



ENABLING COLLABORATIVE CONVERSATION EXPERIENCES WITH AGILE, COST-EFFECTIVE IT

ALCATEL-LUCENT OPENTOUCH SUITE FOR
MID-SIZED AND LARGE ENTERPRISES:
IT TRANSFORMATION DIRECTIONS

APPLICATION NOTE

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ABSTRACT

The workplace is being redefined, with new visual collaboration experiences across sites and smart application-enabled devices that boost personal productivity. These new standards of communications will introduce key opportunities for chief information officers (CIOs) to provide value to business lines and improve total cost of ownership (TCO). Enterprise IT teams will need increasing agility and flexibility in delivering next-generation communication applications over simplified network and communications infrastructures.

Alcatel-Lucent is helping enterprises optimize and transform their IP telephony networks with a converged software application suite that enables native multi-party and multimedia collaborative conversations on any device: the Alcatel-Lucent OpenTouch™ Suite for Mid-sized and Large Enterprises (MLE). The four directions in this phased approach are data center convergence, software transformation, operations automation and end-to-end performance monitoring. The suite enables high Quality of Experience (QoE), improves delivery agility and operational costs, and ensures accountability with Service Level Agreement (SLA) monitoring.

MAJOR TRENDS IN ENTERPRISE COMMUNICATIONS

With recent developments in communications, professionals have changed from technology-wary to technology-savvy individuals. Innovations are enabling a range of new desk phones, smart phones and tablets that combine seemingly infinite features with disarming simplicity.

Redefining the workplace with visual collaboration and smart devices

Work spaces are being redefined as virtual places distributed among physical locations: office, home, or any place while an employee is on the move. Working from anywhere will become a common practice in many organizations. The rise of communication quality standards, along with high-definition (HD) video and wideband audio solutions, will enable an increasing number of virtual meetings across sites. The immediate benefits are obvious: decreased stress and transportation costs and less wasted energy.

With the new generation of smart devices, employees will be able to build their own personal clouds, connecting apps and content from their personal lives with enterprise applications so that their productivity can always be optimized. Enterprise customers will also benefit from shortened response times because all enterprise communication applications will be within reach of all employees, wherever they are connected.

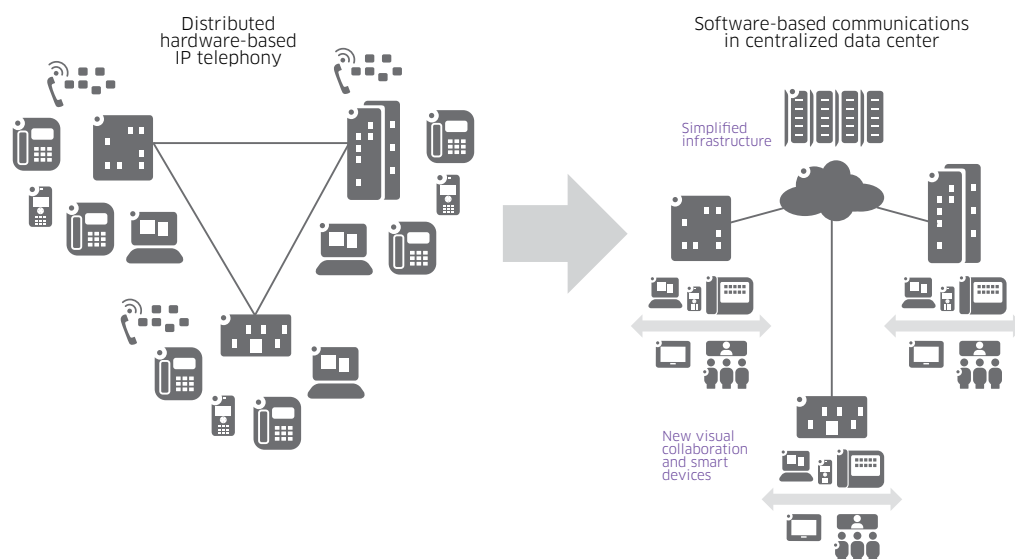
Empowering the new IT with convergence and software transformation

These new standards of communications will introduce key opportunities for CIOs to reconcile business lines with IT.

