IT'S TIME FOR RELIABLE, INNOVATIVE BUSINESS COMMUNICATIONS

EVOLVE YOUR ALCATEL-LUCENT ENTERPRISE COMMUNICATION SYSTEM AT MINIMAL COST

APPLICATION NOTE

Alcatel·Lucent Enterprise

CONTENTS

INTRODUCTION

For many years now, upgrading telephony infrastructure has been a technical and financial challenge. The wiring, deployment of new telephone terminals, technical staff downtime and implementation of costly information campaigns has hindered technological continuity.

Fortunately, this situation is now a thing of the past and adopting new solutions now goes hand in hand with simplicity and mobility.

Alcatel-Lucent Enterprise offers a 3-step approach to business telephony evolution:

> Step 1: Reliability and technological continuity with a software upgrade.
>
> Step 2: Reduced communication costs and improved mobility with an evolution to IP.
>
> Step 3: Optimization of telephony operations and integration into business applications through the virtualization of communication services.

These 3 steps minimize the costs of the evolution because elements of the infrastructure are retained, enabling users and administrators to preserve their expertise and benefit from the upgrade.

This document describes Step 1, which improves the reliability of existing communication systems, enables new communication services required by today's businesses, and preserves investments.

IS YOUR COMMUNICATION SYSTEM VULNERABLE?

HOW DO YOU KNOW?

Your communication system is vulnerable if it is no longer under a manufacturer's warranty or if elements are not regularly upgraded.

Connectivity to the IP network can leave a communication system open to malicious attacks and presents an additional risk factor if the system is not up to date. The consequences of these risks increase if vulnerable software or hardware elements support mission-critical activities.

WHAT IS AT RISK?

The following factors are often cited[1] as potential sources of substantial costs for systems at risk:

- Security policy not compliant with the current standards. For example, toll fraud can result in telephone bills 100 times higher than normal.
- Equipment obsolescence can increase downtime. Replacing older and hard-to-find parts can become complex and downtime significant when there is no longer manufacturer support.

UPGRADING MAKES COMMUNICATION SYSTEMS RELIABLE

A software upgrade strengthens the reliability of the communication system, provides an opportunity to replace hardware that is no longer supported, as well as set up a maintenance agreement to provide support for the future. This chapter explains how upgrading to the latest version of OmniPCX® Enterprise Communication Server (CS) can make your communication system more reliable.

Software reliability without impacting business

Upgrading lets you take advantage of the latest security upgrades to prevent possible threats to the communication system. These advantages include:

- Enhanced control of password policy enabled by the communication server software and new voice messaging. This makes toll fraud from the public network more difficult.
- Preventing hacking from compromised network devices by delivering software patches.
- Advanced management of administrators' access rights to the communication server as well as centralized authentication enabled by the management platform.

An upgrade to OmniPCX Enterprise CS software does not impact your business.
For example:

- The current software works on the CPU 7 and above this means there is no mandatory requirement to change the CPU board for the communication server.
- System data, such as the routing policy and the numbering plan, are maintained.
- User data, such as programmable keys, supervision groups and all telephony functions are maintained.
- Compatibility with old applications, such as OmniTouch® 8440 Messaging Services is ensured (see Table 1 for more details).

[1]White Paper: Moving Up to the Next Level Enterprise Communications

- If the network has several communication servers, the network protocol between the CSs supports servers with different versions. This means the upgrade can be implemented over time.
- If the OmniPCX Enterprise manages Media Gateways at remote sites, the upgrade for the software on those devices is automatic and uses very little bandwidth.

The table below lists the applications compatible with version R11.1 of OmniPCX Enterprise:

Table 1 – Compatible Applications

APPLICATION	R11.1 COMPATIBLE	MINIMUM VERSION
OmniTouch 8440 Messaging Services	•	R6.2
OmniMessage 4635	•	R5.5.1
OmniMessage 4645	•	Embedded
8400 Instant Communications Suite	•	R6.2
4059 MAC Attendant Software	•	R5.4.1
OmniTouch 8460 Advanced Communications Server	•	R9.1
OmniTouch 4625 CCivr	•	R11.3 (R10.5 if TDM only)
OmniTouch Contact Center Standard Edition	•	R10.3

To illustrate the software upgrade, a client with 500 telephony users distributed over 2 CSs migrated the communication servers from version 7.1 to version 11.1 in a 2-hour operation.

