



## Solution Brief

### Mobile Unified Communications

*Extending enterprise communications to mobile phones for lower costs and a simplified user experience*

Unified communications helps remove the barriers between voice, email, conferencing, video and instant messaging — allowing employees to connect, communicate and collaborate from multiple locations with multiple devices. For the hyperconnected enterprise, unified communications is proven to:

- Increase employee productivity through timely communications, instant messaging, presence and file sharing
- Reduce operational costs by merging voicemail, email and fax systems
- Save implementation time and system costs by integrating unified communications solution into existing desktop environments
- Increase customer satisfaction by offering new service options

Mobility is integral to unified communications. Mobility enables people to connect anywhere, anytime, on any device and improves productivity and responsiveness for both mobile

employees and their tethered colleagues. It lets the desktop-bound coworker get a decision faster or be more effective in support of mobile executives and customer-facing sales and support professionals.

The enterprise's appetite for mobility is driving adoption of portable laptop PCs and mobile phones/smartphones as the preferred equipment for most mobile professionals. VPN technologies have made enterprise-based communications — such as VoIP, messaging, presence and IM — readily accessible to remote

laptop PCs, but accomplishing the same for mobile handheld devices has its challenges.

#### Captive mobile services and their limitations

A fundamental characteristic of today's mobile services is their provisioning within the classic 'walled garden' — a closed system where the operator controls the service parameters and defines the core applications. Services such as local and long distance calling, roaming minutes, text messaging, voice-



mail, three-way conferencing, email, MP3 and ring tone downloads are bundled with the mobile service. But since most of these features are either redundant to those already provisioned by the enterprise unified communications infrastructure, or not needed for business use, this closed approach forces extra services on business customers along with unnecessary complexity and cost.

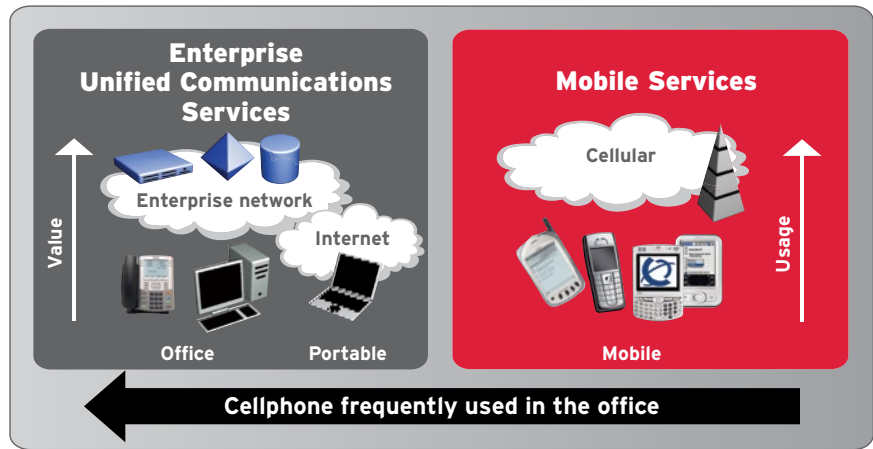
**User complexity**

Just about all mobile employees are familiar with the frustrating scenario of having missed important calls because the callers tried the “wrong” phone number, or the calls weren’t being forwarded appropriately; or the scenario where an important message wasn’t picked up until late in the day because it was sitting in the “other” voice mailbox. Unfortunate communications mix-ups like these are a consequence of having to manage two sets of phone numbers and call handling features — one set, shared by the desk phone and PC client, and the other unique to the mobile phone.

Another situation occurs in some countries where it’s common for employees to be assigned corporate mobile phones that include a prescribed set of services and features according to

**Figure 1. The mobile divide**

Mobile devices are bundled with many of the same services already provisioned by the enterprise communications infrastructure — creating unnecessary user complexity and costs. As landline voice traffic continues its migration to mobile phones, the economics of private communications breaks down. To maximize the value of unified communications, the mobile phone must be integrated within the enterprise unified communications framework.



enterprise requirements. For these workers, a second mobile phone for personal use is common, and the confusion about where work life starts and home life begins and ends is defined by which device the call arrives or is to be placed on.

