



# Total Enterprise Access and Mobility (TEAM) Solution Server Architecture: Wireless Services Manager (WSM) and Network Services Manager (NSM)

## **Simplify converged solutions with a single architecture for voice and data communications**

Until now, office communications typically required standalone point solutions for voice and data, creating extra work for IT and users alike. Users often needed to manage two or more devices — one for voice and one for enterprise data. IT was required to manage and secure several stand-alone systems, as well as multiple devices per worker. Motorola has elegantly addressed this issue with a common highly scalable and highly secure server architecture for integrated voice and data mobility solutions. Following best practices in networking, this server-based architecture integrates as a non-intrusive overlay into existing IT infrastructure, including the WLAN and PBX, creating a single common platform for the delivery of integrated voice and data services.

## **The advantages of a server-based architecture**

TEAM's server-based architecture delivers superior interoperability, superior mobile device battery cycle times, improved network performance, improved security and expanded access to PBX features. The servers become the translators between TEAM business smartphones and the PBX, enabling interoperability with a broad range of PBXs and IP-PBXs — allowing enterprises to leverage and integrate the current telephony infrastructure investment. The server handles the bulk of the processing required to maintain connections, preserving battery power for a full workday and extending overall battery life. Efficient one-to-one push-to-talk (PTT) services dramatically reduce traffic over the wireless LAN, improving network efficiency and performance. And additional security features improve security between business smartphones, corporate networks and business applications.

## **The Wireless Services Manager (WSM): comprehensive voice feature server**

The Wireless Services Manager (WSM) provides control over all voice features for the TEAM integrated solutions. Residing between the mobile device and the PBX, the WSM simplifies the delivery of voice services in converged solutions by brokering the connection between the mobile device and the PBX. This architecture enables interoperability with a range of PBXs and provides support for numerous features that enhance the voice traffic performance and security:

### **Improved battery life**

The WSM handles the majority of the processing required to maintain connections, eliminating much of the burden from the mobile device. The resulting substantial extension of battery life ensures ample power for even an extended shift.

### **Reduced network traffic**

By acting as a proxy server for the PBX, the WSM effectively reduces a significant amount of PBX-related traffic. Wireless LAN bandwidth is preserved, protecting network performance.

### **Increased security**

The WSM provides an additional layer of security by requiring a two-factor authentication to enable usage of the WSM services — a username and password in addition to a TLS certificate exchange — between the user, device and WSM. This is the same authentication required for the user to gain access to the WLAN network. Additionally, the WSM provides secure connections to the PBX, AAA Radius server and line of business (LOB) applications, protecting information during transmission.

### **Simplified management**

In order to provide the flexibility required to administer TEAM solution features to different types of employees with different jobs and different communications requirements, the WSM provides granular control of features at the user device level including PTT and text messaging.

### **Improved scalability**

The WSM enables easy scaling to meet the needs of an expanding workforce. The solution can provide services for just a few users up to 4,500 users with a single WSM server — providing investment protection and a foundation for future growth.

### **Improved performance**

The WSM provides features that improve the overall performance of voice services as well as the WLAN. The reuse of a single connection between the handset and the WSM improves general network efficiency. The highly efficient encoding of voice packets reduces network traffic and protects available bandwidth.

### **Four nines high reliability**

The high reliability of the WSM software and hardware delivers 99.99 percent reliability today. And the TEAM architecture enables future enhancements that will include support for redundancy as well as clustered PBX architectures, enabling five nines reliability.

### **Highly efficient push-to-talk services**

The WSM enables a very robust and efficient deployment of push-to-talk (PTT) services. Unicast broadcasting enables voice packets to be sent only to the intended recipients. The elimination of multicast broadcasting reduces a massive amount of traffic that would needlessly consume wireless network bandwidth and could potentially ripple into the need to expand wireless network infrastructure — adding capital and operational costs. In addition, low latency provides call setup in less than one second for a superior user experience. The WSM supports up to 255 talk groups to meet broad enterprise needs. And since the PTT Caller ID is included in the call history of the mobile handset, users can quickly and easily return a PTT call as simply as a regular phone call.

### **Network Services Manager (NSM): comprehensive management services**

The Network Services Manager (NSM) provides centralized management, monitoring and provisioning of the TEAM integrated voice and data solution:

### **Management of the Wireless Services Manager (WSM) server**

The NSM monitors the functionality of the WSM, from the operating system to the server itself as

well as voice applications, such as push-to-talk. In the event of a system level fault, an email alert is immediately issued. The instant visibility into any major issues on the WSM enables the rapid response necessary to minimize downtime and protect the continuity of voice services. Fault operations include visibility into the current state of the WSM, the ability to send SNMP notifications to a central manager, viewing and clearing active alarms, alarm filtering and the storage of active alarms and alarm history for proactive analysis of system faults.

### **System configuration management**

General configuration for the entire TEAM solution is managed on the NSM, including the WSM configuration and configuration history as well as the activation of licenses and updating of system software.

