This webinar will be recorded

Wi-Fi Capacity Planning

Ekahau Site Survey 9.0 Preview

Jussi Kiviniemi – SVP, Ekahau
Mikko Lauronen – PM **Director**, Ekahau

ekahau
Wi-Fi Design

Ekahau <3 Open Reality

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Wi-Fi Design

Agenda

- Capacity essentials
- Challenges with current capacity planners
- Ekahau 9.0 capacity planner & demo
- Q&A

- Duration: 60 minutes

- **Jussi Kiviniemi**
  - Vice President
  - Twitter: @jussikiviniemi
  - At Ekahau since 2002

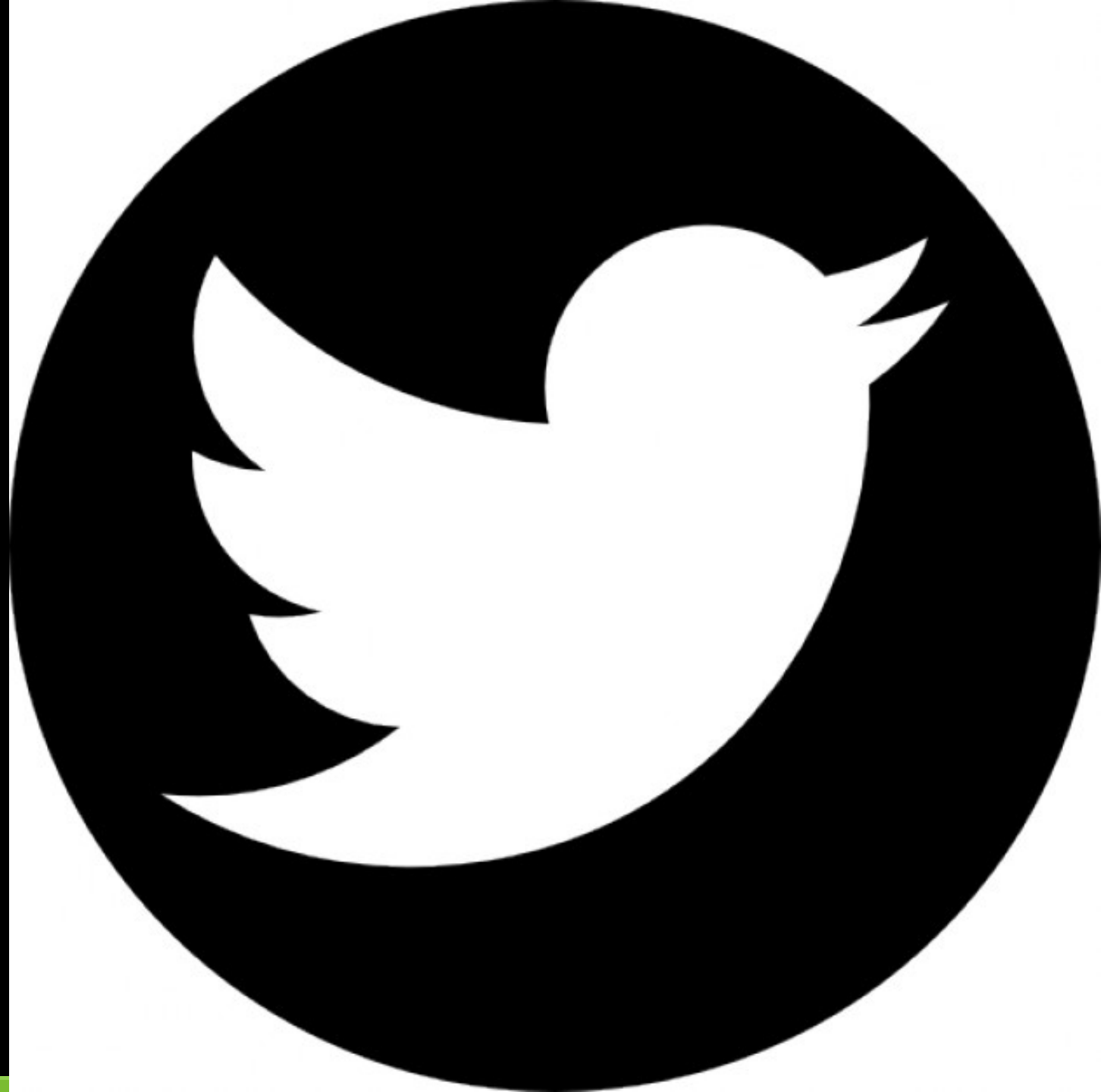
- **Mikko Lauronen**
  - Product Line Manager
  - Twitter: @ekamikko
  - At Ekahau since 2005

Twitter

- Want to be in a part of the **Wi-Fi Community?** Use Twitter.

