



Introduction to Cloud Managed Networking

Cisco Meraki solution overview



About Cisco cloud-managed networking

Cisco Meraki: a complete cloud-managed networking solution

- Wireless, switching, security, WAN optimization, and MDM, centrally managed over the web
- Built from the ground up for cloud management
- Integrated hardware, software, and cloud services

Leader in cloud-managed networking

- Among Cisco's fastest-growing portfolios: over 100% annual growth
- Tens of millions of devices connected worldwide

Recognized for innovation

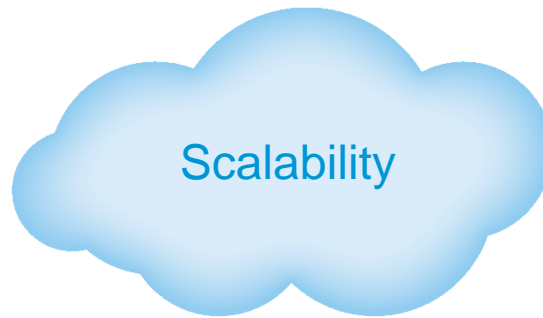
- Gartner Magic Quadrant, InfoWorld Technology of the Year, CRN Coolest Technologies

Trusted by thousands of customers worldwide:



Why cloud managed networking?

The cloud increases IT efficiency



- Turnkey installation and management
- Integrated, always up to date features
- Scales from small branches to large networks
- Reduces operational costs

Cisco Meraki: Bringing the cloud to enterprise networks



Meraki MR
Wireless LAN



Meraki MS
Ethernet Switches

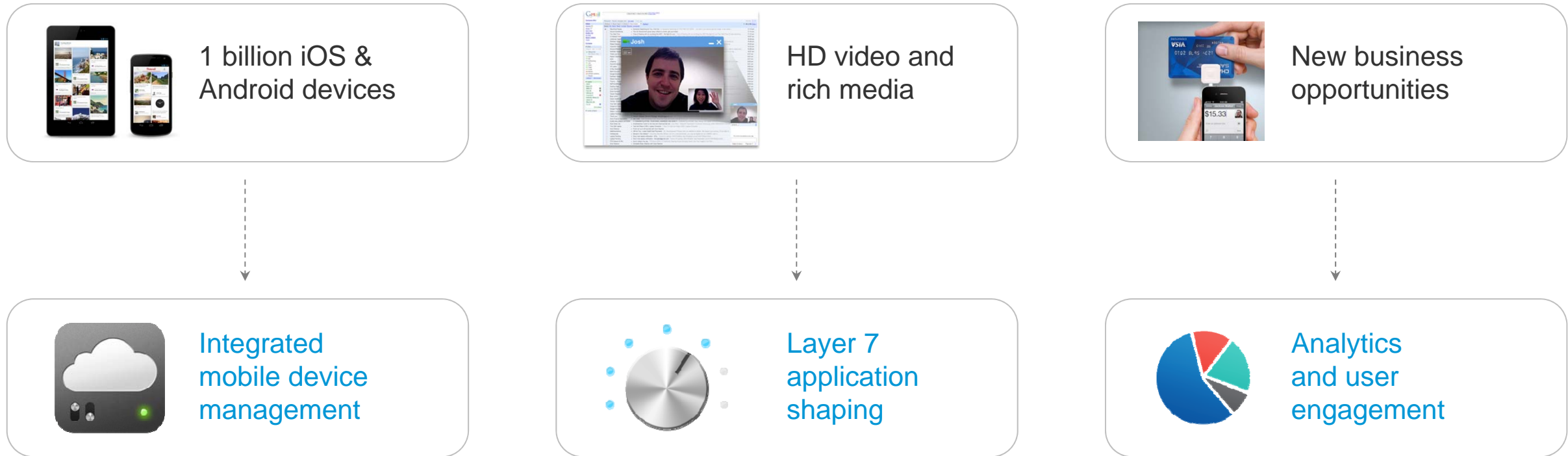


Meraki MX
Security Appliances



Meraki SM
Mobile Device
Management

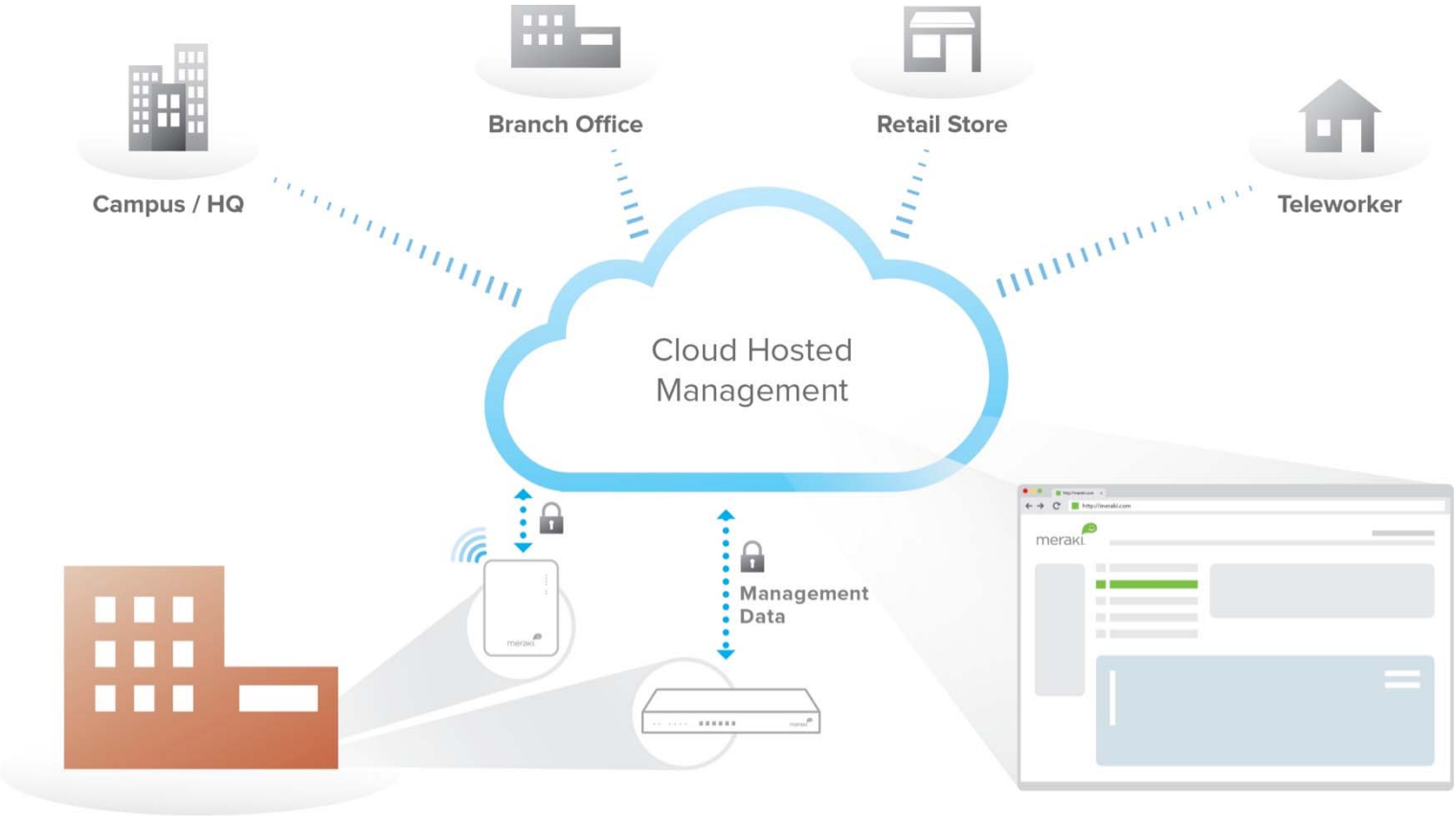
An integrated solution for new IT challenges



