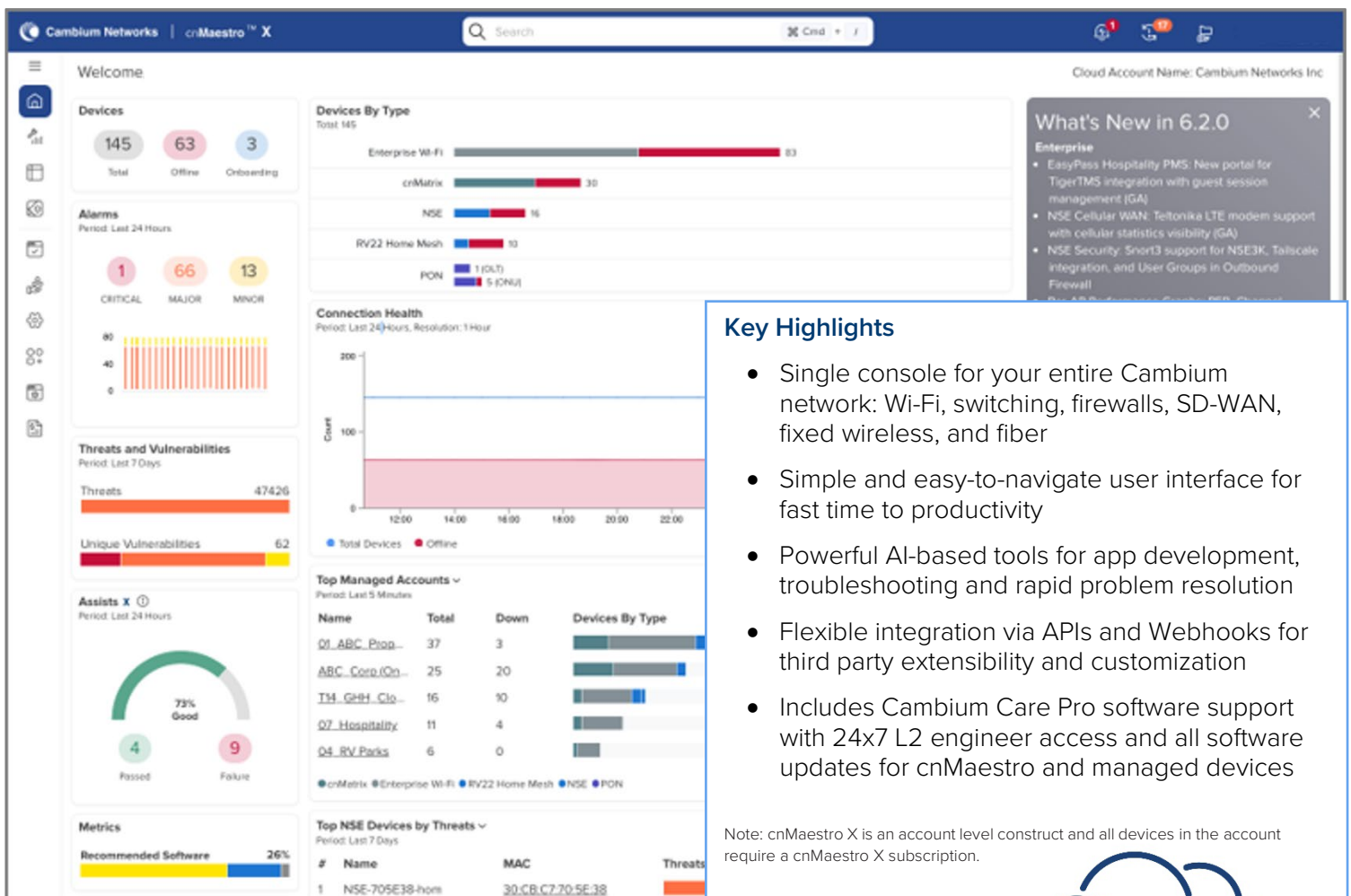
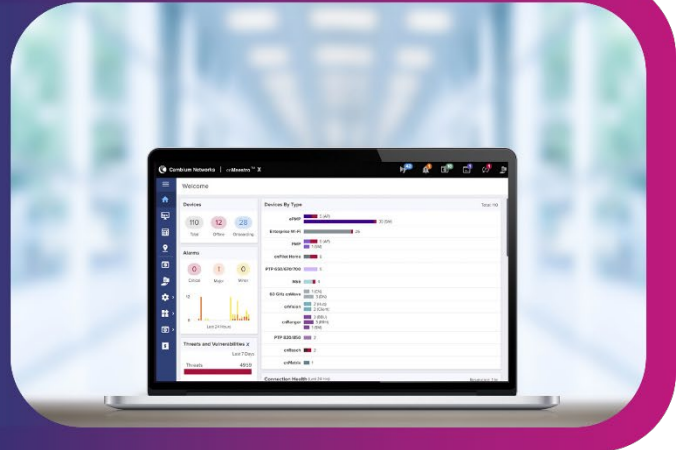


