

# Seamless Voice Mobility

Mobile VoIP and Faster Roaming

## Faster and more secure roaming for voice and data clients

Ruckus delivers faster and more secure Wi-Fi roaming for Voice over IP (VoIP) as well as data applications. Ruckus adds key capabilities to the ZoneFlex line of Smart Wireless controllers with wireless LAN tunneling for voice over Wi-Fi applications and 802.1X fast roaming.

Voice devices, like Wi-Fi phones and PDAs, are extremely sensitive to delay and jitter. When these VoIP clients roam between buildings and floors they can experience disruptions and dropped calls. Meanwhile standard PC clients may experience slower data transfers while Web browsing may be disrupted when roaming.

Ruckus minimizes this erratic Wi-Fi behaviour by enabling uninterrupted voice calls through the use of Layer 3 tunneling and using key caching techniques when roaming across ZoneFlex access points (AP) to minimize roaming delays.

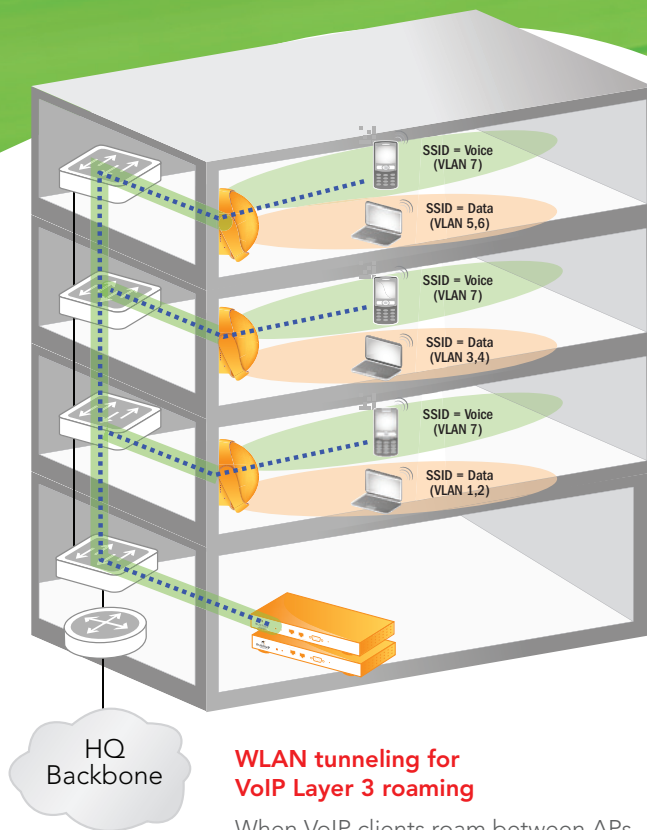
## WLAN tunneling Provides Seamless VoIP Mobility

Typical enterprise networks are designed so that different physical areas of the network, such as a specific floor or functional organization (e.g., Finance), correspond to different subnets. Layer 2 connectivity meanwhile provides traffic isolation through the use of a single broadcast domain. Layer 3 routers allow communication between these Layer 2 networks through the use of IP routing.

When roaming between APs on different subnets, users must typically re-associate, re-authenticate and obtain a new IP address. This process is unacceptable to enterprises because it causes interruptions and latencies that can ruin delay-sensitive applications such as a VoIP calls.

Wi-Fi-enabled phones are extremely sensitive to traffic delays as well as IP address changes that are required when roaming between subnets. While excessive delay causes voice quality degradation, an IP address change often results in a dropped call. To solve this problem it is practical to place all voice clients on the same WLAN regardless of physical location.

Ruckus solves this problem using a simple tunnel mode option. This enables the creation of a separate and dedicated Layer 2 WLAN that directs VoIP clients back to the ZoneDirector WLAN controller using an LWAPP-based (LightWeight Access Point Protocol) tunnel.



## WLAN tunneling for VoIP Layer 3 roaming

When VoIP clients roam between APs on different IP subnets traffic is tunneled back to the ZoneDirector ensuring crystal-clear VoIP calls.

## FEATURES/BENEFITS

### Uninterrupted voice over Wi-Fi calls

Eliminates the need to reauthenticate with a remote authentication servers when roaming across managed AP

### Fast, seamless roaming

Faster 802.1X EAP roaming using PMK caching and opportunistic PMK caching

### Save time and money

Ultra-simple configuration saves administrators time and money

### Flexible deployment options

Tunnels can be enabled on a per WLAN (SSID) basis



### HOW IT WORKS

Client associates with AP, authenticates with remote RADIUS server, both client and ZoneDirector cache PMK (see figure 1a).

