The Wi-Fi Leap of Faith

Jussi Kiviniemi

Agenda

- Getting into the Wi-Fi Business
- Deploying Wi-Fi
- Monitoring the Network
- Wireless Troubleshooting
- Wi-Fi 6 and Wi-Fi 6e

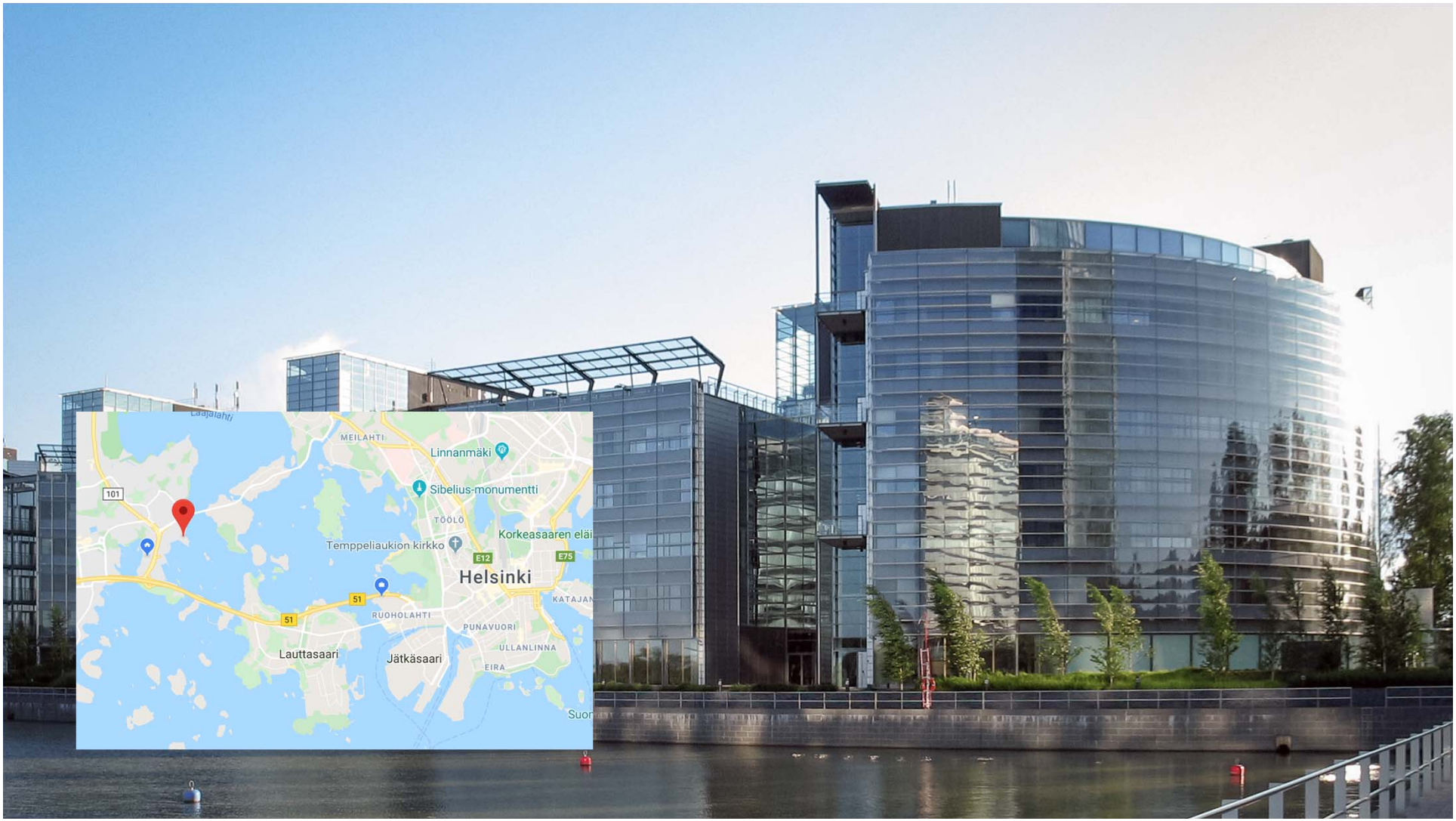
Getting into the Wi-Fi Business

- Enterprise Wi-Fi **services** are a 10B+ market…
- While enterprise Wi-Fi **infrastructure** is 5B+

Barrier to Enter the Wi-Fi Space

- Wireless experience and knowledge are very highly recommended, however…
- A) you have to start somewhere and
- B) Enterprise-grade Wi-Fi isn't **nearly** as difficult as it used to be

Why is Wi-Fi getting easier, not harder?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Sibelius-monumentti
TÖÖLÖ
Korkeasaaren eläi
Temppeliaukion kirkko
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RUOHOLAHTI
PUNAVUORI
ULLANLINNA
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Lauttasaari
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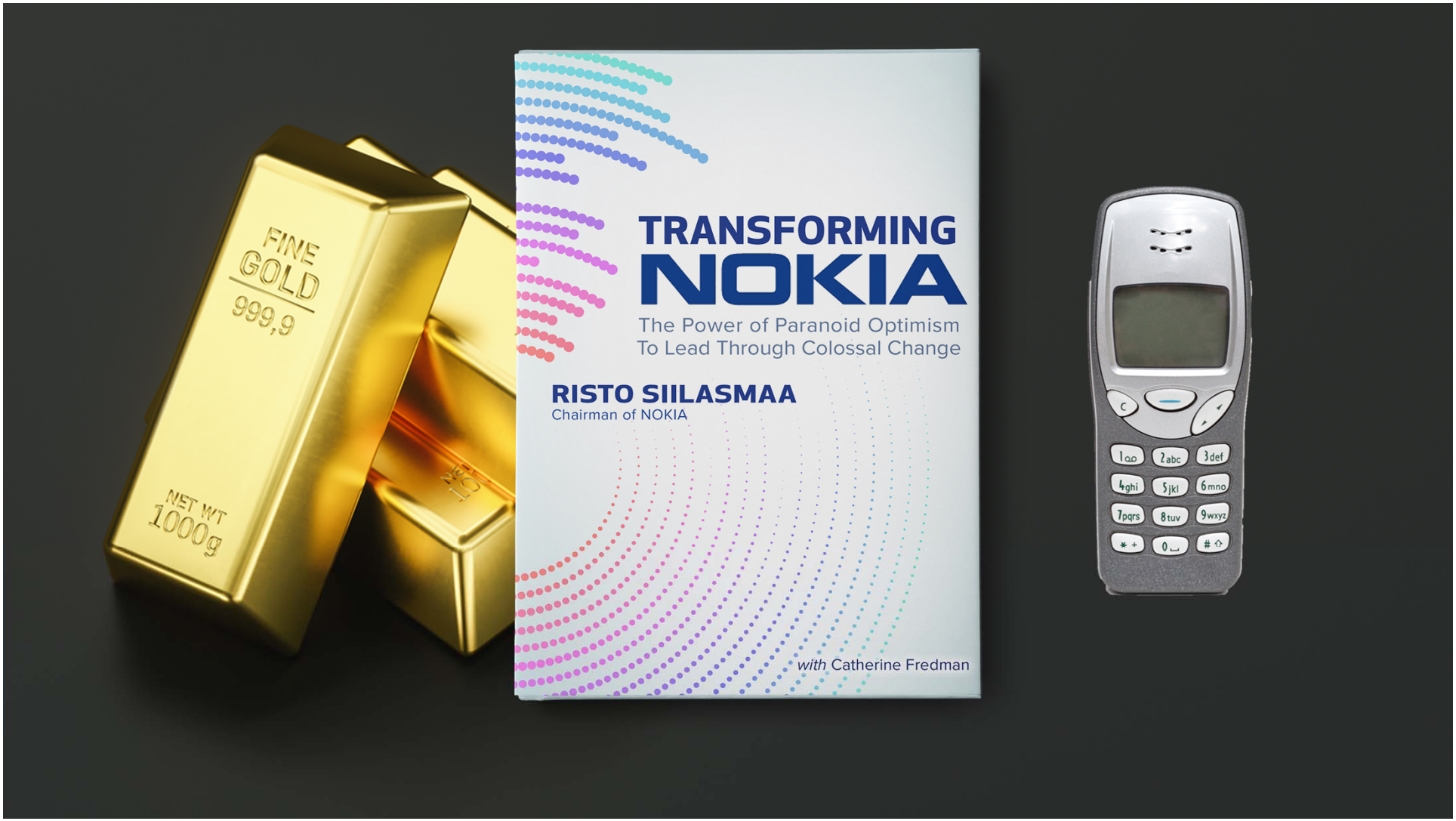
FINE
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TRANSFORMING
NOKIA
The Power of Paranoid Optimism
To Lead Through Colossal Change
RISTO SIILASMAA
Chairman of NOKIA
with Catherine Fredman