**A complete solution out of the-box:
No extra hardware, software, or complexity**

Cloud architecture

Cloud-managed networking architecture

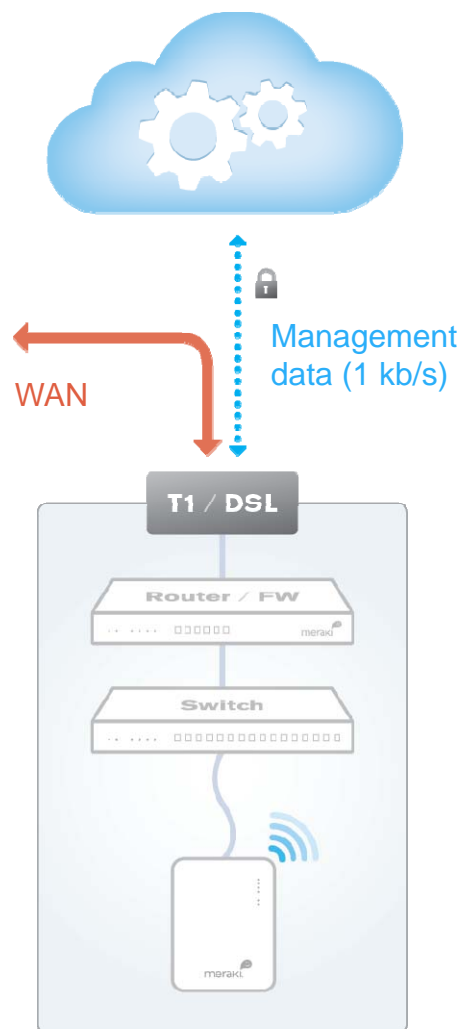


Network endpoints securely connected to the cloud

Cloud-hosted centralized management platform

Intuitive browser-based dashboard

Out of band cloud management in every product



Scalable

- Unlimited throughput, no bottlenecks
- Add devices or sites in minutes

Reliable

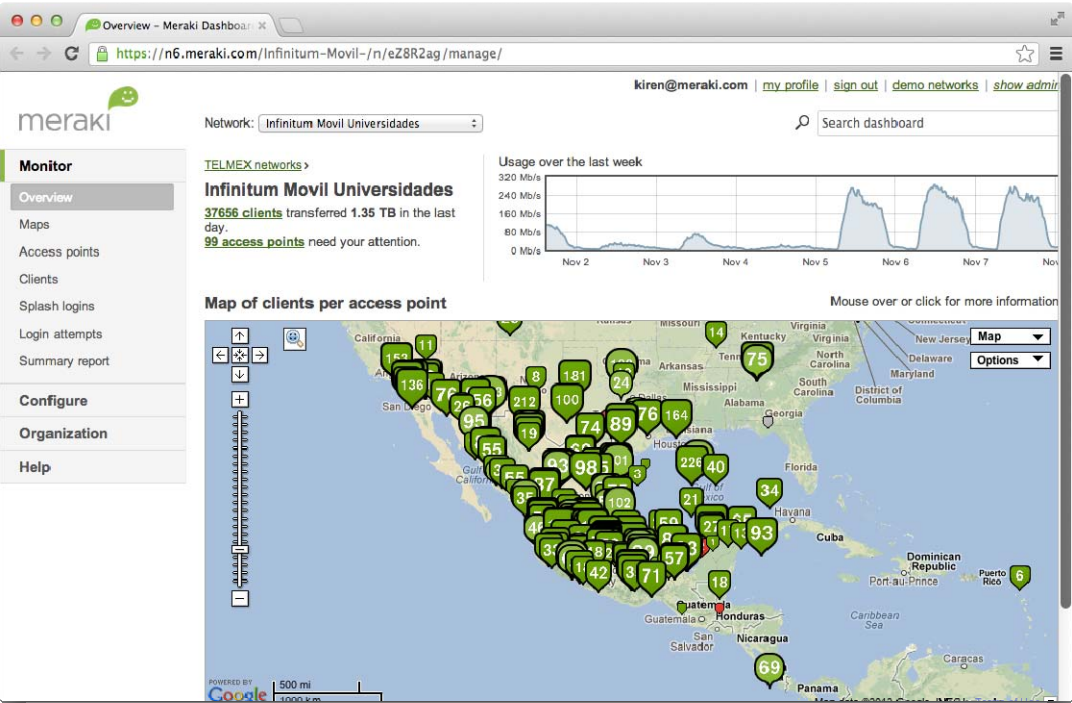
- Highly available cloud with multiple datacenters
- Network functions even if connection to cloud is interrupted
- 99.99% uptime SLA

Secure

- No user traffic passes through cloud
- Fully HIPAA / PCI compliant (level 1 certified)
- 3rd party security audits, daily penetration testing
- Automatic firmware and security updates (user-scheduled)

