- VMware vCenter Server Standard, Release 4.1 minimum

Minimum Citrix requirements for VM inventory and location features

- Citrix XenServer Advanced and Enterprise Release 6.0 minimum

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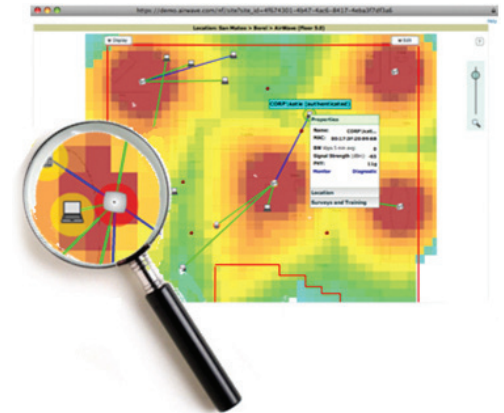
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The Alcatel-Lucent OmniVista 3600 Air Manager is a wireless LAN (WLAN) management software suite that provides centralized visibility, configuration and control over today's wireless networks. The OmniVista 3600 reduces the cost of operating the wireless infrastructure, improves network performance, improves reliability for wireless end users, and makes the network more secure.

The OmniVista 3600 is a true operations management solution that delivers a full set of capabilities including real-time user and device monitoring, centralized configuration and compliance management. These management features are designed for the entire IT staff, providing every team member with customized monitoring views and the detailed information required for the job. Most importantly, they provide complete visibility and transparency, so IT can see exactly where users are and how the network is performing at all times.

In addition to serving the Alcatel-Lucent OmniAccess wireless product line, the OmniVista 3600 Air Manager supports the WLAN infrastructure of multiple vendors, thus providing a centralized operations platform for a heterogeneous WLAN network through all phases of its life cycle.

OmniVista 3600 AM

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- Provides Level One and Level Two Help Desk with all relevant user information to troubleshoot and fix a WLAN problem in very little time
- Enhances security through availability of forensic information pertaining to user activity over the wireless network
- Provides accurate assessment of performance and network capacity over time; allows for proactive planning of network upgrade for increased capacity

- Provides efficient and fast radio frequency (RF) troubleshooting information by correlating between RF heat map, interference map and user location
- Offers flexibility in deployment strategy with the ability to gradually migrate third-party equipment while using OmniVista 3600 as the common centralized management platform

- Its audit capability prevents a large number of security incidents resulting from improper configuration of wireless equipment
- Detects one of the most dangerous and yet common threats from WLANs – rogue access points
- Simplifies firmware distribution tasks for large organizations

OmniVista 3600 AM

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- User, session and device monitoring with bandwidth usage, RF signal strength, quality of service (QoS) data, and roaming history
- Storage of nearly two years of historical data, user roaming patterns and detailed capacity reports

- Real-time location information
- Management of wireless solutions for multiple vendors
- Compliance audits and configuration policy enforcement

- Rogue access point detection and classification
- Automatic distribution, scheduling and verification of firmware updates

OmniVista 3600 AM

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OPERATING SYSTEM

To ensure hardware capability, the server hardware should support Red Hat® Enterprise Linux®. The Alcatel-Lucent OmniVista 3600 Air Manager includes a default operating system based on CentOS. Optionally, Red Hat Enterprise Linux may be chosen. Only 32-bit Red Hat Enterprise Linux installations are supported; not supported are 64-bit operating system installations.

HARDWARE PLATFORM

The hardware platform sizing is based on the number of managed devices and practical use of the OmniVista 3600 Air Manager Core Platform, Rogue AP Detection Module and the Visual RF Module.

PROCESSORS AND MEMORY

- 100 managed devices: Intel® Xeon® L5310 processor, Dual-Core AMD Opteron™ 2210 processor, 4G RAM
- 200 managed devices: Intel Xeon L5310 processor, Dual-Core AMD Opteron 8216 processor, 6G RAM
- 500 managed devices: Intel Xeon E5420 processor, Dual-Core AMD Opteron 8222 processor, 8G RAM
- 1000 managed devices: Intel Xeon E5450 processor, Dual-Core AMD Opteron 8222 processor, 12G RAM
- 2500 managed devices: Intel Xeon E5460 processor, 16G RAM

DISK STORAGE

- 100 managed devices: 7.5G to 15G (15,000 rpm)
- 200 managed devices: 15G to 30G (15,000 rpm)
- 500 managed devices: 38G to 75G (15,000 rpm, multiple disks in RAID)
- 1000 managed devices: 75G to 150G (15,000 rpm, multiple disks in RAID)
- 2500 managed devices: 187G to 375G (15,000 rpm, multiple disks in RAID)

Contact your Alcatel-Lucent representative for more specific guidelines for sizing hardware.

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The Alcatel-Lucent 5620 Service Aware Manager (SAM) takes enterprises well beyond the traditional boundaries of element, network and service management. It enables unified, end-to-end management of IP/Multi-Protocol Label Switching (MPLS) and Carrier Ethernet networks and the services they deliver. Rapid provisioning reduces time to market and increases flexibility when new services are launched. Proactive troubleshooting helps resolve problems before they affect users.

