

*TOMORROW starts here.*



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# Meraki's Cloud-Managed Networking Solution

BRKEWN-2013

John-Paul Sikking

Meraki Specialist

# Agenda

- Introduction
- Wireless Trends
- Why cloud managed networking?
- Cloud-managed networking architecture
- Solution highlights
- Product Families
- Out of the box demo
- Q+A

# Market trends

Mainstream adoption of WLAN technology in enterprise

- BYOD and enterprise mobility
- Upgrades replacing greenfield deployments
- Healthcare adoption due to regulatory needs, retail due to monetisation opportunities

WLAN refresh driven by 802.11ac standard

- Mid-sized businesses seeing a complete, 100% cloud-managed solution
- Distributed large enterprises combining traditional campus / core with cloud-managed branch

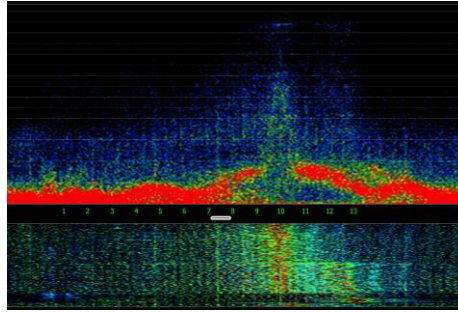
Cloud proliferation

- Recognition of rapid deployment and lower TCO

# Designing next-gen products for new IT challenges



Driving density, throughput demands



Challenging wireless security and performance



Creating new security and management requirements

# Investing in R&D to address new challenges



Explosion of New Devices | New Business Applications | Operational Efficiency



Why cloud managed networking?

# Cisco Meraki: 100% cloud-managed networking

- Cisco Meraki: a complete cloud-managed networking solution
  - Wireless, switching, security 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 since 2006
- Recognised for innovation
  - Gartner Magic Quadrant, InfoWorld Technology of the Year, CRN Coolest Technologies

Trusted by thousands of customers worldwide:



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# The cloud increases IT efficiency



Manageability



Scalability



Cost Savings

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

# An integrated solution for new IT challenges



1 billion iOS & Android devices



Integrated mobile device management



HD video and rich media



Layer 7 application shaping



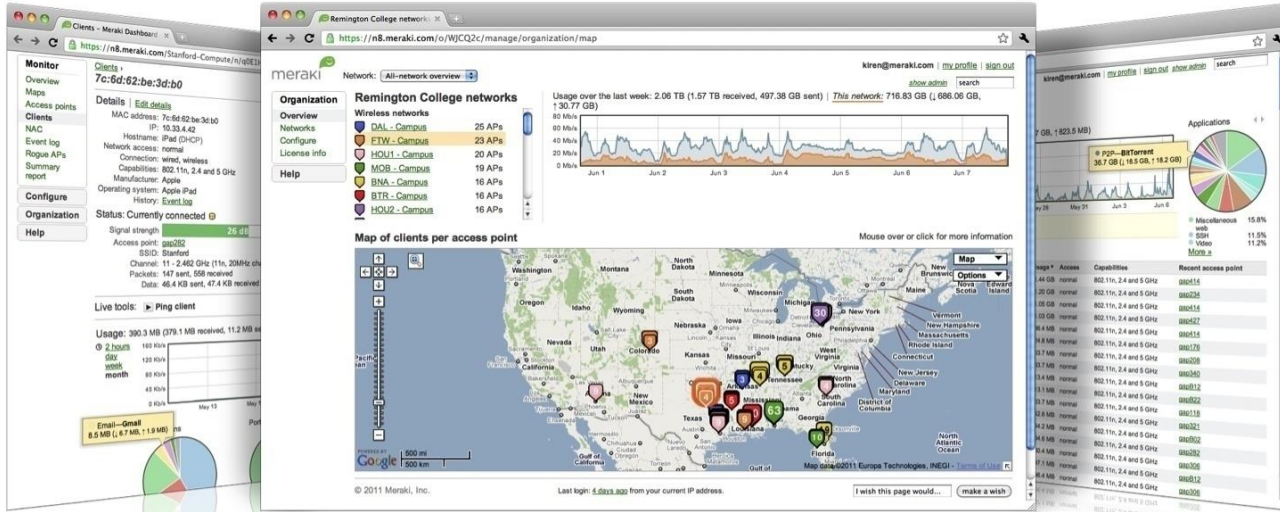
New business opportunities



Analytics and user engagement

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

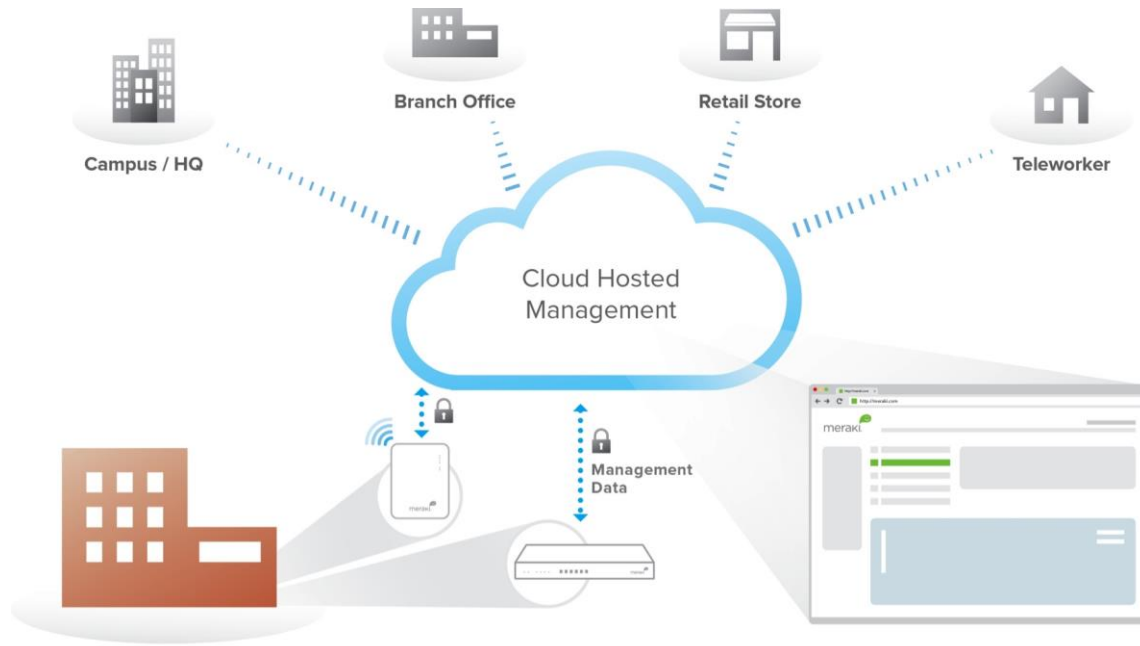
# Bringing the cloud to enterprise networks