Reliability and security information at meraki.cisco.com/trust

Scalable cloud infrastructure



Telmex
Nationwide hotspot and 3G offload network



Dress Barn
Nation-wide deployment spanning hundreds of retail stores



Motel 6
70,000 hotel room deployment



Jeffco School District 80,000 student district with 100+ schools

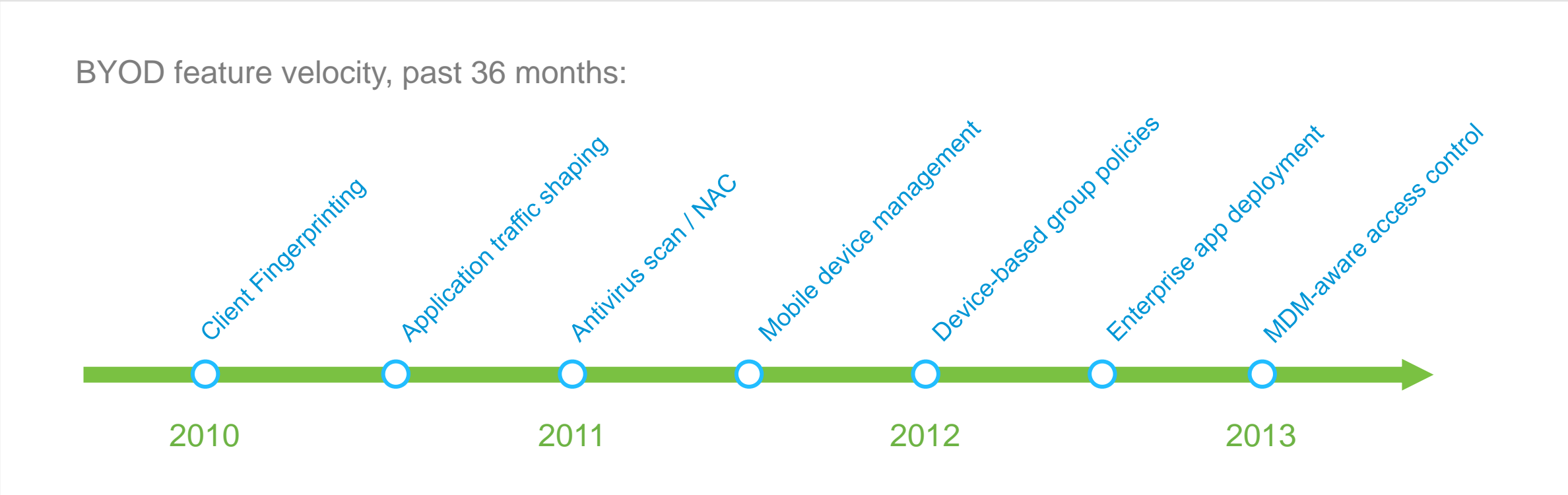
Proven in 10,000+ endpoint deployments

Intuitive web-based dashboard

The screenshot displays the Meraki dashboard interface for a specific client, 'cmedranos-iPad'. The interface is organized into several sections:

- Wired + wireless:** A callout box on the left points to the 'Monitor' section in the sidebar, which includes options like Overview, Maps, Access points, Clients, Traffic analytics, Packet capture, Event log, Air Marshal, Splash logins, Login attempts, Analytics, Summary report, PCI report, Configure, Organization, and Help.
- Client fingerprints:** A callout box on the left points to the 'Details' section, which provides comprehensive information about the client, including MAC address (a4:67:06:77:e4:9f), IP (10.80.108.28), Hostname (cmedranos-iPad), Network access (normal), Connection (wireless), Capabilities (802.11n, 2.4 and 5 GHz), Manufacturer (Apple), Operating system (Apple iPad), and Packet capture options.
- Approximate location:** A callout box on the right points to a map showing the client's location on the 4th floor. The map is powered by Google and includes a warning: 'WARNING: This client's location may be less accurate because some of the related APs are not placed on this map. You can place APs on maps and floorplans here.'
- Real-time control:** A callout box on the right points to the 'Live tools' section, which includes a 'Ping client' button.
- Application QoS:** A callout box on the left points to the 'Usage' section, which shows a line graph of data usage over time (Apr 6 to Apr 12) and four pie charts for Applications, Ports, HTTP content, and Custom Pie Chart.
- Instant search:** A callout box on the right points to the search bar at the top of the dashboard.
- Location analytics:** A callout box on the right points to the map area.

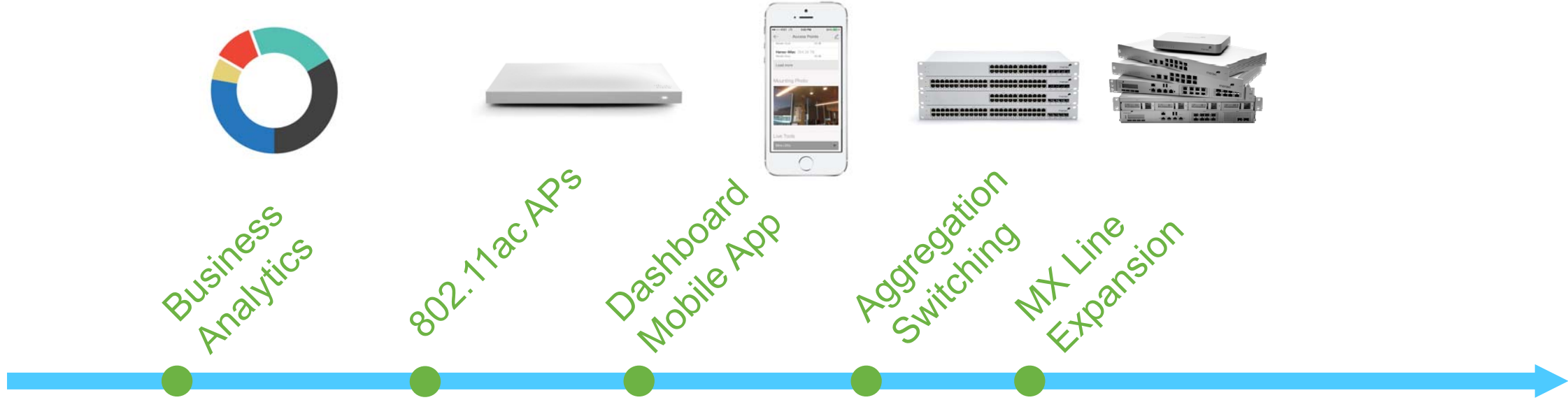
SaaS feature delivery



Feature updates seamlessly delivered from the cloud (user-scheduled)

Adapts to new devices, applications, and business opportunities


Investing in R&D to address new challenges



Explosion of New Devices | New Business Applications | Operational Efficiency

Solution highlights

Distributed networks



The screenshot displays a network management interface. On the left is a navigation menu with sections: Monitor, Configure, Organization, Overview (selected), Change log, Settings, Configuration sync, License info, and Help. The main area features a map of the United States with numerous green and red location markers. On the right, a panel titled 'Map Satellite' shows a search bar and a table of 930 networks. The table has columns for Name, Usage, and Clients.

Name	Usage	Clients
MAU1851 - Bossier City LA	none	0
DB0792 - Detroit MI	none	0
DB0339 - Matthews NC	none	0
DB0342 - Oceanside NY	none	0
MAU1581 - Papillion NE	none	0
DB0672 - Destin FL	none	0
DB0421 - Exton PA	none	0
MAU LAB EVDO	none	0
DB0440 - Champaign IL	none	0
MAU1660 - Hanford CA	none	0
DB0916 - Tulsa OK	none	0
DB0609 - Turnersville NJ	none	0

Centralized cloud management scales to thousands of sites

Multi-site visibility and control

Map-based dashboard; configuration sync; remote diagnostics; automatic monitoring and alerts

