
LAWRENCE TECH'S WIFI THRILLER:
WIRELESS
INVASION
2009

XIRRUS, THEIR JUST SO DIFFERENT

- *The Arrays are Just too big*
- *Just too expensive - $$$$$*
- *Two radio APs are good enough*
- *Array is overkill, nobody needs that much Wi-Fi?*
- *Xirrus is only good for LPVs*
- *Just a big single point of failure*
- *Wi-Fi requires a controller*
- *Client's don't have directional Antennas*

WI-FI EVOLUTION: *USAGE MODELS*

2009

- Overlay network
- More users than devices
- Design for coverage
- Design RF for laptops
- 2.4GHz centric
- Application focus – Email

2014

- Primary network
- More devices than users
- Design for capacity
- Design RF for tablets/phones
- 5GHz focused (2.4GHz still required)
- Applications– Anything & Everything

WI-FI EVOLUTION: *DEVICES & APPLICATIONS*

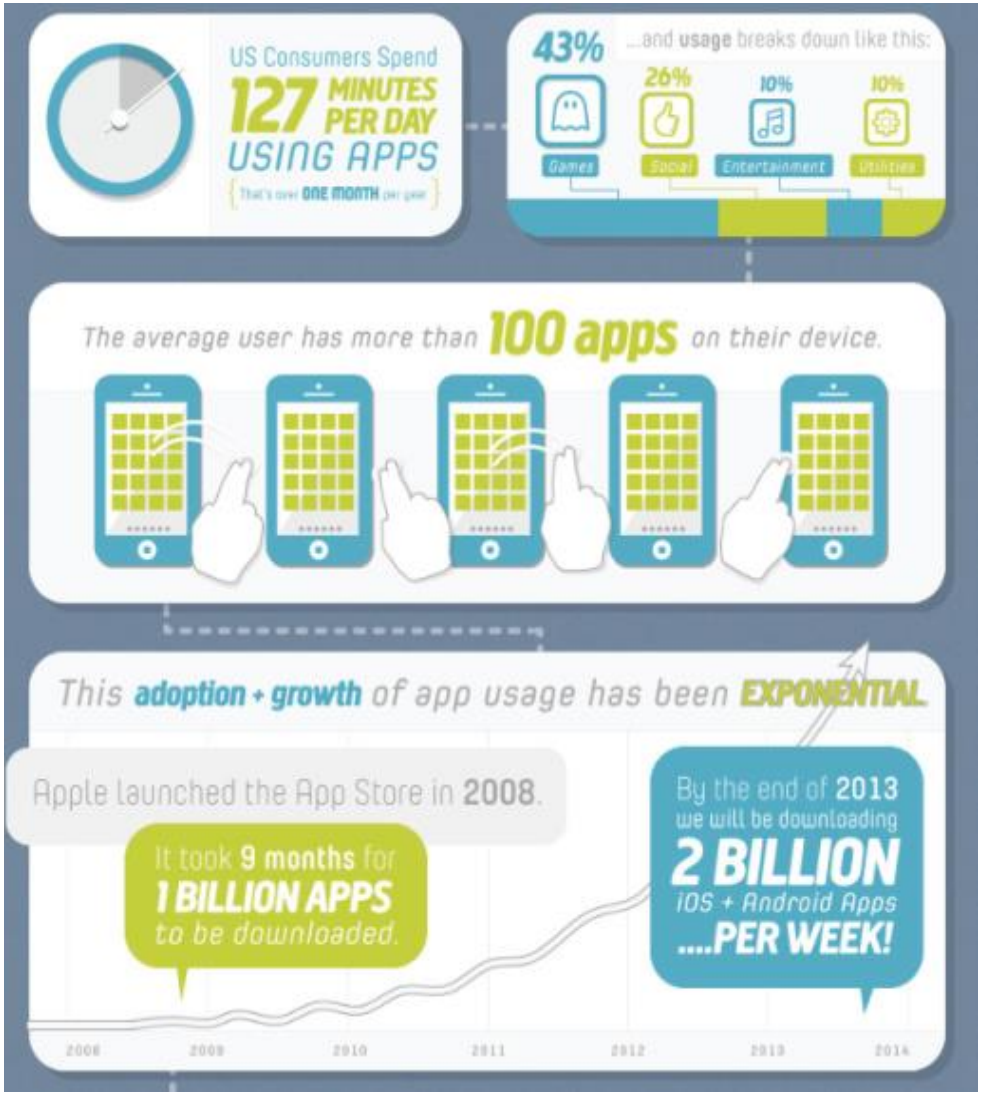
Every day another 4 million+ wireless devices are activated

Flurry

In 2013 Smartphone/tablet sales exceed that of all consumer electronics combined
– *IDC*

Instagram video becomes #1 traffic on Internet day 1 of release

Most Networks are not prepared!



