Cambium Networks™

Animal Farm 2019

Matt Mangriotis
March 20, 2019

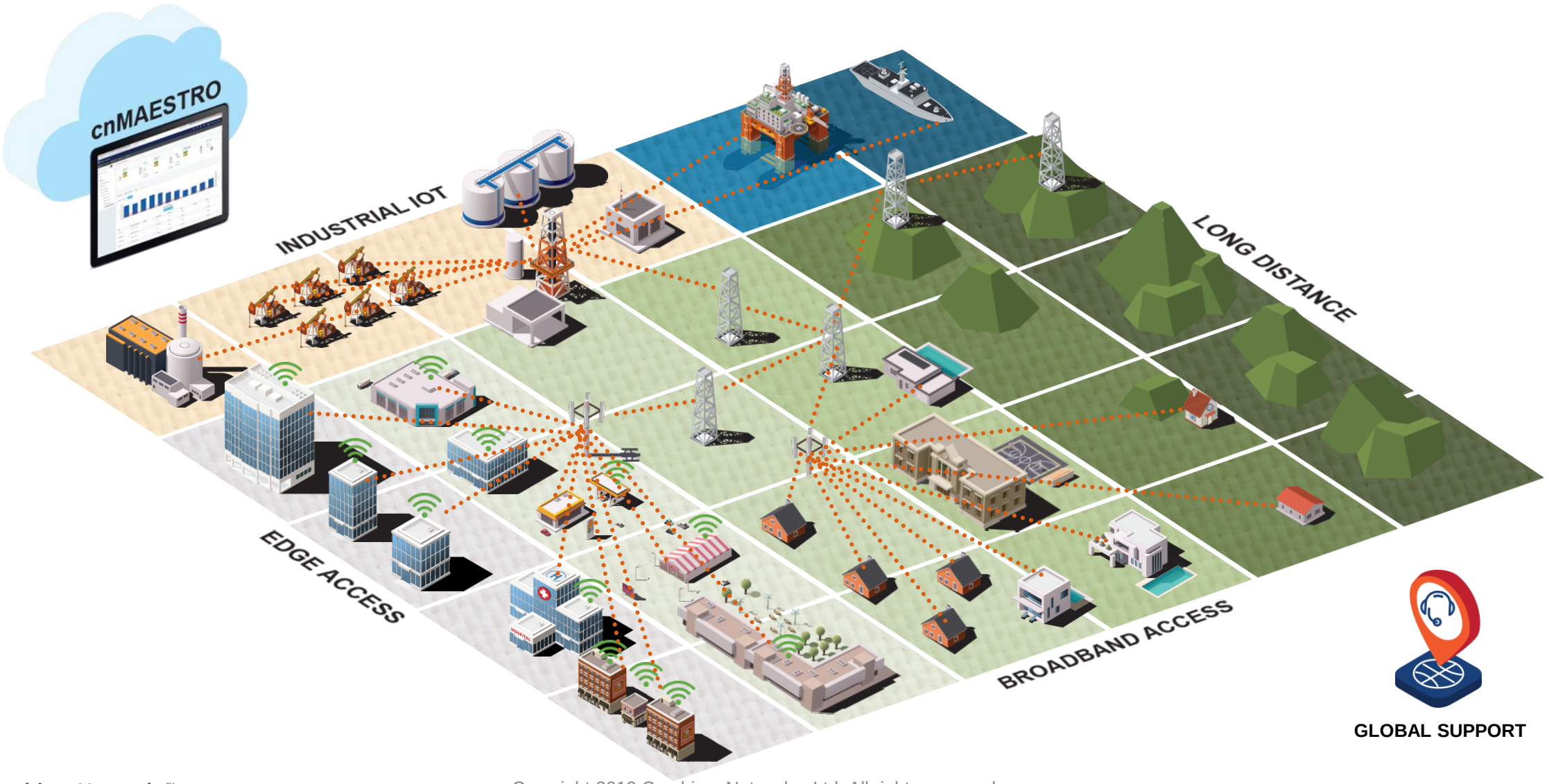
2019 Agenda

- Introduction, Company Overview – Matt - 5m
- PMP 450 Updates – Matt - 10m
- cnRanger Introduction – Matt - 10m
- ePMP 3000 – Bruce - 10m
- cnHeat – Dan and Special Guest – 5m
- cnMatrix – John – 5m
- cnPilot – Daran – 5m
- cnMaestro – Daran – 10m
- Quick Hits / Future plans (PTP 550 Update, cnArcher dongle, 820E, cnWave) – 5m
- Q&A – 10m

Cambium Networks at a Glance

- **Spun out of Motorola Solutions** in October 2011
- Pioneer in Point-to-Multipoint & Point-to-Point **IP Wireless Broadband Solutions**
- Focused on wireless connectivity; **2 meters to 246km** – people, places & things
- HQ outside of **Chicago, IL**
- **700+ employees** across **6 continents**
- More than **7 million nodes** shipped totaling over **$1.5B**
- Emerging leader in **IIoT and 5G like solutions**

Cambium Networks' Wireless Fabric



Breakthrough Solutions

Cloud and Network Management

LINKPlanner

- Free, network design tool for RF environments
- Tens of thousands of links deployed

cnMaestro

- Cloud management
- Secure, end-to-end network control

cnArcher

- Free android app
- Allows field techs to configure PMP networks

Point-to-Point

PTP 650/670/700

- Launched in November 2013/2017
- Replacement for legacy PTP600 which was the “gold standard” for almost a decade
- Extremely high gross margins

PTP 550

- Launched March 2018
- Exceptional headline data rate (1.4 Gbps)
- Targeting Ubiquiti & Mimosa PTP product offerings

Point-to-Multipoint

cnMedusa (PMP 450m)

- Launched September 2016
- Breakthrough 14x14 Massive MU-MIMO
- Will drive continued PMP growth for next several years

PMP 450i

- Launched in September 2012/2016
- Long awaited replacement to flagship PMP product line
- Top performing Cambium product

ePMP

ePMP 1000/2000

- Launched in October 2013
- High quality, affordable platform
- Challenger to Ubiquiti installed base

ePMP 3000

- Q1 2018
- 4x4 MU-MIMO & 80 MHz Channel Support
- Higher Capacity and Spectral Efficiency

Wi-Fi

cnPilot e4/5/6xx

- Launched in July 2015, cloud-savvy
- Affordable yet uncompromising quality
- Large adjacent market

cnPilot e430

- Launching Q1 2018
- Wall Plate AP for Hospitality
- Managed Service Provider enaber

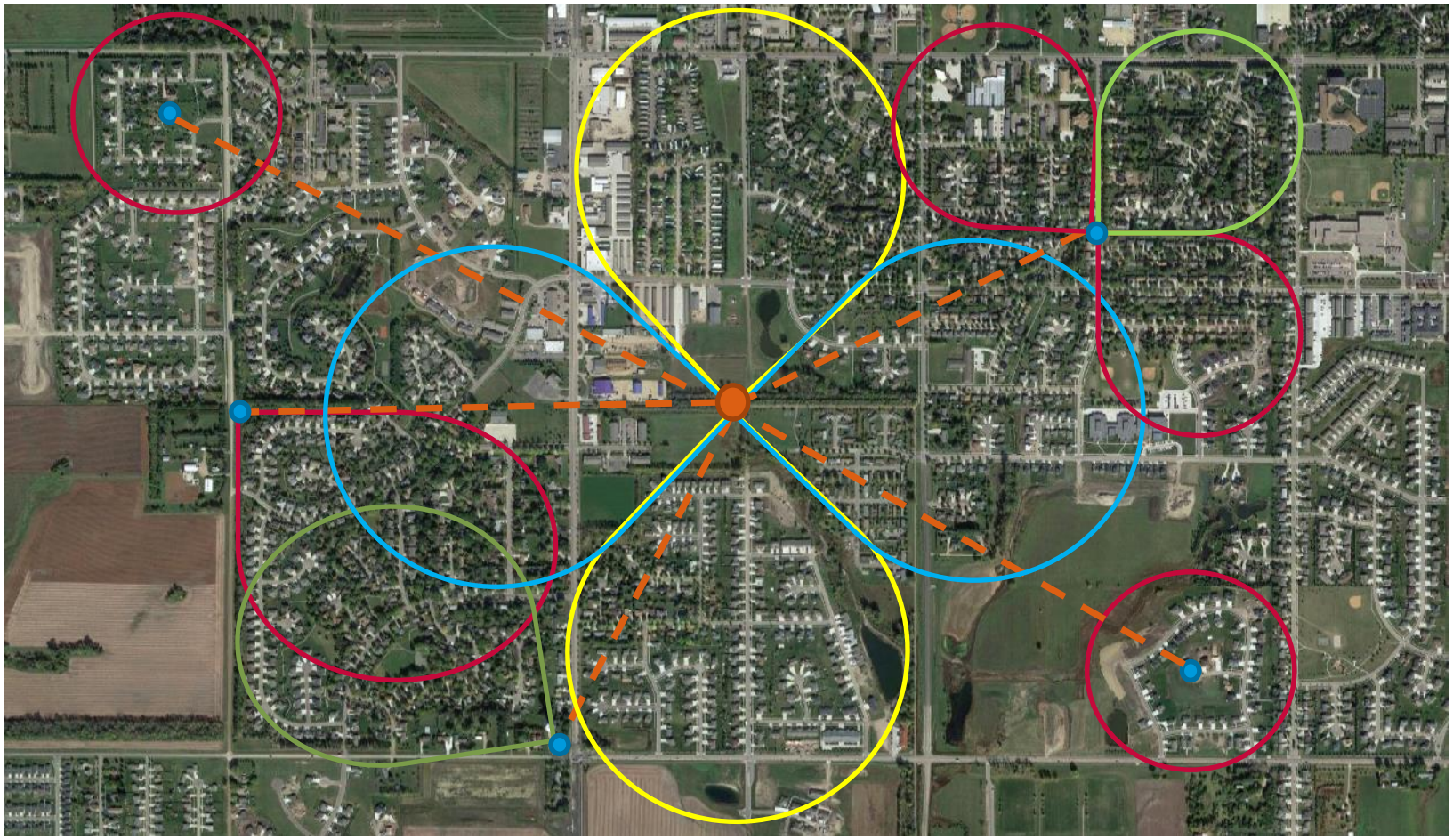
cnMedusa – Ground Breaking Innovation
Today's Capacity for Tomorrow's Media Rich Applications

- **Truly Massive, going beyond standards of LTE-A and 802.11ac Wave 2**
  - 14 x 14 Massive MU-MIMO
  - Advanced Processing Capability with >100k PPS
- **Beamforming sector array antenna system**
  - Uplink Rx Sensitivity improvements (5-6 dB better)
  - Integration with radio eliminates points of failure
  - Dramatically lowers product cost
  - Enhanced Link Stability
  - Reduces installation costs and installation time
- **Industry Leading Spectral Efficiency**
  - Over 900 Mbps in a 20 MHz channel
  - bps/Hz with ABAB channel re-use
  - 1.4 Gbps in a 40 MHz channel

➢ **Enables operation in high-noise environments, in narrower channels, to a higher density of customers**

➢ **Uplink MU-MIMO – An innovation providing even higher efficiency, doing what nobody else does!**

450i MicroPoP – Why does anyone need this?



Macro Tower

MicroPoP Site

Omni Coverage

Sector Coverage

PTP 450i Link

Cambium Networks™

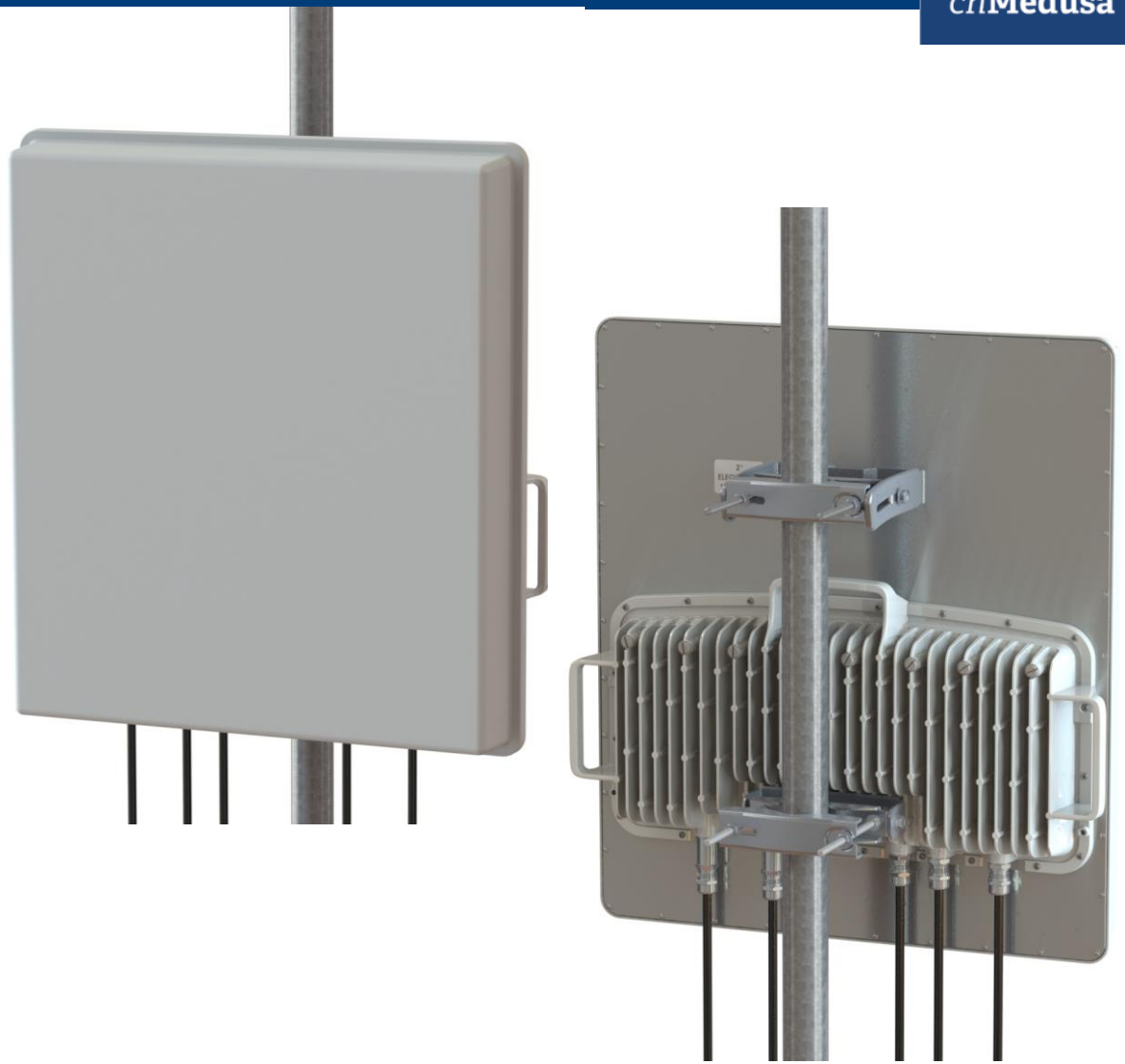
450 µPoP

- Why MicroPOP?
  - Gigabit Ethernet, Standard 802.3af/at PoE IN
  - Options for integrated Omni or 90˚ Sector
    - Omni – 8 dBi Gain, 90˚ Sector –13 dBi Gain
    - Similar to E510 aesthetics
  - Connectorized (IP67)
    - May be similar to 450b Connectorized
    - Mate with RF Elements Feed Horns
  - Integrated GPS or use with cnPulse accessory
  - Push button reset on rear
- Uniquely Suited to connect the “tough” subscribers
  - 2 Mile Range, Up to 20 connected SMs
    - Key to unlock range and SM limit will be sold (MSRP TBD)
  - Target MSRP $999

Q3/Q4 2019

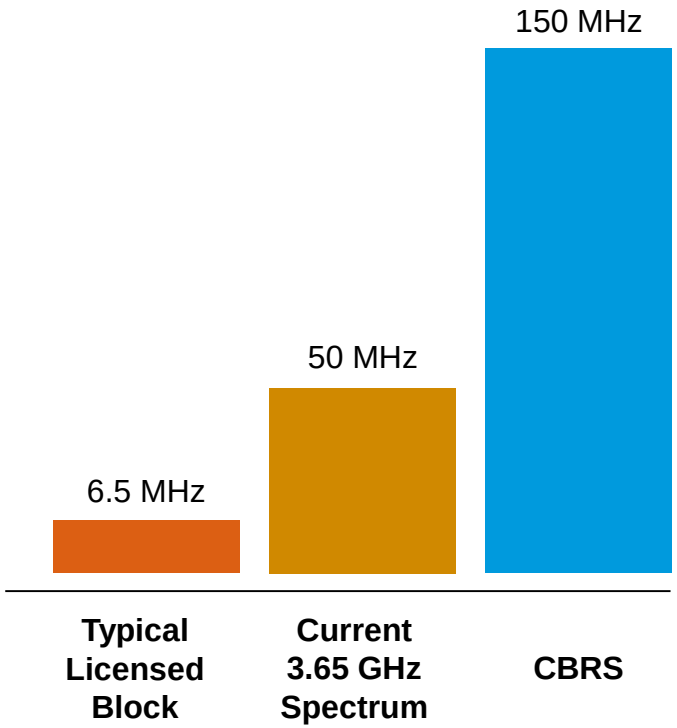
3 GHz – PMP 450m

- **More than 3x Capacity vs. 450/450i**
  - *cn*Medusa™ 8x8 MU-MIMO technology allows simultaneous communication with up to four SMs
- **Supreme Spectral Efficiency**
  - DL and UL MU-MIMO supported
  - Achieve up to 900 Mbps in a 40 MHz channel
- **Protect Your Investment**
  - 3.3 GHz to 3.9 GHz range
  - >47dBm EIRP
  - Continue using existing SMs
- **Enhanced Link Stability**
  - Uplink Interference mitigation due to beamforming
  - Uplink Rx Sensitivity improvements (4-5 dB better)
- **Advanced Processing Capability**
  - >200k PPS

