



iPass®

WHITE PAPER



Android™ is Open for Business

Enterprise-Ready for Today's Mobile Workforce

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Introduction

Since iPass issued its first Mobile Workforce Report in February 2010, three key trends have emerged among mobile workers:

- **Redistribution of work** across time and space. Mobile workers are checking in during downtime and even on vacation. When they disconnect, it is usually because they cannot connect.
- **Increased permeability** of the boundary between work and life. Most mobile workers are using their mobile devices for both personal and business reasons. This trend does not change, even with the entry of new consumer devices like the iPad.
- **Increased availability** of applications and services in the cloud, as well as new form factors like the iPad, is making it more difficult for IT to assume a command and control posture as more and more online work tasks can be accomplished outside of the network perimeter.

Today, workers are bringing consumer technology into the workplace, and both workers and their IT departments are figuring out how to best use them for work. But in many cases, the current workarounds are both inconvenient and ineffective.

Changing platforms (e.g., from iPhone to Android) is fairly seamless. Devices that can easily and successfully be used for both business and personal reasons will win the consumer and business dollar, as well as the hearts and minds of the mobile workforce.

According to a recent report (September 2010) from research firm IDC, the worldwide market for smartphones is expected to grow 55.4% in 2010. "The smartphone is the catalyst behind the rebound in the worldwide mobile phone market this year," said Kevin Restivo, an IDC senior research analyst. IDC are not the only research firm to validate the growth in smartphones either. Gartner also see strong growth. "Launches of updated operating systems — such as Apple iOS 4, BlackBerry OS 6, Symbian 3 and Symbian 4, and Windows Phone 7 — will help maintain strong growth in smartphones in 2H10 and 2011," said Roberta Cozza a principal research analyst at the firm.

iPass sees the next wave of innovation and the long term market winners in mobility as those that take consumer-focused technology like Android, and effectively apply it to the enterprise. Business users want a consumer device with the necessary hooks into the workplace, since they are increasingly comfortable with blending work and personal activities. iPass predicts that a new category of services and tools will need to be established around mobile workforce productivity.

The August 2010 iPass Mobile Workforce Report and survey revealed that 5.5 percent of employees used their mobile phone/smartphones exclusively for work and only 3 percent used them only for personal communications. Most employees used them for a combination of both. Also, 7.1 percent of mobile employees carried two separate phones – one for just work and one for personal use

The majority of mobile employees (76 percent) had their smartphone bill paid fully or partially by their companies. And while the majority of smartphone users were choosing Wi-Fi to connect, the primary reason stated (31.8 percent) was because it is faster than 3G.

One of the most important developments in smartphone evolution is the breadth of support for both wide area 3G cellular networks and local Wi-Fi hotspots, which provides tremendous flexibility and potentially significant cost savings. According to ABI Research, 74 percent of people who have Wi-Fi on their mobile phone use it, and 77 percent say they will seek Wi-Fi in their next phone as well. That's encouraging news for enterprises that are struggling to control rising mobility expenses.

There are five cost-saving reasons why enterprises should take a serious look at promoting the use of Wi-Fi on smart-phones such as Android:

1. Wi-Fi can offload 3G data use

No matter how obvious the productivity and efficiency benefits may be, picking up the tab for users' 3G cellular plans can be a significant expense, especially during a recession. Using Wi-Fi when it's available—especially with the growth of free Wi-Fi—can offload expensive megabytes from user plans, reducing the costs to the enterprise while supporting users with their preferred mobility platform.

2. Wi-Fi can eliminate exorbitant 3G international roaming fees

The media is full of stories about exorbitant 3G international roaming bills and as global mobile data traffic is expected to increase 39 times from 2009 to 2014 - according to Cisco's Visual Networking Index (VNI) Forecast, 2009-2014 - it is especially relevant to avail of Wi-Fi. If you want real-world numbers, just ask your finance department. International travelers who use their smartphones abroad can easily rack up hundreds and even thousands of dollars in 3G network roaming fees, which run from \$1 per megabyte to as much as \$20 per megabyte. So the retail rates that users pay will likely still land in the range of \$2 to \$3 per megabyte. Wi-Fi support in the smartphone lets users access the Internet and enterprise network services much more affordably, and typically at higher speeds.

3. Wi-Fi access can improve application performance

The bandwidth available on a network access connection can significantly affect application performance, particularly with those involving voice and video. In addition, high latency and jitter can destroy usability in voice and video applications. Wi-Fi can deliver higher throughput, lower latency and jitter than 3G. In other words, Wi-Fi offers faster delivery of packets especially relevant for real-time applications. For enterprise soft-phones (VoIP) and video conferencing applications Wi-Fi dramatically reduces the cost of communication costs at home, in hotels and when traveling internationally. In fact, in our August 2010, Mobile Workforce report, 32% of mobile employees surveyed preferred Wi-Fi over 3G due to the speed of connection with Wi-Fi.

