

VIRTUALIZATION COMES TO ENTERPRISE COMMUNICATIONS

ALCATEL-LUCENT ENTERPRISE TECHNOLOGY HELPS LARGE ORGANIZATIONS EVOLVE BUSINESS COMMUNICATIONS

APPLICATION NOTE

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ABSTRACT

New visual collaboration experiences, along with smart, application-enabled devices and cloud-ready network architectures are creating important opportunities for enterprise IT departments to transform networks and communications. This application note describes how the Alcatel-Lucent OpenTouch® Suite for Mid-Sized and Large Enterprises (MLE) helps IT departments take advantage of four major transformation opportunities. For each opportunity, the paper illustrates the architectural evolution enabled by the OpenTouch Suite and describes the resulting benefits. It also reviews the technical and operational options for successful transformations.

NEW OPPORTUNITIES FOR IT TO EVOLVE BUSINESS COMMUNICATIONS

Today, new visual collaboration experiences and smart, application-enabled devices are redefining the workplace. These new means of communications allow chief information officers (CIOs) to bring more value to their businesses by providing:

- Anywhere access to communications applications
- Higher quality of experience (QoE) for visual collaboration
- Intuitive enterprise communications for smart devices
- High availability for all communications

At the same time, new network architectures and technologies are helping IT departments streamline operations and reduce total cost of ownership (TCO). For example, siloed data center architectures are being transformed into unified, cloud-ready fabrics or pods with higher throughput, lower latency, reduced energy requirements and a simplified architecture for centralized applications. Other technology advances are also introducing key opportunities for IT departments:

- Large scalability projects are enabling centralization of communications intelligence in data centers with high survivability and business continuity.
- Virtualization of software applications is enabling operational flexibility and hardware savings.
- Simplified and converged communications applications that support visual collaboration and smart device requirements can now be delivered as a service.
- Unified management and performance monitoring across communication applications are improving operational agility and enabling managed services offerings.

The Alcatel-Lucent OpenTouch Suite for Mid-Sized and Large Enterprises (MLE) helps IT departments take advantage of these four major opportunities to transform the enterprise communications network and change the conversation. This converged Session Initiation Protocol (SIP) software suite consists of a simple, cloud-ready, layered architecture and modular applications that enable collaborative conversations.

RELIABLE TECHNOLOGY TO OPTIMIZE BUSINESS COMMUNICATIONS

This section explores four of the major opportunities enabled by the OpenTouch Suite:

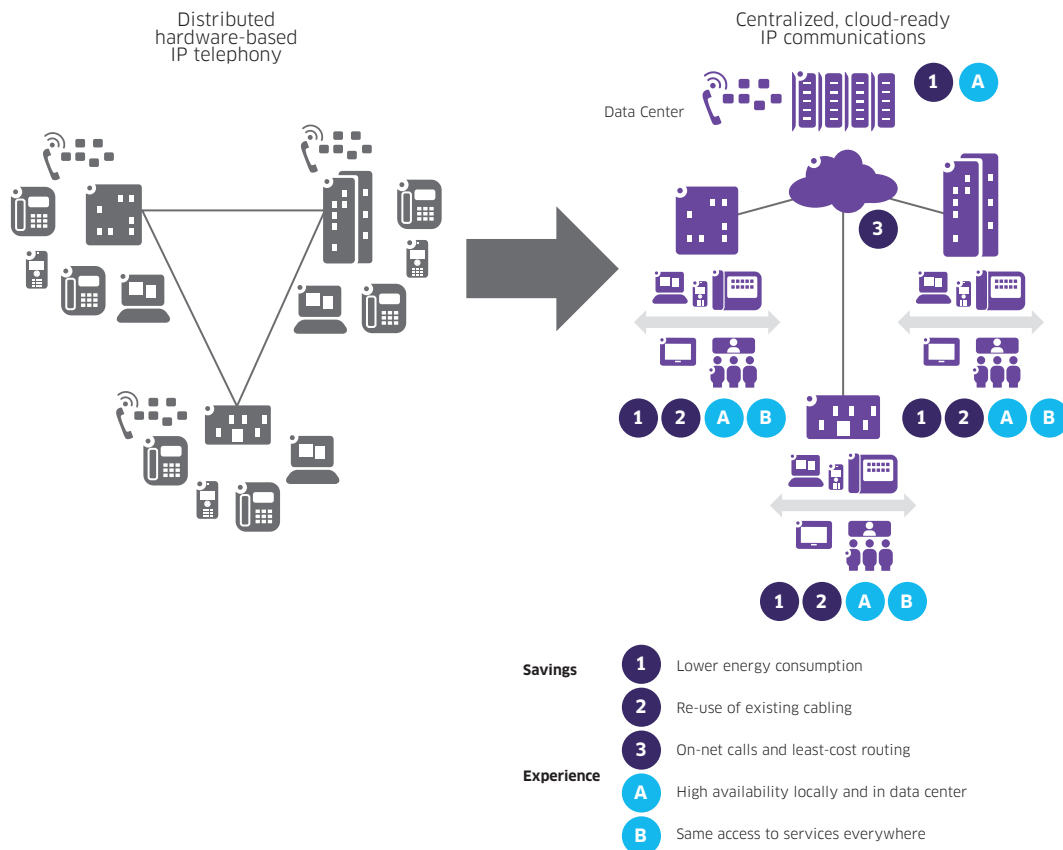
- Delivering centralized, cloud-ready IP communications
- Virtualizing IP communications
- Converging conversation software
- Unifying management and performance monitoring

