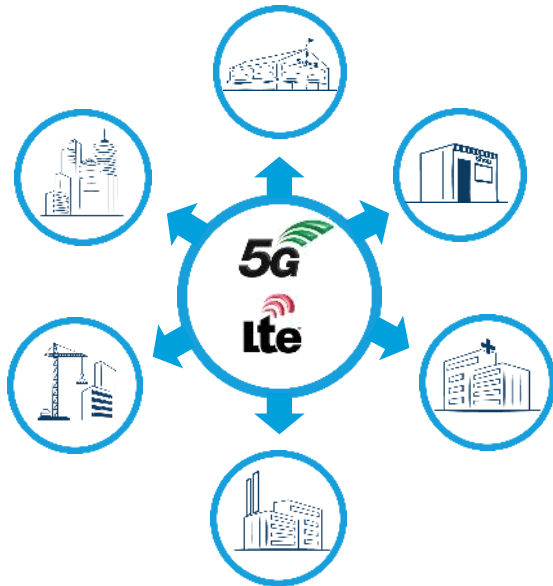


Private Mobility Solution with **JMA Wireless**

Introduction

What is Private Mobility



By Private Mobility, we imply the use of dedicated infrastructure to be used exclusively by an enterprise, supporting the connection of end user devices using cellular technology. Other terms used to describe private mobility are: CBRS, private WIFI, private LTE, private 5G

Current Situation

Enterprises currently rely on carriers or on WiFi to support their internal mobile connectivity requirements. There are quality of service, security and cost issues among others.

The Solution

A private network will replace existing campus/WiFi networks and complement carrier's public networks

Benefits of Private Mobility

- Better quality of service and higher security
- In some cases, better economics than WiFi
- Will enable a broad range of use cases: Coverage/capacity, Mission Critical and IoT

Why Private Mobility with CBRS ?

CBRS will offer the cost advantage of WiFi and the security and quality of service of cellular networks



Wi-Fi Wireless

Typically congested, density challenged

Well known use cases, well known limitations.



Cellular Networks

Owner/controlled by operators

Provides transparent high-speed mobile connectivity.

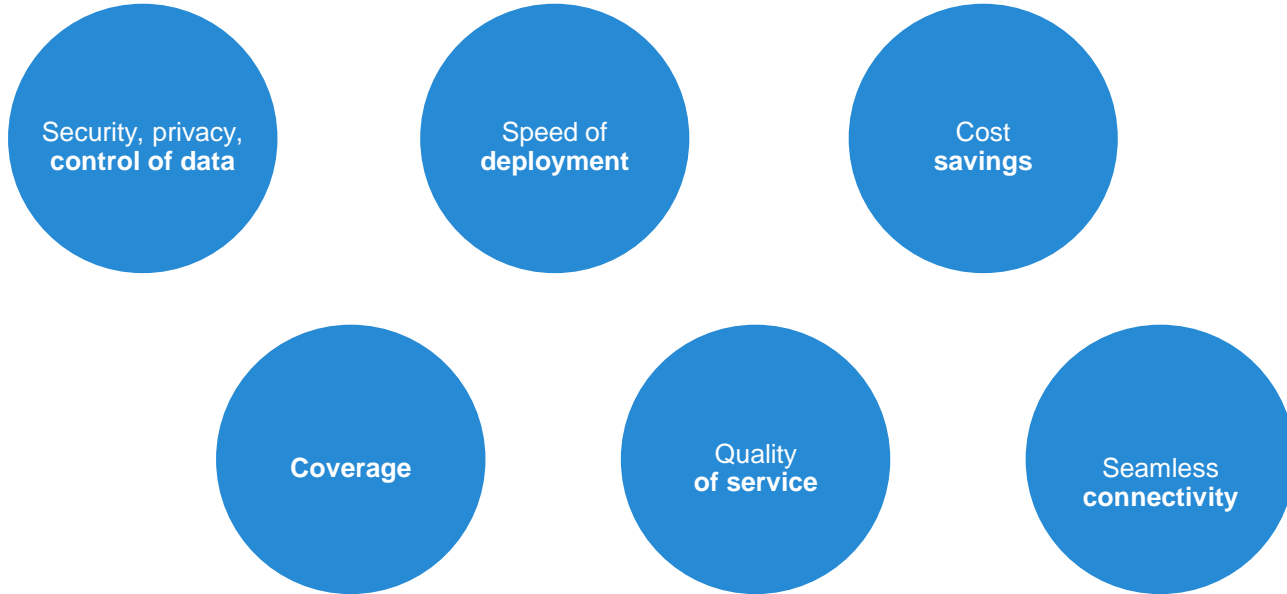


CBRS/OnGo

Control and capacity

Available to enterprise & venue owners for private use.

