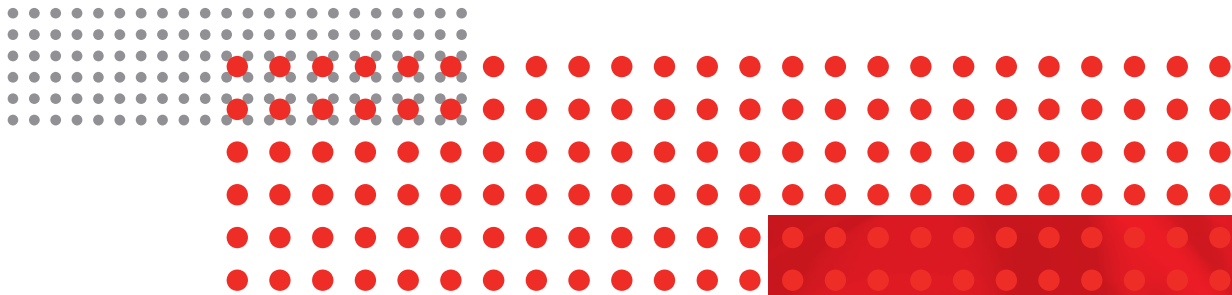


Enabling Cost Reductions Through Convergence

Make money and save money with a converged network
– and extend your business opportunities



Inside this issue

ENABLING COST REDUCTIONS
THROUGH CONVERGENCE

FIVE DIMENSIONS OF NETWORK
DESIGN TO IMPROVE PERFORMANCE
AND SAVE MONEY





Enabling Cost Reductions Through Convergence

Make Money and save money with a converged network – and extend your business opportunities

Convergence is a necessary step to achieve significant cost savings in an enterprise network. At the same time, enterprises can also make money with their converged infrastructure. This publication describes the key benefits of convergence and explains how the Alcatel-Lucent portfolio of products and solutions can help you realize these benefits.

1. Introduction

In today's business climate, enterprises have come to rely heavily on applications such as voice, video conferencing and data sharing in order to achieve and exceed their business goals. The underlying network infrastructure has had to evolve to support these applications, and often separate overlay networks have been built for each application. Through various stages of evolution the network infrastructure has become complex and cumbersome to maintain and administer.

Enterprises constantly face the challenge of how to save money – even more so in the current turbulent economic times. Enterprises are forced to cut their spending budgets by reducing travel and minimizing expenses of all types. This includes reducing both capital expenditures (CAPEX) and operational expenditures (OPEX).

To sustain financial viability and future growth, enterprises must also make money by seeking new and innovative business opportunities that may not have been previously available to them. Enterprises need new ways of doing business by extending their business network and enabling closer interactions with partners and suppliers.

One way to augment revenues is to increase employee productivity and complete business transactions more quickly and effectively, thereby accelerating business execution.





It is now feasible to implement multiple applications (such as voice, video and data), increase speed of execution and minimize costs with the implementation of a single converged network infrastructure. A converged network eliminates the complexity of multiple overlays, reduces the required CAPEX and OPEX, and increases employee productivity. This publication outlines the benefits of a converged network solution and reinforces the associated cost savings with overviews of practical customer examples.

2. Key benefits

A converged network can bring many business benefits to an enterprise, including increased productivity and positive effects to an enterprise's financial and business goals. The following subsections outline a number of key benefits along with an explanation of the associated cost savings.

Simplicity

One of the most obvious benefits of a converged network is the reduced number of network overlays, which are costly and complex to administer. A converged network supports a variety of applications, technologies and protocols. The number of required platforms in the converged network is reduced as well as the associated element and network management costs.

A real-world example of an enterprise with increased cost savings from a converged network is the University of Kuala Lumpur in Malaysia (UniKL). UniKL wanted to provide comprehensive communication and collaboration

tools to students and staff. Their solution had to incorporate an advanced communications and phone system using VoIP while ensuring that an open network was maintained for ease of integration with branch campuses. From an IT management perspective, the introduction of a converged network has resulted in easier maintenance.

The implementation involved upgrading the network with IP technology for voice and data communication. UniKL upgraded its main switch with the Alcatel-Lucent OmniSwitch™ 9000 series acting as the core LAN switch for the converged network, at its main City Campus and the Alcatel-Lucent OmniSwitch™ 6850 series for its smaller, remote campuses. The Alcatel-Lucent OmniPCX™ Enterprise Communication Server was also deployed to support IP telephony over the converged network. Within the City Campus building, about 3,000 network nodes were set up. A more efficient network has led to better communications within the UniKL family and significant cost savings for the university.