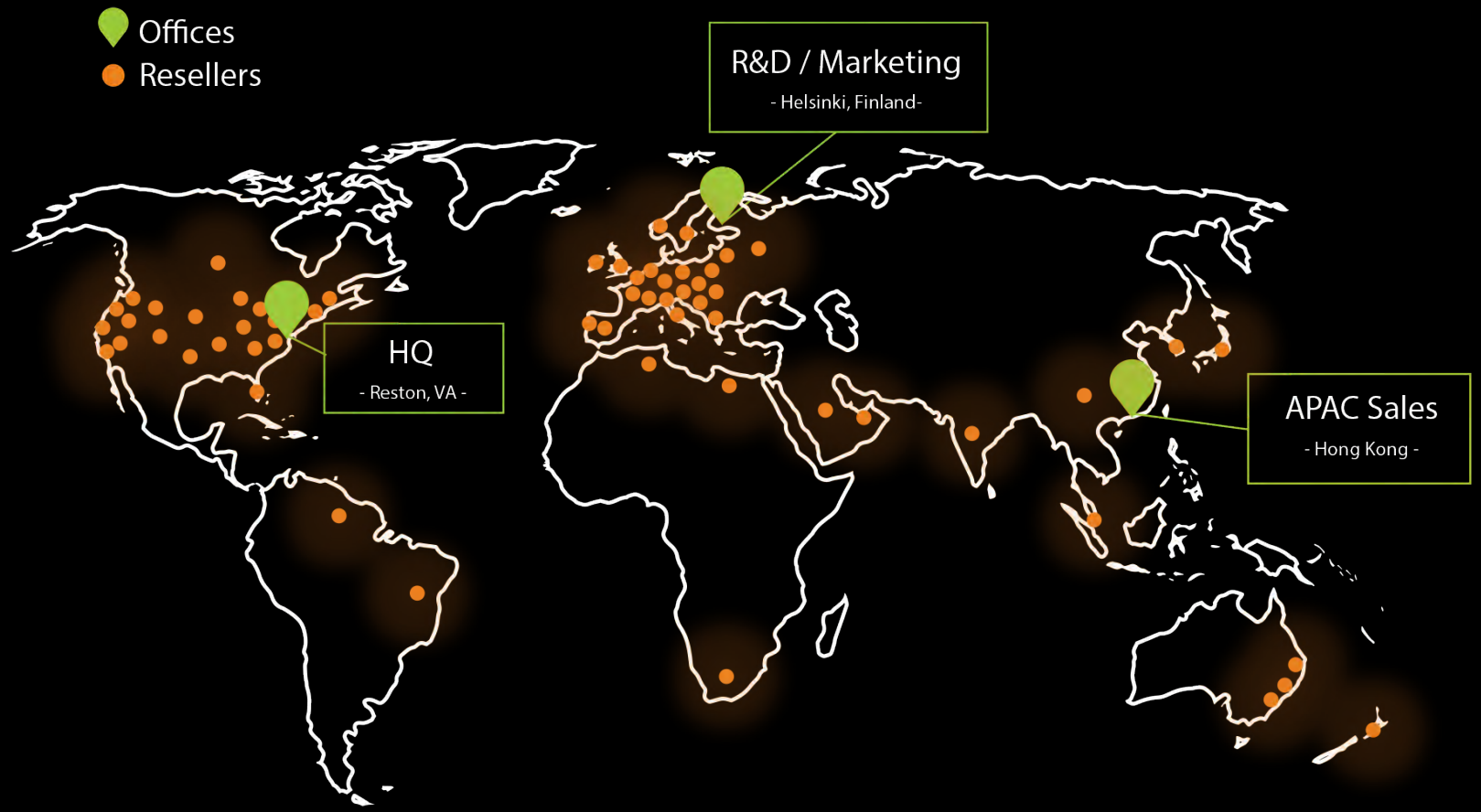
- @JussiKiviniemi

- @EkaMikko

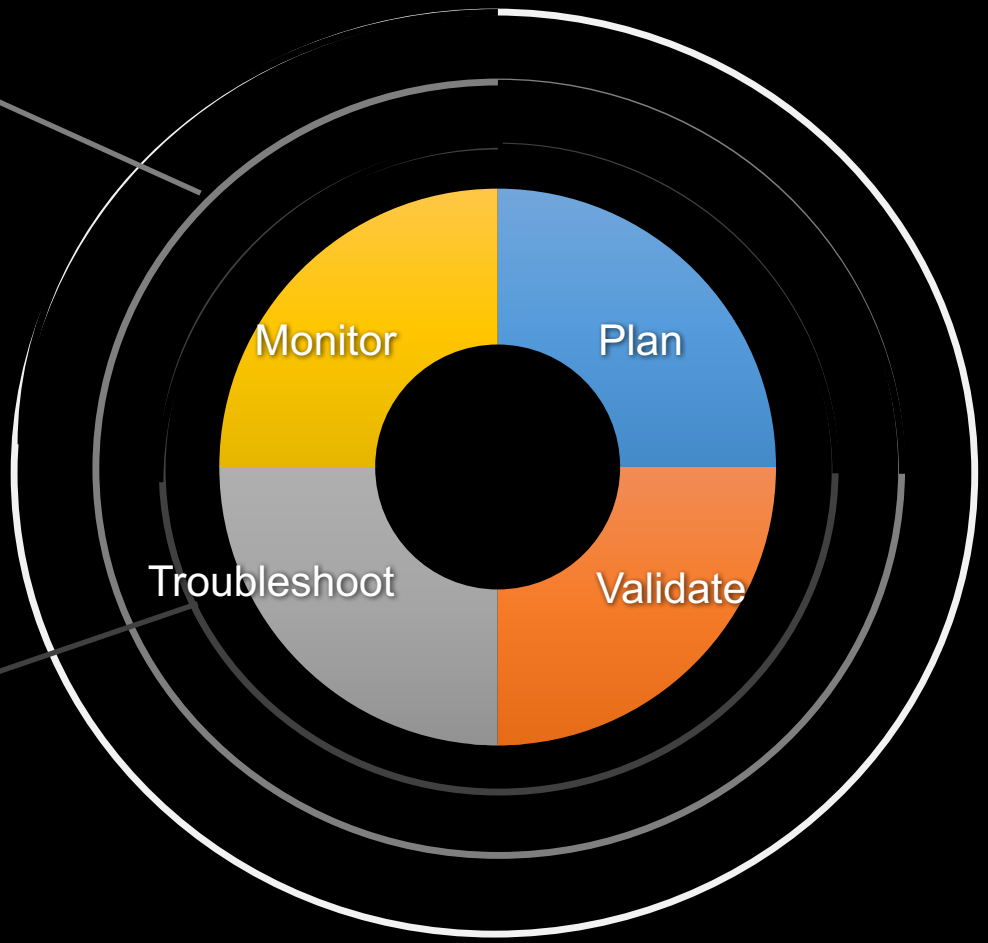


Corporate Facts

- Leading provider of tools for designing and maintaining Wi-Fi networks
- Tens of thousands of happy customers, around one million product users
  - Systems integrators, telecom operators, network owners and Wi-Fi infrastructure vendors
- Privately held



Mobile Survey



Site Survey Pro
& 3D Planner

Spectrum Analyzer

What's happened recently

- ESS 8.0
  - Automatic wall detection from CAD (WOW)
  - Wall material editor
- ESS 8.1
  - PDF import
  - Disable 2.4GHz manually
  - EIRP vs mW
  - Shortcut keys
- ESS 8.5
  - Spectrum analyzer integration
  - Real-Time Frequency Monitor (RTFM)
  - Custom notes
  - WOW layout selection
  - Dual-5GHz support
- ESS 8.6
  - Windows high res support
  - Photo notes, cable notes, area notes
  - Spectrum notes
  - Improved one-click reporting

600 improvements in 2.5 years

Customers & Partners:
100 out of Fortune 500
use Ekahau

Customers & Partners

GDT

"Quicker. Easy to use. More stable. Simplest."
– Blake Krone

PRESIDIO

"Stable, speedy, reliable, features you need"
– Sam Clements

MLR Networks Ltd

"Continuous innovation and development" – Ian Morris

CompuNet, Inc.

"I love it! A lot more intuitive than [competing product]"
– Anthony Poli

Sparrow

"The time savings are immerse, from days to hours"
– Ryan Videtich

"Great investment, exceptional software"
– Ben Carbrera

Customers & Partners

"Always my planning tools of choice."
– Jim Florwick

"Aruba chooses to use Ekahau"
– Michael Tennefoss

"It's AWESOME!"
– Greg Kamer

"This tool rocks!"
– Will Aguilar

"Our team and customers love Ekahau tools"
– Abby Strong

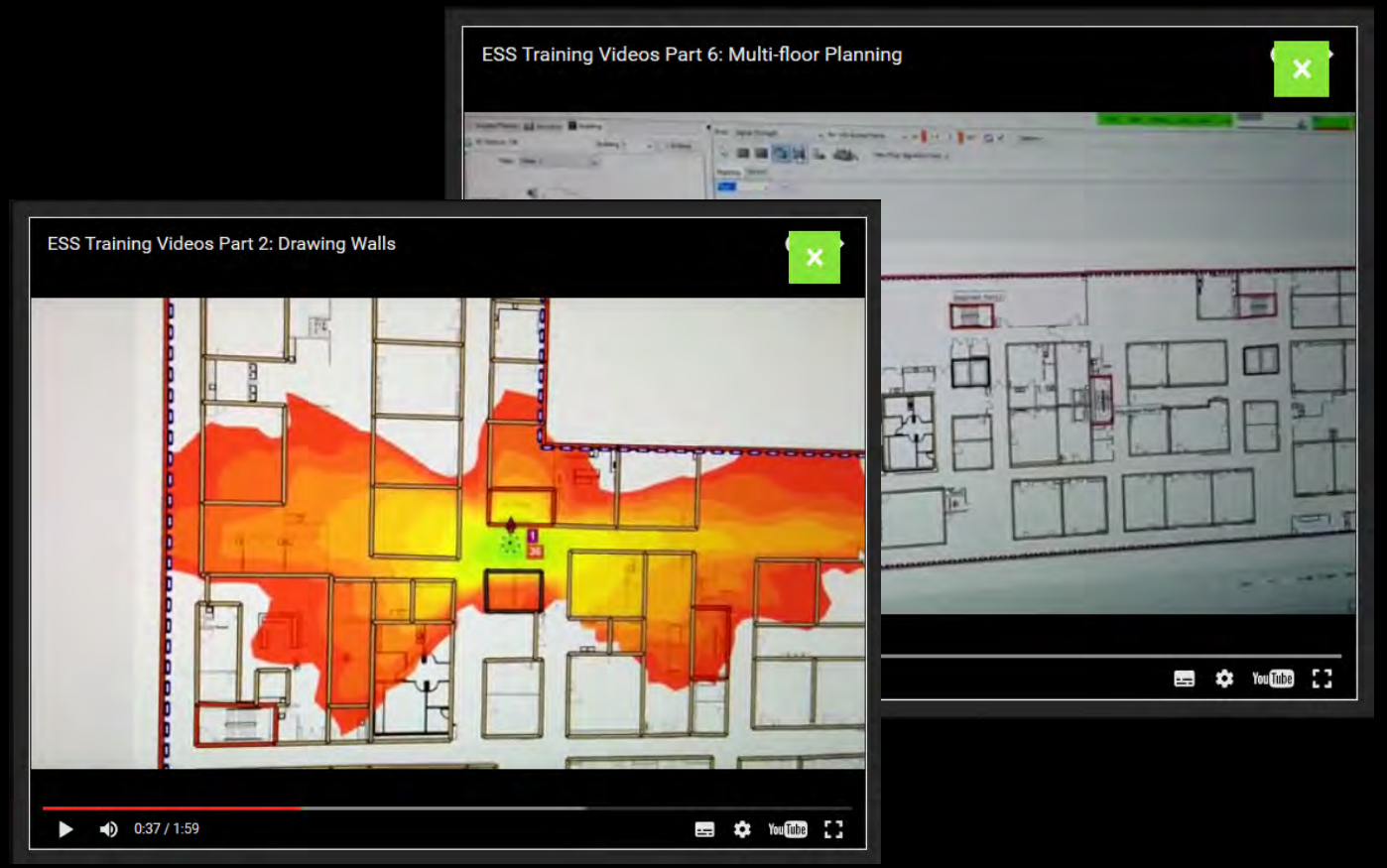
"The best site survey / planning tool"
– Tom Berry

