

Dodatok č. 1
ku Kúpnej zmluve zo dňa 20.6.2022
uzatvorená podľa ust. § 409 a nasl. zákona č. 513/1991 Zb. Obchodného zákonníka
v znení neskorších predpisov

Článok I.
Zmluvné strany

1. predávajúci:

obchodné meno:	PNET Communications s. r. o.
sídlo/miesto podnikania:	Chotín 946 31, 404
právna forma:	spoločnosť s ručením obmedzeným
v mene predávajúceho podpisuje/-ú:	Ing. Zoltán Bakulár, konateľ spoločnosti
IČO:	43 847 692
DIČ:	2022494892
IČ DPH:	SK2022494892
zapísaný v:	Obchodnom registri Okresného súdu Nitra, oddiel: Sro, vložka číslo: 21204/N

(ďalej len „predávajúci“)

a

2. kupujúci:

názov:	Obec Zemianska Olča
sídlo:	Hlavná 583/26, 946 14 Zemianska Olča
zastúpený:	Ivan Válek, starosta obce
IČO:	00 306 720
DIČ:	2021014842

(ďalej len „kupujúci“)

(ďalej spolu aj ako „zmluvné strany“)

3. PREDMET DODATKU

2.1. Zmluvné strany sa dohodli na uzatvorení Dodatku č. 1 v nasledovnom, znení.

2.2. Predmetom tohto Dodatku č.1 ku Kúpnej zmluve zo dňa 20.6.2022 je **zmena bodu „9.20 Neoddeliteľnou súčasťou tejto zmluvy sú jej prílohy“** nasledovne:

Pôvodné znenie:

9.20. Neoddeliteľnou súčasťou tejto zmluvy sú jej prílohy:

Príloha 1: Špecifikácia prístupových bodov

Príloha 2: Miesta dodania tovarov – umiestnenie prístupových bodov

Príloha 3: Cenová ponuka predávajúceho – návrh na plnenie kritérií

Príloha 4: Zoznam subdodávateľov predávajúceho

Nové znenie:

9.20. Neoddeliteľnou súčasťou tejto zmluvy sú jej prílohy:

Príloha 1: Špecifikácia prístupových bodov

Príloha 2: Miesta dodania tovarov – umiestnenie prístupových bodov
 Príloha 3: Cenová ponuka predávajúceho – návrh na plnenie kritérií
 Príloha 4: Zoznam subdodávateľov predávajúceho
 Príloha 5: Test splnenia technických parametrov (TSTP)
 Príloha 6: Podrobný popis prístupového bodu (AP) s väzbou na finančné limity
 Príloha 7: Technické listy dodávaných aktívnych prvkov

- 2.3. Uvedená zmena je vykonaná **v súlade s § 18 ods. 1 písm. e) zákona č. 343/2015 Z. z. o verejnom obstarávaní** a o zmene a doplnení niektorých zákonov: „*nedochádza k podstatnej zmene pôvodnej zmluvy, rámcovej dohody alebo koncesnej zmluvy bez ohľadu na hodnotu tejto zmeny*“. Jedná sa len o doplnenie povinných príloh ku Kúpnej zmluve v zmysle Usmernenia č. 4 k Výzve č. OPII-2018/7/1 –DOP.
- 2.4. Ostatné ustanovenia Kúpnej zmluvy zo dňa 20.6.2022 sa nemenia a ostávajú v platnosti v celom rozsahu.

3. Záverečné ustanovenia

- 3.1. Tento Dodatok č. 1 ku Kúpnej zmluve zo dňa 20.6.2022 nadobúda platnosť dňom podpísania oboma zmluvnými stranami a účinnosť v súlade s § 47a Občianskeho zákonníka dňom nasledujúcim po dni jej zverejnenia.
- 3.2. Tento Dodatok č. 1 ku Kúpnej zmluve zo dňa 20.6.2022 tvorí neoddeliteľnú súčasť Kúpnej zmluvy zo dňa 20.6.2022.
- 3.3. Neoddeliteľnou prílohou tohto Dodatku č.1 ku Kúpnej zmluve zo dňa 20.6.2022 sú prílohy 5, 6 a 7 podľa bodu „2.2 Nové znenie“ tohto dodatku.
- 3.4. Tento Dodatok č. 1 ku Kúpnej zmluve zo dňa 20.6.2022 je vyhotovený v piatich rovnopisoch, z ktorých predávajúci po jej podpísaní dostane dve vyhotovenie a kupujúci tri vyhotovenia.
- 3.5. Zmluvné strany vyhlasujú, že sú plne spôsobilé na právne úkony, že ich zmluvná vôľnosť nie je ničím obmedzená, že tento Dodatok č. 1 ku Kúpnej zmluve zo dňa 20.6.2022 neuzatvárajú ani v tiesni, ani za nápadne nevýhodných podmienok, že si obsah dôkladne prečítali, jeho obsahu porozumeli a tento vyjadruje ich slobodnú, vážnu a spoločnú vôľu, a na znak súhlasu ho vlastnoručne podpisujú.

12.09.2022

12.09.2022

V Chotíne, dňa

V Zemianskej Olči, dňa

Za predávajúceho:

Za kupujúceho:

Fnet communications s.r.o.
 Chotin 404, Chotin 946 31
 037 692
 Ing. Zoltán Bakulár
 konateľ spoločnosti

Ivan Válek
 starosta obce

Príloha č. 5: Podrobný popis prístupového bodu (AP) s väzbou na finančné limity

Položka	Merná jednotka	Počet jednotiek	Jednotková cena (v EUR bez DPH)	Vysúťážená suma celkom (v EUR s DPH)	Limity podľa Príručky pre oprávnenosť výdavkov PO7 OPIL pre dopytovo orientované projekty „Wifi pre Teba“ (max. suma za 1 AP v EUR s DPH)
Externý prístupový bod (AP) č. 1 - 8:					1 500,00
Prístupový bod	ks	8	850,00	8 160,00	(nevypĺňa sa)
Inštalácia a konfigurácia AP	hod	35	55,00	2 310,00	(nevypĺňa sa)
Centrálne komponenty (switch, router, optické káble, ...)	súbor	1	1 275,00	1 530,00	(nevypĺňa sa)
Spolu				12 000,00	(nevypĺňa sa)
Interný prístupový bod (AP) č. 1 - 3:					1 000,00
Prístupový bod	ks	3	380,00	1 368,00	(nevypĺňa sa)
Inštalácia a konfigurácia AP	hod	14	55,00	924,00	(nevypĺňa sa)
Centrálne komponenty (switch, router, optické káble, ...)	súbor	1	406,67	488,00	(nevypĺňa sa)
Spolu				2 780,00	(nevypĺňa sa)
Celkom				14 780,00	

Test splnenia technických parametrov (TSTP) v rámci "Wifi pre Teba"

TSTP slúži pre žiadateľa ako podklad pre špecifikáciu riešenia spĺňajúcu minimálne technické parametre požadovaných výzvu.