Increased productivity

A converged voice, video and data network gives employees access to a broader range of tools and applications to help them do their jobs more efficiently and effectively. For example, if an enterprise chooses to cut travel budgets, employees can use applications such as video conferencing or Unified Communications tools to help them sustain and even increase their level of productivity.



Mobile connectivity can also increase productivity and is further explained in a subsequent section.

Efficient use of real estate

The consolidation of multiple layers of network and equipment into one converged infrastructure saves rack space and floor space within an enterprise's network operations facility. There are inherent savings in both cooling costs and facilities/real-estate management.

Eco-friendliness

One converged network greatly reduces power consumption and an enterprise can benefit significantly from the lower energy cost savings. Furthermore, an enterprise needs to deploy eco-friendly platforms with low power usage in the converged network to further augment the cost savings and benefits. With Alcatel-Lucent platforms that are purpose built for eco-sustainability, enterprises can save 20 to 30 percent on energy expenses.

For example, in one of Alcatel-Lucent's own data centers the cost savings of the eco-friendly Alcatel-Lucent solution compared to another solution is in the hundreds of thousands of dollars. Limiting power consumption in a converged network is one quick and easy way to save a significant amount of money.

Increased mobility

A significant benefit of a converged network is the ability to offer enhanced mobile connectivity for employees regardless of their geographic location. The ability to connect to the corporate network over any wireless access is critical for employees in remote offices, on business travel or working from their home office. There is continuous connectivity, no loss of quality and no negative impact to an employee's productivity.

Alcatel-Lucent has a very comprehensive OmniAccess™ wireless portfolio composed of wireless routing platforms and access points (APs) that can scale from a small to a large number of users.

Banyan Tree Resorts, a prestigious and widely distributed hotel chain in the Middle East and Asia Pacific, wanted to provide robust and technically excellent communications to its high-end guests. The key challenge was to provide telephony and Internet access to guests no matter where they were located within the resort. The hotel chain chose to implement the OmniAccess wireless solution from Alcatel-Lucent coupled with wireless IP phones for employees and guests. Alcatel-Lucent was able to install access points in hard-to-

reach locations, making the wireless network coverage pervasive across the hotel grounds.

The key benefits for the hotel resort are:

- Full wireless voice, data, TV and video connectivity across the entire site
- Immediate communication with key groups of staff
- Secure connectivity for guests
- Ease of maintenance, ensuring that customer service expectations can be met and costs controlled

Enhanced user experience

Enterprises are increasingly accustomed to using a wide variety of tools and applications for their day-to-day business. Different applications put different demands on the network infrastructure, and each application must be uniquely handled. The network must be able to discern which applications are critical and which are of a lower priority in order to assign bandwidth accordingly.

Alcatel-Lucent platforms support granular quality of service (QoS) at the edge of the network, which then gets mapped to hierarchical levels of QoS in the core of the network. Alcatel-Lucent provides the ability to assign gradations of priorities to



applications in the network, thereby ensuring that mission-critical voice or data are treated with the highest preference by the network.

Enterprises no longer need to build separate overlay networks for each type of application needed. With a converged infrastructure that supports sophisticated QoS, less equipment is required and maintenance is simplified.

Application enabled networks
Employees need immediate and continuous access to intelligent applications whether they are at their desktop or another location within their organization. A converged network enables streamlined unified communication solutions to help employees improve their interactions and effectiveness.

Unified Communications solutions from Alcatel-Lucent comprise real-time telephony, voice and fax messaging, instant messaging, presence, collaboration and conferencing. These solutions can be



offered either as standalone products or as a pre-integrated package that simplifies implementation for enterprises. All Alcatel-Lucent Unified Communications solutions are available as a series of web services which provides an open platform enabling integration and inter-operability with commercial applications, business applications and web 2.0 environments.

An important component to Unified Communications is the integration with mobile devices. The use of mobile devices such as the RIM® Blackberry® smartphone is becoming the norm for enterprise employees, and IT departments have the challenge of managing and securing these devices. With Alcatel-Lucent, the solution offers an ergonomic, simple-to-use interface independent of the underlying operating system, thereby making the solution easier for IT managers to support. Alcatel-Lucent Unified Communications mobile solutions are also available on Android™, Apple iPhone™, Nokia Eseries™ and Windows Mobile smartphones.