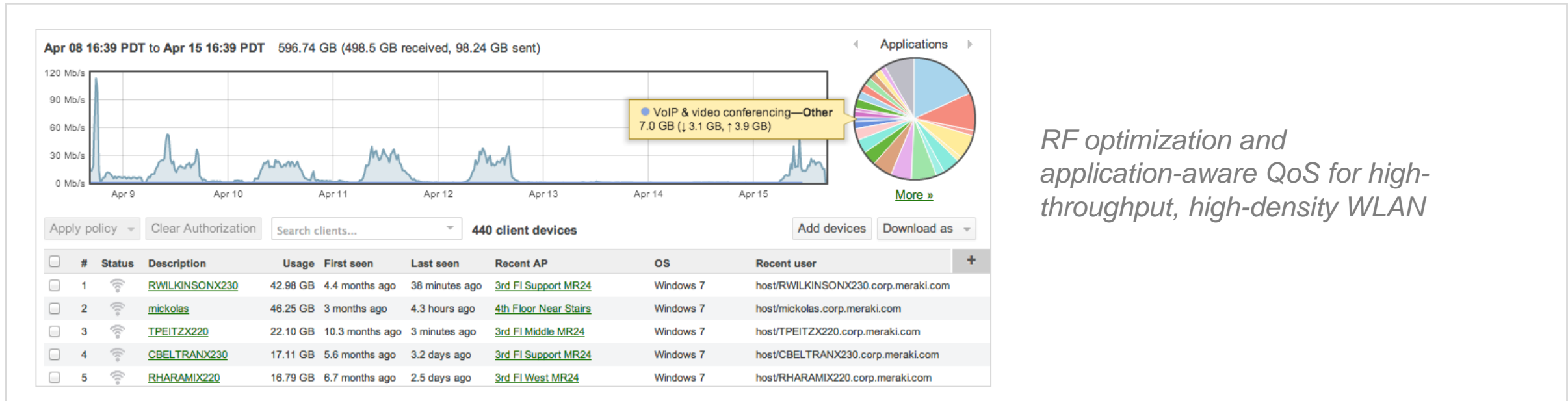
Zero-touch provisioning

Devices automatically provision from the cloud, no staging required; self-configuring site-to-site VPN

Traffic acceleration

WAN optimization and web caching accelerates and de-duplicates network traffic; application-aware QoS prioritizes productivity apps

High capacity edge networks



RF optimization and application-aware QoS for high-throughput, high-density WLAN

Layer 7 application traffic shaping

Throttle, block, or prioritize application traffic with DPI-based fingerprinting; set user and group-based shaping rules

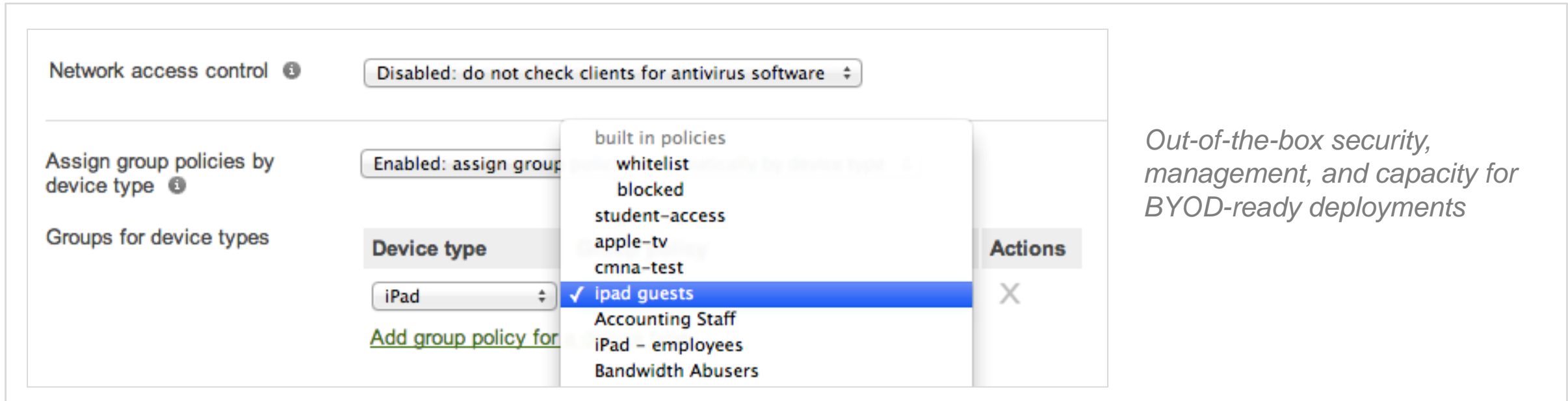
Cloud-base RF optimization

Dynamically avoid interference, optimizing channel selection and power levels

Density-optimized WLAN

RF platform tuned for airtime fairness and performance in dense performance-critical environments

Bring your own device (BYOD)



The screenshot displays a configuration page for Network Access Control. At the top, 'Network access control' is set to 'Disabled: do not check clients for antivirus software'. Below, 'Assign group policies by device type' is 'Enabled: assign group'. A dropdown menu for 'Device type' is open, showing 'iPad' selected. The menu lists several policies: 'built in policies', 'whitelist', 'blocked', 'student-access', 'apple-tv', 'cmna-test', 'ipad guests' (checked), 'Accounting Staff', 'iPad - employees', and 'Bandwidth Abusers'. An 'Actions' button with an 'X' icon is visible on the right side of the menu.

Out-of-the-box security, management, and capacity for BYOD-ready deployments

Device-aware security

Device-aware firewall and access control; Antivirus scan; LAN isolation; Bonjour Gateway; Content and security filtering

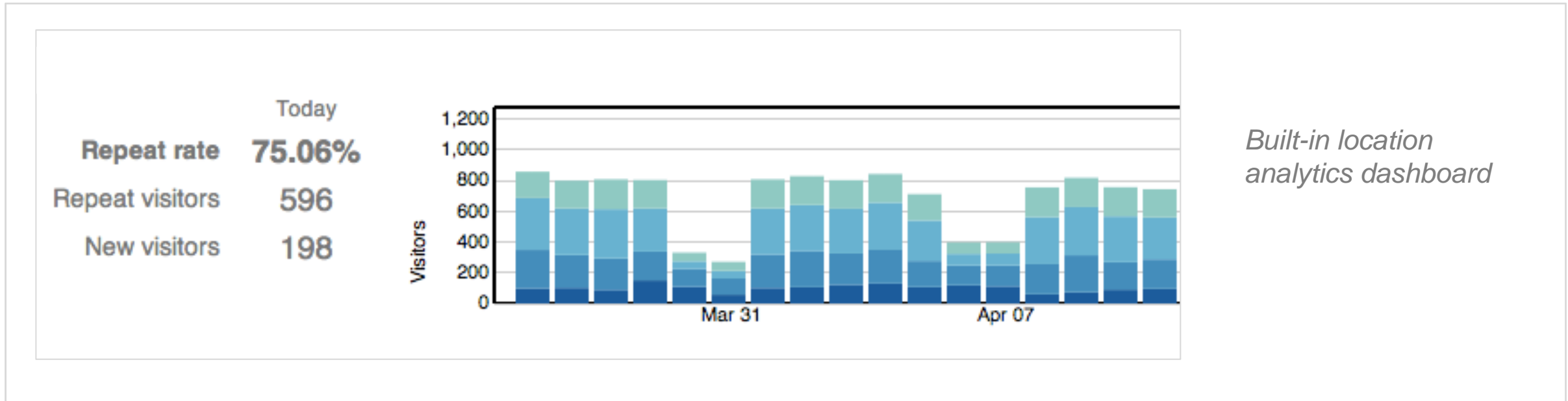
Integrated MDM

Enforce encryption, passcodes, and device restrictions; Deploy enterprise applications; Remotely lock or wipe devices

Simplified onboarding

Flexible authentication with AD integration, SMS authentication, hosted splash pages, and automatic MDM enrollment

User analytics and engagement



Optimize marketing and business operations

Analyze capture rate, dwell time, and new / repeat visitors to measure advertising, promotions, site utilization, etc.


