

The CIO's Guide to Fixed Mobile Convergence

Highly secure mobile email and data applications help mobile workers stay in touch and up-to-date with a wide range of business issues. Extending that streamlined anytime, anywhere access to mobile voice applications is the next frontier in worker empowerment.



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Table of Contents

Executive Summary	2
Converge Systems for a Mobile Workforce	2
Reasons to Consider Converging Voice Systems	3
Other Benefits of Converged Voice Systems	4
Methods of Convergence	5
Making the Transition to an FMC Platform	6
Introducing the BlackBerry® Mobile Voice System	7

Executive Summary

Mobile working has transformed the business world, stimulating innovation, improving productivity and creating new opportunities. Industry analyst estimates suggest the mobile workforce could exceed 800 million in 2009. These workers can spend as much as 40% of their time away from their desks, complicating their communication needs and draining productivity. As businesses look to do more and encourage the best from their workforce, flexible, on-demand access to information has become a requirement.

Equipping staff with the right tools can enhance productivity, motivation and staff retention. Highly secure mobile email and data applications help mobile workers stay in touch and up-to-date with a wide range of business issues. Extending that streamlined anytime, anywhere access to mobile voice applications is the next frontier in worker empowerment.

Organizations seeking solutions that provide high-performance access while addressing security needs can leverage fixed mobile convergence (FMC) systems to enhance communication. This document explores why your organization should implement an FMC solution, the benefits of FMC and considerations for methods of implementation.

Converge systems for a mobile workforce

Getting your organization's data, applications and email to mobile handsets is not only easy but expected and most organizations have implemented mobile solutions for their fixed systems. Today, mobile workers enjoy the freedom of mobile SAP applications, corporate collaboration tools, instant messaging, social networking and, of course, email. However, getting your organization's fixed voice services to mobile devices is significantly less common even though the number of mobile workers continues to increase. A recent study suggests that by 2011 over 30% of workers will be mobile or remote. As the popularity of telecommuting rises, organizations are seeking ways to reduce costs and boost overall employee satisfaction.

Mobile workers typically juggle multiple phone numbers, devices and voice mail systems which leave them cut off from familiar workplace functionality like extension dialing, directory searches and call transfers. Managing these devices and messaging systems requires additional time that workers could use for other tasks. Clients and colleagues often must dial multiple phone numbers to reach mobile workers, which creates communication delays.

A robust wireless solution should unite a user's identity, different devices and network technologies to give mobile workers the ability to communicate to and from multiple locations while appearing to be at a single location. Fixed mobile convergence (FMC) for voice should merge the capabilities of the desk and mobile phone to make your organization's voice capabilities just as mobile as email and data, so mobile workers can be reached at a single phone number, manage a single voice mail box, access advanced desk phone features and transition calls to and from the desk phone no matter where they are.

In-market FMC offerings vary in their level of maturity, number of real-world implementations, and support for existing mobile devices and corporate telephony infrastructures. While many of these solutions demonstrate promise, not all of them are able to work with existing corporate telephony infrastructures, and not all support the most common mobile devices.

Reasons to consider converging voice systems

Understanding why bringing together your mobile and fixed-line communication systems can benefit your organization is an important part of choosing the right platform. The solution you select should fit seamlessly into and help secure your existing voice network, be scalable for future growth and technologies, have a recognizable cost benefit and enhance your workforce's capabilities beyond solutions you may have already implemented. Identifying and prioritizing these reasons can help drive you to a solution that best fits your organization's needs. There are five top reasons to consider implementing an FMC solution:

1. Productivity

Increasing productivity is one of the most important drivers for implementing FMC. With on-the-spot access to your organization's fixed systems, mobile professionals can make more informed decisions. Having a single phone number that customers and colleagues can use to reach your employees no matter where they are means they are never out of touch. Workers can collaborate more quickly by accessing familiar desktop phone features like call transfer and extension dialing right from the mobile device. Intuitive visual menus make migration to an FMC solution simple for users. If a call is missed, having a single voice mail box means workers spend less time managing multiple messaging systems. FMC also enhances collaboration by extending corporate conferencing, notification and polling capabilities to mobile devices.

2. Security

Wireless solution security helps to address the need to transmit voice and data in a highly secure manner through encryption, authentication, authorization, access control and firewall protection down to the wireless device level. As wireless solutions continue to build momentum and the subsequent number of wireless devices grows, the demand to manage and secure these solutions increases.

