

# MOBILE CONVERSATIONS IN THE ERA OF THE PERSONAL CLOUD

APPLICATION NOTE



## ABSTRACT

The concept of a stationary work environment is rapidly disappearing: today employees want — and need — to be mobile. A consumer-led revolution is driving rapid developments in mobile technology. While people are mobile, it is critical for the success of the enterprise that they not be isolated. The ability to continue collaborative conversations with colleagues, customers and partners must not be compromised.

As users adopt multiple mobile devices, they develop personal preferences in terms of devices and applications. Furthermore, the line between work and home lives is blurring and “bring your own device (BYOD)” to work is rapidly becoming the norm. The challenge for enterprises is to determine how they can support users’ preferences while safeguarding company assets.

Alcatel-Lucent Enterprise has solutions that work with each of the leading mobile platforms to provide maximum openness while maintaining full security. With these solutions, an enterprise can allow its employees to create their own *personal cloud* of applications and services regardless of the devices they prefer to use.

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# INTRODUCTION

In the last several years, mobile communications' role within an enterprise has undergone a dramatic transformation. Devices and the applications they support have become extremely sophisticated. At the same time, workers have become increasingly reliant – even dependent – on those applications in their day-to-day activities. Today, the success of the enterprise is closely tied to its ability to equip employees with effective mobile solutions.

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Ideally, the enterprise's mobile solutions provide a means for fostering “collaborative conversations” among employees, peers, partners and the community at large. True collaboration relies on contextual communications. To provide that context, the enterprise's communications must offer access not only to core business assets and networks, but also to external data sources, across a range of devices and from whatever location employees are in.

Companies that want to extend their communications to encompass context-enriched collaborative conversations do not need to make extensive additional investments. Most enterprises already have communications applications in place and they are not looking to rip out and replace what is currently installed. Instead, they need to integrate their existing collaboration applications with unified communications and collaboration tools that ensure that real-time, always-on communications are enabled everywhere.

This application note provides an overview of the offers from Alcatel-Lucent Enterprise for **highly mobile workers**. These people are committed to their digital devices and to staying current with the latest technology. This population has seen the biggest growth during the last decade and its needs have shaped the development of mobile solutions from enterprises and mobile carriers. Highly mobile workers have also been central to the “bring your own device” trend that has developed over the last two years.

Other mobile roles (profiles) such as the open space worker (essentially a deskbound user with virtualization of the desktop environment) and other critical mobility workers (such as healthcare or plant security personnel) require specific devices and services and will not be addressed here. However many of the concepts and solutions are equally applicable to those populations.

Alcatel-Lucent Enterprise has been working on mobility solutions for the last two decades, in conjunction with the Alcatel-Lucent Carrier Group and the Mobile and Enterprise Divisions of established carriers worldwide. This unique experience has provided Alcatel-Lucent Enterprise with an advantage when it comes to understanding the implications of the technology evolution and business transformation. These two phenomena will be explored later in this note. First, however, it is important to consider the most non-technological dimension of mobile communications: the consumer-led revolution.

## CONSUMER-LED REVOLUTION

Today, mobility is a given. Employees want their desktop environments available to them wherever they are. With the growing capabilities of mobile devices, the very notion of a “desktop environment” has changed. In 2012, Alcatel-Lucent Enterprise conducted a survey with its own employees at different levels within the organization. Survey participants were probed for their attitudes towards the concept of Unified Communications. One of the questions asked was: “*What is your definition of Unified Communications?*” The most puzzling answer was, “*I have an iPhone, I have Unified Communications.*”

This answer suggests users believe Unified Communications should be a system that allows access to all contacts, both professional and personal, by chat, by voice, by video or by any other messaging method.

Consumers’ appetite for mobility – fueled by technological advancements – has sparked a revolution that is ultimately redefining what we mean by “the workplace” and “the desktop”.

The evolution of smart devices has fed and magnified the desire for mobility. Smartphones have grown from simple audio with Personal Information Management (PIM) devices into sophisticated multimedia equipment. They have added not only email and Internet but also specific communications or business applications. BBM™ from BlackBerry®<sup>1</sup> has made the BlackBerry smartphone popular among teenagers. Skype™ has become the go-to application for zero-cost communication. More recently, FaceTime® has had unprecedented traction as the video client of choice in the Apple® community.