WI-FI - IT'S NOT ALL THE SAME

XIRRUS

NOW IT HAS TO BE *EVERYWHERE*

DENSITY DEMANDS CONTINUE TO GROW

OPTIMIZING WIRELESS NETWORKS TODAY

Wi-Fi design

One size doe

Most high de ***Hz***

Xirrus is abo ***o clients mix***

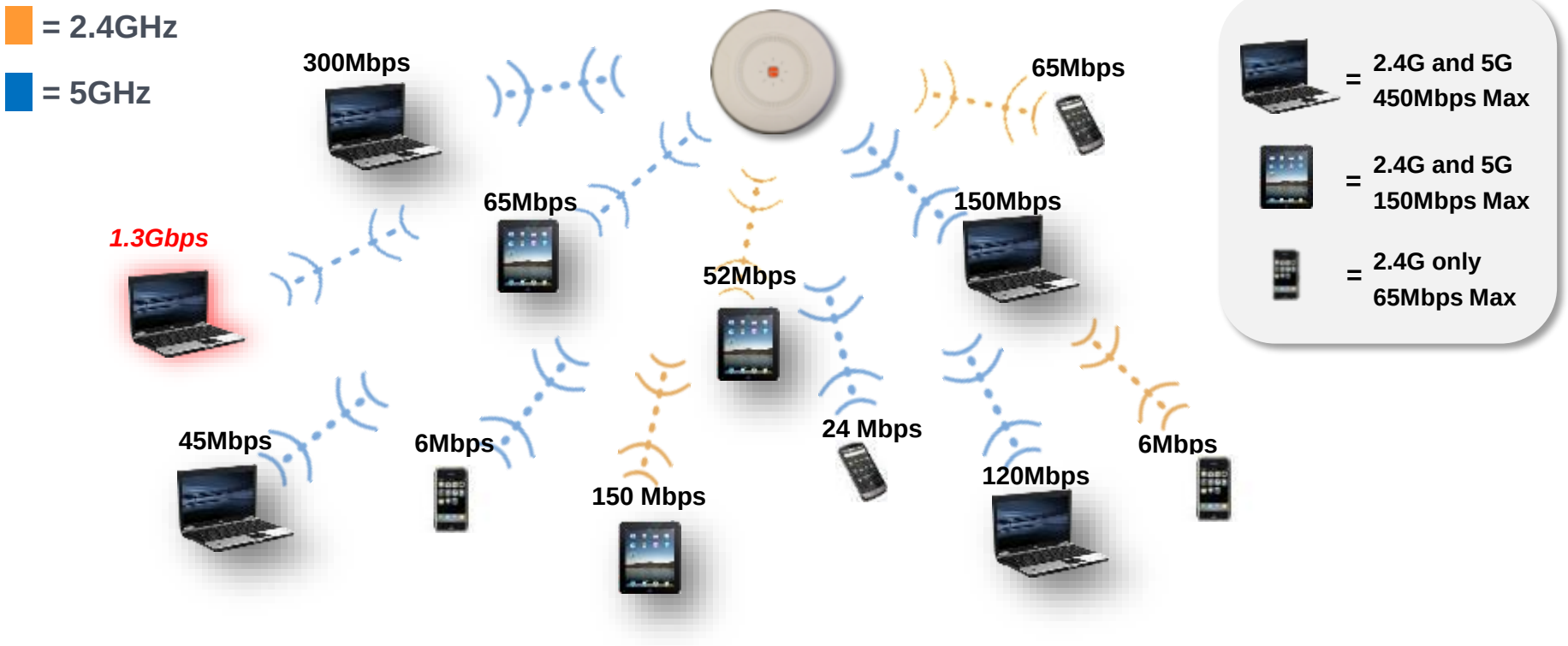
If not done rig

WI-FI DESIGN OPTIMIZATION

WHAT WE CAN (SHOULD) ALL AGREE ON

XIRRUS

THE *REALITY* OF THE CLIENT ENVIRONMENT



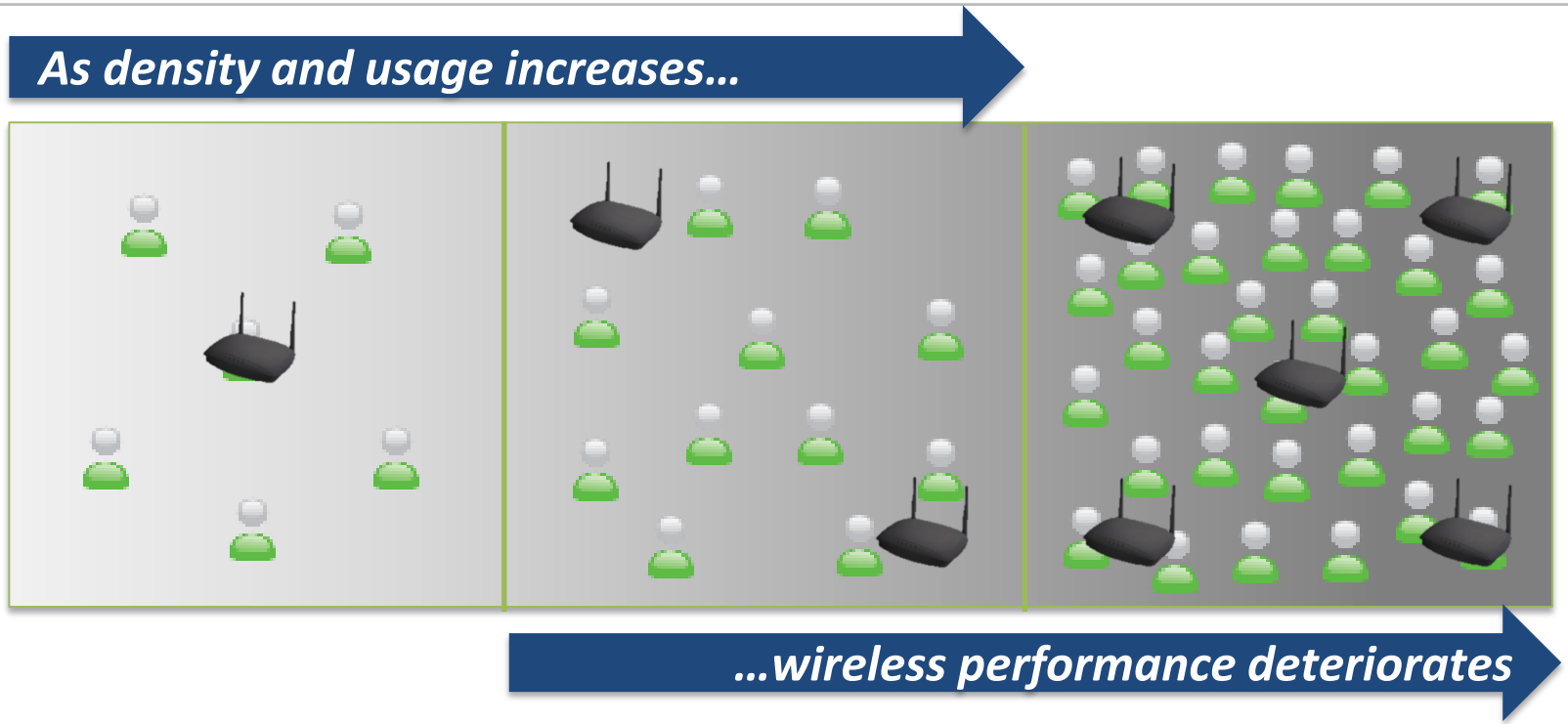
In a Wi-Fi network, the user data rates varies with distance, device type, Wi-Fi band, and interference