Built-in analytics

Integrated into WLAN, no extra sensors, appliances, or software

Extensible API

Integrate location data with CRM, loyalty programs, and custom applications for targeted real-time offers

Flexible authentication and access control

- Click-through
Users must view and acknowledge your splash page before being allowed on the network
- Sign-on with
Require users to check in to your Facebook Page before gaining access to your network 
Configure Facebook settings [here](#).
- Sign-on with SMS Authentication **BETA**
Users enter a mobile phone number and receive an authorization code via SMS.

Flexible built-in authentication mechanisms

Flexible authentication

Secure 802.1x and Active Directory authentication; Facebook Authentication for branding and targeted social marketing; SMS self-service authentication, Lobby Ambassador, and hosted sign-on splash pages

Dynamic access control

Assign clients layer 3-7 firewall rules, VLANs, and application-aware quality of service by identity, group, location, or device type

Simplified enterprise security

Air Marshal

Scanning APs ④ **4 APs** in dedicated Air Marshal mode.


LAN containment ④

Keyword containment ④
One keyword per line.

Off-channel scans ④

Mandatory scan schedule S M T W T F S

or .



26 Rogue SSIDs | [439 Other SSIDs](#) | [5 Spoofs](#) | [0 Malicious broadcasts](#) | [212 Packet floods](#)

Containment	SSID	Last seen	First seen	# APs	Rogue because	Seen by	Broadcast MACs
uncontained	63 hidden SSIDs	Apr 16 18:22	Aug 24 05:57	63	Seen on LAN	4th FL Sales1 (74 dB) 21 more >	12:18:0a:31:87:50 62 more >
uncontained	SG3 FoxFi	Apr 10 00:04	Mar 20 07:09	1	Seen on LAN	4th Floor Near Stairs (34 dB) 1 more >	5c:0a:5b:5f:a4:0f
uncontained	Daghan Altas's iPhone	Apr 12 08:21	Apr 12 08:21	1	Seen on LAN	Air Marshal - 2nd Floor 1 more >	66:a3:cb:84:ad:bd
uncontained	Meshki Test	Apr 16 04:00	Mar 20 10:55	1	Seen on LAN	2nd FL Support MP24 (6 dB)	10:10:0a:37:00:e4

Enterprise-class security features for security-conscious environments

Air Marshal WIDS/WIPS

Detect wireless attacks; contain rogue APs; cloud-based alerting and diagnostics

User and device aware security

User, device, and group-based firewall rules (layer 3-7) with Active Directory integration

Complete NG firewall and content security

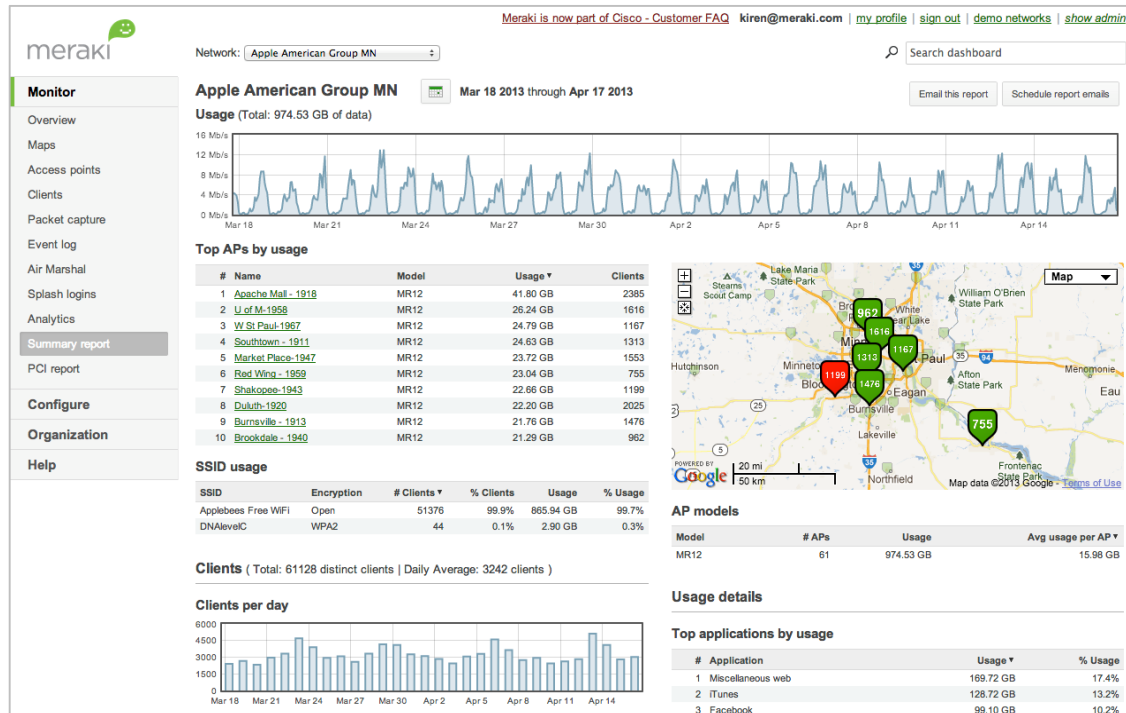
Application firewall; content filtering matching 1B+ URLs; antivirus / antimalware filtering; Google safe-search

Case studies

Case study: Applebee's



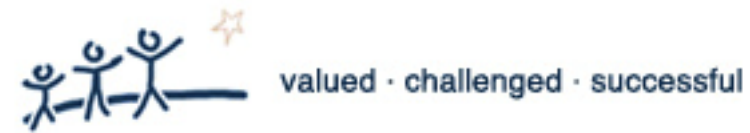
- Wireless LAN spanning over 270 restaurants nationwide
- Customer engagement through guest access, coupons, promotions
- PCI-compliant solution enables mobile POS
- Restaurants centrally managed over the web
- Deployed without pre-staging or on-site IT



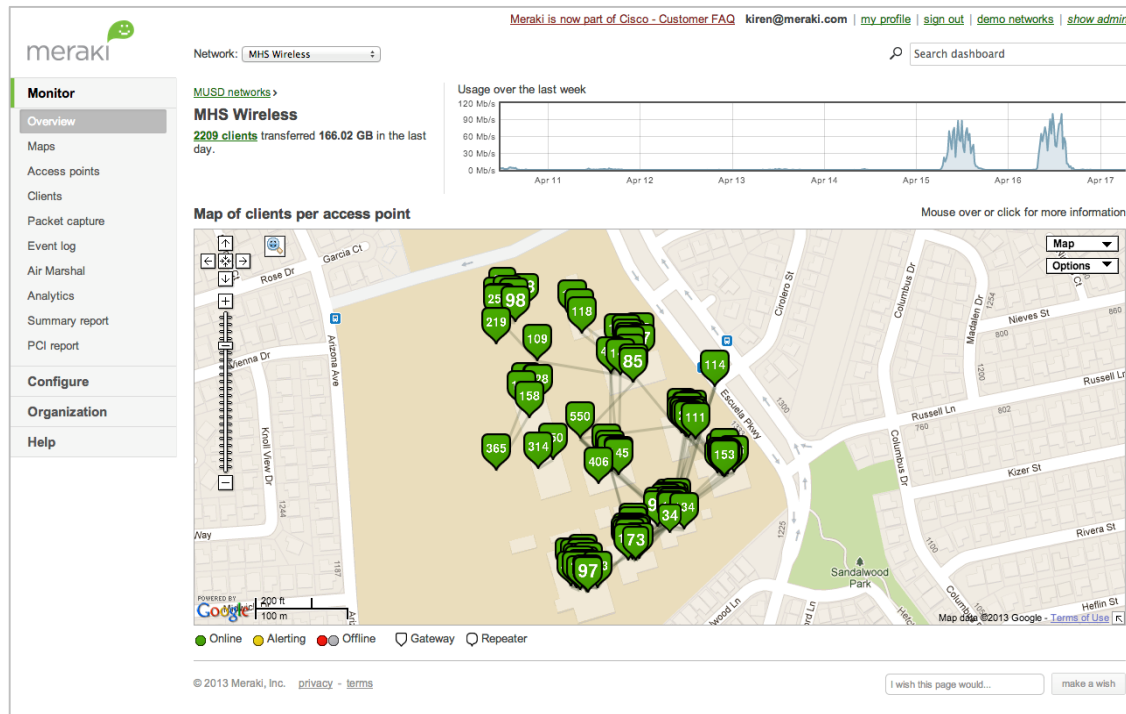
“The Meraki Dashboard makes it easy to manage the WiFi across all the restaurants, and we have the visibility we wanted.”

