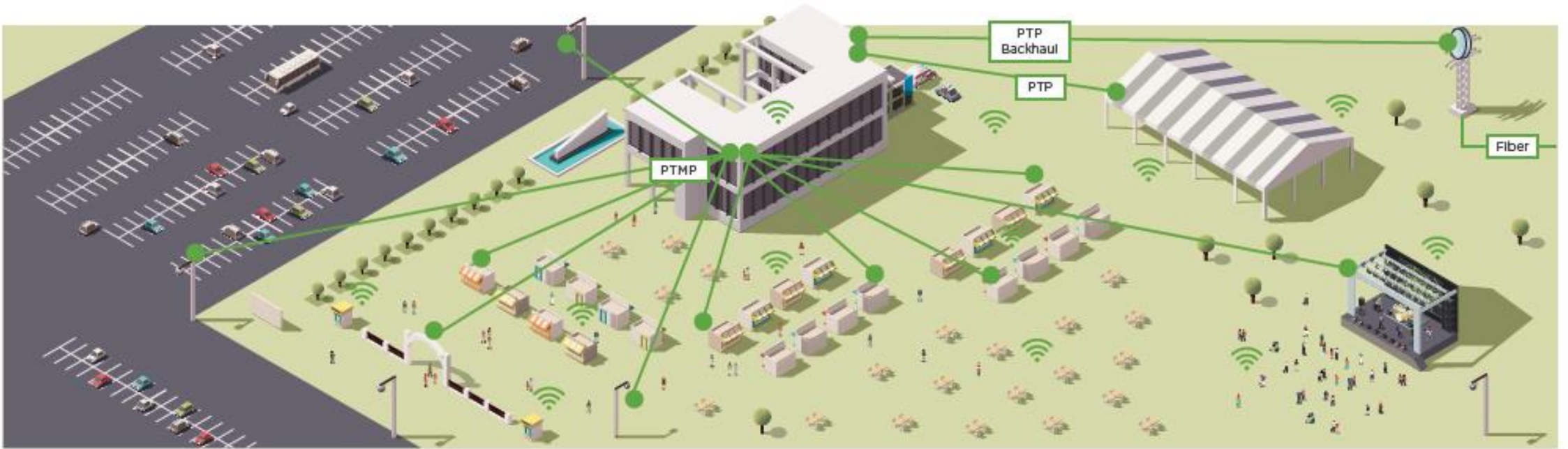**Events**

Wireless Connectivity Solutions for Events

- Events of all types require robust connectivity for attendees and event management staff
  - Wi-Fi shall be omnipresent, support large numbers of users, and be reliable, fast and secure.

- Events pose unique challenges
  - Temporary nature of events precludes permanent wired infrastructure
  - Must be quick to deploy
  - Often times require long range, outdoor backhaul solution
  - Require simple, dedicated management platform for IT staff to monitor devices and manage in real time
  - Solutions must be cost effective, and re-deployable at future events
  - Wireless infrastructure must support large crowds and a wide variety of applications

