CellNode M100

WiFi Node

CellNode M100 is a unique WiFi device which enables providers to securely deploy wireless mesh networks. Every CellNode features two radio transceivers that support the 802.11a/b/g/n/ac standards. The first radio usually serves local wireless subscribers (downlink) at 2.4Ghz, while the second radio is used to connect to the infrastructure backbone (uplink) at 5Ghz. The CellNode device features protected WDS/STP infrastructure data routing transport that allows transparent traffic failover and logically isolates all client networks for improved throughput, advanced roaming, and network security. The device can be provisioned and managed centrally. It includes security software such as Firewall, QoS, and Radius software services for access and traffic management purposes.

KEY FEATURES

- Support for Wireless Mesh Infrastructure
- Centralized Management and Provisioning
- Built-in Uninterruptible Power Supply (UPS)
- Unique Routing Protocol with Policy Filtering
- Unlimited In-network Roaming
- Limited Uplink Requirements
- Powerful 2.4 Ghz 802.11b/g/n Transceiver with Super-G, XRS, Mimo Technologies
- Powerful 5 Ghz 802.11a/n/ac Transceiver with Turbo-G and Mimo Technology
- Centralized Access Control
- Fault-Tolerant Infrastructure Implementation

Support for Wireless Mesh Infrastructure

CellNode M100 is designed for deployment in wireless mesh infrastructure. In such infrastructure, each CellNode communicates with an uplink relay (bridge) or access controller and with other wireless clients within its reach. If one CellNode becomes temporarily unavailable, traffic is transparently redirected to other CellNodes located within physical proximity.

Centralized Management and Provisioning

CellNode M100 ensures low operational and management costs via its support for centralized management and provisioning. Utilizing a central server interface, administrators can request a configuration change and/or firmware update which will be automatically propagated to all CellNodes within the provider network, regardless of their geographical location.

Built-in Uninterruptible Power Supply (UPS)

CellNode M100 is designed to withstand extended power outages without service interruption. The device has a built-in uninterruptible power supply which can provide up to 23 hours of emergency power under normal load. The device has an advanced power management module that will notify the administrator if there is a power failure, if the device overheats, or if the battery has a power problem. Thus the administrator can restore the main power before the battery power is exhausted.

Centralized Access Control

CellNode M100 enables service providers to exercise centralized access control over all wireless clients who access the network. All such clients can freely access a CellNode enabled network but will be allowed Internet access only after they successfully authenticate with the access controller that controls the network.

Fault-Tolerant Infrastructure Implementation

CellNode M100 operates in a wireless mesh infrastructure to allow easy substitution of failed devices. If one device becomes temporarily unavailable the traffic can be transparently redirected to alternative devices. Alternatively, if one ISP uplink or gateway becomes unavailable, the CellNodes will attempt to send the traffic to any other available gateway via the built-in intelligent ARP routing mechanism.

Unique Routing Protocol with Policy Filtering

CellNode M100 features unique routing protocol that supports protected Spanning Tree/STP infrastructure to withstand any type of DoS attacks such as Unwanted Broadcasts, Network Flooding, ARP Poisoning, and Evil Twin attacks. The routing protocol logically isolates the client network layers and provides full roaming support. In addition, CellNode M100 offers improved network security via its built-in policy management features to allow traffic prioritization and shaping. The device includes Firewall, QoS, and RADIUS software to provide advanced security management mechanisms.

Unlimited In-network Roaming

CellNode M100 offers transparent in-network roaming for maximum user mobility. Subscribers with wireless clients can travel feely within the network boundaries and seamlessly roam from one CellNode to another without experiencing session interruption or IP address changes.

Powerful 5 Ghz 802.11a/n/ac Transceiver with Turbo-G and Mimo Technology

CellNode M100 features 5 GHz (802.11 a/n/ac) transceiver with Turbo-G technology and speed of over 1Gbps. The 5GHz range is usually used for backbone communication and features encrypted and compressed network data exchange.

Limited Uplink Requirements

CellNode M100 requires limited number of Ethernet, fiber-optic or DSL uplinks when deployed in wireless mesh infrastructure. The device has a 5 GHz wireless transceiver dedicated to transport backbone traffic which allows multiple CellNodes to connect to a single uplink (via access controller). All backbone links are achieved either in a point-to-point or point-to-multipoint fashion to provide more alternative routes when needed.

Powerful 2.4 Ghz 802.11b/g/n Transceiver with Super-G, XRS, Mimo Technologies

CellNode M100 features 2.4 GHz (802.11b/g/n) transceiver with Super-G and Extended Range (XRS) technologies. The 2.4 GHz wireless band is used by the CellNode to only communicate with wireless clients located within its service range. All CellNode devices that operate in close proximity are utilizing variable power levels and operate on different channels to reduce possible interference.