The Alcatel-Lucent 5620 SAM offers a modular, extensible and scalable architecture that can be customized to fit specific operational environments. It consists of four modules that provide:

- Element management for traditional Fault, Configuration, Accounting, Performance, and Security (FCAPS) functionality

- Network infrastructure configuration, service provisioning, scripting and customer management

- Service assurance including physical, network and service topology views, and operations, administration and maintenance (OA&M) service diagnostics tools

- Operations Support System (OSS) integration with external applications

Enterprises can further enhance the Alcatel-Lucent 5620 SAM management capabilities with the Alcatel-Lucent 5650 Control Plane Assurance Manager (CPAM), Alcatel-Lucent 5670 Reporting and Analysis Manager (RAM), Alcatel-Lucent custom service portals, and pre-certified OSS partner application integrations.

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- Introduces new services and technologies with accelerated and reliable provisioning that minimizes the risk of misconfiguration and reduces time to market

- Prevents potential service-affecting problems proactively before they impact users

- Faster and simplified problem resolution to quickly pinpoint and solve issues

- Collects statistics efficiently for flexible billing and service level agreement (SLA) options

- Provides unmatched operational scalability to support network and service growth

- Increases productivity and flexibility with a management solution that easily adapts to allow cost-effective integration into the existing operational environment, enhancing workflows and processes

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- Easy-to-use GUI that accelerates configuration and provisioning tasks. Automation further accelerates tasks and minimizes the time and costs associated with the errors that commonly occur when a command line interface (CLI) is used.

- Common provisioning for Layer 2 and Layer 3 services to reduce the cost of delivering different service types

- Extensive service assurance capabilities that allow proactive identification of problems before they affect customers

- Powerful troubleshooting tools that help to quickly pinpoint the root cause of problems to speed resolution

- Templates that allow simplified integration with existing processes and workflows

- Open interfaces that enable integration with custom web portals, Operations Support Systems (OSSs) and Business Support Systems (BSSs)

5620 SAM

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OPERATING ENVIRONMENT
The Alcatel-Lucent 5620 Service Aware Manager, Release 9.0, operates on the following platforms:

MAIN, DATABASE, AUXILIARY SERVERS AND CLIENTS:

- X86 or Intel-based platforms (HP® or Oracle® Sun® servers only)

- Oracle® Solaris® 10 Operating System

- Databases: Oracle® database 11g

ADDITIONAL CLIENTS:

- Microsoft® Windows® 2000/2003/XP Professional/Vista Business and Ultimate (32 bit)

- Microsoft Windows 7 Professional (32-bit and 64-bit editions)

NOTE: Hardware recommendations may vary depending on scale of deployment. Contact your Alcatel-Lucent representative for 5620 SAM platform sizing recommendations.

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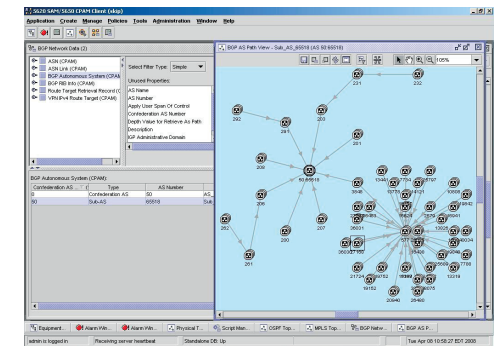
TECHNICAL INFORMATION

The Alcatel-Lucent 5650 Control Plane Assurance Manager (CPAM) is an IP/Multi-Protocol Label Switching (MPLS) control plane management solution enabling enterprises to assure network and service availability against control plane misconfigurations, malfunctions, and undetected routing updates as well as accelerate service problems resolution over an IP/MPLS infrastructure. The Alcatel-Lucent 5650 Control Plane Assurance Manager offers real-time control plane visualization, proactive control plane surveillance, configuration validation, and control plane diagnosis.

With the IP network expanding, the need to assure against potential issues in the network's IP control plane increases – visibility into emerging issues enables proactive resolution before services are impacted.

The Alcatel-Lucent 5650 CPAM is a route analytics solution that is tightly integrated within the Alcatel-Lucent 5620 Service Aware Manager (SAM) to deliver unprecedented real-time visualization, surveillance, and troubleshooting for dynamic IP/MPLS networks and services. It enables assurance against multivendor control plane misconfigurations, malfunctions,

and undetected routing updates, as well as accelerates service problem resolution over an IP/MPLS infrastructure.

The 5650 CPAM delivers this functionality based on real-time control plane information provided by the Alcatel-Lucent 7701 Control Plane Assurance Appliance (CPAA). The 7701 CPAA is a route listening and route processing hardware device that non-intrusively participates in routing plane signaling. It is based on the Alcatel-Lucent proven and evolving service router operating system (SR-OS).