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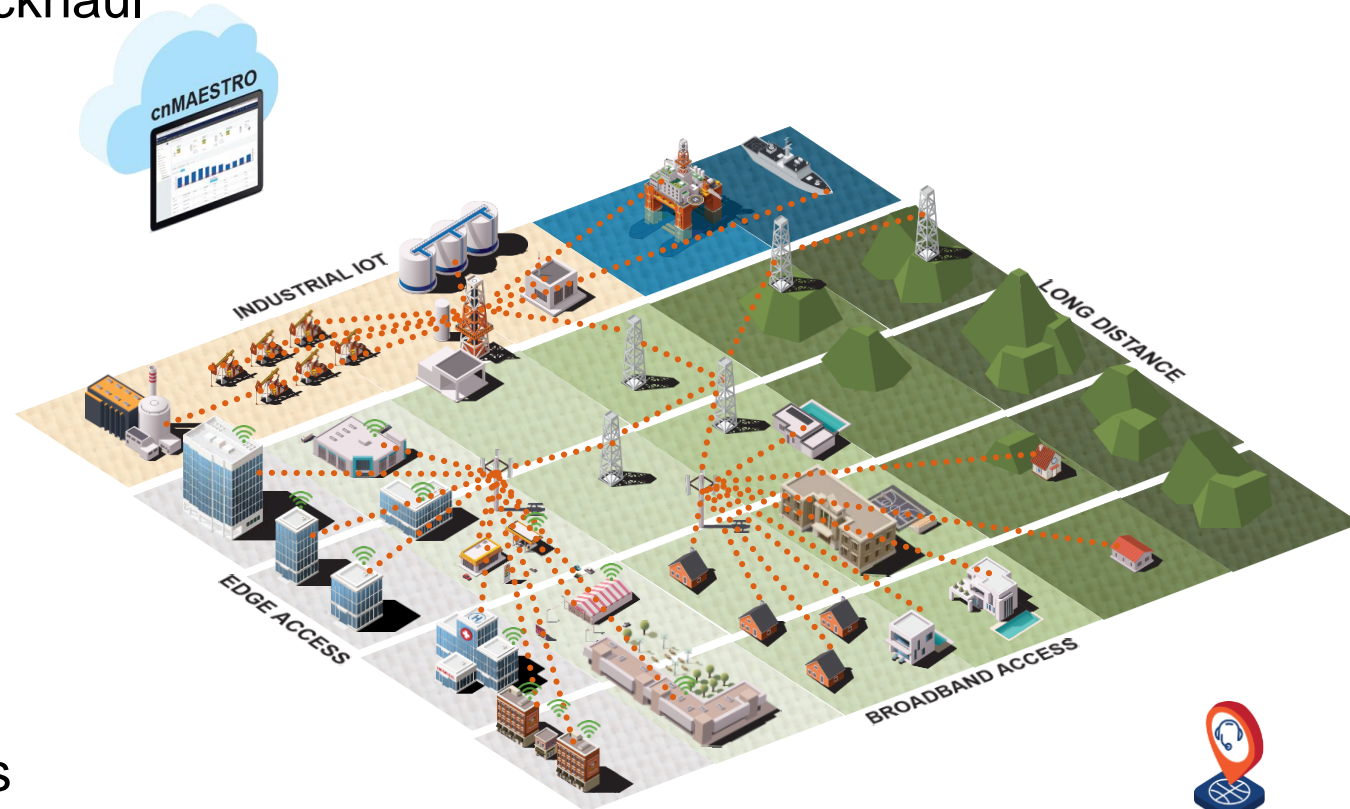
Wireless Connectivity for Events

-

- Point-to-multipoint links to connect outlying Wi-Fi hot spots, CCTV cameras, and dedicated Ethernet drops
  - ePMP 5.x / 2.4 GHz
  - PMP 450m ultra high capacity

- cnPilot indoor and outdoor Wi-Fi access points for high density coverage throughout the venue
  - e410, e600 Indoor
  - e500, e700 Outdoor

- cnMaestro end-to-end management

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A "Wireless Fabric" of Connectivity

- Long Range Point-to-Point Broadband Backhaul
  - Licensed Microwave
  - Unlicensed Backhaul

- Point-to-Multipoint Broadband Distribution
  - Licensed 3 GHz
  - Defined Use 4.9 GHz
  - Unlicensed 2.4 & 5 GHz

- Enterprise Wi-Fi 802.11ac Edge Access
  - Indoor
  - Outdoor

- Industrial IoT narrowband SCADA wireless backhaul
  - Licensed frequency
  - Unlicensed frequency

- Cloud-based end-to-end management

cnMAESTRO

INDUSTRIAL IOT

LONG DISTANCE

EDGE ACCESS

BROADBAND ACCESS

GLOBAL SUPPORT

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Event Applications

- Public Wi-Fi for guests

- Private Wi-Fi for event staff

- Video streaming for displays

- Secure vendor point-of-sale and credit card processing

- Attendee registration

- Dedicated Ethernet drops to vendor booths

- Video surveillance/security

- Point to Point backhaul to deliver bandwidth into event network infrastructure

Benefits

- **Complete Event Solutions** – Cambium networks is a one stop shop for all wireless gear required for events

- **Highly Configurable** – Wireless networks for events can be designed to support a wide variety of

- **Reliable** – With millions of wireless broadband and Wi-Fi modules deployed around the world, Cambium Networks solutions are field

- **Rapidly Deployable** – Cambium wireless infrastructure and Wi-Fi solutions provide can be installed, configured, and turned up in a matter of hours in support of events large and small.

- **Flexible Options –** Wi-Fi networks can be deployed via hardwire/fiber connections, simple mesh configuration, or via interconnection using a reliable and dedicated fixed point to multipoint network.

- **Secure** – The entire Cambium portfolio of products makes use of the latest standards in network security, encryption, and protocols ensuring data integrity for all users.