WIRELESS DEVICES ARE NOT CREATED EQUAL

Capabilities vary greatly by type of device

Device	2.4GHz	5GHz	Antennas	Max Rate
POS scanner	X	Some	1	54Mbps
Media Players	X	Some	1	65-150Mbps
Smartphones – low end	X		1	65Mbps
Smartphones – high end	X	X	1	433Mbps
Tablets – low end	X		1	65Mbps
Tablets – high end	X	X	2	433Mbps
Laptops	X	X	2 or 3	1.3Gbps

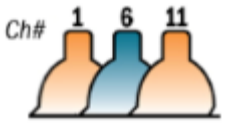
THE *REALITY* OF CLIENT DENSITY



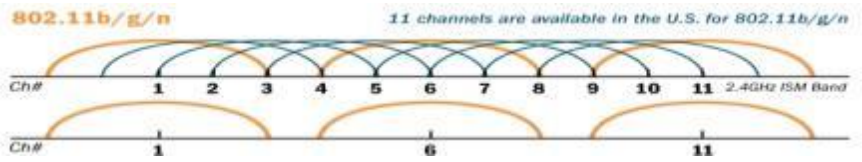
- Increasing numbers of devices per person and per square foot demand improved Wi-Fi design
- Increasing RF contention issues, especially in 2.4GHz
- **QoE vs. QoS**