FINE
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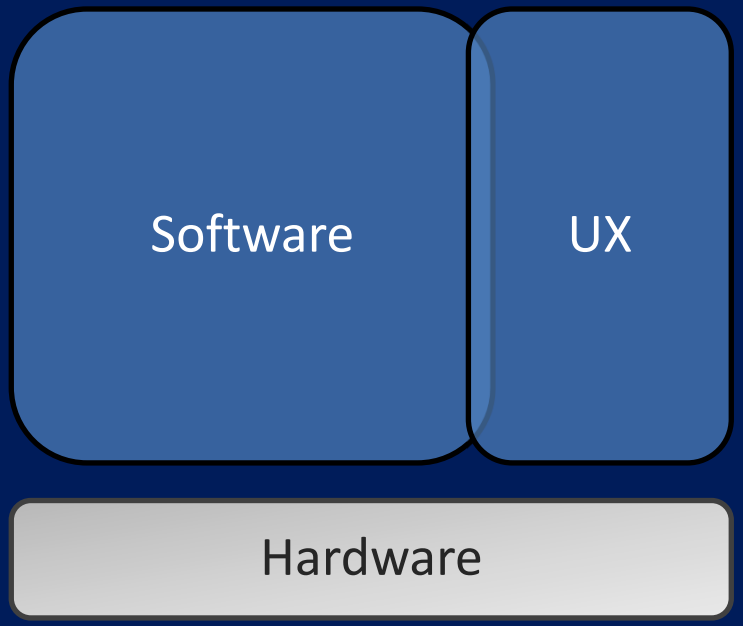
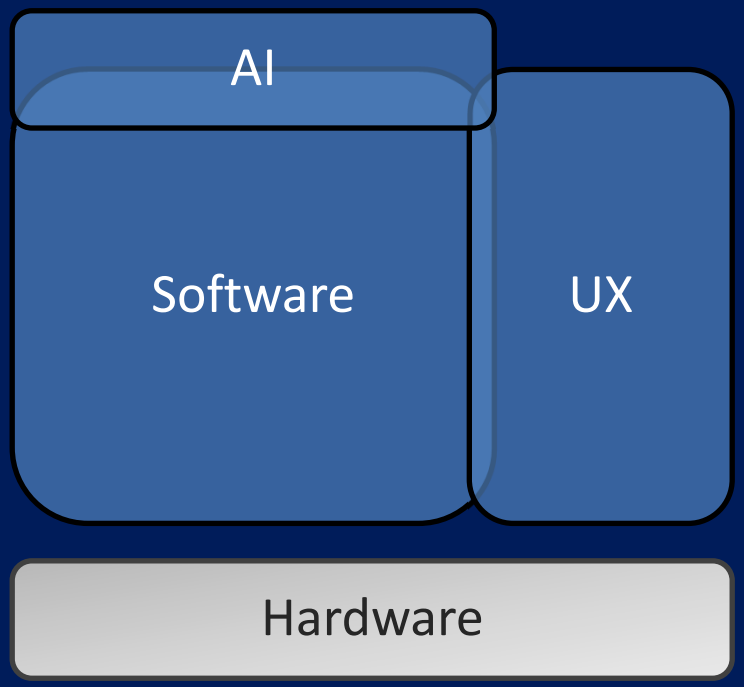
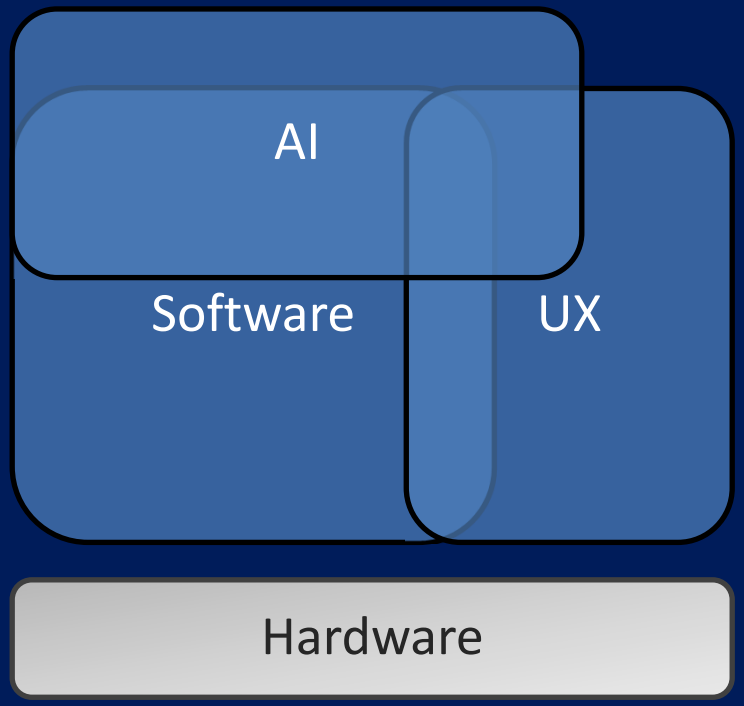


2010



2020



2025

Here’s to
consumerization of IT

User-friendly UX
and easy-to-learn tools
are the new standard.

