



## 3G/LTE In-Building Scalable Small Cell Radio Access Network



## Enterprise Radio Access Network (E-RAN)

**SpiderCloud Wireless** is the innovator behind the Enterprise Radio Access Network (E-RAN), a scalable small cell system that allows mobile operators to deliver unprecedented cellular coverage, capacity and smart applications to enterprises inside buildings. SpiderCloud Wireless is a registered trademark of SpiderCloud Wireless, Inc. © 2016 SpiderCloud Wireless, Inc.

For more information visit:

[www.spidercloud.com](http://www.spidercloud.com)

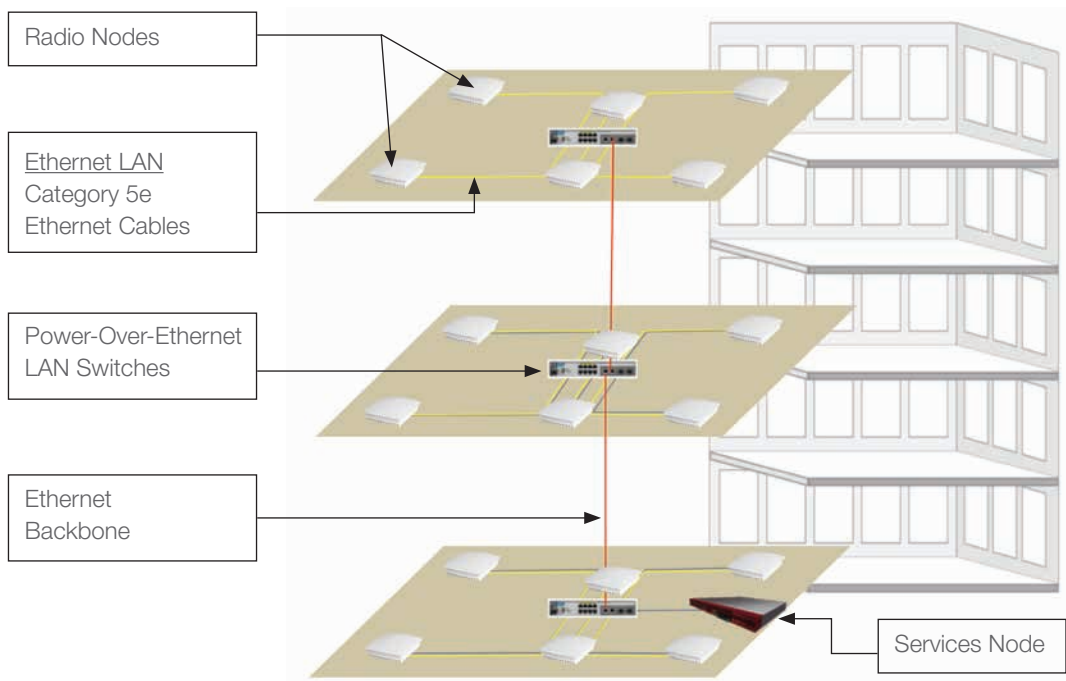
and follow SpiderCloud on Twitter

[http://twitter.com/spidercloud\\_inc](http://twitter.com/spidercloud_inc)

### How does the E-RAN system work?

- The dedicated Enterprise Radio Access Network provides reliable 3G/LTE or LTE/LTE cellular coverage and capacity inside buildings
- The system works for any subscribers of the operator supplying it
- The scalable small cell system is powered by Ethernet, and is easy to deploy
- The E-RAN system requires one Services Node, which takes up just one Rack Unit of space in the telecom closet
- Access to the system is via Radio Nodes that are powered by Ethernet
- Can connect to any IP data circuit from the Services Node to the mobile core network

## “IT Friendly” LAN Installation



Option to share existing enterprise LAN (using VLANs) or deploy on a dedicated Ethernet LAN.

# Scalable Small Cell System FAQ

## ■ What is an Enterprise Radio Access Network (E-RAN)?

An E-RAN provides reliable cellular coverage and capacity inside enterprises and public venues. It consists of Radio Nodes (access points) mounted on ceiling or walls throughout an office building, connected via Ethernet to a Services Node (access controller) located in Enterprise's telecom closet. The Services Node is then connected to a wireless operator's network over an IP connection.

