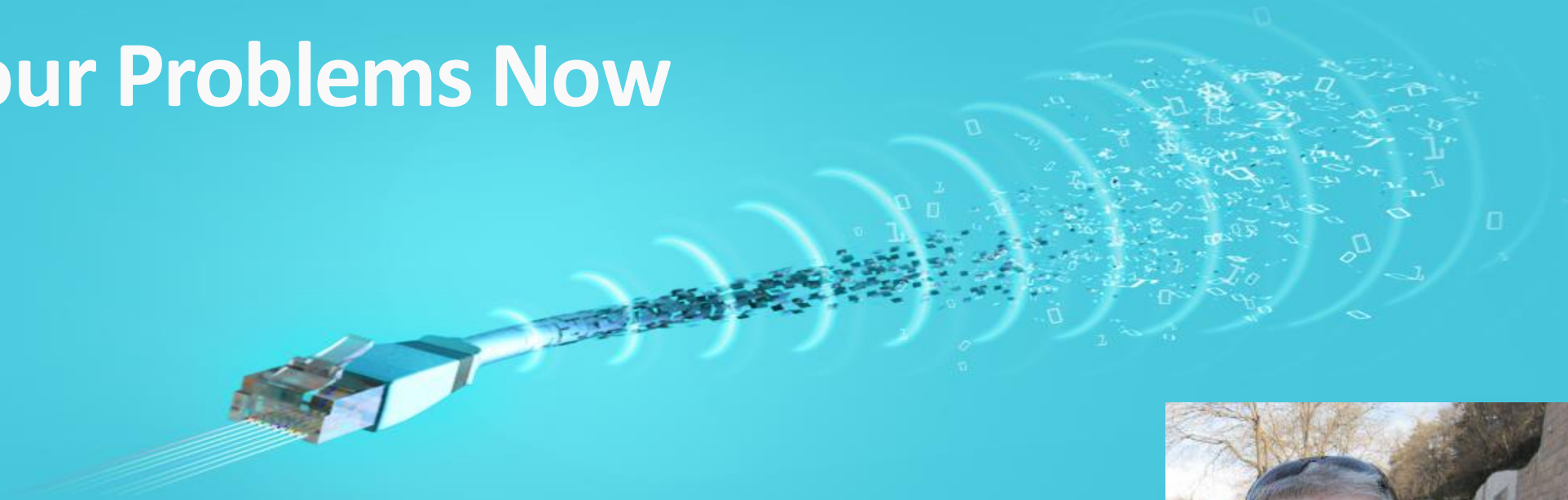


NBASE-T in the Real World: Solving Your Problems Now



Peter Jones
NBASE-T Alliance Chairman



NBASE-T Alliance

Overview

- NBASE-T Alliance (www.nbaset.org/)
 - Vendor alliance for 2.5G/5G BASE-T
- Who is in the Alliance?
 - Network infrastructure companies, e.g., components, systems, cabling, testing equipment,
- Alliance roles?
 - Educate the market
 - Facilitate interoperability
 - Enable widespread deployment
 - Augment the specification if needed

Alliance Strength - Full Ecosystem



Promoters



Contributors



Adopters



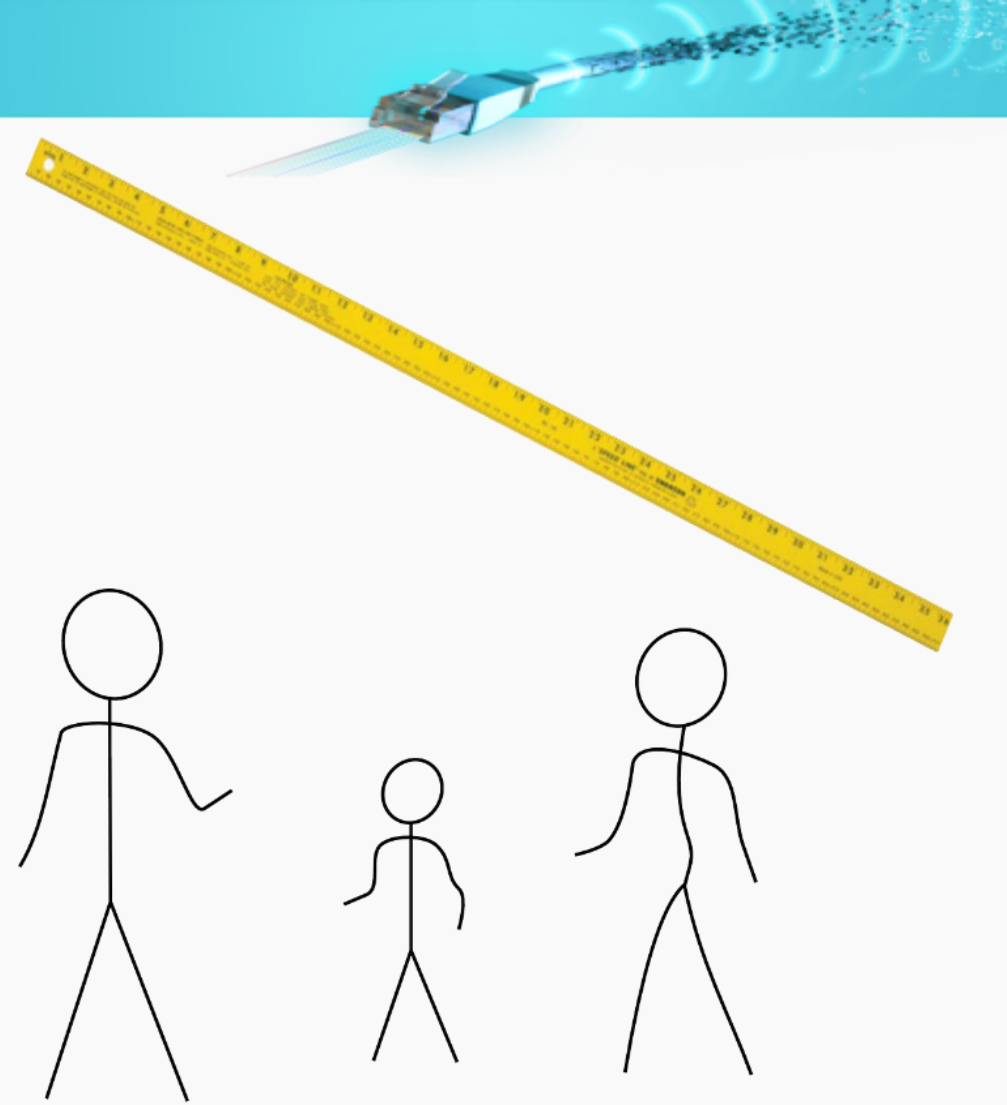
Liaisons



2.5G/5G BASE-T?