THE *REALITY* OF WI-FI SPECTRUM

2.4GHz

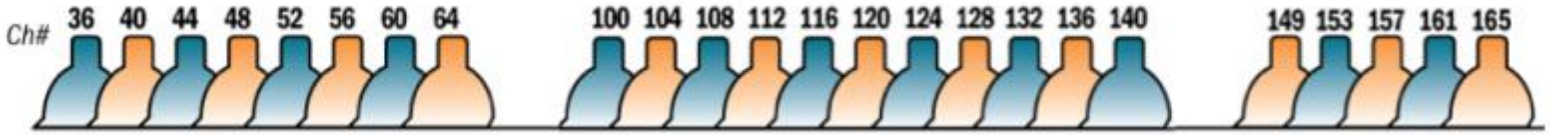


3 Channels

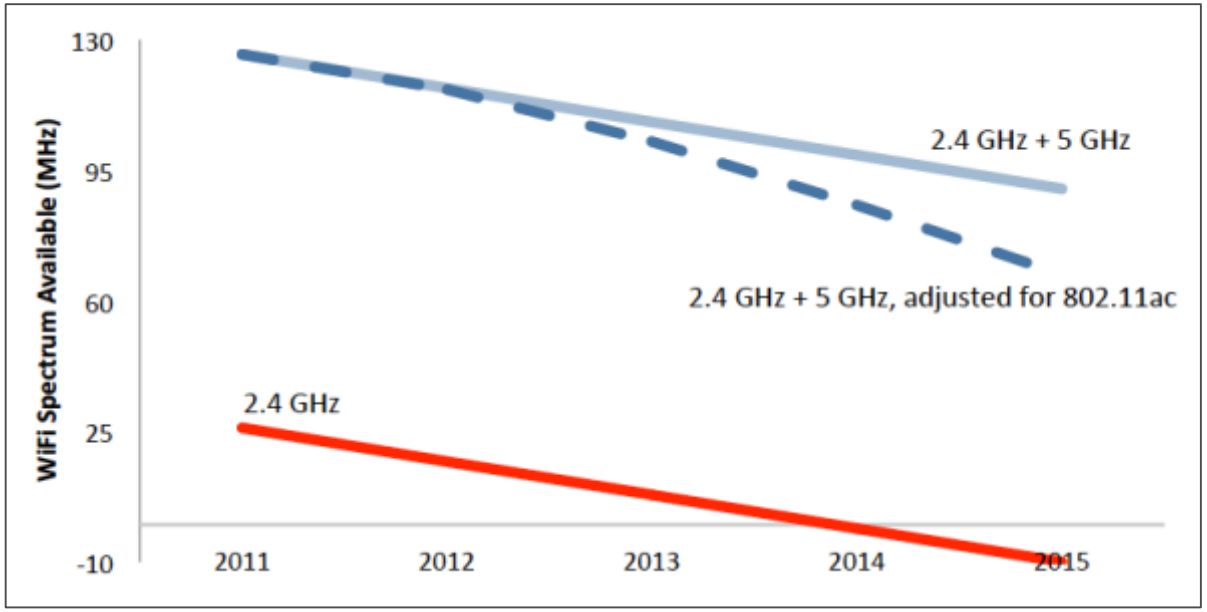


21 Channels

5GHz

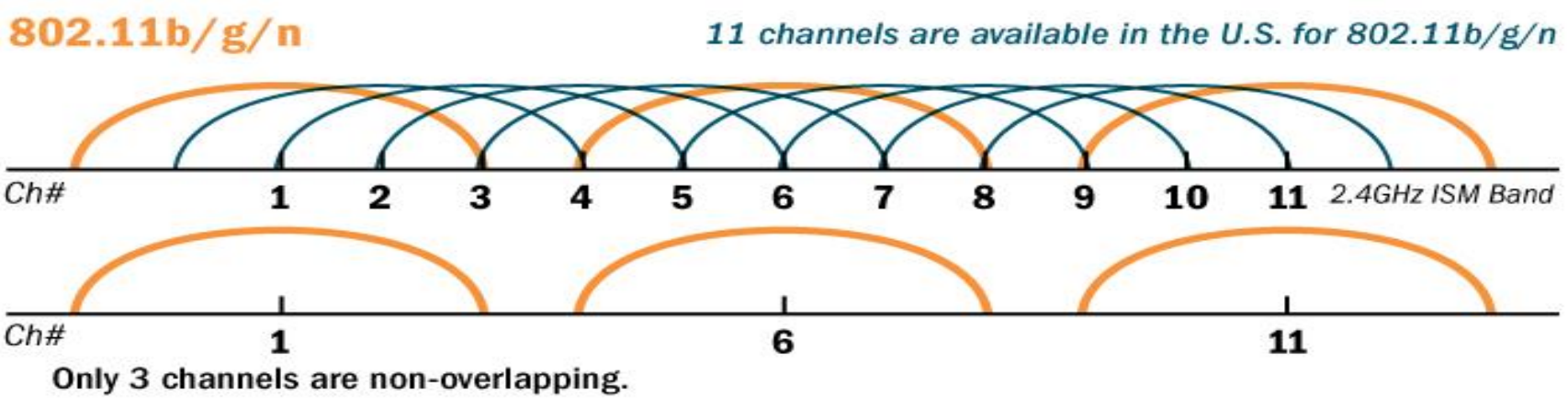


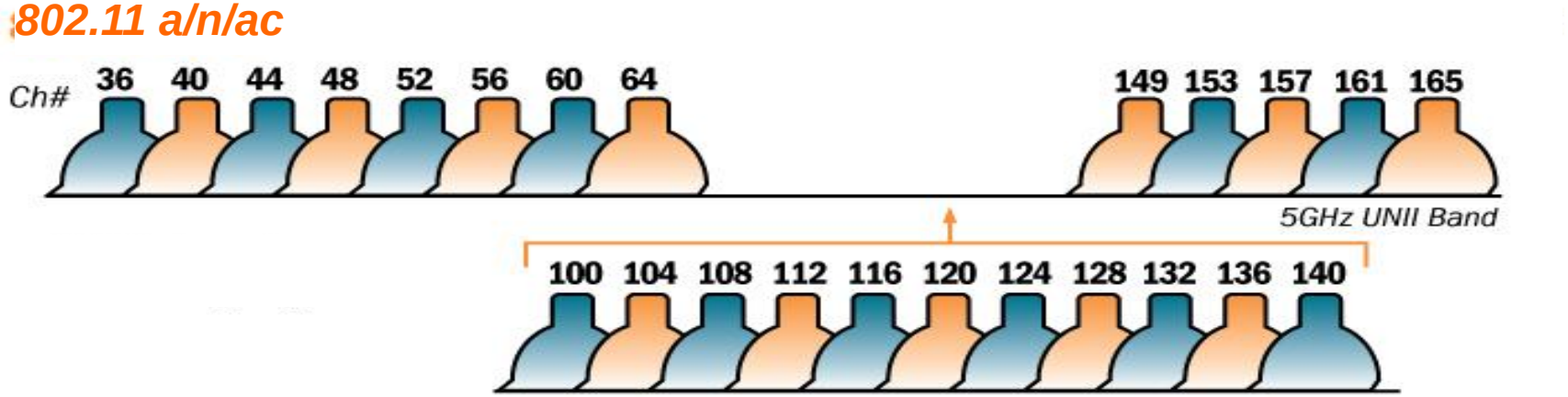
Wi-Fi Spectrum Deficit Over Time



Source: CableLabs, 2013

THE *REALITY* OF WI-FI SPECTRUM

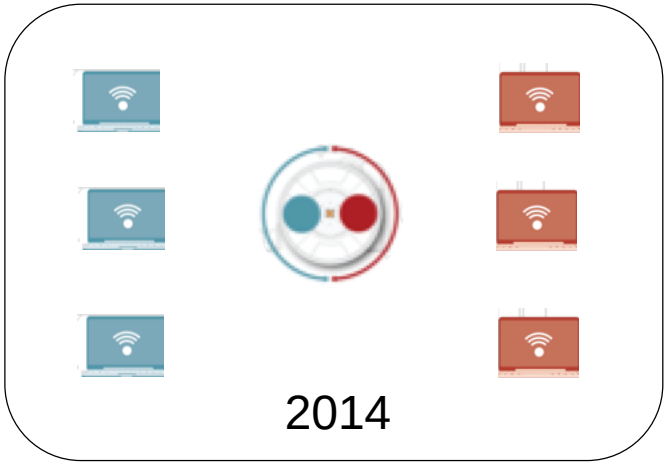


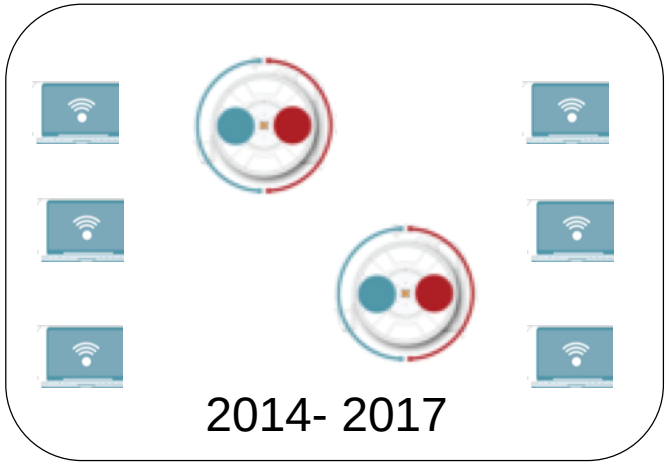


Note: The above graphic identifies North American channel assignments, channels varies for different countries based on their regulatory domains