The gap is getting narrower.

Social Media

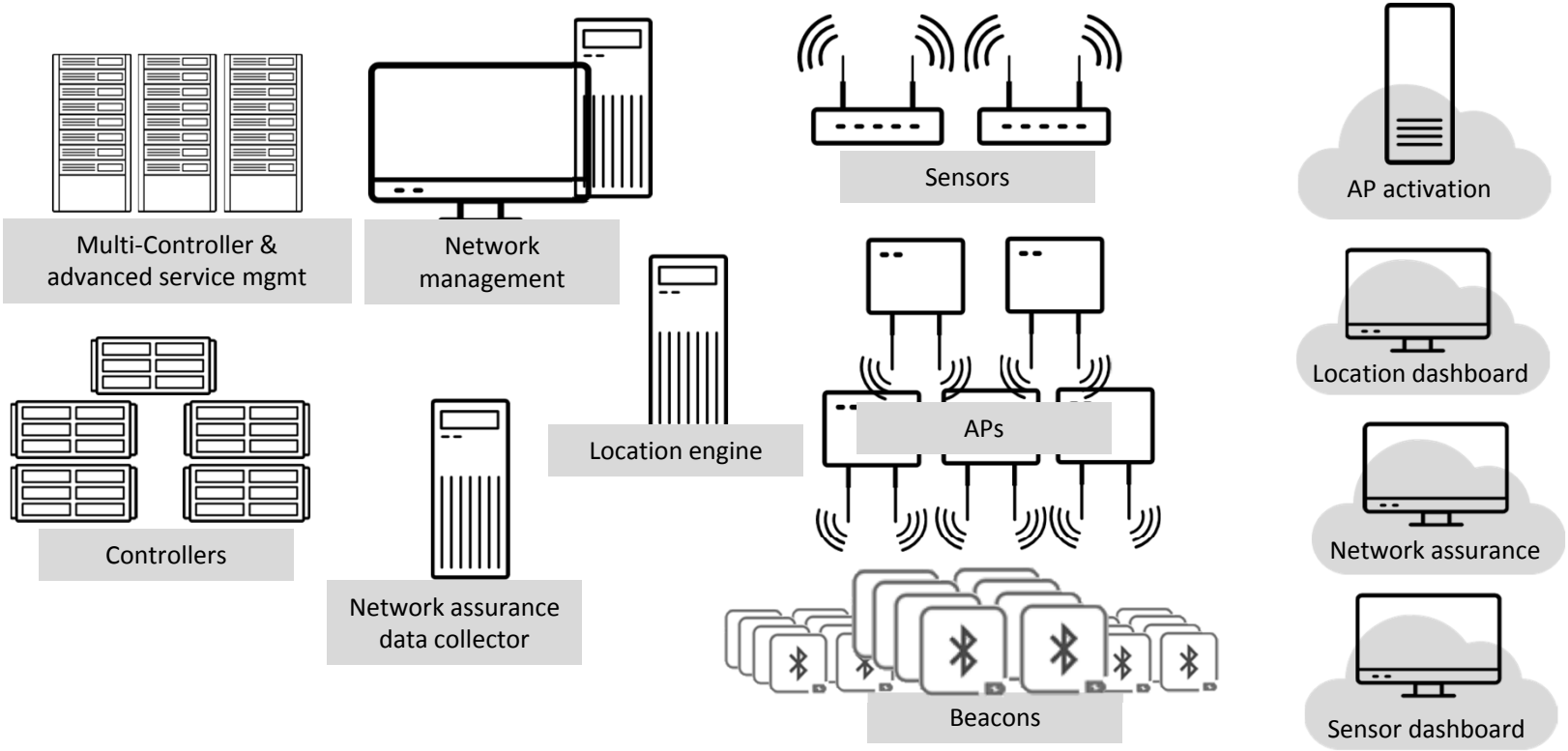
Movies

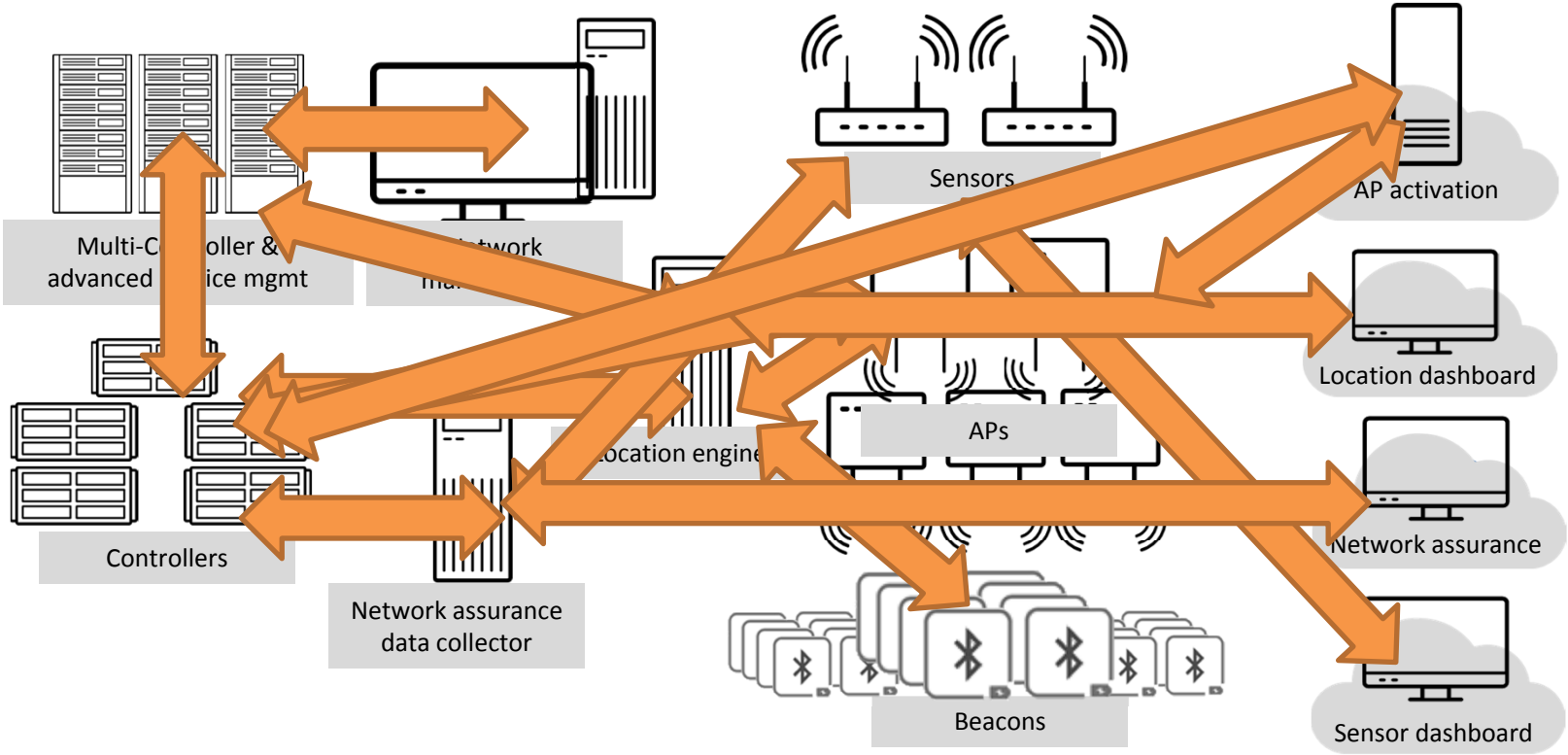
Streaming music

3rd party apps

Chat

Navigation


Multi-Controller &
advanced service mgmt
Network
management
Sensors
AP activation
Location dashboard
Controllers
Network assurance
data collector
Location engine
APs
Network assurance
Beacons
Sensor dashboard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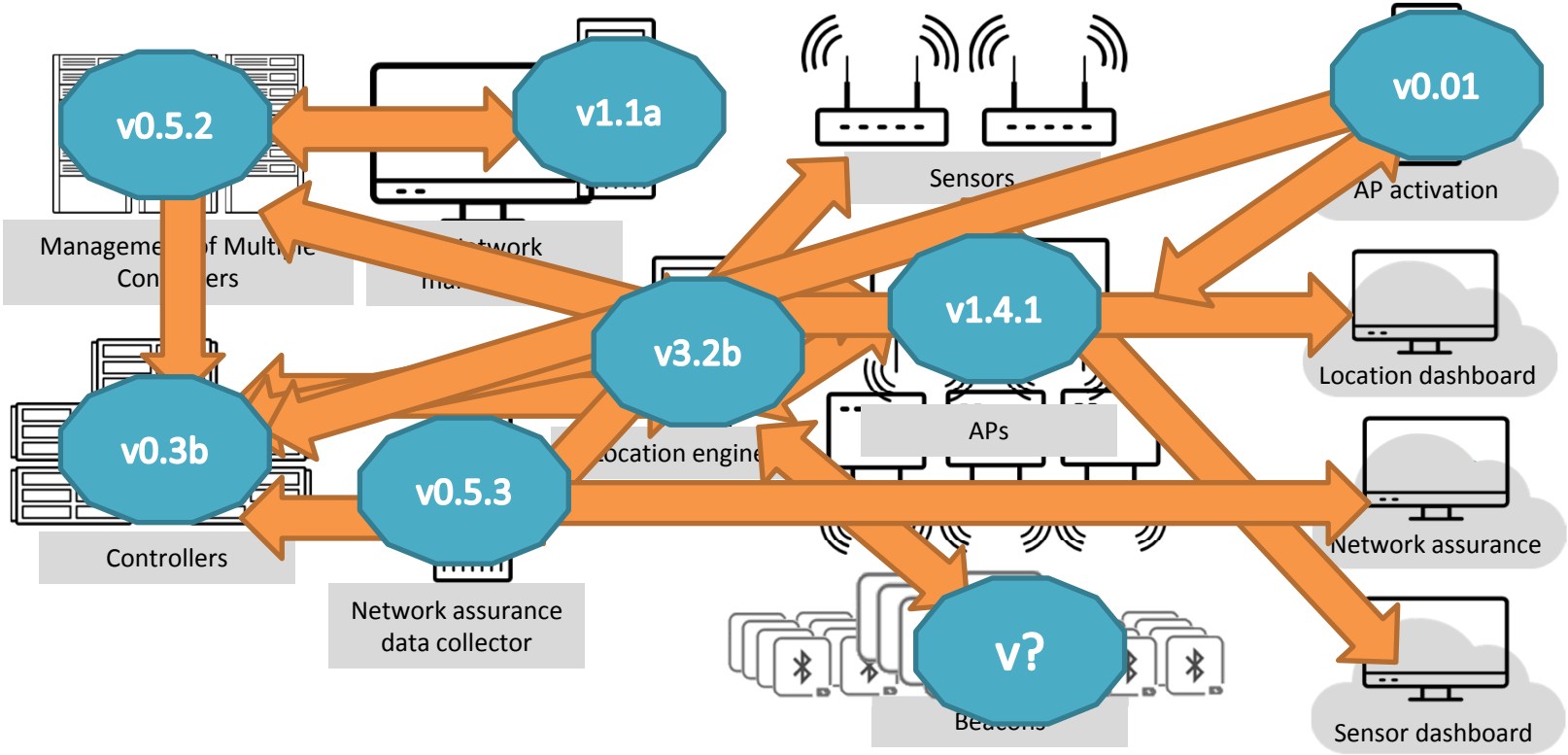
Sensors
AP activation
Location dashboard
APs
Network assurance
Controllers
Network assurance
data collector
Beacons
Sensor dashboard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Sensors
AP activation
v1.4.1
v3.2b
Location dashboard
v0.3b
APs
v0.5.3
Network assurance
Controllers
Network assurance
data collector
v?
Sensor dashboard

Why is Wi-Fi getting easier?

- From CLI…
- … to GUI…
- … to browser-based dashboard-driven GUIs…
- … to user-friendly GUIs focusing on user experience

But Wi-Fi is evolving and getting more complex!

- While Wi-Fi and wireless technologies are getting more and more complex…

- … the tools and solutions are getting easier…
- … and there's great material to study from…
- … and there's a community to help you!

The gap is getting narrower….
… but there are caveats

- Wi-Fi is still not consumer-easy
- Expertise is still required for expert work
- Not all enterprise Wi-Fi is easy. Legacy solutions still exist, even to a dominant degree.