5650 CPAM

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent 5650 CPAM improves network assurance and operational efficiency through seamless integration with the Alcatel-Lucent 5620 SAM, thereby making control plane issues directly related to IP/MPLS infrastructure and services easy to understand and address through:

PROACTIVE ASSURANCE

• Reduces service level agreement (SLA) violations through simplified detection of abnormal control plane behavior and misconfigurations before they lead to customer-affecting problems

RAPID TROUBLESHOOTING

• Rapidly resolves problems by visualizing control plane topology, routing configuration and updates/ queries

SCALABLE IP/MPLS OPERATIONS

• Enables first line operators to independently resolve problems without the need to escalate to blackbelt IP experts

• Accelerates processes through optimized workflows and automation

• Improves accuracy of third-party network planning and traffic engineering applications by providing real-time IP topology and IP path information

5650 CPAM

PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

PROACTIVE ASSURANCE

- Allows operators to analyze the impact of changes graphically and prevalidate changes before they are made to the live network using topology simulation

- Proactively monitors for link state advertisements (LSAs) propagated by Interior Gateway Protocols (IGP) routing protocols and inter-autonomous system (AS) route updates maintained by Border Gateway Protocols (BGP)

- Detects and notifies suspicious IP or MPLS label switched path (LSP) changes that deviate from the intended change, or reviews a full history of all changes

RAPID TROUBLESHOOTING

- Troubleshoots Layer 2 and Layer 3 services, MPLS infrastructure using operations, administration and maintenance (OA&M) traces that overlay on an IP topology view

- Highlights the IP/MPLS link qualification/disqualification to identify the exact node that cannot route a request using constrained shortest path first (CSPF) path computation and analysis

- Utilizes consolidated multicast troubleshooting and topology, allowing for multicast tree visualization through Protocol Independent Multicast (PIM) and Internet Group Management Protocol (IGMP) leaf overlay on IGP topology

SCALABLE IP/MPLS OPERATIONS

- Enables automated IGP misconfiguration discovery using protocol audits to reveal incomplete IGP, Label Distribution Protocol (LDP), or Resource Reservation Protocol (RSVP) peering

- Streamlines path update investigations through efficiently navigating from path change records directly to the correlated routing events that caused the change

- Enables multivendor real-time graphical control plane visualization by leveraging passive control plane listening and active distributed user-query processing from the Alcatel-Lucent 7701 Control Plane Assurance Appliance (CPAA)

OMNIVISTA
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VITALSUITE

VITALQIP

5650 CPAM

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TECHNICAL INFORMATION

OPERATING ENVIRONMENT
The Alcatel-Lucent 5650 CPAM is a route analytics solution that is tightly integrated within the 5620 Service Aware Manager (SAM) to deliver unprecedented real-time visualization, surveillance and troubleshooting for dynamic IP/MPLS networks and services.

The Alcatel-Lucent 5620 SAM, Release 7.0, operates on the following platforms:

• Sun Solaris™ 10 x 86 for Sun Microsystems AMD-based platforms (preferred)

• Sun Solaris 10 for Sun Microsystems SPARC® platforms

• Microsoft® Windows® 2000/2003/XP Professional (32-bit) operating system

• Microsoft Windows Vista® Business and Ultimate (32-bit editions) for 5620 SAM client only

Contact your Alcatel-Lucent representative for 5620 SAM platform sizing recommendations.

OMNIVISTA
2500 NMS

OMNIVISTA
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5650 CPAM

VITALSUITE

VITALQIP

VitalSuite®

Alcatel-Lucent VitalSuite® Performance Management software is an award-winning multivendor, multi-technology performance management solution. It is a comprehensive, fully integrated, scalable and cost-effective package that provides both historical and near-real-time views into everything from complex contact centers to Voice over IP (VoIP) traffic to mission-critical applications and network resources. The solution proactively monitors, measures and optimizes performance at every level of IT operations using an easy-to-use Web 2.0 GUI. It supports both IPv4 and IPv6 network environments.

VitalSuite has several major software modules:

• **VitalSuite® Apps Application Performance Management software** – This module monitors and manages application performance for business-critical applications. It proactively gives network-wide, real-time visibility for tracking and analyzing the behavior of network-based applications such as e-mail, Web, DNS, and in-house applications by monitoring traffic volumes and application transaction response times.
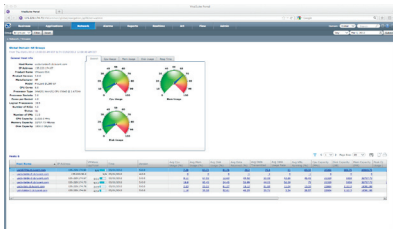
• **VitalSuite® Net Network Performance Management software/VitalSuite® Real-time Event Analysis software** – This module provides critical network information necessary to preempt problems, optimize resources and plan for maximum return on network investments. For your multivendor, multi-function network devices, VitalNet/VitalRealTime provides network resource auto-discovery, centralized visibility, advanced 2D/3D topology views, reports with drilldowns, trending and capacity planning, advanced thresholding and alarming, and advanced VoIP monitoring. The software also collects SNMP traps to provide fault management information about network devices.

• **VitalSuite® Flow software** collects Netflow records directly from routers in the network and provides powerful traffic analysis and reporting features based on that data. VitalSuite Flow offers the integrated Flow monitoring capability that helps monitor application and network traffic behavior to identify how the network bandwidth is being used.

• **VitalSuite® ART Advanced Reporting Tool** is a comprehensive Web-based tool that enables you to generate advanced custom presentation-quality reports and graphs by extracting monitored data from VitalSuite.

VitalSuite is a sophisticated monitoring system that allows IT organizations to provide internal users and/or customers with secure views into the quality of services they receive. VitalSuite provides the critical network information necessary to preempt problems, optimize resources and plan for maximum return on network investments. This market-leading management solution provides near-real-time, end-to-end, Web-based visibility into geographically dispersed, multivendor, multi-technology converged infrastructure. It enables IT managers to monitor, analyze, manage and predict service performance from a single centralized location for wireless, LAN, WAN, server, virtualized environments, ATM, VoIP, Genesys™ contact centers, and applications.