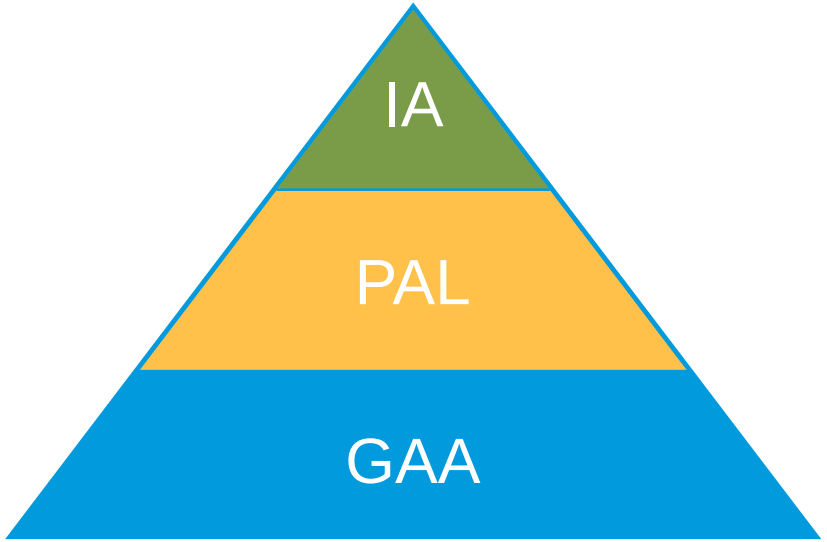


CBRS and New 3 GHz Spectrum

Opportunity



Tiered Flexible Use



Incumbents

- DoD Radars (coastal areas)
- Satellite Earth Stations

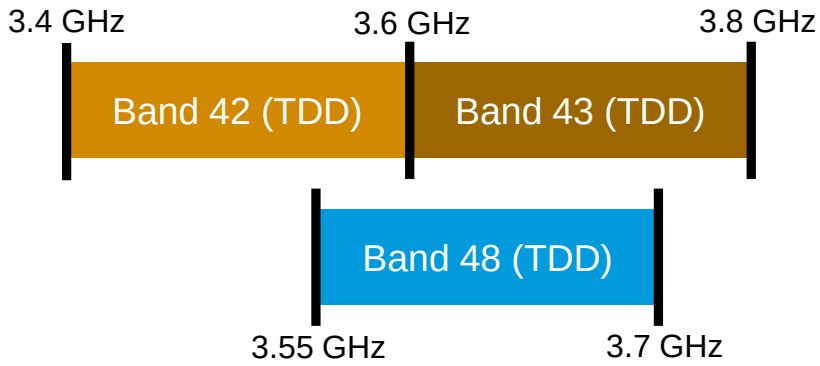
Priority Access Licenses (PAL)

- Up to 70 MHz of spectrum licensed by auction

General Authorized Access (GAA)

- At least 80 MHz nationwide

Establishing a New Common Band



CBRS and New 3 GHz Spectrum - Strategy

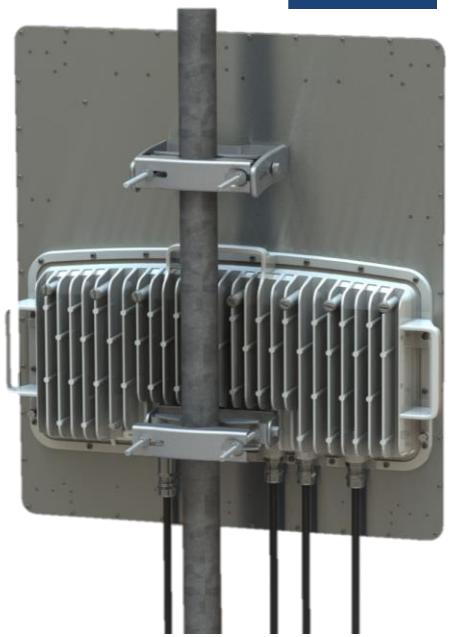
- 450 platform is ready for CBRS and is working with major SAS providers

federated wireless COMMSCOPE® Google

- cnMaestro will bridge the communication from Radio to SAS

- Field Beta Testing occurring now with Amplex and several others
- Complete 3 GHz portfolio capable of graceful migration
  - Continue to operate under Part 90 subpart Z until license expires
  - Easily transition to Part 96 (CBRS) without changing equipment
- Release of 3 GHz 450b SM in Q3, 2019
- Timing Estimate:
  - Q3/Q4 implementation for GAA
  - PAL Auctions won't occur until late next year

cnMedusa



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cnRanger

Why LTE?

Customer Perspective

- Small WISP (<2,000 subscribers)
  1. **NLOS performance, need for better range and coverage than other available solutions**
- Medium WISP (2,000-10,000 subscribers)
  - Licensed spectrum to add capacity and provide premium service
  - Investment protection
  2. **Inexpensive CPE options**
- Large WISP (> 10,000 subscribers)
  3. **Investors demand industry standard LTE**
  - Attractive Air Interface attributes
  - Inexpensive CPE

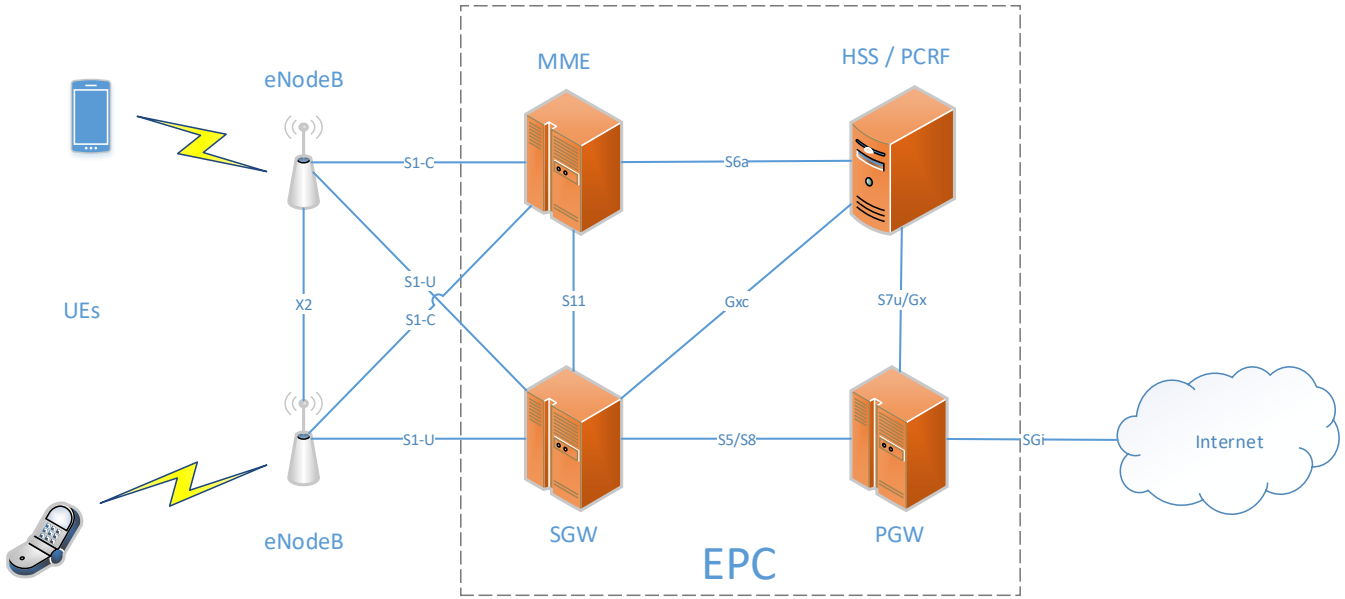
Cambium Perspective

- Adopt industry standard and innovate rather than reinvent
- Lower Cost SM: LTE chipsets are inexpensive relative to FPGA & DSP
- LTE air interface features
  - OFDMA in downlink
  - Improved receive sensitivity due to coding gains
  - Carrier aggregation and LAA
  - Frequency reuse 1 – for licensed bands
  - Inter cell interference coordination
  - Hybrid ARQ with soft combining


Introducing the all new LTE platform from Cambium Networks
Bringing extreme quality, necessary features, and the focus on fixed wireless that your network deserves.
cnRanger™
TRUST SOMEONE WHO'S BEEN THERE BEFORE
Cambium Networks™

LTE Architecture

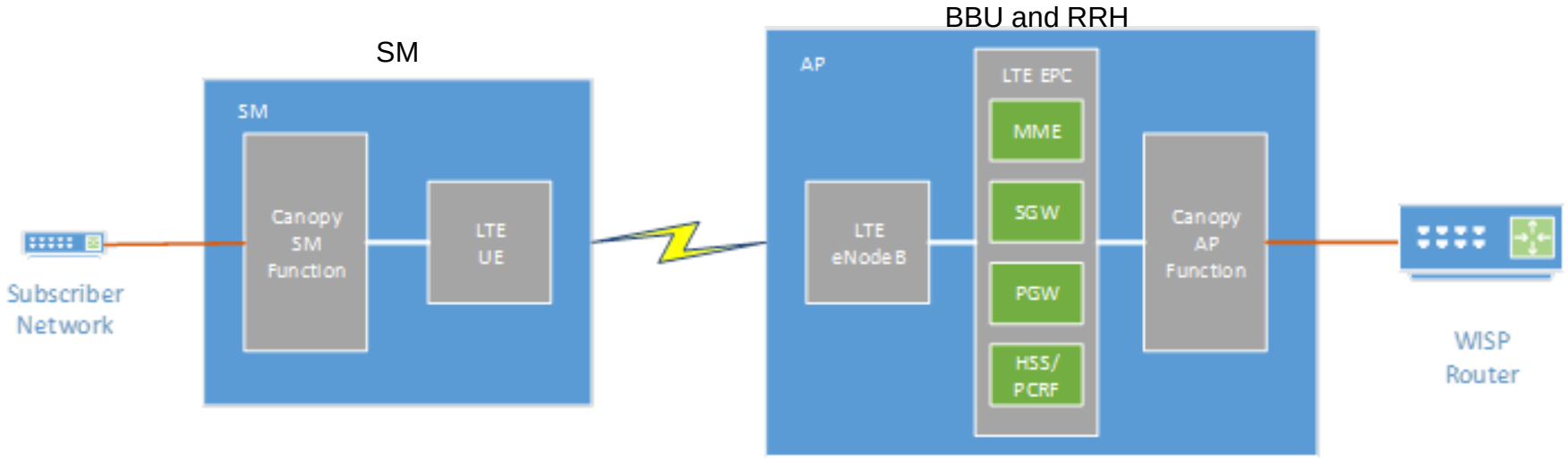
- A traditional LTE solution consists of:
  - RAN (Radio Access Network) as shown by the eNodeBs (eNB)
  - EPC (Evolved Packet Core) which has several functional entities / servers (EXPENSIVE and COMPLICATED)
    - MME (Mobility Management Entity)
    - HSS (Home Subscriber Server)
    - PCRF (Policy Control & Charging Rules Function)
    - SGW (Serving Gateway)
    - PGW (Packet Data Network Gateway)
  - SMs, also known as UEs (User Equipment)



Traditional LTE Solution

What Is cnRanger?

- cnRanger is a complete, simple, fixed LTE solution
- The BBU (Baseband Unit) and RRH (Remote Radio Head) handle *both* RAN (Radio Access Equipment) and EPC (Evolved Packet Core) functionality
  - Canopy networking (e.g. Layer 2) and management functionality are present, too
- cnRanger provides an SM with Canopy networking and management
  - Third party LTE UEs also function with the BBU and RRH

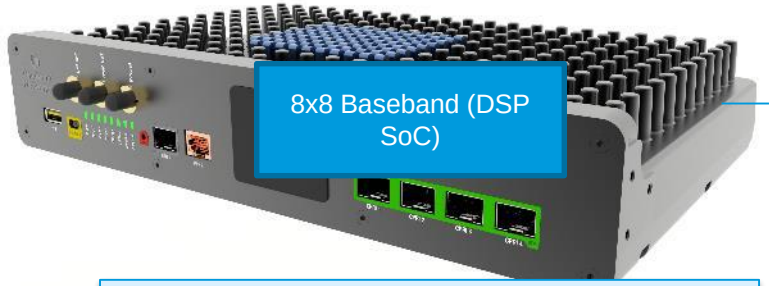


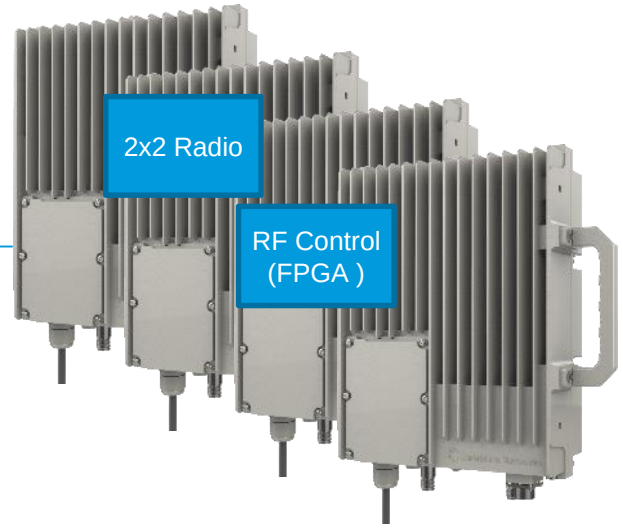
cnRanger Fixed LTE Solution

Separate Baseband and Radio
(Traditional LTE model)

PMP450 has baseband and radio together

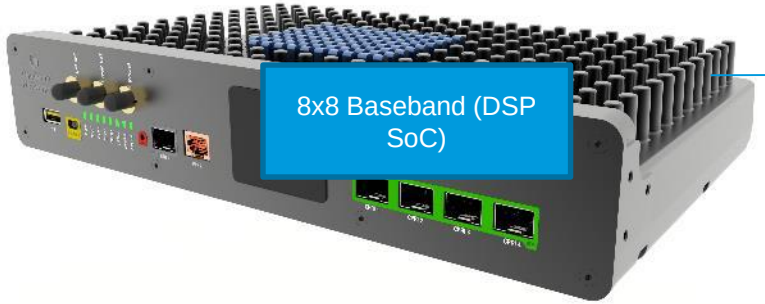
LTE will have 8x8 Baseband Unit (BBU) and Remote Radio Heads (RRH)

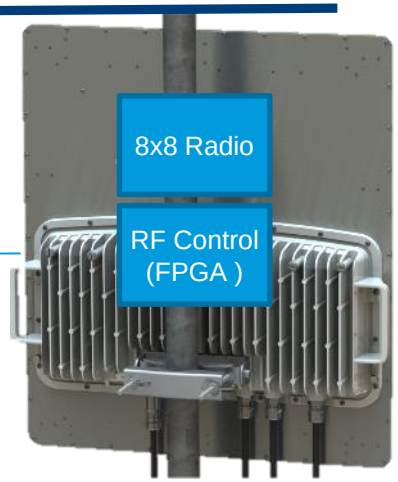




The BBU can drive 4 2x2 radios to provide 360º coverage …

… Or one 8x8 radio for a single Sector with MU-MIMO support





cnRanger

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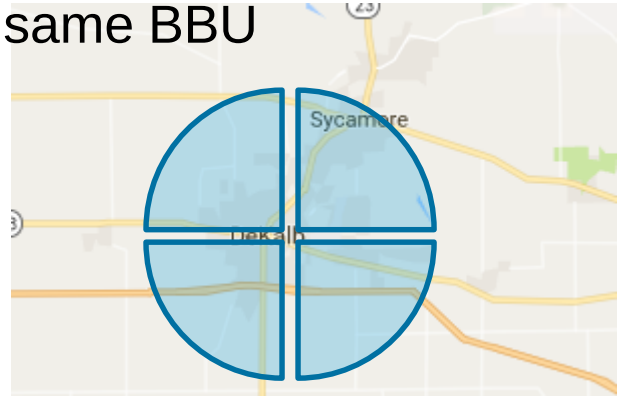
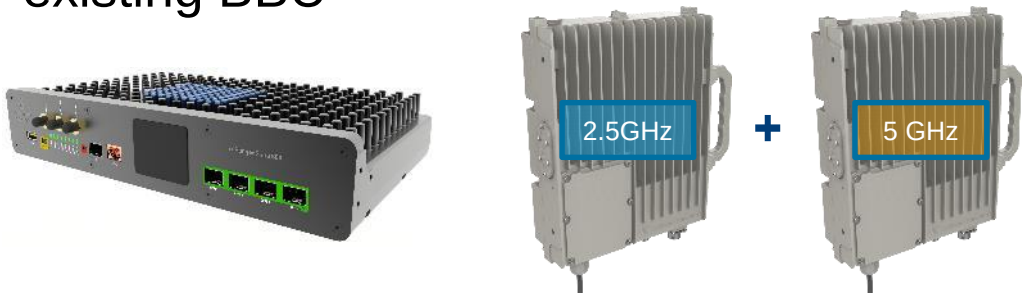
Flexibility by splitting Baseband and Radio