CIOs will need to simplify the communications and network infrastructure so that any employee may benefit from the new communications experience while on- or off-site. Convergence between communications infrastructure and application-fluent networks¹ will take place in campuses and branch offices (see Figure 1), resulting in:

- Anywhere access to applications
- Increased bandwidth and QoE for visual collaboration
- Integrated security for smart devices
- High availability for all communications

Figure 1. Convergence and software transformation



Convergence between the data center infrastructure and communication applications will also take place in centralized data centers. As more consumer devices are used in enterprises, communication applications must adapt to new operating systems and user experiences. The life cycle of communication applications will consequently shorten, and the number of applications will increase. Hardware-based IP telephony is therefore moving toward more flexible, software-based communication applications in centralized data centers:

- Siloed data center architectures are transforming into unified cloud-based fabrics or pods² with higher throughput, lower latency, reduced energy footprint and simplified architecture for easier virtualization operations.
- Large scalability schemes are enabling the centralization of communications intelligence in data centers with the highest survivability and business continuity insurance.
- Simplification and virtualization of software applications are enabling operational flexibility and savings on hardware.
- Communications software applications that address new visual collaboration and smart device requirements can be delivered as a service.

Centralization, convergence and software transformation are therefore the technology enablers of cloud-based communications as a service.

¹ Alcatel-Lucent Enterprise, Application note: *IP Converged Network*, October 2011

² Alcatel-Lucent Enterprise, White paper: *Application Fluency in the Data Center*, 2011

Ensuring flexible operations and security enforcement for communications as a service

With centralization, convergence and software transformation, IT managers can choose which strategy they use to deliver communications as a service to their business lines: provider-hosted enterprise cloud, premises-based enterprise cloud, or a hybrid strategy. IT teams will offer flexibility to their business lines, enabling them to set their applications environment on demand and to immediately react to business changes.

No matter which cloud strategy is used, delivering an increasing number of applications on demand will require increasing operational agility as well as the ability to monitor the end-to-end applications and network QoE. With all delivery options, anywhere access to applications introduces additional security requirements. Automation of security is therefore crucial for decreasing operating expenditures (OPEX) while delivering the highest value to businesses.

Moving forward with Alcatel-Lucent Enterprise

Alcatel-Lucent is ranked as one of the leading vendors of enterprise communication technologies³, delivering innovation to IT and employees. The award-winning⁴ Alcatel-Lucent OpenTouch Suite for MLE is advancing workplace communications, enabling native multi-party and multimedia collaborative conversations⁵ on any device (Multi³). These new Multi³ technologies are paving the way for the next generation of enterprise communications to enable agile virtual teams and efficient mobile workers (see Figure 2).

Alcatel-Lucent Enterprise is providing an innovative approach to networking in the data center: application fluency. With this approach, Alcatel-Lucent Enterprise is creating a new blueprint for a complete data-center switching fabric that extends data center boundaries with network virtualization and an innovative direct-connect architecture.

Embedded security at the network edge and core ensures that users are protected and corporations are secured while reducing the operational complexity associated with traditional overlay security systems. The Alcatel-Lucent design also provides long-term sustainable deployment: currently shipped Alcatel-Lucent OmniSwitch™ equipment supports IPv6 and is ready to support 40GE and 100GE as well as continued convergence of LAN and wireless LAN (WLAN) without changing hardware.

³ Positioned in "Leaders" quadrant in *Magic Quadrant for Corporate Telephony*, by Jay Lassman, Steve Blood and Geoff Johnson, Gartner® Inc., September 15, 2011

⁴ Award examples: Best of Interop 2012 Collaboration Winner; Frost & Sullivan 2011 "Most Innovative European Communications Product of the Year"

⁵ Alcatel-Lucent Enterprise, Strategic white paper: *Collaborative Conversations*, 2011