Hands-on Example:
Wi-Fi Deployment

Hands-on Example:
WI-Fi Troubleshooting

Hands-on Example:
WI-Fi Monitoring

Wi-Fi 6 – Status Today

Wi-Fi evolution on the iPhones

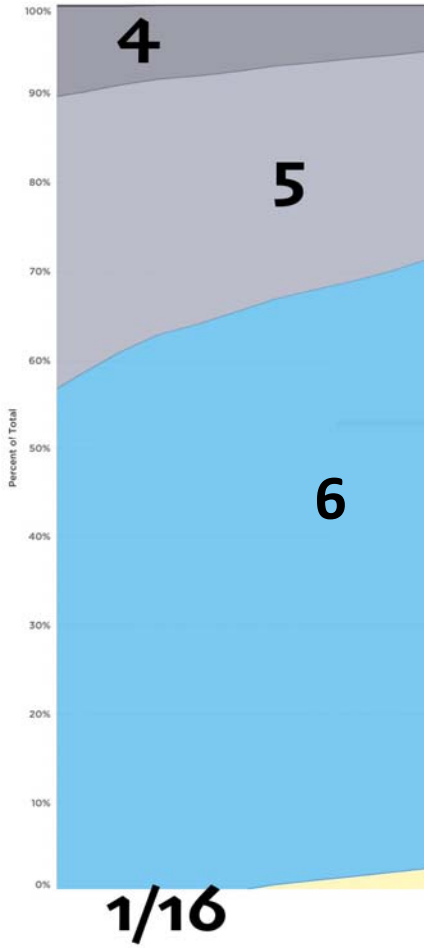
Wireless Banter Show

The main benefit of Wi-Fi 6 is **OFDMA.**

But it only works when 30% or more of the clients are OFDMA capable.

HOW QUICKLY
WILL WI-FI 6 DEVICES
EXCEED 30% or 50%
of
PHONE POPULATION

SPEEDTEST®



Wireless Banter Show

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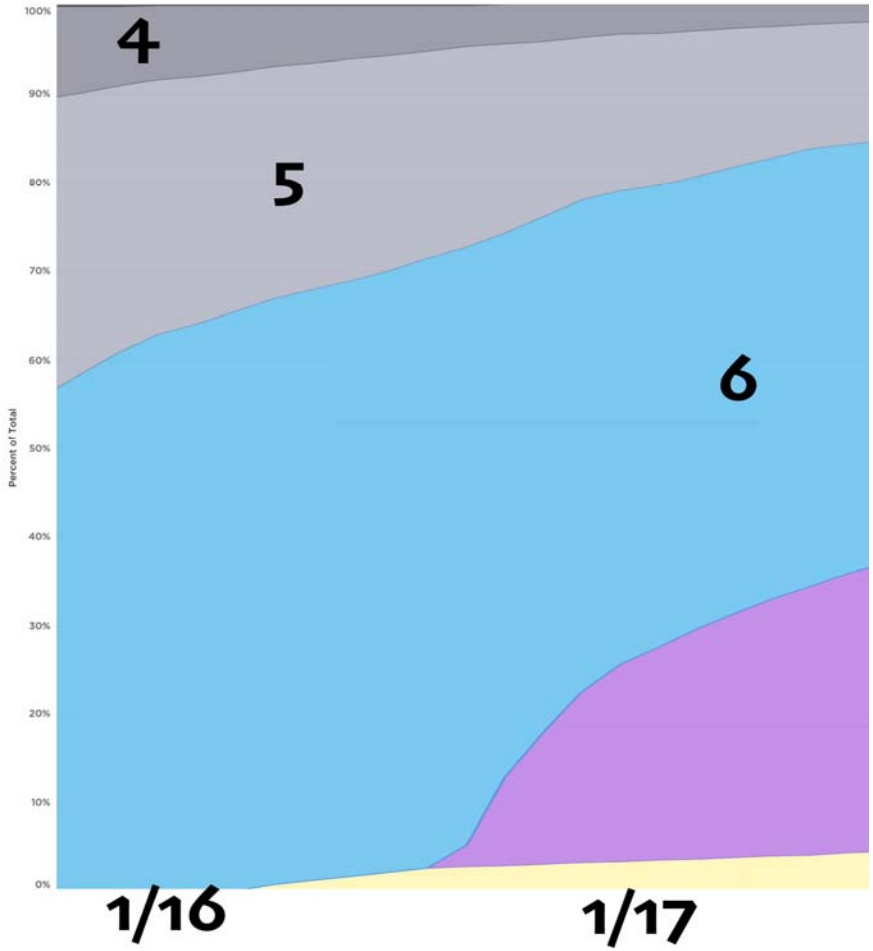

Wireless Banter Show

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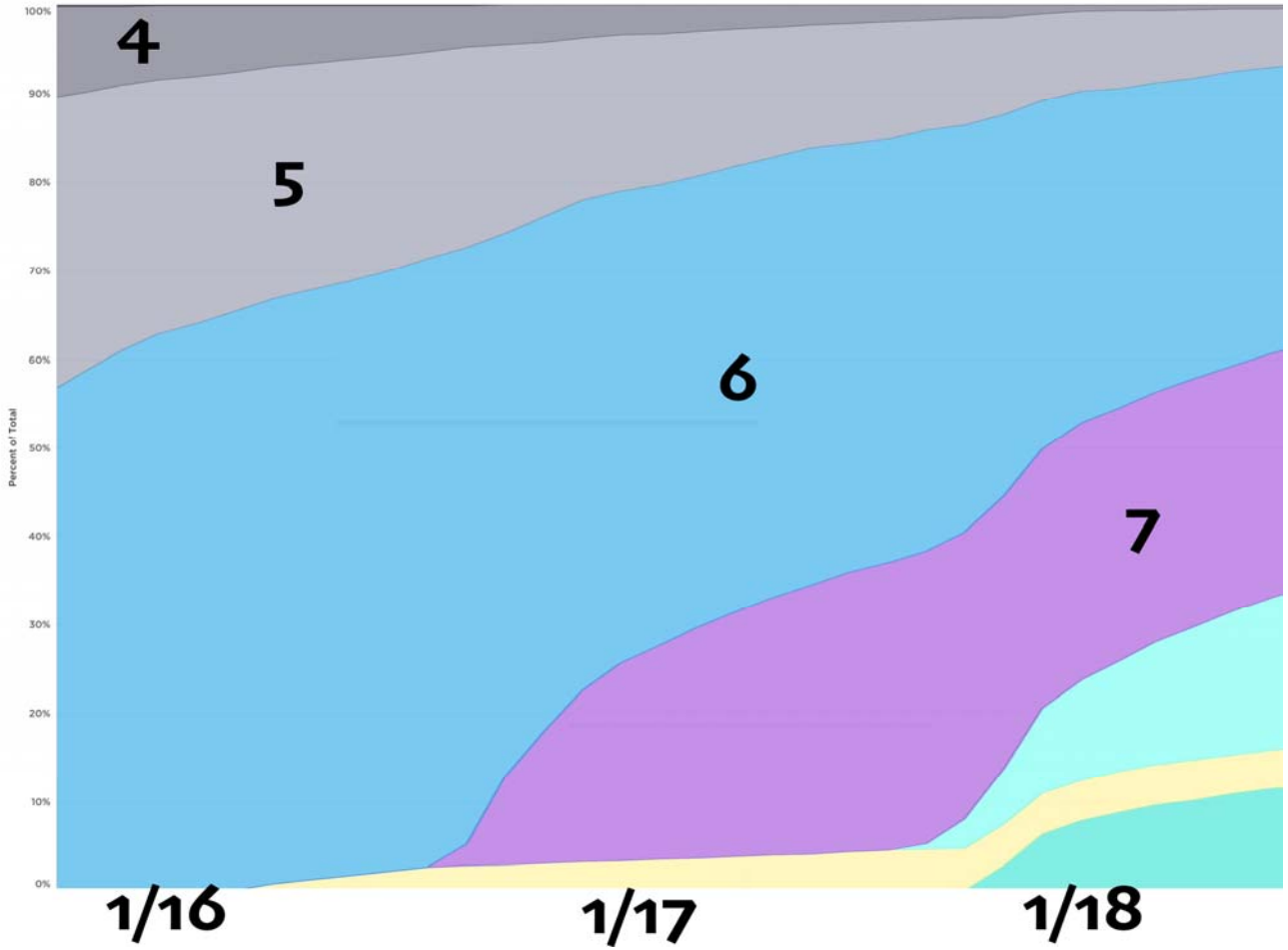