One of the top ten leading health-care organizations in the United States, Advocate Health Care, had as one of its primary goals to increase collaboration between employees, home health-care workers and doctors. The key benefit this leading health-care provider experienced was increased

employee productivity, with more time devoted to core job functions such as patient care. The real-time collaboration Alcatel-Lucent's Unified Communications solution reduced travel costs considerably and decreased the amount of time needed for patient case resolution.

Full automation

The Alcatel-Lucent Unified Communications solution runs over an extensive wired and wireless network infrastructure. Advocate Healthcare is using the Alcatel-Lucent OmniSwitch™ 6850 in the LAN in conjunction with the Alcatel-Lucent 7450 Ethernet Service Switch and the Alcatel-Lucent 7750 Service Router in the

WAN for their end-to-end Alcatel-Lucent metropolitan area network. The Alcatel-Lucent OmniAccess wireless LAN products and APs provide connectivity from the main location to a number of smaller sites and/or campuses. Advocate Healthcare is able to ensure the highest level of quality of service for their unified communications with the Alcatel-Lucent data networks solution.

Enterprises, in their quest to make money, are looking for ways to strengthen relationships with their existing customers and expand their reach to new customers.

Figure 1. Cost savings provided by Alcatel-Lucent Unified Communications



Source: Alcatel-Lucent

İGDAŞ, a public utility company in Turkey, was able to improve their customer and internal staff communications with a fully converged solution from Alcatel-Lucent. İGDAŞ decided to build a completely new IP network for voice, data and WiFi and a call center using Alcatel-Lucent products.

Improved customer communications: With their previous call center system, customers had difficulty contacting İGDAŞ, and their previous management system made it impossible to track even basic data, such as the number of missed calls.

İGDAŞ implemented the Genesys Suite, and now the utility is now able to handle 3000 to 5000 customer calls every day in an extremely structured way. The contact center and the utility's Emergency Line can now be reached more easily and offer better service, thanks to additional features such as conference calls and increased tracking possibilities.

Improved staff communications: The introduction of wireless access points with Alcatel-Lucent OmniAccess™ wireless APs, at some İGDAŞ sites has also increased mobility. Some employees use WiFi handsets and notebooks to experience total freedom of movement within the company's premises. In this way, staff members can be conveniently reached at any time.

Highly secure
Key challenges with a converged infrastructure are the ability to secure communications with security policies and to define

rules for access, authentication and authorization that are easy to administer. Enterprises need to ensure that there are no chances for security breaches, which may compromise network performance and availability, and that users can access the information they need at any time.

Alcatel-Lucent has a fully integrated suite of security tools that enable users and devices to authenticate in an automated manner and to access network resources without the need for IT network operator intervention.

Abilene Christian University (ACU) is the first university in the United States to provide an Apple® iPhone™ or iPod touch® to incoming freshmen, as a part of a program using innovative technology to enhance the learning experience. The students use this media device as part of the learning process, inside and outside the classroom, over a fully meshed wired LAN and WiFi network based on the Alcatel-Lucent OmniSwitch™ 6850 and the Alcatel-Lucent OmniAccess™ Wireless LAN products. The WiFi network has over five hundred access points deployed across ACU's campus. In one popular classroom, the Alcatel-Lucent wireless LAN infrastructure supports three hundred students at one time, making this the densest deployment of Apple iPhones anywhere in the world.

Alcatel-Lucent's security tools also help to protect the network from any rogue or malicious users on campus who are seeking to compromise the network. The security tools are part

of the Alcatel-Lucent networking platforms without requiring additional hardware or software. Costs are minimized and overall network security is maximized with an Alcatel-Lucent solution.

3. Conclusion

Convergence is a necessary step to achieve significant cost savings in an enterprise network. These cost savings can be realized in many areas of the enterprise business, including telephony, video, Unified Communications, contact centers and data.

Enterprises can also make money with their converged infrastructure through Unified Communications tools and automated contact center applications for front and back office that help to improve productivity.

Alcatel-Lucent has a comprehensive portfolio coupled with global experience on the implementation, support and maintenance of converged networks for a variety of enterprises in a multitude of industry segments. Alcatel-Lucent is the partner of choice for enterprises that want to save money and make money.