FMC is designed to extend the security and control of your fixed voice network to mobile devices. With highly secure access, your organization can minimize the likelihood that it could be the target of toll fraud, conference call snooping and other unauthorized access. Validation of a user's voice network credentials over an encrypted data channel between the mobile device and the organization's servers is leading-edge technology and provides a highly secure solution. In the event that data paths are not available, a highly secure, flexible FMC solution includes alternative authentication methods that help ensure that those accessing the organization's voice network have permission to do so.

3. Planning for future innovation

Most organizations have made significant investments in voice technologies, but voice communication is always changing and

improving. Plotting a course to take advantage of innovation can help your organization maintain control while increasing employee freedom. FMC solutions allow your organization to leverage existing infrastructure by integrating mobile devices with fixed PBX-based desk phone functionality. FMC solutions that support multiple and mixed network technologies (IP/TDM) allow you to extend the life of your existing telecom capital investments while leaving the door open to new ones. Whether you are adding to your voice network or migrating to a new one, the right FMC solution should provide a simple upgrade path that helps keep costs in check.

4. Competitive advantage

Enabling your mobile workforce to use their mobile device as a highly secure mobile desk phone allows them to answer customer inquiries faster, to beat competition and to help your organization grow in a global economy. FMC allows your organization to maintain ownership and control of its telephone numbers, making them a managed asset that customers and vendors are familiar with and that never leaves, even when employees do. For example, if customer knows a sales representative's personal mobile phone number and that salesperson moves to a competitor, it is possible that customer's loyalty will follow the salesperson rather than stay with your organization.

5. Cost

FMC opens the door to a variety of cost-control opportunities. In some cases, calls placed from mobile phones to long-distance and international endpoints can be costly. The ability to extend class-of-service control to your organization's mobile devices allows you to permit and restrict access to services like international and long-distance calling or pay-per-use (i.e. information) services. With FMC, you can further reduce costs by implementing policies that route mobile calls through your PBX and across the lowest-cost, negotiated-rate, fixed-line networks. Directing mobile calls through your PBX also allows you to audit mobile usage through advanced reporting features which helps to reduce time and cost associated with business-use billing. These reports can help you better understand current usage patterns, allowing you to plan strategically for future mobile workforce expansion.

Other benefits of converged voice systems

Improve compliance

Centralized phone feature and restrictions management for compliance is a chief benefit of selecting the right FMC solution. Telephony or information technology (IT) professionals should be able to specify what kinds of calls users can place as well as control access to calling services and functionality at a granular level. This gives telephony or IT the power to implement access policies on a per-user basis to better manage mobile devices and telephony infrastructure. Sending calls to and initiating calls from mobile devices through the organization's voice network also means you can audit or even record mobile calls for compliance with corporate telephone use policies.

Protect capital assets

To help prepare your organization for the future, a successful FMC solution should leverage and extend the capital investments your organization has made in your existing voice systems without the constraint of being tied to a proprietary infrastructure. A solution should be scalable and flexible. It should adapt to and meet your existing needs by giving your organization the ability to interconnect disparate fixed and mobile networks to enhance your legacy systems and enable a truly mobile workforce.

Alleviate security concerns

Since the wireless network resides outside of the corporate environment, your organization needs to assume that no inherent voice or data protection exists. Your most important information assets can be transmitted over wireless networks, making tracking and protecting that data critical. One of the measures by which an organization can assess the strength of a wireless solution's security is through its ability to maintain confidentiality, integrity and authenticity of data.

Proper authentication measures can minimize the risk that unauthorized users could gain access to the corporate PBX to make long-distance calls. Several methods available to help ensure the security of an FMC solution are available to organizations, but they vary in their effectiveness and their ability to be implemented with a range of mobile devices.

One way to establish highly secure access is to use encrypted data for user authentication. In this case, the mobile device sends an encrypted message to a server, which then approves or denies the voice call request. This method is designed so only authorized devices are able to access the corporate PBX.

If an organization has already implemented a mobile data communications solution and trusts the security that solution provides, then an FMC implementation can leverage the devices with which workers are already familiar. The organization continues to benefit from existing security policies while adding the benefits of a converged voice solution.

Methods of convergence

The variety of available convergence solutions and vendors makes deciding how to approach FMC challenging. Varying definitions of convergence further complicate the picture.

Unified Communications (UC) is an industry term generally considered to mean the combination, of multiple methods of communication including, but not limited to, voice, email, instant messaging, presence and collaboration, which are controlled by an individual user for both business and social purposes. For example, a user might have a common inbox for email, voice, and fax messages and client software that makes their experience similar whether using a mail client on a desktop PC, a web browser or a mobile device. Although some vendors claim to provide mature UC products, these may include or exclude certain elements. So, it's important to remember UC is still mostly an industry term and to consider which communication methods are important to your organization when evaluating a UC platform.