Delivering centralized, cloud-ready IP communications

With the OpenTouch Suite, IT departments can transform from distributed, hardware-based IP telephony networks to centralized IP communications networks that are ready to support cloud applications. All sites and branch offices benefit from a homogeneous level of services, enabling IT to deliver centralized visual collaboration and intuitive enterprise communications for smart endpoints to employees wherever they are.

Figure 1 illustrates the architectural evolution and highlights the major benefits that result from this transformation.

Figure 1. Centralizing IP communications saves money and improves experience



The cost savings and improved user experience are achieved because:

- IP telephony servers are centralized in data centers.

The high user density supported by the Alcatel-Lucent OmniPCX® Enterprise Communication Server (CS) — the OpenTouch Suite product that delivers IP telephony services — reduces facilities costs such as space, cooling and batteries.

- Formerly networked private branch exchange (PBX) platforms are transformed into centrally managed IP media gateways (MGs).

Legacy mixed PBX and IP-PBX networks also benefit from WAN communications because the OmniPCX Enterprise CS supports analog, digital, IP and SIP trunk types. In addition, the copper cabling in large branch offices can be reused because the IP MG provides analog and digital capabilities. Reusing existing cabling saves 20 percent to 50 percent compared to a full move to IP. Centralization also reduces network management costs.

- Signaling and, in most cases, voice travel over the WAN between sites.

This reduces telecom bills because bandwidth admission control and efficient, standard voice encoders provide the required quality of services and enable free transport of inter-site and long-distance calls over IP. On-net calls with shared bandwidth usage of the WAN for data and communications saves 5 percent to 30 percent. Optimized subscriptions for intelligent, least-cost routing services from service providers can also be combined with the centralized access that is often added as part of IP communications centralization projects. Least-cost routing can bring an additional 10 percent to 20 percent cost savings.

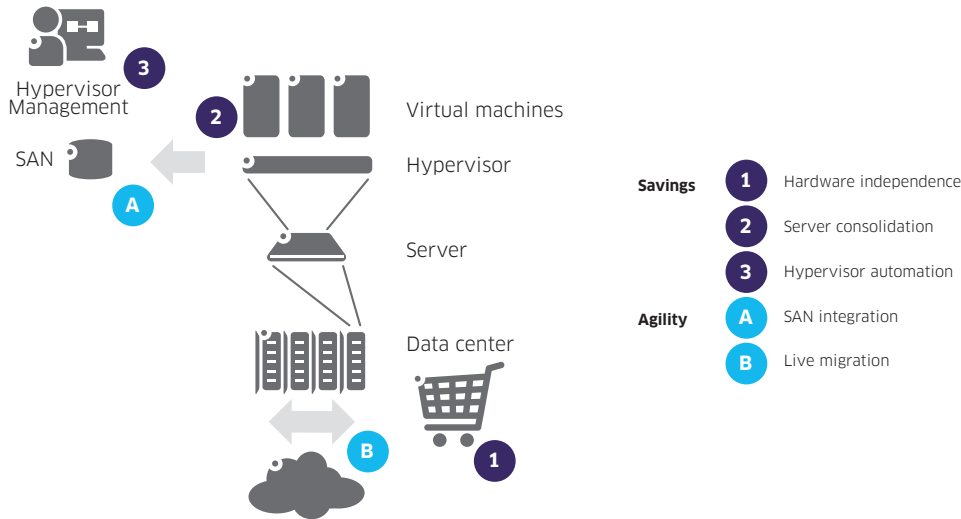
- Local survivability equipment and devices that support multiple homing keep local sites always connected.

