ENTERPRISE CONVERGED NETWORK SOLUTION

Deliver a quality user experience,
streamline operations and reduce costs

Alcatel·Lucent
Enterprise

PVA

THE NEW CHALLENGES IN DELIVERING A HIGH-QUALITY USER EXPERIENCE

Key trends are driving new network demands and complexity: the need to deliver mission-critical multimedia applications, the support of next-generation devices, mobility, bring your own device (BYOD) and virtualization.

The rapid growth and importance of real-time applications, such as VoIP, video and collaboration suites, push legacy networks to their limit with ever-increasing demands for bandwidth and overall enhanced Quality of Service.

Many new devices, such as smartphones, IP cameras, smart boards and feature-rich next-generation IP phones, demand additional bandwidth and sometimes have power requirements that are above the limits of today's networks. Many employees are demanding to use their own devices, such as smartphones and tablets, needing to connect to corporate networks. This, combined with the support of mobility, increases security risks and makes it difficult for network managers to predict bandwidth consumption, rendering the standard practice of static provisioning of bandwidth priority ineffective. Since IT can no longer control the endpoint, any tuning to improve application delivery now must be done in the network and preferably in an automatic fashion.

Virtualization is no longer confined to the data center. Today virtualization occurs throughout the network, all the way down to the desktop. With virtualized desktops, computing is carried out in the data center rather than at the desktop, with a traffic stream for display information that is more sensitive to delays and network interruptions.

It is imperative to have a converged network architected from the ground up to effectively meet the demands of new applications, devices, mobility and virtualization. Now is the time for enterprises to re-think their strategy with the move to Gigabit Ethernet (GbE) at the access, higher WLAN bandwidth and 10GbE/40GbE core for their networks. They must adopt a network with a simplified architecture that optimizes resource utilization and simplifies overall management, instead of adding another layer of complexity.

THE APPLICATION FLUENT CONVERGED NETWORK

To answer these challenges, PVA, as a certified business partner of Alcatel-Lucent, brings an application fluent network approach to the converged network. Our vision of an application fluent network is based on a resilient architecture with streamlined operations that reduce network complexity and provide automatic control with dynamic tuning of network performance. This application fluent network possesses broad knowledge of both network devices and the applications to which they are connecting. Most importantly, it understands the context of the conversation between the user, device and application – and makes decisions based on that understanding.

A COMPLETE SOLUTION FOR THE CONVERGED NETWORK

The Application Fluent Converged Network Solution includes a wire-rate 10GbE/40GbE network core with the market-leading OmniSwitch™ 6900, OmniSwitch 9000E, and the OmniSwitch 10K Modular LAN Chassis. The converged network includes a unified access layer where a single policy framework, a common authentication scheme and a single user data base apply to both wired and wireless devices. The access layer is provided by a complete set of stackable switches, like the OmniSwitch 6855, OmniSwitch 6850E, OmniSwitch 6450 and OmniSwitch 6250, and a variety of wireless access points

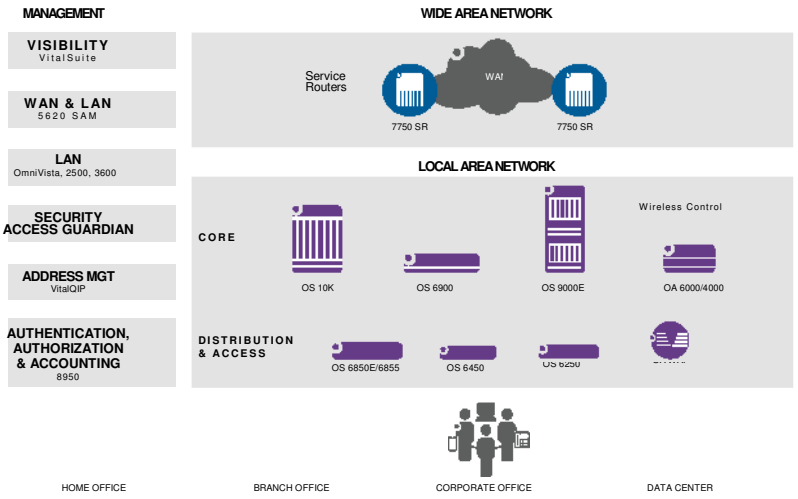


Figure 1. Application Fluent Converged Network Solution"

