CORNING

Centralized Services Node
FirstNet, Campus, and Commercial Service Across a Geography

Simple Installation. Quick Deployment. Unmatched Capabilities.

Reliable wireless coverage has evolved from a want to a need for most governments and enterprises, with service demands increasing every day. Now, the connectivity needs of employees, contractors, guests, and first responders in any sized building can be cost-efficiently addressed. The Corning® SpiderCloud® enterprise radio access network (E-RAN), when deployed with the services node centralized in a local data center, can manage its attached radio nodes across multiple buildings. The distributed radio nodes enable unprecedented cellular coverage and capacity through secure IP/IPSec data connections over available internet services.

Optimize your network. Learn more about the Corning SpiderCloud solution at corning.com/eran

FAQ

What is an enterprise radio access network (E-RAN)?
The E-RAN system is made up of one services node that manages the radio nodes (access points) throughout the geography that are attached to it. All radio nodes are powered by Ethernet, which makes them easy and quick to install.

How does the E-RAN system work?

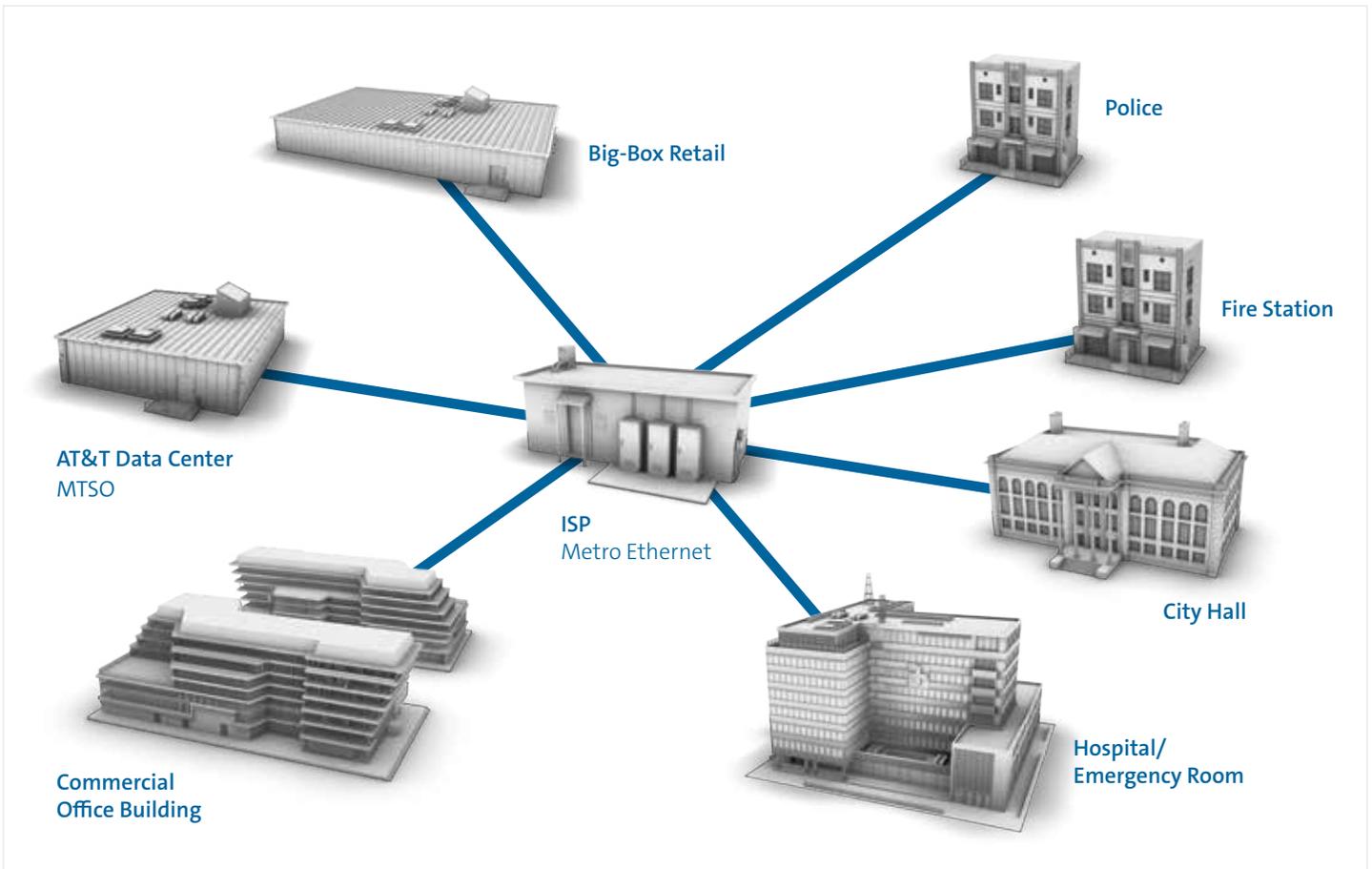PoE+ powered radio nodes install on ceiling or wall

Radio nodes connect to services node over Ethernet LAN

Centralized services node connects to operator network over internet

Reliable cellular coverage and capacity inside buildings

Centralized Services Node E-RAN Deployment

City Center Deployment

The centralized services node E-RAN deployment is our solution to address geographic clusters of smaller buildings like in smaller urban areas or higher education campuses. In this deployment example, the true power and flexibility of the E-RAN platform delivers correctly targeted mobile services into each site.