Between 2003 to 2014 ~70 billion meters of Cat 5e and Cat 6 cabling were sold....

- ~90% of installed base
- 1.3B outlets in 2014, plus 110M per year
- Enormous network infrastructure asset



10 meters of cabling for everyone on Earth ...



NBASE-T Questions and Answers

Three Questions

Who needs > 1Gb/s?

Roadblocks?

Value of NBASE-T?

Three Answers

Digital Transformation is here

Installed cabling asset

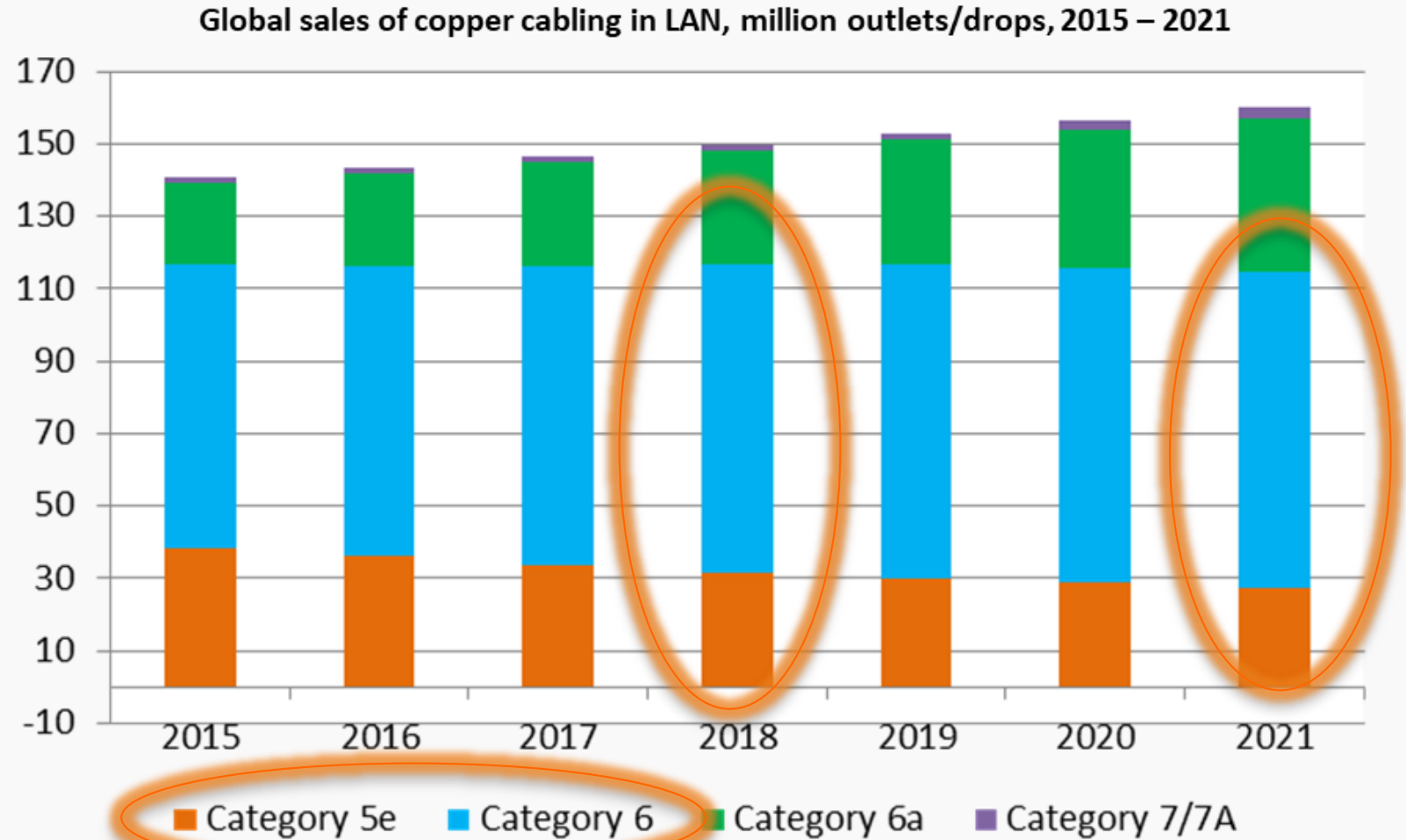
Upgrade the network,
not the building



INDUSTRY FORECASTS

Copper Cable

It's here to stay



Source: BSRIA survey and modelling May 2017

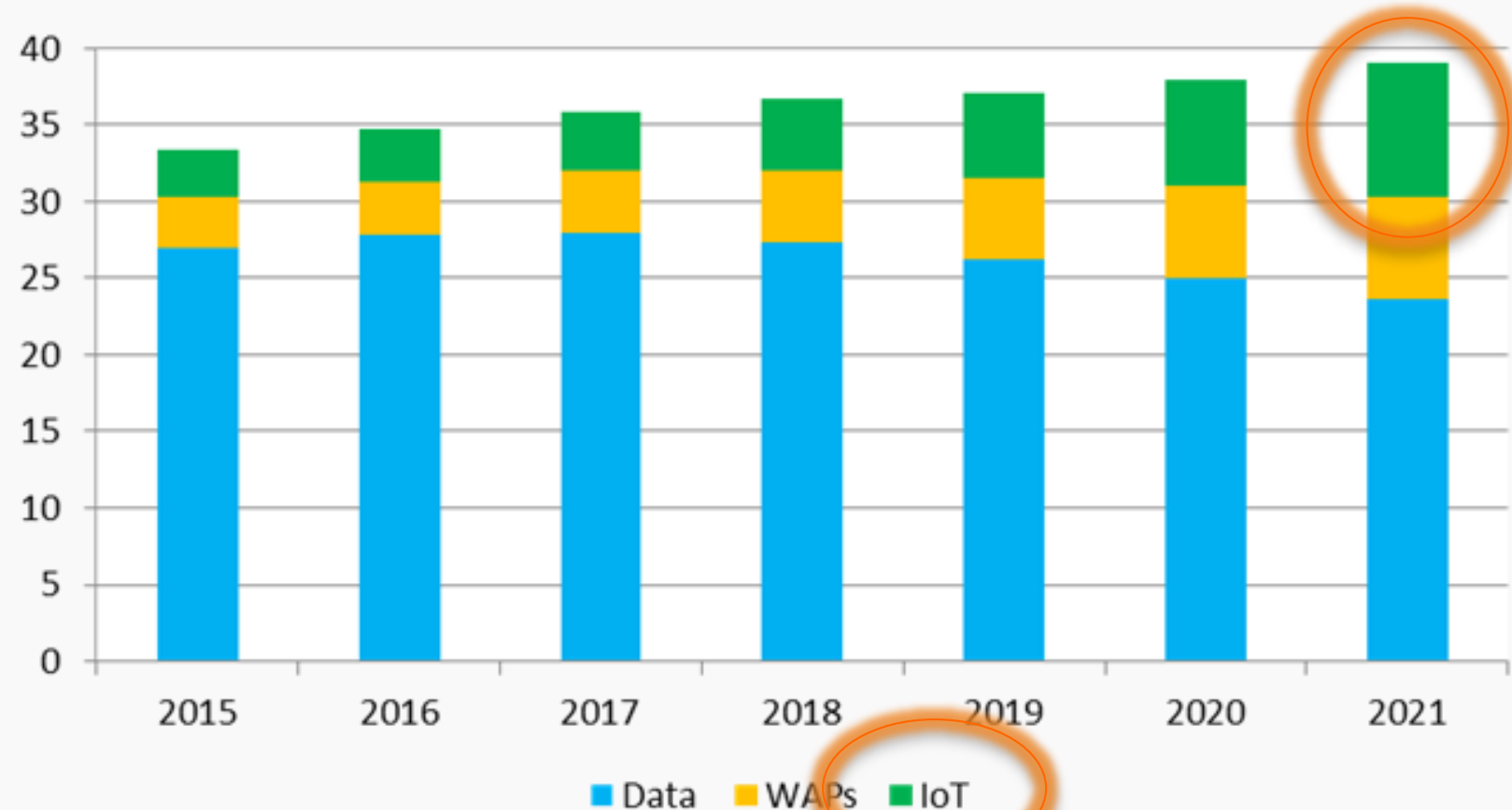
Copper Cable



Outlets/nodes/links, Data, WAPs and IoT, US, million units, 2015 – 2021

Source: BSRIA survey and modelling May 2017

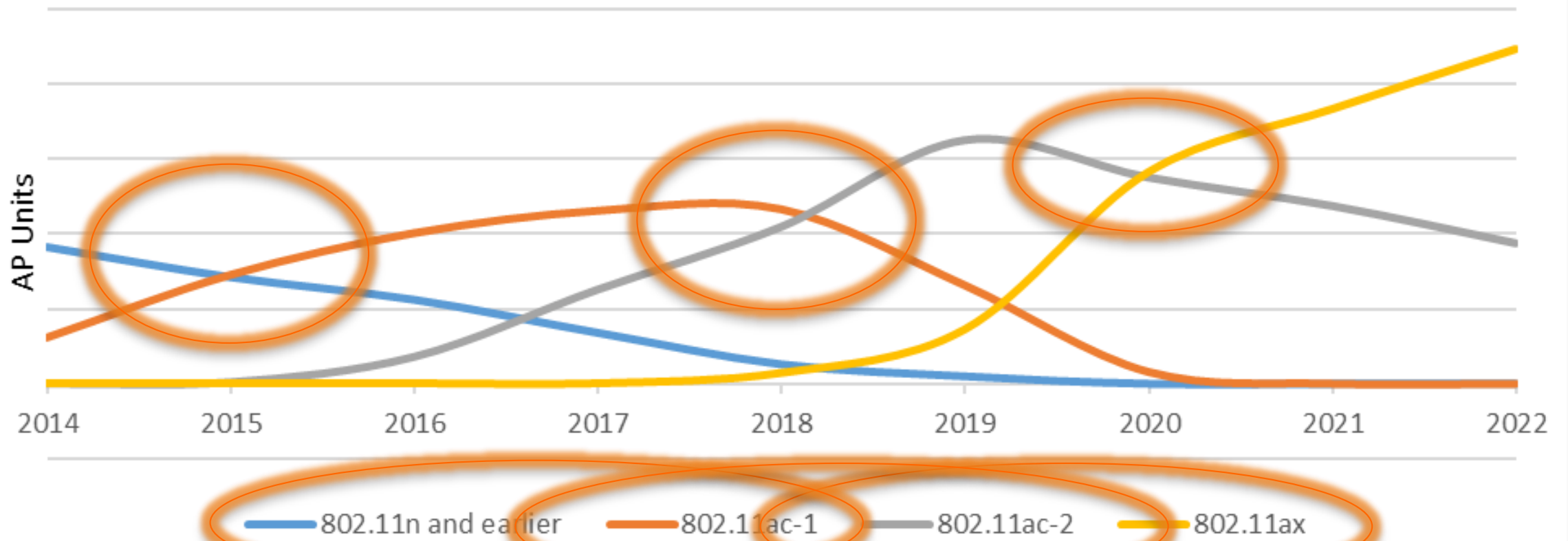
Where is the growth?