Upgrading the OmniPCX Enterprise CS software makes the communication network reliable without impacting the company's business.

Improve performance with a hardware upgrade
The software upgrade also provides access to the latest hardware delivering higher performance to ensure reliability well beyond the current architecture. It is therefore essential to identify the elements of the system that are critical to the continuity of business and for which a hardware failure would have significant consequences. Consideration should be given to:

- Components for which spare parts are hard to find and for which delivery time may take up to a week or longer.
- Defective elements that no longer have a manufacturer's warranty and which may be impossible to repair.

Upgrading a small but crucial part of the current infrastructure with the latest hardware and software can make the communication network architecture more reliable and improve the system performance. With an upgrade:

- the communication server's software can be loaded on to the server of choice to take advantage of geographic redundancy.

- the boards from the previous generation IP interconnection can be replaced with the latest generation of higher-performing boards, providing up to double the compressors as well as native encryption of communications (see Table 2) – this change is even more beneficial when an IP evolution and centralization of communication servers are planned.

- 4635H or J, hardware-based voice messaging systems that are no longer supported by the manufacturer can be upgraded to a SIP software solution. This solution provides greater flexibility (for example, by adding licenses instead of adding electronic boards) and, redundancy, as well as additional features such as e-mail or text message (SMS)

The table below identifies the benefits of a hardware upgrade:

Table 2 - Upgrading Your Hardware - Benefits

OPTIONS OFFERED	BEFORE	AFTER
Virtualization	Hardware messaging Dedicated server	100% software messaging Virtual Machines
High Availability	Local redundancy2 CPUs in the same chassis	Spatial Redundancy 2 geographically dispersed servers
Reduction of Communication Costs	CPU6 step 2 not compatible with SIP Limited to the incumbent public network	CPU7 step 2 compatible with SIP Public SIP providers openness
Space optimization	PRA2 board Single T2 access	NPRAE2 board2 T2 accesses
License flexibility	UA32 board license	User license with eUA32 board
Improved IP performance	INTIP board Megabit Interface 60 compressors	INTIP3 board Gigabit Interface120 compressors
Voice encryption	Encryption boxes	Boards that ensure encryption Software solution
Storage of voice guides	GPA, VG boards Memory cards	GPA2 board File download

Replacing hardware elements can improve the reliability and performance of the communication system. Alcatel-Lucent Enterprise OmniPCX Enterprise can maintain the investments already made (see the section "OMNIPCX ENTERPRISE SUSTAINS YOUR INVESTMENTS").

Take advantage of the manufacturer's warranty

Upgrading your communication systems lets you secure your investments with a maintenance agreement. This means:

- Software supported by the manufacturer benefits from security upgrades.
- Recently replaced hardware benefits from the hardware warranty.
- Spare parts are available to replace those that wear out or are damaged.

WHAT ABOUT TOMORROW?

Maintenance agreements are available as a multi-year option including the availability of software versions and the advanced replacement service for defective hardware.

Availability of software versions results in the predictability of the price of communication system upgrades over several years and therefore offers increased flexibility regarding the network's upgrade calendar.

NEW WORKING STYLES: ARE YOU READY?

HOW DO YOU KNOW?

It is really about knowing whether the current communication system provide users with communication functions adapted to the new work practices. These include:

- Ergonomically redesigned desktop telephones
- Communications control from the latest desktop applications suite
- More mobility in the office for administrative staff
- Software-based telephones (softphones) on PCs, Mac® computers, smartphones or tablets for some employees
- One number service for cell phone owners
- Ease of adding users at all sites by automating synchronization with the company's directory
- Simple management of employees' moves from one department to another

WHAT IS AT RISK?

If the current system does not meet needs, employees will use company cell phones and other software options. That impacts costs and the security of the company's network.