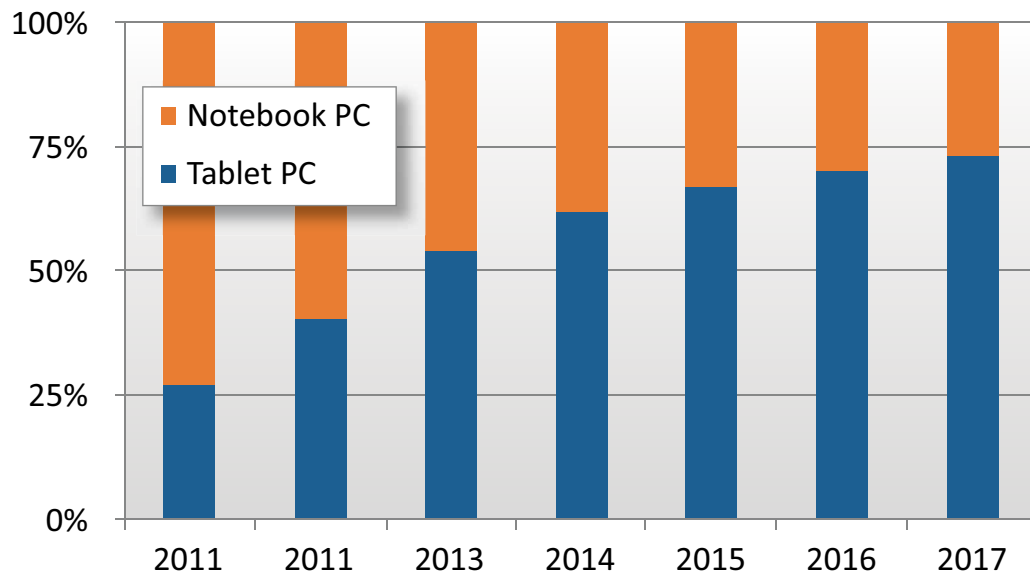
Highly mobile workers expect to be able to access their preferred social media sites for both business and personal use, across devices. In any given day, a dedicated Twitter™ user may want to tweet about a private event such as an upcoming concert he plans to attend as well as hourly updates on the business conference he is chairing. This functionality needs to be readily accessible from his chosen mobile device.

Enterprises in many sectors have responded to consumer demand for mobile applications that make it easier for customers to engage with them. Banks, insurance companies, public transport, airlines, news services, and bricks-and-mortar retail outlets are all offering apps as a means of catering to their customers’ demands for anywhere, anytime access.

Another aspect of the consumer-led revolution is the adoption of tablets as a valuable complement to the smartphone. For instance, a tablet can sit on the user’s desk permanently to serve as the device of choice for voice and video calls. The device’s broadband audio and large high definition screen make it an appropriate tool for this purpose.

In financial services and healthcare centers tablets are used as an alternative to laptops, for users who are heavy content consumers and/or presenters, but not heavy content creators. Examples of such users include executives, sales and client services staff, insurance agents, and doctors. Tablets are also popular in retail and/or field operations where they are used for a variety of in-store and field service applications.

Figure 1. Worldwide notebook PC and tablet PC shipment share forecast



Source: NPD DisplaySearch, *Quarterly Mobile PC Shipment and Forecast Report* (January 2013)

According to preliminary estimates from Gartner (January 2013)<sup>2</sup>, 2012 has been the first year of decline of the PC – under all forms, desktop workstation, laptop and notebook – with 353 million units sold versus 365 million in 2011. In the PC market, the notebook currently dominates, but the shift towards tablets has started. Figure 1 illustrates what has been achieved already and gives the trend for the coming years. According to NPD DisplaySearch, tablet PC shipments are expected to reach more than 240 million units worldwide in 2013, easily exceeding the 207 million notebook PCs that are projected to ship.<sup>3</sup> The rapid development and adoption of new screen sizes is allowing both large and small brands to gain market traction in all regions and is creating new demand for tablet PCs. To date, the tablet market has been led by Apple’s 9.7 inch iPad, but in 2013 a new class of small tablets will take over the market, with the likes of the Google Nexus 7 and iPad Mini.

Tablets have been a consumer phenomenon and penetration in enterprises is still relatively low. When tablets are being deployed within the enterprise, it is typically as a “+ one” device, not a PC replacement, although this may well change.

In both mobile phone and tablet industries, Apple has led the way. They are, however, facing serious competition led by Samsung and Google’s Android-based devices and to a lesser extent, BlackBerry and Microsoft.

# TECHNOLOGY EVOLUTION

Behind the consumer-led revolution is the reality of technology innovation. Both the device manufacturers and mobile carriers have made massive investments to create the unique experience that is possible today:

- Smartphones are high-end “machines” featuring CPU, memory and display characteristics that were reserved to professional desktop equipment less than a decade ago — at roughly 1/100 of the weight and with outstanding audio and video quality, a must for a communication device.
- Mobile carriers now offer 3G, 3G+ and 4G with triple-play for a cost that is less than it was for voice-only at the turn of the millennium. These broadband networks have been created to support the consumption of multimedia content (audio and video streaming, email, and Internet browsing) and are today a commodity.