- Start with one RRH, add more as you grow, all powered by same BBU



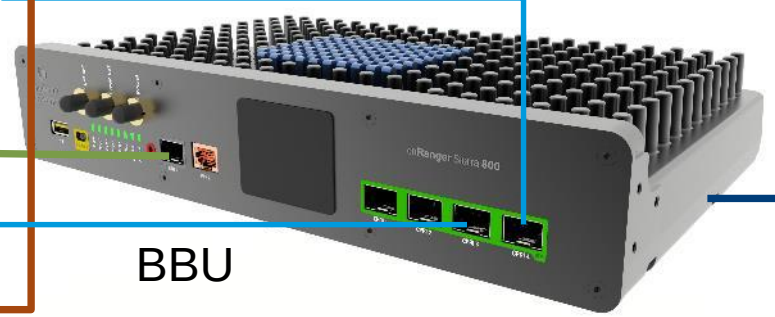
- RRH bandspins without changing BBU hardware

- Future proof for LAA, just add 5GHz RRU to existing BBU



- No tower climb needed to access BBU – easier diagnostics, lower operational expense

Deployment



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CPRI (Fiber)

Sync In

BBU

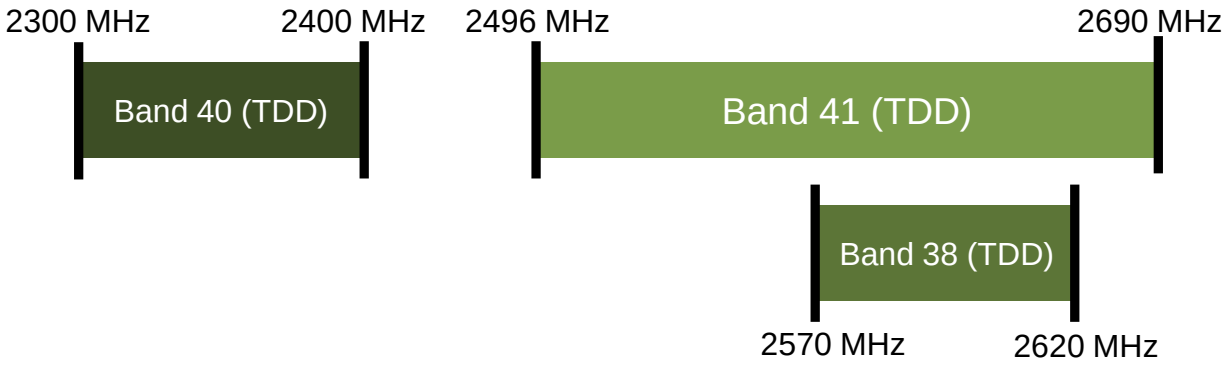
DC In

cnRanger

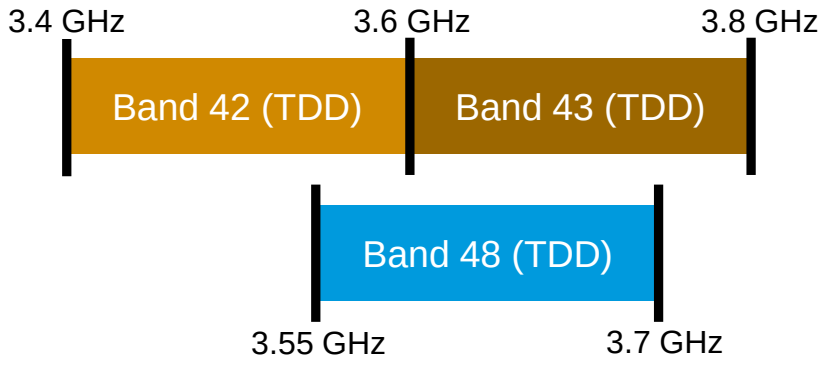
n Networks™

Planned Spectrum Coverage

First Release, Q1, 2019

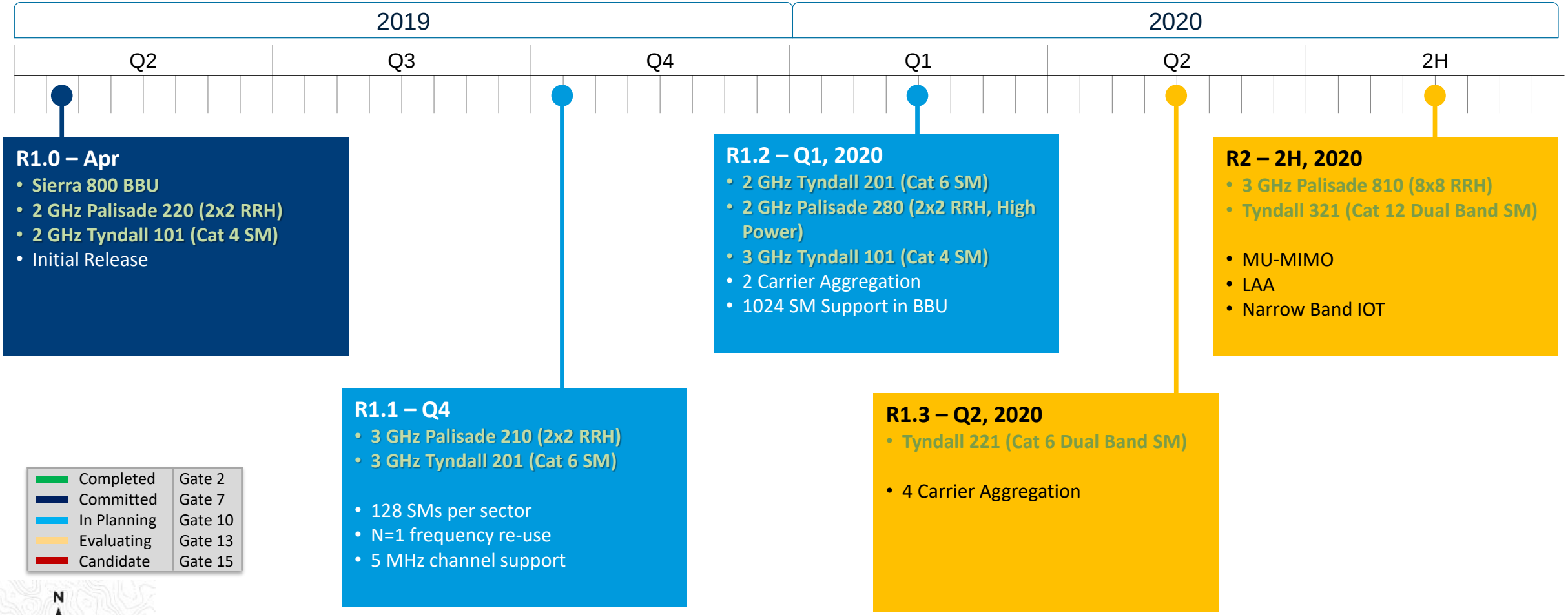


2nd Release, Q3, 2019



Cambium cnRanger Plan of Intent

PLAN OF INTENT
SUBJECT TO CHANGE
Mar, 2019



Completed	Gate 2
Committed	Gate 7
In Planning	Gate 10
Evaluating	Gate 13
Candidate	Gate 15

letworks™

cnRanger Differentiators

Feature	Benefit
Release Quality	Customers with experience with Cambium expect high and consistent quality, this will be a draw as other LTE vendors have had issues
Simple Set Up	LTE can be extremely complex. We are eliminating the complexity of deploying LTE (eliminating the EPC and associated infrastructure, etc.) – **Intelligent Edge, Integrated Virtualized EPC**
Provider Focused Feature Set	Bringing required features (that many LTE providers lack) to allow better monitoring and management of fixed wireless network
SM Transmit Power	Compared to most, we have 3 dB higher Tx power, so the UL is more capable with cnRanger SMs
TCO	We will produce several models against what we know about competitors, but believe we have advantage over most of competition.
Optimized use of Spectrum	Cambium-designed antenna helps optimize use of spectrum, much better than other systems in this space, optimized for N=1 deployments
Flexibility of Split Architecture	Frequency-agnostic BBU, installation at base of tower, lighter RRH than some competitors
Layer 2 Capabilities	Most providers want this for easy integration with rest of network
RRH Transmit Power (mid-tier)	At 2W per port, this is higher than “low end” competition, comparable in price, but better propagation (Higher Powered version also forthcoming)

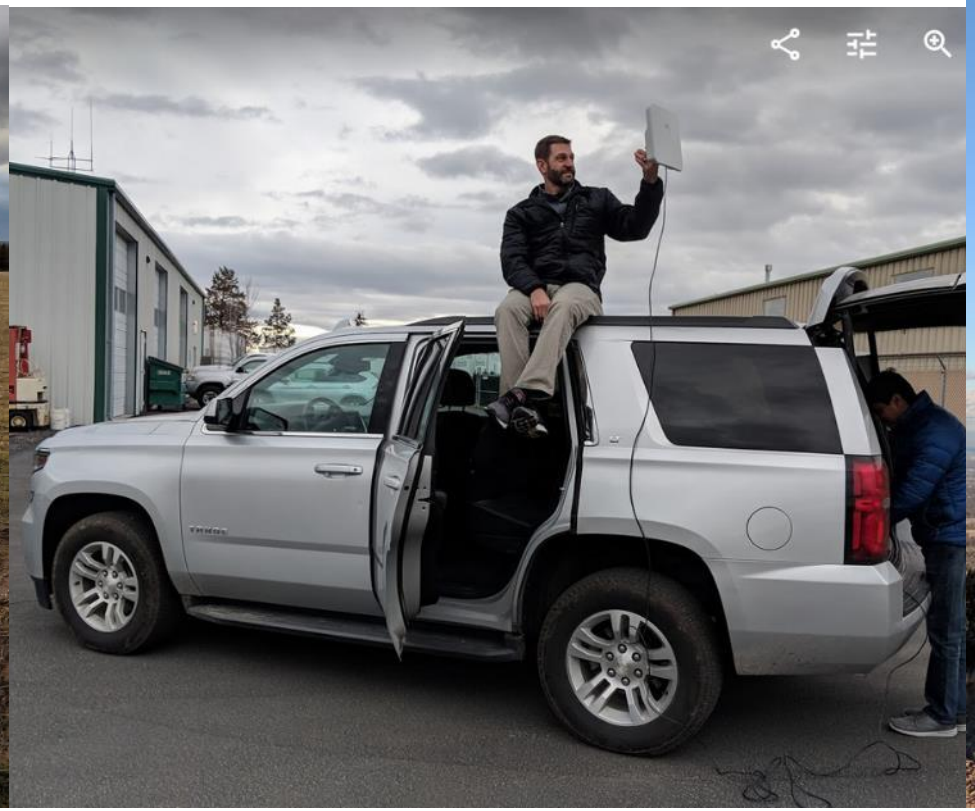
Performance through foliage

Link	Downlink	Uplink	Aggregate
3.5GHz 450 SM (8 dBi) @ 20MHz	21.41 Mbps	7.22 Mbps	28.63 Mbps
3.5GHz 450i SM (19 dBi) @ 20 MHz	63.48 Mbps	21.67 Mbps	85.15 Mbps
2.5 GHz LTE SM (14 dBi) @ 20 Mhz	103.2 Mbps	15.9 Mbps	119.1 Mbps

- 1000 feet link with SM behind few trees
- cnRanger shows relatively small degradation on downlink due to high power (2W) RRH
- PMP performs better in uplink as cnRanger SM is limited to 16 QAM in uplink

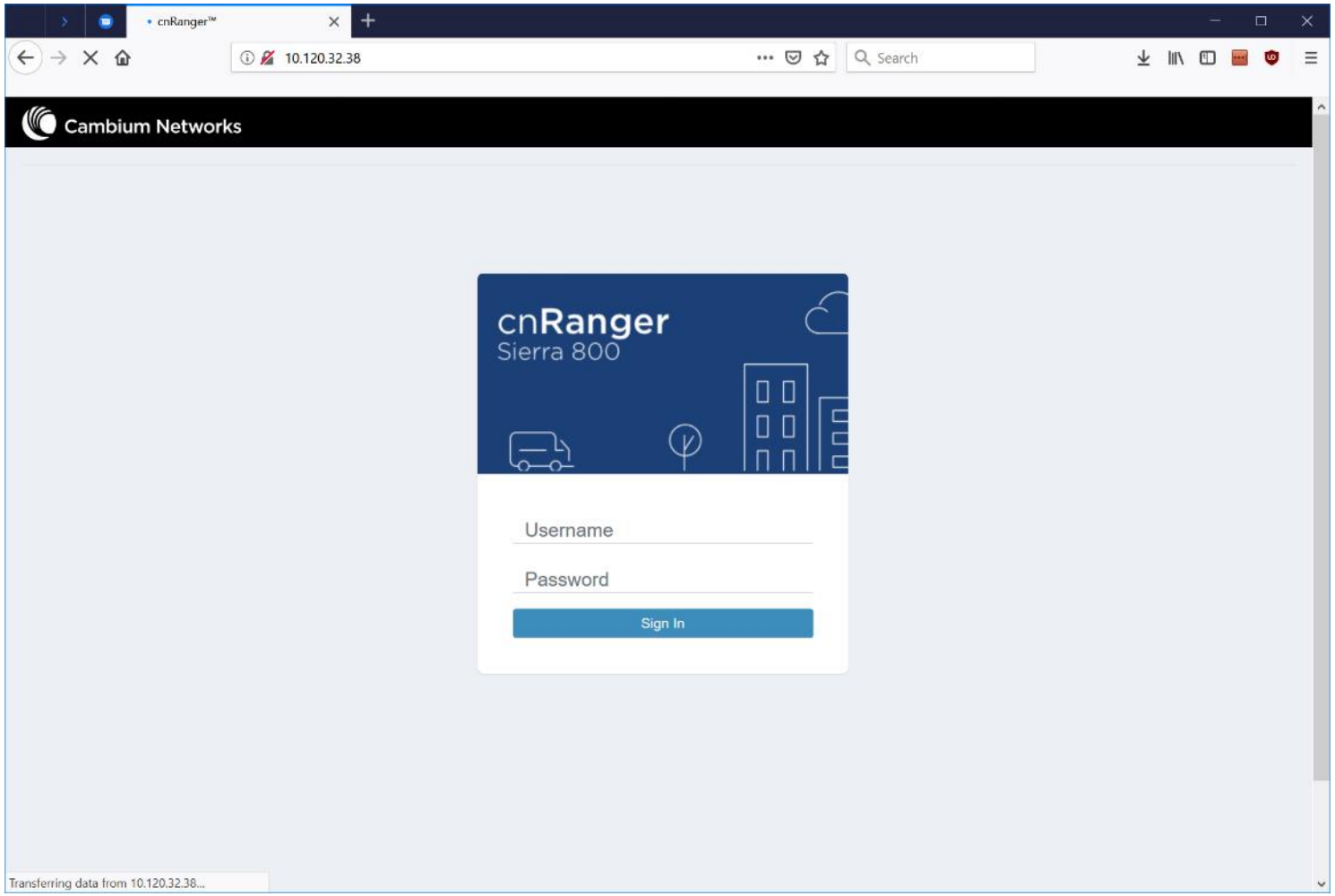
Customer Beta Trial

- 6 mile LOS link, customer looking for a better solution
- Currently, 2 SMs deployed at site
- Early results are good, working to optimize



Easy to use GUI

- cnMaestro look and feel
- Terminology familiar to Canopy users
- No LTE knowledge required
- Built-in help
- Native GUI of EPC and eNodeB available to advanced LTE users