VitalSuite

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Access at-a-glance personalized performance data that is aligned with an IT operational model, including multivendor and multi-technology support

- Improve operations team productivity using the easy-to-use Web 2.0 GUI with simple but powerful workflow, search, and filtering capabilities

- Obtain centralized views of both application and network performance: Client web/database transactions, routers, switches, LAN/WAN, servers, virtualization, VoIP, Genesys, flow data, SNMP traps

- Preempt potential network problems with real-time network-wide visibility in both IPv4 and IPv6 environments

  ¬ Network-wide visibility: Monitor performance across the entire IT infrastructure using individual network resources, maps, paths, domains, groups and services

  ¬ Technology-specific visibility: Monitor performance using technology-specific dashboards for VoIP and virtualization environments

- Monitor application performance through both end-user activity and synthetic application transactions

- Simplify analysis and planning for every organizational level with drilldown reports and 2D/3D topology views

- Proactively track performance problems to their source, maximizing uptime

- Increase VoIP quality by efficiently identifying the root cause using advanced VoIP performance monitoring solution with the capability to generate VoIP traffic

- Monitor application and network infrastructure using unique Genesys contact center monitoring features with specialized data collection from Genesys servers

- View network flow traffic with the ability to monitor, alert, and analyze flow data for application profiling, application network utilization and traffic flow reporting

- Strengthen support of critical business transactions with applications performance monitoring

- ¬ Enhance the end-user experience

- ¬ Access real-time data to identify performance issues before they affect users

- Protect network investments with enhanced operational performance

- Realize rapid return on investment (ROI) with immediate system deployment and access to performance data

  ¬ Leverage the fast, easy deployment characteristics of VitalSuite

  ¬ Help network managers identify potential trouble spots, verify SLA compliance, and optimize resource utilization

- Protect investments: Use built-in toolkits to speed integration with existing management systems and emerging technologies

- Implement carrier-class management capabilities priced to suit enterprise IT budgets – cost-effective price to performance

- Leverage VitalSuite scalability features to grow incrementally as the network grows

LAN   WLAN   WAN   **MANAGEMENT**   SECURITY

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| OMNIVISTA | OMNIVISTA | OMNIVISTA | 5620 SAM | 5650 CPAM | **VITALSUITE** | VITALQIP |
| 2500 NMS | 2500 VVM | 3600 AM | | | | |

VitalSuite

- **Industry-leading scalability:** scale from single-server deployments to multi-server deployments.

- **Comprehensive multivendor VoIP performance monitoring with VoIP Dashboard views:** Includes collection and analysis of individual VoIP call records from leading VoIP platforms including Avaya, Cisco, and Alcatel-Lucent (streaming call records from OmniPCX™).

- **Centralized application and network visibility:** Easy-to-use Web 2.0-based GUI with a single administration interface for user accounts administration, domain and group definition, and threshold definitions.

VITALSUITE APPS APPLICATION PERFORMANCE MANAGEMENT SOFTWARE

- **VitalAgent™ client software:** Pinpoints application-related problems on desktops, notebooks and servers

- **Powerful fault detection and centralized alarm console:** Proactively receives alarms for application and

network faults and performance shortfalls

- **End-to-end application performance monitoring:** Provides end-user perspective using active and passive monitoring with real-time demarcation of every application transaction by client, network and server time.

- **Extensibility and remote diagnostics:** Provides the ability to add support for in-house applications.

VITALSUITE NET/VITALSUITE REAL-TIME NETWORK PERFORMANCE MANAGEMENT SOFTWARE

- **Flexible, multivendor and multi-technology support:** Monitors diverse resource types and more than 600 devices from more than 50 different vendors in both IPv4 and IPv6 environments

- **Fully automated monitoring with versatile reporting:** Provides auto-discovery and different reports for efficient, on-target troubleshooting

- **Versatile thresholding with instantaneous event notification:** Offers default user-configurable,

multilevel, rate-based, time-based and adaptive thresholds, device-specific or network-wide.

- **Powerful event analysis:** Advanced tools to filter, analyze and summarize raw performance data, and present it in easy-to-use graphical displays with quick drilldown from high-level views to detailed information.

- **Extensive data collection with quick extensibility:** Collects data from WAN, LAN, servers, virtualized environments, firewalls, Genesys contact center, VoIP, and other network elements.

VITALSUITE FLOW

- **Simple and advanced application traffic analysis:** Informs the network manager about the "who, what, when, where and how" concerning applications traffic usage on the network

VITALSUITE ART ADVANCED EPORTING TOOL

- Provides access to all VitalSuite Performance Management software data sets

- Easy-to-use powerful custom reporting tool

VitalSuite

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- N-tier architecture for unsurpassed scalability (single server or multi-server deployments)
- Failover backup poller feature
- Northbound APIs for integration
- Internationalized GUI and OS support