cnMaestro X Management System

cnMaestro X Quick Look

cnMaestro™ X is a simple but powerful AI-driven network management system for Cambium Networks wireless and wired solutions.

- Single-pane-of-glass experience for Cambium's ONE Network
- Secure, end-to-end network management with zero-touch provisioning
- AI-driven app development platform and network assurance that empowers administrators



Key Highlights

- Single console for your entire Cambium network: Wi-Fi, switching, firewalls, SD-WAN, fixed wireless, and fiber
- Simple and easy-to-navigate user interface for fast time to productivity
- Powerful AI-based tools for app development, troubleshooting and rapid problem resolution
- Flexible integration via APIs and Webhooks for third party extensibility and customization
- Includes Cambium Care Pro software support with 24x7 L2 engineer access and all software updates for cnMaestro and managed devices

Note: cnMaestro X is an account level construct and all devices in the account require a cnMaestro X subscription.

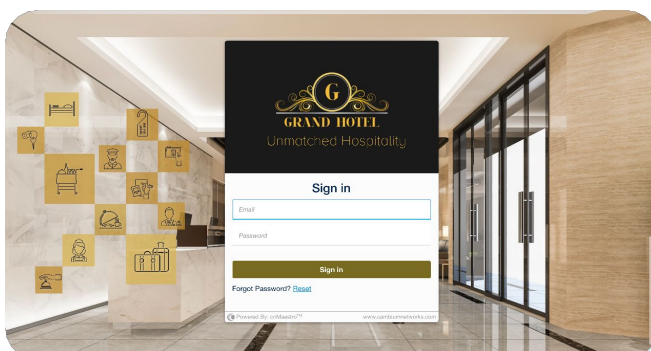
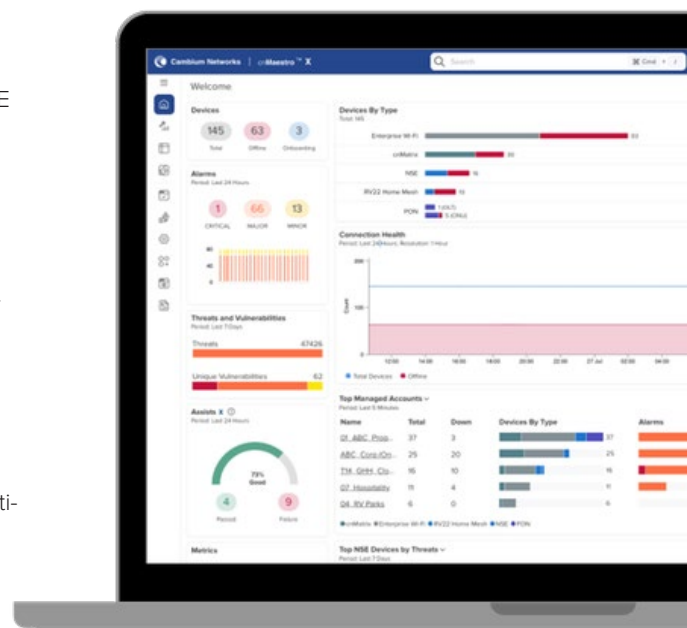


cnMaestro™ X Management System

Advanced Functionality in cnMaestro X

cnMaestro is offered in two options: 1) cnMaestro X with full platform functionality and available with a subscription; and 2) cnMaestro Essentials with a subset of functionality and does not require a subscription. The following key features are available with cnMaestro X.