For both manufacturers and carriers, the competition is fierce, which provides an advantage for the customer. Device manufacturers have been engaged in a race for innovation while stabilizing their prices for the last two or three years. As a result, the lifetime of a model or range of features is changing. This rapid turnover creates a challenge for those who want (or need) to be at the leading edge of technology. For both individuals and enterprises, staying on top in such a dynamic market requires dedication and considerable investment in time and money.

For enterprises and their highly mobile workers, staying on top in such a dynamic market requires dedication and considerable investment in time and money.

Three leaders (Apple, BlackBerry and Google with Android) dominate the market. They each provide powerful technology platforms and devices, featuring outstanding graphics resolution and compelling ergonomics. They have shown the way to commoditization of multimedia mobile communications.

BlackBerry created its success with mobile email (the first mobile business application) and its mobile device management through a unique and powerful platform that endorses both mobile fleet management and security. Apple has re-invented the mobile user experience, and Google, the later entrant, has taken the openness approach and partnered with device manufacturing champions, such as Samsung, HTC, and LG. In addition to their end-user focused strategies, the three leaders have also invested in the applications space: BlackBerry with its App World, Apple with the App Store and Google with its Google Play Market. Whichever company they have chosen, end users are sure to find the right applications for their needs among the thousands of apps available today.

Not surprisingly, the leader in the world of personal computer operating systems – Microsoft® – is re-entering the domain of mobile communications. Its previous attempts with Windows® Mobile did not achieve significant traction. In fact, they proved that an operating system made for one type of device or usage could not be transitioned

to another simply by resizing the screen. To succeed in the mobile world, they have developed a cross-platform OS, and forged solid alliances in the smartphone arena: just like they did for 30 years in the PC world. And they have an unprecedented marketing budget to assure the launch of the Surface™ tablet.

On the mobile carrier's side, the situation is more critical. In any given geographical market, there is barely a difference between what the carriers have to offer. Yet, all of them have made massive investments in order to provide broadband everywhere. To retain their high consumption users, carriers have had to invest in successive generations of mobile communications — 3G, 3G+ and 4G — to deliver speeds that have grown from 0.2 Mb/s to 150 Mb/s.. The ongoing growth in the use of video in both point-to-point and streaming applications continues to put pressure on network capacity.

In a CIO Magazine survey<sup>4</sup>, more than two-thirds of IT leaders believed that mobile technology facilitated business innovation in their organizations. Smartphones, tablet PCs and other mobile devices are not only changing the way we work, they are changing the requirements for application delivery. With the rise of end user-owned devices, IT departments can no longer rely on their ability to tune application delivery at the endpoint. The network needs to become application fluent: it must take over the function of understanding the needs of the application and tuning for application delivery performance.

## BUSINESS TRANSFORMATION

New business models – apps on demand, free apps – have changed the way users think, which has in turn changed the way enterprises think. In the pure consumer business, the success of free apps has boomed to unprecedented levels. Whatever the user needs, whatever the user wants, “there is an application for that”.

In the carrier's domain, the days of “one media, one tariff” have gone. To retain (or attract) customers, carriers have generalized flat-rate subscriptions that let users benefit from all the potential of their devices. Users today pay the same price for unlimited voice/SMS/MMS and huge volumes of web/video streaming that they used to pay for two or three hours of voice communications a few years ago. This new business environment has changed the way people communicate. Using their mobile phones inside the enterprise is no longer frowned upon; using web collaboration from home has become a standard; and uploading video content into an enterprise portal is a simple task, as is downloading or streaming visual e-learning content.

At the enterprise level, the shift is more in terms of flexibility. Enterprises have more choices today when it comes to new communications or ways to access information. The “cloud” model is perfect for addressing multiple situations; it enables enterprises to:

- Experiment with new technologies without having to make a major investment
- Choose the right provider for the right domain – this is especially valuable for high-value investments such as HD video, CRM, and sales automation
- Scale easily and cost-effectively for bursty activities like campaigns, or exceptional events



Software as a Service (SaaS) has been growing steadily, with the worldwide value expected to have reached \$14.5 billion U.S. in 2012. Gartner predicts ongoing healthy growth, with an estimated worldwide value of \$22.1 billion U.S. by 2015<sup>5</sup>. SaaS continues to grow because it encompasses everything from specialized usages (CRM, ERP) down to the individual for his or her own collaboration needs.