Wireless Banter Show

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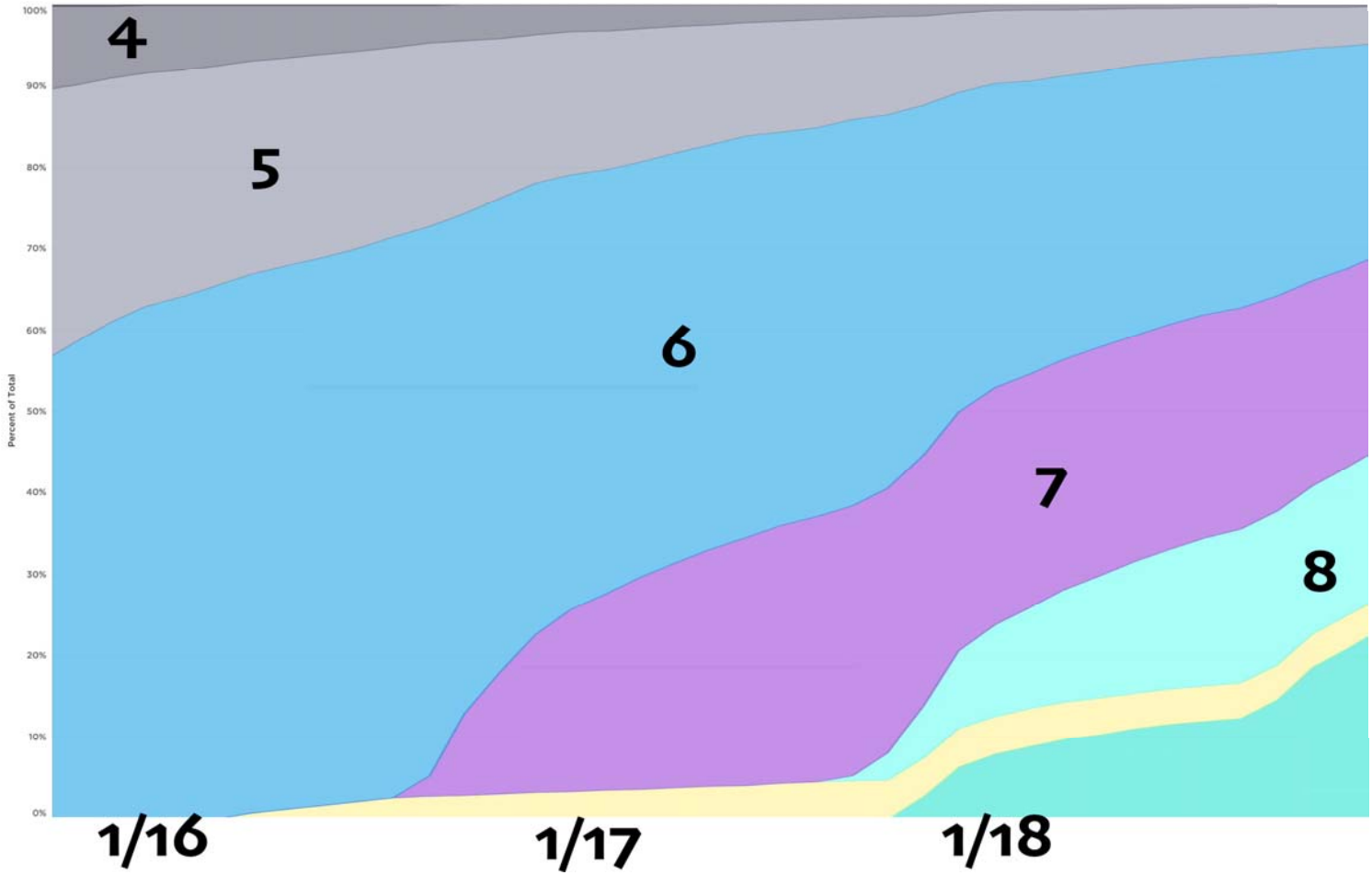