**Lack of administrative control**

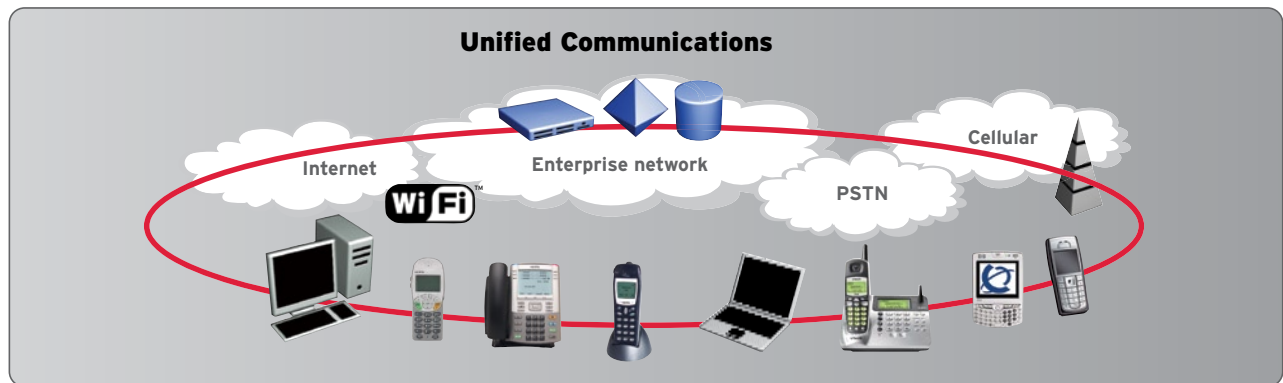
From an administrator’s perspective, staying current with the rapidly changing lifecycles of mobile devices, their operating systems, services and features is a non-trivial task for most IT organizations and compounds the complexity of managing mobile

services. And once deployed or authorized, keeping on top of mobile phone usage and ensuring its compliance with corporate policy is almost impossible. With limited visibility and control of usage, many enterprises blindly reimburse mobile phone usage and feel they have little ability to reconcile submitted expenses with actual use.

Some mobile services may also be non-compliant with the practices and requirements of highly-regulated industries such as financial services and healthcare where comprehensive call recording and call histories are

**Figure 2. Nortel Mobile Unified Communications**

Mobile Unified Communications extends the reach of enterprise-based communications to mobile phones, giving users choice of device and network to access common services.



## More than FMC

Mobile Unified Communications is more than Fixed-Mobile Convergence (FMC). FMC focuses on enabling voice call continuity between wired and wireless devices as users move between VoIP-based services of the enterprise and GSM or CDMA voice networks of mobile operators. Mobile Unified Communications anchors services within the enterprise and extends the power of enterprise-based unified communications into the mobile domain.

frequently required and where contact details are considered proprietary to the enterprise.

### Rapidly increasing mobile expenses

Considering that four out of five employers reimburse some or all of their employees for mobile devices and services, it's no wonder monthly mobile phone expenses account for up to 70 percent of total mobile communications costs. And it seems that the problem is only getting worse — with expenses growing at 20 percent or more year over year. With mobile phone traffic already exceeding landline voice traffic for some enterprises and mobile device penetration increasing every year, when will this cycle end?

The solution to these issues is to extend enterprise unified communications to mobile devices and to displace carrier-based services with enterprise-based services for a consistent user experience and lower costs.

### Different types of users and their devices

Not all mobile users have the same needs. Field sales professionals and mobile executives, for example, have quite different requirements than those of the campus mobile worker.

Defining on-site and off-site mobility requirements will help determine the appropriate type of handheld device and mobile connectivity that best serves the specific user's needs.

- **Smartphones** — Road warriors and executives rely on smartphones that deliver rich functionality and mobile applications to stay in touch with customers and business issues regardless of where they are. Today's Wi-Fi capable dual-mode smartphones add an alternative mode of connectivity when Wi-Fi is available.
- **Cell phones** — Continue to represent the vast majority of mobile devices in use today and support many types of mobile office professionals who primarily require voice communications from a small mobile device whenever they're away from their desk, or whenever it's more convenient than the office phone.
- **Single-mode wireless handsets** — Such as WLAN or DECT handsets deliver on-site mobile voice and data for campus mobile workers who don't leave the enterprise premises to do their jobs.