Education / Training Options

Online Training Material

ekahau.com/training

- Wi-Fi expert learning material
- Dozens of hours of video
- How-to’s & best practices
- Webinars



One-to-One Webinars

- Personalized, one-to-one webinars
- Free of charge
- Describe your needs
- See how the product works

Nick Turner

- Wi-Fi Design, APoS, PtP and WLAN deployment since 2011
- Experience with Ekahau Site Survey Pro, AirMagnet, Chanalyzer, Cisco Spectrum Expert
- Also on the CWNP Certification track

Jerry R. Olla

- Ekahau Technical Engineer
- Has designed and deployed Wi-Fi networks for years
- Has used all the Wi-Fi design products

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Wi-Fi Design

Ekahau Certified Survey Engineer

- 4-day hands-on Wi-Fi training & certification
- Covers all aspects of Wi-Fi network design
- Locations & dates: ekahau.com/training
- On-location courses also available

Our Trainers

Keith Parsons

- CWNE #3
- Trained Wi-Fi for 10+ years
- 3,000+ engineers trained
- Deployed Wi-Fi from Arctic Circle to Antarctica

Devin Akin

- CWNE #1
- ”The Godfather of Wi-Fi”
- Founder of CWNP Organization
- Written several books on WI-Fi

ekahau Wi-Fi Design

Ekahau Master

- A tightly-knit community for active Ekahau users
- Talk Wi-Fi, meet new people, get together, have fun
- Participate in product development

Who was here the last time?

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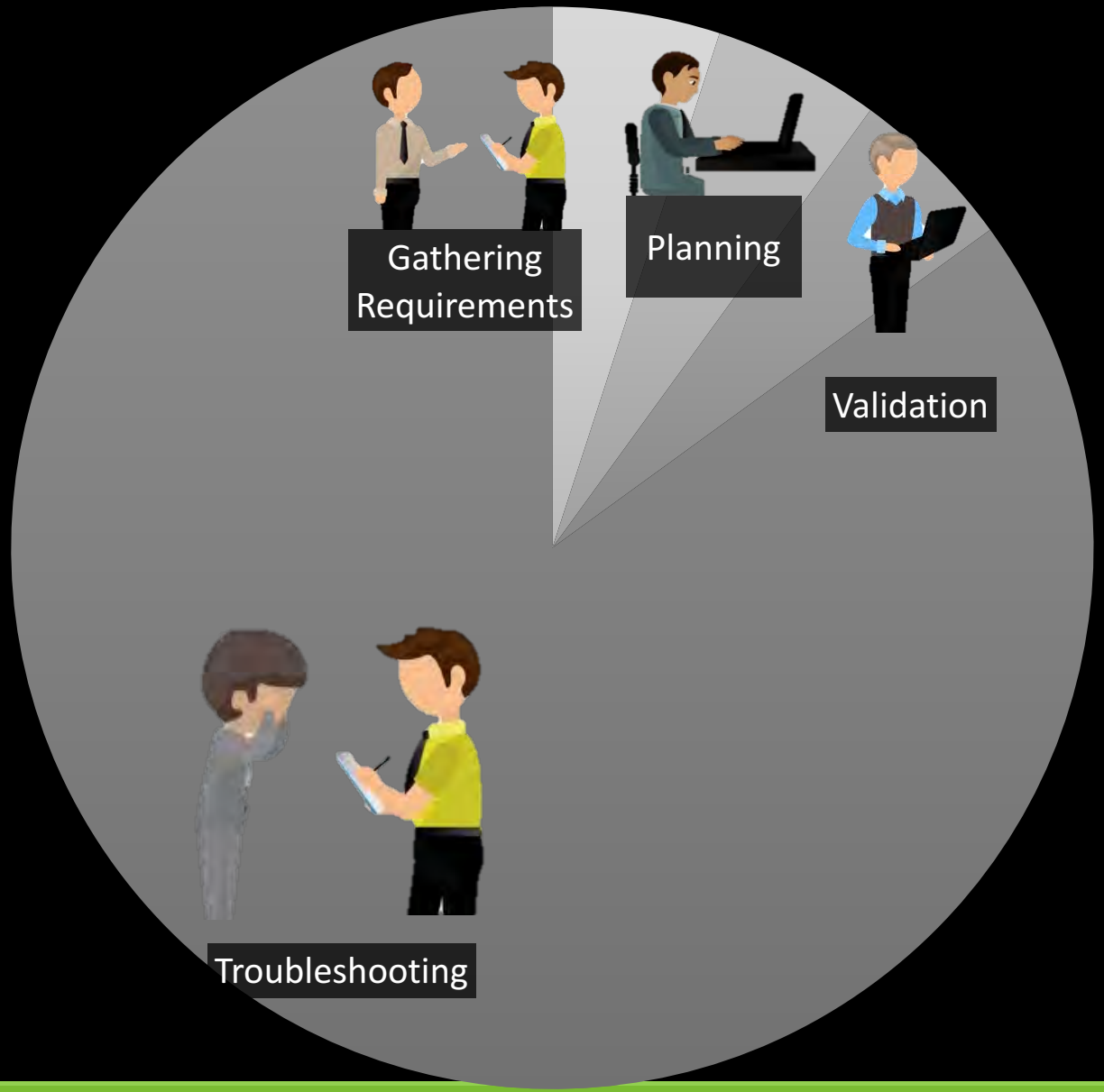
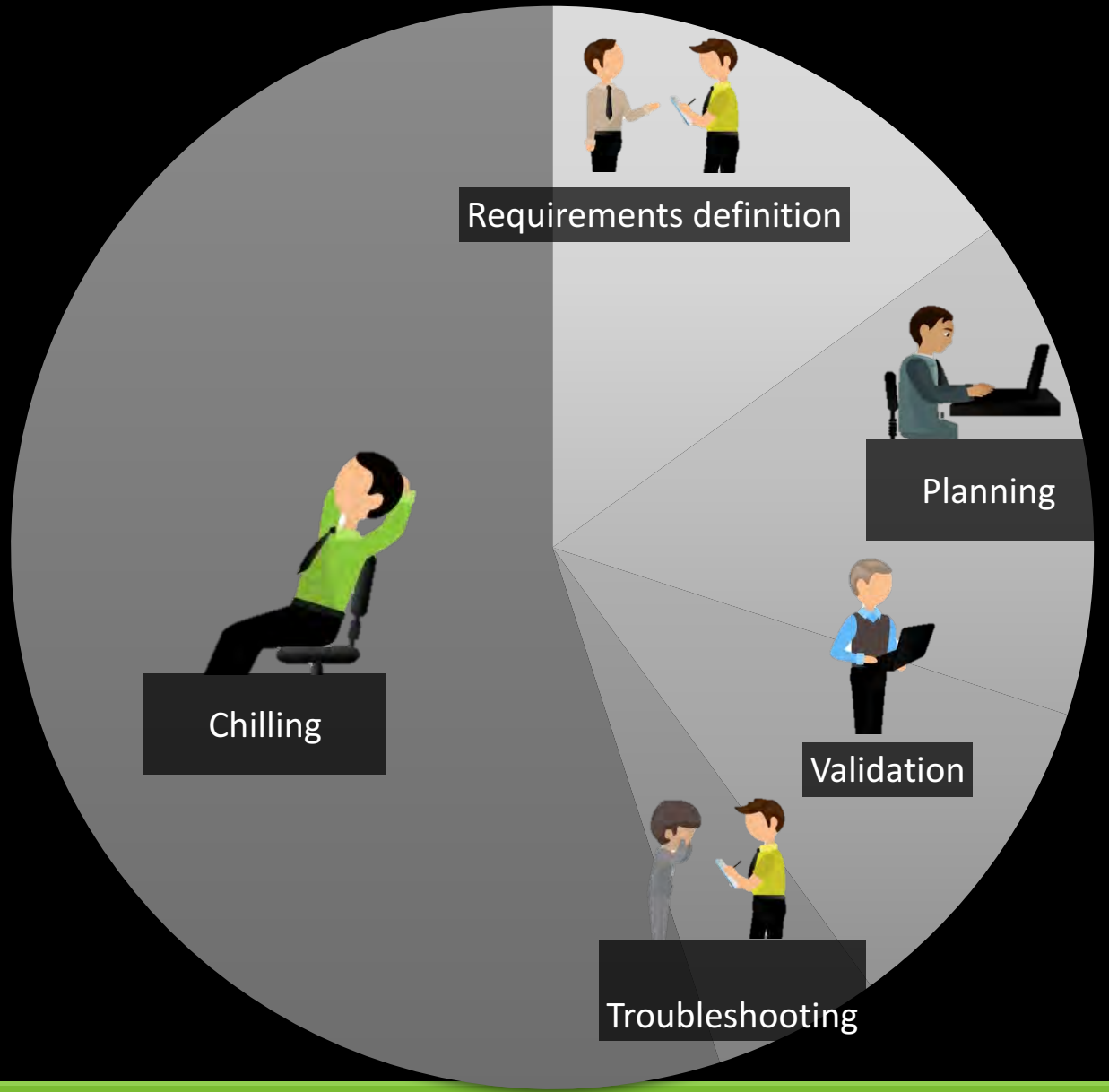
Wi-Fi Design