VitalSuite Apps Application Performance Management software

- Server system requirements
  - ¬ Microsoft® Windows® 2008 R2 (64-bit version) with Microsoft SQL Server 2008 R2 (64-bit version)
- VitalAgent desktop system requirements
  - ¬ Microsoft Windows XP operating system with SP2 or SP3, Windows 7 (32-bit and 64-bit versions)
- Mid-tier agent server system requirements
  - ¬ Microsoft Windows Server 2003 operating system, Windows Server 2008 (64-bit version), Oracle® Solaris™ 10, Linux® (Red Hat® 5.5 or SUSE® 10) operating systems
- Monitored applications
  - ¬ Internet (HTTP, HTTPS, and web-based applications such as DNS)

- ¬ Groupware (e-mail, IBM® Lotus® Notes® mailbox, file and print services)
- ¬ Databases (Oracle®, Microsoft SQL Server, Sybase® and LDAP)
- ¬ Infrastructure (VPN, DNS and security)
- ¬ SIP transactions
- ¬ Custom in-house applications such as those using Java™

VitalSuite Net, VitalSuite Real-time, and VitalSuite Flow Performance Management software

- Server system requirements
  - ¬ Microsoft Windows 2008 R2 (64-bit version) with Microsoft SQL 2008 R2 (64-bit version)
  - ¬ Red Hat Enterprise Linux 5.5 with Oracle 11.g R2
- VoIP agent system requirements
  - ¬ Microsoft Windows XP operating system with SP2 or SP3, Windows 7 (32-bit and 64-bit versions)
- Supports IPv4 and IPv6
- Supports SNMP v1, v2, and v3
- Supports Netflow v1, v5, v7, v9, and IPFIX

- Supports Sflow v5
- Collects incoming SNMP traps
- Monitored network elements (multivendor)
  - ¬ Routers and switches
  - ¬ WAN and LAN
  - ¬ Servers
  - ¬ Virtualized environments
  - ¬ VoIP
  - ¬ Firewalls
  - ¬ Genesys contact center
  - ¬ DSL
  - ¬ WLAN and WiMAX
  - ¬ ATM
  - ¬ Wireless
  - ¬ Active network probes

VitalSuite ART Advanced Reporting Tool

- Server system requirements
- ¬ Microsoft Windows 2008 R2 (64-bit version) with Microsoft SQL Server 2008 R2 (64-bit version)
- ¬ Red Hat Enterprise Linux 5.5 with Oracle 11.g R2

VitalSuite client system requirements:

- Microsoft Internet Explorer® 7, 8, or 9 browser, or Mozilla® Firefox® 10.0

LAN   WLAN   WAN   **MANAGEMENT**   SECURITY

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VITALQIP

VitalQIP™

PRODUCT OVERVIEW

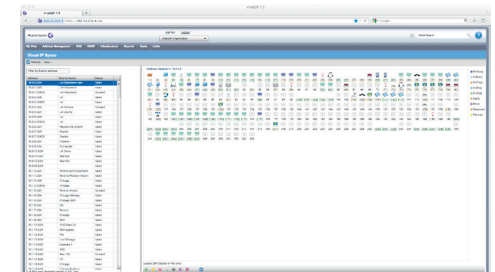KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

The Alcatel-Lucent VitalQIP™ DNS/DHCP IP Management Software product is a fully integrated IP management system consisting of Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP) and IP address management.

VitalQIP is available as off-the-shelf software, as a purpose-built hardened appliance, as a software appliance or as a software appliance running in a virtual environment.

The VitalQIP appliance product family consists of the carrier-grade model 5000, the enterprise next-generation model 1200, and the branch office models 500 and 700.

VitalQIP provides the most flexible offering in the IP address management (IPAM) market today. Whether its functionality is based on dedicated appliances or implemented on non-dedicated servers, this functionality can be mixed and matched in various

combinations to allow customers to take advantage of existing hardware, corporate standard hardware or corporate virtual environments.

VitalQIP

PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

LOWER PERSONNEL COSTS

- Accurate, centralized IP network inventory reduces address assignment errors and links IP device addresses to domain names. It also improves network move/add/change processes by providing IP address visibility to the individual object level, not just the subnet block.

- Reduction in infrastructure support costs

- Reduction in address assignment process and departmental costs

- Reduction in disaster recovery costs

LOWER DOWNTIME COSTS

- Improvement in availability of network infrastructure

- Reductions in operator errors and misconfigurations

REDUCES COMPANY RISK AND IMPROVES BUSINESS OPERATIONS

- Risk reduction due to employee turnover

- Improvement in overall network operational efficiencies

- Reduced troubleshooting time and support costs due to inaccurate configuration

INCREASES PRODUCTIVITY

- Maintenance of consistent, accurate IP inventory

- Operating expenses controlled through automation

- High availability for clients/ subscribers

- High-performance access for clients/ subscribers

- Optional integrated VitalQIP Appliance Manager Platforms to take advantage of the off-the-shelf hardware/software solution with extended capabilities for efficient patch management and processing as well as DNS high availability

PROVISIONS NEW SERVICES QUICKLY

- Performance-proven in today's most demanding networks (third-party benchmarked)

- Address space rapidly provisioned, and critical IP name and services reliably delivered throughout the network

- Industry-leading DHCP server performance benchmarked by third party (Exodus Labs)

VitalQIP

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- **Extensive tools** to further simplify IPAM such as Address Allocation and MyViews: VitalQIP continues to extend its capabilities and built-in tools to provide more efficient IP address, DNS and DHCP management, such as allowing for user-created rules and templates for automatic and consistent creation of best-fit address space for new sites.