The SaaS model widens its coverage every year. It was originally designed to serve a highly specialized audience (for example, salesforce.com). Next, it evolved with SaaS solutions being developed for enterprise communications. Now, it is reaching the end user. Google provides a good example of this with its cloud-based end-user focused applications: messaging, chat, and real-time communications. Gmail™ is the email of choice for some 350 million users<sup>6</sup>. To some extent, Gmail has helped in the rationalization of email access on multiple devices, both fixed and mobile. Very often, Gmail users also have a professional Microsoft Exchange mailbox, and most are regular users of Facebook®, iTunes®, Skype, Twitter and YouTube™ on their PCs, smartphones and tablets.

Today, users have modified their attitudes towards their cloud providers, a concept that encompasses both their enterprise *and* consumer apps vendors. In their quest to build the most efficient environment, users have created a personal cloud: a collection of apps and services that is unique to them and that covers all of their communication, information and leisure needs — accessible from any of their own devices.

[In their quest to build the most efficient environment, users have created their own personal clouds.](#)

## **The impact of BYOD**

Wikipedia defines BYOD as “a term that is frequently used to describe the policy of permitting employees to bring personally owned mobile devices (laptops, tablets, and smart phones) to their place of work and use those devices to access privileged company information and applications....BYOD is making significant inroads in the business world.”

In a Gartner survey conducted in October-November 2011 with over 938 businesses, 32% of the respondents supported personal smartphones and 37% supported tablets.

In most cases, businesses simply can't block the trend. The multiplication of smart devices can be traced to specific usages. People use their smartphones intensively for most verbal and visual communications, but for more sophisticated (information-rich) communications, they have adopted new tools. Netbooks and other readers have gained considerable traction. The rapid and widespread adoption of tablets for both professional and personal use has been fueled by several factors. The iPad captured a large market share and evolved into somewhat of a status symbol. As the market has grown, innovation and competition have led to significant price drops and a myriad of sizes and formats. Today, users can find exactly what they are looking for, whatever the usage, whatever the size, whatever the brand.

Alcatel-Lucent Enterprise experts believe the push for BYOD is strong – and growing stronger every day! The appetite for “Buying Your Object of Desire” (another possible BYOD translation) is especially strong in companies that have chosen to ignore the BYOD phenomenon.

In a Fortinet survey conducted in October-November 2011 with 3,872 respondents, 1 out of 3 said they would gladly break any anti-BYOD rules and “contravene a company’s security policy that forbids them to use their personal devices at work or for work purposes.”

The push for BYOD is strong—and growing stronger every day!

Usually, when someone buys a tablet or smart phone, he or she believes it is for their private life. But at some point, that changes. Everyone has a different reason for why they one day put the device into their pocket or handbag and bring it to work. Some use it to transfer large files with Dropbox™, to take notes with Evernote®, or to make it easy to review presentations during a flight.

Whatever the reason, people are becoming accustomed to using their own mobile devices – the ones they are most familiar with after all – for business purposes as well as personal. The BYOD phenomenon is not going to go away. The challenge for enterprises is how to take advantage of this phenomenon while safeguarding corporate assets. Alcatel-Lucent Enterprise can help with that.

## SUPPORTING TODAY’S MOBILE CONVERSATIONS

Alcatel-Lucent Enterprise is a communications company. The Company does not intend to replace all the existing champions in the information business, nor does it intend to play in the consumer arena. Alcatel-Lucent Enterprise focuses on providing valuable solutions and support to enterprises that want to stay abreast of today’s mobile conversation trends. Specifically, Alcatel-Lucent Enterprise offers:

- A powerful multimedia-native communications platform
- Support for a full range of mobile devices, including company-owned and end-user provided
- Open systems that can be readily integrated with the enterprise’s existing video, voice and data networks

While employees need different levels of mobility depending on their roles within the enterprise, all workers want to be able to work efficiently and in comfort. For today’s modern workers, that means having access to the devices and applications that enable them to participate in collaborative mobile conversations. Alcatel-Lucent Enterprise focuses on delivering mobile conversations that are:

- Consistent over the variety of devices users use
- Optimized for whichever device users prefer
- Comparable to the user experience with desktop communications
- Available everywhere: on-site or off-site, at the desk or from home

Alcatel-Lucent delivers what users want: an efficient, intuitive and engaging work environment.

Alcatel-Lucent Enterprise solutions allow the enterprise to satisfy the desires of its employees to use their preferred mobile devices (including their own), while addressing the enterprise's critical need for security. By enabling an enterprise to support collaborative conversations, these solutions help the enterprise retain its competitive position in these challenging times.