THE *REALITY* OF AP RADIO DESIGN

Traditional Fixed Radio APs



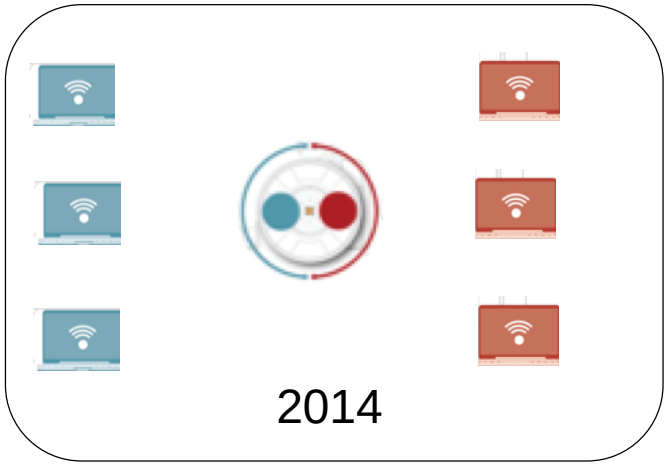


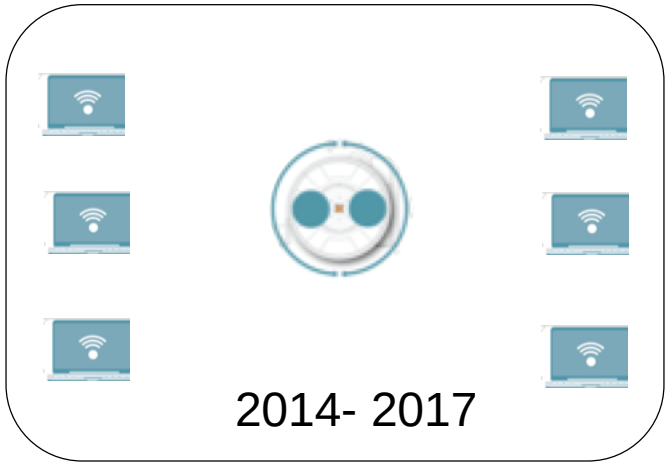
Non-Optimized Design

= 5GHz/11ac

= 2.4GHz/11n

Software Programmable Radio APs





Optimized Design

XIRRUS

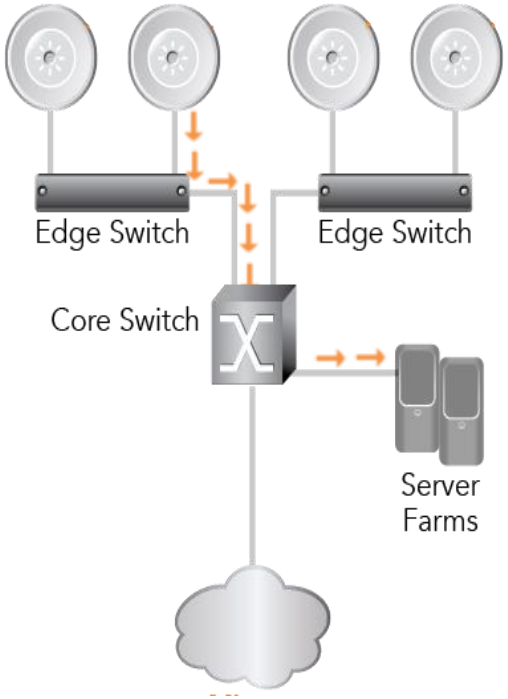
WI-FI DESIGN OPTIMIZATION

WHAT XIRRUS BELIEVES IS THE BEST APPROACH

XIRRUS

NETWORK OPTIMIZATION = *ARCHITECTURE*

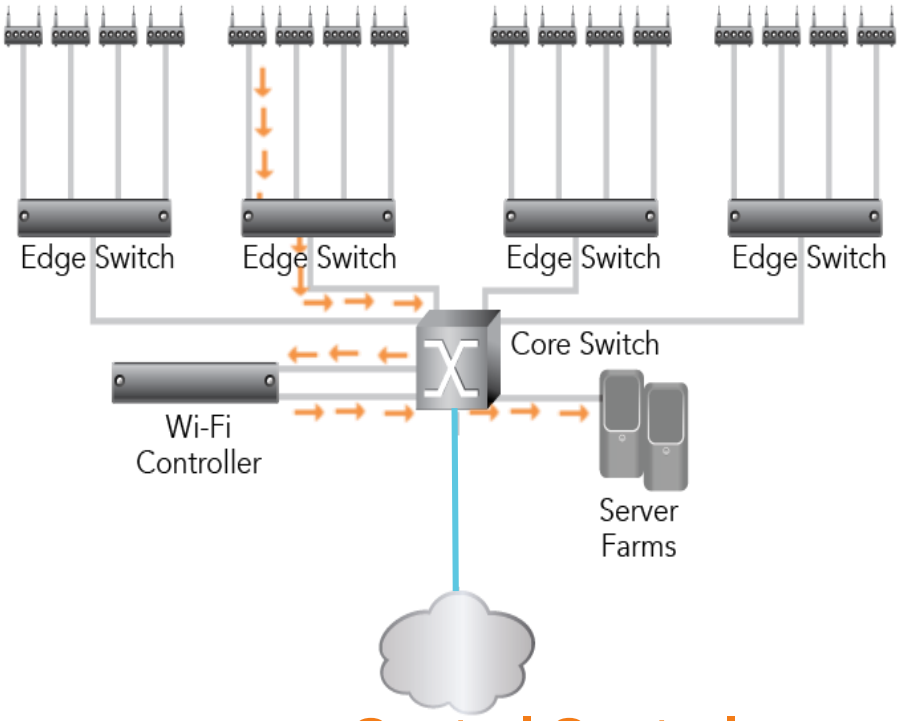
Edge Forwarding Plane



Distributed Control

- Control at edge for best performance
- No Single Point of Failure
- Seamless Scalability
- Distributed Intelligence