- **Auditing and customizability:** Provides superior auditing, extensibility and customizability to meet unique customer needs, as required by many end customers; for example, custom fields, corporate extensions, object names and user exits

- **Flexibility:** Supports a mix of legacy servers (running Oracle® Solaris™ operating system, Microsoft® Windows® operating system, and Linux® software) and new appliances such as remote servers, as well as software appliances and software appliances running in a virtual environment. (Most vendors can support appliance-only solutions, which typically require a customer to purchase additional new hardware instead of potentially leveraging their installed base.)

- **Proven scalability:** Support for customers with millions of addresses for over 10 years. As new technologies such as DNS Security Extensions (DNSSEC), and more importantly, IPv6 become a reality, a proven product will be critical for scaling environments.

- **Microsoft Active Directory®:** Provides more complete integration with Microsoft Active Directory. For example, VitalQIP can configure Microsoft Windows DNS servers that are integrated in Microsoft Active Directory; most competitors have very limited capabilities.

VitalQIP

VitalQIP ENTERPRISE SERVER 7.3

Operating systems, processors and memory requirements

- Microsoft Windows Server® 2003 operating system with SP2 (Standard and Enterprise server): Intel® Pentium® 4 (>1 GHz), >1G RAM

- Microsoft Windows Server 2003 R2 with SP2 (Standard and Enterprise server) Intel Pentium 4 (>1 GHz), >1G RAM

- Red Hat® Linux® 5.2 software or higher 64 bit: Any x86 (>500 MHz), >1G RAM

- Sun Solaris 10 UltraSPARC (>500 MHz), >1G RAM

Platform	AMS management station	AMM remote DNS/DHCP services	ESM VitalQIP Enterprise software	Capacity
QIP 500	Yes	Yes	NA	Powered by an Intel 64-bit Atom processor in a compact desktop chassis
QIP 700	Yes	Yes	NA	Powered by a 64-bit Intel Pentium CPU in a 1 RU platform, includes 4GigE NIC cards, 4G memory, 500G disk and lights out management
QIP 1200	Yes	Yes	Yes	Powered by a high performance 64-bit architecture 1 RU form factor platform. Intel® Xeon® X3430 Quad Core 2.4 GHz CPU, 4G of memory, 500G SATA HD, DVD drive, 4GigE NIC cards, dual power supply and remote lights out card
QIP 1200-RAID	Yes	Yes	Yes	Powered by a high performance 64-bit architecture 1 RU form factor platform. Intel Xeon X3430 Quad Core 2.4 GHz CPU, 8G of memory, (4) 500G RAID-10 Disks, DVD drive, 4GigE NIC cards, dual power supply and remote lights out card
QIP 5000	Yes	Yes	Yes	Powered by two 64-bit multi-core Intel Xeon processors in a NEBS-3 compliant 1 RU form factor platform with mirrored RAID 1, dual power supplies and remote lights out card, NEBS compliant (AC or DC)
Software appliance	S-AMS	S-AMM	S-ESM	64-bit Red Hat Linux compatible hardware virtualization
Remarks NA - Not available				

InfoExpress CyberGatekeeper

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

Alcatel-Lucent offers a seamless, secure and scalable enterprise network access control (NAC) solution through its embedded network security framework. This framework includes a comprehensive security solution for verifying endpoint integrity through host integrity checking (HIC).

The InfoExpress CyberGatekeeper operates best in conjunction with the Alcatel-Lucent OmniSwitch and OmniAccess WLAN product's HIC integration function, but also can function as a seamless overlay with other Alcatel-Lucent or third-party systems. The CyberGatekeeper is a one-stop HIC and NAC product for enterprises. HIC capabilities screen endpoints and allow them to access the network only if they meet specific security policy requirements.

The CyberGatekeeper supports both HIC desktop agent and agentless (Web-based agent) methods. It allows the management of endpoint requirement policy across all user connection modes (wired, wireless or remote VPN), all user types (employee, contractor or guest), and a broad range of devices and platforms (Microsoft® Windows®, Linux®, Mac OS devices). CyberGatekeeper can utilize the customer's Windows Active Directory for Authentication and Role derivation without the need for 802.1x infrastructure.

The CyberGatekeeper can be deployed seamlessly in just a few hours with minimal network changes. The product is available in an appliance/software version and a software-only version.

InfoExpress CyberGatekeeper

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

- Ensures 100 percent of network endpoints (systems are compliant with the company policy set for patch levels, application settings and configuration) or they are quarantined until remediated

- Separates authentication mechanism from security
  - ¬ IEEE 802.1x not a requirement for HIC
  - ¬ Endpoints can be plugged into phones and still be secure

- Does not interfere with existing VoIP deployments

- Keeps rogue devices off the network

- Reduces vulnerabilities: Security solutions, operating system and patches are assured to be running and up-to-date

- Lowers help desk costs: Automatic remediation of non-compliant PCs

- Improves security compliance/auditing scorecard

- Reduces risks associated with improperly configured computers

- Integrates with existing patch management solutions to preserve software investments

- Reduces support costs by maintaining standard configurations across desktops

InfoExpress CyberGatekeeper

PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

- Automatically manages the security fitness of endpoints

- Operates independently of authentication mechanism and network access controls

- Auto-remediation through automatic installation of missing patches, fully interoperable with third-party remediation/patch management solutions