“Worry Later Wi-Fi”



“Designed Wi-Fi”



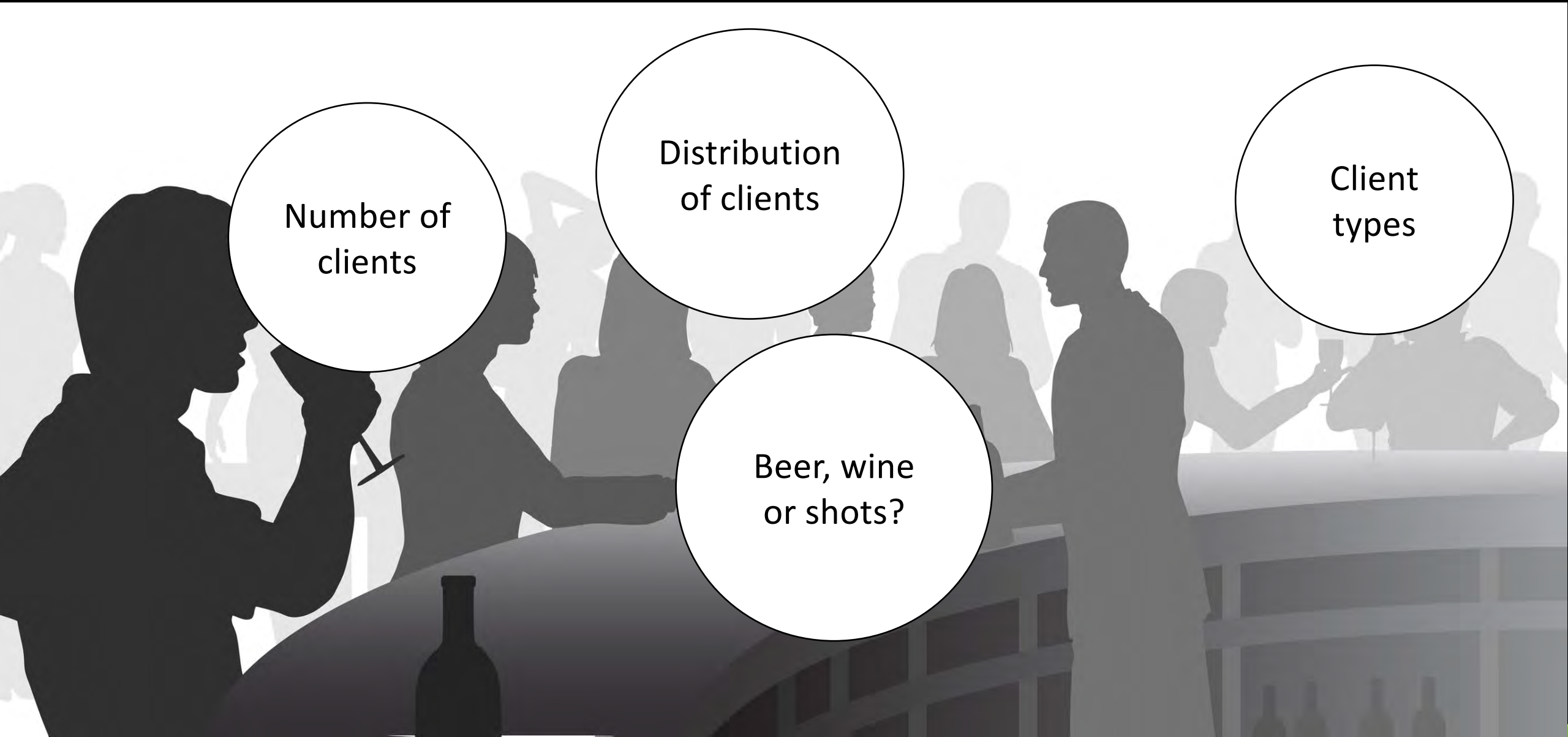

0101110001

Not High Capacity

High Capacity

Why is this guy unhappy?