Centralized Forwarding Plane



Central Control

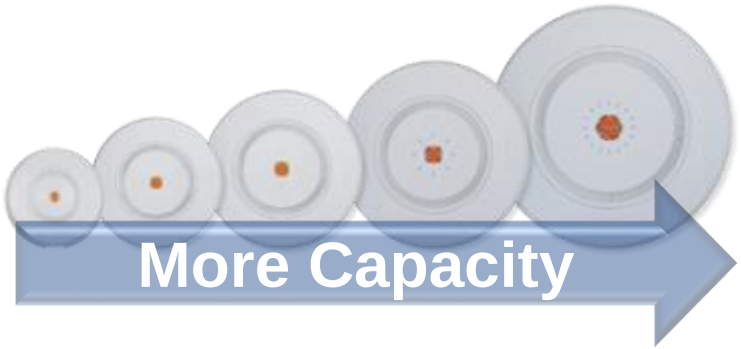
- Central processing creates bottlenecks
- Single Point of Failures
- Stair step scalability
- Intelligence Choke Point

XIRRUS

CAPACITY OPTIMIZATION = *SCALABILITY*

Xirrus

Right-size from 2 to 16 radios



Traditional

One size (does not!) fit all

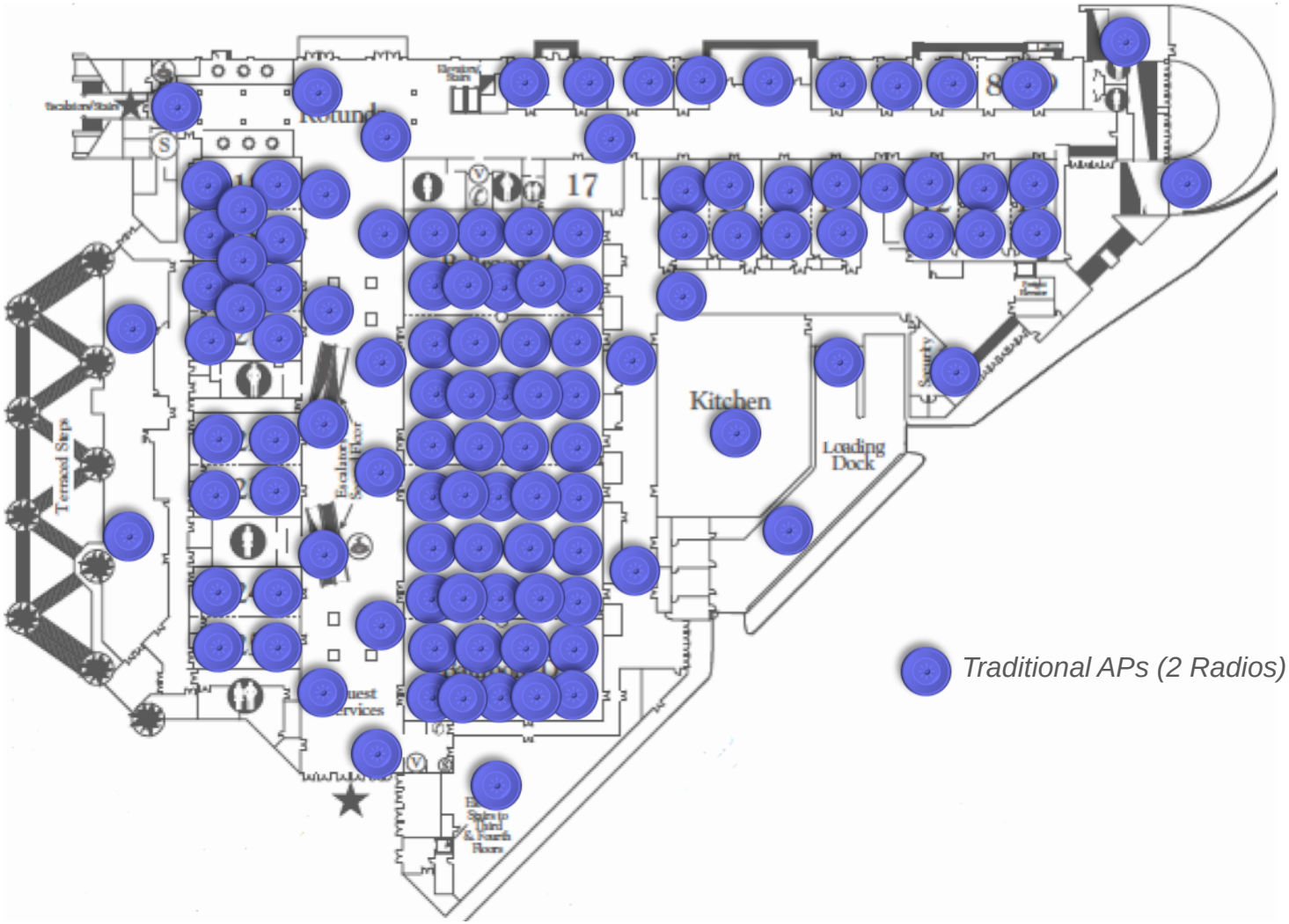
Benefits

Rock solid wireless…no matter how many devices