In the case of a WAN outage, the IP MG enables several business continuity strategies. The passive communication server is a slaved OmniPCX Enterprise CS deployed in the branch. It provides full-featured telephony to isolated mission-critical sites when the WAN is down — with no additional management expenses. Cost-efficient PSTN survivability is also available with the IP MG. If the WAN is functional, but a disaster occurs in a data center, the OmniPCX Enterprise CS provides geographic hot-standby redundancy so another data center can seamlessly handle the traffic.

Virtualizing IP communications

IT teams looking for further operational agility can now virtualize the OmniPCX Enterprise CS over a VMware® hypervisor. Figure 2 illustrates the high-level architecture and major benefits that result from this transformation.

Figure 2. Virtualizing IP communications saves money and increases agility



The cost savings and increased agility are achieved through:

- **Hardware independence.** Support for bare-metal VMware hypervisor simplifies hardware sourcing policies and data center layout.
- **Server consolidation.** Several virtual machines (VMs) can run on a single piece of hardware. This optimizes data center real estate as well as the cooling and energy infrastructure.
- **Hypervisor automation.** Alcatel-Lucent Enterprise software is provided in Open Virtualization Format (OVF). OVF is a standard deployment format supported by VMware, KVM and others. OVF is key when automating VM deployments. Additionally, the VMware vSphere client interface and automated scripts can invoke Alcatel-Lucent Enterprise application programming interfaces (APIs) for increased serviceability such as graceful starting and stopping of the OmniPCX Enterprise CS.
- **Storage area network (SAN) integration.** Storing VMs and embedded software databases on virtual disks on a SAN provides better redundancy than local servers can offer.
- **Booting from the SAN.** In addition to VMs, the hypervisor is also stored on the SAN virtual drives. This brings additional flexibility to IT teams because they can run several different hypervisor versions in the data center.
- **Business continuity.** VM live migration involves copying the current state of the VM memory and replicating it elsewhere. This capability is useful when optimizing data center resources or when facing hardware failures in a server. Today, live migration affects real-time application performance so it should only be conducted during a maintenance window with minimal traffic. The idle “standby” redundant OmniPCX Enterprise CS can be migrated at will. Live migration can also be used in conjunction with the OmniPCX Enterprise CS high-availability capabilities to improve business continuity.

AGILE TECHNOLOGY TO EVOLVE COMMUNICATIONS

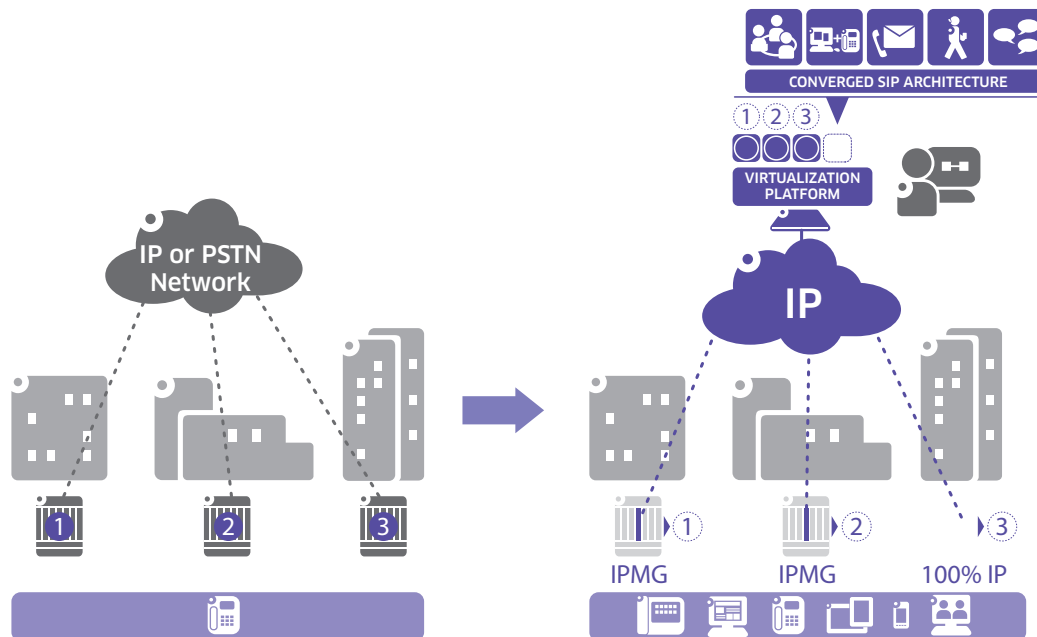
Enrich communications with OpenTouch Suite virtual machines