Wireless Banter Show

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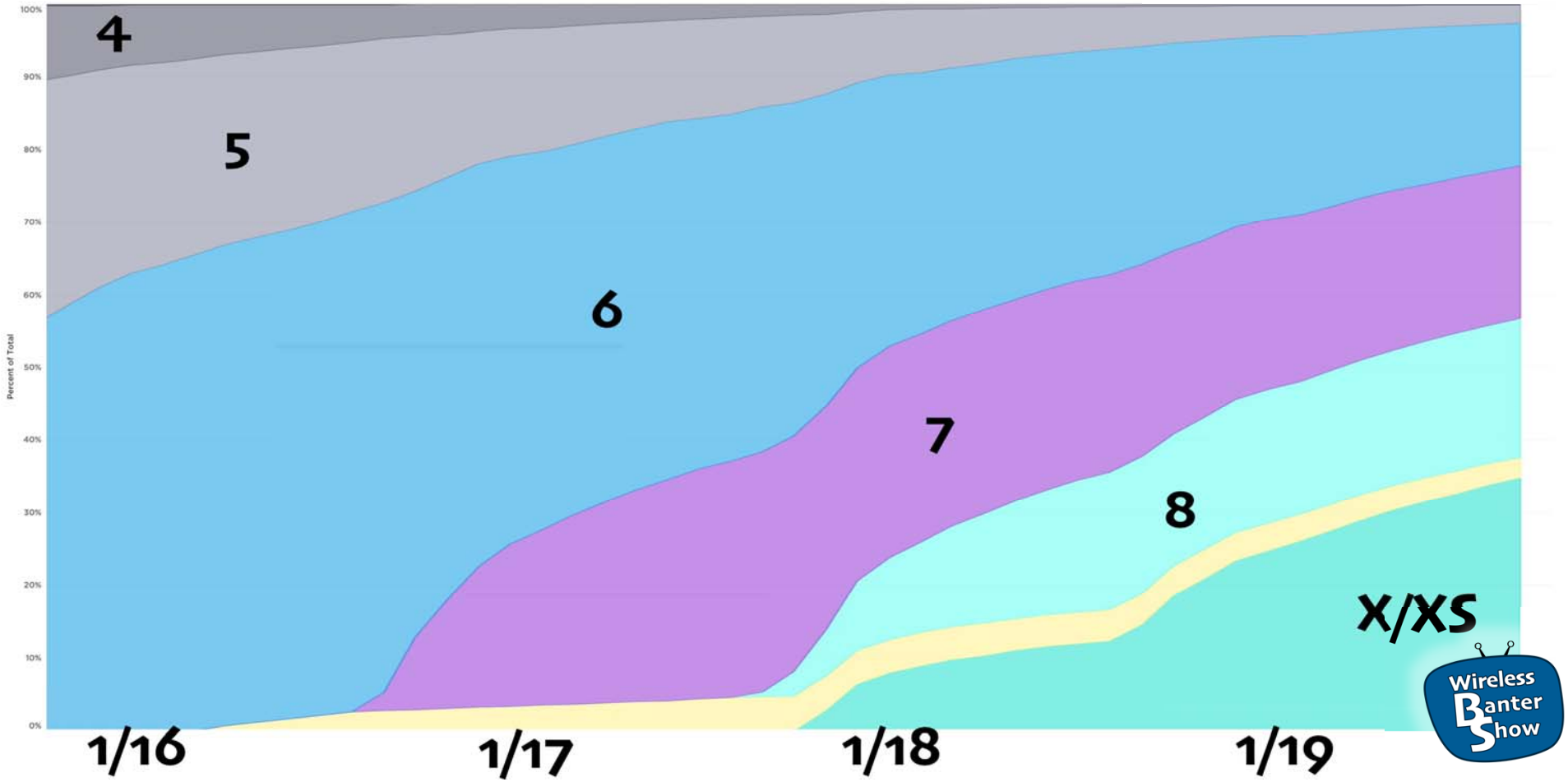
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Wireless Banter Show

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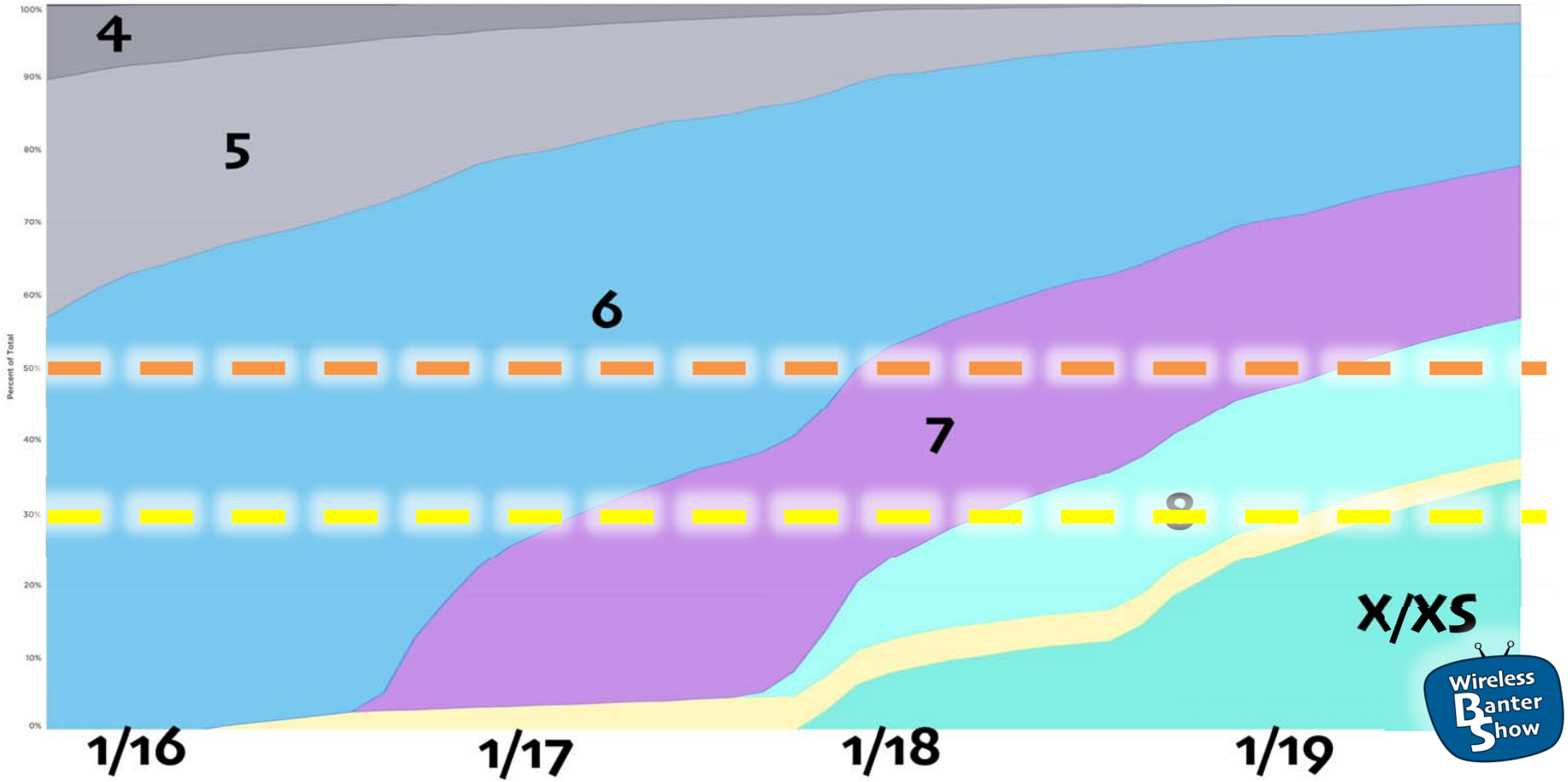
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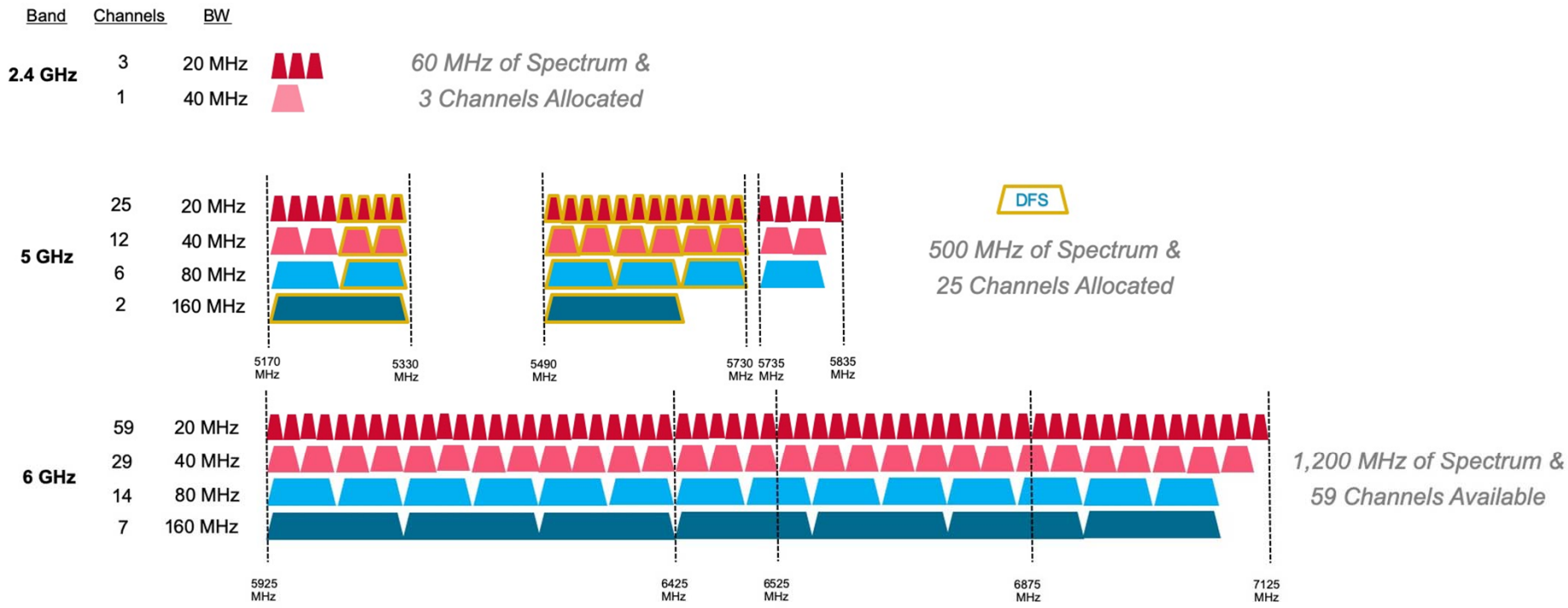
Wireless Banter Show