WiFi Trends



802.11 connections by type
650 Group WLAN Long-Term Forecast Dec 2017



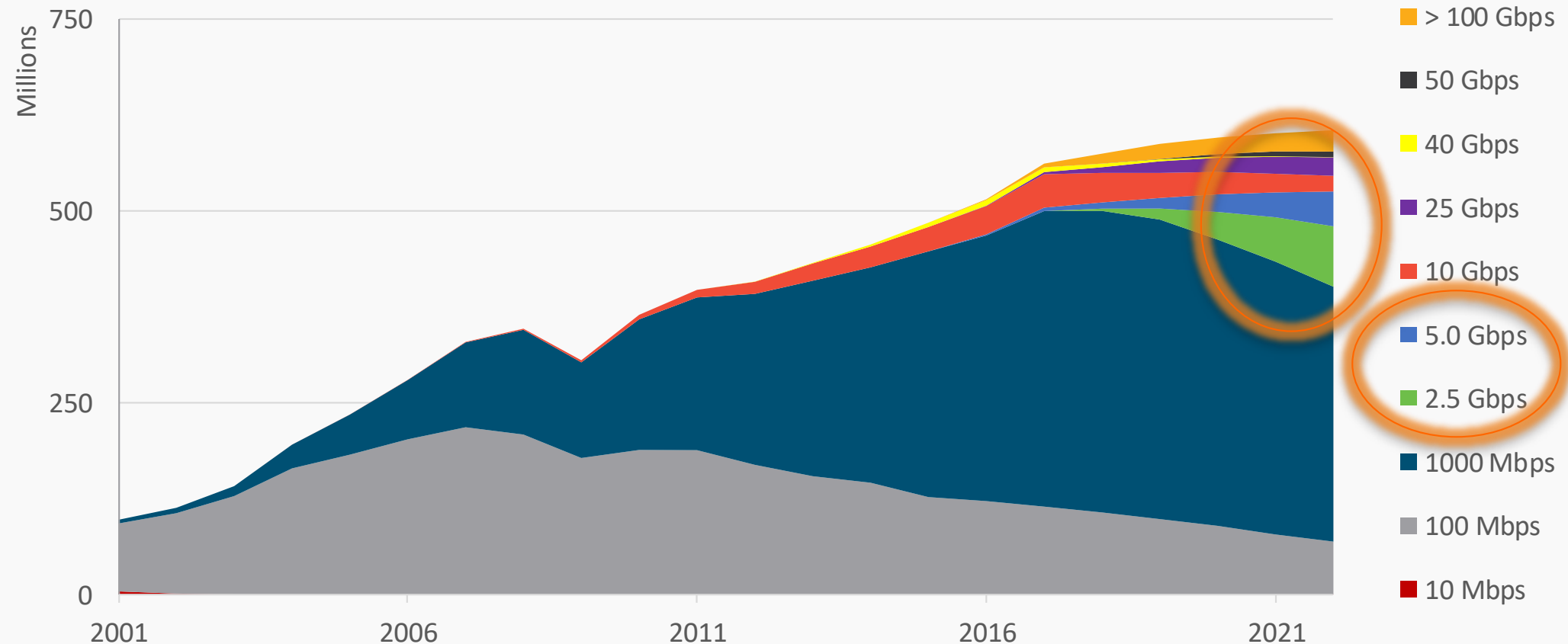
Switch ports 2001 - 2022



NBASE-T is strongest growing segment

Ethernet Switch Ports

Dell'Oro Group Ethernet Switch 5-year Forecast Jan 2018

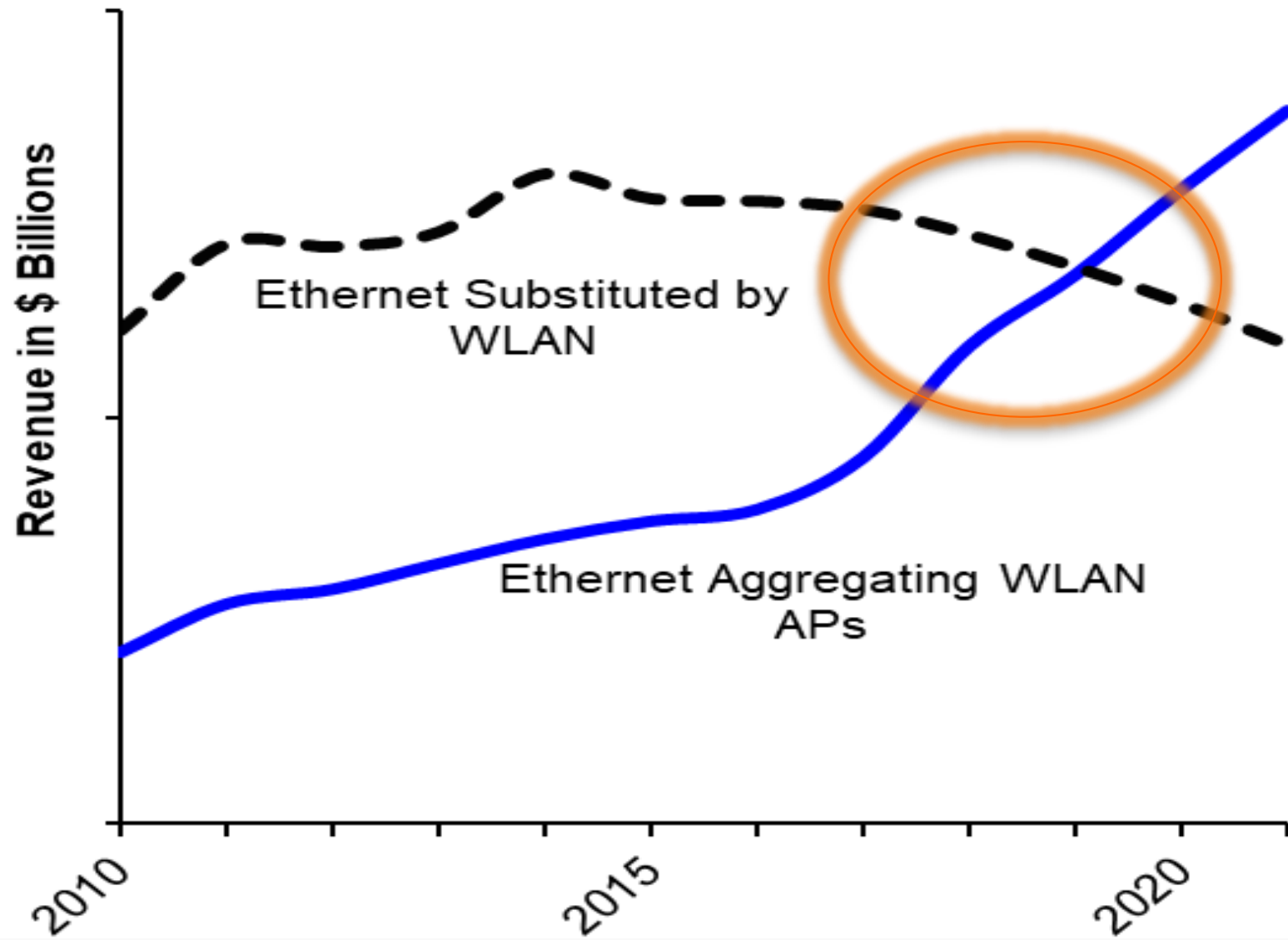


WLAN and Ethernet

“NBASE-T will transition wireless LAN to being additive to the Ethernet switch market.”