- X Assurance, providing AI-powered analytics to identify and fix network issues, helping IT admins proactively locate and resolve root causes of problems
- MarketApps Hub, providing an AI-driven marketplace and development platform for simple, purpose-built web apps that leverage the Cambium ONE Network
- EasyPass, offering diverse Wi-Fi onboarding options for employees, guests, customers, and IoT with advanced captive portals and 1-year client history
- Application Control, providing visibility, analytics, and policy control for 5,000+ applications at the Wi-Fi and WAN edge
- Advanced cnMatrix™ Ethernet switch features, including QinQ, Auto-Device Recovery (ADR) and cable diagnostics
- Customizable MSP dashboard with ability to create different brands with multi-tier customizations, including guest portals
- Consolidated MSP multi-tenant statistics with drill-down to account-level visibility and control; support for up to 200 managed tenants
- Restful APIs and webhooks for integration with existing OSS/BSS systems and event monitoring
- Assists function to scan device configurations that identify potential vulnerabilities and recommends improvements to save time troubleshooting
- Long-term historical data retention: 2 years of data for fixed wireless and 1 year of data for enterprise and IIoT devices
- RADIUS, TACACS+, LDAP, and AD login for user administration



cnMaestro X allows MSPs to create a custom branding experience for their customers.

cnMaestro™ X Management System

Key cnMaestro Functionality

- Zero-touch provisioning: Create, provision, monitor, and manage the entire network of wireless and wired devices from a single dashboard login with key performance metrics, alarms, and alerts. The cloud-first UI design is easy to learn and apply across the portfolio and helps network administrators simplify operations and deliver an optimal client experience.
- With centralized visibility and control for Cambium's wireless and wired products, network administrators can quickly and easily deploy networks with minimal training. Whether you work on small sites or large distributed networks with thousands of sites, cnMaestro makes deployment and operations easy. Administrators have access to information needed to enforce policies and optimize performance. Remote support capability is integrated into the architecture, along with powerful help-desk tools to debug remote issues without going on site. Troubleshooting tools such as ping, traceroute, throughput, and live packet captures are included, dramatically reducing resolution times and enabling remote troubleshooting.
- Deployment flexibility and TCO: Choice of public cloud, private cloud, or on-premises deployment with best total cost of ownership (TCO). cnMaestro helps reduce operating costs and accelerate return on investment. cnMaestro does not require Wi-Fi controllers, thereby reducing the complexity and cost of deploying Wi-Fi networks.
- Built for scale and security at all levels: Devices connect to cnMaestro Cloud using SSL-enabling deployments without changes to the firewall configuration. Cambium intelligent edge architecture enables fault-tolerant networks where the network continues to operate even when the cloud is unreachable due to a WAN outage. With cnMaestro X, you can manage networks with up to thousands of sites and up to 25,000 devices.
- Tailored views for enterprise, access and backhaul, and IloT: The access and backhaul view provides visualization and control of devices from service provider towers to the network edge.
- Supports network hierarchy, enabling easy configuration, monitoring, and debugging at network nodes to reduce operational costs. This is especially critical for large networks or small distributed networks with small on-site IT staff.
- Provides a bird's-eye view of network health with insights on performance, connectivity, and client experience. Administrators can quickly identify potential trouble spots and drill down from network to client-level details.
- Extensible platform for managing third-party endpoints.
- Supports the following Cambium solutions:
 - Wi-Fi 6/6E/7 Access Points (AP)
 - cnPilot™ E-series and R-series APs
 - Xirrus XD, XH, XA, and XR 11ac APs
 - cnMatrix EX and TX Series Switches
 - Network Service Edge (NSE)
 - cnWave™ 60 GHz and 28 GHz
 - PTP (point-to-point)
 - PMP and ePMP™ (point-to-multipoint)
 - PON
 - cnReach
 - cnRanger™