IT teams want to increase QoE for visual collaboration applications and for new enterprise smart device communications applications that reside in centralized data centers. This means they must find a way to:

- Simplify the delivery of new collaboration applications
- Deliver a consistent user experience across devices and sessions

Figure 3 illustrates how the OpenTouch Suite allows IT teams to transform to a simplified software infrastructure to achieve these requirements and improve QoE.

Figure 3. Virtualized Unified Communications improve QoE



The simplification and consistent conversation experience are achieved through:

- A converged SIP infrastructure in a single virtual machine.

Data centers traditionally host client-server applications on web servers that generate high “north-south” traffic between the data center and the end user. In addition, communications applications generate high “east-west” traffic as protocols are exchanged between VMs and servers in the data center. With next-generation collaboration applications, additional traffic flows between VMs and between software components such as the OmniPCX Enterprise CS, audio conference servers, web conference servers and messaging servers.

Sharing a common OpenTouch Suite SIP call control and media infrastructure across messaging, mobility and collaboration applications reduces east-west traffic and optimizes performance. It also decreases energy consumption and TCO.

- Shared communications logic.

Centralized cloud technology makes it easier for devices to access applications across LANs, WLANs, 3G and 4G networks and the Internet. Building shared communications logic on top of a common SIP infrastructure provides a unified experience across devices, regardless of access network. In addition, the shared OpenTouch Suite conversation logic allows users to:

- Seamlessly switch sessions across devices
- Escalate from a single medium to a full multimedia conversation
- Move from a telephony session to a full multi-party conference

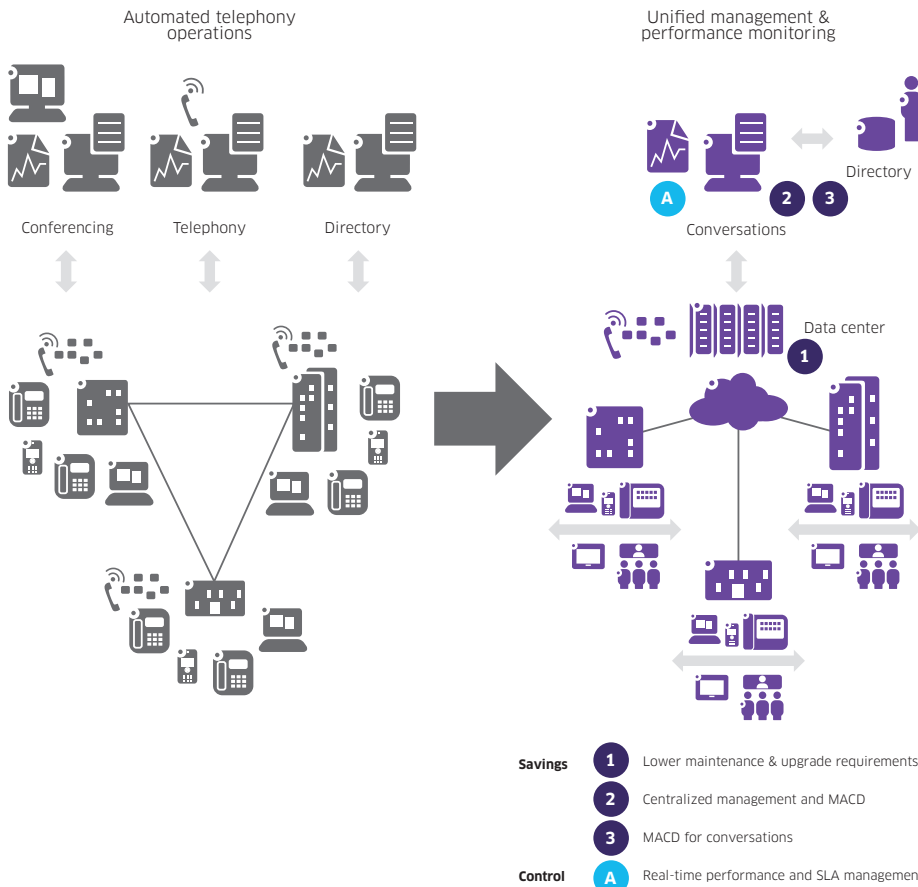
The converged OpenTouch Suite application software can be deployed as virtual machines for more agility in the data center.