There are five sites to be served in a city center area. It has big-box retail, police station, fire station, city hall, office building, and a hospital. In prior enterprise deployment configurations, each of the six buildings requires a full E-RAN installation of services node and set of radio nodes. Also, smaller buildings that require three to four radio nodes will not be serviced due to the total system cost.

Now, our centralized services node configuration enables an E-RAN services node to be installed in a data center-type facility and then share its capacity to manage up to 125 radio nodes across many buildings.

Building Level Deployment Details

Data Center

In a data center, the services node requires:

- 1 RU (1.75-in) of vertical space in standard 19-in rack
- Two 110 VAC outlets from two separate power distribution units
- Heat load: 512 BTU
- Two 1 Gbps IP/Ethernet network connections
  - Public mobile and FirstNet* core networks are reached via backhaul path
  - Remote radio nodes are connected and managed via fronthaul path

*FirstNet is the national Public Safety network which provides a reliable, secure broadband network dedicated to law enforcement, firefighters, and EMS.

Note: Facilities engineers should compare the resource consumption to other solutions

Big-Box Retail

About the location
- 100,000 sq ft
- Public cellular augments subscriber experience and supports mobile sales area in store
- FirstNet capability delivered on both LTE carriers

Installation
- Six RN-340 dual-carrier LTE B2/4 and B14
- Retailer allowed Virtual LAN (VLAN) to be created on their Ethernet switches

City Hall

About the location
- 50,000 sq ft
- Public cellular augments subscriber experience
- FirstNet capability delivered on both LTE carriers

Installation
- Six RN-340 dual-carrier LTE B2/4 and B14
- Parallel Ethernet switch network installed with radios

Police Headquarters

About the location
- 40,000 sq ft
- Cellular augments subscriber experience
- FirstNet capability delivered on both LTE carriers

Installation
- Six RN-340 dual-carrier LTE B2/4 and B14
- IT permitted VLAN to be created on their Ethernet switches

Fire Department Headquarters

About the location
- 40,000 sq ft
- Cellular augments subscriber experience
- FirstNet capability delivered on both LTE carriers

Installation
- Five RN-340 dual-carrier LTE B2/4 and B14
- IT permitted VLAN to be created on their Ethernet switches

Commercial Office Building

About the location
- 150,000 sq ft
- Cellular augments subscriber experience
- FirstNet capability delivered on licensed LTE carrier

Installation
- (15) RN-320 B2/4 LTE-LAA (400 Mbps downlink speed)
- Building owner allowed VLAN to be created on their Ethernet switches

Hospital

About the location
- 200,000 sq ft
- Cellular for corporate mobiles, patients, and guests
- FirstNet capability delivered on both LTE carriers

Installation
- Three RN-40 dual-carrier LTE B2/4 and B14
- Three sectors each of B2/4 and B14

Installation Flexibility

Where is the services node hosted?
The services node is hosted in a local data center and requires two Ethernet ports for backhaul to core network and fronthaul to the managed radio nodes.

Is there a minimum amount of radio nodes in a building?
As little as one radio node can be deployed for a small public or commercial space. About 12,000 square feet per radio node is a useful estimate. Actual predictive designs must be done for final quantities.

Must all the radio nodes on an E-RAN be the same model?
No. Any radio node that has been qualified for an operator's network can be mixed and matched on an E-RAN. For example, an E-RAN can manage RN-310 (dual-carrier LTE), RN-220 (frequency agile LTE), RN-320 (LTE-LAA), and RN-340 (dual-carrier LTE, including FirstNet) radio nodes across multiple buildings.

Is FirstNet supported on all Bands?
Yes, in addition to the FirstNet Band 14, other available Bands will recognize, route, and apply preemption treatment to any FirstNet devices that are attached.

What type of fronthaul does the E-RAN radio nodes require to connect to the services node?
E-RAN radio node installations require at least 100 Mbps of available internet to connect to the services node in the local data center.

What type of backhaul does the E-RAN services node require to connect to the operator?
E-RAN services node installations require at least 1 Gbps of available internet to connect the services node to the operator's mobile core network.

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