Technické parametre riešenia sú navrhnuté v súlade so schválenou Štúdiou uskutočniteľnosti <https://metava.finance.gov.sk/studia/detail/8c95d70c-700e-47ce-a1b0-4c0133404537?tab=documents> a musia spĺňať požiadavky Robustného, Spoľahlivého a Bezpečného produktu, ktorý poskytne občanom bezplatný prístup na internet prostredníctvom Wifi pripojenia.

1. **Robustný**: definuje minimálne technické parametre Prístupového bodu (Access pointu), resp. ostatného HW vybavenia.
2. **Spoľahlivý**: definuje minimálne podmienky pre poskytnutie kvalitného internetového pripojenia.
3. **Bezpečný**: definuje minimálne podmienky pre sieťovú a fyzickú bezpečnosť.

Upozornenie: výsledky tohto testu slúžia výlučne pre potreby žiadateľa a nie sú zárukou výsledku v procese schvaľovania žiadosti o NFP.

Otázka č.	Znenie otázky	Odkaz na relevantnú časť Technických listov (žiadateľ uvedie predmetnú časť technických listov, resp. iného relevantného zdroja zodpovedajúceho konkrétnemu parametru)	Odpoveď (po kliknutí na butiku vyberte jednu z možností)
1.	Kompaktné dvopásmové Wifi zariadenia (2,4GHz - 5 GHz), ktoré sú certifikované pre európsky trh?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
2.	Životný cyklus použitých produktov vyšší ako 5 rokov?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
3.	Stredná doba medzi poruchami (MTBF) minimálna 5 rokov?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
4.	Možnosť centrálného manažmentu pre nariadenie, monitoring a konfiguráciu siete (single point of management)?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
5.	Súlad s „802.11ac Wave 1. Institute of Electrical and Electronics Engineers“ (IEEE) štandardom?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
6.	Podpora 802.1x IEEE štandardu?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
7.	Podpora 802.11r IEEE štandardu?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
8.	Podpora 802.11k IEEE štandardu?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
9.	Podpora 802.11v IEEE štandardu?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
10.	Schopnosť AP obsluhovať naraz aspoň 50 rôznych užívateľov bez zníženia kvality služby?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
11.	Minimálne 2x2 MIMO (multiple-input-multiple-output)?	(part of datasheet: Frequency Bands) https://img.eshop.konektel.cz/files/SS_cnPilot_e500_04052019.pdf	Áno
12.	Súlad s Hotspot 2.0 (Passpoint WiFi Alliance certification program)?	https://www.wi-fi.org/forconnect/index#resultskeyworfs-cambium	Áno
13.	Súčasťou dodávky bude projektová dokumentácia ktorá bude obsahovať sieťové zapojenie aktívnych prvkov siete s IP adresným plánom. Simuláciu pokrytia prenosu. Meranie skutočného pokrytia, technické listy aktívnych prvkov, funkčný popis a vzhľadovú oblasť hotspot portálu s umiestnením logom?		Áno

Všetky otázky sú zodpovedané

Minimálne technické podmienky sú zadefinované.

Počet odpovedí "nie"

0

Počet nezodpovedaných otázok

0

cnPilot e410 Indoor

**802.11ac Wave 2 Dual Band 2x2
Indoor Access Point**



Future proof your indoor deployments with the compact, low profile 802.11ac Wave 2 Multi-user MIMO (MU-MIMO) beamforming, high-speed e410 Enterprise access point – perfect for schools, malls, hotels and resorts (Hospitality), coffee shops, Multi-dwelling units (MDUs), or any indoor environment that needs reliable, high performance access points.

CONTROLLER-MANAGED - AUTONOMOUS

Managed by Cambium's cnMaestro™ cloud controller or On-premises controller, the cnPilot e410 management includes:

- Zero touch onboarding and configuration
- Inventory tracking & Monitoring
- Mass Configuration & Upgrade
- Dashboard views with Alarms
- Troubleshooting
- Hierarchical device organization

CONTROLLER-LESS ROAMING: POWERFUL SIMPLICITY

The e410 supports seamless roaming for up to 2,048 clients without needing a controller in the network! Hotspot portal hosting on the AP itself offers controller-less simplicity.

MONETIZE VOUCHERS, SOCIAL LOGIN



Monetize your Wi-Fi service with cnMaestro's Guest Access capabilities that support splash page hosting, social login, temporary access vouchers, and payment gateway. These features – along with the ability to create time, rate and volume-limited traffic profiles – make the e410 ideal for hotels, coffee shops, schools, campgrounds, and office guest Wi-Fi.

SERVICE-AWARE WLANS FOR BETTER USER EXPERIENCE

Make sure that every connection to an access point is successful. When service to a critical resource such as an external Gateway or AAA is down, the e410 can turn off the impacted SSIDs, enabling client devices to redirect to a functional, neighboring access point.

INDOOR/OUTDOOR Wi-Fi MESH: FLEXIBILITY

Indoor meshing across multiple e410s, or Indoor/ Outdoor meshing across both the Indoor e410 and the Outdoor Enterprise APs, offers convenient options to wirelessly expand Wi-Fi coverage.

COVERAGE, CAPACITY, SPEED

The plenum-rated e410 packs a max transmit power of 25 dBm and supports 20MHz, 40MHz as well as 80MHz channels on 5GHz – offering more flexibility than ever for both coverage and capacity. Throughput management via Airtime fairness, increased performance by Automatic RF management (AutoRF), and higher client device speeds from band steering ensure your network can adapt to dynamic client behaviors.

HIGH DENSITY, HIGHLY AVAILABLE

A capacity of 256 concurrent client associations and 16 SSIDs, along with dual on-board Active/Standby memory banks, ensure the e410 combines high density with high availability.