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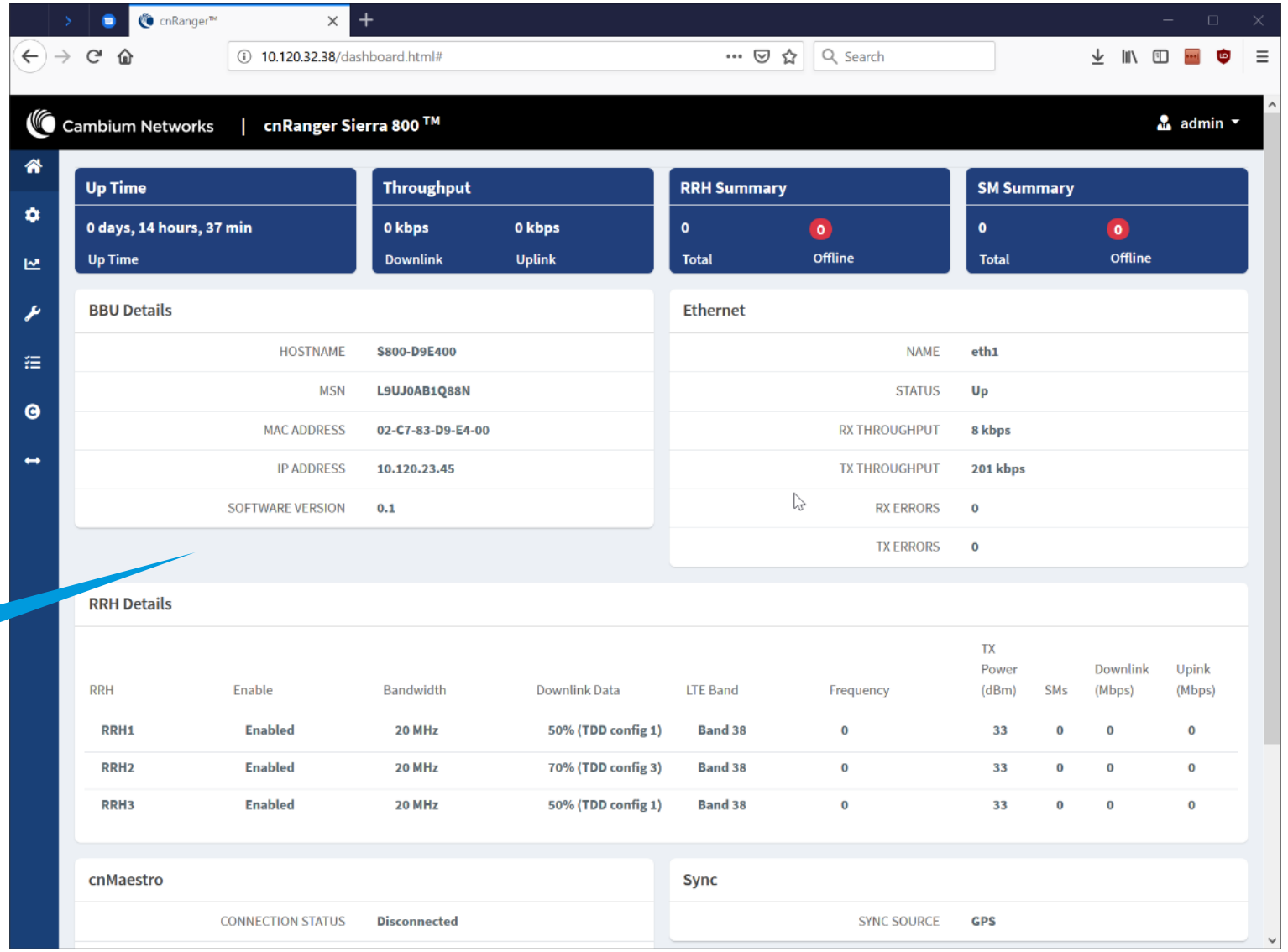
Landing page is the dashboard



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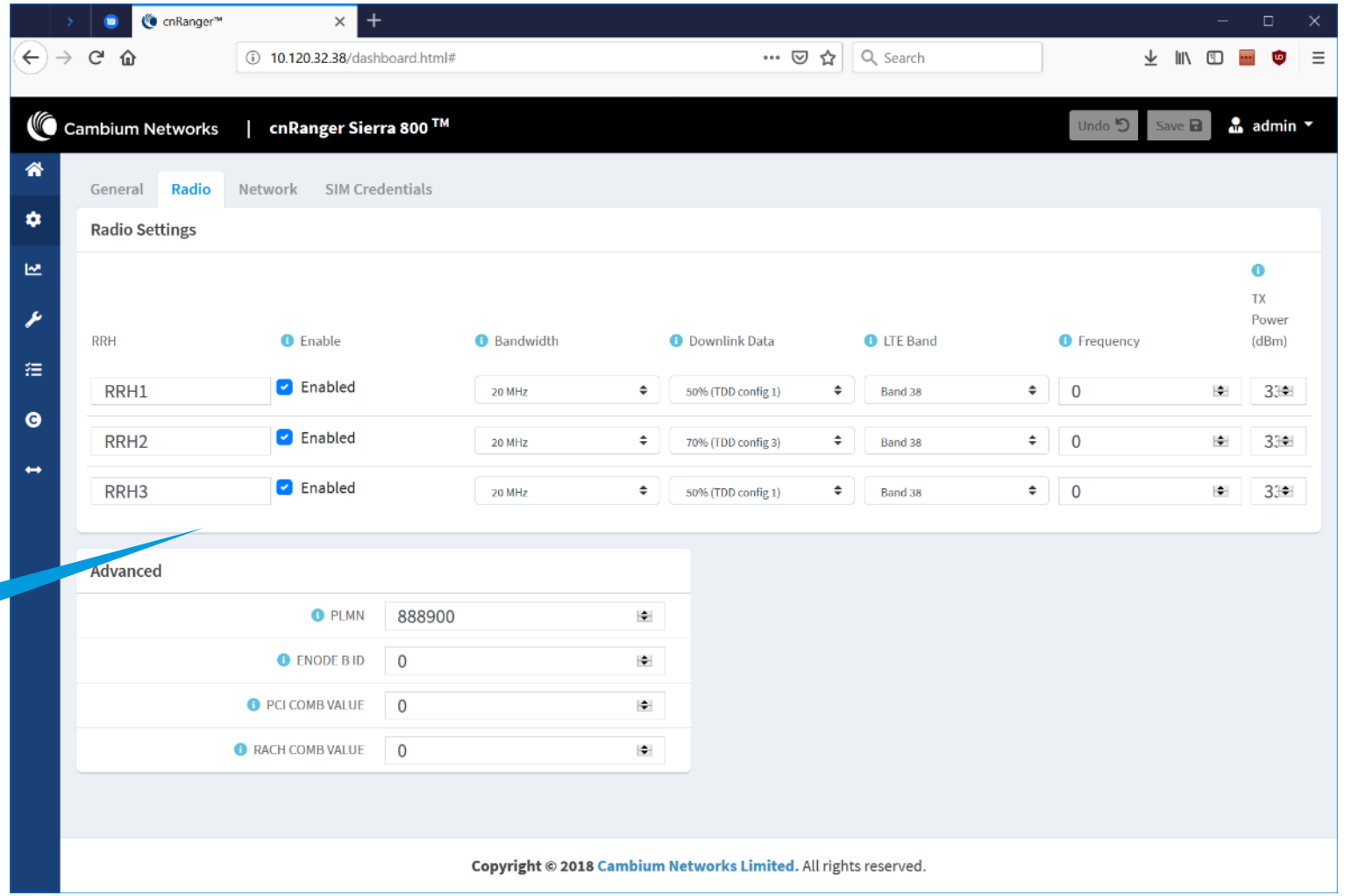
Configure RF parameters



Easy to use GUI

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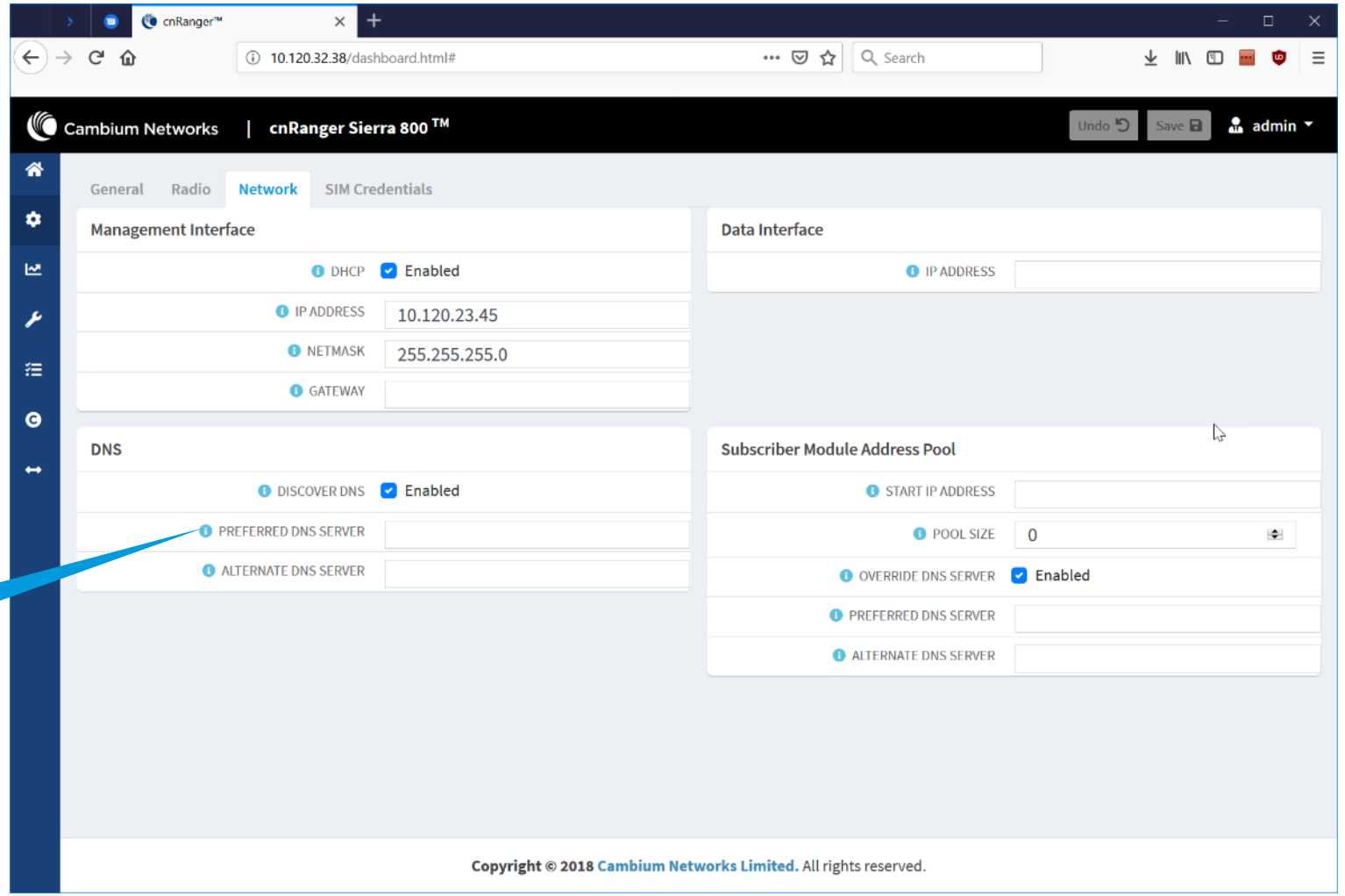
Configure Network settings



Easy to use GUI

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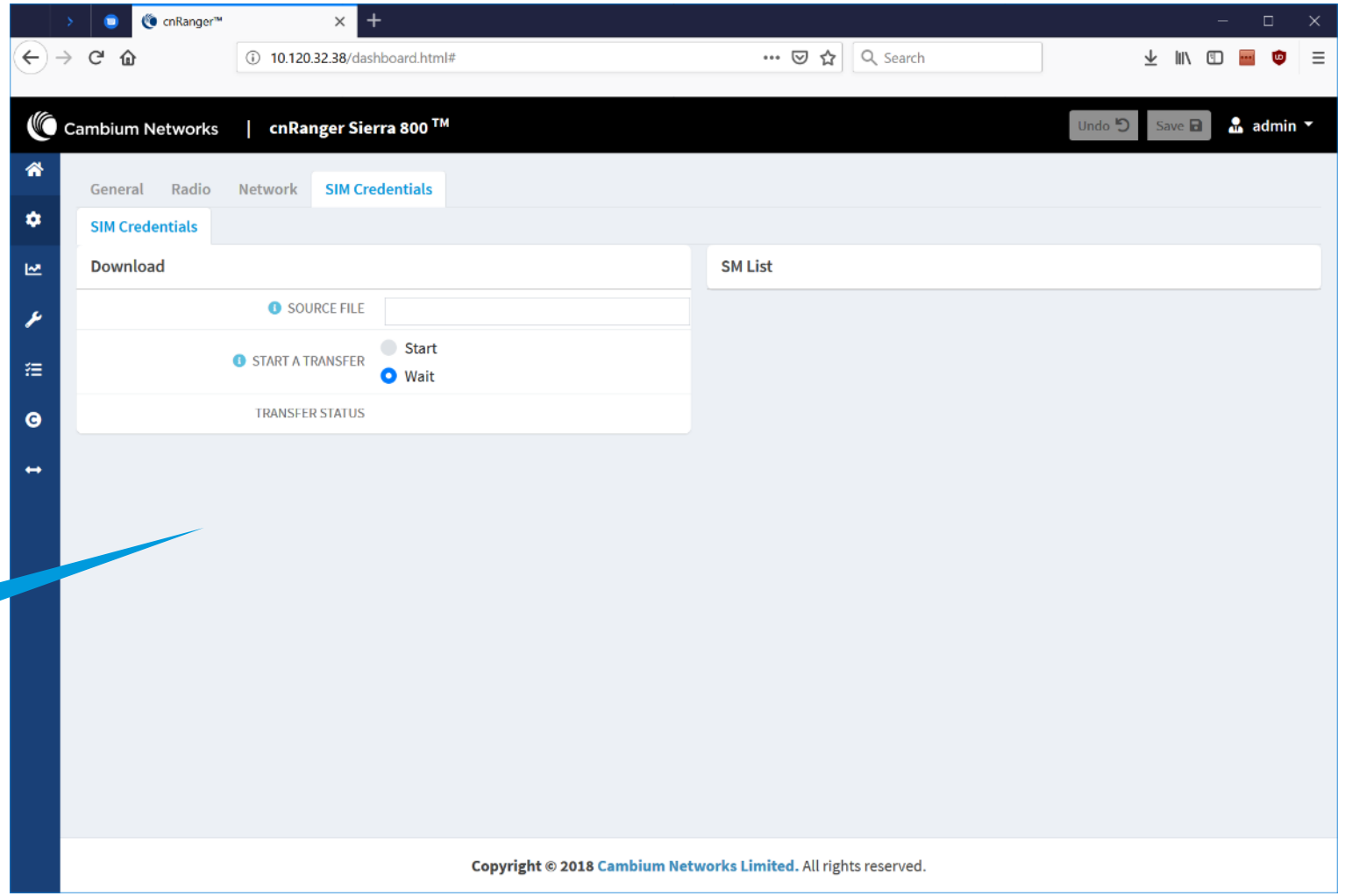
Import SIM credentials. System is live!



Cambium Networks™

ePMP 3000

Bruce Collins

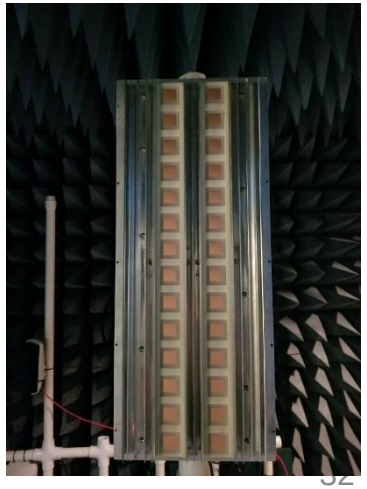
ePMP Portfolio Update

1. ePMP 3000 Adoption Rate is Strong
   - ePMP 3000 uses 802.11ac Wave 2 for up to 5X performance
   - ePMP 3000 extends the lead in scalability and interference tolerance
   - ePMP 3000 protects your investment
2. Elevate – Now is the perfect time
3. Software Updates
   - Backward compatibility
     - 4.3.1. AP release now available / 4.3.1 SM in beta
     - Integrated 4.3.2 release expected in April.
4. What's Coming in 2019 – Sneak Peek

ePMP 3000 – Generation III: Higher Data Rates / Denser Networks

- ✓ Frequency re-use, Synchronization, Dynamic Filtering, Uplink Beamsteering
- ✓ 4X4 MUMIMO doubling sector capacity
- ✓ 256QAM Modulation, 80 MHz channel support
- ✓ Improved radio performance (reduced C/I requirements, LDPC, more packets per second)

- More subscribers, higher data rates -> same spectrum, same area.