## MOBILE SOLUTIONS FROM ALCATEL-LUCENT ENTERPRISE

Alcatel-Lucent Enterprise supports any mobile phone as an extension of the voice infrastructure. This allows enterprises to deliver the most common telephony service – one number – without the need for any software client to be installed on the mobile device.

For users who want to utilize their device of choice in all circumstances, while taking advantage of the enterprise voice and wireless LAN infrastructures, there are solutions for the iPad and for the BlackBerry, iPhone and Android smartphones. In all cases, users will benefit from “free” calls when they are under Wi-Fi® coverage.

For the more demanding users, requiring more than just voice connectivity, Alcatel-Lucent Enterprise has created bespoke mobile solutions for each of the major mobile platforms: BlackBerry, Apple iPhone and Google Android smartphones and Apple iPad tablets.

With Alcatel-Lucent OmniTouch™ 8600 My Instant Communicator (MIC) Mobile, Alcatel-Lucent has created the right set of unified communication features for a mobile user with the appropriate ergonomics available on the small form factor of smartphones. 8600 MIC Mobile services include:

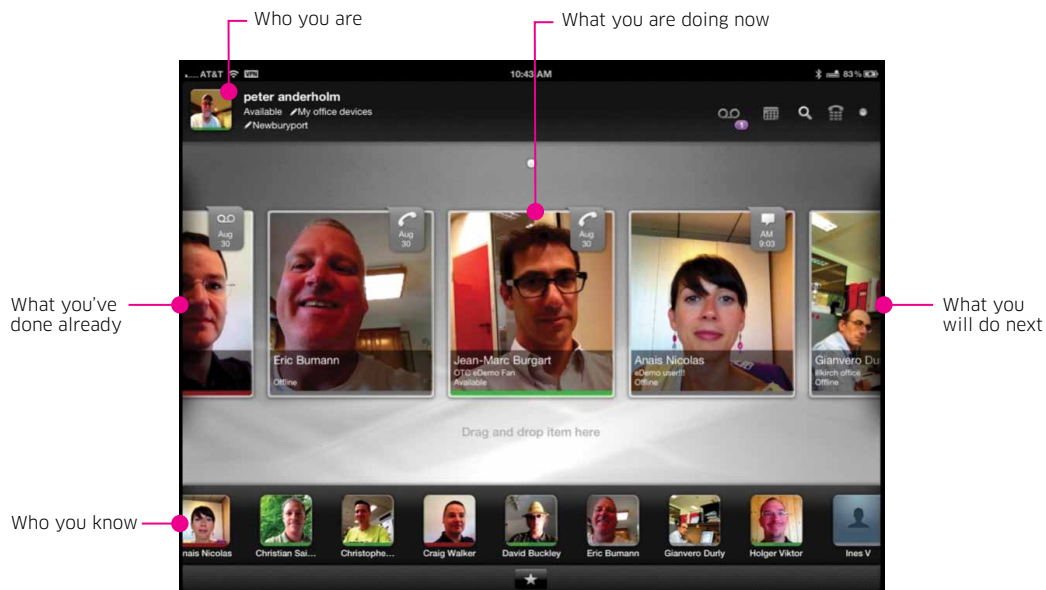
- Universal Directory Search to explore all the directories usually available from a desktop workstation
- Consolidated (voice/data/video) presence display
- Owner's presence setting (for example, available, busy, away)
- Favorites display with avatar/photo, name, consolidated presence
- Immediate action on favorites, call, email, instant message
- Instant messaging to provide non-intrusive contact with the rest of the enterprise's employees regardless of each employee's device of choice
- Aggregated call history from all users' devices, desk and mobile phones, workstation, tablet
- Filtering of events by type, missed voice calls, voice messages, instant messages and so on
- Routing profile configuration to enable the user to select the devices to route calls to, depending on the context – for instance, all devices when at the desk, PC-only when working from home, and mobile-only when on the move

Over the years, 8600 MIC Mobile has had very good adoption with peak performances in certain geographies — such as Northern Europe — or specific population profiles, for example field support and consultants.