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Proven Solutions

- cnPilot Indoor and outdoor Wi-Fi Access Points with industry leading features
  - Intelligent–edge controller + cloud/on-premise managed
  - 802.11ac Wave 2 – High capacity / dual band
  - POE Out on outdoor APs for PMP or camera connectivity
  - Meshing capability

- Industry leading Outdoor fixed wireless PMP/PTP equipment
  - PMP 450 – Industry's highest capacity and most scaleable PMP solution
  - ePMP – Outstanding outdoor PMP performance, economical, secure, robust
  - PTP 550 / PTP 670 – High capacity, robust point-to-point backhaul

- cnMaestro software platform for secure, end-to-end network control
  - Wireless network manager simplifies device management
  - Zero touch provisioning & onboarding of devices
  - Perform a full suite of wireless network management functions in real time
  - Optimize system availability, maximize throughput
  - Single pane of glass view of entire network
  - Captive Portal / splash page login for public & private events
  - Cloud based or on premise

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Key Technologies:

- Full Featured 802.11ac Wave 2 Enterprise grade dual band indoor and outdoor Wi-Fi access points which support 256-512 users, 16 SSIDs, multiple Ethernet ports, meshing, roaming, & > 1Gbps capacity.

- Full license-free cloud or on-premise management monitoring, management, and Wi-Fi controller system along with smart-edge capability APs to ensure ease of provisioning, monitoring, and reliability as well as captive portal/splash page functionality.

- Industry leading GPS synched point-to-multipoint and point-to-point outdoor fixed wireless solutions to provide backhaul connectivity to individual or groups of Wi-Fi APs.

- Intelligent Filtering – automatically blocks out adjacent channel noise to improve signal quality

- Rugged Hardware – Outdoor IP 67 housings protect against rain, solar radiation, dust and temperature extremes

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Proven Solution: High Density Wi-Fi for Gamer Conference

- Reboot Infogamer conference is one of the largest annual gaming conferences in Europe, hosted each year in Zagreb, Croatia

- The event hosts ~70,000 tech-savvy attendeesin a 15,000 square meter venue, with >200 exhibitors, 600 playable units, and over 100 virtual reality demos

- Wi-Fi requirement is extreme, due to nature of the conference and demands of gamers, and requirement for 1000s of connections

- Needed a solution for indoor and outdoor areas and ease of joining network with splash page

Solution
Infogamer chose cnPilot Wi-Fi models E400 for indoor coverage, and E500 for outdoor. System was managed with cnMaestro.

"Installation was simple and quick; and …onboarding was simple. Our visitors were able to click, join, and use the system….During the six days of the event, tens of terabytes of information were handled for thousands of unique client devices, Cambium Networks delivered spot on in every single aspect."- Damir Durovic, Reboot CEO
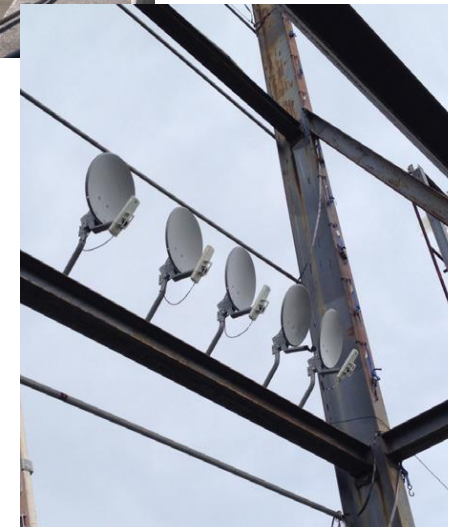
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Proven Solution: Stadium Pop Music Concert

- Pop music artist Rihanna's concert support team required connectivity for production & staff during stadium event in Puerto Rico

- Five concert tour support trailers required separate, dedicated, secure internet feeds for various purposes

- Project required rapid deployment & service monitoring to ensure reliability

SOLUTION
Wireless service provider Aeronet deployed five individual fixed wireless point-to-multipoint PMP 450 subscriber module at stadium site, linked from a nearby tower to connect from concert venue to the backbone network.

"We get a handful of requests each month to do similar projects. Depending on the location and our network, we can connect events with either PTP links or PMP 450 remote modules. Both perform equally well, and we have the flexibility to make the exact type of connection that we need." – Gino Villarini, Aeronet CEO

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Proven Solution: Wi-Fi at the Formula 1 Brazilian Grand Prix 2017

- The Formula 1 Brazilian Grand Prix is the largest annual sporting event in Latin America

- Event organizer sought Wi-Fi coverage to support concessions sales for the 3-day event

- Food and beverage purchases during the Grand Prix were performed exclusively via dedicated cashless debit cards.

- Required a customized, high performance, secure Wi-Fi infrastructure to support consistent and stable transactions across a total of 190 devices

- All concession vendor locations were temporary, modular structures requiring quickly deployed, cost-effective Wi-Fi solution

Solution
Cambium Networks cnPilot e410 Indoor and e500 Outdoor access points were used to provide Wi-Fi coverage to all cashiers in grandstands at the Interlagos Circuit, managed by cnMaestro™ Network Controller, which enabled the communications team to remotely monitor all equipment and network traffic in real time.