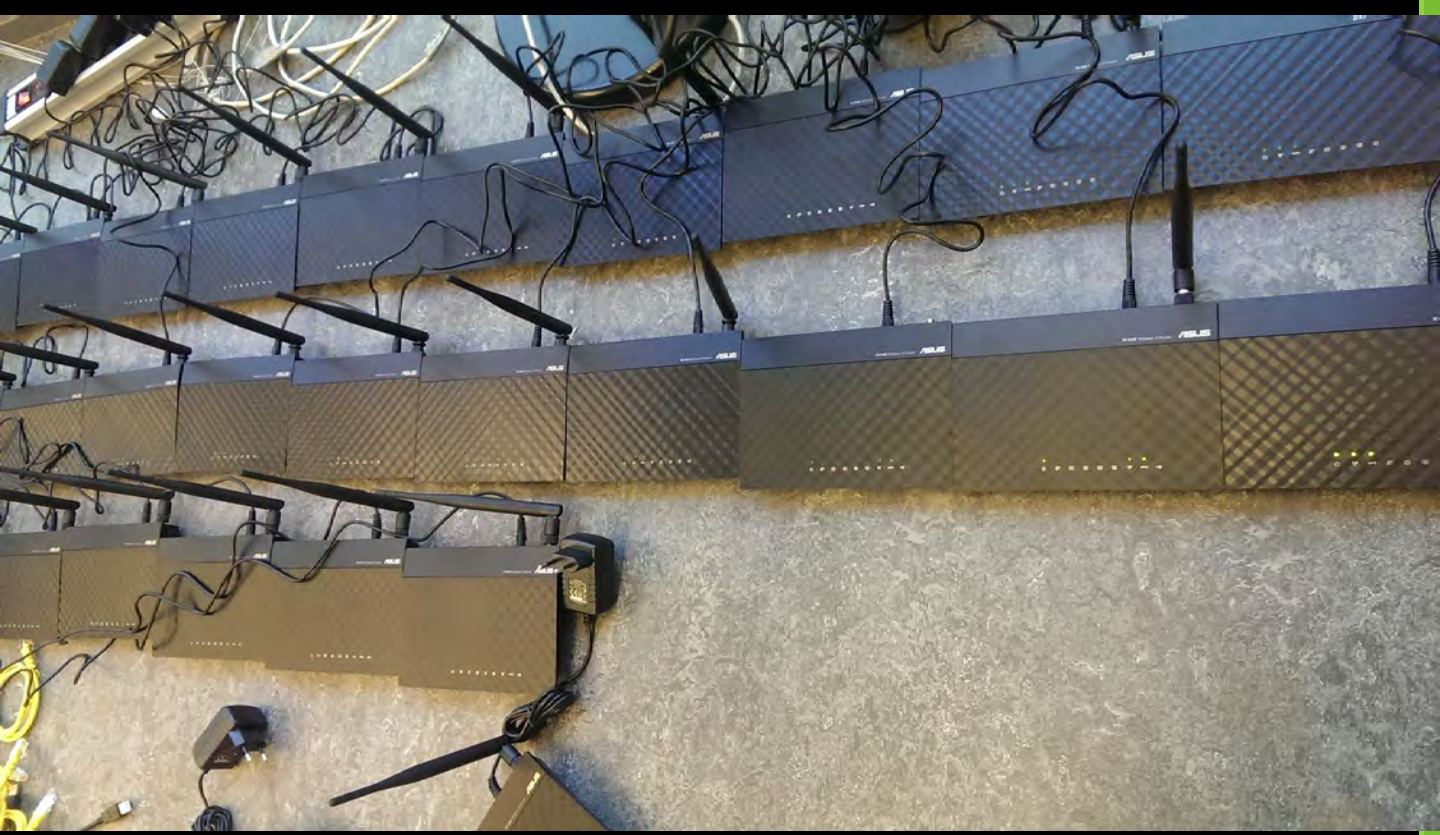
Calculating Capacity

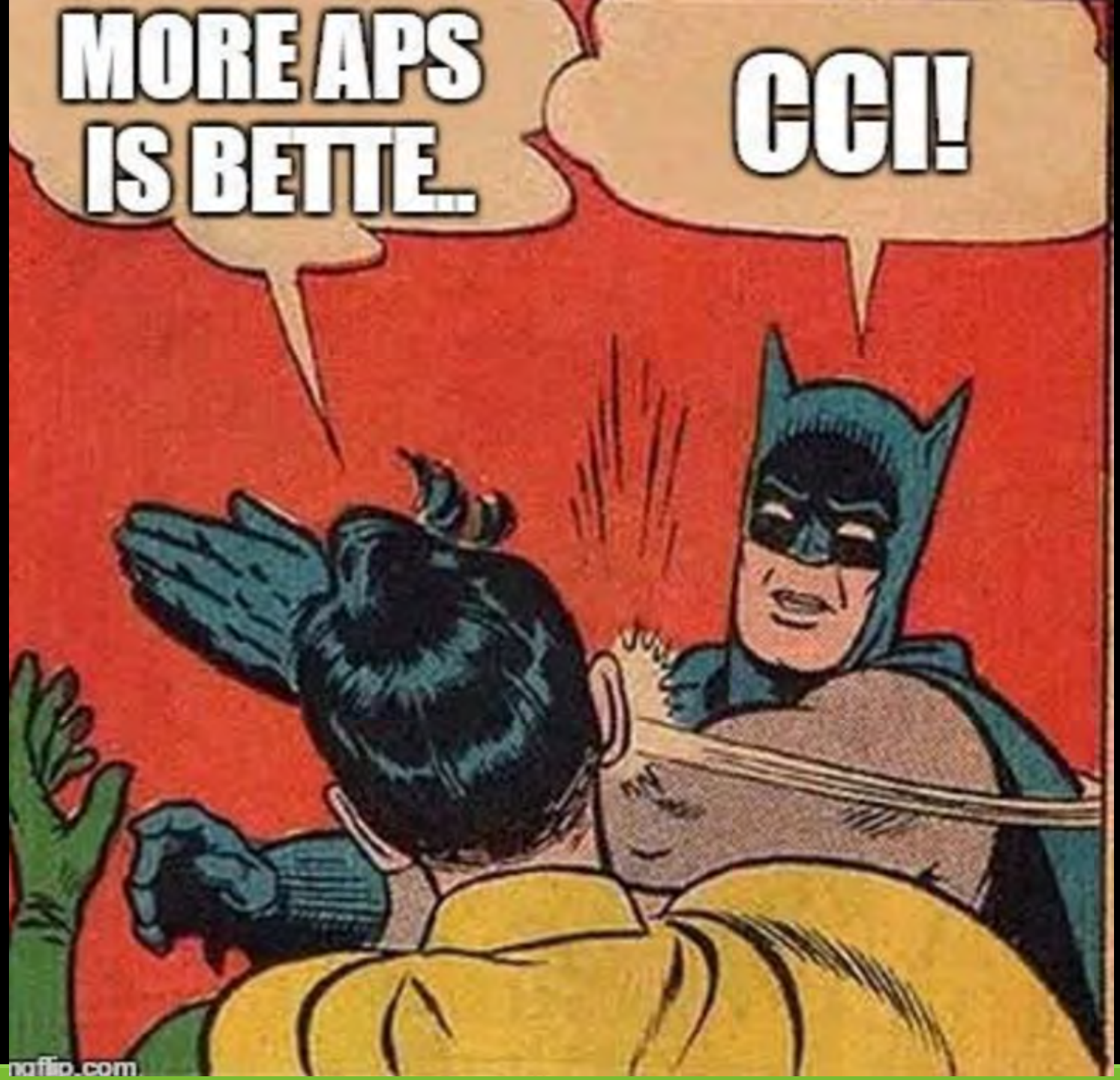


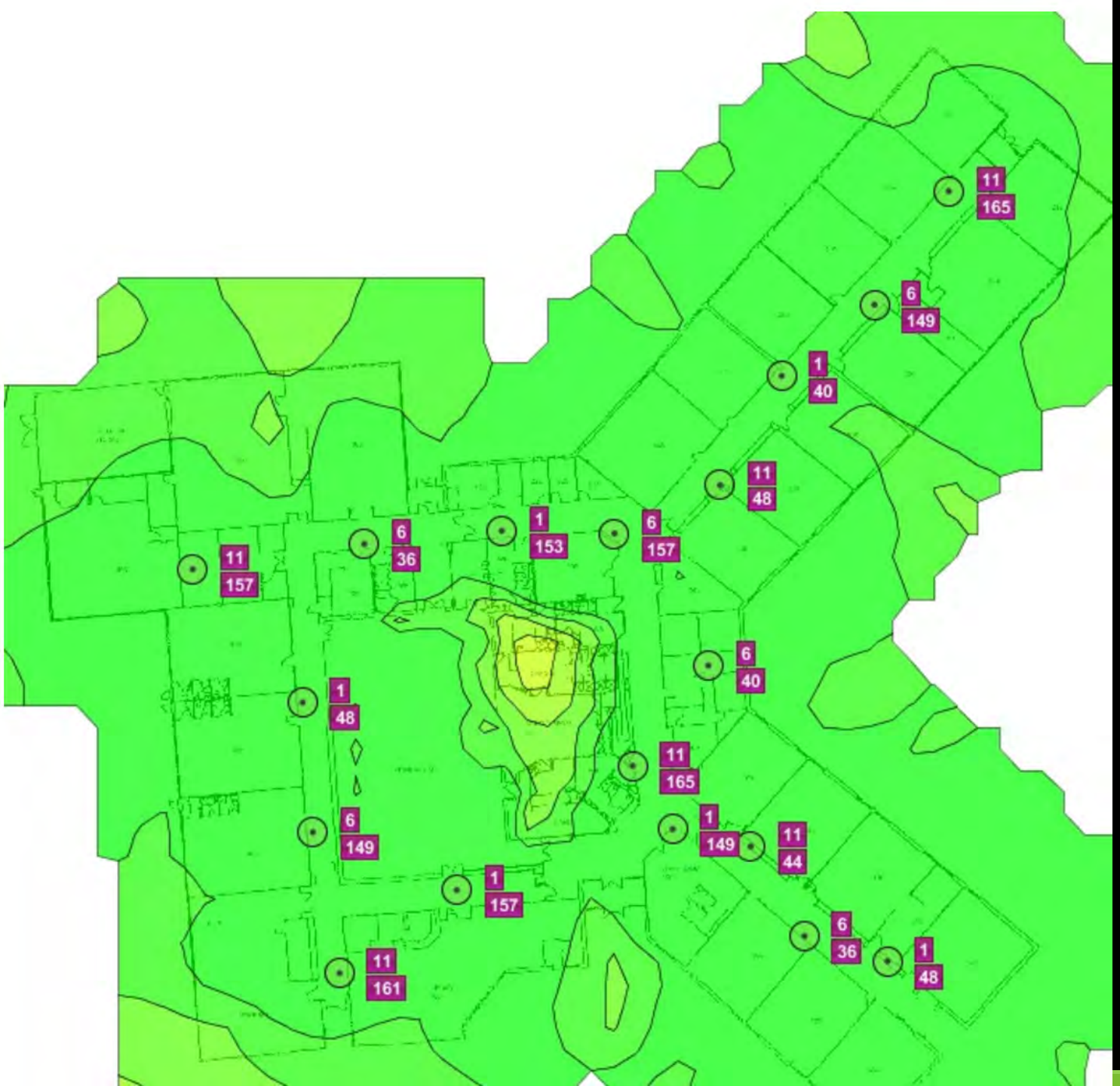
Summary


Areas to cover
Number of devices
Number of users
Data usage per device
Calculate capacity need
Smart network design
Low noise
Site Survey
High signal strength
Fairly new clients & APs
Ensure high data rates
Prefer 5GHz
Maximize Airtime
Minimize CCI
Minimize SSIDs

Problems with current planners




MORE APS
IS BETTE..
CCI!