Less equipment = 20-30% lower TCO

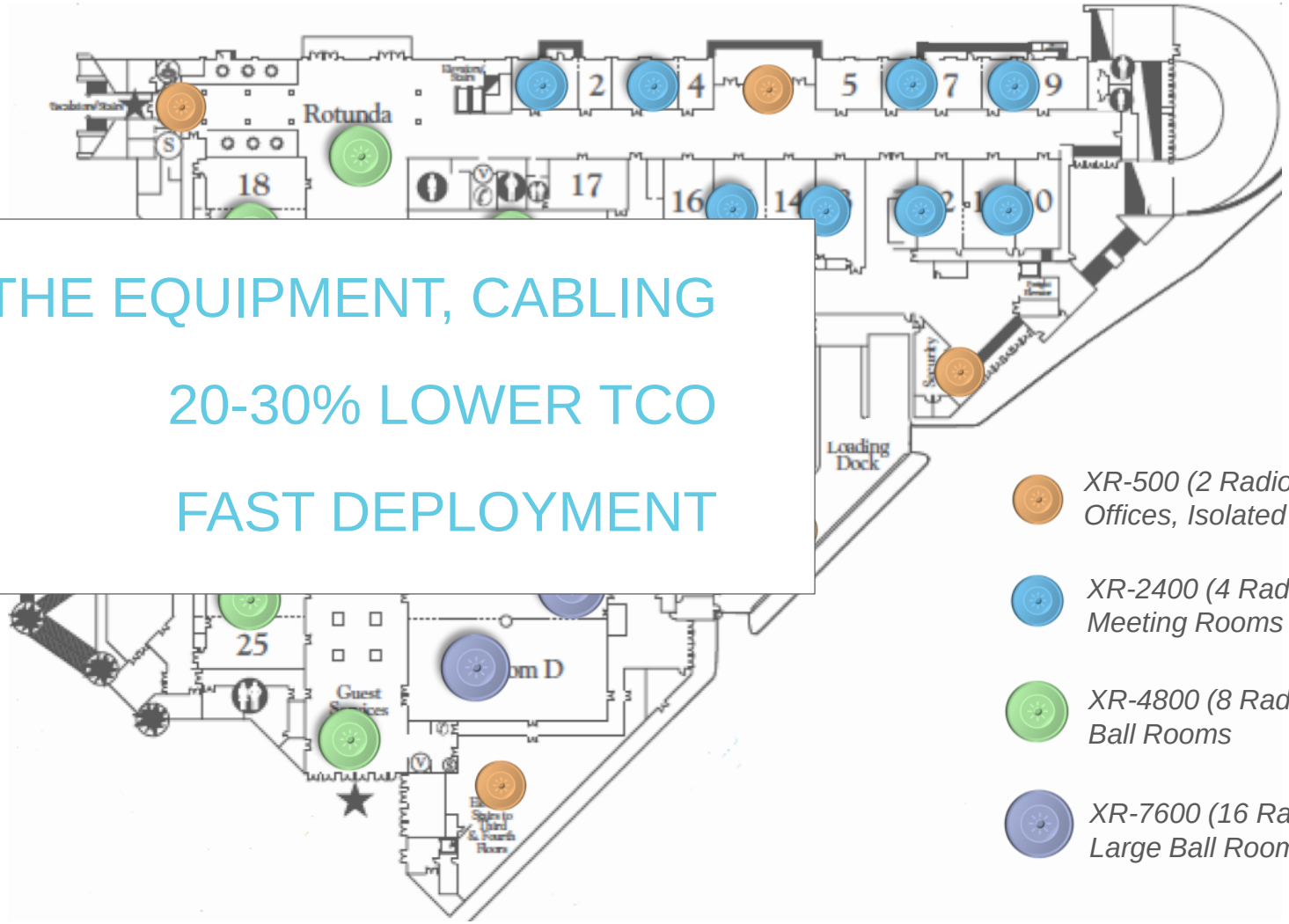
ONE WAY TO DEPLOY - CONVENTION CTR

114 APs



XIRRUS OPTIMIZED SOLUTION

29 Arrays/APs



1/3 THE EQUIPMENT, CABLING

20-30% LOWER TCO

FAST DEPLOYMENT

XR-500 (2 Radios)
Offices, Isolated Areas

XR-2400 (4 Radios)
Meeting Rooms

XR-4800 (8 Radios)
Ball Rooms

XR-7600 (16 Radios)
Large Ball Rooms

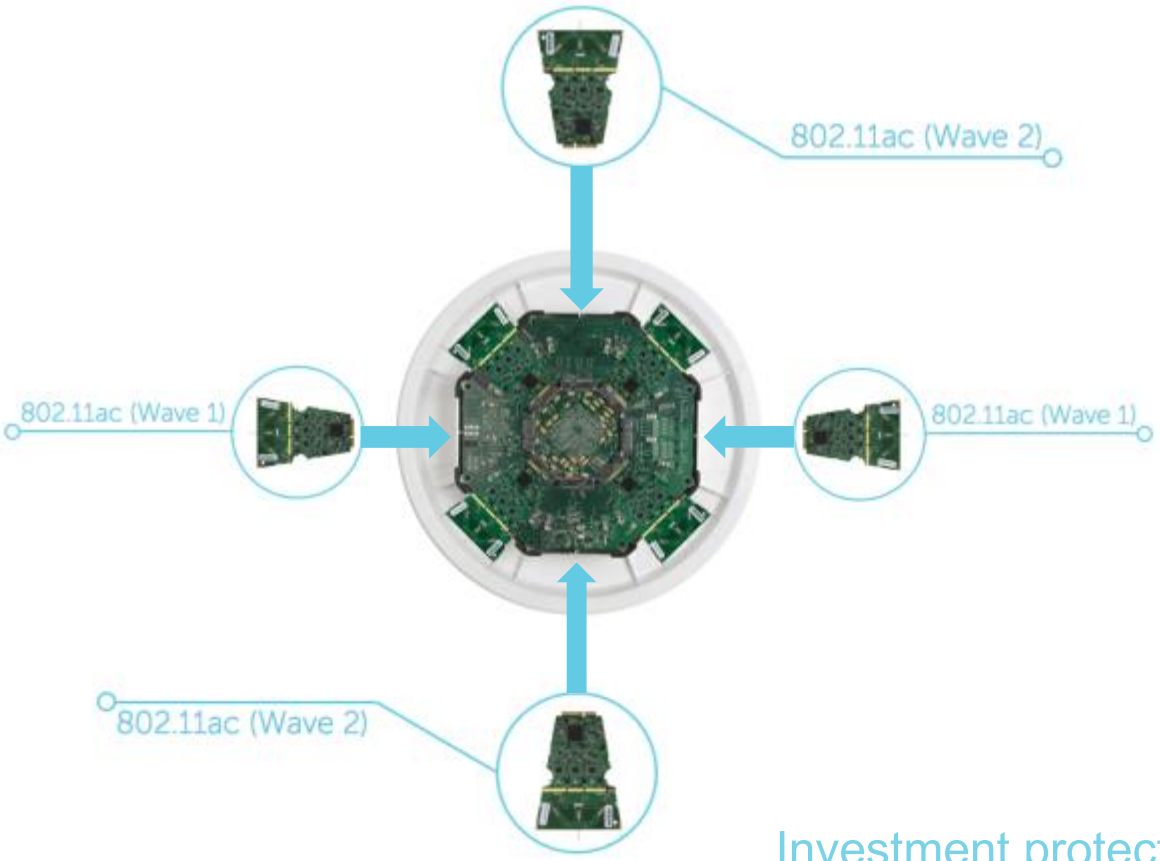
PERFORMANCE OPTIMIZATION = *APP CONTROL*

