ARUBA™
The Mobile Edge Company

Partner Solution Sheet
AVAYA

Aruba Networks and Avaya:
Providing Best-of-Breed Mobile Convergence

Aruba Networks Mobile Edge architecture tightly integrates with Avaya to provide a complete mobile voice over Wi-Fi portfolio that leads the industry in voice performance, security and manageability.

Enterprises can easily combine an advanced communication system from Avaya with a Mobile Edge WLAN solution from Aruba to allow employees, guests and contractors to benefit from advanced communications features from wireless devices.

Why Aruba and Avaya

- Best-of-breed integration for mobile voice infrastructure
- 10x improvement in call performance over closest competitor
- Voice-aware mobile network
- Ultra-fast roaming

Voice Perfomance and Quality

Aruba Networks is a natural fit with Avaya, providing an infrastructure optimized for convergence of voice over Wi-Fi and mobile data applications. QoS over the wireless link is performed using standard 802.11e/WMM or vendor specific protocols (e.g. SpectraLink SVP). On the wired side, the relative priority is advertised using 802.1p and DSCP tagging that also ties into the queuing mechanisms on Aruba mobility controllers and APs. Aruba's "Application Awareness" capability enables "Voice Flow Classification (VFC)", the ability to recognize common voice protocols (e.g. SIP) and, in turn, provide strict priority to voice traffic. VFC delivers superior support for converged devices that generate both voice and data traffic (e.g. computing devices with "softphones"). Aruba supports ultra-fast roaming (i.e. <10 ms) for all standard Wi-Fi certified clients. Low latency handoff is critical to maintaining good voice quality.

Aruba has a significant market advantage in performance, supporting up to 150 concurrent voice calls per AP in a mixed environment handling voice and data traffic—10 times the scale of other vendors.

Integrated Voice Devices

An Enterprise wishing to enjoy these benefits can choose from a number of mobile and handheld devices, depending on their needs.

Avaya Handsets

Avaya markets a range of voice over Wi-Fi handsets. These support advanced features such as push-to-talk, and are particularly rugged.

Softphones

Avaya markets software that allows PCs and PDAs running the Windows OS to act as softphones for use with the Avaya system. When installed on mobile clients with Wi-Fi connectivity, these are able to connect to Avaya Communications servers via the Aruba Mobile Edge network.

Research in Motion (RIM) Blackberry

The Blackberry first became prominent as a push-email client for the cellular network. The RIM 7270 is a Blackberry device that uses Wi-Fi to access the Blackberry Enterprise Server (BES) already installed by many Enterprises. The RIM 7270 is certified for interoperability by both Avaya and Aruba.

Hitachi Cable WIP-5000

Hitachi Cable is a leading vendor of single-mode (Wi-Fi only) handsets used by 'carpeted Enterprise' customers, Universities, Retail and other customers with specialized needs. The WIP-5000 handset is certified for interoperability by both Avaya and Aruba.