Wi-Fi 6e


Band
Channels
BW
2.4 GHz
3
20 MHz
1
40 MHz
60 MHz of Spectrum &
3 Channels Allocated
5 GHz
25
20 MHz
12
40 MHz
6
80 MHz
2
160 MHz
DFS
500 MHz of Spectrum &
25 Channels Allocated
5170 MHz
5330 MHz
5490 MHz
5730 MHz
5735 MHz
5835 MHz
6 GHz
59
20 MHz
29
40 MHz
14
80 MHz
7
160 MHz
1,200 MHz of Spectrum &
59 Channels Available
5925 MHz
6425 MHz
6525 MHz
6875 MHz
7125 MHz

BROADCOM

5G / Wi-Fi Techology Convergence

Disruptive Analysis

Don't Assume

Current focus of indoor cellular / small-cells

2019 – Enterprise / indoor networks today

	Wi-Fi	Public 4G/5G	Private 4G/5G	Other
MNO indoor coverage / offload (esp phones)				
Local IT/Internet LAN (laptops, phones etc)				Fibre, ethernet
Local IoT (static)				BLE, Zigbee, ethernet
Local IoT (moving)				Niche wireless
Local OT (industrial)				Fibre, niche wireless
Local voice radio				P25, TETRA, DECT
Sector-specific uses				

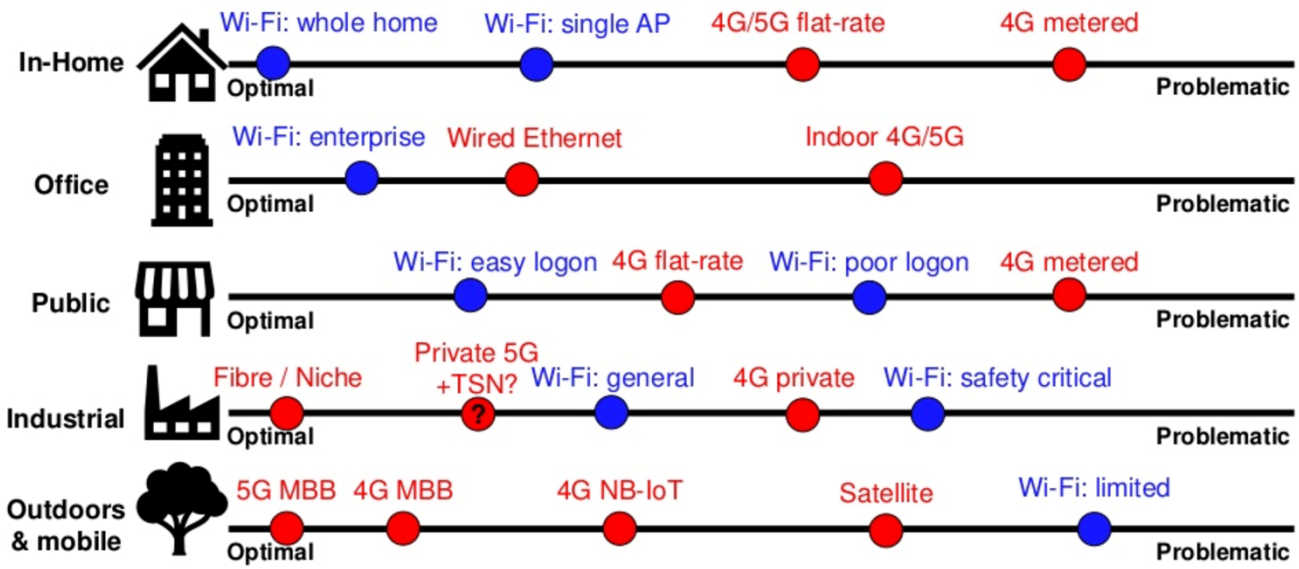
Market adoption today: Ubiquitous | Common | Rare | Very rare

June 2019

Disruptive Analysis

Don't Assume

Wi-Fi Competitiveness Scorecard vs. alternative networks



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Summary

- Enterprise Wi-Fi still ain't plugging a router to wall and running, but…
- … it's gotten a lot easier, thanks to
  - Easier enterprise infrastructure
  - More intelligent monitoring and management tools
- 5G / Wi-Fi convergence will happen, and designers, consultants and those that have an answer to that will have an edge.