If the system is complex for administrators, they will spend time on activities with a poor return on investment instead of contributing to value-added activities.

BREAKING NEW GROUND TO MAKE EMPLOYEES' LIVES EASIER

A new OmniPCX Enterprise software version offers many innovations for better corporate communications: new desktop telephones, new features for greater mobility and collaboration.

Telephones adapted to the new ways of working

Many companies are redesigning their working methods and employee offices. The ergonomics of the new line of Alcatel-Lucent Enterprise desktop telephones is particularly well adapted to open-plan offices:

- The desktop telephones are adjustable and have a wider screen and backlighting to prevent visual fatigue in an environment with strong natural or artificial light.
- The High Definition (HD) sound quality[2] makes it possible to hear clearly and reduces the need to speak loudly: users' ability concentrate in an open environment isk improved.

[2]Wideband sound quality with G722 Codec. The G722 spectrum for voice is approximately 3 times wider than with G711.

- Some models have a wide touch screen ideal for those who use the telephone often: operators can manage calls with one look; the numeric keypad can be placed on the screen at the user's convenience; additional keyboards are replaced with a touch-and-drag action on the screen.
- The Bluetooth handset on specific models lets users to move from their desk for privacy.
- The design is aesthetically pleasing in open-area offices where customers are received.
- The latest-generation DECT telephones have a larger readable screen, as well as integration with notification and alarm services, and continue to offer excellent battery life.

Figure 1 - New Desktop Sets

User-friendliness improves responsiveness and mobility

Alcatel-Lucent Enterprise desktop telephones and softphones offer new features that help employees save time and provide greater flexibility. These new features include:

- Accessing the last 100 calls from the telephone or the DECT to ensure that all important calls receive a reply.
- The ability to add contacts to a conversation in progress as it is often more efficient to get answers in real time than by exchanging e-mails.
- Audio conference bridges of up to 29 participants can be made available for unscheduled telephone meetings.
- IP telephones that can be shared by several users, in particular in open environment offices that are not assigned to individuals.
- One number service that gives users the option of being called on their deskphone, on a mobile phone – cell phone or smartphone – and of transferring an established call from one to the other if they need to move around.
- Smartphones, PCs, Macs and tablets connected to the company's LAN or WLAN that can become company telephone terminals that share the user friendliness of the deskphones: this means no training is needed for mobile users.

The table below illustrates the availability of these features for the different devices:

Table 3 - New Features

FEATURE	REMOTE EXTENSION	DIGITAL SET	DECT	IP DESKTOP SOFTPHONE	IP SET
Call shift	•	•	•	•	•
One Number service	•	•	•	•	•
N-party conferencing		•	•	•	•
Call history		•	•	•	•
Bluetooth			•	• (2)	•
Touch screen			• (1)	• (2)	• (3)
HD audio				•	•
Desk sharing					•

(1) Available on the DECT 8242 set
(2) Depends on the capabilities of the equipment on which the IP Desktop Softphone is installed
(3) Available on the 8082 My IC Phone set

All of these innovations are enabled by the communication server and do not require additional software: upgrading the software adapts the system to meet today's communications requirements with no additional cost.

Easy Mobility Management
Evolving office infrastructure to IP improves users' mobility as well as mobility management which used to be translated into a digital or analog network by difficult cross-connection operations in the splitters or complex management.