# Cloud architecture

# Cloud-managed networking architecture



Network endpoints securely connected to the cloud

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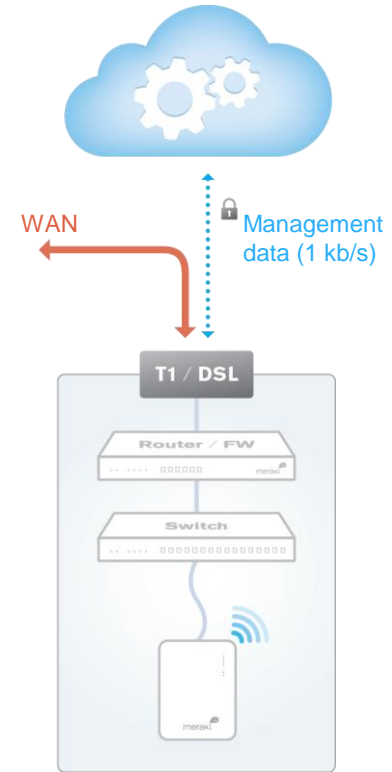
Cloud-hosted centralised management platform

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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 datacentres
  - 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](https://meraki.cisco.com/trust)

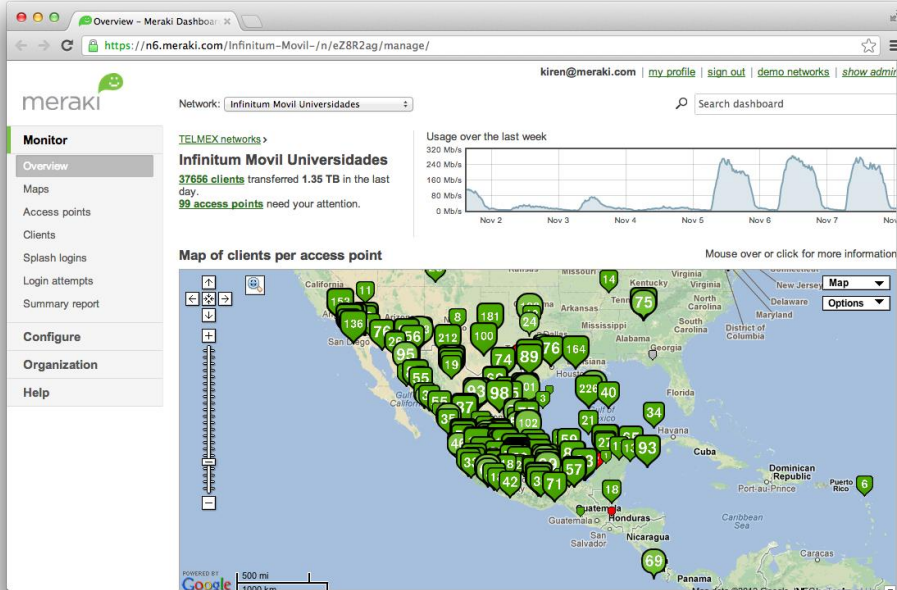
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# Scalable cloud infrastructure



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 client named 'cmedranos-iPad'. The interface includes a left-hand navigation menu with sections like Monitor, Clients, Traffic analytics, and Configuration. The main content area shows detailed client information, including MAC address, IP, Hostname, Network access, and Connection type (wireless). A 'Status' section indicates the client is 'Currently connected' with a signal strength of 30 dB. A map titled 'Approximate location' shows the client's position on a floor plan, with a callout box explaining that the location is based on data from 4 APs and may be less accurate. Below the map, there are 'Live tools' such as 'Ping client' and a 'Usage' section with a line graph showing data usage over time. At the bottom, there are four pie charts labeled 'Applications', 'Ports', 'HTTP content', and 'Custom Pie Chart'.