Combined with a comprehensive management stack, the solution delivers:

- A simplified network with wire-rate 10GbE/40GbE core
- Network virtualization for reduced equipment and streamlined operations
- A resilient network that does not impact real-time application performance in case of failure
- Embedded security for protecting users and enabling BYOD adoption
- Conversations managed in context with the User Network Profile (uNP) for a high-quality user experience
- Multimedia Fluency for enhanced quality delivery of voice and video
- Automated provisioning of access switches and endpoints
- Low power consumption

The converged network solution supports open standards and interfaces to deliver quality bandwidth with a significant reduction in network complexity. Standards-based equipment ensures interoperability and future expandability of the network.

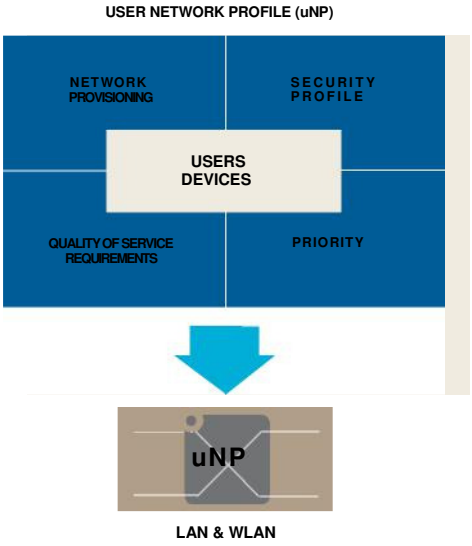


Figure 2. User Network Profile

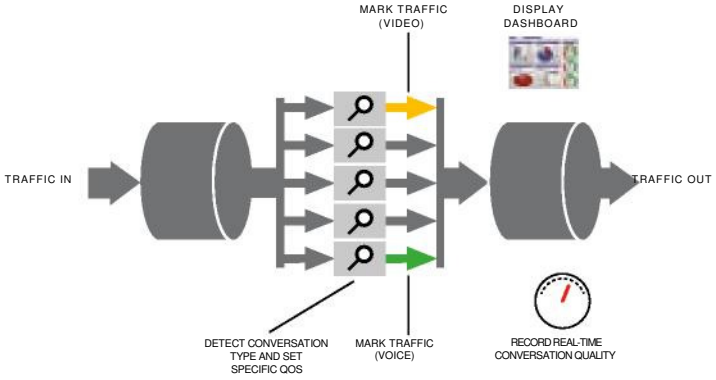


Figure 3. Multimedia Fluency

THE USER NETWORK PROFILE

Unique and embedded in the access layer switches is the ability to manage conversations in context with the User Network Profile (uNP).

Figure 2 shows the uNP conceptually, where the user and devices are surrounded by the information required to manage them.

The uNP enables the network to automatically adjust its configuration depending on the movement of users and devices in the network, instead of the traditional approach of static configurations based on switch ports.

uNP:

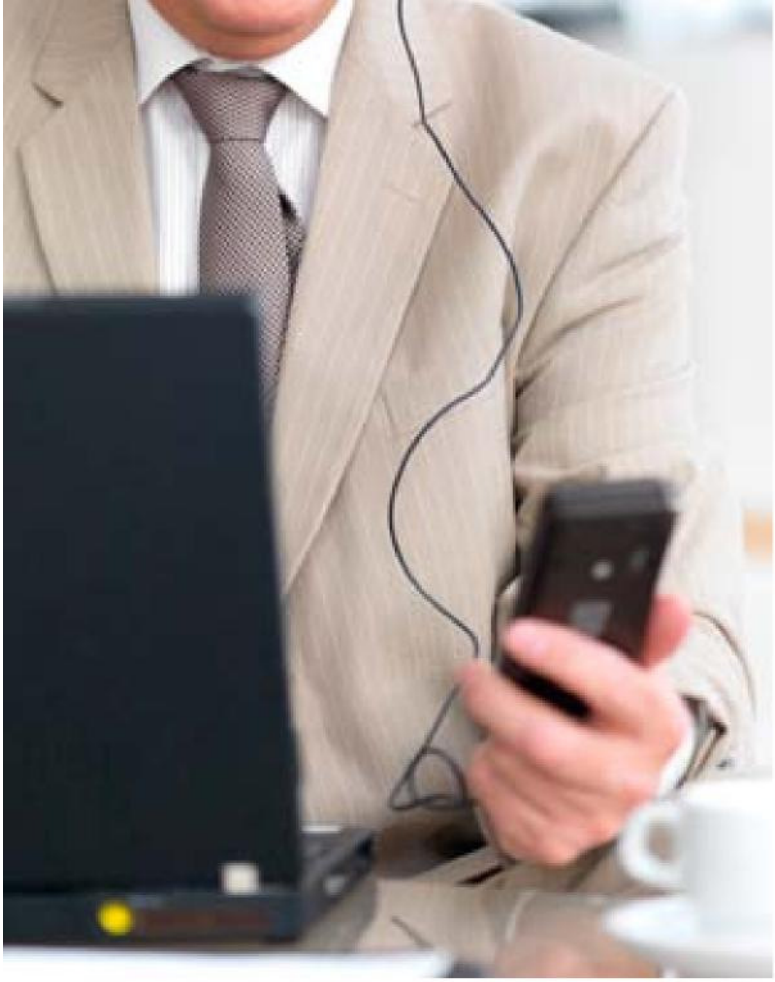
- Minimizes IT effort by eliminating the need to manually reconfigure the network when devices are moved around
- Improves application delivery performance for user mobility by fine tuning the network so users have the same experience wherever they are connected
- Provides consistent security throughout the network

QUALITY MULTIMEDIA DELIVERY

Expanding on the application fluency approach, the solution design introduces a unique Multimedia Fluency. It means that access layer switches will be able to detect the initiation of a SIP-based conversation on the network, assign specific QoS treatment, monitor the actual QoS received and provide a dashboard for IT administrators to have visibility on conversation quality on the network. For example, it is possible to have a specific user receive differentiated QoS for his voice and video session, rather than any other application he is using. Even between voice and video sessions, the user could have different QoS based on his specific needs.

The first implementation is based on SIP traffic.* Future releases will expand multimedia fluency to include VDI applications and HTTP-based services.

* Planned for Q4 2012



A SIMPLIFIED AND RESILIENT ARCHITECTURE

The converged network solution offers new architecture that is simplified and flattened, with just two layers instead of the traditional three-layer architecture. In many cases, it is possible to eliminate the need for a distribution layer due to the introduction of new-generation wire-rate 10GbE/40GbE core switches, led by the OmniSwitch 6900 and OmniSwitch 10K, with market-leading port density and switching capacity.

Virtualization is also important to achieving a flattened and simplified architecture, since it removes the inefficiencies of a spanning tree protocol and enables the network to keep all links active and fully utilize all resources available. Traditional methods would disable all redundant links and only use them in the event of main link or switch failures.

The Application Fluent Network provides simple and resilient architecture. It uses less equipment, increases efficiency and also provides industry-leading re-convergence time in case of equipment failure, without impacting the user experience with real-time applications, like voice and video.

LEADING PERFORMANCE, FUTURE-PROOF CORE

Video traffic is predicted to account for 54 percent of corporate bandwidth by 2016, according to the Yankee Group. The modern corporation needs a network that is able to sustain the current multimedia challenges and also has the capability to support future demands, such as the expected increase in adoption of video.

The Application Fluent Network solution is based on a new generation of wire-rate 10GbE/40GbE core switches providing unparalleled port density and switching capacity. The OmniSwitch 10K modular chassis supports up to 256 10GbE wire-speed ports and a total 5.12 Tb/s switching capacity, while the OmniSwitch 6900 fixed chassis supports up to 64 10GbE wire-speed ports and a total 1.28 Tb/s switching capacity in a compact 1U form factor.

These core switches reduce the need for oversubscription to meet the demands of today's real-time applications and are prepared to support your future needs. The hardware supports 40GbE and is ready to support 100GbE interfaces, which can be added with expansion interface modules.