LICENSE-FREE HIGH PERFORMANCE AT A LOW PRICE

The 802.11ac wave 2 e410 comes with a free controller and no AP management license fees. No hidden charges. Affordable.

WARRANTY

Limited Lifetime Warranty (5 years).

SPECIFICATIONS

Access Point Specifications

Standards	IEEE 802.11a/b/g/n/ac Wave2 IEEE 802.11d/e/h/i/k/r/u/v/w Modulation: BPSK, QPSK, CCK, 16/64/256-QAM Radio modes : DSSS, OFDM	Frequency Bands	2.400 to 2.2484 GHz (Country-specific limits apply, some bands require DFS. DFS bands operation subject to regulatory approval. Check SW release notes for details) 5.150 to 5.250 GHz 5.250 to 5.350 GHz 5.470 to 5.725 GHz 5.725 to 5.850 GHz
MIMO, Streams	2x2:2 MU-MIMO	Power Supply	802.3af PoE Injector, or PoE switch powered
Beamforming	Supported	Dimensions	17.0 x 17.0 x 4.1 cm (6.7 x 6.7 x 1.61 Inch)
Channel Width	20MHz, 40MHz, 80MHz	Weight	384 g (0.86 lb)
Concurrent Clients	256	Operating Temperature	0°C to +50°C (+32°F to +122°F)
SSIDs	16 SSIDs across 2 radios	Operating Humidity	10% to 95% non-condensing
Transmit Power (conducted total)	2.4GHz : 24dBm 5GHz : 25dBm	Power Consumed	13W (max)
Antenna Gain	2.4GHz : 5.25dBi 5GHz : 5.5dBi	LED	Tri-color software controlled LED
Max Data Rate	2.4GHz : 400Mbps 5GHz : 867Mbps	Secure Mounting	Kensington Key Slot
Antenna	Dual linear-polarized, Omnidirectional, integrated	MTBF	1,507,537 hrs at 50°C, 4,431,480 hrs at 25°C
Ethernet Ports	One auto-sensing Auto MDIX Gigabit Ethernet (10/100/1000 Mbps) RJ45 port	Reset Button	Supported
Radio Features	Maximum ratio combining (MRC) Cyclic delay/shift diversity (CDD/CSD) Space-time blocking coding (STBC) Low-density parity check (LDPC) Packet Aggregation: A-MPDU, A-MSDU	Certifications	FCC, CE, IC, UL, EN60601-1-2 (Medical EMC), UL2043 Plenum WEEE/RoHS compliance
Wi-Fi Alliance	Wi-Fi certified a/b/g/n/ac WPA2 – Enterprise, Personal WMM, Passpoint	Mounting Options	Wall and Ceiling mount bracket. Desktop option. T-Bar bracket supporting: 14mm, 24mm, 38mm.