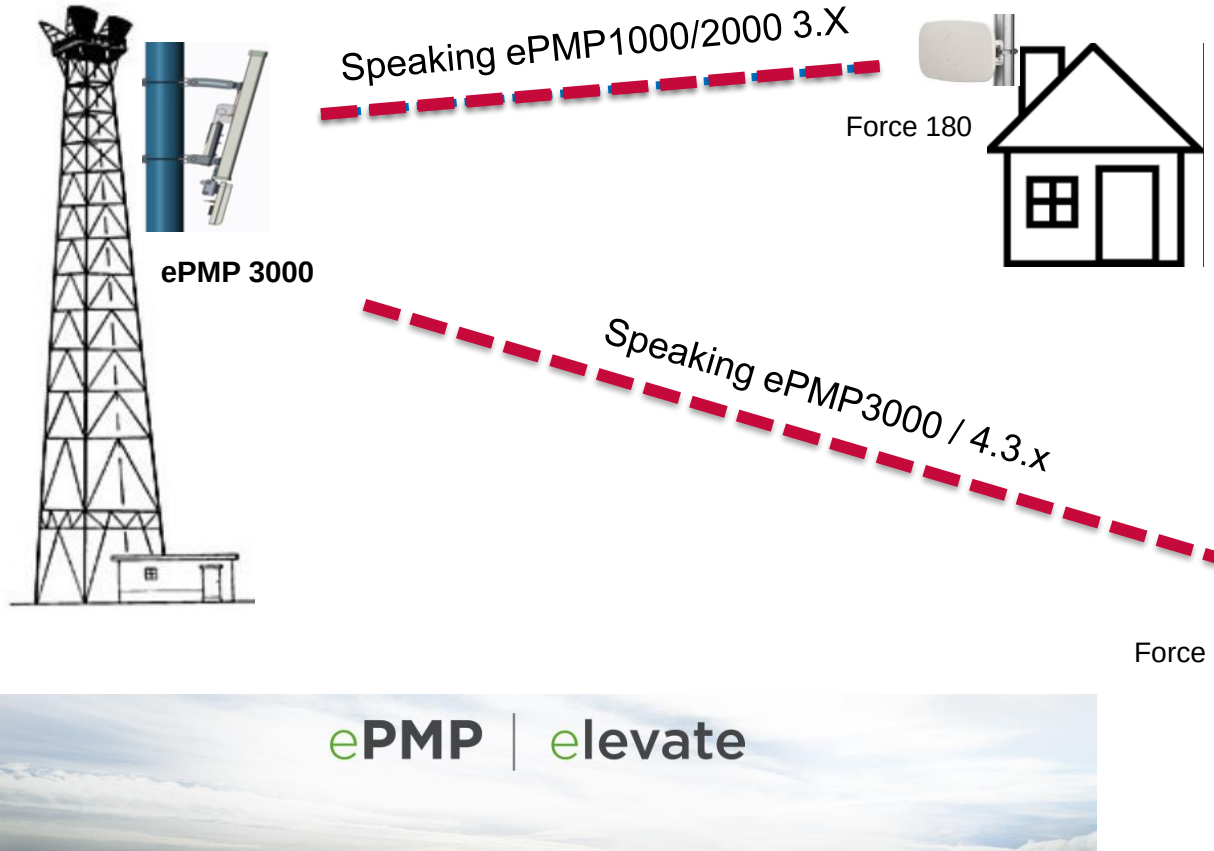


4X4 MUMIMO Antenna

How does it work?

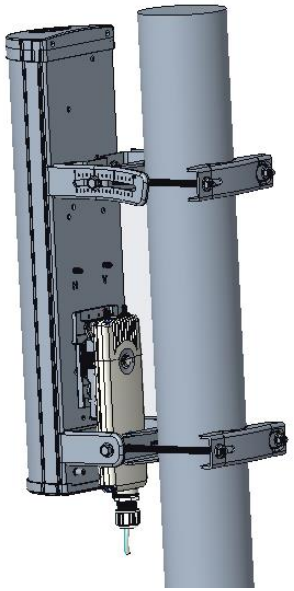
ePMP 3000 Protects Your Investment

- Forward and Backward Compatibility
- Elevate
- 3-Year Warranty



What's Coming Next? – New 802.11ac Wave 2 Access Point Option

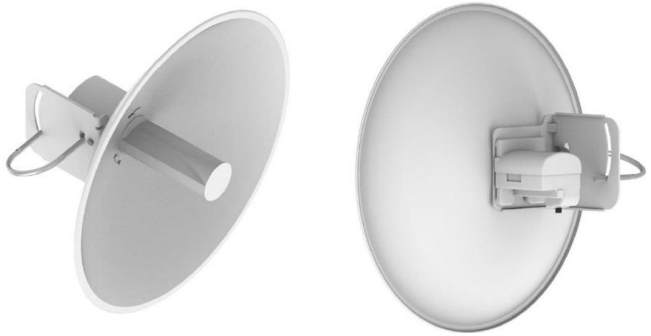
- Applications
  - Low-density sectors
  - Small subscriber count sectors
  - Micro-pop with narrow-beam or omni sectors
  - Low-cost entry point to 802.11ac Wave 2
- Technology
  - 802.11ac Wave 2
  - 2x2 MIMO
  - IP67



2x2 90/120 Sector Antenna

RF Elements Twistport™ Adaptor (not included)

What's Next? - ePMP Force 300 SM's (802.11ac Wave 2)



F300-25

- 5 GHz
- 25dBi gain
- Gigabit Ethernet

F300-16

- 5 GHz
- 16dBi gain
- Small form factor
- 15 degree Azimuth/Vertical orientation

Coming Soon!

- 13 dBi panel antenna
- 20 dBi panel antenna
- Connectorized Subscriber Module – IP67

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Cambium Networks Open House

ePMP™ 3000 "MU-MIMO Madness"

http://epmpopenhouse.splashthat.com

at WISPAmerica

Hilton Cincinnati Netherland Plaza Continentale Ballroom on Mezzanine Level

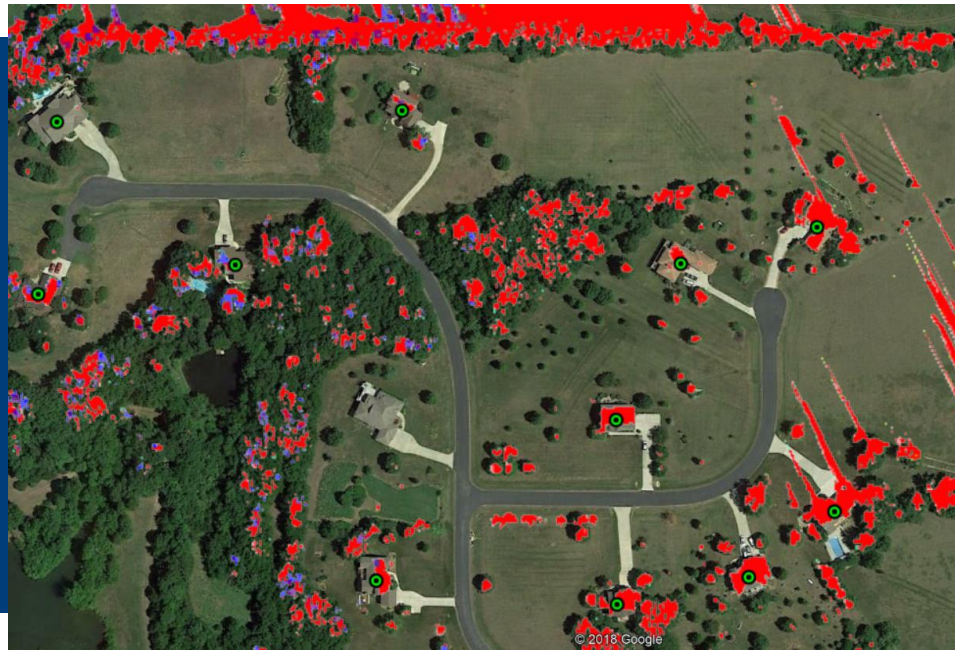
Come by anytime from 6:30 - 9:00 PM

- Experience the First Four Basketball Game being streamed Live over the ePMP 3000 AP, Force 300-16 and the cnMatrix™ Enterprise switch platform
- Learn how the ePMP 3000 helps WISPs dominate in the paint by offering 100 Mbps Internet Service to their customers
- View a live ePMP 3000 network being monitored with cnMaestro™
- Drinks and Appetizers will be served

Cambium Networks™

Cambium Networks™

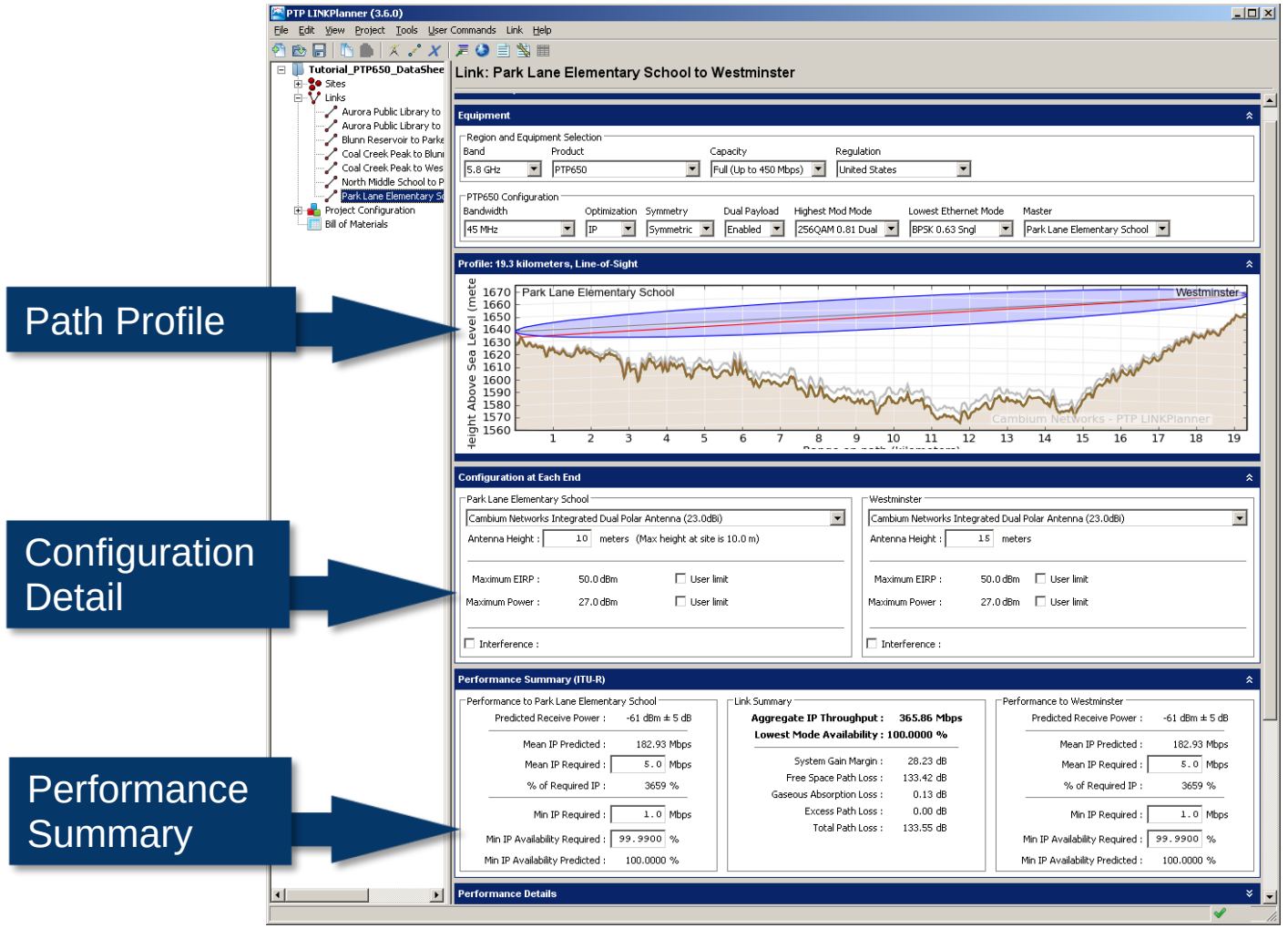
cnHeat – Illuminate the Unconnected



Dan Sullivan

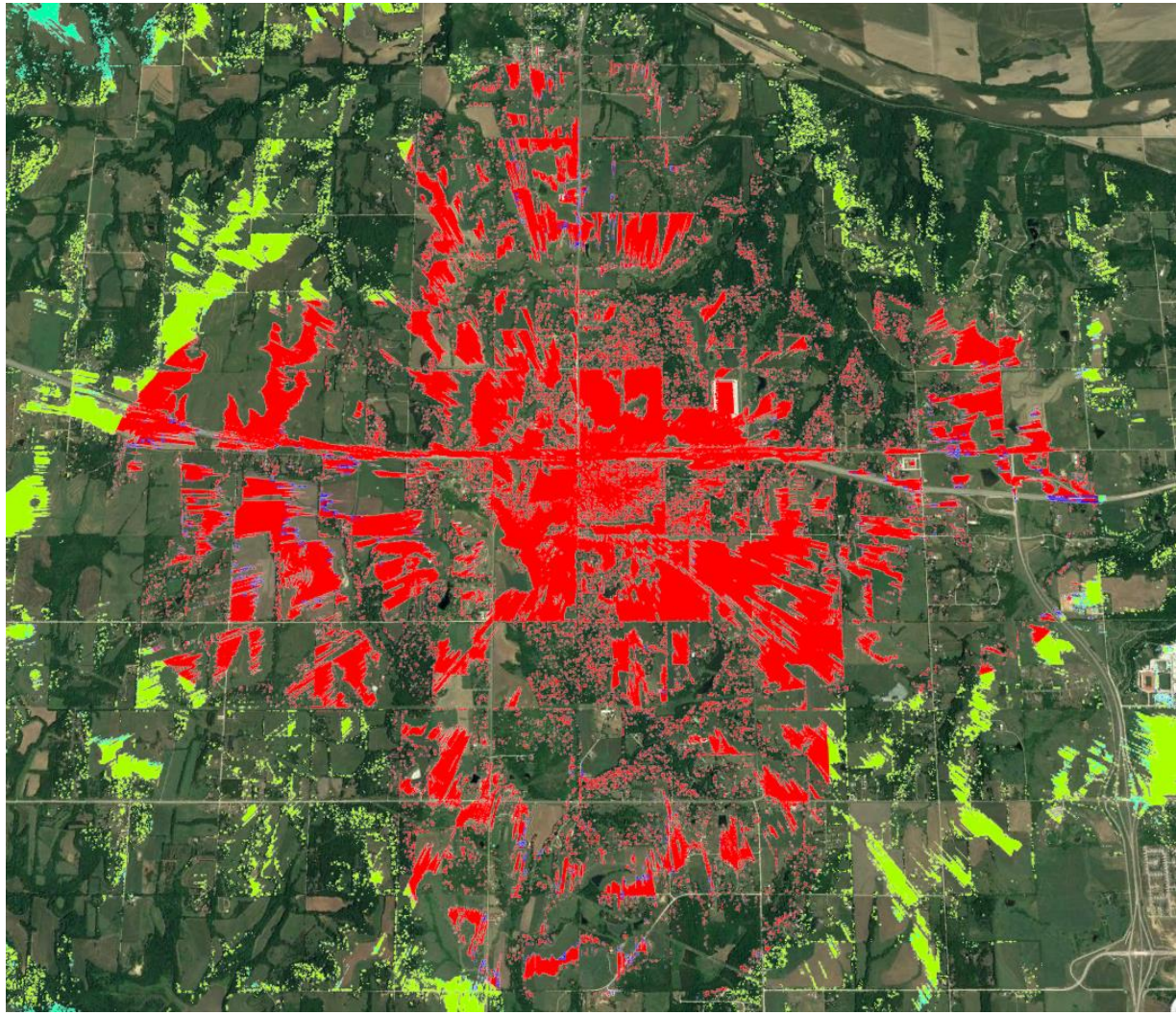
LINKPlanner – Network Planning Made Easy

- Integrated PTP and PMP path planning
- Highly accurate performance predictions
  - Throughput
  - Modulation Rate
  - Availability
- Scenario planning
- Integrated Bill of Material
- Integrated installation guides and check lists



cnHeat

- cnHeat Supports
  - 5 GHz 450
  - 5 GHz ePMP
  - 3 GHz 450 LOS
- Built Upon RF Expertise as Seen in LINKPlanner
- 1m GIS Precision



Heat Map – Zoom to Homes

- Zoom in to Three Homes
  - West homes - coverage
    - Provides guidance on what part of home to mount
  - East home - no coverage
    - Avoid failed truck roll

The Impossible Installation at Pixius

- This home has service!
- How is this possible per cnHeat?
- Is cnHeat wrong?