Leslie McMasters, Network Administrator, Apple American Group

Case study: Milpitas Unified School District



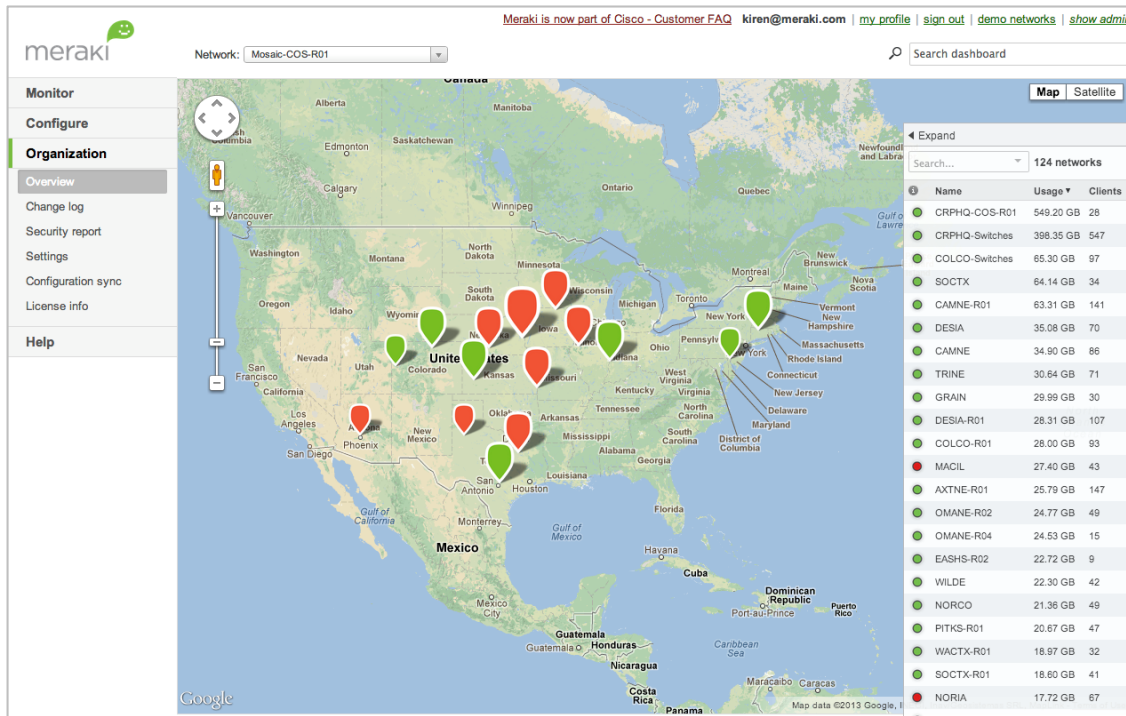
- California school district with 14 schools, 10,000 students
- Deployed cloud-managed firewall, 500 wireless APs (indoor + outdoor), and 100 Ethernet switches
- Enabled 1:1 Google Chromebook deployment and BYOD policy
- Application visibility and control optimizes bandwidth across 10k+ clients



“The Dashboard, the traffic shaping, and the MDM were real advantages. We can see the traffic and devices on the fly.”

Chin Song, Director of Technology, Milpitas Unified School District

Case study: Mosaic



- Healthcare and services provider with 5,000 employees, 40 facilities across 11 states
- Deployed 350 cloud-managed wireless APs, switches, and security appliances
- HIPAA-compliant WiFi for electronic medical records and guest access
- Centrally managed by small IT staff

“The Meraki solution has provided us with a secure, centrally managed distributed network.”

Daniel McDonald, Systems Integration Manager, Mosaic

Product Families



MR wireless access points



Feature
highlights

BYOD policies

Application traffic shaping

Guest access

Enterprise security

WIDS / WIPS

Location analytics

5 models including indoor / outdoor, high performance and value-priced

Enterprise-class silicon including RF optimization, PoE, voice / video support

Lifetime warranty on indoor APs

New wireless APs



MR18
General purpose 11n AP
Dual-concurrent 2x2, 600 Mbps



MR26
High performance 11n AP
Dual-concurrent 3x3, 900 Mbps
For high-density deployments



Industry's only cloud-managed 802.11n APs with dedicated security radio

Technology from flagship MR34 brought to 802.11n family for uncompromised security and RF management

The Cisco Meraki MR34

802.11ac with Application QoS
For increased throughput
and density

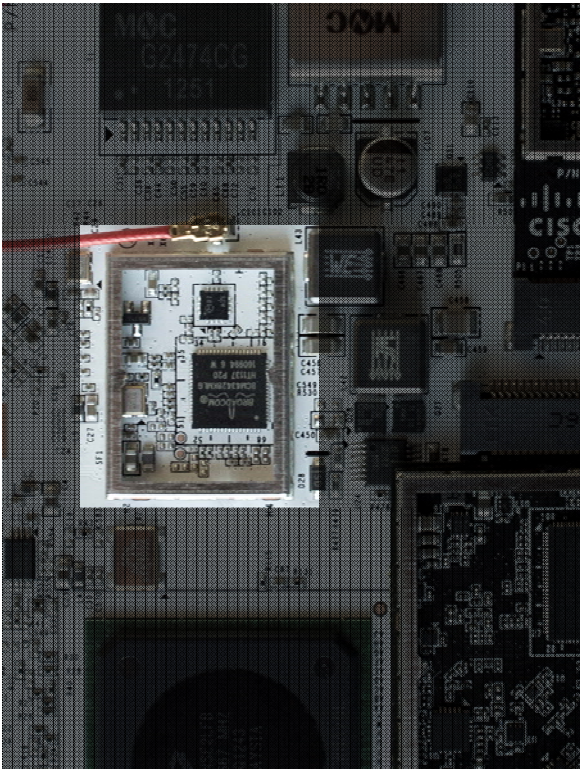
Dedicated Security Radio
3rd radio for Air Marshal and RF
management