Wired + wireless

Client fingerprints

Application QoS

Instant search

Location analytics

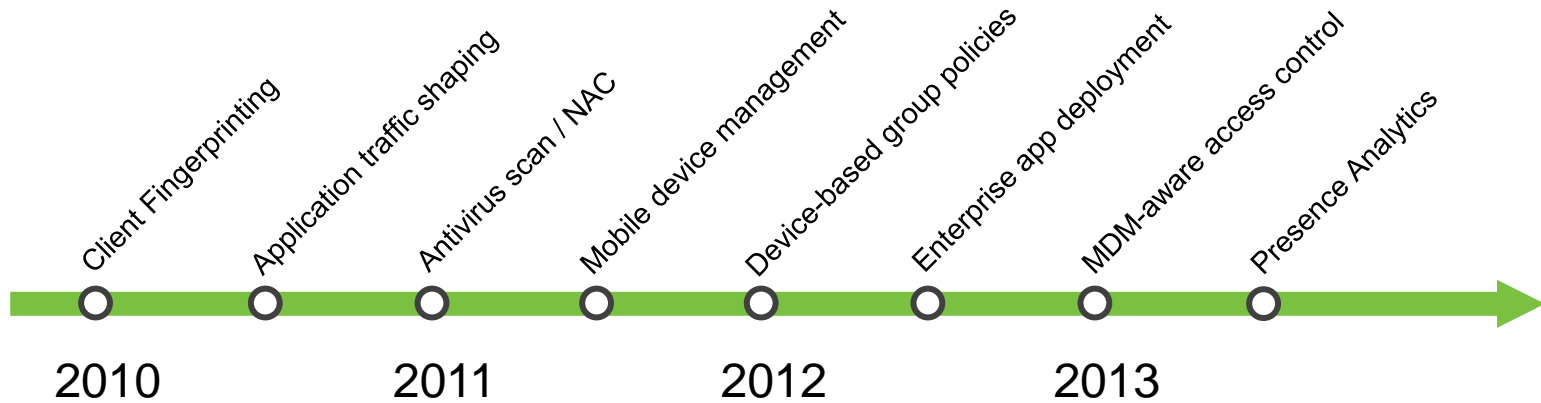
Real-time control

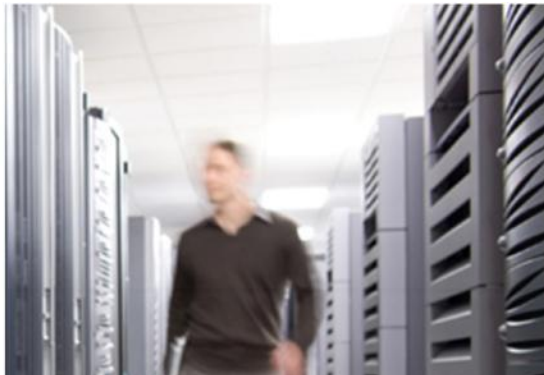


# SaaS feature delivery

- Feature updates seamlessly delivered from the cloud (user-scheduled)
- Adapts to new devices, applications, and business opportunities

BYOD feature velocity, past 36 months:





## Solution highlights

# Distributed networks



The screenshot displays a network management interface. On the left is a sidebar with navigation options: 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 pins. A table on the right lists network details:

Name	Usage	Clients
MAU1651 - Bossier City LA	none	0
DB0792 - Detroit MI	none	0
DB0339 - Matthews NC	none	0
DB0342 - Oceanside NY	none	0
MAU1581 - Papillon 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
DB0809 - Turnersville NJ	none	0