## ■ How is E-RAN deployed in an Enterprise?

The operator needs access to the Ethernet network to deploy the system. New cabling (Cat 5e/6) may be required to power the Radio Nodes. The Services Node requires one Rack Unit in the enterprise telecom closet. The E-RAN system can be deployed on a private VLAN. This IT friendly approach enables the operator to provide an E-RAN cost-effectively to enterprise customers much more rapidly than Fiber or Coax-based systems.

## ■ Does E-RAN, using a VLAN, require connections to the Enterprise IT production network?

No, Layer 2 or 3 connections are not required to the enterprise IT data network.

## ■ Are Ethernet ports needed?

Yes. The Radio Nodes are located on each floor (similar to Wi-Fi Access Points), but are designed for the operator's cellular access only. For each floor, a number of PoE+ (802.11at Power over Ethernet) ports are required to be part of the private VLAN.

## ■ Does E-RAN use standard Ethernet?

Yes, a Radio Node connects via Category 5e or 6 data cable to the PoE+ port on the private VLAN. Cable installation is compliant with EIA/TIA-568 installation practices. The cable between the Radio Node and the Ethernet switch can have a maximum length of 300 feet (100 m).

## ■ Does E-RAN require any enterprise network IP Addresses?

No. The E-RAN system does not connect to the enterprise IT production network. The E-RAN Services Node supplies its own private IP addresses to the Radio Nodes on the VLAN.

## ■ Will E-RAN require use or access to the Enterprise's IP services?

No. The Services Node provides all necessary DNS, DHCP and BOOTP services to the Radio Nodes.

## ■ What if Enterprise IT Security Policy prevents 3rd party connections, even using a VLAN?

If needed, the operator's E-RAN deployment design will include installation of Ethernet switches in the building. This deployment scenario can use existing enterprise riser cables (fiber optic or UTP) cables to connect the switches together, or new riser cables can be run.

## ■ Does E-RAN require use of the Enterprise's Internet backhaul?

E-RAN can use any IP backhaul to connect to the operator's network. Operator can either share the enterprises' Internet backhaul or provide a private IP data circuit.

## ■ Does E-RAN require access to the Enterprise Wide Area Network (WAN)?

For most deployments, the operator will provide a dedicated data circuit to connect to the Services Node for each building where the system is installed (and a private VLAN in each building). At customers' request, sharing of the Wide Area Network can be included during the design and planning phase.

## ■ Does E-RAN require equipment in the Enterprise Data Center?

No. The operator does not require access to the enterprise data center. Access to a telecom closet is required for the installation of the one Rack Unit sized Services Node, and space for WAN circuit demarcation of the private IP data circuit. A Services Node only requires an Ethernet cable from the WAN demarcation, and an Ethernet cross-connect cable to the private VLAN. The Services Node does not require a PoE+ port. Note: When the site survey is performed, the location and any other installation items will be identified by the attending engineer.

## ■ What happens if a server or attached corporate device is accidentally patched across to E-RAN VLAN?

If a corporate server or device is accidentally patched into the E-RAN VLAN, the E-RAN system will ignore it. In this scenario, there is no detrimental effect to the corporate server, mobile devices or to the E-RAN system. The E-RAN VLAN is dedicated for IPsec communication between the Services Node and the Radio Nodes. There is no IP exit point from this VLAN as the data circuit from the operator's private IP transmission network is delivered to a separate port on the Services Node. There is no IP routing by the Services Node between the E-RAN VLAN and the operators network.

# Small Cell Scalable Systems & Services

## SpiderCloud Wireless Enterprise Radio Access Network

- Reliable 3G/LTE voice and data coverage and capacity
- Addresses sites with 300 users and up
- System dedicated to the mobile operator's enterprise customers
- Easy to deploy securely over the customers LAN infrastructure

## SpiderCloud Wireless System Overview

- Services Node: enterprise appliance that processes voice and data, also manages the solution (1 rack unit in main telecom closet)
- Radio Nodes: PoE+ LAN
- Transmission: Any IP data circuit back to the mobile core network

## E-RAN Connection to Operator Core