- Integration with the Alcatel-Lucent OmniSwitch integrates and enforces endpoint compliance with the company policy set for patch level, application settings and configuration at the very first entry point to the network, the edge switch

- HIC policy server provides a single management platform to define, manage and monitor endpoint security fitness compliance

- Compatible with Microsoft Windows, Linux and Mac OS operating systems

- Agents are permanently installed or provided on demand with a web browser

- Dynamic enforcement with User Network Profiles (UNPs) and Access Control Lists (ACLs)

- Central policy management delivers consistent user experience

- Continuous surveillance of endpoint configuration

InfoExpress CyberGatekeeper

PRODUCT OVERVIEW

KEY BENEFITS

KEY FEATURES

TECHNICAL INFORMATION

LAN AND WLAN PRODUCTS SUPPORTING HIC ENFORCEMENT

- OmniSwitch 6250, running AOS 6.6.3 and higher

- OmniSwitch 6400, 6850, 6850E, 9000, 9000E, running AOS 6.4.3 and higher

- OmniAccess WLAN, running AOS-W 3.4.3 and higher

CGS-1000 CYBERGATEKEEPER SERVER APPLIANCE

- Hardware revision: 1000-sm1a

- Software revision: 6.02

- Compliance: Restriction of Hazardous Substances (RoHS), Underwriters Laboratories (UL), Federal Communications Commission (FCC)

- Power requirements: 5 A Max (100 V to 240 V 50/60 Hz, single power supply)

- Network interfaces: Dual 1000BT full duplex RJ-45 (copper)

- Audit connections: Rated up to 10,000 for policies with 500 audited conditions

- Enforcement modules

  ¬ CGSI (HIC): Max 100 client switches

  ¬ EAP (RADIUS Proxy): Max 100 client switches

  ¬ Dynamic NAC: Max 200 managed subnets

CGM CYBERGATEKEEPER MANAGER SOFTWARE SUITE

- Includes Policy Manager and Reporting Server

- Requires Microsoft Windows Server 2003 operating system and Microsoft SQL Server 2005/2008 database software

- Hardware specifications to support an implementation vary depending on total number of endpoints, policy complexity and data retention period. The following sample configuration is provided only as a guide for supporting a 3000-endpoint implementation.

WEB SERVER (DEDICATED)

Windows Server 2003 with SP1

- Processor and memory: Intel® Core™2 Quad processor, 2.4 GHz, 3G of RAM

- Disk subsystem: RAID 5, 7200 rpm disks, minimum 80G for operating system and application

DATABASE SQL SERVER (DEDICATED)

Windows Server 2003 (64 bit) with SP1; SQL Server 2005/2008

- Processor and memory: Intel Core™2 Quad processor, 2.4 GHz, 8G of RAM

- Disk subsystem: RAID 5, 7200 rpm disks, minimum 100G for DB

- Expected average database size: 45G

INFOEXPRESS
CYBERGATEKEEPER   FORTINET

FORTINET

PRODUCT OVERVIEW

KEY BENEFITS

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TECHNICAL INFORMATION

Fortinet delivers unified threat management and specialized security solutions to protect against sophisticated network- and content-based threats. Fortinet is a market leader in network security, delivering purpose-built hardware and software that improves performance, increases protection and reduces costs. Many of the largest and most successful organizations and service providers in the world rely on Fortinet technology to protect their networks and data.

Fortinet's consolidated architecture gives customers the ability to deploy a wide range of fully integrated security technologies to stay abreast of changes to their networks, applications and users. Fortinet's centralized management and simple licensing enables customers to deploy the security technologies they need, where and when they need them.

Benefits of Fortinet solutions include:
- High-performance protection
- Seamlessly integrated technologies
- Complete content protection
- Rigorous third-party certifications and customer requirements
- Lower total cost of ownership
- Superior flexibility and ease of deployment
- End-to-end protection

INFOEXPRESS
CYBERGATEKEEPER   FORTINET

FORTINET

- Offers certified protection with maximum performance and scalability with a powerful, complete content inspection firewall

- Detects and eliminates viruses, worms and spyware in real time. Scans incoming and outgoing e-mail attachments (SMTP, POP3, IMAP) and all FTP and HTTP traffic, including web-based e-mail

- Delivers alerts based on a customizable database of more than 1400 known attack signatures. FortiGate® multi-threat security stops attacks that evade conventional host-based antivirus systems, with real-time response to fast-spreading threats.

- Enables blacklisting of web sites and domains, keyword scanning of e-mails (configurable on a per-user basis) and the ability to leverage a dynamic scoring system using a number of criteria

- Protects web content from known malicious URLs by blocking inappropriate material and malicious scripts including Java™ applets, cookies, and Microsoft® ActiveX® scripts from the network. Fortinet categorizes more than 25 million domains and billions of web pages to ensure its customers can avoid malware.

- Provides secure communication tunnels between networks and clients using industry-standard IP Security (IPSec), Secure Sockets Layer (SSL) and Transport Layer Security (TLS), Point-to-Point Tunneling Protocol (PPTP), and Layer 2 Tunneling Protocol (L2TP)-based VPN support. Fortinet's ASIC-accelerated VPN capabilities allow enterprises to use the Internet as the public infrastructure and a variety of specialized protocols to support private communications through it.