*Centralised cloud management scales to thousands of sites*

**Multi-site visibility and control**

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

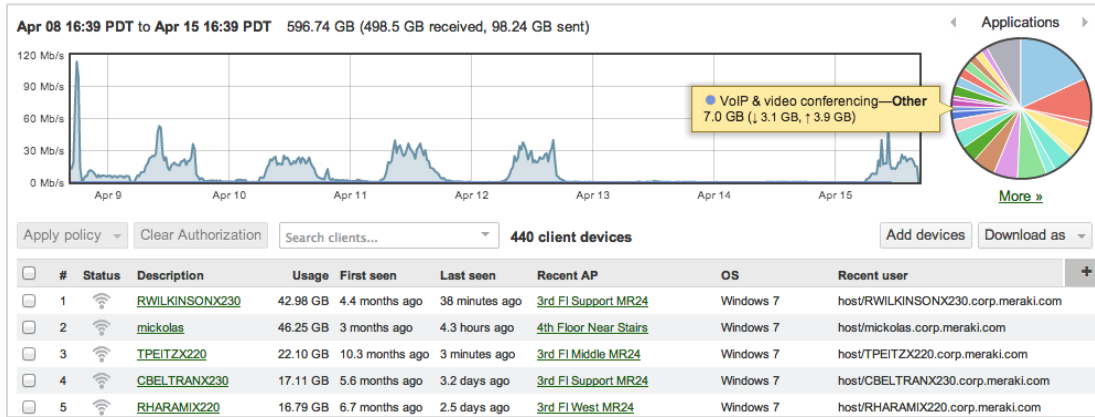
**Zero-touch provisioning**

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

**Traffic acceleration**

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

# High capacity edge networks



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

## Layer 7 application traffic shaping

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

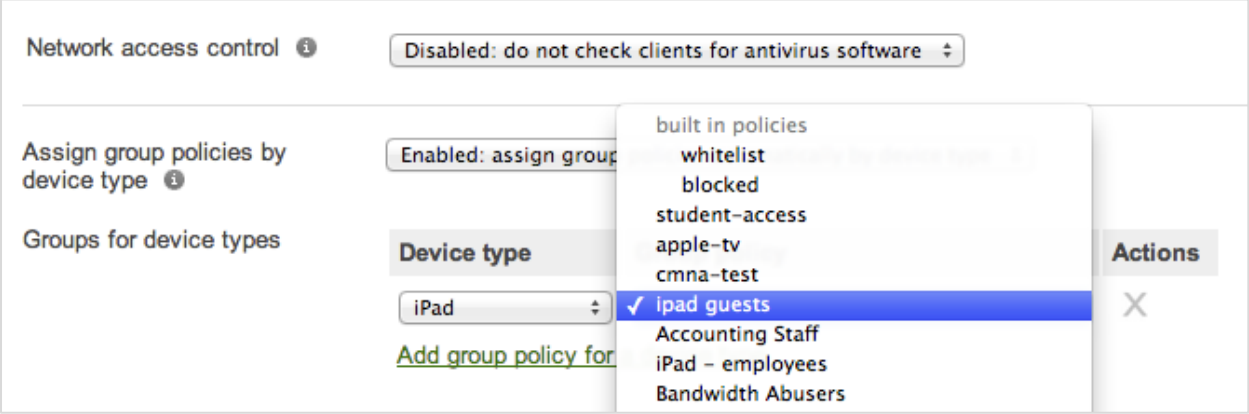
## Cloud-base RF optimisation

Dynamically avoid interference, optimising channel selection and power levels

## Density-optimised WLAN

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

# Bring your own device (BYOD)



The screenshot shows a configuration page for Network Access Control (NAC). At the top, there is a section for "Network access control" which is currently "Disabled: do not check clients for antivirus software". Below this, there is a section for "Assign group policies by device type" which is "Enabled: assign group policies by device type". Underneath, there is a "Groups for device types" section with a "Device type" dropdown menu set to "iPad". A dropdown menu is open, showing a list of policies: "built in policies", "whitelist", "blocked", "student-access", "apple-tv", "cmna-test", "ipad guests" (which is selected with a checkmark), "Accounting Staff", "iPad - employees", and "Bandwidth Abusers". To the right of the dropdown menu is an "Actions" button with a close icon (X).

*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

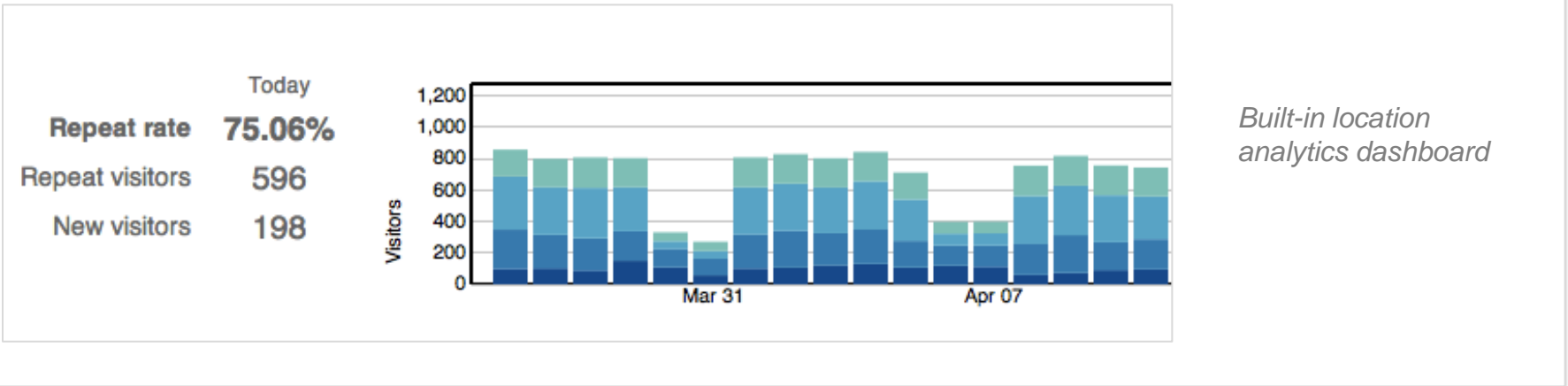
## Integrated MDM

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



**Optimise marketing and business operations**

Analyse capture rate, dwell time, and new / repeat visitors to measure advertising, promotions, site utilisation, 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 APs in dedicated Air Marshal mode.


LAN containment  Don't contain APs seen on the LAN

Keyword containment  rogues  
One keyword per line.

Off-channel scans  Opportunistic and mandatory scans

Mandatory scan schedule 4:00 AM  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 Atlas'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	Master Test	Apr 16 04:00	Mar 20 10:55	1	Seen on LAN	2nd FL Support MR24 (6 dB)	4b:4b:0a:23:00: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





## Product Families

# MR wireless access points

- 6 models including indoor / outdoor, high performance(802.11ac) and value-priced
- Enterprise-class silicon including RF optimisation, PoE, voice / video support
- Lifetime warranty on indoor APs



Feature highlights

BYOD policies

Application traffic shaping

Guest access

Enterprise security

WIDS / WIPS

Location analytics

# MX security appliances

- **6 models** scaling from small branch to campus / datacentre
- **Complete networking and security** in a single appliance



Feature highlights

Zero-touch site to site VPN

WAN optimisation

NG firewall

Content filtering

WAN link bonding

Intrusion detection

# MS access & aggregation switches

- 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



Feature highlights

Voice and video QoS

Layer 7 app visibility

Virtual stacking

PoE / PoE + on all ports

Remote packet capture, cable testing

# Systems Manager mobile device 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 organisation, sign up at [meraki.cisco.com/sm](http://meraki.cisco.com/sm)