Roaming by users with DECT mobile telephones or software on a PC, tablet and smartphones is made possible by using OmniPCX Enterprise with an IP network.
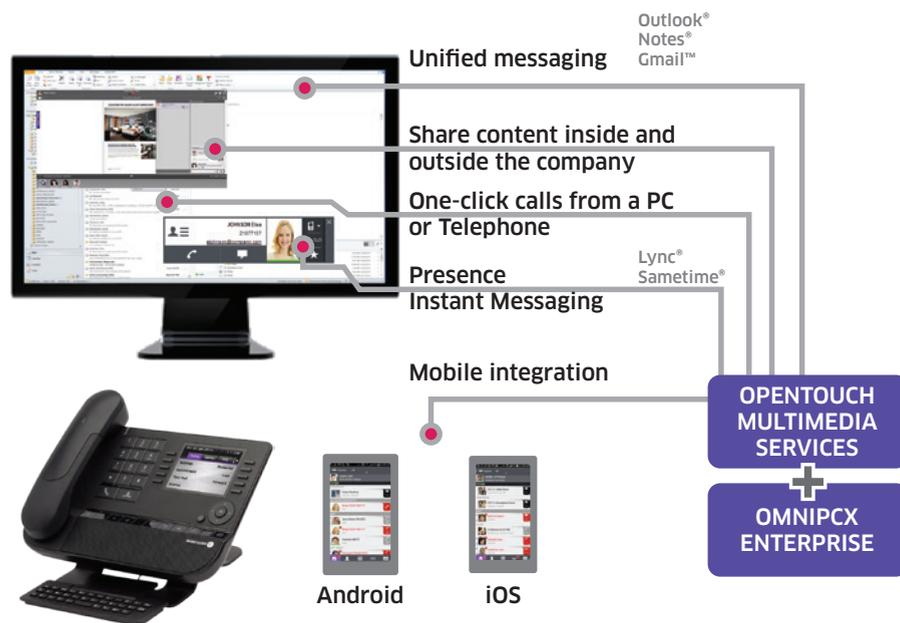
A Natural Transition to Unified Communications
The add-on of an application server or OpenTouch® Multimedia Services virtual machine upgrades the unified communication services to a recent software version of OmniPCX Enterprise. This means:

- The local messaging service of each communication server can be converted to a centralized application that offers:
  - ¬ users storage reliability on an SAN or an NFS network disk
  - ¬ SMS and SMTP notifications on the mobile terminal of choice
  - ¬ visual messaging for priority access of important messages
  - ¬ access to voicemail from a preferred e-mail client.
- Users can consult the directory from a PC and call with one click in Outlook from a softphone or desktop telephone.
- Users can exchange instant messages, can see colleagues and then transfer to an audio communication and share documents within the same communication session.

- Users can organize and participate in audio and web conferences with sharing and annotation of documents with colleagues or users external to the company.
- Application Programming Interfaces are offered for integrating real-time communications into business applications.

Figure 2 - New Functions

The add-on of a single OpenTouch Multimedia Services virtual machine provides access to all of these services, simplifying the evolution to unified communications. This evolution is described in the application note about virtualization.

INVESTING IN A COMMUNICATION SOLUTION?

WHAT INVESTMENTS ARE NEEDED

One of the things that hinders telephony infrastructure upgrades is the perceived cost of change, particularly if the entire communication system needs to be replaced.
On top of the price of the new solution, additional costs need to be added including:

- Re-wiring
- Deployment of new telephone terminals
- Technical staff training for several weeks
- Training/information campaigns for end users to facilitate adoption of the new solution

SUSTAINING INVESTMENTS

Alcatel-Lucent Enterprise provides technological continuity that sustains the existing components that have value. This is made possible by the OmniPCX Enterprise hybrid architecture, which simultaneously manages analog, digital, IP and SIP access. This sustainability makes it possible to consider upgrading in stages when not all the sites and buildings are revamped to IP.

The Infrastructure

IP evolution makes sense for companies that want to boost mobility and reduce operational costs. The investments that need to be made are often motivated by a company project, such as renovating a building or moving to new offices.

In many cases, it is not necessary to redo the telephony wiring in order to offer users new features, as the latest generation of OmniPCX Enterprise terminals include digital technology terminals.

It is also possible to use the existing wireless infrastructure with the new Alcatel-Lucent Enterprise dedicated mobile telephones.

The Hardware

Much of the Alcatel-Lucent Enterprise hardware investment is preserved, for example, on a version 7.1 OmniPCX Enterprise as much as 95% of the hardware operates with the latest version of software.