The Impossible Installation at Pixius

Current Results Status

Stats for LUID: 2 Test Duration: 2 Pkt Length: 1714 Test Direction Bi-Directional

Link Test without Bridging

VC	Downlink	Uplink	Aggregate	Packet Transmit	Packet Receive
				Actual	Actual
18	77.26 Mbps	27.15 Mbps	104.41 Mbps, 7539 pps	3918 (1959 pps)	11160(5580 pps)

Efficiency

Downlink			Uplink		
Efficiency	Fragments count		Efficiency	Fragments count	
	Actual	Missed		Actual	Missed
96%	313075	11261	93%	114216	8158

Link Test ran on 14:43:02 01/31/2019 UTC

Currently transmitting at:

VC 18 Rate 8X/8X MIMO-B

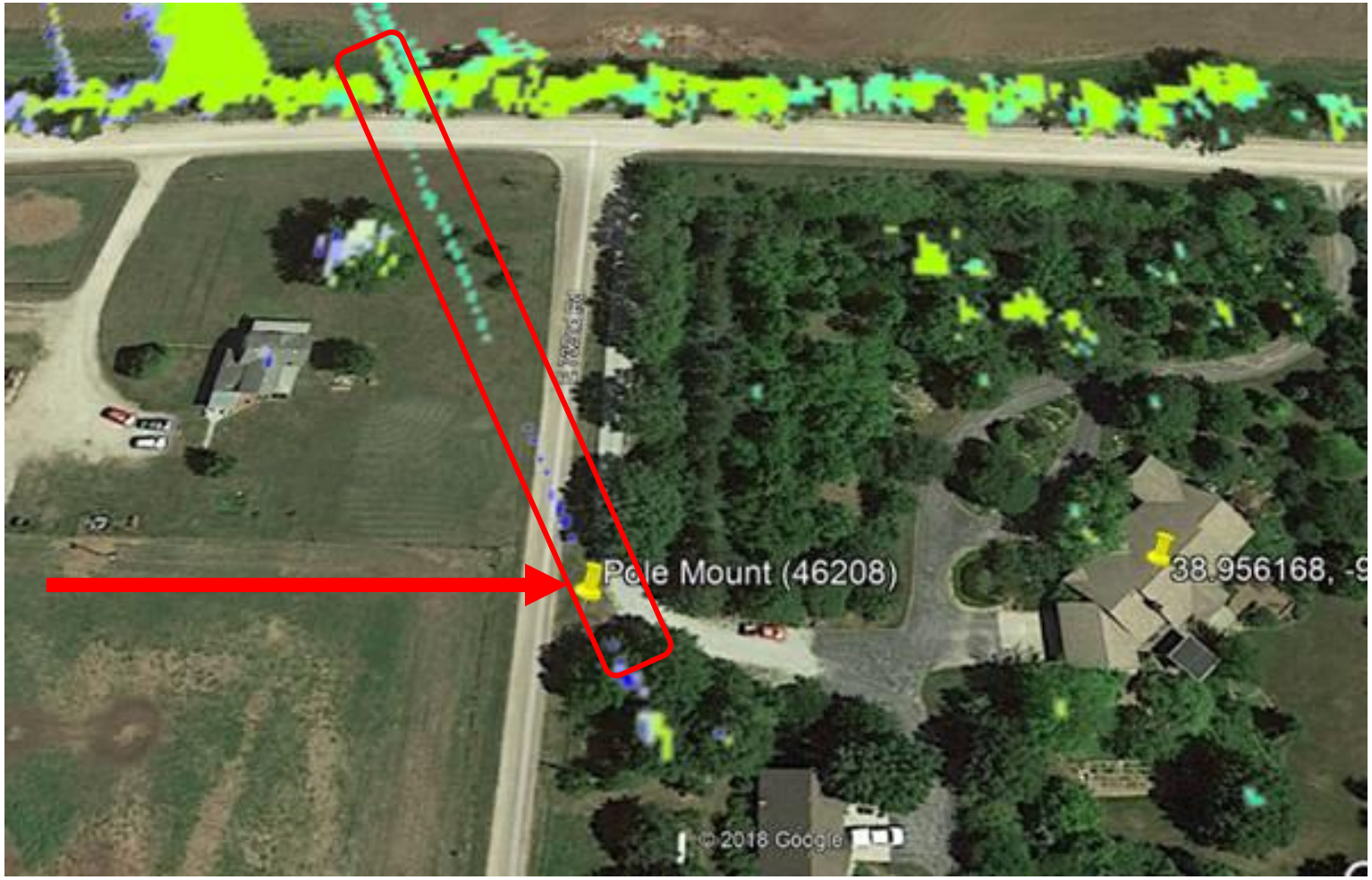
Current Contention Mode Status: No Piggyback of data in contention

Actual Installation

cnHeat Predicted Correctly

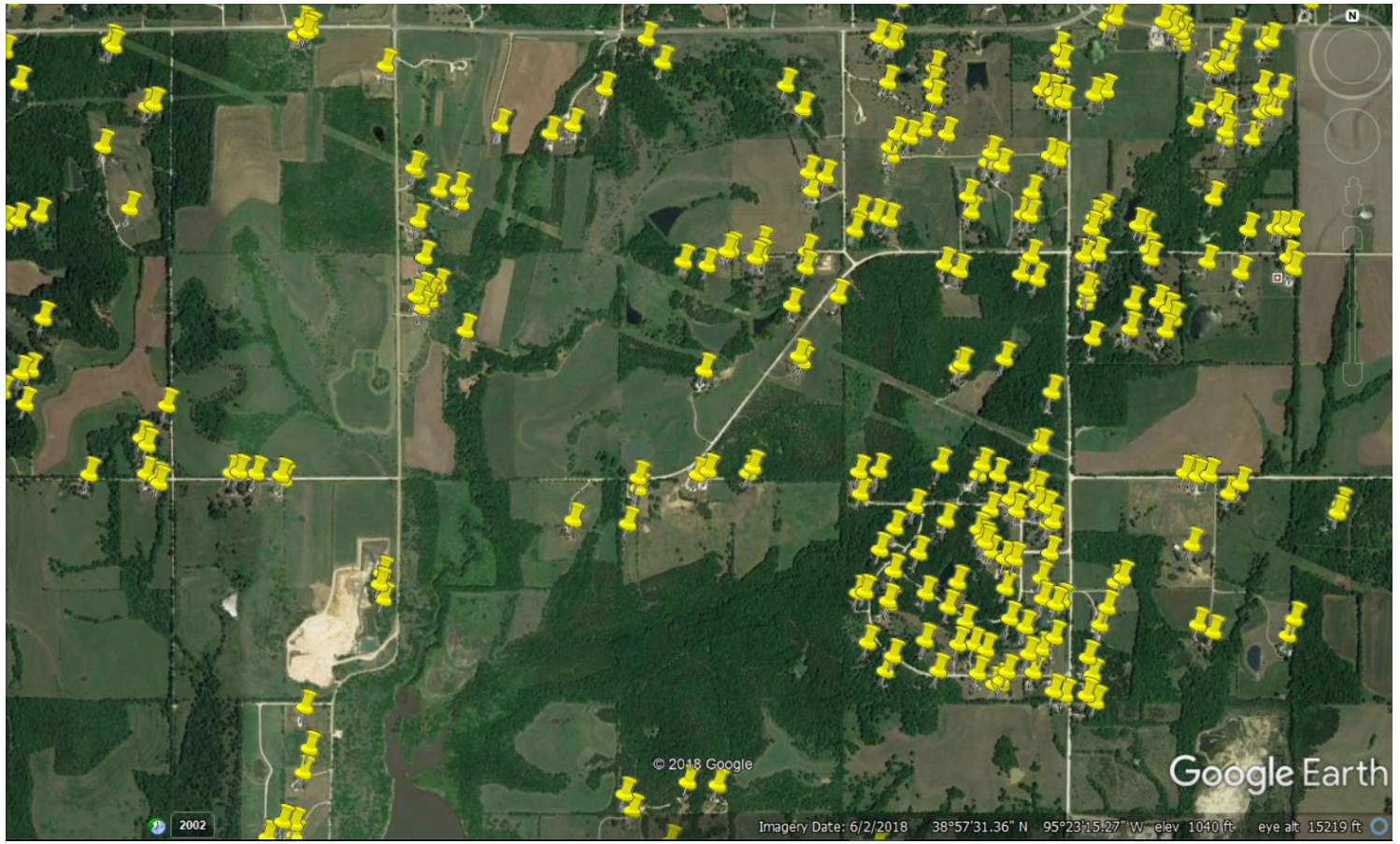
- cnHeat Confirms Efforts of Pixius Install Team

- If Location Had Been Missed, cnHeat Now Provides Guidance to Capture Customer!



Building Identification

- Identifies All Buildings
- Applicable to CAF II
  - Know your buildings in census blocks

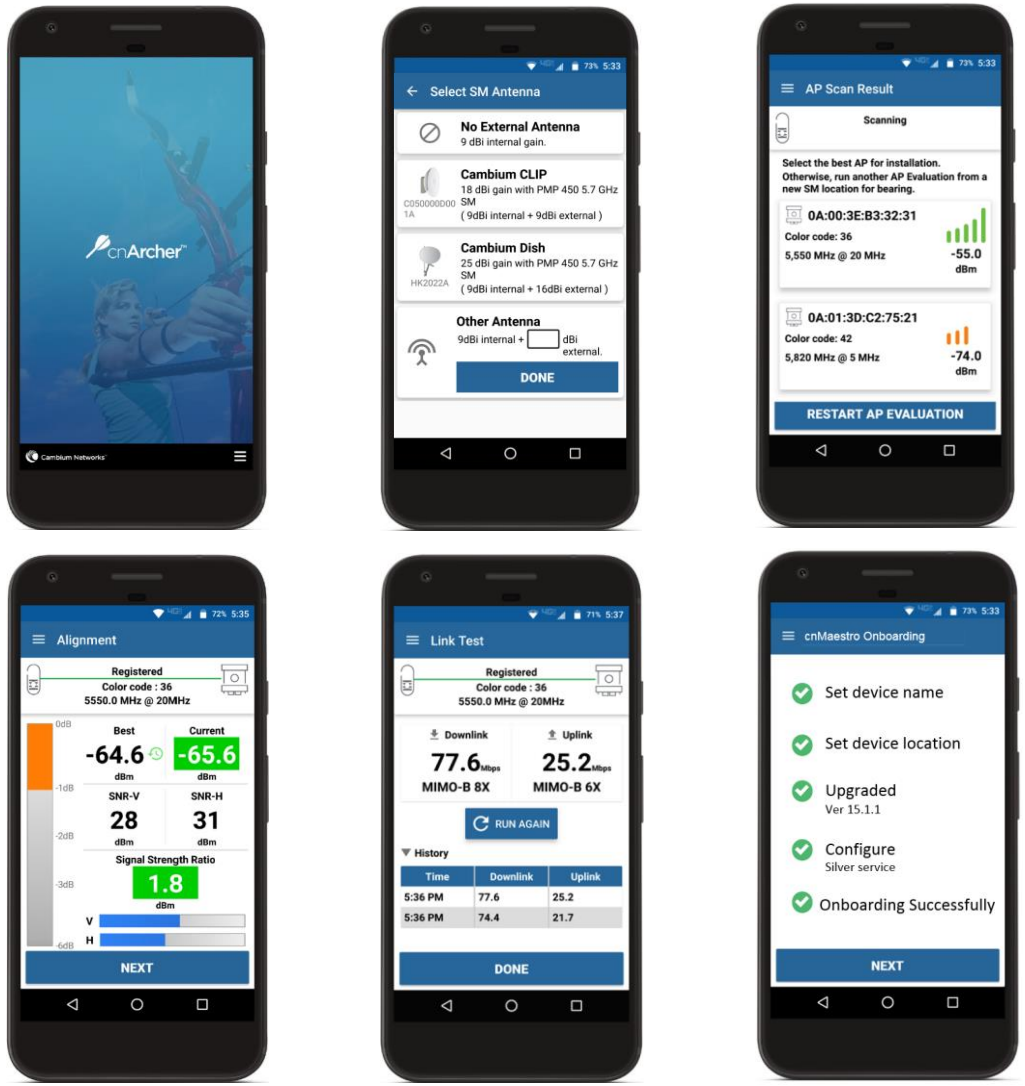


Covered Buildings Identification

- Intersects Heat Map with Building Identification
- Obtain Addresses
- Target Customers that Can Be Provided Service!

cnArcher - Mobile Installer Application

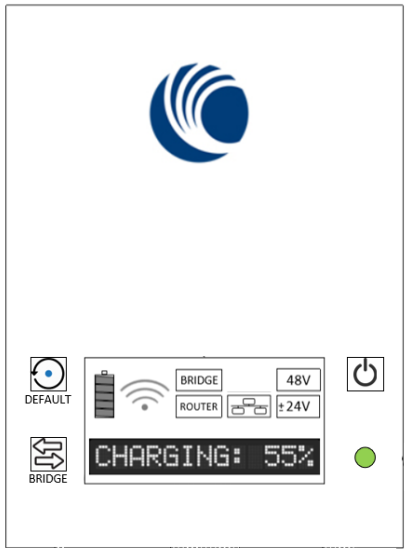
- What Is It?
  - Android/iOS App to aid in Cambium Installations
  - Supports PMP 450 and ePMP today
- What Does It Do?
  - Pre-Configure all required parameters
  - SM Alignment
  - Upgrade Device Software
  - Complete SM Configuration
  - Record baseline performance of installed link
- Why Do You Want It?
  - Reduce Installation Time
  - Reduce Installation Tasks
  - Eliminate warehouse pre-configuration
  - Eliminate Configuration/Deployment Errors
  - Eliminate requirement for laptop and SM GUI



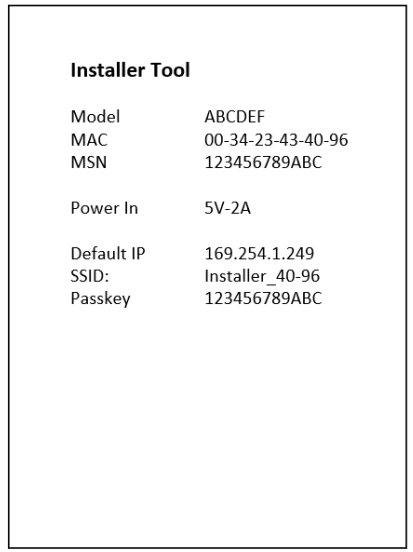
cnArcher Battery Pack - Ease-of-Installation

- What is it?
  - A hand-held battery that provides PoE to power the device being installed (i.e. SM)
  - It includes a Wi-Fi AP that enables an installer's Android/iOS mobile phone to connect to the device getting installed (Pre-configured for Cambium)
- Why is it needed
  - Very long battery life (>5 hours runtime, even w/450i)
  - Reliable / Durable
  - Simplifies factory defaulting radios
  - Auto-sensing voltage (29V, 56V)
  - For cnArcher iOS users, automatically handles network changes during installation workflow
    - Automatically changes from static to SM to DHCP for cnMaestro on-boarding.

FRONT VIEW



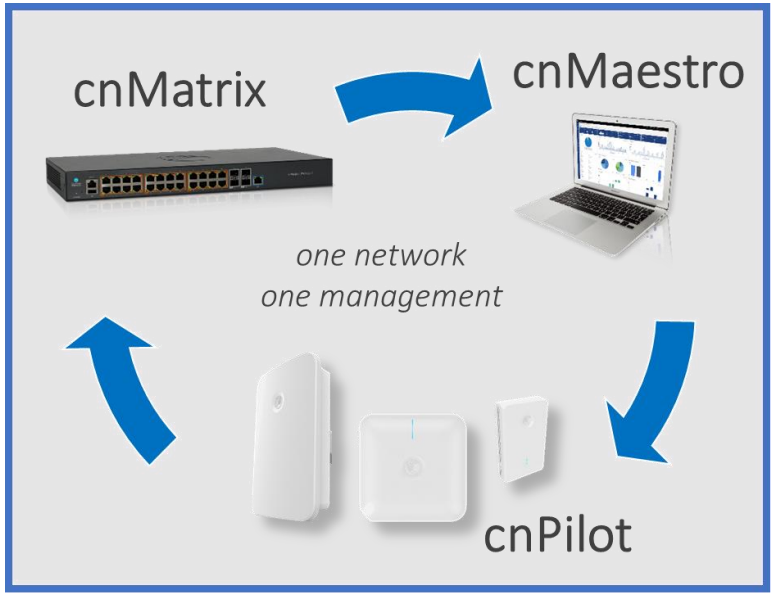
BACK VIEW



BOTTOM VIEW

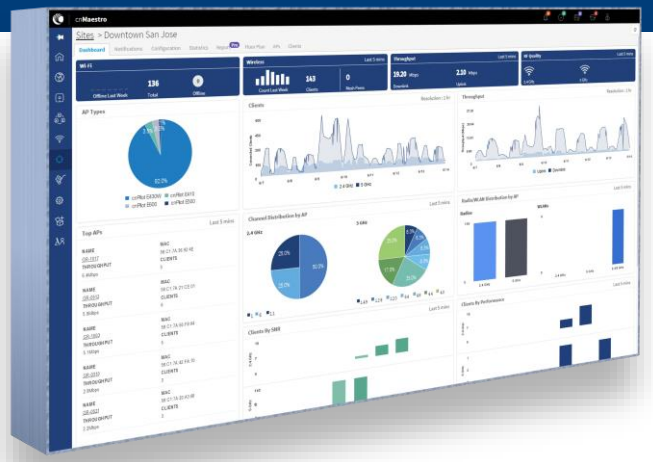
Cambium Networks™

cnMaestro | cnMatrix | cnPilot



Distributed Enterprise Networks

cnMaestro



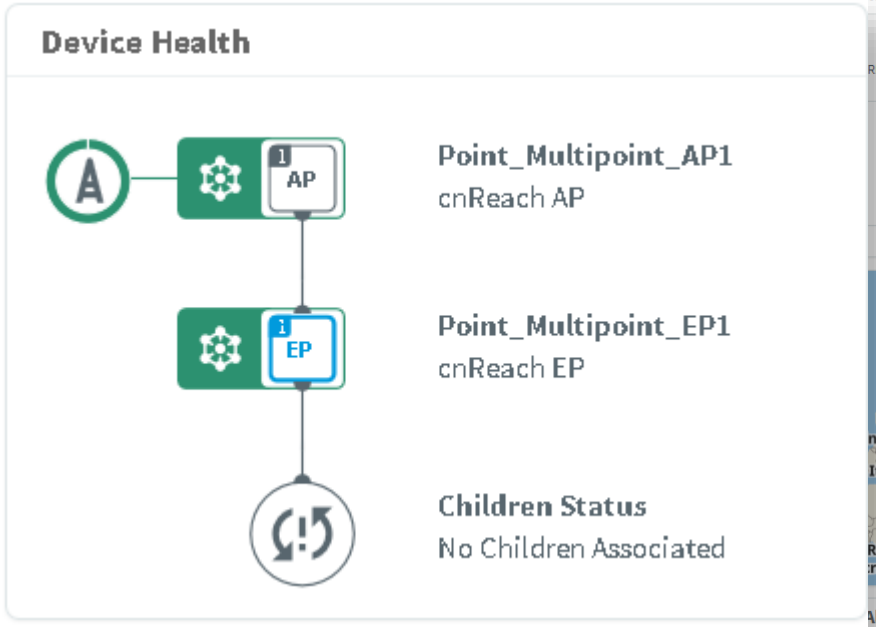
Single pane-of-glass Cloud management from Broadband to Ethernet to Wi-Fi