## The high cost of roaming

Mobile operators around the world have found it necessary to establish arrangements that allow mobile devices on other operators' networks — perhaps in different countries or territories where the home service provider has no network service license.

This is a premium service. For example, American subscribers roaming in Germany might pay up to \$1.99 per minute and executives traveling to China have been known to rack up roaming charges in excess of \$1,000 per trip.

This is a major source of revenue for mobile operators and has recently been investigated by the European Commission as a potentially anti-competitive industry practice for inter-member country roaming.

## Converging cell phones and smartphones with enterprise communications

Extending enterprise communications to mobile phones is about giving the mobile user access to the same telephony features and functions from their mobile phone as they have on their office phone and PC client — to deliver a consistent user experience along with more efficient voice traffic handling. Nortel offers two solutions for converging mobile phones with enterprise communications:

- **Mobile Extension** is a clientless solution that is compatible with any mobile phone. Mobile Extension is a feature of the Communication Server 1000 IP PBX, making it simple to implement with few dependencies.
- **Mobile Communication 3100** is for smartphones only and delivers an advanced feature set through an intuitive user GUI. A Mobile Communication Client (MCC) installed on the smartphone enables the enhanced functionality.

These solutions deliver enterprise communications for mobile phones including single identity and voicemail, enterprise telephony features, remote call control and Wi-Fi mobile extension.




### Single Identity and Voicemail —

Solves the complexity of having to manage multiple phone numbers and voice mailboxes, and allows mobile users to segment their business and personal identity while using a single mobile device.

- Incoming calls to the office number ring simultaneously on any device including mobile phone, office phone and unified communications clients

## Figure 3. Mobile handset options for enterprise mobility

Enterprises can have many different types of mobile workers. Choosing the right device to meet each target user's specific requirement is an important step when designing a solution. Nortel supports a broad range of handheld devices to suit virtually any enterprise mobility scenario.

Mobile user	Preferred device	Nortel solution
<b>Road warriors and executives</b> Rich functionality	 Smartphone	<b>Mobile Communication 3100</b>
<b>Mobile office professional</b> General voice mobility	 Cell phone	<b>Mobile Extension</b>
<b>Campus mobile worker</b> General voice mobility	 Wireless handset	<b>WLAN/DECT handsets</b>

## Figure 4. The user's perspective

**Mobile Unified Communications lets the office phone, PC client and mobile phone share common features and functions.**



- One phone number
- One voicemail
- One caller ID
- Corporate directory
- Corporate conferencing
- Common call management
- Internal PBX extension dialing

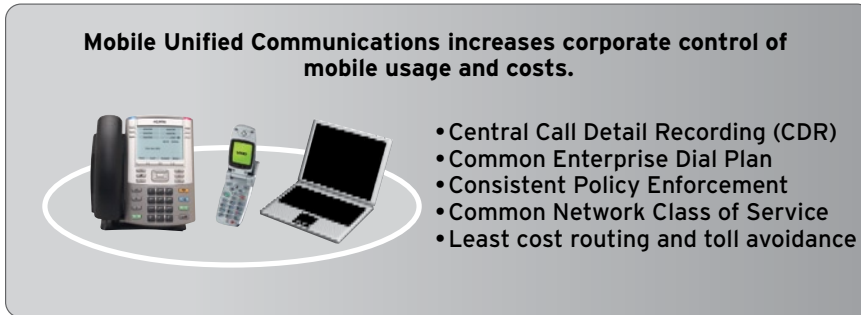
- Corporate voicemail that supports the office number can now be used as a single voicemail service shared with the mobile phone
- Cellular voicemail avoidance\* enforces corporate voicemail even when the mobile phone roams out of range, or is turned off
- Outbound calls dialed from the mobile phone into the public network are initiated from the enterprise communications server and carry the office calling line ID (CLID) — the mobile phone number is hidden and can be reserved for personal use

**Enterprise Telephony** — Lets mobile users access the core communication server telephony features and services from their mobile phone for consistency with office phone and PC clients.