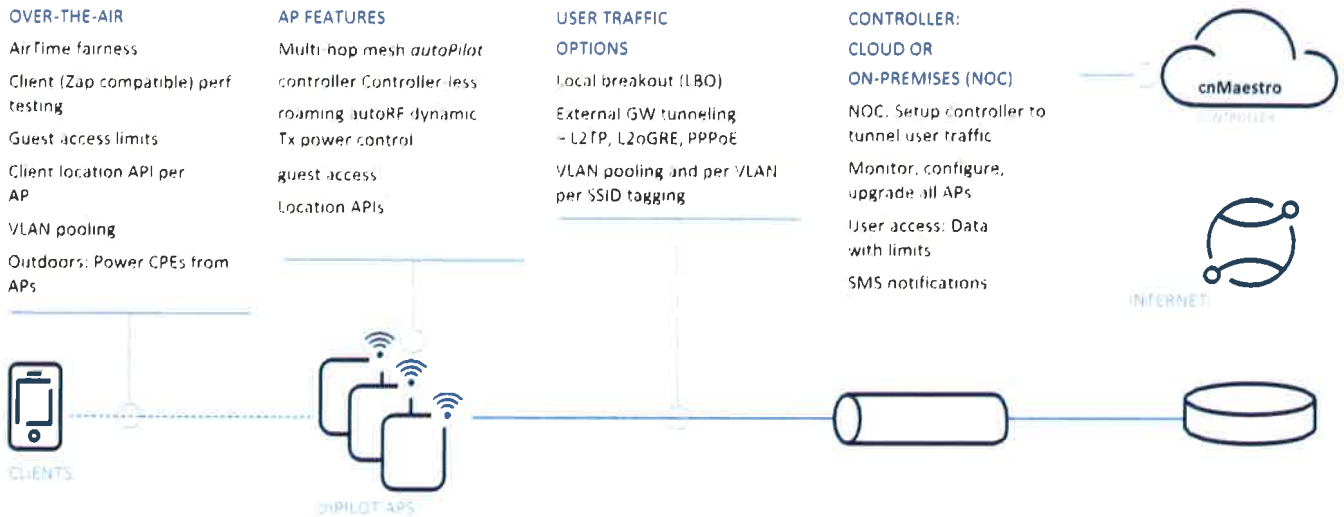
Wi-Fi Features

Management Modes	cnMaestro cloud managed cnMaestro on-premises VM controller managed Autopilot (AP as controller for up to 32 AP network) Standalone with AP GUI (http/https), CLI (telnet/ssh)	Wireless Security	WPA-TKIP, WPA2-AES, 802.11i WPA-PSK, WPA2-PSK, WPA2-Enterprise 802.1x Authentication with various EAP types (EAP-TLS, EAP-TTLS/MSCHAPv2, PEAPv0/EAP-MSCHAPv2, PEAPv1/EAP-GTC, EAP-SIM, EAP-AKA, EAP-AKA', EAP-FAST Protected Management Frames (802.11w)
RF Management	AutoRF automatically manages channel and power	Dynamic SSID Service	by time/date, by monitored host.
Guest Access Captive Portal	cnMaestro Controller Portal Integrates with 3 rd party Guest Access Portals Built-in Portal on AP LDAP & RADIUS authentication Walled Garden with DNS whitelist	MAC Authentication	On-AP MAC filtering list. On-Controller MAC filtering list. RADIUS MAC Authentication. MAC Authentication fallback to Captive Portal
Rate Limiting	Per-client, Per-WLAN static and dynamic rate limiting	Firewall	Layer-2, Layer-3 and DNS ACL. DoS Protection.
Client Isolation	On AP, Network-wide.	3G/4G/LTE Offload	Passpoint (Hotspot 2.0)
Fast Roaming	802.11r, Opportunistic Key Caching, Enhanced Roaming	DHCP Relay	Supported, with Option-82 customization
Airtime Management	Airtime Fairness, Band Steering, Band Balancing	External NMS Monitoring	SNMP v1, v2c, v3
AAA Support	RADIUS Authentication, Accounting, Dynamic Authorization (CoA, DM). Server failover, load-balancing	Client APIs	Client Presence/Location API DNS, NAT and TCP Connecting Logging
QoS	802.11e/WMM QoS. DSCP/ToS mapping.	Time Synchronization	Auto (from controller), NTP
Ethernet (L2) Services	802.1p/802.q, RADIUS assigned VLAN, VLAN per SSID, VLAN pooling, LLDP, IGMP Snooping (V1/v2/v3)	Troubleshooting Tools	Packet Capture, Spectrum Analyzer, DNS check, Ping, Traceroute, Syslog, Speedtest,
Mesh	WDS Mesh with Single and Multiple radio hops.	Traffic Tunnels	L2TP, L2oGRE, PPPoE
Network Services	NAT, DHCP Server		

cnMaestro Controller and Network Manager

Flexible Installation	Cloud, Virtual Machine both supported.	Integrated Guest Portal	Customizable Splash Pages SMS OTP Authentication Payment Gateways Support Voucher based authentication Social Login
Network Mgmt	Centralized Configuration, Statistics, Events, Firmware		
Hierarchical Views	Network topology mapped to sites and floors		
Floor Plans	Upload custom floor plans and map APs		
RESTful APIs	Interface with external systems		

THE ADAPTIVE cnPILOT NETWORK



ORDERING INFORMATION

The cnPilot e410 indoor 802.11ac wave 2 access point is available in models with and without PoE injectors.
Regulatory model number (common to all skus) : cnPilot™ e410 indoor

PART NUMBERS

PL-E410PUSA-US	cnPilot E410 Indoor (FCC, US cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-EU	cnPilot E410 Indoor (EU, EU cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PXXA-RW	cnPilot E410 Indoor (ROW, No cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-RW	cnPilot E410 Indoor (ROW with EU cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUKA-EU	cnPilot E410 (EU with UK country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUKA-RW	cnPilot E410 (ROW with UK country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PUSA-RW	cnPilot E410 (ROW with US country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PINA-RW	cnPilot E410 (ROW with India country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PCNA-RW	cnPilot E410 (ROW with China country cord) 802.11ac Wave 2, 2x2, AP with PoE Injector
PL-E410PANA-RW	cnPilot E410 (ROW with AUS/NZ cord) 802.11ac Wave 2, 2x2, with PoE Injector
PL-E410PBRA-RW	cnPilot E410 (ROW with Brazil cord) 802.11ac Wave 2, 2x2, with PoE Injector
PL-E410PARA-RW	cnPilot E410 (ROW with Argentina cord) Wave 2, 2x2, 802.11ac with PoE Injector
PL-E410X00A-US	cnPilot E410 Indoor (FCC) 802.11ac wave 2, 2x2, AP
PL-E410X00A-EU	cnPilot E410 Indoor (EU) 802.11ac wave 2, 2x2, AP
PL-E410X00A-RW	cnPilot E410 Indoor (ROW) 802.11ac wave 2, 2x2, AP
PL-E410X00A-JP	cnPilot e410 Indoor (Japan) 802.11ac wave 2, 2x2, AP
PL-E410X00A-IL	cnPilot e410 Indoor (Israel) 802.11ac wave 2, 2x2, AP
PL-E410X00A-LK	cnPilot e410 Indoor (Sri Lanka) 802.11ac wave 2, 2x2, AP
PL-E410X00A-CA	cnPilot e410 Indoor (Canada) 802.11ac wave 2, 2x2, AP
PL-E410X00A-EG	cnPilot e410 Indoor (Egypt) 802.11ac wave 2, 2x2, AP
PL-E410PJPA-JP	cnPilot e410 Indoor (Japan, Japan Type A cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PILA-IL	cnPilot e410 Indoor (Israel, Israel Type H cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PINA-LK	cnPilot e410 Indoor (Sri Lanka, India Type D cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PUSA-CA	cnPilot e410 Indoor (Canada, US Type B cord) 802.11ac wave 2, 2x2, AP with PoE Injector
PL-E410PEUA-EG	cnPilot e410 Indoor (Egypt, Europe Type C cord) 802.11ac wave 2, 2x2, AP with PoE Injector
N000900L017A	PoE Gigabit Injector for cnPilot E410, 15W Output at 56V

Discover more information on cnPilot at: <http://community.cambiumnetworks.com/>

cnPilot e510 Outdoor Omni

Gigabit IP67 802.11ac wave 2
Outdoor Access Point



Enterprise grade 802.11 Wi-Fi access in outdoor high density networks. Ideal for 360 degree coverage in Public Wi-Fi, Hospitality, Education campus, Industrial and Enterprise.

ENTERPRISE GRADE WI-FI

Part of the cnPilot family of Enterprise grade 802.11 access points, the e510 is RF aware and self-optimizing for the RF environment. Ideal for deploying Outdoor Wi-Fi as a public access service, or part of an extended enterprise network providing seamless roaming from indoor to outdoor without requiring controller interaction. Integrated troubleshooting tools provide remote access for packet capture, client statistics, operational and RF statistics, and RF scanning for interference, channel utilization, and noise floor scan.

ENTERPRISE GRADE MESH

E510 features multi-hop MESH that puts flexibility into the hands of the network admin. Select the band to use for MESH (either 2.4 GHz or 5 GHz); and set whether clients can access the network on one or both bands. Auto-MESH discovers a Cambium MESH link with policy based secure access. Once adopted, cnMaestro provides the correct policy based provisioning rules for the access point.

EXTENDED ENVIRONMENTAL SUPPORT

The e510 is shock and vibration certified when used with the rail mounting system. Ideal for industrial applications and manufacturing. Integrated cold start heater ensure operation in harsh environments.

cnMAESTRO™ SINGLE PANE OF GLASS

All Cambium Networks enterprise 802.11 and broadband point to point and point to multi-point access points are supported by the cnMaestro controller.