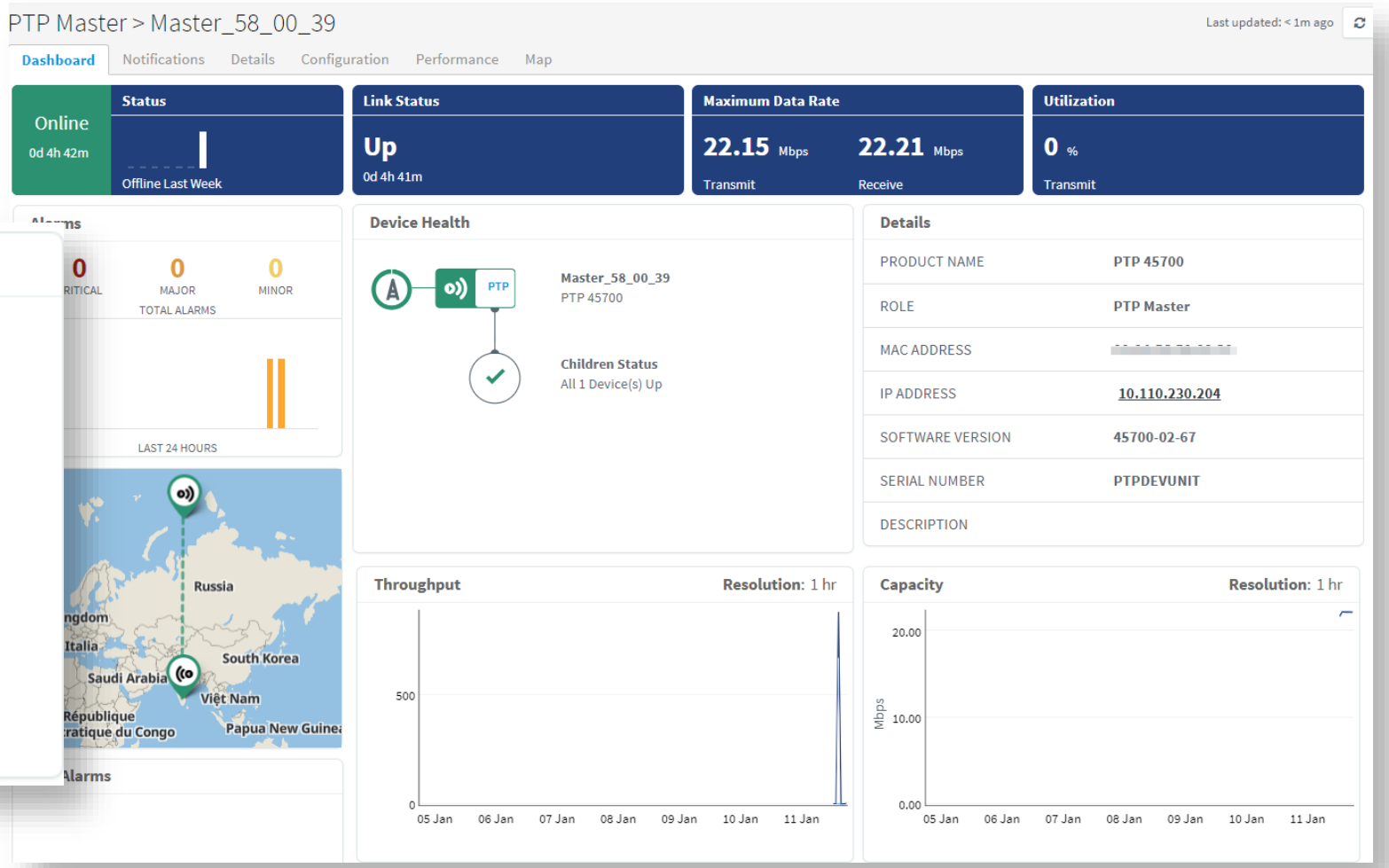
Cloud release V2.1.1 (03/01/2019)

- Add PTP 650/670/700 [dashboards, notifications, global map, HCMP]
- Add cnMatrix Ethernet [dashboards, notifications, performance, template config]
- Email notification [critical/major/minor, HTML or JSON]
- Scheduled Software upgrade
- PMP: SM LQI, Busy Index APs, Bulk Reboot, CSV import
- cnPilot: WLAN overrides
- cnPilot Home: WLAN and LAN statistics
- Guest Portal: guest logout, twitter login

cnMaestro – selected screenshots

- PTP Dashboard
- Improved Device Health

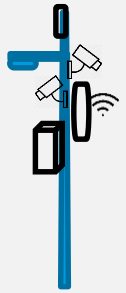




cnMatrix - Purpose Built for Target Deployment Use Cases

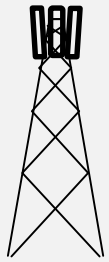
Available Now

Enterprise Indoor Access Switch



Available Soon

Video Surveillance & Smart City Deployments

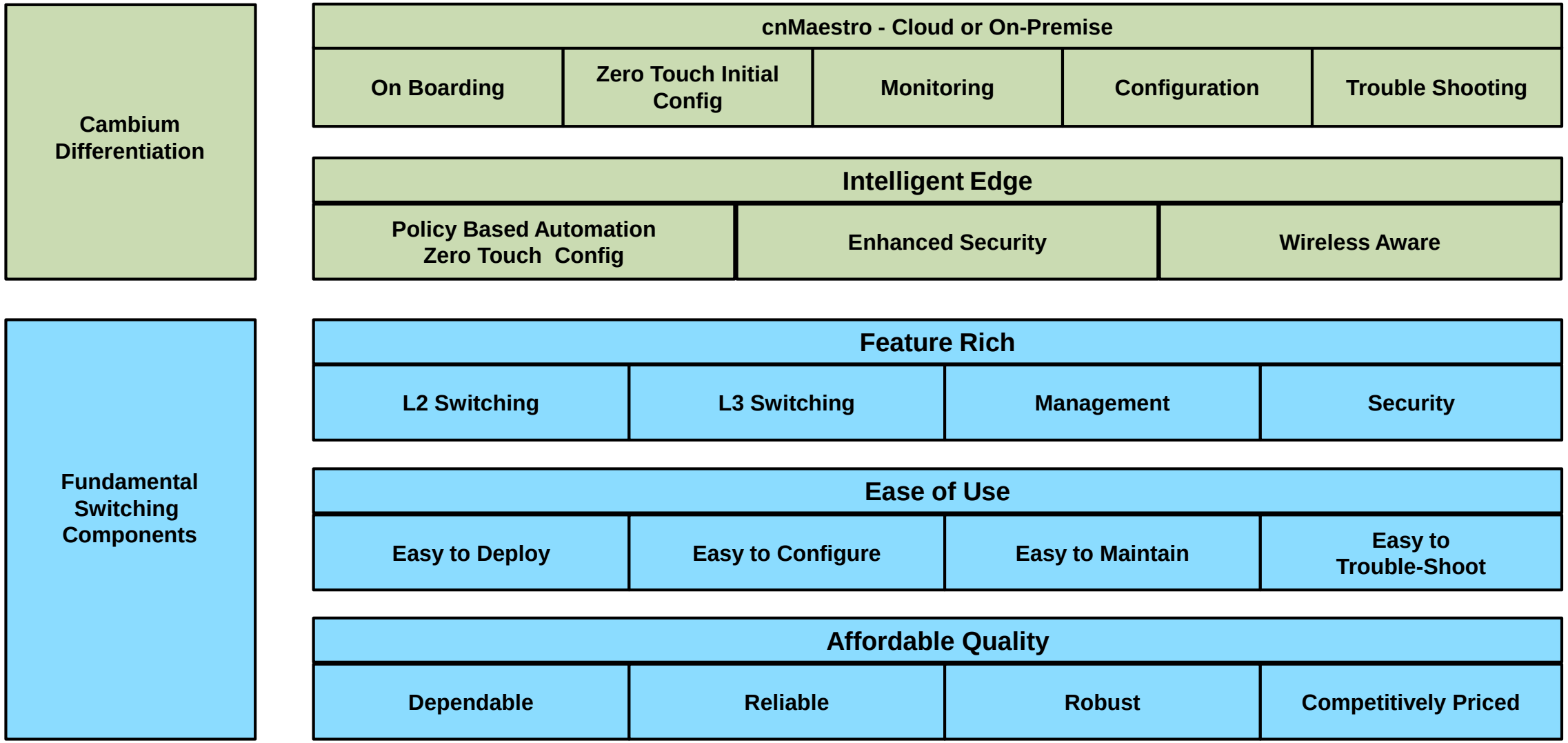


Available Soon

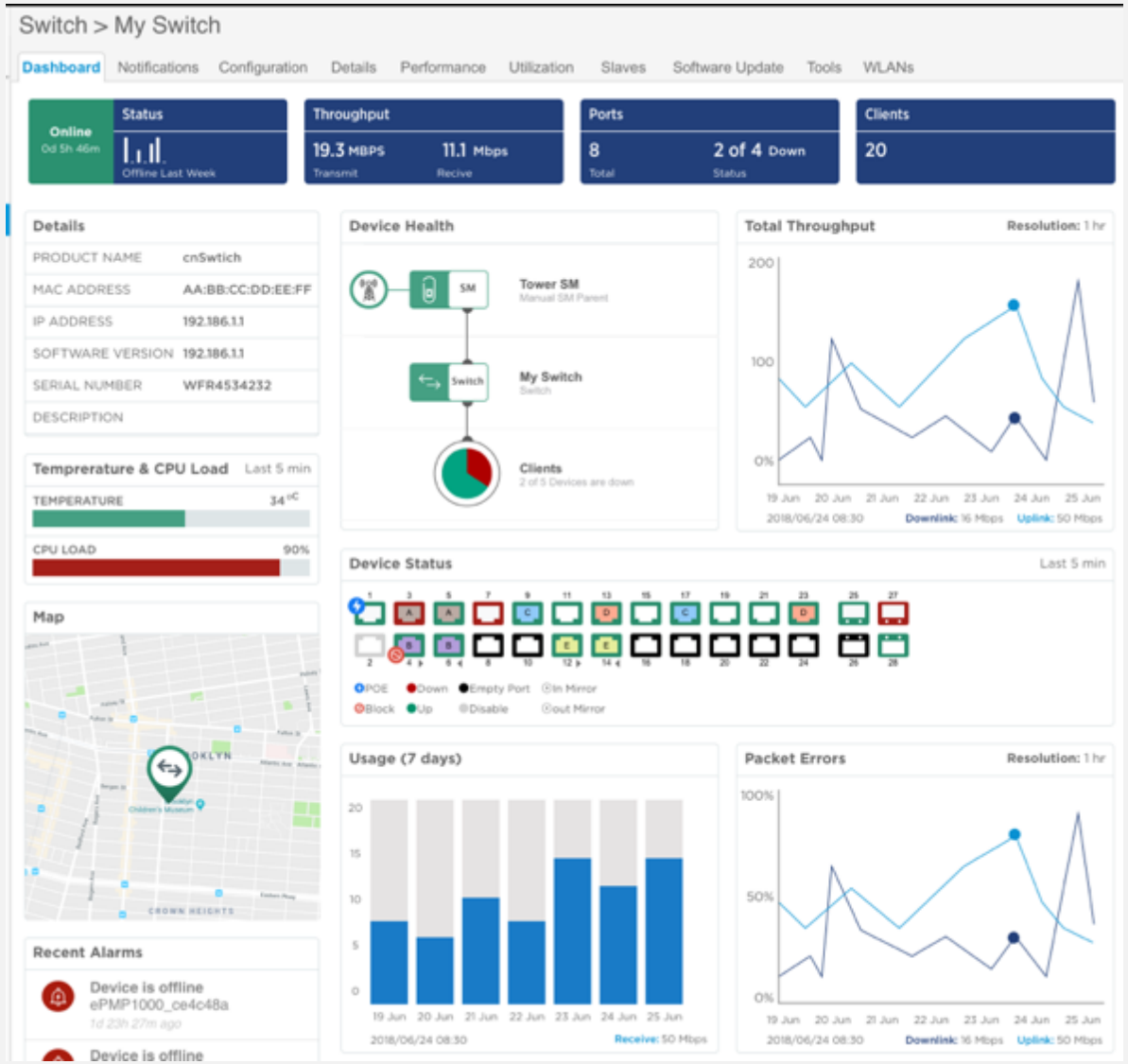
WISP Tower

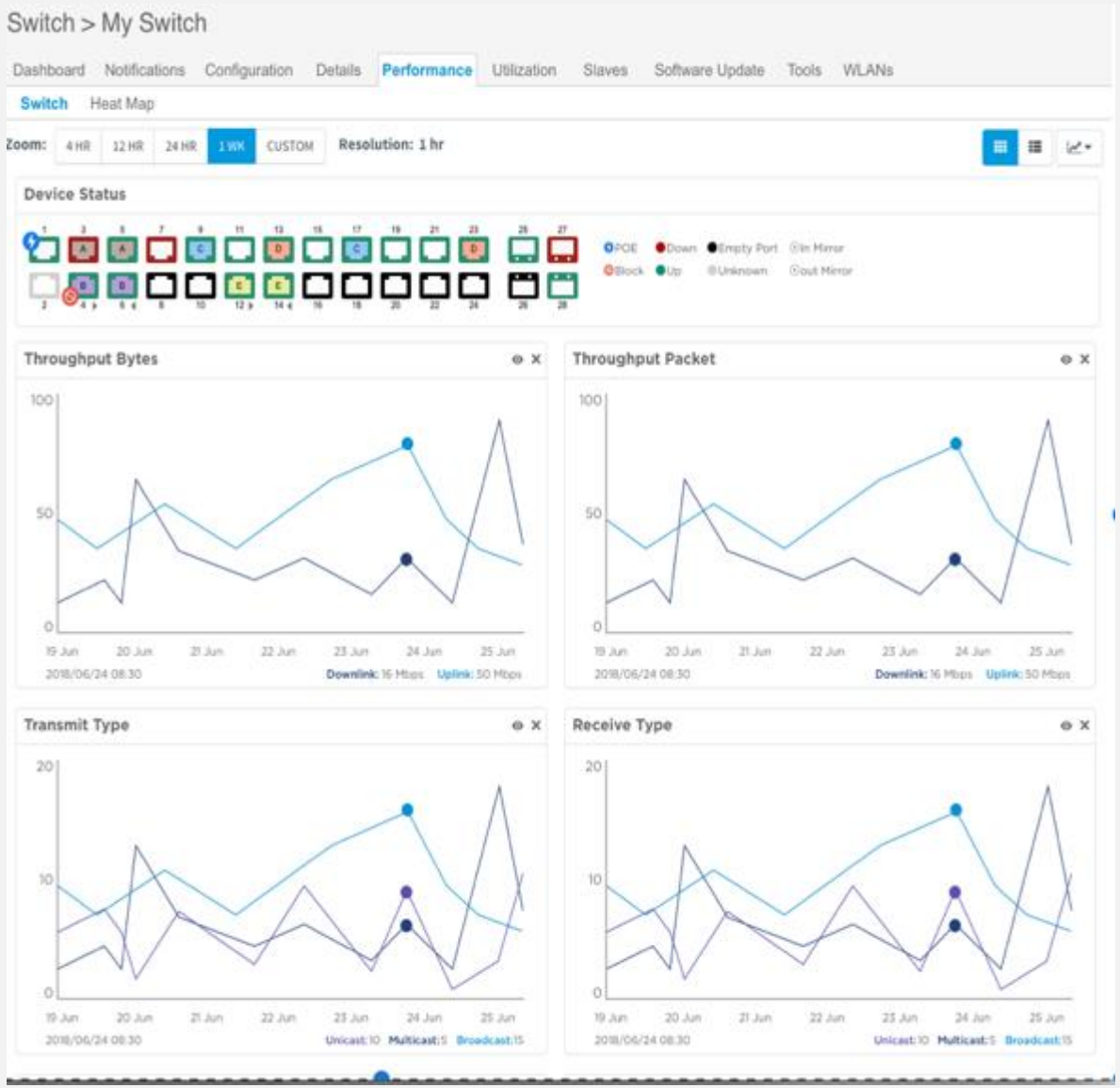
cnMatrix EX 2K

cnMatrix – Cambium Differentiation



cnMaestro Management





Cambium Networks cnMatrix – Overview

- **Enterprise Grade Layer 2 & Layer 3 Functionality**
- **Cloud Management with cnMaestro**
- **Ease of Use – Zero Touch Provisioning**
  - **Initial Deployment –** On boarding with cnMaestro
  - **Policy Based Automation** – Automation of device dependent configuration
- **Enhanced Security** – Device profiling and segmentation
- **Complete Access Layer** – cnMatrix+cnPilot+cnMaestro
- **Limited Lifetime Warranty & Best in Class Support**
- **Best in Class TCO**