Table 4 - Boards, Compatibility and Replacement Solution

BOARD	R11.1 COMPATIBLE	MANDATORY REPLACEMENT	AVAILABLE IN CATALOG
CPU5 step 3		•	CPU 7 step 2
CPU6 step 2	•		CPU 7 step 2
CPU7 step 1	•		CPU 7 step 2
RMAB	•		•
GPA	•		GPA2
VG/SUVG		•	GPA2
UA32	•		eUA32
Z32	•		eZ32
INTIP/INTIP 2	•		INTIP 3
INTOF	•		INTOF 2
DECT2/DECT4/DECT4 HB	•		DECT8
NDDI/NDDI2	•		NDDI2-2
PRA/PRA2	•		NPRAE-2
BPRA/BPRA-2/ BPRA2-1	•		BRA2-1
DPT1	•		DPT1-2
PCM	•		PCM2
TNLO1/TNLO2/TNLO11	•		TNLO21
GD/GA/GD-2/GA-2/MEX	•		GD-3/GA-3/PowerMEX
LANX8/LANX16-1	•		LANX16-2
SLI16/SLI8/SLI4/SLI16-1/SLI8-1/SLI4-1	•		SLI16-2/SLI8-2/SLI4-2
UAI16	•		UAI16-1/UAI8 /UAI4
APA4 LCG	•		APA4 HU/APA4 TBR21/APA4 US
APA8 LCG	•		APA8 HU/APA8 TBR21/APA8 US
MIX084/MIX048/ MIX044	•		MIX484/MIX448/MIX244

Following is an example of the hardware preserved through an OmniPCX Enterprise upgrade:

- Chassis and the access boards
- DECT access points
- Analog or Alcatel-Lucent telephone sets
- CPU or the server can be kept, for example, to convert a version 7.1 OmniPCX Enterprise to the latest version
- Third-party systems that are connected via standard (Q-SIG/DPNSS) or open (SIP) protocols

Previous-generation GSM equipment can also use company mobility services, such as one number service or immediate call transfer between OmniPCX Enterprise telephones.

Leverage the Licenses

Alcatel-Lucent Enterprise offers reasonably priced commercial programs that make it possible to leverage already purchased licenses during a system upgrade. These include:

- Server license
- Licenses for sets and access in detail or in bulk (engines)
- Licenses for applications associated with the communication system

If an Alcatel-Lucent Enterprise maintenance agreement exists, upgrades to the software are offered.

Licenses for the analog or digital telephone sets can be converted to an IP or SIP license during the system's version upgrade.

Sustain the Training

Within this technological continuity approach, migrating to the latest software version takes into consideration the ease of adoption by end users. End users can keep the functions that they like. They can find them easily again on the new telephone set that is offered, and they can use the new features intuitively without resorting to user training.

Administrators of the communication system who are familiar with the OmniVista® 4760 NMS administration platform will easily adapt to the recent OmniVista 8770 NMS platform because it maintains the same data structure and has similar user friendliness.

A typical training session is a 3-day virtual class compared with several weeks for a full course for a new system.

OmniVista 8770 NMS is also a unique access point for managing the unified communication applications provided by OpenTouch Multimedia Services.

Technological Continuity

The technological continuity offered by OmniPCX Enterprise allows businesses to manage the cost of evolution while maintaining wiring, telephones, system communication and administration functions.

It allows businesses to concentrate investments on reliability, new communication functions, upgrade of the network to IP, and applications to a virtualized software suite in the company's "cloud."

WHAT'S NEXT

Alcatel-Lucent Enterprise provides a 3-step evolution for communication systems:

The first step – described in this document – uses technological continuity provided by Alcatel-Lucent Enterprise to increase the reliability of enterprise communications, sustain investments and offer new features for greater responsiveness and mobility for users. Investments can be focused on adopting unified communications.

The second step involves an evolution to IP to reduce communication costs and develop mobile communications inside and outside of the company – a prerequisite for many unified communication functions.

The third step proposes the virtualization of communication services in the cloud to optimize system management and maintenance and offer all users the full set of unified communications.

The OmniPCX Enterprise hybrid technology allows businesses to plan one step at a time, or all three steps together, at the discretion of the company's information system requirements.

Alcatel·Lucent
Enterprise