- PBX dialing and the simplicity of internal extension dialing directly from the mobile phone
- Attendant features such as busy lamp status, camp-on call and barge-in to call can be applied to mobile calls, giving attendants visibility and access to mobile personnel
- Mid-call features including call transfer, park, hold and conferencing can be invoked from the mobile phone

\* Available with Mobile Communication 3100 only.

**Figure 5. The administrator's perspective**



- Instant Conferencing\* allows mobile users to create groups from the corporate directory and subsequently initiate spontaneous conference calls with a single command
- Call treatments are consistently applied to office phone, PC client and mobile phone including call transfer and caller ID privacy settings
- Device Handoff\*\* lets the mobile user seamlessly transfer calls in progress between their Nortel office desk phone and the mobile device
- Mobile user's presence state is updated and shared with Microsoft OCS in Nortel Converged Office environments

- Corporate Directory\* access with click-to-call from mobile phone

**Remote Call Control** — Lets smartphone users redirect calls to any accessible phone for either convenience or toll avoidance and lower communication costs.

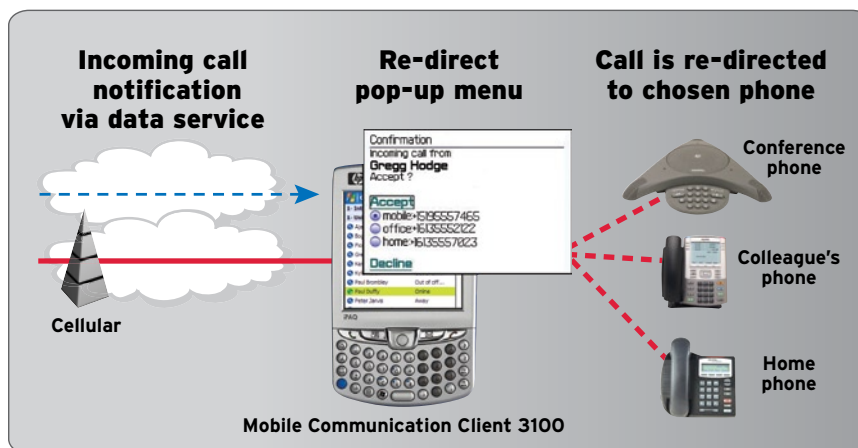
- Call Re-direct\* lets users choose to accept incoming calls on their mobile device, or instantly re-redirect the call to any other phone (e.g., home phone). While traveling, this feature can be used to avoid costly roaming charges.
- Call me-first\* lets users create bridged calls. When initiating a call from the mobile phone, the user can choose to have the communications server call

them first at any specified number. When the user takes the call on that phone, the communications server then completes the second leg of the call to the destination number and bridges them to complete the call. This feature lets mobile users apply least cost routing of the enterprise dial plan between any two phones for significant cost savings while traveling.

**Wi-Fi Mobile Extension** — Utilizes the Wi-Fi radio in many of today's smartphones for an alternative method of mobile connectivity without having to carry a second mobile device. Users can benefit from a consistent experience and more reliable communications where ever Wi-Fi provides better in-building coverage.

**Figure 6. Call control for smartphones**

The mobile phone is not always the best device to take a call — sometimes a colleague's desk phone, home phone or conference phone is a better choice. Call re-redirect gives mobile users the flexibility to take the call on any phone, or re-redirect to an assistant. When traveling, re-redirecting calls to convenient landline phones provides an opportunity to dramatically lower roaming charges.



- Selectable Wi-Fi or cellular service\* lets users choose the best method of connectivity — cellular when out of the office, and Wi-Fi while in the office
- Integrated VPN\* gives mobile phones the same secure remote access capability as PCs to expand Wi-Fi connectivity options to homes and public hotspots

\* Available with Mobile Communication 3100 only.

\*\* Available with Communication Server 1000 Mobile Extension only.