New Residential & SMB Routers

Preliminary specs subject to change

cnPilot R240 Premium Small Business & Residential 802.11AC

- **4x4 802.11AC** wave 2, beamforming
- Hardware accelerated NAT Firewall
- Managed by cnMaestro; Cloud, MSP, On-Premises
- 1 x GE WAN, 4 x GE LAN, 2 x RJ11 ATA ports, USB2.0

ETA: Q2.2019

cnPilot R240

Extend Cambium Broadband indoor; managed by cnMaestro

Upgrade Small Medium Business, Apartments, Dormitory, MDU

Add Telephony Service to existing Broadband small business and consumer subscriber

cnPilot R195 Residential & Small Business Access Point

- 802.11AC, 2x2, Internal high gain antennas
- Hardware accelerated NAT Firewall
- Managed by cnMaestro; Cloud, MSP, On-Premises
- 1 x GE WAN, 4 x GE LAN, USB2.0

ETA: Q2.2019

cnPilot R195

Cambium Networks™

cnPilot Enterprise Wi-Fi is Distributed Services

Pan Enterprise Services

Same cnMaestro code/features/UX from cloud or private datacenter

3rd party Services via RESTful API
- BYOD certificate based authentication
- Guest/Shopper location analytics, engagement manager

Central guest portal
- Design template, or custom CSS and custom fields
- Time, Rate, T-put, multi-authentication, Extended billing options Pro
- Seamless roaming database

Managed Service Provider Pro
- Multi-tenant with MSP workflows
- Private label brandable

Security detection and PCI compliance Pro
- WIDS/WIPS integration with shared scan control
- PCI compliant reports

Integrated Tools
- L7 Analytics and rules ACL Pro
- KPI (key performance indicators)
- Extended time and expanded details report Pro
- PCI compliance WIDS/WIPS Pro
- Help desk tools, RF scanning, interference scan, noise scan

What is Pro

More operational data, more storage

Expanded tools including L7 analytics, WIDs, and actionable reporting

Token based license, annual renewal

Engagement

- Campaign Manager: email, SMS, social
- Multi channel marketing; Wi-Fi and video ads
- Ad and coupon manager
- Social login analytics and user demographics
- Location-specific marketing content and ads Integrated Campaign manager: delivery, conversion, revenue tracking

Operational Insights

- Shopper traffic patterns, dwell time, return analytics
- Geo zone analytics
- Real time alerts for improved shopper engagement
- Network analytics timeline

cnPilot Indoor Outdoor 11ac wave 2 cnMatrix Ethernet Switching

- Indoor/Outdoor 11ac, wave 2, integrated BLE, high efficiency and high density design antennas
- RF aware high density. Enhanced roaming and standards based
- Cambium aware Distribution and Access layer Ethernet Switches with PoE

Cambium Networks™

Quick Hits and Updates

Matt Mangriotis

PTP550 Updates

- 4.3.2 RC 11 firmware already out supports DFS 5.4/5.2 GHz
  - Available on the support site now!

- Roadmap
  - QoS April 2019
  - DCS Q2/Q3 2019

- Radio already supports -9 dBm Tx Power, can use higher gain antenna
  - FCC recertification in process

PTP 820E
Full Outdoor, Compact, all IP, E-band

RADIO

71 - 86GHz

1024 QAM, 500MHz

2.5 Gbps in a box

Radio Variation

Connectorized – Direct Mount

Integrated Flat Panel Antenna (ETSI/FCC)

CONFIGURATIONS

1+0

SFP+ Port

Multi-band (E-band & MW)

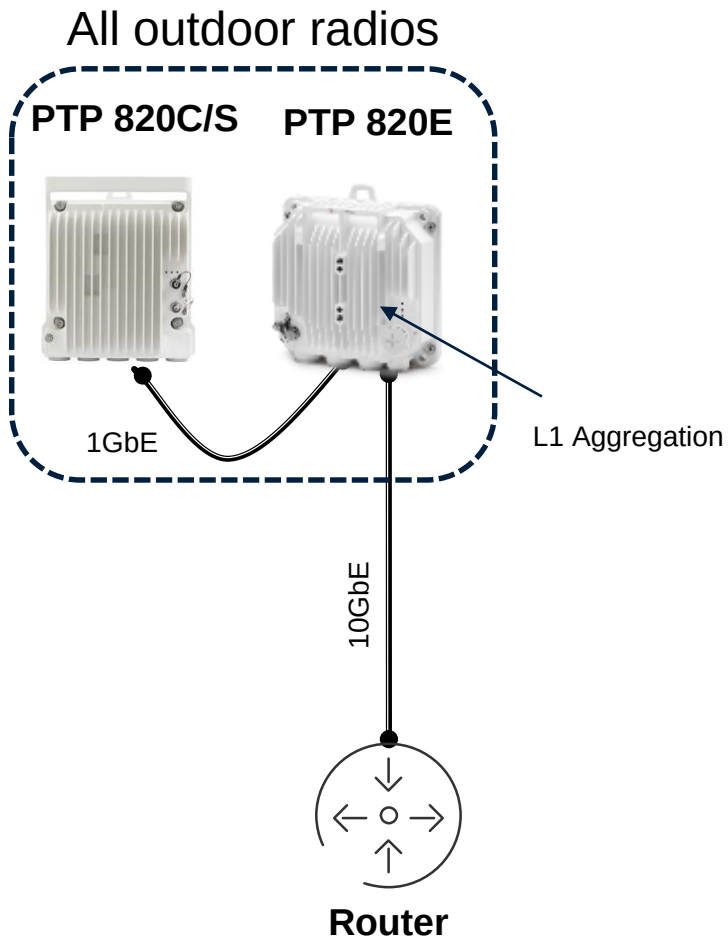
RFU-E Interoperability

HIGH CAPACITY

62.5MHz	125MHz	250MHz	500MHz
500Mbps @1KQAM	**920Mbps** @512QAM	**1.6Gbps** @256QAM	**2.5Gbps** @64QAM

PTP 820 Multiband

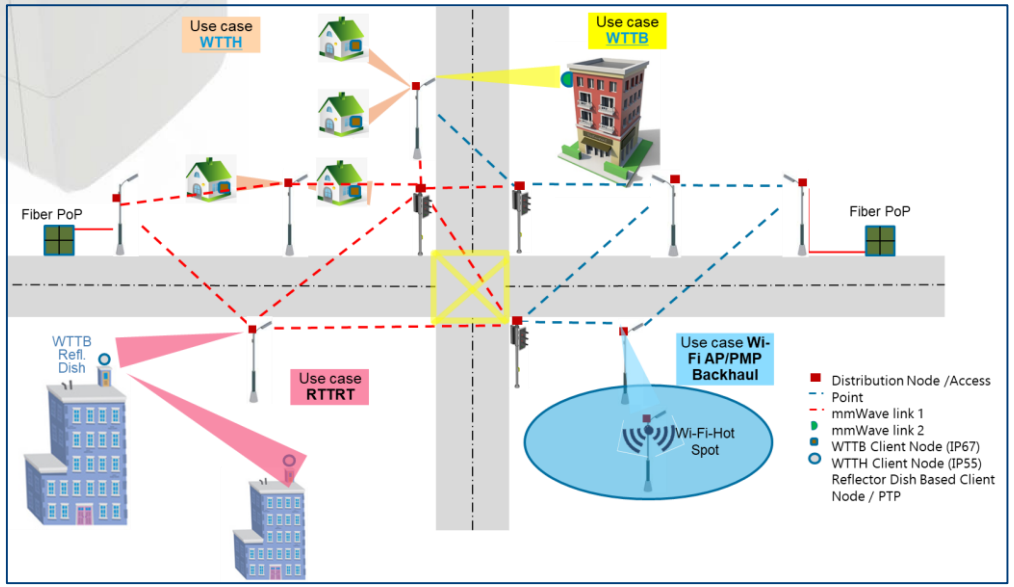
- Require PTP 820E ESP hardware with PTP 820C or PTP 820S
- 18, 23 GHz + 80 GHz
- Easy link Alignment



cnWave – Cambium Networks' 60 GHz Solution

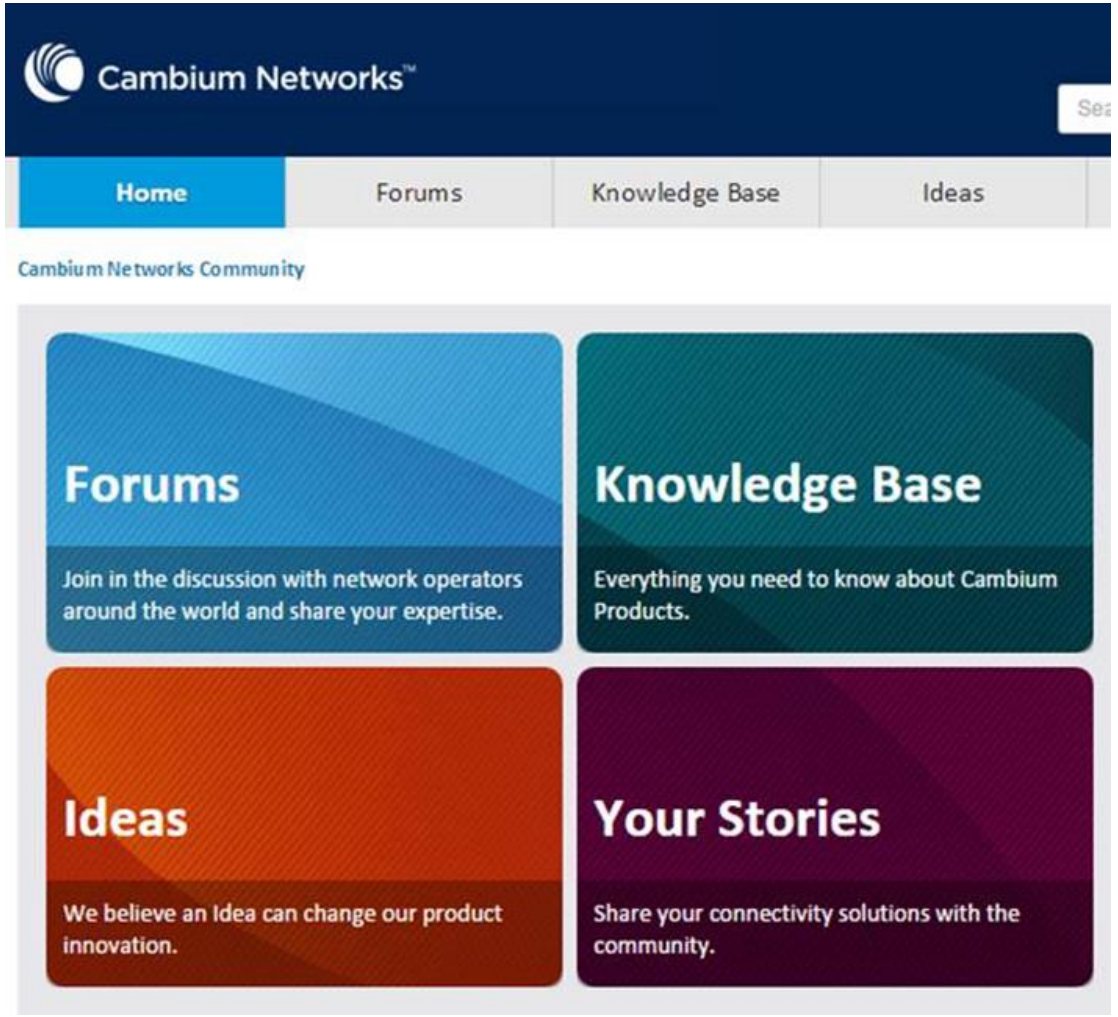
- Provide high capacity wireless solution to resident, enterprise and backhaul for Wi-Fi or small cell
- PMP, PTP and Mesh configurations
- Terragraph Certified
- Based on 802.11ay SoC
  - TDD / TDMA chanel access and scheduling
  - Support network synchronization through 1 PPS
  - Mesh support
  - Higher capacity using channel bonding, up to 2 adjacent channels
  - Support 16 CPE vs. 8 of 802.11ad
  - Support channel 1 to 5 vs. 2&3 of 802.11ad

Q4 2019



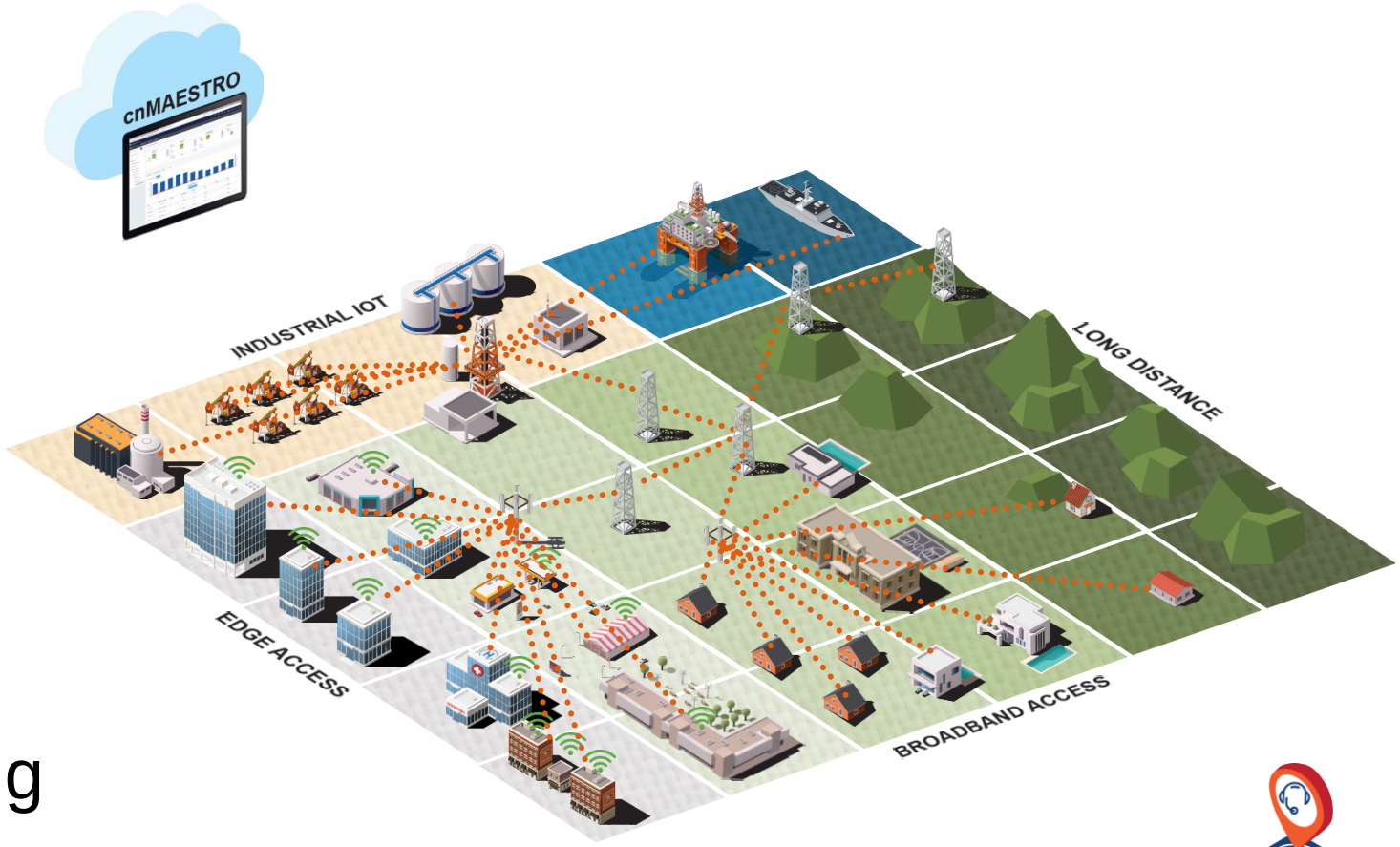
Cambium Community

- Learn from network operators around the world
- Community Forum
  - Products
  - Network Planning
  - Languages
  - Business Issues
- Knowledge Base with technical detail documents
- Submit development ideas
- Real world connectivity stories



Cambium Wireless Network Fabric

- People Places Things
- 2mto 246km
- Kb to Mb to Gb
- Indoor and Outdoor
- PTP PMP Wi-Fi
- Licensed and Unlicensed
- Concept to Commissioning
- Single Pane of Glass



GLOBAL SUPPORT

Q & A


Cambium Networks™