- PRIORITIZE
- LIMIT
- BLOCK

Ensure reliable performance for critical apps

WHY APPLICATION CONTROL ??

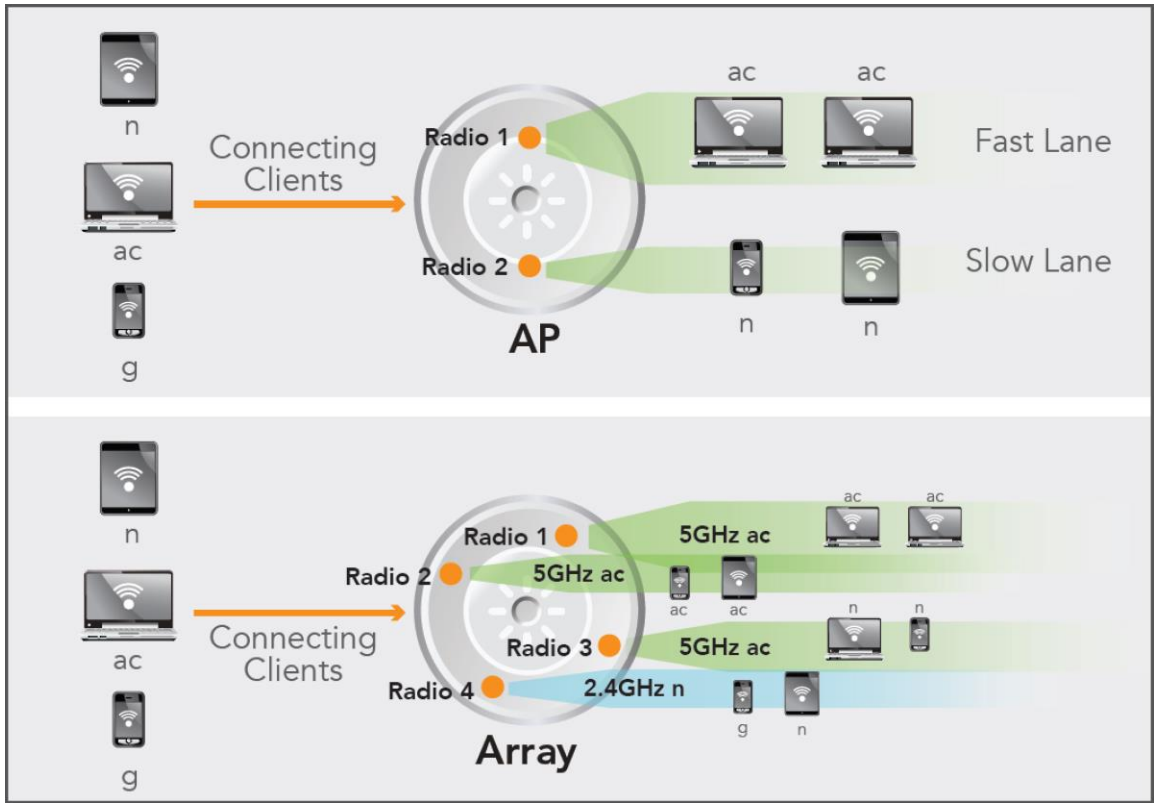
FINANCIAL OPTIMIZATION = *UPGRADABILITY*



Investment protection with no forklift upgrades

802.11AC OPTIMIZATION = *ACEXPRESS™*

- **Wi-Fi is shared medium - slow clients reduce overall network speed**
- **The Solution – Xirrus ACExpress**
  - Separate high speed and low speed clients on different radios
  - Maximize system performance for ALL clients



XIRRUS:

DIFFERENT OR JUST AHEAD OF THE PACK

XIRRUS

XIRRUS *ENGINEERING*

Recognized for ***Product Innovation***, are deployed in over 4000 networks, serving the most demanding customers worldwide.

First -1994

Access Point

Xircom Netwave

First – 2007

Multi-State radios

High Density Radio Array

Xirrus' XS 3500/3700/3900

First - 2010

Upgradable Design (11abg - 11abng)

Xirrus' XN 4/8/16

First - 2012

Modular radios

11ac ready platform

11ac Wave 2 ready

ACExpress

Xirrus' XR 2000/4000/6000

THANK YOU

XIRRUS