## On-site mobility with single-mode handsets

Single-mode handsets are essentially a wireless and mobile version of the office desk phone. Being direct VoIP clients of the enterprise communication server, these handsets already share features and functions with office phones and PC clients — including enterprise telephony features, single identity and voicemail. And from a cost perspective, they use the enterprise-owned wireless infrastructure so mobile calls can be made at landline rates without any incremental usage fees from mobile operators.

Nortel offers both WLAN- and DECT-based handsets that provide campus mobile workers with a reliable and high-quality mobile voice experience.

**WLAN Handsets** — The Nortel WLAN Handset 6100 series handsets deliver high-quality voice over wireless LANs (802.11).

**SIP DECT** — The DECT 4000 series handsets for European and APAC markets deliver high-quality voice using either SIP DECT wireless access points or Integrated DECT base stations.

Nortel's WLAN 6100 series handsets and SIP DECT/DECT solutions let enterprises quickly deploy a secure, controlled and cost-effective on-site mobility solution:

- Optimized handset models for different types of users including sleek, lightweight designs for standard office use, and rugged/intrinsically safe designs for use in industrial environments

- Enterprise telephony features, single identity and voicemail are shared across handset, desk phone and PC client
- Long-life batteries that deliver up to 8 hours talk time and 160 hours standby time
- Meet strict industry standard criteria for durability and moisture resistance for use in harsh environments
- Available Push-to-talk feature of the WLAN handsets supports group broadcasts
- An open application interface allows the WLAN 6100 series handsets to support custom installations with integrated alerts and messaging with third-party applications

- Wi-Fi (802.11a/b/g) or SIP DECT solution options to meet various customer and regional requirements

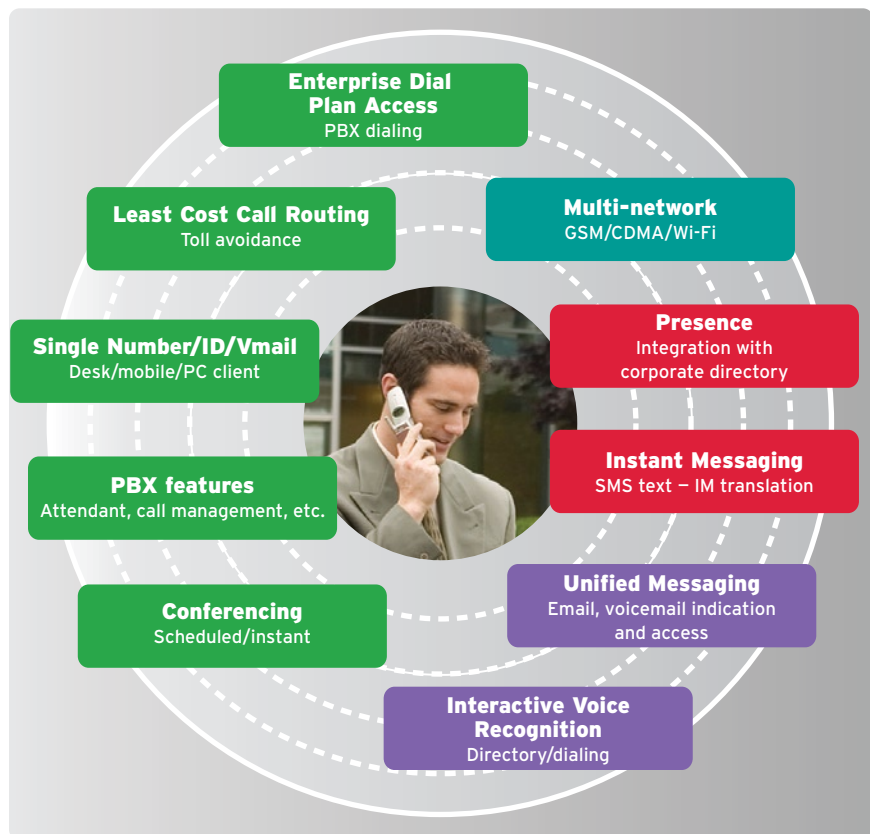
On-site mobility solutions provide the enterprise with complete control over their mobile communications systems without the additional expense of recurring cellular service charges.