- Helps users control network traffic to optimize or guarantee performance, low latency, and/or bandwidth with Fortinet's traffic shaping. The FortiOS™ firmware offers packet classification, queue disciplines, policy enforcement, congestion management, quality of service and fairness.

FORTINET

- Firewall with a powerful complete content inspection offers certified protection, maximum performance and scalability

- Antivirus Gateway detects and eliminates viruses, worms and spyware in real time. Scans incoming and outgoing e-mail attachments (SMTP, POP3, IMAP) and all FTP and HTTP traffic

- Intrusion prevention provides alerts based on a customizable database of more than 1400+ known attack signatures

- Antispam with blacklisting of web sites and domains, keyword scanning of e-mails (each configurable on a per-user basis) and the ability to leverage a dynamic scoring system

- Web filtering protects all web content against known malicious URLs by blocking inappropriate material and malicious scripts including Java applets, cookies, and ActiveX scripts from the network

- VPN industry standard IPSec, SSL-TLS, PPTP, and L2TP-based VPN support provides secure communication tunnels between networks and clients

- Traffic shaping to control network traffic in order to optimize or guarantee performance, low latency, and/or bandwidth for particular users or specific applications

FORTINET

LARGE ENTERPRISE AND MANAGED SERVICE PROVIDER SYSTEMS

- FortiGate-5140 – 14-slot chassis, AC or DC power
- FortiGate-5060 – Six-slot chassis, AC or DC power
- FortiGate-5050 – Five-slot chassis, AC or DC power
- FortiGate-5020 – Two-slot chassis, AC power
- FortiGate-5001B – FortiGate Threat Management blade
- FortiGate-5001A-SW/-DW Threat Management blades with GigE/SFP ports
- FortiGate-5005FA2 – Threat Management blade with 8 SFP ports
- FortiGate-5001SX/5001FA2 – Threat Management blades with GigE/SFP ports
- FortiSwitch-5003B/5003A/5003 – Switch Fabric blades with GigE/SFP ports

ENTERPRISE APPLIANCES

- FortiGate-3950B – 2GigE, 4 SFP ports, 2 SFP+ ports and 5 expansion slots
- FortiGate-3810A – 8GigE, 2 SFP ports and 2 single-width, 2 expansion slots

- FortiGate-3600A – 8 GigE ports, 2 SFP ports and 1 expansion slot
- FortiGate-3140B/3040B – 2 GigE ports, 10 SFP ports, 10/8 SFP+ ports and 4 expansion slots
- FortiGate-3016B – 2 GigE ports, 16 SFP ports and 1 single-width expansion slot
- FortiGate-1240B – 16 GigE ports, 24 SFP ports, 1 expansion slot and 6 FSM slots
- FortiGate-800 – 4 10x100 ports, 4 GigE ports
- FortiGate-800F – 4 10x100 ports, 4 SFP ports
- FortiGate-621B/621B-DC – 20/24 GigE ports and 1 expansion slot
- FortiGate-310B/310B-DC – 10 GigE ports and 1 expansion slot
- FortiGate-311B – 10 GigE ports and 1 FSM expansion slot
- FortiGate-300C – 10 GigE ports
- FortiGate-224B – 26 x 10/100 ports
- FortiGate-200B/200B-PoE – 8 x 10/100 ports and 8 GigE ports

APPLIANCES FOR SMALL TO MEDIUM-SIZED BUSINESS (SMB), REMOTE OFFICE/ BRANCH OFFICE (ROBO), AND SMALL OFFICE/HOME OFFICE (SOHO)

- FortiGate-110C/111C – 8 x 10/100 ports and 2 GigE ports
- FortiGate-80C/80CM – 6 x 10/100 ports and 2 GigE ports
- FortiWiFi-80CM/81CM – 6 x 10/100 ports, 1 x 10/100 DMZ, 2 GigE ports and 1 Wi-Fi a/b/g/n
- FortiGate-60C – 5 GigE ports, 1 x 10/100 port DMZ and 2 x 10/100 WAN ports
- FortiWiFi-60C – 5 GigE ports, 1 x 10/100 port DMZ, 2 x 10/100 WAN ports and 1 Wi-Fi a/b/g/n
- FortiGate-50B/51B – 5 x 10/100 ports
- FortiWiFi-50B – 5 x 10/100 ports and 1 Wi-Fi b/g
- FortiGate 40C – 5 x 10/100/1000 ports
- FortiWiFi 40C – 5 x 10/100/1000 ports and 2 Wi-Fi a/b/g/n interfaces
- FortiGate 20C – 4 x 10/100/1000 ports
- FortiWiFi 20C – 4 x 10/100/1000 ports and 1 Wi-Fi a/b/g/n interface

PRODUCT GUIDE TO
- CONVERGED NETWORKS
- DATA CENTER SWITCHING
FOR MORE INFORMATION

Should you require further information about Alcatel-Lucent Enterprise solutions, products and services:

• Contact your Alcatel-Lucent representative

• Visit the public Internet web site at:
  http://enterprise.alcatel-lucent.com

Alcatel-Lucent Enterprise business partners may visit the Alcatel-Lucent Enterprise Business Portal web site at:
https://businessportal.alcatel-lucent.com

Business partners in North America may visit the specific North American Business Partner web site at:
www.alcatel-lucent.com/us/partners

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