cnMaestro On-Premises Server Requirements

Resources	Enterprise	Fixed Wireless	Enterprise and Fixed Wireless
8vCPUs, 16 GB RAM, 250 GB Hard Disk	10,000 enterprise devices (Wi-Fi, cnMatrix, NSE)	20,000 fixed wireless devices (PMP, ePMP, PTP, cnReach, cnRanger)	10,000 total fixed wireless and enterprise devices (PMP, ePMP, PTP, PON, Wi-Fi, cnMatrix, NSE)
16vCPUs, 32 GB RAM, 500 GB Hard Disk	25,000 enterprise devices (Wi-Fi, cnMatrix, NSE)	40,000 fixed wireless devices (PMP, ePMP, PTP, cnReach, cnRanger)	25,000 total fixed wireless and enterprise devices (PMP, ePMP, PTP, PON, Wi-Fi, cnMatrix, NSE)

cnMaestro™ X Management System

Product Summary *Features marked X require cnMaestro X subscription*

PLATFORM FEATURES

Scale

- Max number of managed devices: 10,000 (requires X for over 10,000 devices)
- Max number of managed devices: X
 - o 25,000 for enterprise
 - o 40,000 for FWB
- Management users: 10
- Management users: 200 X
- Managed service provider accounts X
 - o Branded tenant login page X
 - o Support for up to 200 accounts
- Long-term data retention X
 - o 2-year for access and backhaul view
 - o 1-year for enterprise and industrial internet view

Deployment

- Cloud-hosted delivered as a service
- Customer-hosted on-premises
- Amazon Marketplace® AMI

Onboarding & Provisioning

- Zero-touch onboarding
- Template configuration
- Object configuration (enterprise)
- RESTful provisioning API X
- Auto-provisioning X

Visualization

- Full visibility across network
- Supports ePMP, cnMatrix, enterprise and residential Wi-Fi, PMP, PTP, cnReach, cnRanger, NSE, PON
- Multiple product views
 - o Access and backhaul
 - o Enterprise wireless
 - o Industrial internet
- Hierarchical device tree

Configuration and Monitoring

- Redundant cloud services
- Scheduled system backup
- Automatic bulk software update
- Dedicated device dashboards
- Statistics and trending
- Email alerts
- Concurrent device jobs X
- Configuration lock X

Security

- Communication over SSL
- No inbound internet access
- Not-in-traffic path
- Disaster recovery

Troubleshooting and Forensics

- End-to-end view
- Technical support dump export
- Advanced troubleshooting X
 - o Audit logs
 - o Audit syslog and event syslog (On-Premises)

Support

- 8x5 support
- Live link to Cambium Community
- Cambium Care Pro – 24/7 technical support, accelerated access to L2 engineers X

Data and Reporting

- Statistics reports exported in CSV
- Export UI tables in CSV X
- RESTful monitoring API X
- Graphical reports X
- Webhooks support X

Administration

- Role-based access
- RADIUS, TACACS+, LDAP, & AD login X
- Session management X
- User authentication (On-Premises) X
- Open ID/SAML authentication X
- High availability (1+1) for On-Premises X

ADVANCED SERVICES

Assurance X

AI-Based Advanced Analytics/Troubleshooting

- Client connection lifecycle monitoring and analysis
 - Root cause analysis of connection and service failures
 - Network-wide client health monitoring and scoring
- NOTE:** Assurance is available for Wi-Fi 6 and above devices in cnMaestro X Cloud but not in cnMaestro X On-Premises

EasyPass

Wi-Fi Access Services

- o One-click
- o Sponsored guest X
- o Voucher
- o Paid X
 - Payment gateway
 - » PayPal®
 - » IPPay™
 - » QuickPay™
 - » M-Pesa®
- o Wi-Fi 4EU
- o Microsoft® Azure® authentication X
- o Google® authentication X
- o Self-registration: SMS and email X
- o Onboarding (ePSK cloud) X
- o Combined portal options
- Max number of login events:
 - o 2,000 event records for 30 days
 - o Unlimited records for 30 days X
- Number of guest portals: 4
- Number of guest portals: 500 X
- Max number of guest client sessions at a time: 10,000 X

Application Visibility and Control X

- 5,000+ different applications across Wi-Fi access network

MarketApps Hub X

Application marketplace and builder platform

- Certified Apps – Cambium-built/supported
 - o Onboarding, managed Wi-Fi, installation, vertical use cases
- Labs Apps – fast-to-market, Cambium-built
 - o Intent-based config, cnWave health check, Wi-Fi roaming analyzer, app control policy analyzer, and more