CellNode M100

WiFi Node

Technical Specifications

Connectors
- Two antenna connectors (N-Type)
- One Ethernet Port (RJ-45)

Standard Conformance
- 802.11a
- 802.11b
- 802.11g
- 802.11n
- 802.11ac

Frequency Range
- USA/Canada: 2.400~2.483GHz, 5.15~5.35GHz, 5.725~5.825GHz
- Europe: 2.400~2.483GHz, 5.15~5.34GHz, 5.47~5.725GHz
- Japan: 2.400~2.483GHz, 4.90~5.091GHz, 5.15~5.25GHz
- China: 2.400~2.483GHz, 5.725~5.85GHz

Modulation Technique
- 802.11a: OFDM
- 802.11b: CCK, DQPSK, DBPSK
- 802.11g: OFDM
- 802.11n: OFDM
- 802.11ac: OFDM

Data Rate
- 802.11a (Normal mode): 54, 48, 36, 24, 18, 12, 9, 6Mbps, auto-fallback
- 802.11a (Turbo mode): 108,96,72,48,36,24,18,12 Mbps, auto-fallback
- 802.11b/g: 11, 5.5, 2, 1 Mbps, auto-fallback, up to 54 Mbps
- 802.11g (Super mode): up to 108 Mbps
- 802.11n: up to 600 Mbps
- 802.11ac: up to 1Gbps

Operating Channels
- 802.11a
  US/Canada: 12 non-overlapping channels (5.15~5.35GHz, 5.725~5.825GHz)
  Europe: 19 non-overlapping channels (5.15~5.35GHz, 5.47~5.725GHz)
  Japan: 4 non-overlapping channels (5.15~5.25GHz)
  China: 5 non-overlapping channels (5.725~5.85GHz)
- 802.11b/g
  US/Canada: 1~11
  Major European Countries: 1~13
  France: 10~13
  Japan: 11b: 1~13 or 14, 11g: 1~13
  China: 1~13

RF Output Power
- 802.11a 17 dBm
- 802.11g 18 dBm
- 802.11b 18 dBm
- 802.11n 18 dBm
- 802.11ac 18 dBm

Operating Range
- 802.11a @ 108Mbps (Turbo-G) up to 35 km (Grid 27dBi antenna)
- 802.11b @ 108Mbps (Super-G) up to 1 km (Omni-Dipole 15dBi antenna)
- 802.11g @ 11Mbps up to 1 km (Omni-Dipole 15dBi antenna)
- 802.11b @ 600Mbps up to 35km (Grid 27dBi antenna)
- 802.11ac @ 1Gbps up to 2km (Omni-Dipole 15dbi antenna)

Receiver Sensitivity
- 802.11a 88dBm
- 802.11g 90dBm
- 802.11b 95dBm
- 802.11n 95dBm
- 802.11ac 95dBm

MAC Protocol
- CSMA/CA with ACK architecture 32-bit MAC

Security
- 64-bit, 128-bit, 152-bit WEP Encryption
- 802.1x Authentication
- AES-CCM & TKIP Encryption
- WPA, WPA2 (CellNode M100N)
- Cisco CCX

Management
- Web console (GUI)
- CLI accessible through SSH client

Environmental Compliance
- Lead-free and EU's Restriction of Hazardous Substances (RoHS) regulations compliance

Operating System
- Linux

Power
- Input voltage 110V/220V
- Output voltage 13V/2A
- Built-in UPS system (12V battery with up to 23 hour backup power)

Operating Environment
- Operation temperature range: -20°C ~ 70°C

Weight
- 20 lb. (without antennas)
- 30 lb. (with one square grid antenna and one omni antenna)
- 8.5" (W) x 10" (H) x 3.75" (D)

Dimensions

Antenna Specifications

5Ghz, 27 dBi Grid Antenna (Backbone)
- Frequency Range - 4.9 - 5.8 GHz
- Bandwidth - 255 MHz
- Gain - 27 dB
- 3dB Beam width - 10° x 14°
- F/B Ratio - 25 dB
- V.S.W.R <= 1.5
- Connector - N Female or N Male
- Dimension - 0.4 m x 0.6 m
- Weight - 5 lb.
- Wind Resistance - 60 m/s

2.4Ghz, 15 dBi Omni Antenna (Access)
- Frequency Range - 2400 - 2500 MHz
- Gain - 15 dBi
- Polarization - Vertical
- Beam width - Horz. 360° x Vert. 6°
- SWR <= 1.5 : 1
- Impedance - 50 Ohm
- Length - 1600 mm
- Weight - 2 lb.
- Connector - N-type / Female

2.4Ghz, Panel Antenna (Access)
- Frequency Range - 2400 - 2483 MHz
- Gain - 12 dBi
- Polarization - Vertical
- Beam width - Horz.65º x Vert.27º
- SWR <= 1.5 : 1
- Impedance - 50 Ohm
- Length - 454 mm
- Weight - 2 lb.
- Connector - N-type / Female

SysMaster
2700 Ygnacio Valley Rd, Suite 210
Walnut Creek, CA 94598
United States of America

Email: sales@sysmaster.com
Web site: www.sysmaster.com