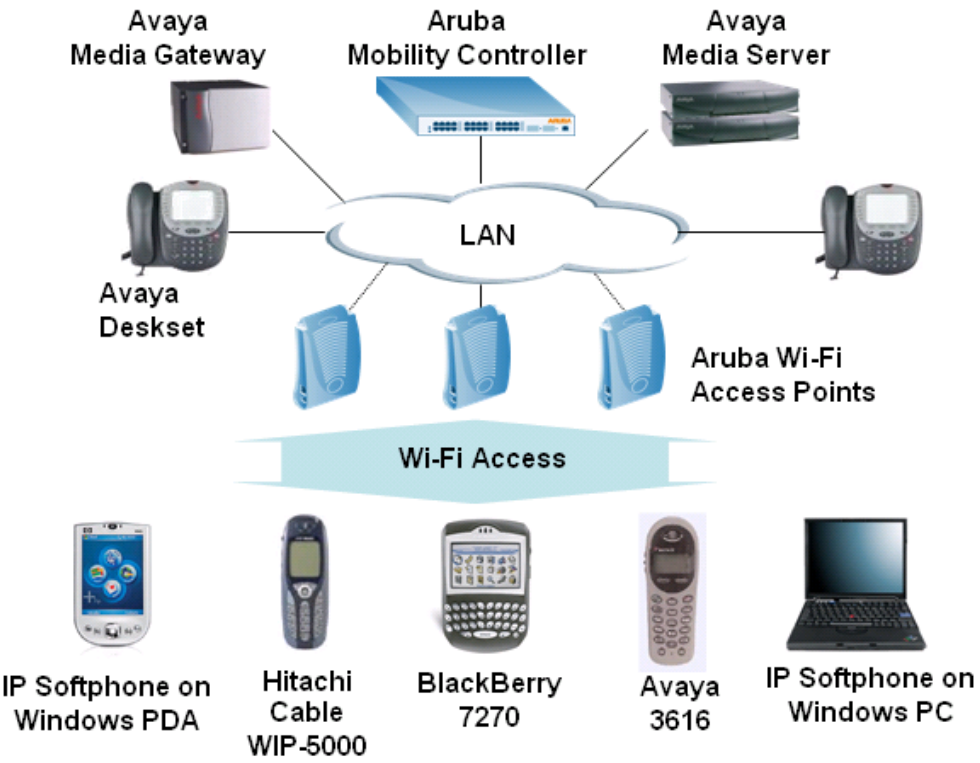
Various Dual-Mode Handsets

Avaya will soon provide a dual-mode, single-number service where users can carry just one device that incorporates both cellphone and Wi-Fi phone functionality. This provides single-number reach wherever the user may travel while supporting a full feature set comparable with a desk phone in an Avaya environment. Aruba is collaborating with Avaya in lab tests to certify these devices as part of the Avaya-Aruba solution.

Handsets to be certified (as of late 2006) include:

- Nokia E60, E61, E70 (E-series) running the Symbian operating system
- Various Windows Mobile smartphone clients
- Motorola's Q-phone, also running the Windows Mobile OS.

All these devices communicate over the corporate LAN and WAN infrastructure.



An Architecture for Voice Over Wi-Fi

Integrating mobile convergence using Aruba and Avaya is a fairly straight-forward endeavor. The figure above shows how an Avaya Communications Manager installation can be enhanced in combination with Aruba's Mobile Edge.

The wired Avaya infrastructure consists of several components:

- A Media Server that controls the voice network
- Several Media Gateways that interface to TDM telephony trunks and provide media termination, conferencing and codec translation functionality
- VoIP desk phones for users

An Aruba WLAN infrastructure overlaid on the same LAN comprises the following components:

- *Wi-Fi Access Points (APs).* These include radios and antennas, and should be placed near the region to be covered: regulation restricts the transmit power of Wi-Fi in unlicensed spectrum, so for contiguous coverage for voice, APs should normally be spaced 45-60 feet apart (see Aruba voice over Wi-Fi application notes for more details). In Aruba's centralized architecture, these are 'thin' APs: they download all their operating software and configuration from a central mobility controller. APs need not be directly connected to a mobility controller. Instead, they can form a GRE tunnel back to any designated mobility controller, either local or remote. Most Aruba APs are IEEE 802.3af power-over-Ethernet (PoE) capable, and are connected to the nearest LAN edge switch port, with no requirement to reconfigure the LAN as part of the installation.
- *Centralized Mobility Controllers.* Aruba mobility controllers are typically deployed in the data center and handle all wireless intelligence, including services such as RF configuration, inter-AP handover and QoS policing. Aruba's mobility controllers incorporate an integrated, stateful firewall that identifies tracks and polices users as they move across the network.

With Avaya and Aruba infrastructures installed, it's simply a matter of configuring the mobile voice devices. This is normally accomplished in two stages.

STEP 1: The device must be configured as a Wi-Fi client of the network. This will include entering authentication information in the device. Depending on the authentication method used, an entry in the corporate directory or RADIUS server may also be required. At this point the device is able to connect to the WLAN and to communicate across it.

STEP 2: The device must be configured as a client on the Avaya Communications network. This is similar to configuration of a wired VoIP phone, and depending on the device's characteristics it is possible to configure most of the functions available on a wired phone.

The process of integrating these components is straight-forward and well documented, lessening any operational concerns associated with adding voice capabilities to a network. The result is a simple to manage, high quality, scalable voice over Wi-Fi solution.

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