Assists X

- Assists for cnMatrix, Wi-Fi, cnPilot-R, PMP, ePMP, cnWave 5G Fixed, & PTP 670/700 X

DEVICE FAMILY FEATURES

Wi-Fi

- Simplified wireless LAN view
- Stateful firewall support
- Dynamic channel listing based on country, release, and SKU
- AP group and WLAN configuration
- Site support for collocated APs
- Simplified Wi-Fi offloading (Passpoint™, WayFi, XNET™, OpenRoaming®)
- Rogue AP detection
- Wi-Fi packet capture
- Support for software-defined radios (SDR) on XV3-8, XE3-4, and XE5-8 Wi-Fi 6 APs
- ePSK types:
 - o ePSK Local – cached locally on Wi-Fi APs
 - 2,000 per WLAN (Wi-Fi 6+)
 - 300 per WLAN (Wi-Fi 5)
 - o ePSK RADIUS – limited via external radius server X
 - o ePSK Cloud – unlimited and cloud managed (Wi-Fi 6+) X
- WIDS support X
- Personal Wi-Fi X
- Monitor Wi-Fi performance from client or AP to cnMaestro (On-Premises) X

Switching (cnMatrix)

- Zero-touch remote provisioning
- Policy-based automation (PBA) on EX and TX series switches
- Cambium Sync on TX series
- DHCP client/server
- Automated voice VLAN
- QinQ X
- Auto-device recovery X
- Cable diagnostics X
- MAC lists and location services for PBA X

Next-Gen Firewalls (Network Service Edge)

NOTE: Security Plus (S+) is subscription-based NSE.

- Firewall
- Site-to-site VPN
- Remote VPN
- WAN flow preferences
- DHCP/RADIUS/DNS services
- Load balancing
- WAN QoS and failover policy
- Starlink® Satellite Internet integration
- Teltonika® 4G/5G modem integration
- Tailscale® remove access integration
- Auto VPN S+
- LAN vulnerability assessment S+
- Granular content filtering (DNS-based) S+
- High availability S+
- IoT device identification S+

Fixed Wireless

- Claim PMP SMS associated with AP
- Cambium Networks Installer– installation summary upload (ePMP and PMP) X
- Mass provisioning for ePMP/PMP/cnWave 60 GHz (using LINKPlanner) X
- ePMP/PMP link test
- ePMP/PMP sector display
- PMP Spectrum analyzer X
- cnWave 60 GHz interference scan X
- cnWave 60 GHz MAP features
 - o Extensive network map RF link visualization X
 - o Auto-manage route

cnMaestro™ X Management System

cnMaestro X Subscription Tiers and Part Numbers

Tier	Product		cnMaestro X Subscription Part Numbers
Free Tier	ePMP Hotspot	1000 Hotspot	No subscription needed
	cnPilot Home	All R-series APs	
	cnRanger	All SM models	
	cnVision	MAXr, MAXrp, MICRO, MINI	
	cnWave 60 GHz	All client nodes	
	ePMP	All SM models	
	PMP	All SM models	
Tier 3	Enterprise Wi-Fi	All Wi-Fi 6/6E/7, cnPilot E-series, and Xirrus Aps	MSX-SUB-[Model]-1/3/5*
Tier 5	cnWave 60 GHz	All distribution nodes	MSX-SUB-T5-1/3/5
Tier 6	cnWave 5G Fixed	All CPE models	MSX-SUB-T6-1/3/5
Tier 7	cnWave 5G Fixed	All BTS models	MSX-SUB-T7-1/3/5
Tier 20	cnMatrix	All cnMatrix switches	MSX-SUB-[Model]-1/3/5*
Tier 21	cnVision	FLEXr, HUB360	MSX-SUB-EPMP-1/3/5
	ePMP	All AP models	
Tier 22	PMP	All AP models except 450m and 450mv	MSX-SUB-PMP450i-1/3/5
Tier 23	PMP	450m	MSX-SUB-PMP450m-1/3/5
Tier 24	cnRanger	All BBU models	MSX-SUB-PTP-1/3/5
	cnReach	All cnReach models	
	PTP	All PTP models	
Tier 30	NSE 3000 Security	NSE 3000	No subscription needed
Tier 30	NSE 3000 Security Plus	NSE 3000	NSE-SUB-3000-1/3/5**
Tier 31	NSE 4000 Security	NSE 4000	No subscription needed
Tier 31	NSE 4000 Security Plus	NSE 4000	NSE-SUB-4000-1/3/5**

*These products use model-based SKUs for subscription.