HIGH PERFORMANCE, OUTDOOR AP

- Quad core CPU
- 802.11ac wave2, multi-user MIMO, beam steering, VHT rates, airtime fairness
- 360 degree antenna coverage
- UV rated IP67 enclosure
- Shock and Vibration certified
- Operating temp: -40C - +65C
- Cold start heater
- Extended ESD and surge protection
- Industrial grade components
- LTE filter for unimpeded operation
- Light weight - less than 1100g

cnMaestro Single Cloud Dashboard

- Resilient Cloud Controller for broadband, Ethernet, Wi-Fi
- Services delivery platform
- Managed service provider flows
- Private label branding
- Help desk troubleshooting tools
- True Zero-touch provisioning and zero-touch network RF automation
- Cloud delivered guest access portal with custom pages, vouchers, social login and paid services
- Device inventory reports
- Key metrics Dashboard
- Detailed reports
- Map location

SPECIFICATIONS

802.11ac CAPABILITIES

802.11a/b/g/n/AC wave 2, 2x2:2:2, MIMO, MU-MIMO, VHT MCS rates, 16/64/256-QAM, HT20/40/80 MHz, Transmit Beam steering, Airtime Fairness, Packet Aggregation (AMSDU, AMPDU) RIFS, STBC, LDPC, MIMO Power Save, MRC, BPSK, QPSK, CCK, DSSS, OFDM, IEEE 802.11d/e/h/i/k/r/u/v/w

ACCESS POINT SPECIFICATIONS

US-FCC

2400 – 2484 MHz, 5150 – 5250 MHz, 5725 – 5850 MHz

Industry Canada (ISED)

2400 – 2484 MHz, 5725 – 5850 MHz

EU-ETSI

2400 – 2484 MHz, 5470 – 5725 MHz (DFS)

ROW (Individual country limits may apply)

2400 – 2500 MHz, 5150 – 5850 MHz

Max Phy Rate	2.4 GHz radio: 400 Mbps 5 GHz radio: 867 Mbps
Ethernet Ports	One IEEE Gigabit Ethernet auto sensing
Antenna	Integrated dual polarized, omni direction 8dBi (2.4GHz) 9dBi (5GHz)
Max EIRP	2.4 GHz: 32 dBm 5 GHz: 34.5 dBm EIRP may be limited by individual country regulation

WLAN AND NETWORK SPECIFICATIONS

Controller modes	Controller-less standalone AutoPilot heterogeneous network Cloud managed cnMaestro On-premises cnMaestro VM
WLAN	256 clients, 16 SSIDs WPA-TKIP, WPA2 AES, 802.1x 802.11w PMF WPA2 (802.11i), WPA2 Enterprise (802.1x/EAP), WPA PSK, Open
Captive Portal	Hosted on cnMaestro Controller On-AP hosted guest portal Redirect to HTTP/RADIUS Server DNS logging
Authentication	Hotspot 2.0/Passpoint 2.0 802.1x EAP-SIM/AKA, EAP-PEAP, EAP-TLS, EAP-TLS MAC authentication to local database or external RADIUS
Accounting	RADIUS accounting, multiple AAA
Scheduled SSID	On/off by day, week, time of day
Guest Access	Vouchers, Rate Limit, Splash page hosted on AP or cnMaestro Client isolation per SSID, per network
Data Limit	Client rate limit per SSID
QoS	WMM

Power	802.3af or 802.3at Powered Device Max 12.95w (802.3af)
Physical Environmental	IP67 rated housing Wind Resistance 224 kph 320mm x 215mm x 65mm 1100g Kensington lock slot Two multi-color status LEDs -40C - + 65C ambient op temp -40C - + 70C storage temperature 95% RH non-condensing Overvoltage protection, category I
LTE Filter	LTE bands 38, 40
Certifications	WiFi Alliance 802.11a/b/g/n/ac, Passpoint 2.0 FCC, ETSI, CE, EN 60601-1-2, IEC60950, EN50121-1 Railway EMC EN50121-4 Railway Immunity IEC 61373 Railway Shock & Vibration

Fast Roaming	802.11r, OKC, Enhanced roaming
Mesh	Multi-hop, either band
Channel Selection	autoTune: Manual, or automatic Selectable off-channel scan
Automatic Tx Power	AutoRF: controller-less transmit power
Network	NAT, NAT logging firewall, DHCP server L2, L3 or DNS based access control VLAN Pooling, RADIUS attribute VID VLAN per SSID per user
Band Steer Load Balance	Yes
Tunnel	L2TP, L2oGRE, PPPoE
Tools	Remote Packet capture, Channel/noise/interference analyzer, auto logging, ZapD performance test tool, rogue AP detection
Services	NTP, Syslog, SNMP traps, DNS proxy, auto-off on WAN failure
APIs	RESTful management and statistics API Presence location APIs

SPECIFICATIONS

ORDERING INFORMATION

PL-E510X00A-US	cnPilot e510 Outdoor AP (FCC) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-CA	cnPilot e510 Outdoor AP (IC) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-EU	cnPilot e510 Outdoor AP (EU) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510X00A-RW	cnPilot e510 Outdoor AP (ROW) 802.11ac wave 2, 2x2/2x2, 8 dBi, IP67
PL-E510PUSA-US	cnPilot e510 Outdoor AP (FCC, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUSA-CA	cnPilot e510 Outdoor AP (IC, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PEUA-EU	cnPilot e510 Outdoor AP (EU, EU cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PXXA-RW	cnPilot e510 Outdoor AP (ROW, No cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PEUA-RW	cnPilot e510 Outdoor AP (ROW, EU cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUKA-EU	cnPilot e510 Outdoor AP (EU, UK cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUKA-RW	cnPilot e510 Outdoor AP (ROW, UK cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PUSA-RW	cnPilot e510 Outdoor AP (ROW, US cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PINA-RW	cnPilot e510 Outdoor AP (ROW, India cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PCNA-RW	cnPilot e510 Outdoor AP (ROW, China cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PANA-RW	cnPilot e510 Outdoor AP (ROW, AUS/NZ cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PBRA-RW	cnPilot e510 Outdoor AP (ROW, BR cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
PL-E510PARA-RW	cnPilot e510 Outdoor AP (ROW, AR cord) 802.11ac Wave 2, 2x2/2x2, 8 dBi, IP67, PoE Injector
AX-E510RBKT-WW	Shock Mount for e510

Not all SKUs are available at first release. Consult Cambium distributor for country availability.