Built for Cloud Management
Seamless deployment, fully
integrated features



The most advanced cloud-managed access point

3rd radio tames hostile RF environments



Radio dedicated to scanning and protecting RF environment

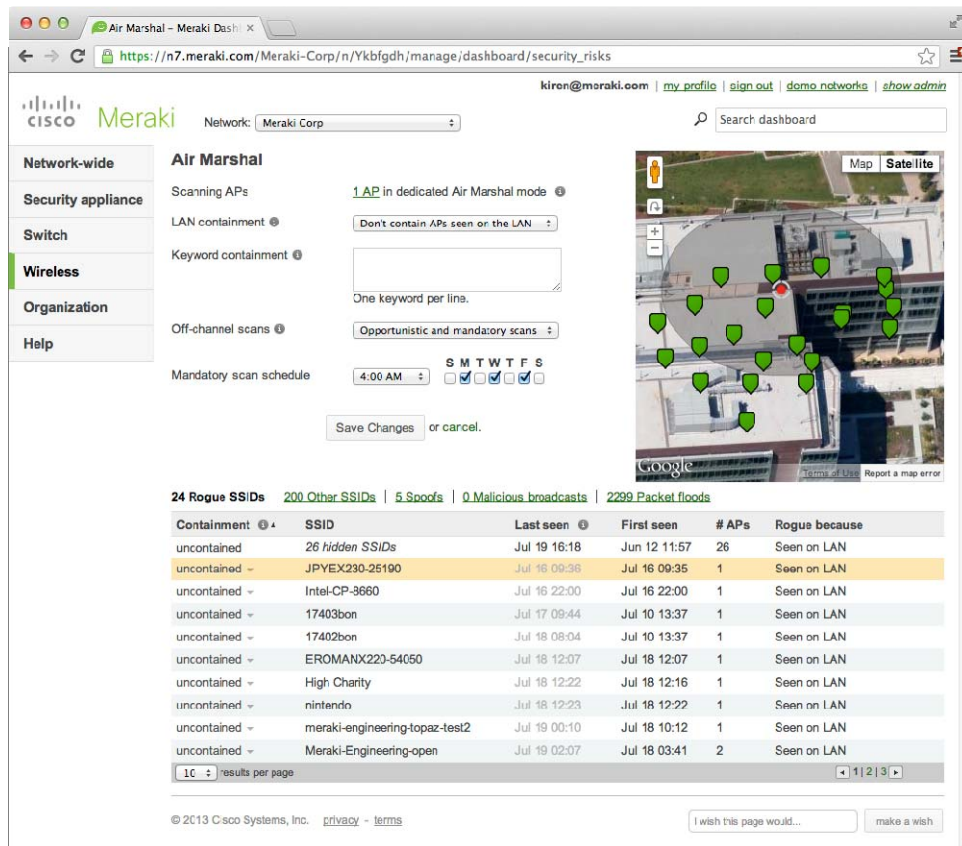
- Instantly detects and mitigates interference, vulnerabilities, and attacks on all channels
- 3rd radio enables full-time scanning with full-performance client access on 2.4 GHz and 5 GHz radios

Deeply-integrated with cloud-based software solutions:
[Air Marshal](#) (security), [Auto RF](#) (performance)

No added cost or complexity

- Typical deployments: radio operates in background (zero-config)
- Power users: rich tools available for security and RF management
- No added cost: no extra hardware, software, or licenses

Air Marshal: class-leading cloud managed security



The screenshot shows the Meraki Air Marshal dashboard. The left sidebar contains navigation links for Network-wide, Security appliance, Switch, Wireless, Organization, and Help. The main content area is titled 'Air Marshal' and includes configuration options for Scanning APs, LAN containment, Keyword containment, Off-channel scans, and Mandatory scan schedule. A map on the right shows the location of scanning APs. Below the configuration is a table of detected rogue SSIDs.

Containment	SSID	Last seen	First seen	# APs	Rogue because
uncontained	26 hidden SSIDs	Jul 19 16:18	Jun 12 11:57	26	Seen on LAN
uncontained	JPYEX230-25190	Jul 16 09:36	Jul 16 09:35	1	Seen on LAN
uncontained	Intel-CP-3660	Jul 16 22:00	Jul 16 22:00	1	Seen on LAN
uncontained	17403bon	Jul 17 09:44	Jul 10 13:37	1	Seen on LAN
uncontained	17402bon	Jul 18 08:04	Jul 10 13:37	1	Seen on LAN
uncontained	EROMANX223-54050	Jul 18 12:07	Jul 18 12:07	1	Seen on LAN
uncontained	High Charity	Jul 18 12:22	Jul 18 12:16	1	Seen on LAN
uncontained	nintendo	Jul 18 12:23	Jul 18 12:22	1	Seen on LAN
uncontained	meraki-engineering-topaz-test2	Jul 19 00:10	Jul 18 10:12	1	Seen on LAN
uncontained	Meraki-Engineering-open	Jul 19 02:07	Jul 18 03:41	2	Seen on LAN

Protect network with dedicated scanning radio linked to powerful cloud-based software

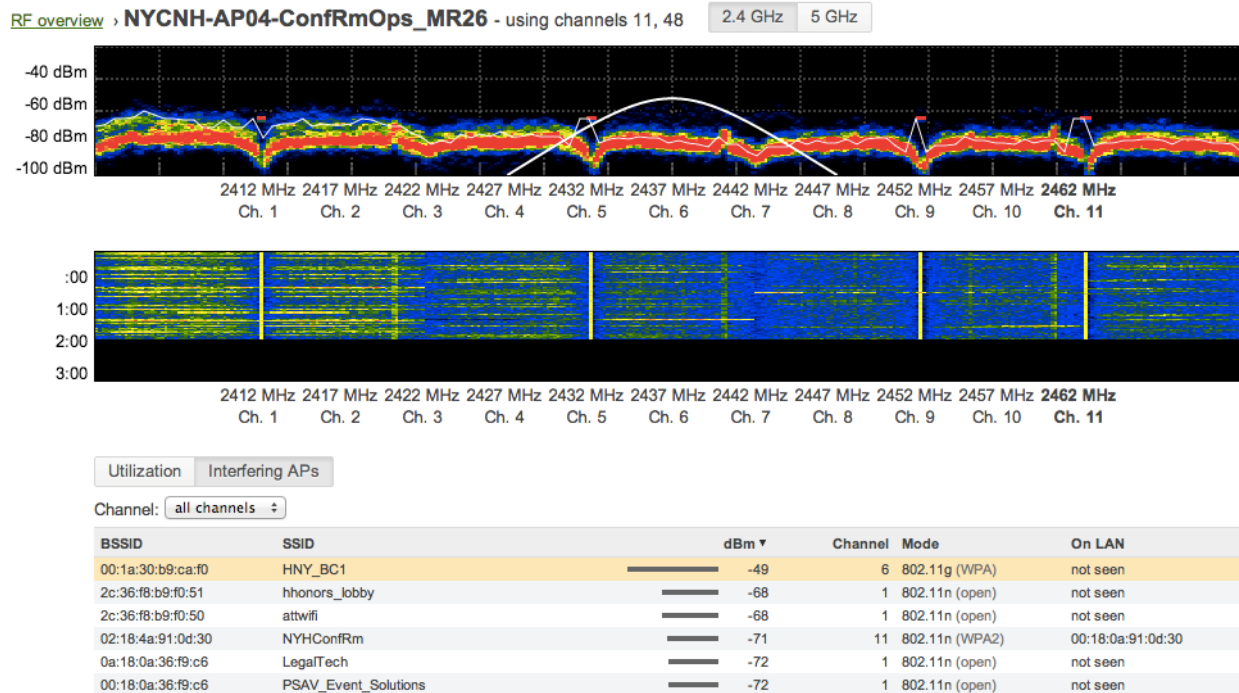
Detects and classifies nearby APs using rich heuristics