Why are enterprises excited about CBRS ?



Solution Overview

Dell's partnership with JMA Wireless

JMA designs and builds next-generation communication systems, delivering the industry's most powerful technologies enabling 4G LTE, 5G, CBRS and LAA on networks worldwide. JMA X-RAN™ leads the industry with the only 100 percent software-based RAN platform.

JMA is U.S.-based for manufacturing and R&D with a presence in more than 20 locations worldwide.

20+ sites, 80,000 users, all through Dell servers

Tier 1 Operator and Private Wireless deployments

Growing list of customer POCs, including marquee brands

Metrics

150MHz

Full bandwidth to support the CBRS band providing maximum possible speeds and multiple use cases simultaneously.

960 users

Connect to 960 users per sector for large scale deployments.

50B+

Total square foot of underserved space in the market.

100%

The only 100% software-based LTE baseband unit (vRAN) deployed and proven at scale

70%

One radio covers up to 20K sqft, 8X Wi-Fi. A single X-RAN shelf powers up to 250K square feet.

50%

TCO reduction of 50%, space savings, additional flexibility for complex deployments.

* These statistics have been supplied by JMA. Dell takes no responsibility for the validity of the data.

JMA / Dell Private Mobility Building Blocks

XRAN



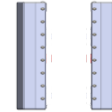
- 4G & 5G virtualized radio access network (vRAN)
- Built using 100% Software (no HW accelerators)
- Uses Standard Dell Server Technology
- Supports 10,000s of Connected Users/Homes

CellHub (Radio)



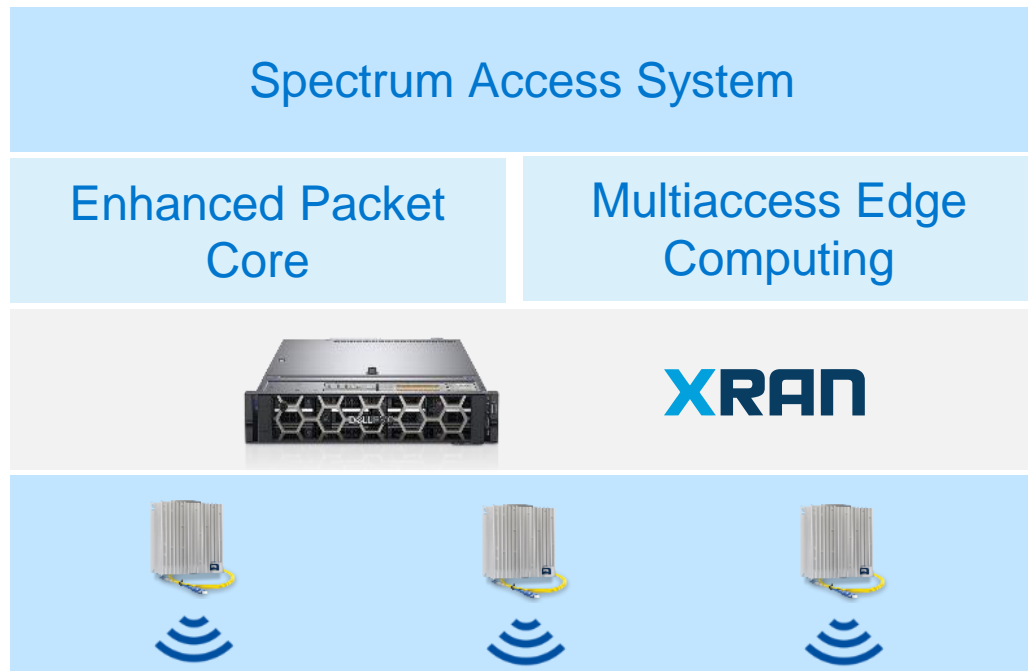
- Designed for Outdoor and Indoor
- Can Enable All of CBRS 150MHz
- Single and Multi-band variants
- Use Different Antennas for Coverage

Antennas



- Indoor & Outdoor Versions
- Multiple Beam Options for Max Coverage
- Can Enable All of CBRS 150MHz
- Matched with JMA Jumpers for Best RF

Private Mobility Reference Architecture



Cloud-based system to manage access to CBRS.