11
165
6
149
1
40
11
48
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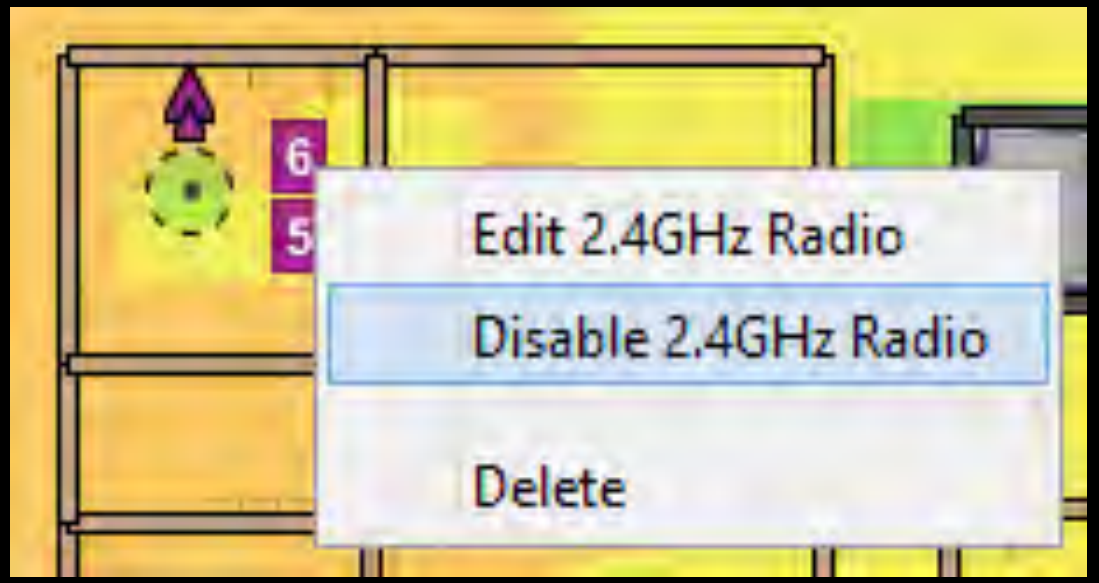
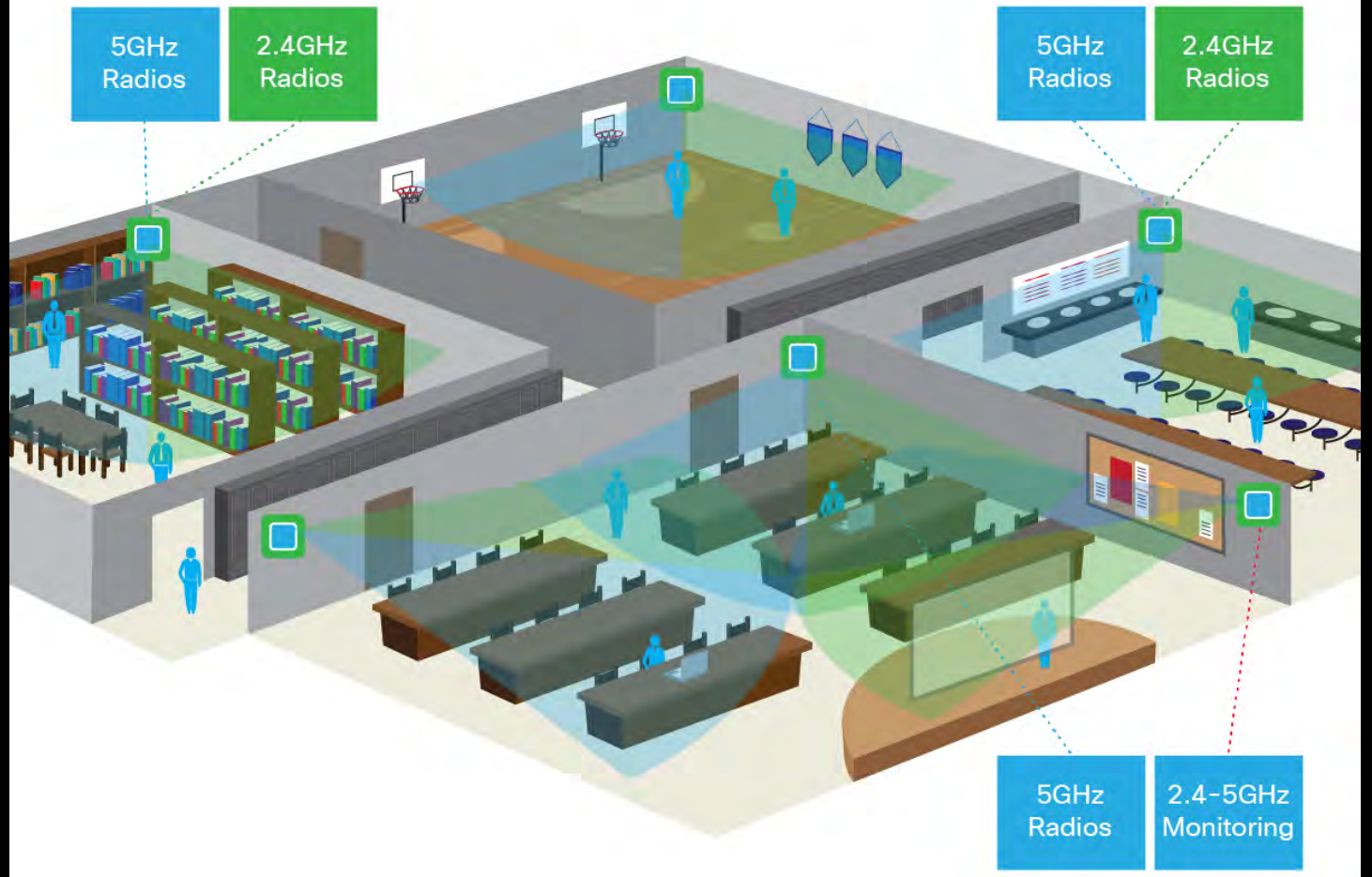
11
161