4. Abbreviations

ACU	Abilene Christian University
CAPEX	capital expenditures
GbE	Gigabit Ethernet
IM	instant messaging
OPEX	operating expenditures
QoS	quality of service
UC	Unified Communications
UniKL	University of Kuala Lumpur
WLAN	Wireless local area network

Source: Alcatel-Lucent



From the Gartner Files:

Five Dimensions of Network Design to Improve Performance and Save Money

Gartner

The research provides a framework for network architects to focus their attention on business requirements rather than following outdated design methodology. Architects that follow this approach will develop more-effective solutions while achieving better business alignment and cost containment.

Key Findings

- Considering location and bandwidth are no longer enough to ensure the proper design of an enterprise network.

Recommendations

- Network architects need to shift their thinking from technology to users and business processes in order to meet changing network requirements.
- As part of a cross-functional team, network architects and designers must become an integral part of application planning and deployment teams.

WHAT YOU NEED TO KNOW

Network architects must expand their thinking to include individual users, devices and application

requirements early on in the network design process. Enterprises that adapt their design practices to this approach will build better networks while optimizing their spending on technologies that will make a difference to the business.

ANALYSIS

Traditional network design practices had a near complete focus on sizing bandwidth and ensuring connectivity to users and locations. This inevitably led many companies to “throwing bandwidth” at the problem in the form of higher classes of services on their Multiprotocol Label Switching (MPLS) networks, which often meant just spending more money with little to show for it. Although it is still necessary to perform these functions, the job of a network architect no longer ends there. Changing application

environments, user expectations and network services demand that architects expand their thinking to ensure that the network supports new business requirements. The five dimensions of network design provide a framework for more-advanced discussions to ensure that emerging enterprise network architectures provide an expanded set of services to the enterprise.

Introducing the Five Dimensions

The five dimensions that summarize major areas of consideration are location, user, application, device and activity.

Location encompasses the past concepts of ensuring appropriate bandwidth to corporate locations and appropriate access for remote employees. However, today we

need to think beyond just physical corporate sites to areas that are not under the direct control of the enterprise – home offices, mobile-worker situations, and the locations of business partners and customers. Locations outside direct enterprise control will need different approaches to ensure appropriate service capabilities. Customers will generally rely on the Internet as an access method, while business partners could use basic Internet, through a virtual private network (VPN) or, in some cases, with dedicated business class connections. Location also needs to consider any external service providers that might contribute to the IT architecture, such as software as a service (SaaS) providers and cloud-computing providers.

Users face the similar concept of being under enterprise control. Enterprises can dictate and lock down employee devices, making network delivery of applications easier. However, users outside direct control, such as business partners and customers, often need to be considered. In addition, some businesses have users that might be influenced but not controlled, such as franchisees and agents. The key here is that enterprises cannot assume that “one size fits all” and that designs should accommodate the varied business demand of different users.

Understanding the applications running on the network is an important aspect of network design. Consider which applications and protocols are running. Are these applications deployed via a centralized data center or distributed? It is also critical to be aware of pending application architecture changes. For example, are business-critical apps migrating from client server (or even “green screen”) to browser-based? Is there a major server or data center consolidation project contemplated?

Are there new investments planned for Ajax, service-oriented architecture (SOA) or Web 2.0 architectures? The emergence of cloud-computing architectures also complicates the application picture because they will distribute application deployments.

Devices are proliferating to the level that it can no longer be assumed that the enterprise apps will be deployed to a common PC platform. Mobile devices running a variety of different operating systems (OSs) such as BlackBerry, Windows Mobile and Symbian are becoming common; specialized devices such as shop floor and process control devices are key in some environments and also must be considered. In some cases, the move toward IT consumerization will cause the additional proliferation of devices and OS environments. Therefore, enterprises can no longer assume that they will have a known list of end-user devices or that they will have any control over them when designing network solutions.

Activity looks at what users actually do at the end of the connection. This dimension is all about providing context to the connection, and considers how users interact with the network and the type of interaction. For example, usage could be highly predictable and largely consistent when dealing with a call center agent. It could be consistent from an application perspective, but highly variable and spiky for computer-aided design (CAD) or software development engineers; or it could be completely random for knowledge workers. Activity can include concepts that capture the relative importance of certain activities. For example, file system access for users whose primary business function is interacting, compiling and modifying file-based resources is critically important and will significantly impact users’ productivity. Casual

file system interaction for many knowledge workers will have no effect on personal productivity or the business.