Feature highlights

Centralised app deployment

Device security

Rapid provisioning

Backpack™ file sharing

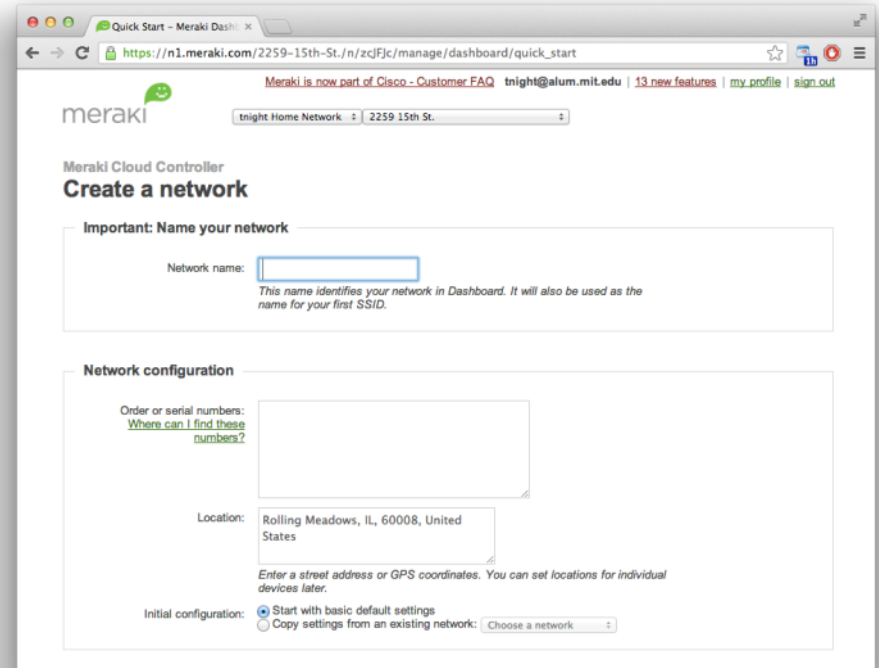
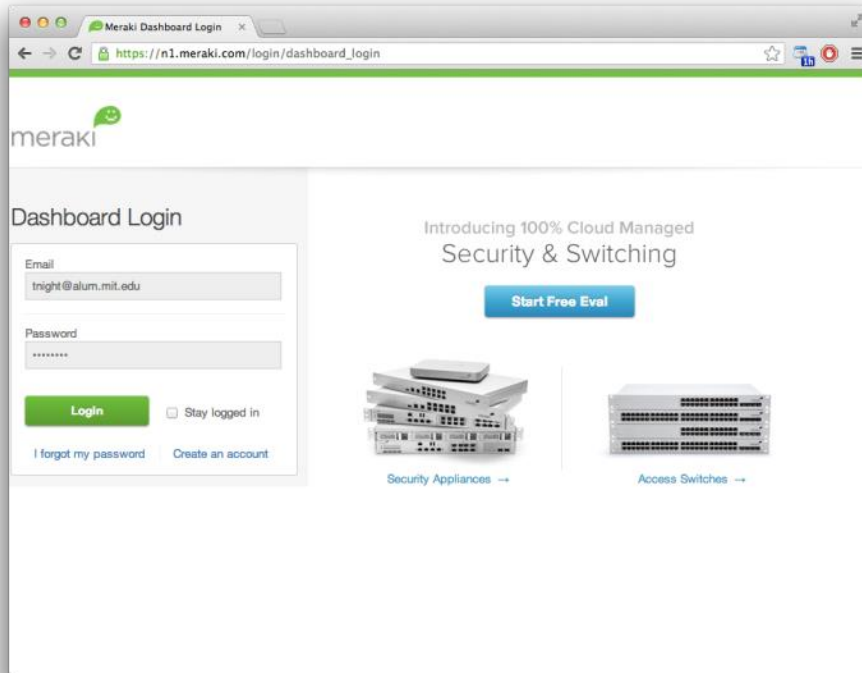
Asset management



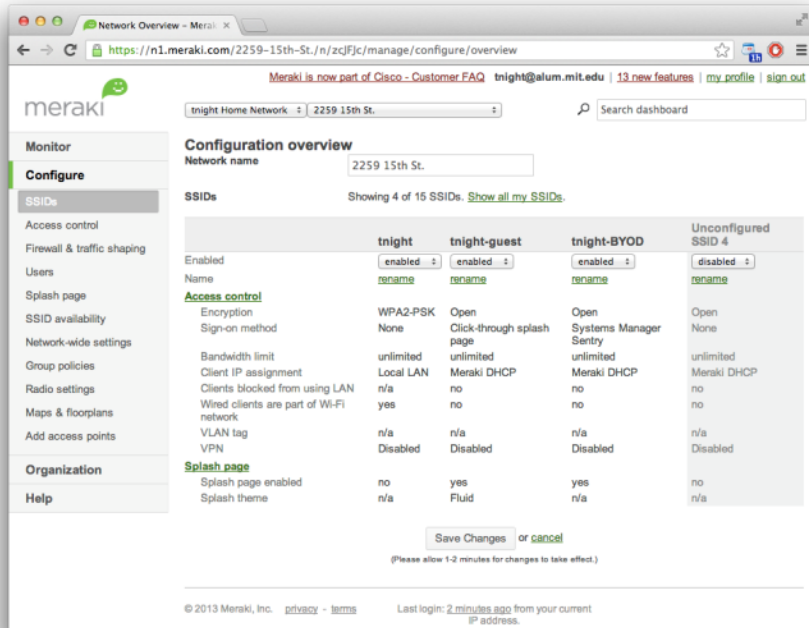
## Out of the Box



# FTB – Basic account set-up



# FTB - Wireless



Network Overview - Meraki

https://n1.meraki.com/2259-15th-St./n/zcFJc/manage/configure/overview

Meraki is now part of Cisco - Customer FAQ | [tnight@alum.mit.edu](#) | 13 new features | [my profile](#) | [sign out](#)

tnight Home Network | 2259 15th St. | Search dashboard

### Configuration overview

Network name: 2259 15th St.