Platform provided by JMA or Dell partners

JMA X-RAN software running on Dell PowerEdge servers


JMA CellHubs

CBRS LTE Devices



Turnkey with Dell OEM Engineered Solution


Provided by JMA Wireless



JMA CellHubs CBRS
radio, XRAN
Software & services

+

Provided by Dell



JMA certified Dell OEM
PowerEdge R740XL
Servers fully configured &
image loaded (additional
Dell switches optional)

Average
Deal Size

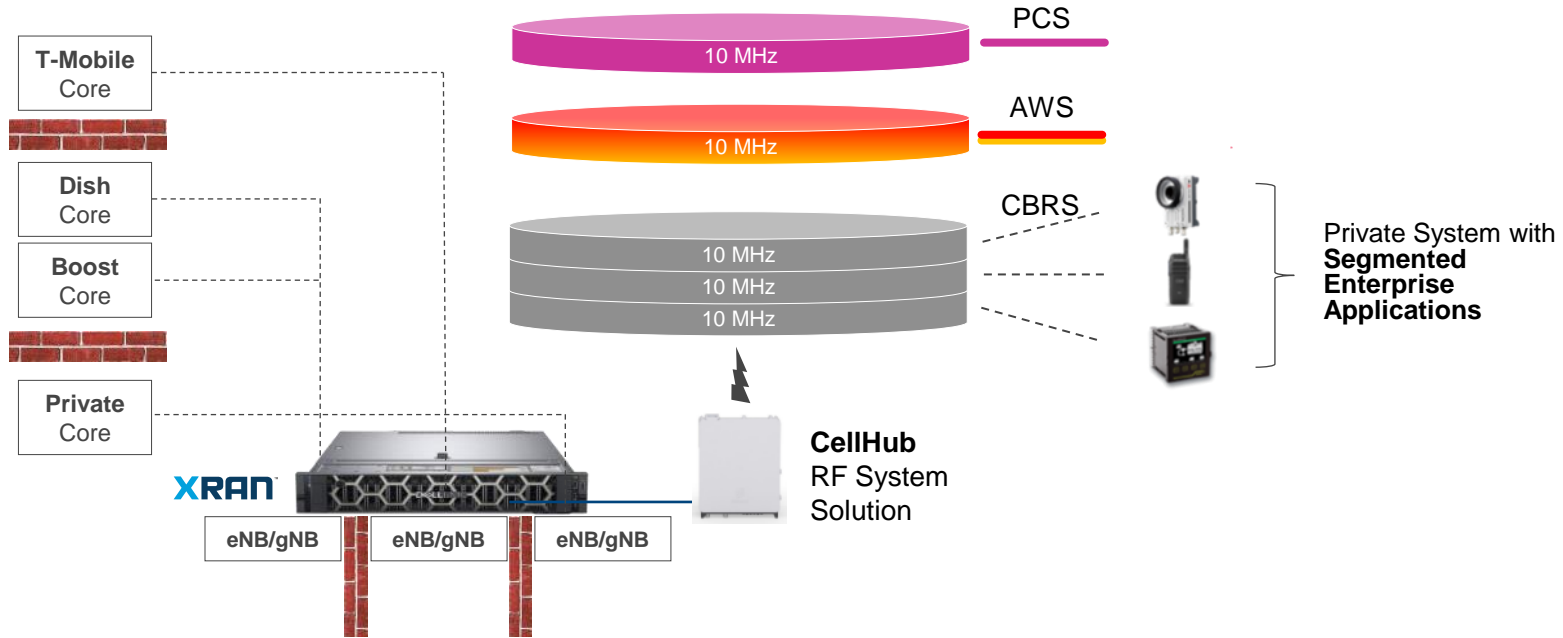
Small
(100K sqft or less)

Medium
(500K sqft)

Large
(1M+ sqft)