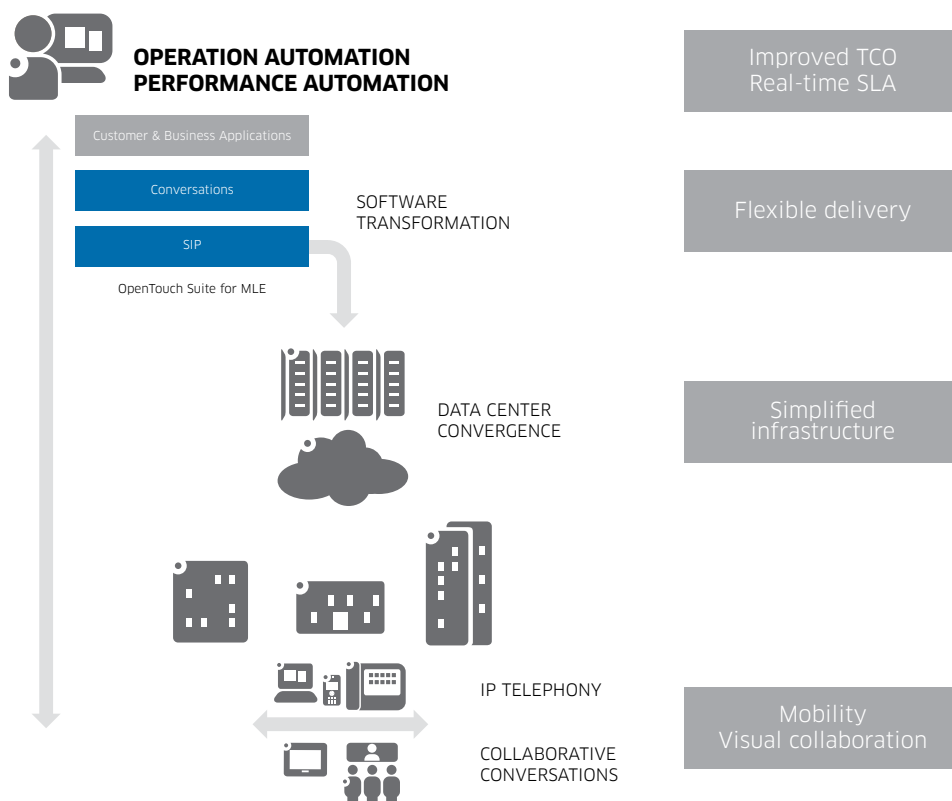
ALCATEL-LUCENT OPENTOUCH IT TRANSFORMATION DIRECTIONS

By extending the next-generation communication experience across devices and media with Alcatel-Lucent conversations, enterprises can create business-centric communities of innovation that engage in collaborative sessions and drive value to their employees, partners and customers.

The Alcatel-Lucent OpenTouch Suite for MLE, a converged Session Initiation Protocol (SIP) software suite, enables these conversations. The suite consists of a simple, cloud-ready layered architecture⁶ and modular software components that share converging technologies (see Figure 3). The suite features:

- Data center convergence: Simplifies telephony operations and increases maintenance agility as well as easing the delivery of next-generation applications (see “Convergence directions: centralized, cloud-ready IP telephony infrastructure”)
- Software transformation: Provides flexibility and agility in which applications are delivered (see “Software directions: virtualization and shared SIP infrastructure”)
- Operations automation and end-to-end performance monitoring: Decreases operational costs and enables SLA monitoring (see “Operations directions: automation and new security standards”)

Figure 2. High-level architecture of the Alcatel-Lucent OpenTouch Suite for MLE



6 Alcatel-Lucent Enterprise, Application note: Alcatel-Lucent OpenTouch Suite for Mid-sized and Large Enterprises: Blueprint, July 2012

Convergence directions: centralized, cloud-ready IP telephony infrastructure

Thousands of large enterprises have chosen Alcatel-Lucent — with its strong track record in telephony centralization — to optimize their IP telephony networks, taking the following transformative steps toward a cloud-ready infrastructure:

- IP telephony servers are centralized in data centers.
- Former networked Private Branch Exchange (PBX) platforms are transformed into centrally managed media gateways.
- External communications are centralized toward cost-effective SIP providers.
- Local survivability equipment and devices that support multiple homing keep local sites always connected.

These transformations are improving operations and maintenance agility as well as reducing communication costs across sites. Moreover, all sites and branch offices are benefiting from a homogeneous level of services, enabling IT to deliver new centralized applications to employees wherever they are.

Software directions: virtualization and shared SIP infrastructure

An increasing number of enterprise users expect a truly Multi³ conversation experience. Alcatel-Lucent is delivering conversation applications on top of a converged IP telephony infrastructure. The Alcatel-Lucent OpenTouch Suite for MLE leverages cloud technology for more agility in the data center.