## Unified communications applications for mobile phones

**Interactive Voice Recognition** provides a convenient handsfree alternative to keypad dialing for mobile phone users who are in transit. Searching corporate directories, dialing and accessing other services using speech commands can save time and get communications

### Figure 7. Mobile unified communications applications

Once isolated from enterprise-based communication services, mobile users can now benefit from convergence of their mobile handheld device with enterprise unified communications — for simpler, richer and more cost-effective always-on communications.



through when traditional means aren't possible. Nortel's IVR and Speech Dialing solutions can provide:

- Fully automated reception and directory lookup to quickly find the right person
- Intelligent recognition of both legal names and short forms to improve success rates
- Call confirmation using automated text-to-speech translation ensures that the right person has been identified before the call goes through
- Call cancellation by allowing the user to barge-in over voice prompts
- Disambiguation by job function, department or location when search results yield employees with common names
- Fallback to attendant can transfer the mobile user to the appropriate attendant for assistance

**Unified Messaging** integrates email, voicemail and fax into a single messaging service for easy and timely access to a variety of common forms of messaging. The screen size limitations and client restrictions of mobile devices require that mobile unified communications offers special Unified Messaging interfacing that's optimized for mobile devices. Nortel's CallPilot Unified Messaging delivers several options:

- *Web Interface* — Can be accessed by compatible mobile browsers and provides a complete view of messages and access to features
- *Speech Commands* — Combined with text-speech translation, enables hands-free access to voice/fax/email messages from mobile phones

- *E-mail* — Voice and fax messages can be automatically forwarded to a mobile user's email account along with a media file attachment containing the actual message for playback on the mobile phone
- *Mobile Keypad* — The Telephony User Interface (TUI) offers a robust set of commands for accessing messages and managing features and settings
- *SMS text alerts* — Notification of new voice messages can be sent to cell phones via third-party solutions that integrate with Nortel unified messaging solutions

**Instant Messaging (IM) and Presence** are core unified communications applications that can have a dramatic impact on productivity by sharing availability status of contacts and by providing effective real-time IM communications. Nortel Unified Communications supports presence and IM capability for mobile users:

- *User Presence updates* — Colleagues and contacts can see that a mobile user has become unavailable when they are engaged on their mobile phone.
- *Presence information* — Smartphone users can see presence information of colleagues using mobile unified communications clients from Nortel or Microsoft.
- *Instant Messaging* — Smartphone users can send and receive instant messages using unified communications clients from Nortel or Microsoft.
- *IM-SMS translation* — Cell phone users can benefit from third-party solutions that integrate with Nortel Unified Communications and allow for exchanges of SMS-based text messages and instant messaging.

## Benefits of Nortel Mobile Unified Communications

Mobile Unified Communications is truly a win-win proposition for both employees looking for simpler and richer mobile communications and for administrators who are looking to control mobile communications costs:

### Simpler and richer mobile communications

- Single phone number and voicemail to manage
- Consistent communication services on mobile and office phone
- Flexibility to use the most appropriate device
- Seamless handoff between mobile device and office phone
- Reserved cell phone number and services for personal use
- Sharing of mobile presence state with colleagues
- Mobile Unified Messaging with alerts and message delivery
- Interactive voice recognition for handsfree operation

### Lower costs with increased control

- Opportunity for lower monthly charges by up to 30 percent
- Central call detail recording of all mobile phone activity
- Avoidance of many cellular services (e.g., voicemail)
- Least-cost routing for long distance calls from mobile phone
- Avoidance of roaming charges by traveling employees
- Cellular minute substitution with low-cost or free Wi-Fi
- Independent of cellular provider or technology (GSM/CDMA)

## Conclusion

Mobile Unified Communications represents an outstanding opportunity to accelerate business processes and enable employees to be more responsive to customers and coworkers. This paper provided a framework for segmenting user populations and reviewed the suite of Nortel Mobile Unified Communications solutions that can be implemented in combination or stand-alone to address these employee needs.

This broad range of capabilities works seamlessly with existing Nortel unified communications infrastructures to accelerate the benefits of higher productivity, higher levels of reachability and greater customer responsiveness. Few other investments in a modern enterprise communications environment can make these kinds of impacts on the front-line, customer-facing employees and on the top line.

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