JMA's solution Goes Beyond Private Mobility

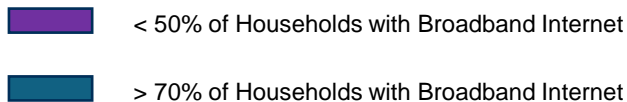
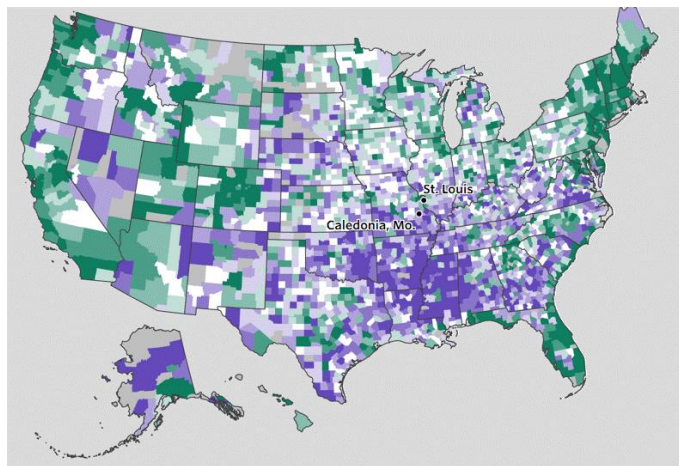
Using the same infrastructure, X-RAN can also support carrier networks



Use Cases

Education

Household Broadband Internet Access



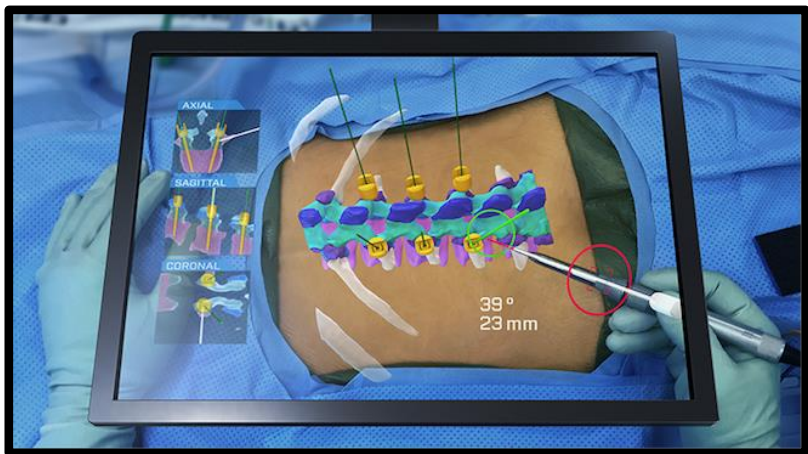
Demand Drivers

- COVID-19 has driven the requirement for remote learning, exposing the digital divide
- Rural and underprivileged families lack access to broadband internet
- U.S. Federal, State & Local Governments are investing to quickly bridge the divide

Solution Benefits

- Much quicker and less expensive than an all-fiber solution
- WiFi not suited for outdoor coverage
- Provides connectivity where none exists today (rural or disadvantaged urban areas)
- Potentially forms the platform for a Smart City solution

Healthcare



Demand Drivers

- Wireless connectivity improves productivity & reduces costs
- Instant access to information increases quality of care
- Emerging medical applications:
 - Augmented reality surgery assistance
 - Tele-medicine
 - Seamless access to medical records
 - Untethered mission critical equipment
- Need for network reliability and security

Solution Benefits

- Provides mobility – ability to seamlessly move through a facility
- Provides dedicated connectivity – doesn't fail when system is loaded with devices
- Provides the security necessary to authenticate network devices and protect sensitive data (HIPAA compliance)
- Provides a dedicated wireless “fast lane” separate from WiFi