WLAN's Impact on Ethernet Switch Revenue

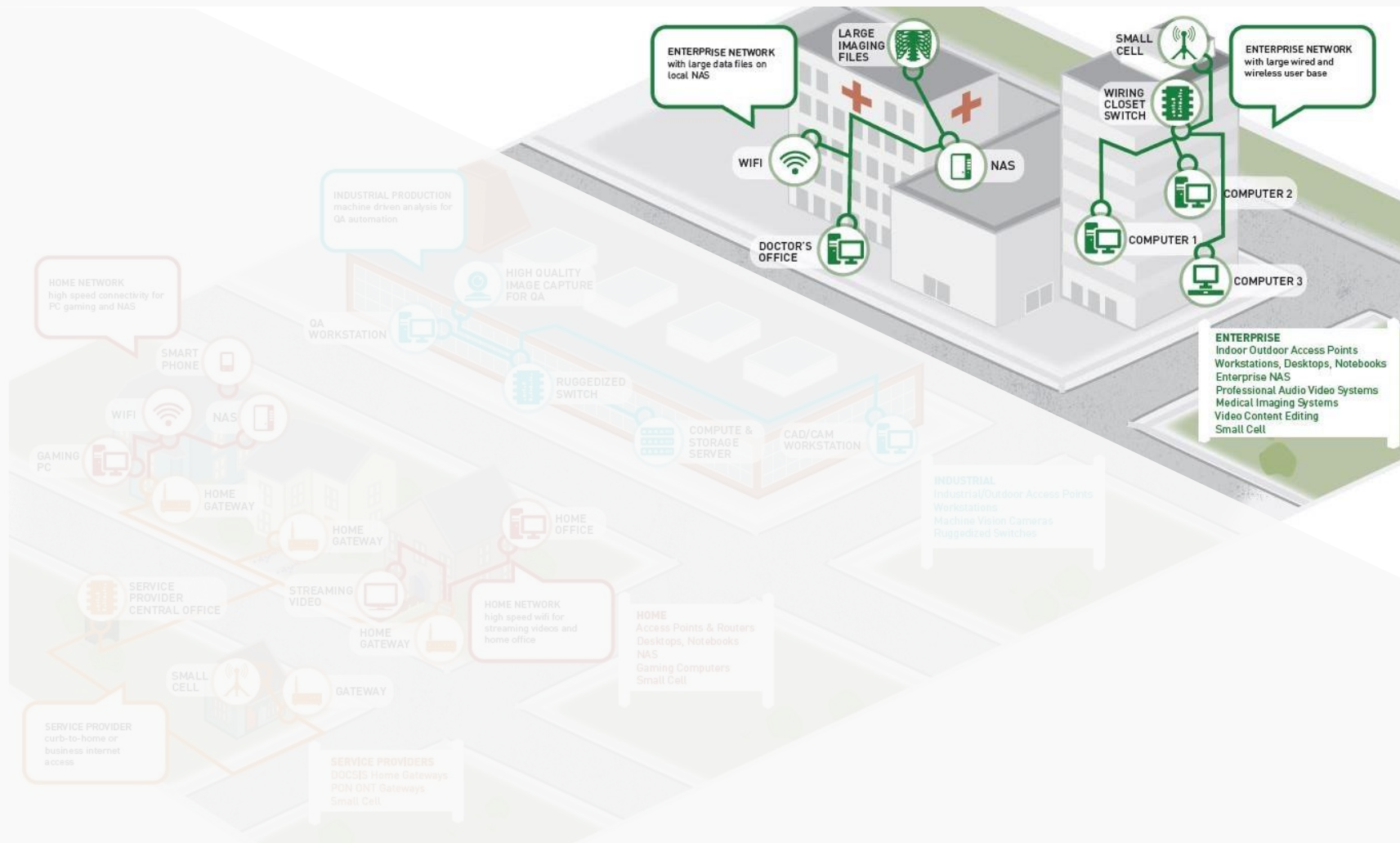
Dell'Oro Group Advanced Research Report Campus Networks Jan 2018





NBASE-T in the Real World

NBASE-T Application Areas



Enterprise:

Switch
Wireless AP
Desktop
Storage
Small Cell

Industrial:

Switch
Wireless AP
Workstation
Storage
Compute
Machine Vision

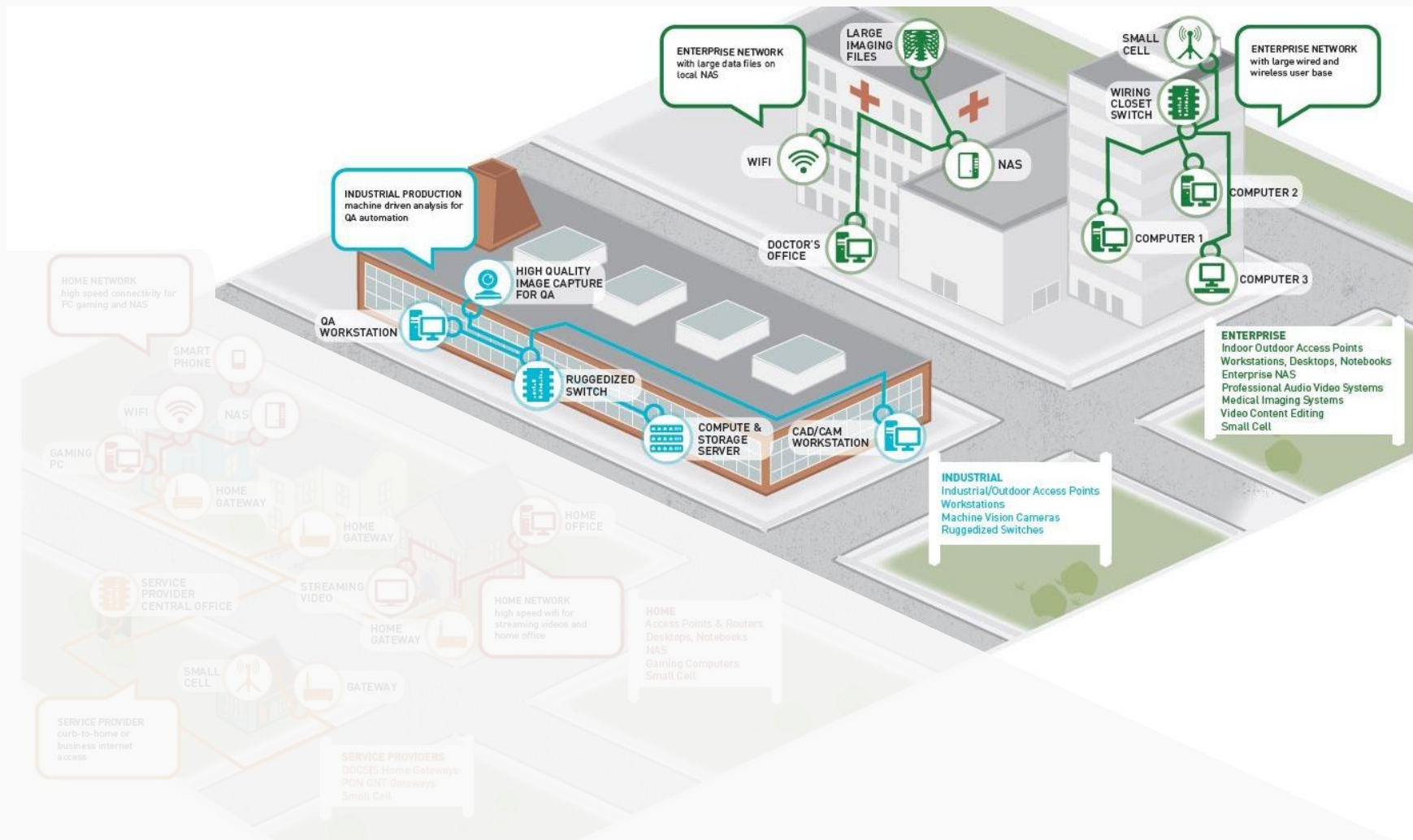
Home:

Switch
Wireless AP
Storage Server
Home Gateway
Streaming

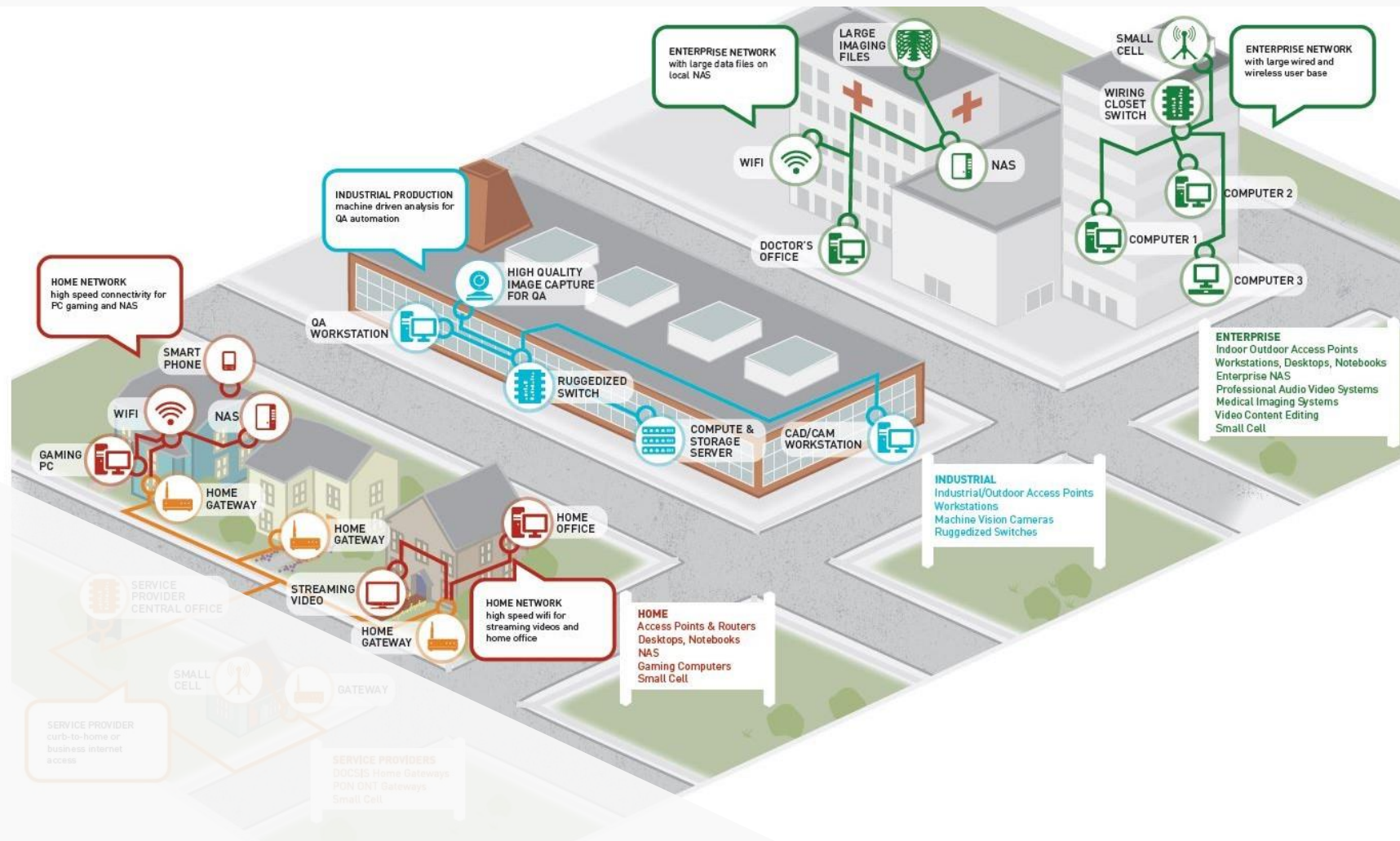
Service Provider:

Small Cell
Home Gateway

NBASE-T Application Areas



NBASE-T Application Areas



Enterprise:

Switch
Wireless AP
Desktop
Storage
Small Cell

Industrial:

Switch
Wireless AP
Workstation
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Machine Vision