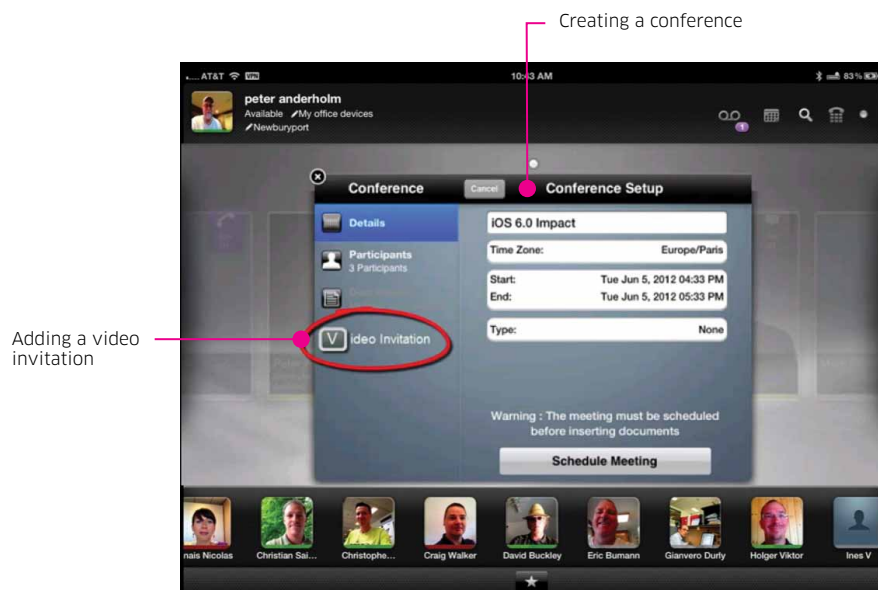
With the launch of the Alcatel-Lucent OpenTouch™ Suite and its capability to “change the conversation”<sup>7</sup> we built on the success of 8600 My Instant Communicator. Now, Alcatel-Lucent OpenTouch Conversation for iPad lets users “experience the conversation”.<sup>8</sup>

OpenTouch Conversation for iPad extends the user experience in many ways.

- New ergonomics, with a wall of conversations, with favorites access on demand, and with the most intuitive communications control



- Full multimedia communications, making video as simple as voice



- Total access to collaboration and conferencing



Table 1 indicates which mobile services are available on each of the platforms supported.

**Table 1. Alcatel-Lucent solution smartphone and tablet feature matrix**

	APPLE IPHONE	GOOGLE ANDROID	BLACKBERRY	APPLE IPAD
Instant Messaging/ Presence			X	X
Presence display <sup>1</sup>	X	X	X	X
Unified Call Log	X	X	X	X
Visual Voice Mail	X	X	X	X
Multi-Directory Access	X	X	X	X
In-communications services	X	X	X	X
Audio conferencing	X	X	X	X
Video conferencing				X
Data sharing/ whiteboarding				X
Add/remove participant or media				X
VoWLAN support	X <sup>2</sup>	X <sup>2</sup>	X <sup>2</sup>	X
User profiles (call routing, avatar, information)		X	X	X

Notes

- 1 All devices display consolidated presence, that is, audio, video and data
- 2 VoWLAN is assured via Alcatel-Lucent Partner solutions

## Security

Mobile conversations have redefined the need for and nature of security constraints. According to IDC's EMEA Enterprise Mobility Survey fielded in May 2012 to approximately 1,400 businesses across 18 countries, close to 50% of respondents said the potential for data leakage was the biggest concern in implementing a BYOD program. Employees are now utilizing devices that have access to the intranet while operating outside the borders of the enterprise itself. Several techniques and associated tools exist and are already deployed in the enterprises.

For instance, BlackBerry, the pioneer of mobile Internet communications, has developed a fully packaged security solution via its BlackBerry Enterprise Server (BES) that now extends to other vendors' operating systems.

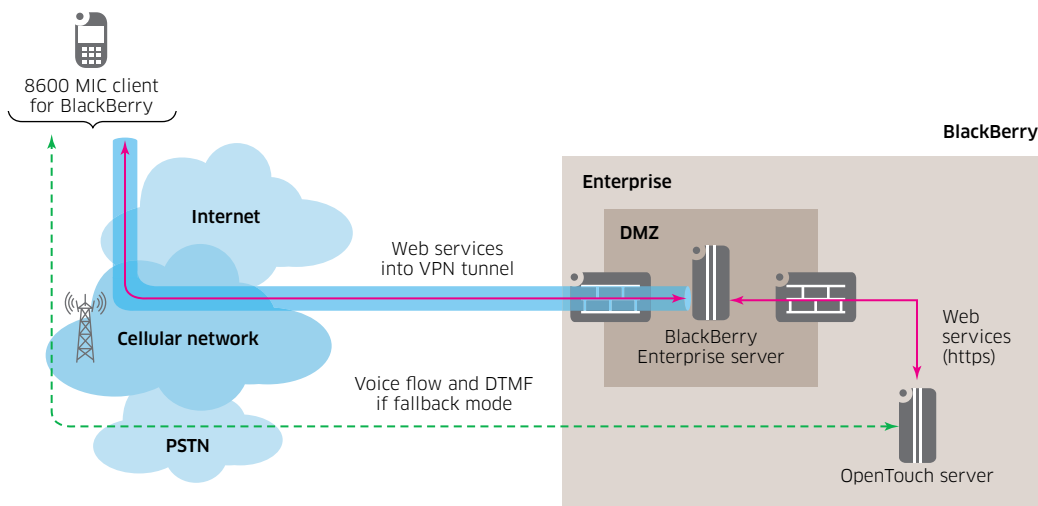
This configuration uses the security services embedded in the BlackBerry architecture such as AES or triple DES encryption. The Alcatel-Lucent 8600 My Instant Communicator (MIC) client for BlackBerry is deployed and configured through BES policies, which usually include security-related parameters. BES device management allows security services such as remote device wipe and Bluetooth® interface deactivation.