Smart Cities



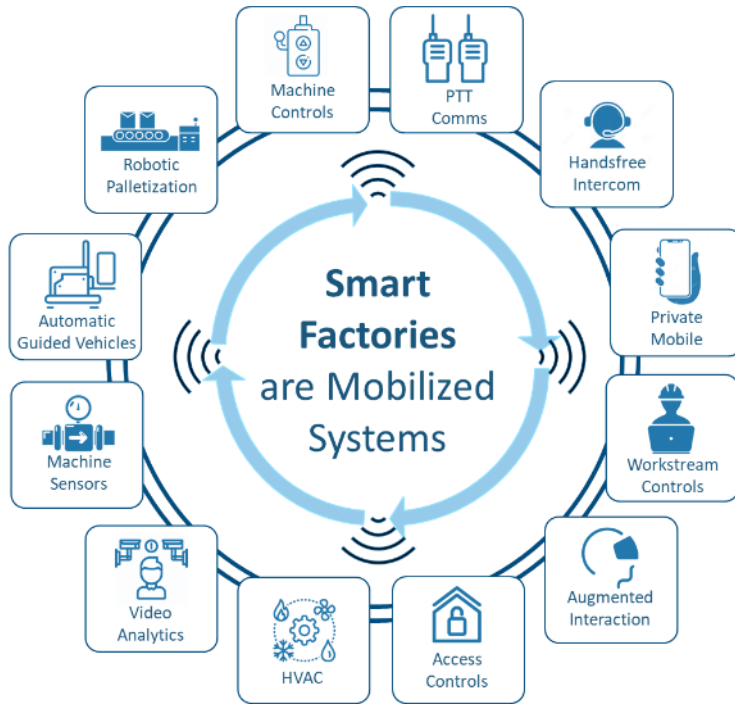
Demand Drivers

- Government funding for remote learning is providing the seed money for Smart City wireless networks
- Remote learning
- Tele-medicine
- Connected transportation
- Sensors/Cameras for security or thermal scanning

Solution Benefits

- Allows the city to own its regional wireless network
 - Eliminates reliance and cost of using a wireless carrier
 - Revenue generating potential to make the network cost neutral to the city
- More reliable, secure and less costly than WiFi.

Manufacturing and Warehouses



Demand Drivers

- Automation to improve efficiency and velocity
 - Dramatically increases the use of video analytics and sensors – too many devices to hardwire
 - Seamless mobility is a requirement – workers, automated vehicles and robots need to stay connected
- Pushing information processing to the factory floor
 - Workers using computers, scanners & tools that cannot be tethered
- Rapid factory floor re-configuration

Solution Benefits

- Ability to handle 1000's of devices with guaranteed throughput
- Ability to "slice" the network so the different applications do not interfere with each other
- Handles mobility to provide seamless connectivity
- Not limited to indoors – handles both inbuilding and outside
- Provides the security to safeguard company sensitive information

Retail



Demand Drivers

- Automation to improve efficiency and velocity
 - Dramatically increases the use of video analytics and sensors – too many devices to hardwire
- Real time inventory to better match supply & demand
 - Stock-outs result in lost revenue
 - Over-stock results in discounting and profit loss
- Ability to rapidly re-configure the retail floor

Solution Benefits

- Ability to handle 1000's of devices with guaranteed throughput
- Ability to “slice” the network so the different applications do not interfere with each other
- Handles mobility to provide seamless connectivity
- Not limited to indoors – handles both inbuilding and outside
- Provides the security to safeguard company sensitive information

Construction/Railyards/Seaports/Mining



Demand Drivers

- Need for connectivity to drive efficiency
 - Workers currently need to physically move to central site to deliver or receive information
 - Video and data connectivity allows more efficient use of experts - example: construction engineer inspecting welds remotely
- Voice & data communications for a dispersed workforce

Solution Benefits

- WiFi does not work outdoors in large spaces. Private mobility works both indoors and outdoors.
- Company can own the network, eliminating cost of using a carrier (if one is even available)
- Ability to “slice” the network so the different applications do not interfere with each other
- Handles mobility to provide seamless connectivity
- Provides the security to safeguard company sensitive information

Call to Action

If you answer Yes to any of the below, get in touch with us !!

- Are you thinking of implementing mission critical applications that require low latency, particularly to **reduce potential risks** to workforce, production and the environment?
- Do you need to ensure that your network is **available throughout its operation duration** at an acceptable pre-determined performance level?
- Are you thinking of supporting use cases requiring large area coverage?/Do you need a reliable connectivity solution **both inside and outside buildings?**
- Are Wi-Fi or Public Cellular networks currently unable to meet your mobility requirements?/Do you need to **ensure seamless handover between different sites?**
- Do you need to ensure that your network is not vulnerable to attacks and that **access is only granted to those allowed?**
- Do you need to keep your **enterprise and your customer data local** for compliance or cost reasons?
- Are you looking for an **easy-to-deploy, easy-to-manage, future-proof and affordable** solution to your enterprise connectivity needs?

Contact a Dell expert at ga_spotlight@dell.com to find out more.

DELLTechnologies