Table 1 summarizes enablers for cloud-based conversations and Alcatel-Lucent OpenTouch software transformation directions. These software transformations will provide increased flexibility and agility for IT teams as well as a unified experience for users who engage in cloud-based conversations.

Table 1. Alcatel-Lucent OpenTouch Suite for MLE: software directions

TECHNOLOGY EVOLUTIONS	OPENTOUCH SUITE FOR MLE SOFTWARE DIRECTIONS
Virtualization	Virtualization of the OpenTouch Suite on any hardware
SIP infrastructure	Shared, open SIP infrastructure for instant communications and multimedia conferencing to simplify the rollout of conversation applications
Conversation logic	Shared logic for smart desk phones, smartphones, tablets, PCs and Apple® Macintosh® computers to provide a unified experience across devices
Media software	<ul style="list-style-type: none"> • Shared media software for instant communications and multimedia conferencing • Software conferencing enriched with continuous HD audio and video
Virtual cloud	<ul style="list-style-type: none"> • SIP and dedicated networking between IP telephony servers and the conversation infrastructure for better architecture flexibility across on-premises and cloud-based components • Modularity between software media servers and conversation applications to meet large enterprises' bandwidth and security constraints

Virtualization

When communication applications are deployed in standard virtual machine format in industry hypervisors over any hardware, data center servers can be shared by all enterprise applications. The hardware sourcing policy is simplified, and hardware maintenance is easier because virtual machines can be moved to other servers. Software operations are more flexible because virtual machines can be stored and booted from a storage area network (SAN).

Shared SIP infrastructure

Communication applications require more “east-west” traffic between data center virtual machines and servers than in web applications: there is greater complexity, with traffic flowing between virtual machines and between software components. Sharing a common SIP call control and media infrastructure across telephony, mobility and collaboration applications reduces this east-west traffic, optimizes performance, and decreases energy consumption and TCO.

Shared conversation logic across communication applications

Centralized cloud technology makes it easier for devices to access applications across LANs, WLANs, 3G/4G networks and the Internet. Building shared communication logic on top of a common SIP infrastructure provides a unified experience across devices regardless of their type of access network. Shared communication logic also enables users to seamlessly switch sessions across devices, escalate from one medium to a full multimedia conversation, and move from a telephony session to a full multi-party conference.

Media software

Increasing computing capacity in data centers enables resources such as media transcoding, inspection, broadcasting, storage and prompts that are currently hardware-based to be delivered as media software. Media software increases deployment and maintenance agility.

Modular platform for flexible virtual cloud deployments

Web application clouds rely on caching technology to overcome latency and bandwidth consumption issues that may arise between devices in remote sites and servers in data centers. Real-time applications cannot use caching: some components of the Alcatel-Lucent OpenTouch Suite for MLE, such as media gateways, software media processing or SIP routing, may need to be deployed closer to the devices while communication logic runs in the cloud.

This modularity also enables virtual cloud deployments in which some components, such as telephony and media processing, are deployed in on-premises private clouds and other components, such as conversation logic and any-device access, run in service providers' data centers.

Operations directions: automation and new security standards

The transformation toward cloud-based architectures must be accompanied by increased automation of IP, applications and security management to reduce OPEX.

Table 2 summarizes the key Alcatel-Lucent OpenTouch Suite for MLE operations directions.

Table 2. Alcatel-Lucent OpenTouch Suite for MLE: operations directions

Technology evolutions	OpenTouch Suite for MLE operations directions
IP address management	Increased automation of the market-leading Alcatel-Lucent VitalQIP™ solution for reducing the TCO of IPv6 and cloud transitions
Unified management and self-service provisioning	Enriched Alcatel-Lucent OmniVista™ unified user management for IP telephony and OpenTouch conversation services, made available to other applications such as self-service portals
Performance management	Extension of Alcatel-Lucent OmniVista and VitalSuite™ real-time monitoring capabilities to new use cases, including video and wireless IP
Security	Securing of real-time and stored multimedia conversations against multimedia denial of service (DoS) attacks and confidentiality breach attempts on clouds