Other platforms, such as Apple and Android, do not come with a fully packaged security solution. Instead, these platforms rely on existing enterprise strategies, such as a reverse proxy installed in the enterprise firewall DMZ. Connections are protected using secure sockets layer encryption. From the user/device point of view, a reverse proxy solution is more transparent and less constraining than VPN connection management.

Alcatel-Lucent Enterprise mobility solutions leverage the in-place equipment of their customers as much as possible. For newcomers to secure mobile communications, Alcatel-Lucent Enterprise has developed partnerships with leading vendors to deliver an off-the-shelf, end-to-end solution.

Figures 2 to 5 illustrate the current possibilities for securing mobile conversations, depending on the brands of devices and the grade of service they intend to deliver.

**Figure 2. BlackBerry fleet with BlackBerry Enterprise Server**



**Figure 3. Security and access control for Android and Apple mobile phones**

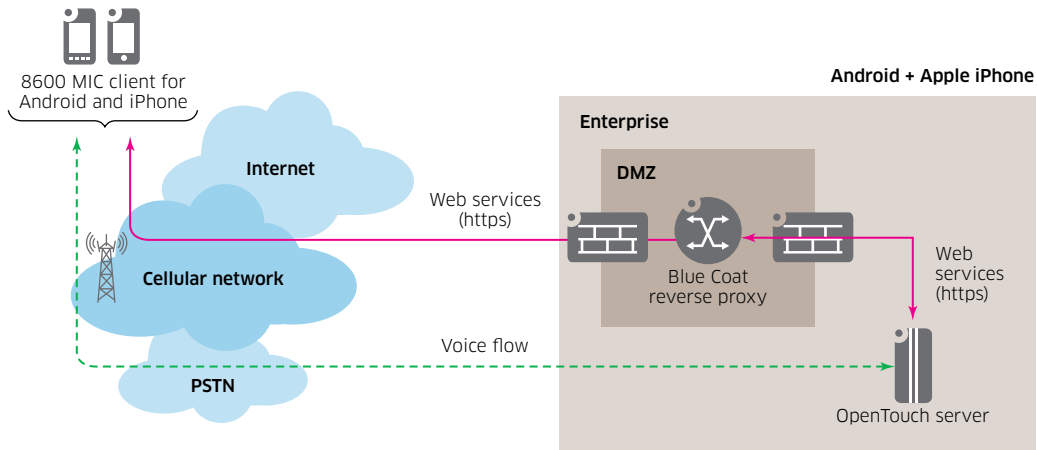


Figure 4. Apple iPad enterprise access behind VPN gateway

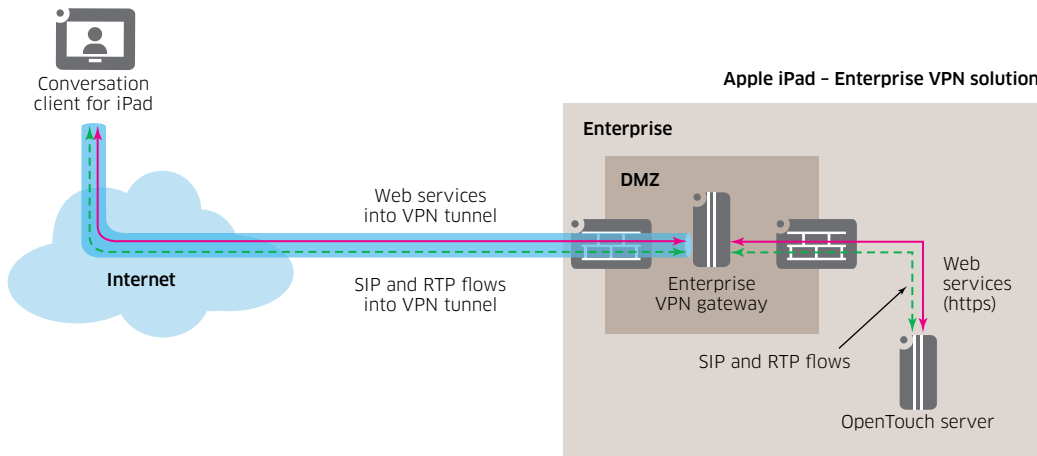
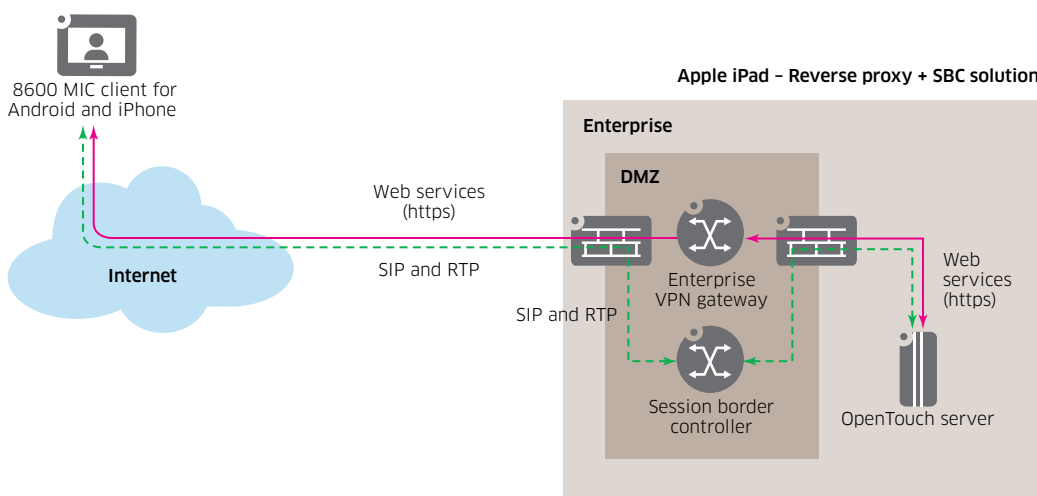


Figure 5. Apple iPad enterprise access through reverse proxy and session border controller



## WHAT'S NEXT FOR MOBILE CONVERSATIONS?

The evolution of the mobile market has been driven by several key trends, which are expected to continue influencing developments:

- A growing demand for Wi-Fi network access – it's perceived by users as “free”, it's secure and it offers the highest level of throughput
- The commoditization of video for business interactions
- The aspirations of users to create a “personal cloud”

Alcatel-Lucent Enterprise will continue to evolve its products to support mobile conversations. Alcatel-Lucent 8600 My Instant Communicator and 8600 My Instant Communicator Mobile, and Alcatel-Lucent OpenTouch Conversation for iPad are made to measure to support users' demands. From the day it was launched, OpenTouch Conversation for iPad