ABOUT CAMBIUM NETWORKS

Cambium Networks is a leading global provider of wireless connectivity solutions that strengthen connections between people, places and things. Specializing in providing an end-to-end wireless fabric of reliable, scalable, secure, cloud-managed platforms that perform under demanding conditions, Cambium Networks empowers service providers and enterprise, industrial and government network operators to build intelligent edge connectivity. Cambium Networks' commitment to continuous innovation in wireless access is demonstrated in the millions of radios deployed in thousands of networks that benefit communities around the world. Team members also contribute to social responsibility activities to serve the communities in which they live. Headquartered outside Chicago and with R&D centers in the U.S., U.K. and India, Cambium Networks sells through a range of trusted global distributors.

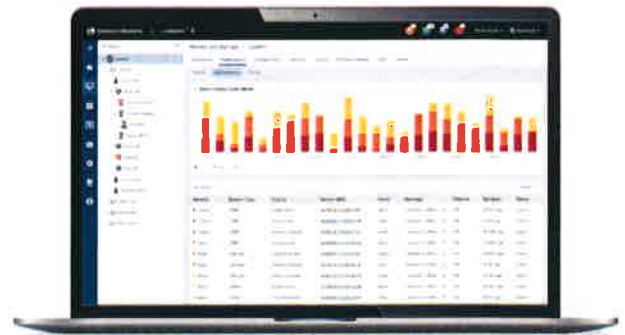
www.cambiumnetworks.com

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cnMaestro™ Management System

quick look:

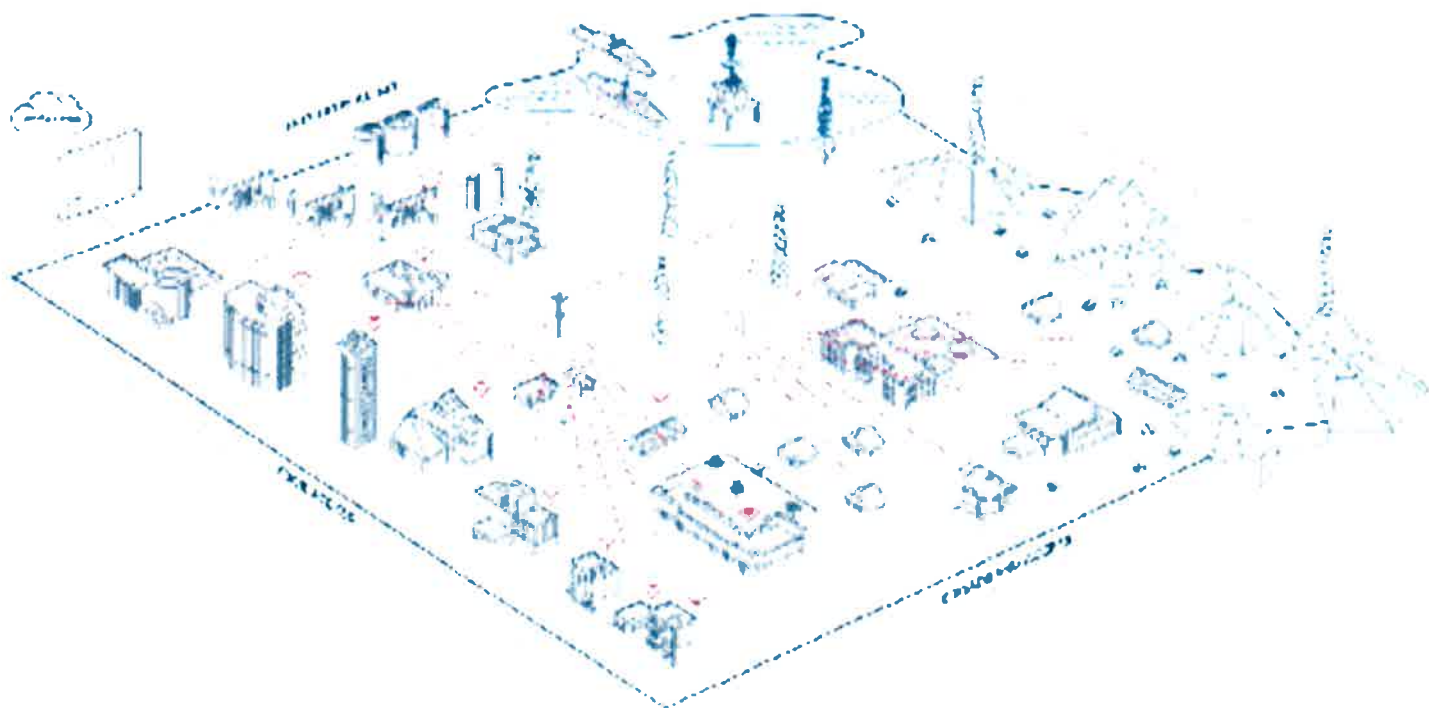
cnMaestro is a simple, yet sophisticated cloud-first next-generation network management solution for Cambium Networks wireless and wired solutions. cnMaestro offers elastic scalability and single-pane-of-glass management to deliver secure, end-to-end network and wireless lifecycle management with zero-touch provisioning, monitoring, and troubleshooting capabilities. It simplifies operations and ongoing maintenance. This license-free cloud option delivers a disruptive Total Cost of Ownership (TCO) for organizations of all sizes.