Fixed-Mobile Convergence (FMC) allows people to have one phone number and voice mail that can be used on both fixed (TDM or IP desk phones) and mobile (standard mobile phones or smartphones) phones. It should also provide seamless handover of calls between fixed and mobile networks – for example, the ability to move an active call from desk phone to smartphone and vice versa. FMC promises the ability to transition the desktop phone into a handheld device that can move fluidly, tucked into the pocket of a mobile worker.

Extension-to-mobile

The extension-to-mobile is a PBX-based software solution that bridges the gap between the corporate telephony system and external mobile networks. Extension-to-mobile is the most proven and market-ready FMC option available today and allows organizations to own and manage an FMC solution without requiring expensive upgrades to existing telephony infrastructure. Extension-to-mobile enables access to corporate dial tone and PBX functionality from mobile devices and provides handoff capabilities across networks.

Calls to and from each user's single number are routed through the corporate PBX, and the extension-to-mobile software performs call control. On an incoming call, the FMC software accesses user profiles to determine which phones and devices to ring simultaneously or sequentially. The FMC software also uses profiles to route outgoing calls from authenticated mobile devices through the corporate PBX.

“Find-me, follow-me” services

Find-me, follow-me services include the ability to forward calls from a PBX desk-phone or virtual phone number to mobile devices. Calls from these endpoints don't usually include the ability to send a single number identity. If available, the ability to do so is complicated at best. Further complicating communications, unanswered calls are

typically routed to the endpoint voice mail system or the voice mail system of the mobile service provider.

A true FMC solution converges fixed and mobile to present a single number identity rather than simply single-number reach. This means calls made from mobile devices appear to originate from the caller's desk phone. Advanced PBX features such as extension dialing to individuals, voice mail and conference bridges are all inherent to placing the call from the PBX extension and are not supported by forwarding services.

PBX add-on mobility solutions

Major PBX vendors sell proprietary software that extends PBX functionality to mobile devices. Typically, these solutions provide simultaneous ringing capability and have limited capacity to consolidate access to a single voice mail system. Because the software add-ons are proprietary, they tend to constrain flexibility by supporting a single PBX vendor environment. They are also often limited in the types of remote devices or digital networks they will support.

Questions to consider when selecting an FMC solution

Organizations that carefully consider their options and address both current and future needs will be best prepared to realize the benefits of FMC. Critical questions when choosing an FMC solution include:

- Is the solution able to integrate with and extend the life of the existing infrastructure?
- Can the solution scale and adapt to meet the future needs of the organization, including changes in the communications infrastructure and user population?
- Can workers continue using their preferred mobile devices?
- Is the FMC solution easily deployed to users?
- Are features easily accessible through an intuitive interface?
- Does the solution effectively address user authentication and other security requirements?
- Does the solution provide enterprise-grade security for authenticating in to the PBX?

Making the transition to an FMC platform

Most organizations manage heterogeneous telephony infrastructures that include a network of different vendors, technologies (legacy TDM and new IP), networks (mobile, Wi-Fi®, landline) and devices. In cases like this, interoperability becomes an important factor in an organization's choice of FMC solution. Chief considerations when making the transition include compatibility, ease of deployment and ease of use.

Compatibility

Rip-and-replace efforts to move to an all-IP environment can be costly for a large organization with a mixed PBX environment. An FMC platform compatible with both new and legacy infrastructures extends the life of the organization's existing telephony investments.

The ease with which an FMC solution can expand, integrate and adapt will have an impact on its ability to deliver expected productivity and cost reduction benefits now and in the future. Organizations considering a migration to an IP telephony environment will also want to understand whether an FMC solution and vendor can support emerging voice network technologies.