Automated IP management for connected devices and cloud availability

The exponential growth of connected devices in enterprises is leading to higher OPEX. IP address management (IPAM) is crucial to decreasing these additional costs. With IPAM, employees benefit from robust navigation capabilities to perform centralized planning, provisioning and administration of Dynamic Host Configuration Protocol (DHCP) services. IPAM also provides the central Domain Name System (DNS) to locate applications. The major upcoming evolutions of IPAM are:

- Increased automation of DHCP/DNS provisioning and security with easy-to-use web-based graphical interfaces and the publication of standard programming interfaces toward hypervisors
- Support and automation of new standards for transitions from IPv4 to IPv6
- Enhanced reporting functions to help IT build performance indicators of cloud availability

Simplified management and monitoring of cloud-based conversations

The automation of IP telephony management is extending to new conversation applications. User databases can be simplified and converged across applications, and automated procedures simplify the most frequent operations — for example, user move, add, change, delete (MACD) and device enrollment. In addition, role-based management is enabling the outsourcing of some management tasks. The upcoming evolutions for management applications in the Alcatel-Lucent OpenTouch Suite for MLE are therefore:

- Unification and simplification: Unified reporting and topology views across applications give IT staff a simplified overview of the communications network. Unification with other IT databases and processes, such as new employee enrollment, can be done using Web services application programming interfaces (APIs).
- Evolution of role-based management to self-service: Users have learned to use self-service applications for their smartphones and digital subscriber line (DSL) boxes. Some enterprises will publish self-service applications to employees to offload these tasks from help desks. These applications will rely on the Alcatel-Lucent OpenTouch management APIs.

- New management tasks related to appification: The management applications will take into account the secure and trusted deployment of ecosystem applications on users' devices.
- End-to-end performance monitoring: Multimedia quality monitoring will be integrated in the management applications so that IT can check the SLAs for new wireless and visual collaboration applications in real time.

New security challenges: personal cloud confidentiality and attacks

New attacks and security threats are arising with the adoption of new media, extensive mobility and deployment in managed cloud infrastructures. To protect against these threats, embedded and dedicated security components of the Alcatel-Lucent OpenTouch Suite for MLE will evolve as follows:

- Secure multimedia mobile conversations against attacks: E-mail, Short Message Service (SMS) and home phones are the main current targets of unsolicited broadcasting and phishing (“spam”). Multimedia communications over multiple networks provide amplified opportunities to attackers. For increased security, Session Border Controllers (SBCs) will provide perimeter defense for mobile employees, guests and software clients. SBCs perform Deep Packet Inspection (DPI), to be extended to new media and enriched with anti-spam logic.
- Secure user information in cloud-based conversation databases: Conversation applications store sensitive user information, such as the history of communications, exchanged instant messages, and recorded multimedia conferences. Permissions, encryption and audit trails are evolutions that will secure access to this information.
- Adopt user-centric certificates: Evolution to private key infrastructure will enable IT to deploy certificates that authenticate users over multiple endpoints. This evolution will simplify the adoption of user-based security policies.

CONCLUSION

The Alcatel-Lucent OpenTouch Suite for MLE addresses business-telephony to mission-critical communications for mid-sized to large enterprises. This flexible and robust IP communications solution is modular and cloud-ready. Employees benefit from a seamless, collaborative conversation experience using a single interface across devices, media and participants. With optimized infrastructure and unified management, enterprises can save on investments, reduce their energy footprints and decrease OPEX.

ACRONYMS

3G, 4G	Third Generation, Fourth Generation
API	application programming interface
CIO	chief information officer
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
DoS	denial of service
DPI	Deep Packet Inspection
DSL	digital subscriber line
GE	Gigabit Ethernet
HD	high-definition
IP	Internet Protocol
IPAM	IP address management
IPv4, IPv6	IP version 4, IP version 6
IT	information technology
LAN	local area network
MACD	move, add, change, delete
MLE	Mid-sized and Large Enterprises
Multi3	multi-party, multimedia, multi-device
OPEX	operating expenditures
PBX	Private Branch Exchange
QoE	Quality of Experience
SAN	storage area network
SBC	Session Border Controller
SIP	Session Initiation Protocol
SLA	Service Level Agreement
SMS	Short Message Service
TCO	total cost of ownership
WLAN	wireless LAN

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