**These subscriptions operate with either cnMaestro X or cnMaestro Essentials.

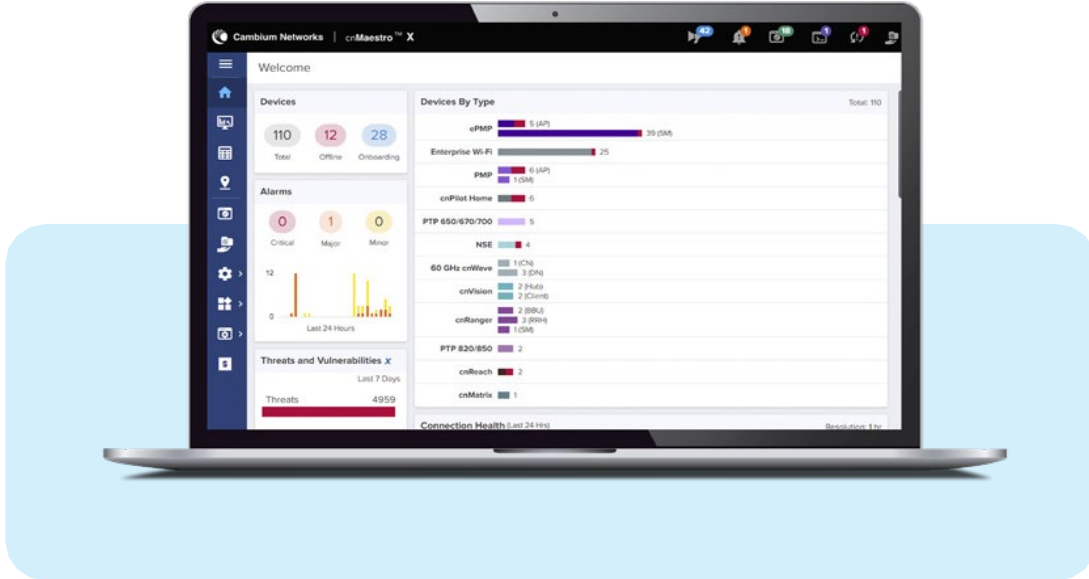
For Wi-Fi access points and cnMatrix switches, the corresponding cnMaestro X SKU follows a specific format:

- The base part of the SKU is **MSX-SUB-** followed by the model name of the access point (e.g., XV2-21X).
- The ending part will be **-1/3/5**, indicating the subscription term duration (1, 3, or 5 years).
- Similarly, for cnMatrix switches, the cnMaestro X SKU follows the same format based on the switch model name (e.g., EX3024F)

Example SKUs for a 3-year cnMaestro X subscription for XV2-21X AP and a 5-year cnMaestro X subscription for an EX3024F switch:

SKU	Description
MSX-SUB-XV2-21X-3	cnMaestro X for one XV2-21X AP. Creates one Device Tier3 slot. Includes Cambium Care Pro support. 3-year subscription
MSX-SUB-EX3024F-5	cnMaestro X for one EX3024F. Creates one Device Tier20 slot. Includes Cambium Care Pro support. 5-year subscription

cnMaestro™ X Management System



GET STARTED at

cloud.cambiumnetworks.com

Free 90-day trial of cnMaestro X:

cambiumnetworks.com/cnmaestro-x

ABOUT CAMBIUM NETWORKS

Cambium Networks enables service providers, enterprises, industrial organizations, and governments to deliver exceptional digital experiences and device connectivity with compelling economics. Our ONE Network platform simplifies management of Cambium Networks' wired and wireless broadband and network edge technologies. Our customers can focus more resources on managing their business rather than the network. We make connectivity that just works.

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