SEAMLESS CONNECTIVITY ON WIRED OR WIRELESS ACCESS

Companies need to stay competitive and show differentiation. It is imperative that employees are empowered with applications and devices that allow them to share knowledge and remain connected with their peers and customers whenever they need and wherever they are.

With a Converged Network Solution, employees can fully exploit the benefits of mobility and new applications. Users can experience the same level of high-quality application delivery whether they are using a wired or wireless connection. New 802.11n access points support the increased speeds needed for real-time applications. Additionally, the solution is capable of understanding voice and video flows and adjusting the wireless operation to prioritize this traffic and avoid any service interruption. This also includes special technology to optimize video streaming delivery.

EMBEDDED SECURITY

A quality user experience can only be provided if the network is always running and the information is protected. Security is a fundamental component in the corporate network architecture.

More than ever before, security needs to be built in from the ground up and applied universally across all methods of access for the network, wired or wireless. This leads to reduced complexity with enhanced security.

Network edge security services provided with the solution are applied on each device rather than fixed just to the switch port, using role-based access control lists (ACLs) for post admission controls. This includes an edge security framework with automatic endpoint authentication and profile assignment (uNP), dynamic user authentication and profile assignment, automatic host integrity check with network quarantine, rogue device detection and isolation, role-based post admission controls and traffic anomaly detection.

CONVERGED MANAGEMENT

IT departments are under unprecedented stress. Not only do they need to support innovative new devices and applications but also are asked to increase quality and reduce costs. In order to achieve this objective, it is necessary to streamline operations with automated provisioning and a powerful and unified management system.

PVA leverages its extensive experience managing carrier networks to provide end-to-end network and application visibility, as well as carrier-class troubleshooting tools. OmniVista provides a common network management experience for network access and core, meeting the requirements to easily manage corporate, branch and home office sites for both wired and wireless users. OmniVista also includes integrated security management for consistent application of security across the corporation. Additionally, VitalSuite provides end-to-end application performance visibility. VitalQIP provides IP address management, and the 8950 AAA provides Authentication, Authorization and Accounting.

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ENJOY THE ADVANTAGES OF AN APPLICATION FLUENT CONVERGED NETWORK

DELIVER A HIGH-QUALITY USER EXPERIENCE

The Application Fluent Network vision delivers an enhanced user experience with:

- Unique, dynamic tuning of network performance for real-time application delivery ensures a high-quality user experience.
- Market-leading resiliency provides the ability to recover from switch and link faults without impacting real-time applications such as voice and video.

STREAMLINE YOUR IT OPERATIONS

- Embedded security at the edge increases user, device and corporate security without the operational complexity associated with many security systems.
- Automated provisioning of edge switches and endpoints and integrated carrier-class troubleshooting tools minimize IT personnel time to support network.
- Simplified management and maintenance frees the IT staff from the daily struggle to ensure application performance for users.

REDUCE NETWORK INFRASTRUCTURE COSTS

- Flatter network and better use of switch and network links due to network virtualization require less equipment, reducing capital costs.
- Market-leading low power consumption reduces operational costs.
- Streamlined operations reduces operational costs.

PROTECT YOUR INVESTMENT

- Equipment shipped today already supports IPV6 and 40GbE and is ready to support new technologies, including 100GbE, enabling future growth without the need to swap out hardware.
- Total cost of ownership (TCO) of competitors' solutions can be as high as 60 percent more than the Converged Network Solution.

A BETTER CONVERGED NETWORK

With its ability to deliver a simplified, virtualized network with industry-leading wire-rate switching capacity and port density, the Application Fluent Converged Network enables enterprises to create new operational efficiencies, cost savings and a consistent, high-quality user experience across all applications.

It not only offers innovation to meet today's challenges, but also the capacity to support the enterprise in the next five to seven years, including the ability to gradually add 10GbE, 40GbE and 100GbE. This sustainable deployment anticipates the convergence of wired and wireless into a single layer and the technologies to transition to cloud computing, while maintaining the same hardware that supports current needs.

These benefits provide the best ROi in the industry topped with a sustainable solution for the years to come. You can enjoy the benefits of the Application Fluent Converged Network Solution now.

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