4. Wi-Fi often provides coverage where 3G doesn't

In some locations, 3G signals are weak or unavailable. For example, 3G coverage tends to be strong in outdoor urban centers, but weaker or nonexistent in rural areas. In addition, 3G isn't known for penetrating deep within buildings or beyond established coverage areas. In these situations, smartphone users can often maintain access to data services using nearby Wi-Fi hotspots.

In addition, with certain 3G plans, bandwidth decreases as users exceed pre-defined monthly download limits. Wi-Fi helps these users reduce their download volumes and provides high-performance connections if they should exceed their monthly limits.

5. Wi-Fi gives smartphone users in-flight access

A number of top-tier airlines currently offer in-flight Wi-Fi to passengers and iPass includes inflight internet as part of its Mobile Network. This is an important capability for smartphone users, particularly in the U.S., where FCC regulations prohibit in-flight cellular network use.

Wi-Fi connectivity lets business travelers make productive use of their time aloft—updating their personal calendars, attending WebEx conference meetings, checking email, and staying in touch via instant messaging. It's easy to see why many business professionals are choosing the instant-on capabilities and in-the-pocket convenience of using their smartphones to access the Internet and email versus turning on the more bulky and slower laptop systems.

iPass for the Mobile Workforce:

Thousands of mobile workers depend on iPass for simple, secure connectivity to the Internet and corporate networks over a variety of access services powered by iPass Open Mobile, a cloud-based services delivery system that provides the enterprise insight and control over definition and management of mobility services.

iPass Open Mobile provides organizations the flexibility to connect to their chosen network fabric or to connect to the iPass Mobile Network, which enables access to more than 156,000 Ethernet and Wi-Fi hotspots worldwide, including a growing footprint of free, fully-vetted, OpenAccess Wi-Fi hotspots. This provides smartphone users with a world of alternative access choices. It lets users easily switch between 3G and Wi-Fi connections. In addition, iPass offers an online hotspot finder for locating available preferred or enterprise sanctioned connections.

By bringing simplicity and service consolidation to Android devices, iPass is helping enterprises make a more productive mobile workforce across a wider variety of platforms than ever before.

Most importantly for enterprise IT departments, iPass Open Mobile on smartphones, including Android, helps reduce the costs associated with smartphone support by providing a consistent user experience across virtually all network types and devices. It reduces expensive help desk calls and accelerates troubleshooting with connection usage and performance reports.

iPass® Open Mobile™ on Android™ is an easy to deploy connection manager that provides seamless connectivity to company defined, free Wi-Fi or iPass provisioned Wi-Fi networks, providing lower cost and higher performing access alternatives for Android smartphone users. In addition to providing connectivity, the Android iPass Open Mobile Client can communicate with the iPass Open Mobile service to keep the client up to date along with sending service data to enable IT to review connectivity and usage habits to enforce the lowest cost connection.

iPass Open Mobile on Android provides:

Access to more than 150,000 iPass Mobile Network Wi-Fi venues

- Access to more than 20,000 OpenAccess free Wi-Fi venues
- One-touch login
- Automatic notifications when iPass, OpenAccess and corporate defined Wi-Fi venues are available to connect to
- Automatic directory updates
- Mobile Insight reports on usage
- Service quality information logging and upload for improved help desk response
- Ease of provisioning users

Technical Overview

With the iPass Open Mobile Android client, the IT Administrator manages the integrity of their connectivity spend across multiple devices by following a simple lifecycle of provision, deploy, and manage. The Administrator does this by creating a profile that includes only the networks that they want to provision their users with – it could be for the purpose of providing an expanded global footprint for their world travelers or a cheaper and faster alternative to 3G, locally. This package is distributed to their select (or all) end users and once invoked; the profile will automatically download the client from the Android Marketplace and provide the custom application experience to the end user. This provision and deploy process ensures that the Administrator is in control of the options needed, and not left at the will of the end user. When reviewing the connectivity (or spend) habits of the end users (across multiple devices), the Administrator can alter any of the settings and have it automatically delivered to the end

user device.

Features

- **Configuration:** The iPass Open Mobile Android client can easily be deployed to Android Smartphone users by creating an iPass Open Mobile Android client profile via the iPass Open Mobile Portal. The profile contains information on what Wi-Fi networks will be presented to users as well as information on how users should connect. Once a profile is created, a profile installer is created that IT can then provision to users. Once the profile installer is installed, it will then download the latest version of the iPass Open Mobile Android client from the Android marketplace directly to the user's device. No configuration codes are required to install or activate the iPass Open Mobile Android client. The configuration profile includes the following information:
 - Network type – Administrators can choose to configure the following Wi-Fi networks as part of their iPass Open Mobile Android client profiles:
 - iPass Open Access Wi-Fi networks, providing access to over 20,000 free Wi-Fi locations, including locations such as Starbucks®, Barnes & Noble® and many airport locations
 - iPass commercial Wi-Fi networks, providing access to over 150,000 fee based Wi-Fi networks. These networks are broken out by geographic region, allowing administrators to match networks included in the profile with the user's location
 - Corp-rate defined Wi-Fi networks, such as campus Wi-Fi locations
 - Note that administrators can mix and match Wi-Fi networks for different profiles, allowing different levels of access depending on the profile provisioned to the user. Example- some users may only be provided to free OpenAccess Wi-Fi locations, while other users may have access to Open Access and iPass commercial Wi-Fi locations.
 - Authentication info (domain, prefix etc)