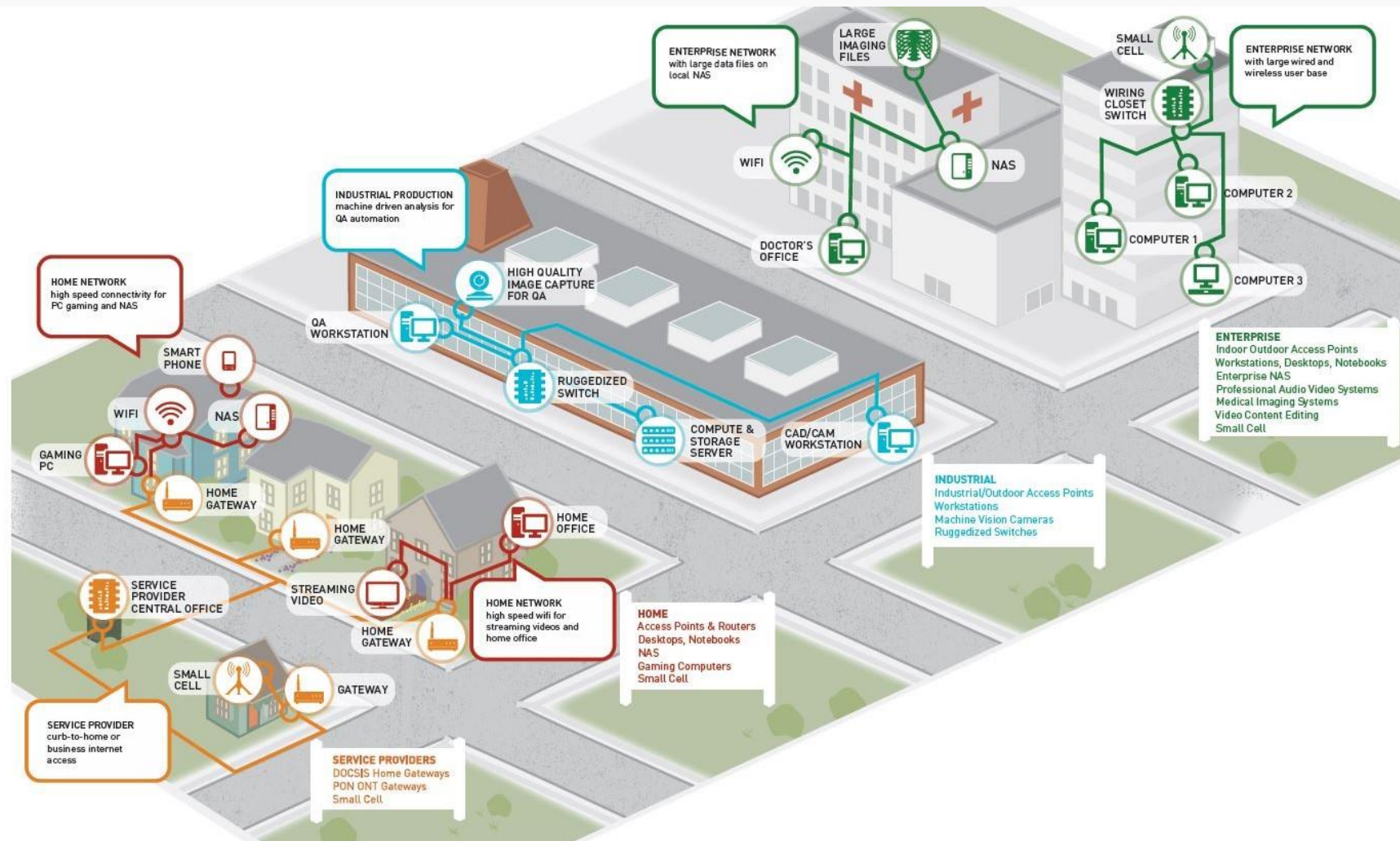
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NBASE-T Application Areas