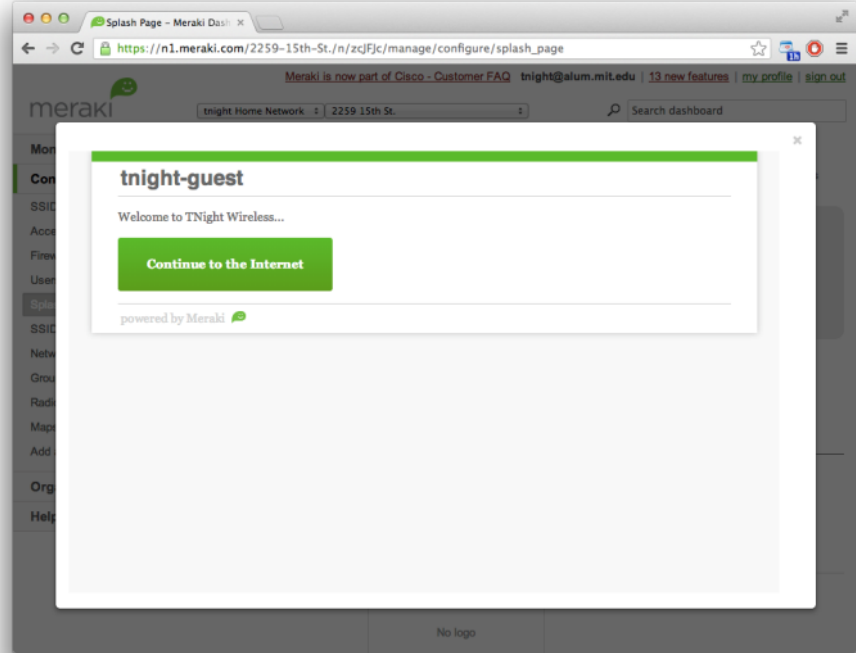
SSIDs: Showing 4 of 15 SSIDs. [Show all my SSIDs.](#)

	tnight	tnight-guest	tnight-BYOD	Unconfigured SSID 4
Enabled	<input type="checkbox"/> enabled	<input type="checkbox"/> enabled	<input type="checkbox"/> enabled	<input type="checkbox"/> disabled
Name	<a href="#">rename</a>	<a href="#">rename</a>	<a href="#">rename</a>	<a href="#">rename</a>
<b>Access control</b>				
Encryption	WPA2-PSK	Open	Open	Open
Sign-on method	None	Click-through splash page	Systems Manager Sentry	None
Bandwidth limit	unlimited	unlimited	unlimited	unlimited
Client IP assignment	Local LAN	Meraki DHCP	Meraki DHCP	Meraki DHCP
Clients blocked from using LAN	n/a	no	no	no
Wired clients are part of Wi-Fi network	yes	no	no	no
VLAN tag	n/a	n/a	n/a	n/a
VPN	Disabled	Disabled	Disabled	Disabled
<b>Splash page</b>				
Splash page enabled	no	yes	yes	no
Splash theme	n/a	Fluid	n/a	n/a

[Save Changes](#) or [cancel](#)

(Please allow 1-2 minutes for changes to take effect.)

© 2013 Meraki, Inc. [privacy](#) - [terms](#) | Last login: 2 minutes ago from your current IP address.



Splash Page - Meraki Dash

https://n1.meraki.com/2259-15th-St./n/zcFJc/manage/configure/splash\_page

Meraki is now part of Cisco - Customer FAQ | [tnight@alum.mit.edu](#) | 13 new features | [my profile](#) | [sign out](#)

tnight Home Network | 2259 15th St. | Search dashboard

## tnight-guest

Welcome to TNight Wireless...

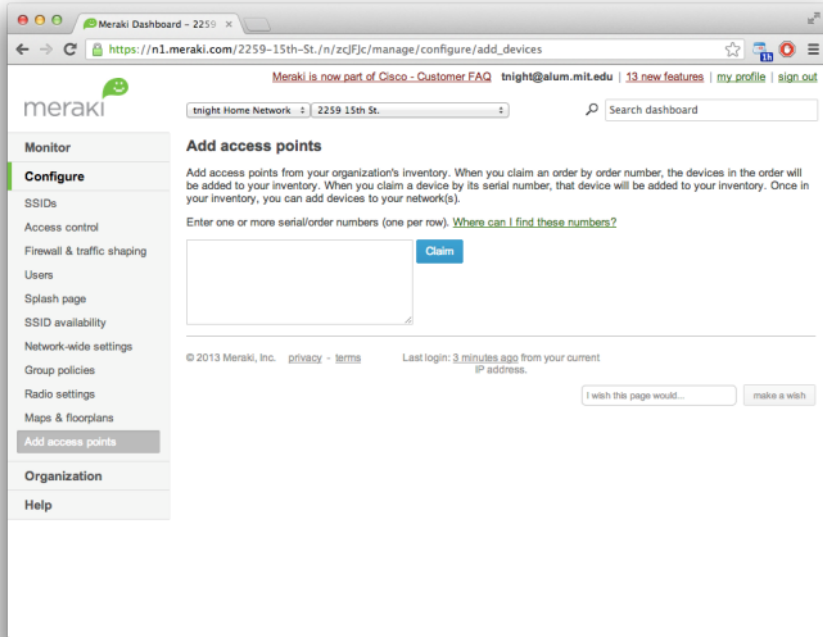
[Continue to the Internet](#)

powered by Meraki

No logo



# FTB: Add AP + set-up Firewall



Meraki Dashboard - 2259 x  
https://n1.meraki.com/2259-15th-St./n/zcJfC/manage/configure/add\_devices

Meraki is now part of Cisco - Customer FAQ | tnight@alum.mit.edu | 13 new features | my profile | sign out