It’s possible to distill much of this new thinking into a single concept. If network architects have a solid understanding of what their users do for a living at the end of the network connection, they will be in a much better position to design a network architecture with a set of services to improve the productivity or decision-making capabilities of those users. These concepts extend easily to external users in random locations with various devices with different levels of interaction or criticality.

These new concepts will lead network architects to think differently about many areas where they may be used to using standard, well-understood methodologies or “rules of thumb.” Table 1 helps illustrate some of the ideas that the five dimensions will introduce to the design process.

One Constraint

It’s difficult to talk about new network design approaches and more-advanced functionality in today’s environment without considering the financial impact of this process. Fortunately this process can go hand-in-hand with cost containment activities that many organizations face. Gartner has been vocal about the amount of wasted expenditures in networking infrastructure and services. One of our Top 10 Predictions for 2007 highlighted this fact. In addition, Gartner’s Vendor Influence Curve research also points to a need to understand your requirements clearly in order to make better business, vendor and financial decisions. The five dimensions process enables organizations to better understand their requirements to ultimately build a better network at a reduced cost of acquisition and operations.



Table 1. The New Dimensions of Network Design

Past Approach	New Thinking
Locations	Users, Devices and Applications
Bandwidth	Latency
Network Silos	Holistic Strategic Plan
Generic Network Design	Plan for Application Architecture Changes Integral Part of Application Planning and Deployment
Corporate Network	Delivering Apps to Support Business Processes

Source: Gartner (February 2009)

How to Start

It is possible to boil down much of the concepts behind this approach into two thoughts:

- To understand the requirements you have to get beyond IT.
- You can't presuppose architectures, technologies or vendors.

In essence you need to understand which groups of users need to do their job. It's important to reach out to the various users groups in your organization – for example, manufacturing, development, customer support, sales, marketing

and finance in a manufacturing organization; or nurses, radiology technicians and doctors in a medical services organization. One approach is to hold workshops – with various groups or across groups to brainstorm and compile organizational requirements. While this research is more narrow than the more-complete target discussed here, it does provide a useful framework for gathering business and user information outside of IT. The focus of the discussions should be what drives their productivity. Dig beyond statements such as “I need a faster network connection” or “I need a BlackBerry” to determine

which applications or constraints are negatively impacting productivity or which applications need to run on a mobile device. By gaining this understanding, IT will be in a better position to translate the business requirements and bottlenecks into technical requirements and solutions. Organizations that follow the Six Sigma methodology can use the “voice of the customer” process to gather this information. Once you understand where and how users work and what applications they use, network architects can then start translating this into a set of network technologies. As portions of the network come due for refresh or for new requirements, the work performed can form the basis of a request for proposal (RFP) document and be sent to a shortlist of vendors. This approach will ensure that the network infrastructure better meets the business requirements, and the competitive nature of selecting a final vendor will save significant capital costs – generally more than 35% for network infrastructure purchases.

Gartner RAS Core Research Note
G00164800, Mark Fabbi,
Eric Paulak, 3 March 2009

Enabling Cost Reductions Through Convergence



EPG3310100602 - Customer Newsletter 07/2010 - Enabling Cost Reductions Through Convergence is published by Alcatel-Lucent. Editorial supplied by Alcatel-Lucent is independent of Gartner analysis. All Gartner research is © 2010 by Gartner, Inc. and/or its Affiliates. All rights reserved. All Gartner materials are used with Gartner's permission and in no way does the use or publication of Gartner research indicate Gartner's endorsement of Alcatel-Lucent's products and/or strategies. Reproduction and distribution of this publication in any form without prior written permission is forbidden. The information contained herein has been obtained from sources believed to be reliable. Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information. Gartner shall have no liability for errors, omissions or inadequacies in the information contained herein or for interpretations thereof. The reader assumes sole responsibility for the selection of these materials to achieve its intended results. The opinions expressed herein are subject to change without notice.

Featuring research from

Gartner

Alcatel, Lucent, Alcatel-Lucent and the Alcatel-Lucent logo, are trademarks of Alcatel-Lucent. All other trademarks are the property of their respective owners.

www.alcatel-lucent.com