Ease of deployment

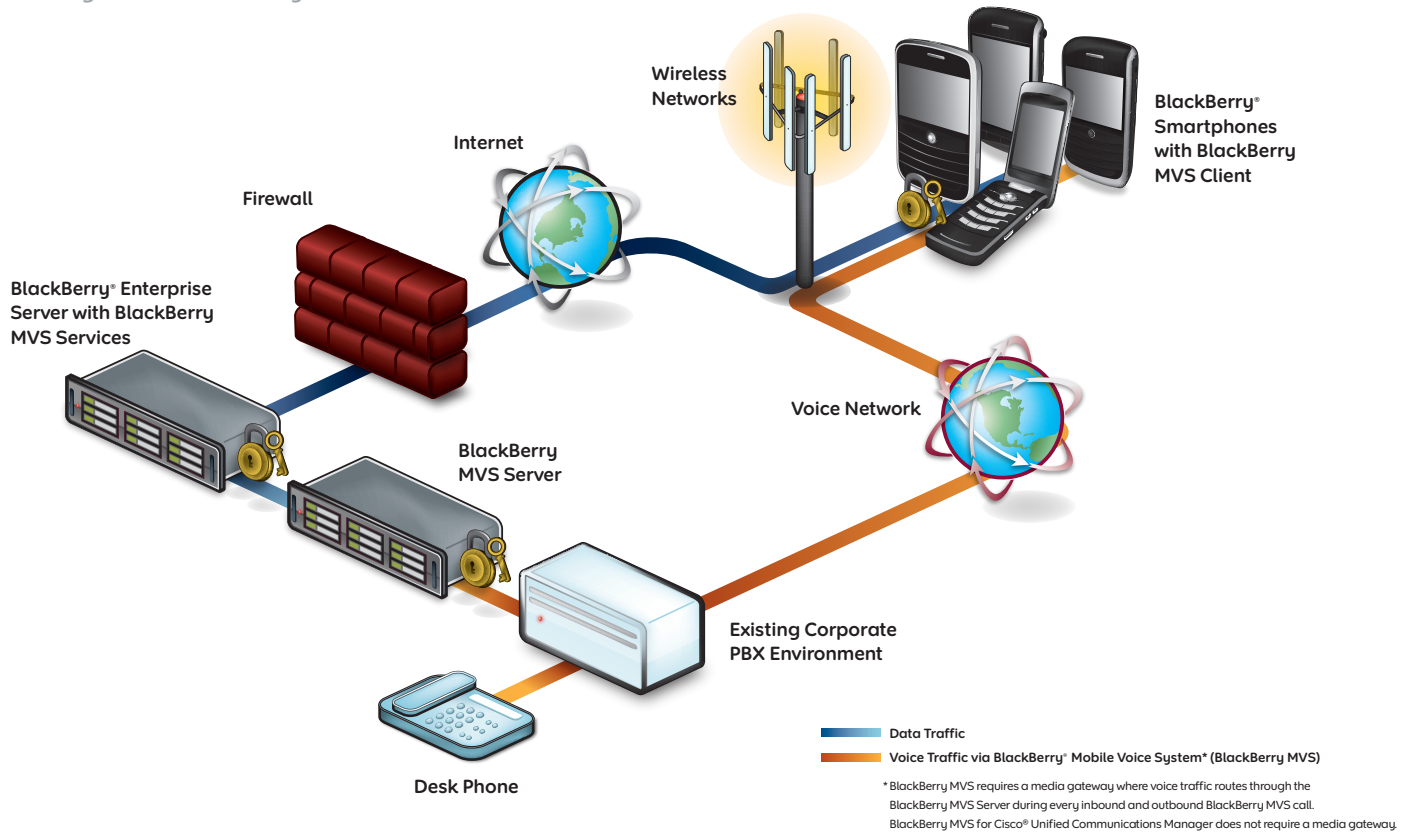
An FMC solution easily deployed over the air to users' mobile devices is more likely to produce immediate benefits than one that requires significant installation efforts on the part of users. Solutions that are able to install seamlessly any client software on mobile devices remotely are most beneficial. The user simply turns on their device, the FMC client software has already been installed, and PBX capabilities and one-number functionality are immediately available.

Ease of use

Deploying an intuitively designed solution with a graphical interface also enables a seamless deployment because users can access features like call transferring, conferencing and extension dialing without a significant learning curve. Ideally, users should be able to use a single phone interface rather than having to remember or leaving it to chance that the user will choose the right mobile phone application each time they make a call. FMC solution support for mobile device vendors varies, along with the ease-of-use of the client software provided for those devices. If users are forced to abandon their existing or preferred mobile devices in the move to FMC, telephony and IT groups will expend significant effort on training and change management activities to encourage people to transition to new devices.

Introducing the BlackBerry Mobile Voice System

BlackBerry® Mobile Voice System (BlackBerry MVS) allows organizations to converge office desk phones and BlackBerry® smartphones, advancing voice communication with the same mobility advantages the BlackBerry® Enterprise Solution provides for wireless email and data. BlackBerry MVS unifies fixed and mobile voice communications so users can be reached at a single business phone number and access your organization's voice features whether at their desks or on the go. It uses an intuitive, integrated approach that allows users to access standard enterprise voice features, such as conferencing, call controls and extension dialing, without having to first manually dial in to the PBX.