tnight Home Network | 2259 15th St. | Search dashboard

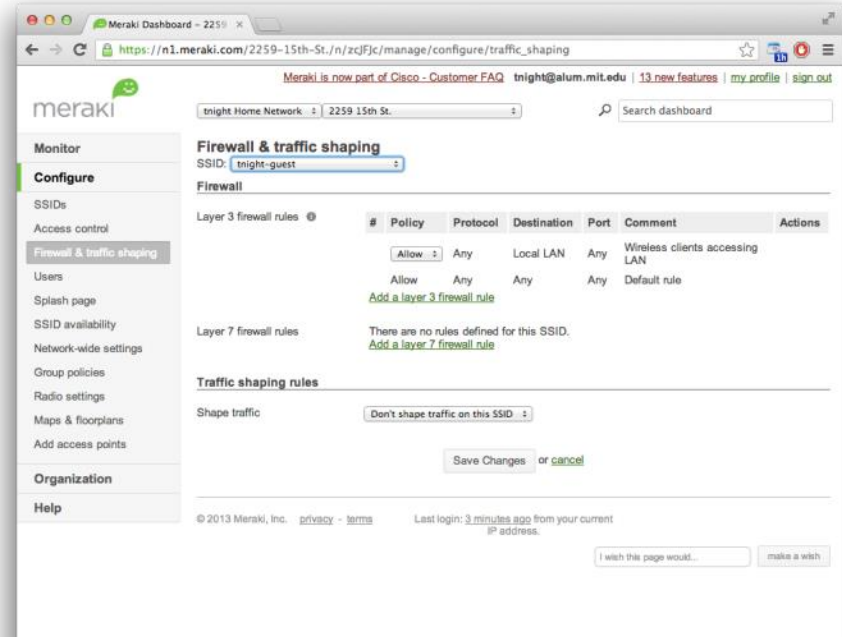
### Add access points

Add access points from your organization's inventory. When you claim an order by order number, the devices in the order will be added to your inventory. When you claim a device by its serial number, that device will be added to your inventory. Once in your inventory, you can add devices to your network(s).

Enter one or more serial/order numbers (one per row). [Where can I find these numbers?](#)

© 2013 Meraki, Inc. [privacy](#) - [terms](#) | Last login: 3 minutes ago from your current IP address. |  |

**Monitor**  
**Configure**  
SSIDs  
Access control  
Firewall & traffic shaping  
Users  
Splash page  
SSID availability  
Network-wide settings  
Group policies  
Radio settings  
Maps & floorplans  
**Add access points**  
**Organization**  
**Help**



Meraki Dashboard - 2259 x  
https://n1.meraki.com/2259-15th-St./n/zcJfC/manage/configure/traffic\_shaping

Meraki is now part of Cisco - Customer FAQ | tnight@alum.mit.edu | 13 new features | my profile | sign out

tnight Home Network | 2259 15th St. | Search dashboard

### Firewall & traffic shaping

SSID: tnight-guest

#### Firewall

Layer 3 firewall rules

#	Policy	Protocol	Destination	Port	Comment	Actions
	Allow	Any	Local LAN	Any	Wireless clients accessing LAN	
	Allow	Any	Any	Any	Default rule	

[Add a layer 3 firewall rule](#)

Layer 7 firewall rules

There are no rules defined for this SSID.  
[Add a layer 7 firewall rule](#)

#### Traffic shaping rules

Shape traffic

or

© 2013 Meraki, Inc. [privacy](#) - [terms](#) | Last login: 3 minutes ago from your current IP address. |  |

**Monitor**  
**Configure**  
SSIDs  
Access control  
**Firewall & traffic shaping**  
Users  
Splash page  
SSID availability  
Network-wide settings  
Group policies  
Radio settings  
Maps & floorplans  
Add access points  
**Organization**  
**Help**

# FTB: Set up some SSIDs

- Network-wide
- Security appliance
- Wireless
- Organization
- Help

New in Dashboard: Summary reporting by tag. [Read more.](#)

## Configuration overview

SSIDs Showing 4 of 15 SSIDs. [Show all my SSIDs.](#)

	CiscoLive2014Meraki	Unconfigured SSID 2	Unconfigured SSID 3	Unconfigured SSID 4
Enabled	<input type="button" value="enabled"/>	<input type="button" value="disabled"/>	<input type="button" value="disabled"/>	<input type="button" value="disabled"/>
Name	<a href="#">rename</a>	<a href="#">rename</a>	<a href="#">rename</a>	<a href="#">rename</a>
<b>Access control</b>				
Encryption	WPA2-PSK	Open	Open	Open
Sign-on method	None	None	None	None
Bandwidth limit	unlimited	unlimited	unlimited	unlimited
Client IP assignment	Meraki DHCP	Meraki DHCP	Meraki DHCP	Meraki DHCP
Clients blocked from using LAN	no	no	no	no
Wired clients are part of Wi-Fi network	no	no	no	no
VLAN tag	n/a	n/a	n/a	n/a
VPN	Disabled	Disabled	Disabled	Disabled
<b>Splash page</b>				
Splash page enabled	no	no	no	no
Splash theme	n/a	n/a	n/a	n/a




or [cancel](#)

(Please allow 1-2 minutes for changes to take effect.)

# FTB: Set up Access (who and what can connect)

The screenshot shows the Cisco Meraki dashboard interface. At the top left, the Cisco Meraki logo is displayed. Below it, there are dropdown menus for 'Cisco New Zealand' and 'CiscoLive2014'. A search bar is located at the top right. A notification banner at the top reads 'New in Dashboard: Summary reporting by tag . [Read more.](#)'. The left sidebar contains navigation links: 'Network-wide', 'Security appliance', 'Wireless' (highlighted), 'Organization', and 'Help'. The main content area is titled 'Access control' and shows the SSID as 'CiscoLive2014Meraki'. Under the 'Network access' section, there are two main categories: 'Association requirements' and 'Splash page'. Under 'Association requirements', four options are listed: 'Open (no encryption)', 'Pre-shared key with WPA2', 'MAC-based access control (no encryption)', and 'WPA2-Enterprise with Meraki authentication'. The 'Pre-shared key with WPA2' option is selected, and a key field is visible with a 'Show key' link. Under 'Splash page', five options are listed: 'None (direct access)', 'Click-through', 'Sign-on with Meraki authentication', 'Sign-on with SMS Authentication BETA', 'Billing (paid access)', and 'Systems Manager Sentry'. The 'None (direct access)' option is selected.