Key Highlights

- Unified management platform via a single dashboard for Cambium's wireless and wired portfolio: Enterprise Wi-Fi, Switching, Fixed Wireless Broadband and Industrial IoT products.
- 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 applies across the portfolio, helps network administrators simplify operations and allows them to deliver an optimal client experience.
- Deployment flexibility and TCO: Choice of public cloud, private cloud or on-premises deployment with best TCO. cnMaestro helps reduce operating cost and accelerate return on investment. Comprehensive Cloud and On-Premises management is included with the hardware.
- Tailored views for Enterprise, Managed Service Provider (MSP), Access and Backhaul and Industrial Internet View.

cnMaestro™ Management System



Key Benefits

cnMaestro's multi-site, multi-product cloud management spans long-range fixed wireless broadband, enterprise Ethernet, enterprise Wi-Fi and service provider residential Wi-Fi for the most comprehensive and powerful single-pane-of-glass system in the industry. Ideal for any service provider or enterprise network operator. The cnMaestro cloud dashboard can be tailored to the exact network need from managed service providers (MSPs), to fixed wireless service providers and enterprise networks. cnMaestro provides centralized visibility and control for Cambium Networks' wireless and wired products. Network administrators can quickly and easily deploy networks with minimal training. Whether small sites or large distributed networks with thousands of sites, cnMaestro makes deployment and operations easy.

cnMaestro architecture is 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. cnMaestro management is included with the price of the wireless or wired device to manage a broadband-to-Ethernet and Wi-Fi network at no additional cost.

cnMaestro delivers everything you need from zero-touch provisioning to enterprise-grade automatic RF management for networks up to thousands of sites, and up to 10,000 managed devices from a single cnMaestro account. Experience the power, redundancy, resilience and simplicity of a cloud-first network management.

cnMaestro eliminates the need for Wi-Fi controllers, thereby reducing complexity and total cost of ownership while increasing reliability of the network. cnMaestro delivers the best TCO on-premise and in-cloud for Fixed Wireless Broadband, Enterprise Wi-Fi and Switching customers. Flexible deployment options allow customers to choose a model that fits their organizational needs: public cloud, private cloud or on-premises deployment.

cnMaestro provides a bird's eye view of the health of the network with insights on performance, connectivity and client experience. Administrators can quickly identify potential trouble spots and drill down from network-to-client level details. Automatic network monitoring and alerts allow for proactive management of the network. cnMaestro provides visibility into devices and users and while giving administrators the information needed to enforce

cnMaestro™ Management System

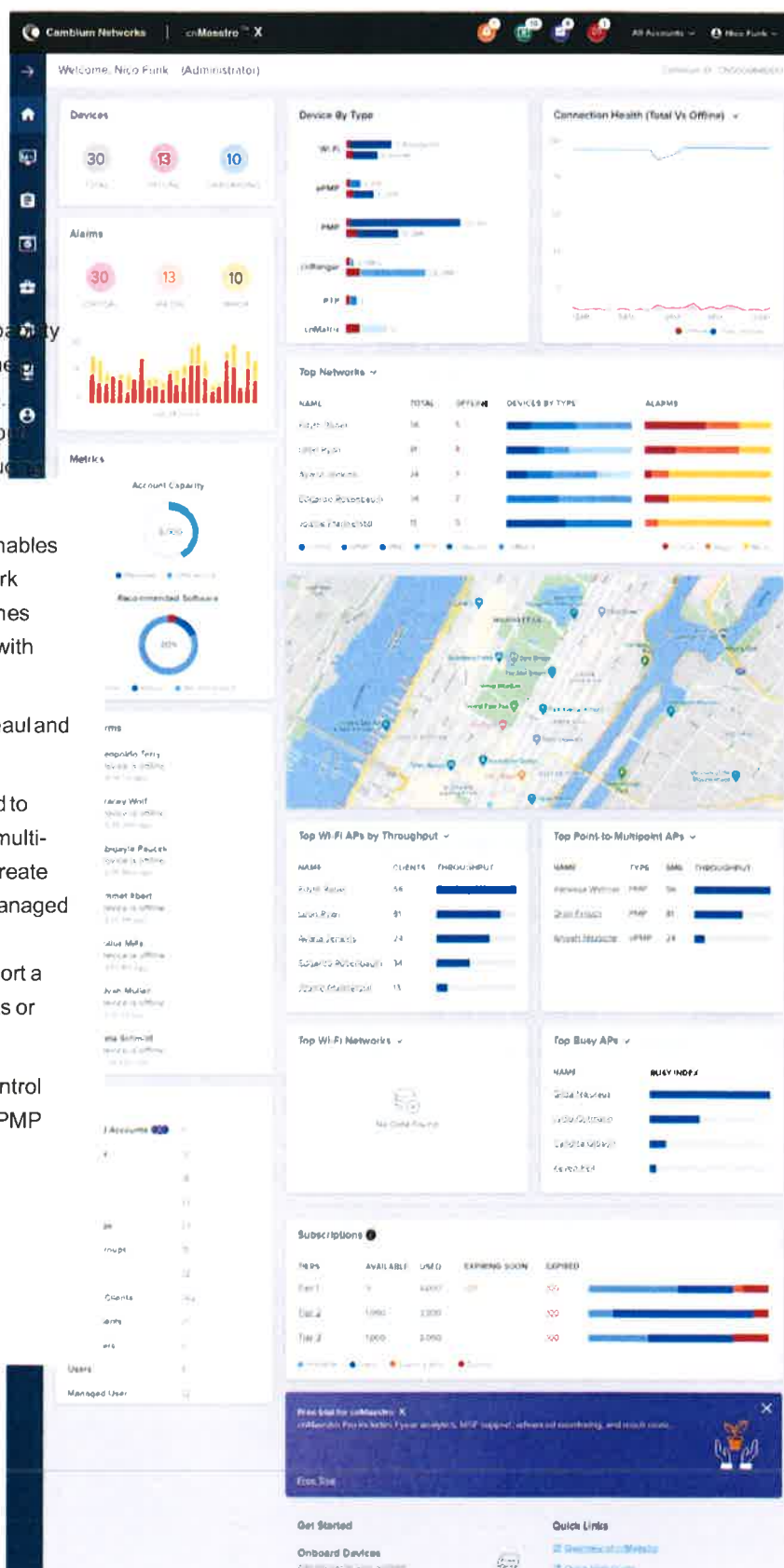
power and power performance. Its ability to scale capacity is integrated into the architecture, along with powerful help desk tools to debug remote issues without going onsite. Troubleshooting tools such as ping, traceroute, throughput and live packet captures are included, dramatically reducing resolution times and enabling remote troubleshooting.

cnMaestro supports custom network hierarchy which enables easy configuration, monitoring and debugging at network nodes, reducing operational costs. This specially becomes critical for large networks or small distributed networks with small on-site IT staff.

cnMaestro provides Enterprise, MSP, Access and Backhaul and Industrial Internet views.

MSP-Ready Platform: MSPs can differentiate their brand to address specific sub-markets in their service area. The multi-tier customization gives the MSP tenant cloud tools to create an additional layer of guest portal customization – all managed from the cloud. MSP views consolidate the MSP tenant statistics, while allowing the MSP to drill down and support a tenant directly, without impacting data from other tenants or end users on the system.