6
5
Edit 2.4GHz Radio
Disable 2.4GHz Radio
Delete


5GHZ DEVICES ONLY
10x MORE CAPACITY

Flexible Radio Assignment



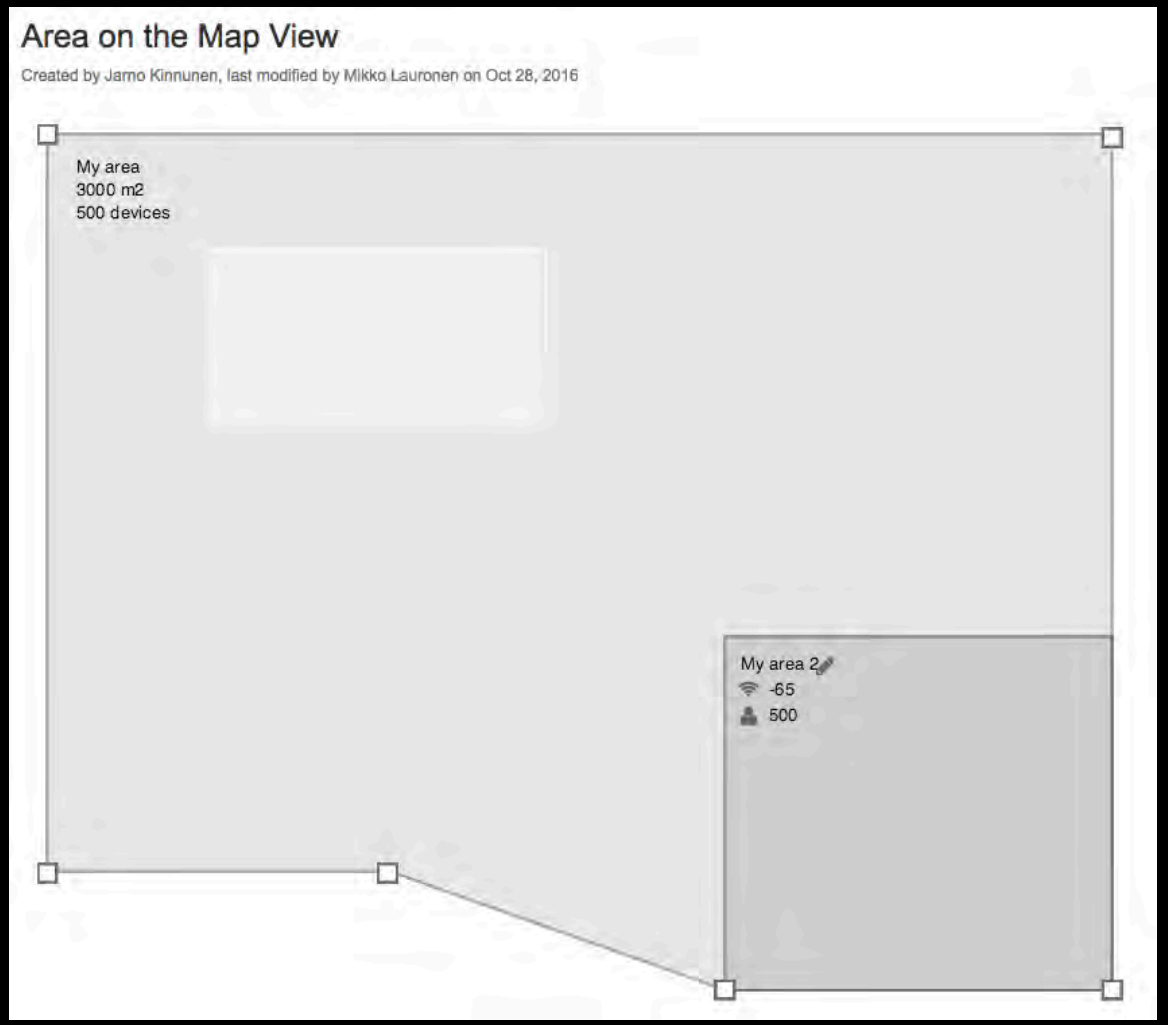
Problems with current planners

- High capacity areas
- Overpopulation of APs
- Hallway-Fi
- No disabling 2.4GHz radios
- No support for dual-5GHz
- Ease of use?
- Accuracy of capacity calculations

What we’re doing about it?

Define areas of normal vs high capacity

- Draw multiple areas
- Per-area capacity and coverage requirements
- Indicate number of devices
  - Device type
  - Spatial streams
  - Applications run on the device

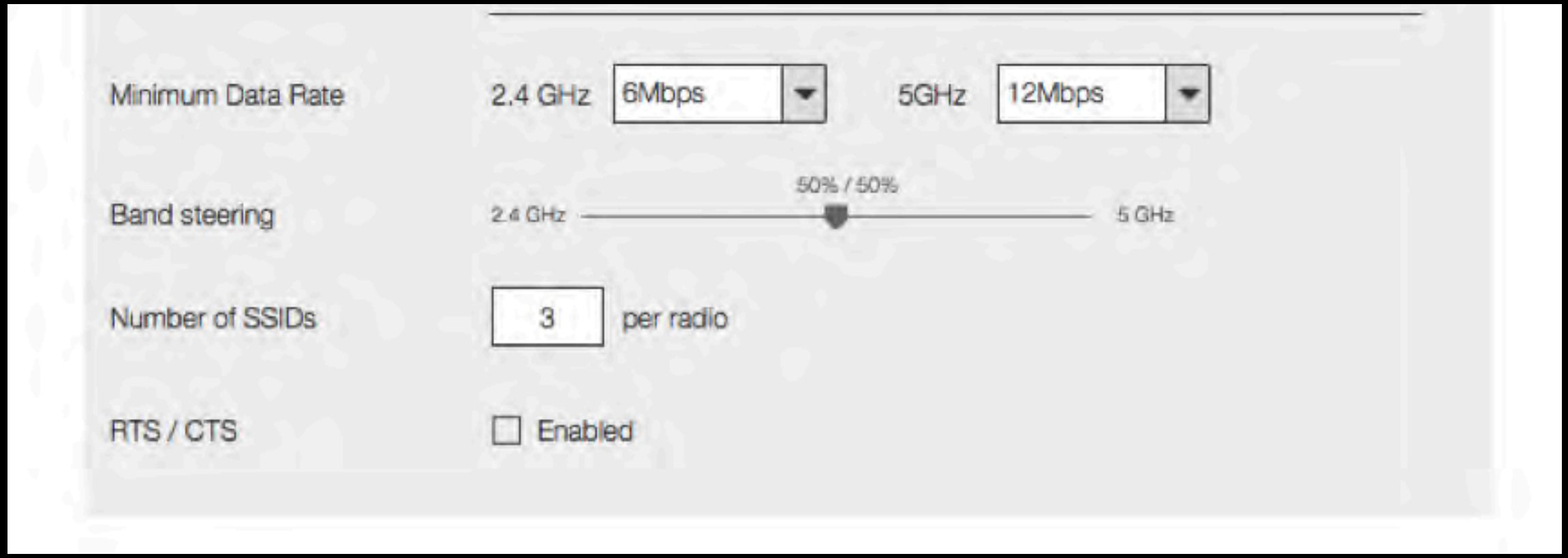


Completely Re-Written AP Placement Algorithm

- Auto-Planner avoids AP overpopulation
  - If no free spectrum (channels) available, doesn't put more APs in
- When possible, avoids
  - Hallways
  - Restrooms
  - Elevator shafts

Completely Rewritten Channel Allocation

- Disables unnecessary 2.4GHz radios
- Supports Dual-5GHz


Minimum Data Rate
2.4 GHz
6Mbps
5GHz
12Mbps
Band steering
50% / 50%
2.4 GHz
5 GHz
Number of SSIDs
3
per radio
RTS / CTS
Enabled

Auto-Planner v2.0

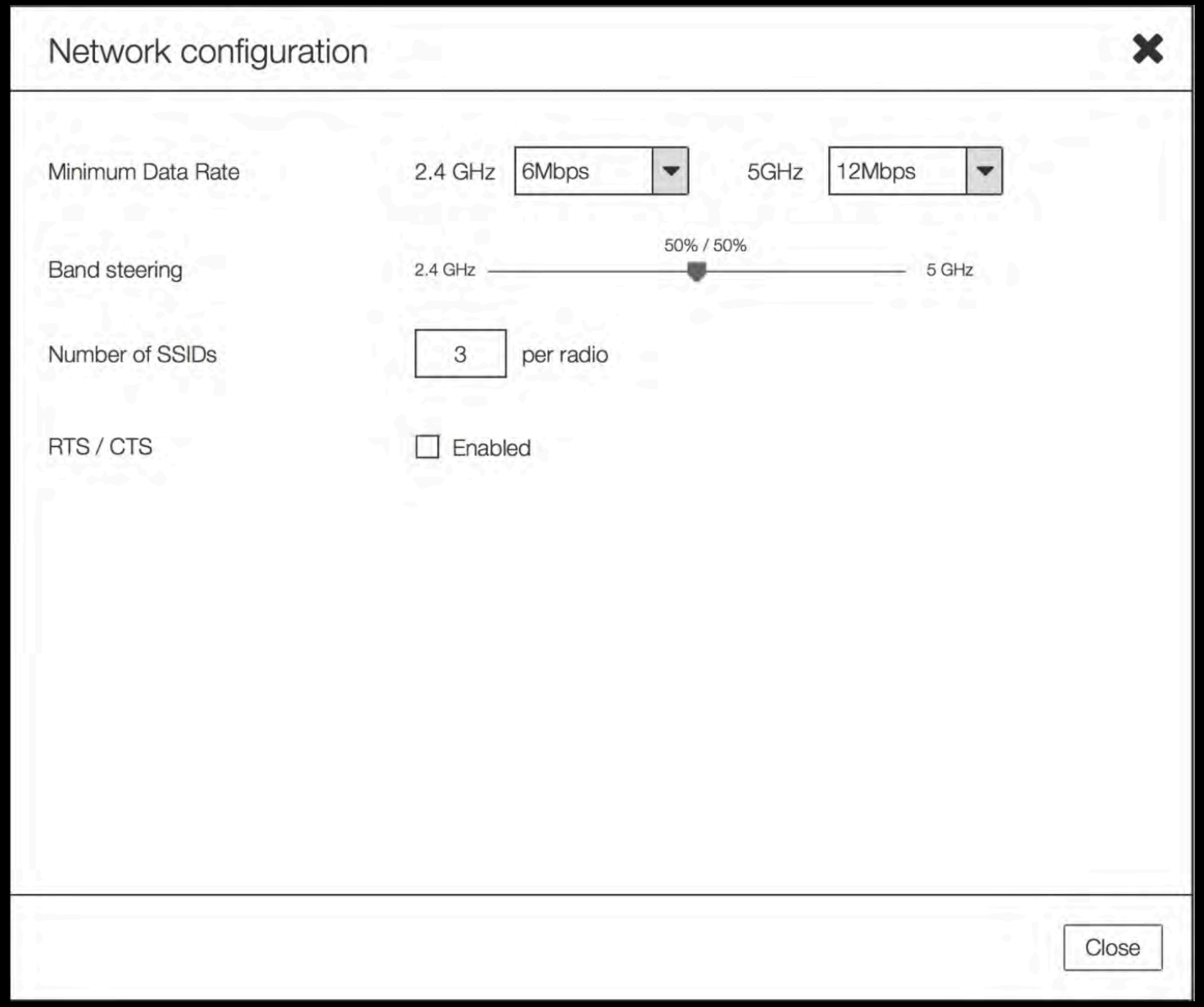
- Supports multiple high capacity areas
- Completely re-written AP placement algorithm
- Completely re-written channel allocation algorithm
- More accurate capacity calculations
- Easier to use