# FTB: Guest Access and Splash page w/ Facebook

- None (direct access)  
Users can access the network as soon as they associate
- 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.  
After a trial period of 25 texts, you will need to connect with your Twilio account on the [Network-wide s](#)
- Billing (paid access)  
Users choose from various pay-for-access options, or an optional free tier
- Systems Manager Sentry   
Only devices with Systems Manager can access this network

# FTB: Radio Settings

Map List 2.4 Ghz 5 Ghz Search radios Update auto channels Hide transmit circles

Map Satellite 500TF 4th

The screenshot displays a radio management interface. At the top, there are control buttons for 'Map' and 'List', frequency filters for '2.4 Ghz' and '5 Ghz', a 'Search radios' input field, and buttons for 'Update auto channels' and 'Hide transmit circles'. Below this is a navigation bar with 'Map', 'Satellite', and a dropdown menu currently set to '500TF 4th'. The main area shows a floor plan with several radio locations marked by green pins with numbers (1, 6, 11). Red lines connect these pins, representing signal paths or connections. Large, semi-transparent blue circles are overlaid on the floor plan, indicating the signal coverage areas for the radios. On the left side, there is a home button, a directional pad, and a zoom control with '+' and '-' buttons.

# Here's a network I prepared earlier...

Let's have a look at a production network with lot of real traffic:

- Clients
- Application usage – e.g. YouTube
- Control user with Policies
- Presence
- Air Marshall
- Maps and Floor plans
- MDM



Q & A

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- By visiting the Cisco Live Mobile Site [www.ciscoliveaustralia.com/mobile](http://www.ciscoliveaustralia.com/mobile)
- Visit any Cisco Live Internet Station located throughout the venue

Polo Shirts can be collected in the World of Solutions on Friday 21 March 12:00pm - 2:00pm



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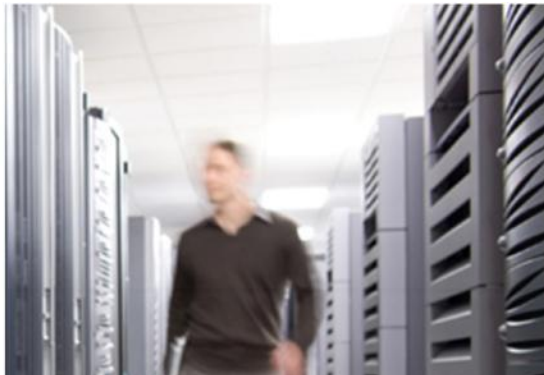
Visit us online after the conference for full access to session videos and presentations.

[www.CiscoLiveAPAC.com](http://www.CiscoLiveAPAC.com)



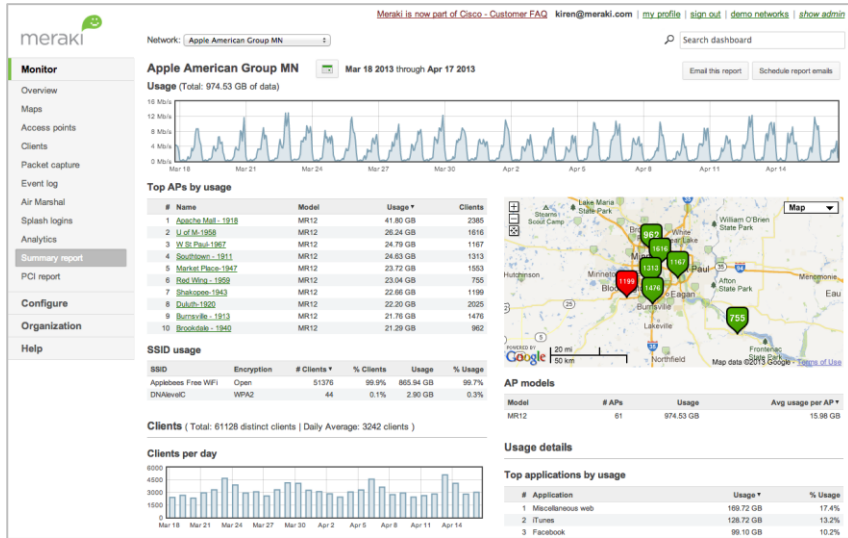


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## Case studies

# Case study: Applebee's

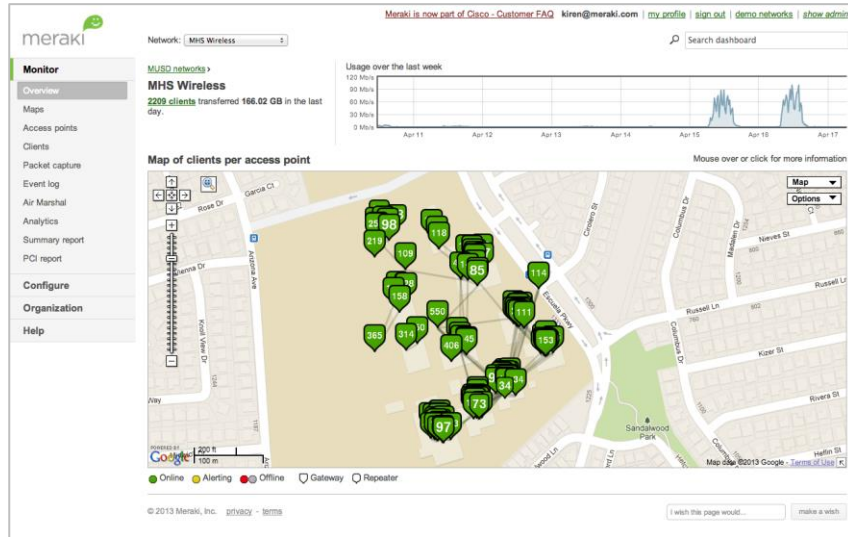


- Wireless LAN spanning over 270 restaurants nationwide
- Customer engagement through guest access, coupons, promotions
- PCI-compliant solution enables mobile POS
- Restaurants centrally managed over the web
- Deployed without pre-staging or on-site IT

*“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 optimises 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



**CISCO** <sup>TM</sup>