Identifies vulnerabilities and attacks:

- Unmanaged / insecure APs plugged into LAN
- Malicious rogues spoofing WLAN
- Packet floods, malicious broadcasts

Contains rogue APs, blocking clients from associating

Auto RF: zero-config optimization for dynamic environments



Scans all channels for interference, tuning performance with cloud intelligence

Optimized for mixed 802.11ac and 802.11n environments

Cloud-based engine analyzes RF data, optimizes channels and power across network

Responds automatically to challenging or dynamic RF environments

Visualize interference with high-resolution spectrum analyzer

Security radio available across entire indoor portfolio

2013 indoor portfolio



MR16
2 stream 802.11a/b/g/n
600 Mbit/s



MR24
3 stream 802.11a/b/g/n
900 Mbit/s



Security Radio

MR34
3 stream 802.11ac
1.75 Gbit/s



2014 indoor portfolio



Security Radio

MR18
2 stream 802.11a/b/g/n
600 Mbit/s



Security Radio

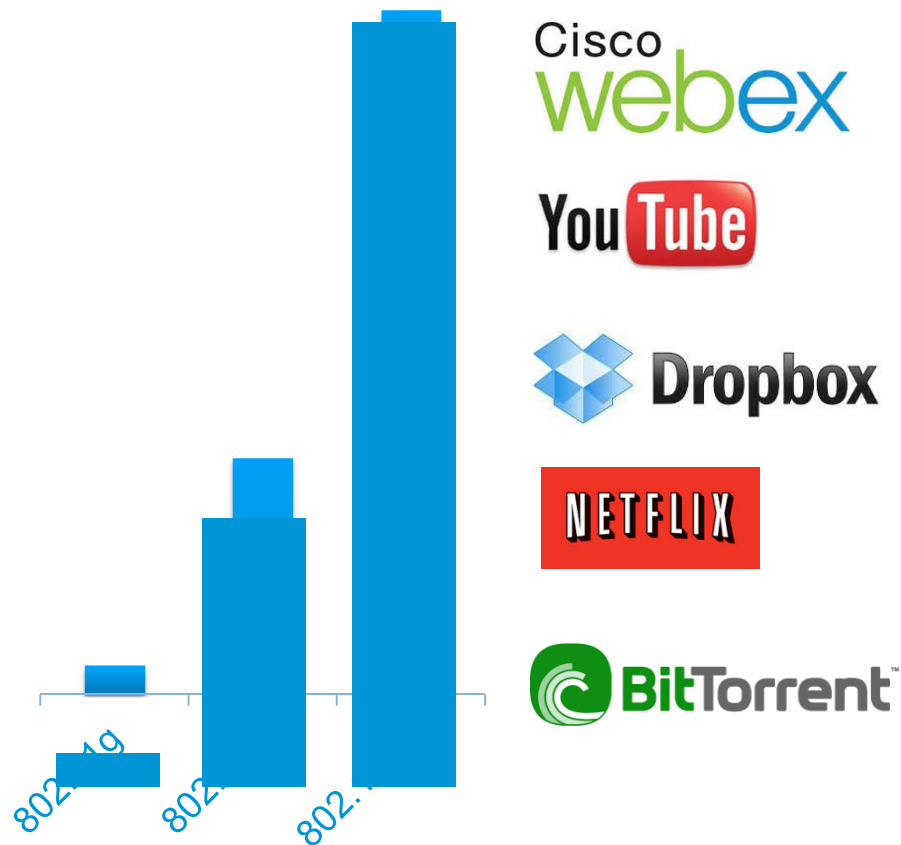
MR26
3 stream 802.11a/b/g/n
900 Mbit/s



Security Radio

MR34
3 stream 802.11ac
1.75 Gbit/s

802.11ac with application QoS



3 stream, dual concurrent radios with 1.75 Gbps aggregate radio rate for high throughput and density

Layer 7 application fingerprinting classifies and controls evasive, encrypted, and P2P traffic

- Inspects packets and applies policies at full .11ac speed
- Prioritize business apps, real-time traffic
- Limit recreational, bandwidth-hungry apps

User and device fingerprinting for identity-based QoS policies

Airtime fairness algorithms for high-density networks

Cloud-based signature updates respond to new apps

Part of a complete solution

The screenshot displays the Meraki Dashboard interface for a specific client, 'Kirens-MacBook-Air'. The interface is divided into several sections:

- Multi-site management:** Indicated by a callout box pointing to the 'Meraki Corp' network selection dropdown.
- User fingerprints:** Indicated by a callout box pointing to the 'User' field showing 'kiren.sekar (802.1x login)'.
- Instant search:** Indicated by a callout box pointing to the 'Search dashboard' search bar.
- Location analytics:** Indicated by a callout box pointing to the Google Maps view showing the client's location with a green pin.
- Real-time control:** Indicated by a callout box pointing to the 'Policy' section, which includes fields for 'Device policy', 'Bandwidth', 'Layer 3 firewall', 'Layer 7 firewall', and 'Traffic shaping'.
- Application QoS:** Indicated by a callout box pointing to the 'Applications' section, which shows a pie chart and a callout for 'File sharing—Dropbox' with usage statistics.

The dashboard also displays a 'Usage' graph for the last week, showing bandwidth usage in Kb/s over time. The 'Network' section provides details such as IP address (10.92.111.179), MAC address (28:37:37:1e:69:4e), and VLAN (110 — DATA - 5th Floor). The 'Ping' section shows a graph of latency and a loss rate of 0%.

Same out-of-the-box feature set as other Meraki MR wireless APs

MX security appliances



Feature
highlights

Zero-touch site to site VPN

WAN optimization

NG firewall

Content filtering

WAN link bonding

Intrusion detection

6 models scaling from small branch to campus / datacenter

Complete networking and security in a single appliance

MS access & aggregation switches



Feature highlights

Voice and video QoS

Layer 7 app visibility

Virtual stacking

PoE / PoE + on all ports

Remote packet capture,
cable testing

Gigabit access switches in 8, 24, and 48 port configurations, PoE available on all ports

10 Gigabit SFP+ aggregation switches in 24 and 48 port configurations

Enterprise-class performance and reliability including non-blocking performance, voice/video QoS, and a lifetime warranty

Systems Manager mobile device management



Feature highlights

Centralized app deployment

Device security

Rapid provisioning

Backpack™ file sharing

Asset management

Device Management controls iOS, Android, Mac, and Windows devices

Cloud-based - no on-site appliances or software, works with any vendor's network

100% free - available at no cost to any organization, sign up at meraki.cisco.com/sm

Thank you.