BlackBerry MVS comprises the BlackBerry MVS Server, the BlackBerry MVS Services component of BlackBerry® Enterprise Server and the BlackBerry MVS Client software for BlackBerry smartphones.

- **BlackBerry MVS Server** interfaces with your organization's PBXs and BlackBerry Enterprise Server to enable voice mobility.
- **BlackBerry MVS Services** are a component of BlackBerry Enterprise Server software that is designed to provide voice management and security functionality, including IT policies, call control signaling and authentication between BlackBerry smartphones and the corporate telecom environment.
- **BlackBerry MVS Client** software adds desk phone features to existing BlackBerry smartphones. This software is a free download and can be installed over-the-air to BlackBerry smartphone users. Once the client is installed, it becomes an integral part of the BlackBerry software, not another smartphone application.

Central control

BlackBerry MVS offers advanced security features and system management functionality similar to those provided by the BlackBerry Enterprise Solution. Organizations can set policies that direct mobile calls through the PBX, automatically authenticating BlackBerry smartphone users and enabling their phone calls to be logged or recorded for compliance with corporate or regulatory requirements. Organizations can more easily maintain control over caller identity and phone numbers, regardless of whether employees are out of the office or are contractors with their own mobile devices.

Enhanced user functionality

BlackBerry MVS provides mobile workers with office desk phone functionality and other productivity-enhancing features. A single business phone number can ring up to four of a user's wireless devices simultaneously or sequentially. All unanswered calls are routed to a single corporate voice mail box, simplifying message management.

A user-friendly interface facilitates access to advanced desk phone features, such as call controls and conferencing, directly from the intuitive visual menus of BlackBerry smartphones or by entering familiar star codes while on phone calls. Users can seamlessly change locations and transfer calls to and from their desk phones and BlackBerry smartphones while carrying on conversations. Call filtering enables workers to create profiles that filter calls, minimize disruptions and allow important calls to get through. Workers can use their BlackBerry smartphones to conduct quick, authenticated conference calls from any location.

Feature benefits for BlackBerry MVS users include:

- **User-friendly client interface:** BlackBerry smartphone users can easily access advanced desk phone features, such as call controls and conferencing, directly from the intuitive visual menus of BlackBerry smartphones while on phone calls.
- **One phone number, one voice mail:** A single business phone number can ring up to four wireless devices simultaneously or sequentially. All unanswered calls go to a single, consolidated corporate voice mail box.
- **Consistent caller identity:** Mobile users can make enterprise voice calls from their BlackBerry smartphone using the same identity as their corporate desk phone. Users can also easily switch back and forth between personal and enterprise phone numbers by accessing call controls and conferencing directly from the intuitive visual menus of BlackBerry smartphones while on phone calls.

- **Transfer a call:** Workers can transfer calls using intuitive visual menus or star commands with audible prompts.
- **Fixed-Mobile Call Switching:** Workers can change locations and move active calls to and from their desk phones and BlackBerry smartphones while carrying on conversations.
- **Call Filtering:** Users can create profiles that filter calls, minimize disruptions and ensure that the most important calls get through.
- **Join a party to call:** Workers can easily add parties to a call by using intuitive visual menus or star commands with audible prompts.

BlackBerry MVS benefits for your organization

BlackBerry MVS helps organizations derive maximum value from their communications infrastructure investments. With BlackBerry MVS, organizations can turn phone numbers into corporate assets by maintaining better control over caller identity and phone numbers. If an employee leaves, your organization maintains ownership of the phone number. Whether in or out of the office, workers can provide customers, partners and other contacts with a single corporate phone number where they can be reached anytime, anywhere. Organizations with BlackBerry smartphones can gain increased control over their telecom systems and mobile devices.

BlackBerry smartphones are automatically authenticated through the BlackBerry Enterprise Server, helping to identify callers and ensure that only authorized devices are calling into the system or accessing services. Telecom managers can also set policies that require all inbound and outbound calls to use the corporate phone number so calls can be routed through the PBX for logging or recording. They can also leverage BlackBerry Enterprise Server wireless commands and policies, which enable asset tracking, reporting, password protection, call restrictions and other security functions.

Finally, BlackBerry MVS unifies fixed line and mobile voice communications using the open, standards-based BlackBerry Enterprise Solution platform and interfaces with heterogeneous voice infrastructures. It mobilizes all major TDM and IP-PBX systems, delivering consistent feature sets to BlackBerry smartphone users. BlackBerry MVS enables organizations to extend the life of existing voice infrastructure while gaining the benefits of FMC.



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MKT-31414-001