- Client roams away and back to same AP. Client sends previously used PMK and performs 4-way handshake (see figure 1b).
- ZoneDirector receives PMK from first authentication and makes available to neighboring APs. Client roams to different AP. Client sends previously used PMK with new AP MAC address and performs 4-way handshake (see figure 1c).

Figure 1a

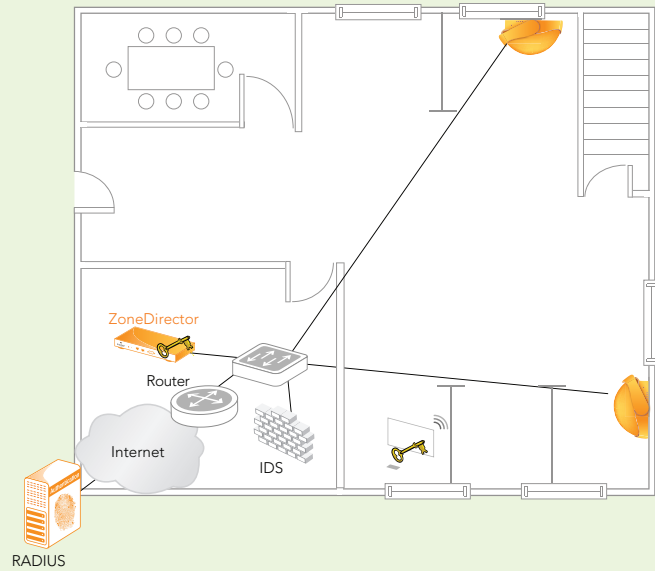
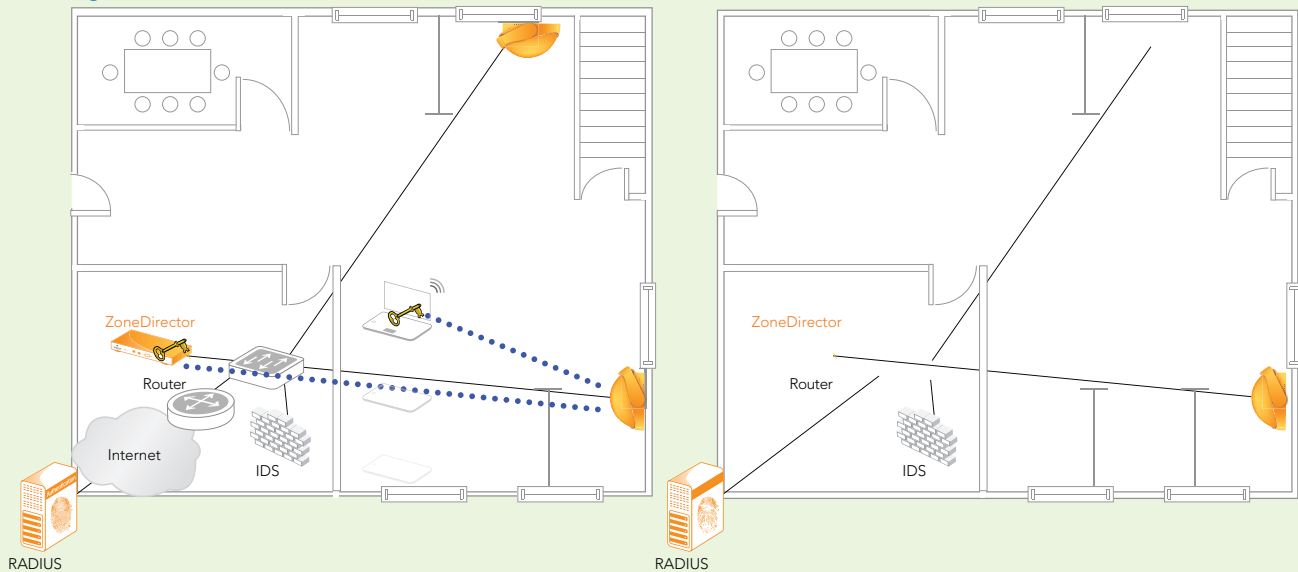


Figure 1b



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