- Branding – Splash screen and application name
- Hotspot URL (iPass or other)
- **Profile and Network list download** – the iPass Open Mobile Android client can accept updates of the profile and the network lists automatically when they are changed keeping the configurations and network lists as current as possible.
- **Wi-Fi detection & connection** – The iPass Open Mobile Android client will notify users when it detects an iPass Wi-Fi network, or an Enterprise



Figure 2: Notification Window

defined Wi-Fi network is in range, making it easy for users to know when a cost effective Wi-Fi network is in range.

- Provides a simple UI to connect the user to Wi-Fi networks – either by choosing the network and selecting the connect button, or by double clicking on a Wi-Fi network
- The Wi-Fi detection capability runs in the background, meaning the user does not have to launch the iPass Open Mobile client to look for iPass Wi-Fi networks.
- Browser Login – the Android client will invoke a browser to allow the end user to connect to non-iPass networks that require user interaction (terms and conditions acceptance, temp pass-code, or even credit card information)

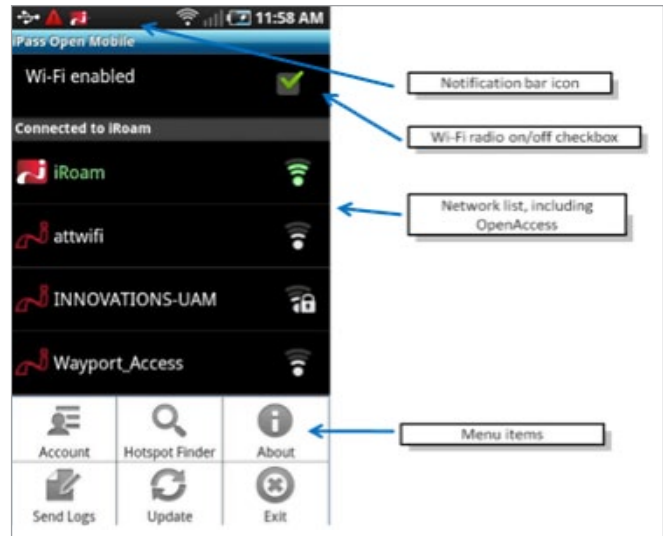


Figure 1: Main User Interface

- **User Interface** – the client has a robust User Interface that provides visual cues to the user about the availability of the networks
 - Notification bar – the iPass icon appears in the notification bar to let the user know about an available iPass or administrator defined network
 - Network notification – a notification dialog will appear outside of the application when an iPass or administrator defined network is within range
 - Wi-Fi radio on/off checkbox – within the main UI, the user can easily turn on/off the Wi-Fi radio
 - Network List – a list of available networks is visible with signal strength indicator. The user can scroll to review and choose network at will
 - Menu items – additional options are available to users to set their account, view their historical data and interact with the hotspot finder
- **Insight Data** – the iPass Open Mobile Android client will provide client and connection details to the Mobile Insight reports, viewable via the iPass Open Mobile Portal.. The iPass Open Mobile Portal will provide reports on overall iPass Open Mobile Android usage along with specific details on individual user sessions.
- **Inherited Connections** – when activated, the client will inherit connections that have already been established

- **Localization** – the client will be localized in several languages – French, Italian, German, Spanish, Japanese, Korean, and Traditional/Simplified Chinese. This is limited to the UI only.
- **Logs** – the client creates and can send logs for troubleshooting purposes. These logs can be emailed to the Administrator.

Technical requirements

- Android OS 2.1 and above
- iPass Account – need to be provisioned on the iPass Open Mobile Portal (and have an iPass account available) in order for the service to function

About iPass

Founded in 1996 iPass (NASDAQ:IPAS) is a leading provider of enterprise mobility services with over 3,500 customers, including more than 370 of the Forbes Global 2000. The company's mission is to be the voice of the enterprise in the market for mobility services by providing solutions that simply, smartly and openly facilitate access from any device on any network, while providing the visibility and control necessary to contain spiraling mobility costs, maximize mobile user productivity and maintain security in a world where consumers drive enterprise IT.

For more information, visit www.ipass.com or follow iPass on Twitter at www.twitter.com/iPass



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