Unifying management and performance monitoring

Migrating from a large number of distributed PBXs to a small number of communications servers in data centers significantly reduces maintenance, upgrade and management costs. This is primarily because the architecture’s centralized intelligence enables just a few administrators and maintenance support teams to manage and upgrade a large enterprise communications network.

Figure 4 illustrates the architectural evolution and highlights the major benefits that result from this transformation.

Figure 4. Unifying management and performance monitoring saves money and increases control



The savings and control are gained through:

- Lower maintenance, upgrade and management costs than in a distributed network. A centralized and unified network can save between 5 percent and 20 percent on maintenance and upgrades. Centralized management of voice and data networks can save 10 percent to 40 percent.
- Lower costs for move, add, change and delete (MACD) operations. In this case, 20 percent to 30 percent cost savings can be expected compared to a distributed network. Moreover, using a single application to manage telephony and new conversation applications simplifies the most frequent operations.
- Real-time performance monitoring that enables strict control of service level agreements (SLAs).

CONDUCTING SUCCESSFUL TRANSFORMATION PROJECTS

Many large enterprises don't want to suffer the operational consequences of a rip-and-replace transformation. Instead, they want flexible technical and operational migration options.

Flexible technical options

The modularity of the OpenTouch Suite helps enterprises adopt a phased transformation with quick wins that consist of tactical deployments of new services that target the business challenges at hand. These tactical steps may include:

- Deploying IP phones where they make sense — new buildings, locations with less expensive MACD operations, areas where the LAN is VoIP-ready — and using digital phones elsewhere to keep investment costs down.
- Deploying the OpenTouch built-in conferencing application to reduce the cost of external conference services.
- Deploying centralized OpenTouch built-in messaging application to reduce messaging and fax costs.
- Introducing OpenTouch desktop sharing, whiteboarding and annotation features on web, tablet and PC applications across sites to reduce travel costs.
- Deploying visual collaboration applications on deskphone, PC and tablets to empower executives and off-site roamers.
- Deploying OpenTouch-enabled smart deskphones and smartphones to increase the response time of high performers.

CONCLUSION

The Alcatel-Lucent OpenTouch Suite helps enterprise IT departments transform to a virtualized, cloud-ready IP architecture and modular unified communications suite. The transformations enabled by the OpenTouch Suite help IT departments:

- Reduce costs by cutting energy consumption, consolidating hardware, improving network usage and minimizing maintenance and upgrade requirements.
- Improve the user experience by ensuring high availability, providing the same level of access to services everywhere and delivering a consistent conversation experience across devices.
- Increase agility by integrating SANs and enabling live migrations.
- Streamline and simplify operations by moving to a simplified software infrastructure, supporting conversations across devices and sessions and adopting unified management and performance monitoring.
- Increase control by moving to real-time performance and SLA management.

A phased approach that targets enterprises most pressing challenges with specific deployments, proven transformation methodologies and managed services offerings from experienced partners help to ensure successful transformations.

ABBREVIATIONS

API	application programming interface
CIO	chief information officer
CS	Communication Server
IP	Internet Protocol
IT	information technology
LAN	local area network
MG	media gateway
MACD	move, add, change, delete
MLE	Mid-sized and Large Enterprises
NMS	Network Management System
NOC	Network Operations Center
OVF	Open Virtualization Format
PC	personal computer
PBX	Private Branch Exchange
QoE	quality of experience
SAN	storage area network
SIP	Session Initiation Protocol
SLA	service level agreement
TCO	total cost of ownership
VM	virtual machine
VoIP	Voice over IP
WAN	wide area network
WLAN	wireless LAN