created a new standard in terms of user experience. It has been recognized by the industry and received awards from the analyst community. To satisfy the largest number of users, OpenTouch Conversation will be extended to other tablet platforms and to other form factors, such as the workstation and the mobile phone.

## CONCLUSION

Enterprises today can't afford to ignore the consumer-led demand for mobile communications. It is clear that people are going to be using their mobile devices throughout their business day as well as during their personal time. As the technology continues to develop at a rapid pace, demand will simply continue to grow. The availability of higher bandwidth connectivity options in more places will fuel demand, as will the ongoing development of more apps.

Enterprises can turn these trends to their advantage by effectively supporting employees' desire to work with their chosen devices and applications — their personal cloud. They must first, however, ensure that the enterprise's assets are not compromised. The enterprise should also be able to customize the mobile solution to suit employees' preferences and the needs of their positions.

With secure and flexible mobility solutions like those offered by Alcatel-Lucent Enterprise, businesses can begin to enjoy the benefits of a mobile workforce. Their support for effective collaborative conversations among employees, customers and partners from any location will help them retain their competitive position.



# GLOSSARY

BES	BlackBerry Enterprise Server
BYOD	Bring your own device
CRM	Customer Relationship Management
DTMF	Dual-tone multi-frequency
ERP	Enterprise Resource Planning
MIC	(Alcatel-Lucent) OmniTouch 8600 My Instant Communicator
MMS	Multimedia Message Service
OS	Operating system
PIM	Personal information management
RTP	Real-time Transport Protocol
SaaS	Software as a Service
SBC	Session border controller
SIP	Session Initiation Protocol
SMS	Short Message Service
VoWLAN	Voice over Wireless LAN
VPN	Virtual private network

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