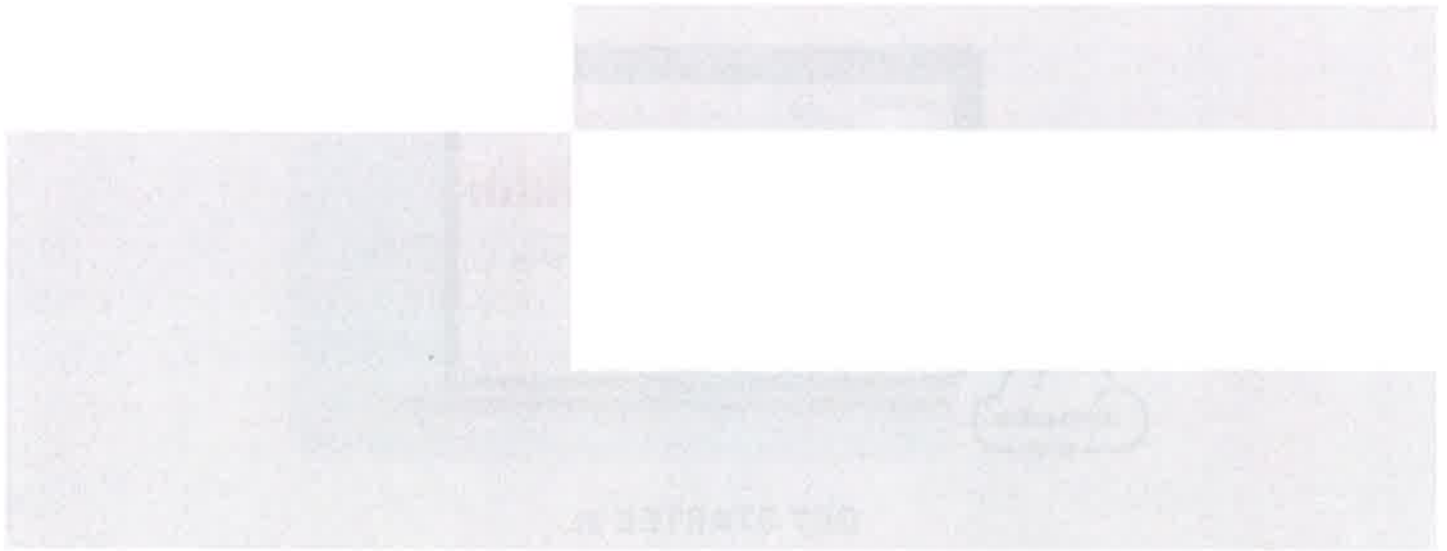
Access and Backhaul view provide visualization and control of devices from tower-to-edge. This includes PTP and PMP devices.



cnMaestro™ Management System

Management System Details

Deployment	Cloud-Hosted Web Portal	Onboarding and Provisioning	Zero-Touch Onboarding
	Customer-Hosted VMware OVA		Template Configuration
Visualization	Amazon Marketplace AMI	Network Services	Object Configuration (cnPilot and cnMatrix)
	Full Visibility Across Network		Automatically Claim PMP SIMs Associated with AP
	Supports cnRanger™, cnReach™, cnMatrix™, cnPilot-R™, Enterprise Wi-Fi, ePMP™, Machfu,		Branded Guest Access Portal
	PMP and PTP devices		Social Login and SMS Authentication
Conf and Monitoring	Multiple Product Views	Management	Access Vouchers
	• Access and Backhaul View		PayPal Payment Gateway
	• Enterprise Wireless View		GRE Tunneling
	• Industrial Internet View		Simplified Enterprise View
Managed Service Provider	Hierarchical Device Tree	Troubleshooting and Forensics	AP Group and WLAN Configuration
	PMP/ePMP Sector Display		Site Support for Collocated APs
	Managed Service Provider Accounts		Tower-to-Edge Presentation
	Redundant Cloud Services		Technical Support Dump
Data and Reporting	Multi-Region Cloud	Security	Rogue AP Detection
	Scheduled System Backup		Wi-Fi Packet Capture
	Configuration Lock		ePMP/PMP Link Test
	Automatic Bulk Software Update		Communication Over SSL
On-Premises Scaling	Dedicated Device Dashboards	On-Premises Scaling (8 vCPU with 16 GB RAM)	No Inbound Internet Access
	Statistics and Trending		Data Termination for L2GRE
	Email Alerts, Webhooks, Syslog		Disaster Recovery
	Branded Services		Total number of devices supported: 10,000 (cnRanger, cnReach, cnMatrix, cnPilot, ePMP, PMP and PTP)
Service Provider	Regional User Databases	On-Premises Scaling (8 vCPU with 16 GB RAM)	Number of wireless clients supported: 150,000
	(Allows one to specify a regional manager who has access to a subset of Tenants)		Number of WLAN and AP Groups supported: Unlimited
	Tenant View		Number of templates supported for cnMatrix, cnPilot-R, ePMP and PMP devices: Unlimited
	(Ability to easily assume the UI of each Tenant)		Number of Guest Portals: 4
Managed Service Provider	Cross Account Visualization		Max number of concurrent sessions: 1,000
	Statistics Reports Exported in CSV		
	RESTful Monitoring/Provisioning API		
	Export UI Tables in CSV or PDFs		



Administration **Role-Based Access**
Audit Logs
RADIUS, TACACS+, LDAP, AD Login

Max number of login events:
2,000 event records for 7 days
Number of ePSK supported: 300
Maximum number of tenants and users:
10 each

cnMaestro™ Management System



GET STARTED at
cloud.cambiumnetworks.com

ABOUT CAMBIUM NETWORKS

Cambium Networks empowers millions of people with wireless connectivity worldwide. Its wireless portfolio is used by commercial and government network operators as well as broadband service providers to connect people, places and things. With a single network architecture spanning fixed wireless and Wi-Fi, Cambium Networks enables operators to achieve maximum performance with minimal spectrum. End-to-end cloud management transforms networks into dynamic environments that evolve to meet changing needs with minimal physical human intervention. Cambium Networks empowers a growing ecosystem of partners who design and deliver gigabit wireless solutions that just work.

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