### **Solution performance monitoring**

The NSM provides access to a wealth of real-time and historical performance statistics for the TEAM solution. Armed with this data, IT can perform the trend analysis required to identify and resolve performance issues — before service levels and service quality are threatened. Performance data includes WSM traffic loading metrics, performance monitoring alarms, alarm categorization and reporting of failed call attempts and dropped calls. The NSM also provides various levels of record generation, including event logs of alarms, service logs and user action logs for system administration and monitoring.

### **Centralized user provisioning**

Provisioning of new users on the WSM server is executed on the NSM server. The Subscriber (user) Provisioning Client enables the administrator to manage all of the subscribers associated with the WSM. Provisioning operations for individual users and talk groups include add, modify and delete. Provisioning also provides a bulk-add capability, enabling the addition of multiple subscribers at one time.

### **End-to-end services keep your TEAM solution up and running at peak performance**

Motorola offers a complete suite of Enterprise Mobility Services to get and keep your TEAM solution up and running at peak performance. Motorola's Advanced Services incorporate an integrated lifecycle approach — from WLAN VoIP assessment and server integration to handset staging — into a single streamlined program. And seamless integration with Motorola's Customer Services gives you the support you need, including around-the-clock access to technical support resources and rights to download entitled software releases to help ensure that all elements of your solution work at peak performance levels.

To find out more about Motorola's next generation TEAM integrated voice and data solutions and how they can benefit your enterprise, please visit us on the web at [www.motorola.com/team](http://www.motorola.com/team),

contact us at [TotalMobility@motorola.com](mailto:TotalMobility@motorola.com) or access our global directory at [www.motorola.com/enterprisemobility/contactus](http://www.motorola.com/enterprisemobility/contactus)

## Wireless Services Manager

FEATURES	BENEFITS
<b>Push-to-Talk Application Server</b>	Provides one-to-one and one-to-many instant communications within the enterprise
<b>SIP Proxy</b>	Main interface to all IP-PBX or TDM PBX gateway infrastructure; provides location of all subscriber units to the IP-PBX during call set-up
<b>SIP Registrar</b>	Stores mobile registrations and participates in the authentication and authorization of each subscriber unit
<b>Subscriber Access Configuration Server</b>	Enables mobile access to the system every time it detects the presence of the enterprise WLAN; provides device and user authentication, association and over-the-air configuration of system and subscriber specific parameters
<b>Interface to Enterprise PBX</b>	Supports an interface to multiple manufacturers of PBX equipment to enable wireless handsets to access PBX calling features
<b>Security Management</b>	Validates each network element that interacts with the WSM
<b>Subscriber Unit Link Management</b>	Controls device link to network to enhance performance and security
<b>Server Specifications</b>	
<b>Hardware:</b>	Sun Netra N210; 1.3 GHZ Ultra SPARC III Processor; 73 GB SAS Disk Drive; 1GB RAM; 1MB Cache; Internal DVD-ROM Drive; 1 10/100/1000 port (Gigabit Ethernet NIC X4445A) supporting 802.1Q/p (layer 2 QoS); 4 Ethernet 10/100/1000 ports (on mother-board); 1 Ethernet 10/100 port; 2 Serial ports; 2 USB ports; 1 Alarm port; 1 PCI slot; AC Power Supply
<b>Software:</b>	Solaris 9 Version 09/05 as operating system Motorola Wireless Services Manager (WSM) application
<b>Fault Reporting:</b>	Standards-based SNMP for network element monitoring

## Network Services Manager

FEATURES	BENEFITS
<b>Fault Management</b>	Provides features that enable easy troubleshooting of the TEAM solution, including real-time alarms and alarm management, event logging, diagnostics and availability reporting
<b>Configuration Management</b>	Reduces operating expenses through an easy-to-use graphical user interface that simplifies and helps error-proof the initial and ongoing configuration of services
<b>Performance Management</b>	Helps guarantee service availability through granular trend analysis, which helps IT spot and resolve issues before service levels and service quality are threatened
<b>Security Management</b>	Protects against unauthorized network access; reduces the risk typically associated with wireless services; helps meet compliance mandates for regulations such as HIPAA and PCI
<b>Provisioning Management</b>	Provides a user-friendly graphical user interface for simple, rapid and cost-effective provisioning of subscribers and talk groups
<b>Network Services Manager (NSM) Specifications</b>	
<b>Hardware:</b>	2.8GHz Pentium® 4; 60 GB hard drive; 1.0 GB RAM; 10/100 Base T network card; DVD-ROM drive; SVGA or better video card
<b>Software:</b>	Microsoft Windows® 2003 Server w/SP2 as operating system Microsoft Internet Explorer® 5 (no firewall) Motorola Network Services Manager (NSM) application (including Java™ Runtime Environment (JRE): 1.5.0_11 and Apache: 2.0.54)
<b>Optional Software:</b>	Microsoft Windows XP with SP2 as alternative operating system
<b>Fault Reporting:</b>	Standards-based SNMP for network element monitoring and reporting

**SPECIFICATION SHEET**

TOTAL ENTERPRISE ACCESS AND MOBILITY (TEAM) SOLUTION SERVER ARCHITECTURE:  
Wireless Services Manager (WSM) and Network Services Manager (NSM)



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