How does it work?

What else in 9.0?

- This

- Comes out of beta.


Network configuration
Minimum Data Rate
2.4 GHz
6Mbps
5GHz
12Mbps
Band steering
50% / 50%
2.4 GHz
5 GHz
Number of SSIDs
3
per radio
RTS / CTS
Enabled
Close

Autoplanner

This plan will cover ... and rest useful notifications

Requirements

Areas (2)

Area 1	Coverage profile: Voip + Data	Devices: 600	Configure
Area 1	Coverage profile: Voip + Data	Devices: 600	Configure

Capacity ☐ Do not consider in plan

Access Points

Access point type: Generic 802.11ac dual radio

Transmit power: 2.4GHz 25 mW (EIRP: 16.18 dBm) 5GHz 25 mW (EIRP: 16.18 dBm)

Advanced settings

☐ Use defaults

When selected, below settings visible, but greyed out

Antenna height: 2.4 m from the floor level

2.4 GHz Channels: 1,6,11 Hide selection

Text: "Select channels", when collapsed

Select channel group

◉ 1,6,11 ○ 1,4,8,11 ○ 1,7,13 ○ 1,5,9,13

or single channel

○ 1 ○ 2 ○ 3 ○ 4 ○ 5 ○ 6 ○ 7

○ 8 ○ 9 ○ 10 ○ 11 ○ 12 ○ 13 ○ 14

Collapse group

Max. channel bandwidth on 5 GHz: 20 MHz

5 GHz Channels: U-NII 1 (36-48), U-NII 2 (52-64) Hide selection

Select channel(s)

☑ *UNII-1*

☑ 36 ☑ 40 ☑ 44 ☑ 48

☑ *UNII-2*

☑ 52 ☑ 56 ☑ 60 ☑ 64

☐ *UNII-2e*

☐ 100 ☐ 104 ☐ 108 ☐ 112 ☐ 116 ☐ 120 ☐ 124 ☐ 128

☐ 132 ☐ 136 ☐ 140 ☐ 144

☐ *UNII-3*

☐ 100 ☐ 104 ☐ 60 ☐ 64 ☐ 100

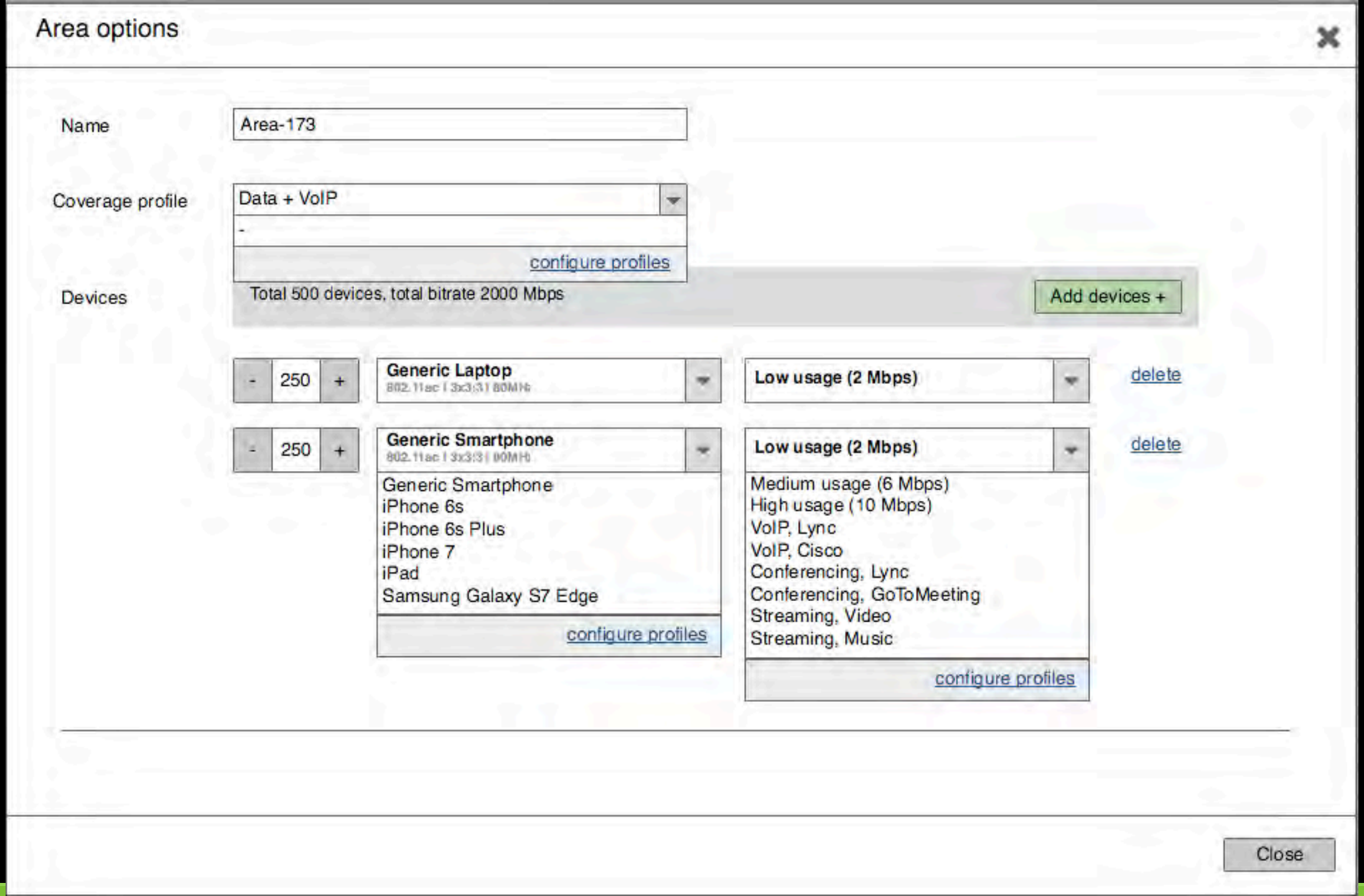
Minimum Data Rate: 2.4 GHz 6Mbps 5GHz 12Mbps

Band steering: 2.4 GHz — 50% / 50% — 5 GHz

Number of SSIDs: 3 per radio

RTS / CTS: ☐ Enabled

Close | Create Plan


Area options
Name
Area-173
Coverage profile
Data + VoIP
-
configure profiles
Devices
Total 500 devices, total bitrate 2000 Mbps
Add devices +
- 250 +
Generic Laptop
802.11ac | 3x3:3 | 80MHz
Low usage (2 Mbps)
delete
- 250 +
Generic Smartphone
802.11ac | 3x3:3 | 80MHz
Low usage (2 Mbps)
delete
Generic Smartphone
iPhone 6s
iPhone 6s Plus
iPhone 7
iPad
Samsung Galaxy S7 Edge
configure profiles
Medium usage (6 Mbps)
High usage (10 Mbps)
VoIP, Lync
VoIP, Cisco
Conferencing, Lync
Conferencing, GoToMeeting
Streaming, Video
Streaming, Music
configure profiles
Close

Thank You!

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