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NBASE-T Use Cases



Enterprise Wireless - University of British Columbia



Scientific Compute - Monash Pharma

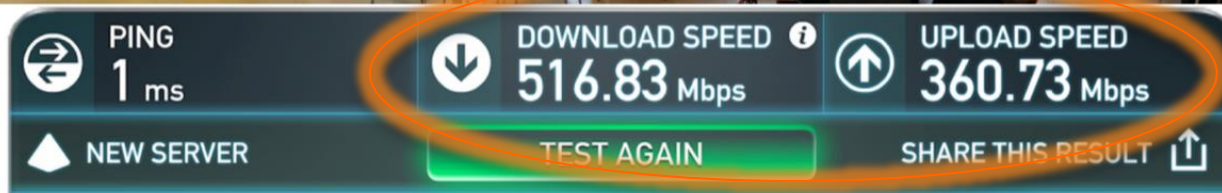


Cruise Ships - Carnival/Princess

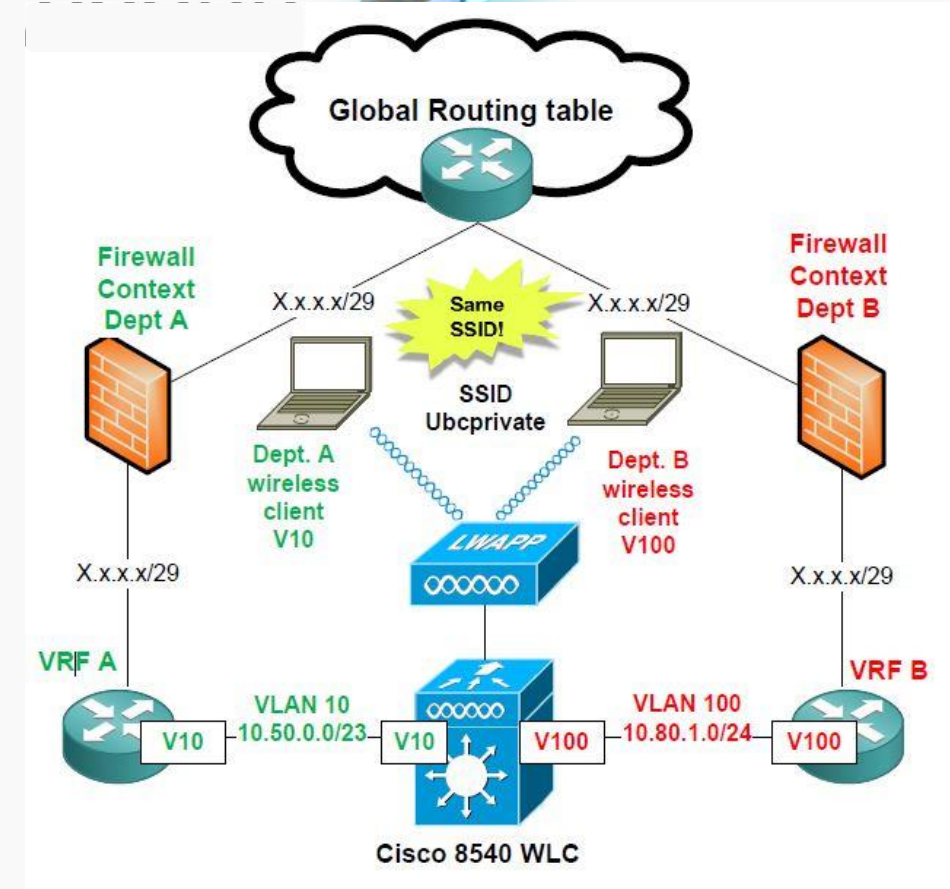


Wireless in Higher Ed

- Good WiFi is table stakes for universities
- Huge wireless network (5000 APs), < 6 SSIDs in all
- Connectivity is like oxygen



AP Name	Slots	AP Model	Ethernet MAC	Location	Country	IP Address	Clients
3802-1	2	AIR-AP3802E-A-K9	58:ac:	default location	CA	10.	27
3802-2	2	AIR-AP3802E-A-K9	58:ac:	default location	CA	10.	38
3802-KLNK	2	AIR-AP3802E-A-K9	58:ac:	default location	CA	10.	8
3802-4	2	AIR-AP3802E-A-K9	58:ac:	default location	CA	10.	107
3802-3	2	AIR-AP3802E-A-K9	58:ac:	default location	CA	10.	32



- 802.11AC Wave2 and NBASE-T
- Excellent service delivered

Scientific Compute

Massive Data Capture and Analysis

Needs and restrictions:

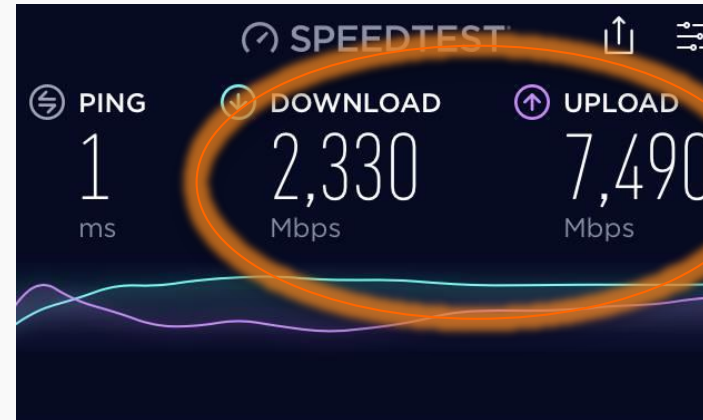
- One microscope produces **500GB images**
- Using “regular enterprise network service”

Q: “How can we get more done?”

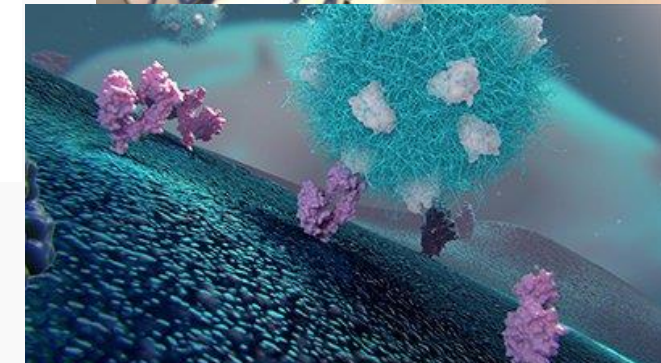
Impact of NBASE-T:

- Enterprise switches & NICs deliver 5-10Gb/s
- IT/networking able to say “Yes”

A: “Remove the bottleneck with NBASE-T”



[ASUS XG-C100C](#)



Resort Hotel vs. Cruise Ship



Encore Las Vegas

<https://www.emporis.com/buildings/216660/encore-las-vegas-nv-usa>
https://en.wikipedia.org/wiki/Encore_Las_Vegas

Opened: 2008
Rooms: 2,034
Floors: 48

Floor Space: 4.5 million sqft
Height: 631 feet
Width: 93 feet



Regal Princess

<https://www.princess.com/ships-and-experience/ships/gp-regal-princess/>
[https://en.wikipedia.org/wiki/Regal_Princess_\(2014\)](https://en.wikipedia.org/wiki/Regal_Princess_(2014))

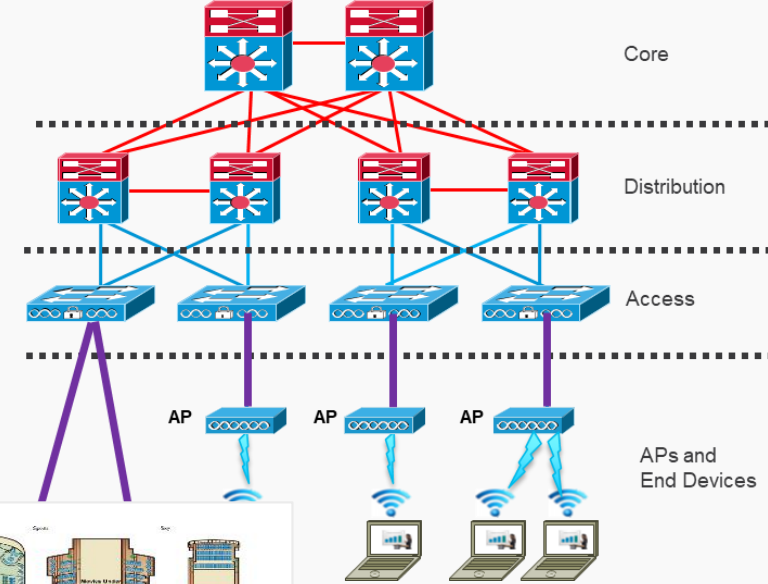
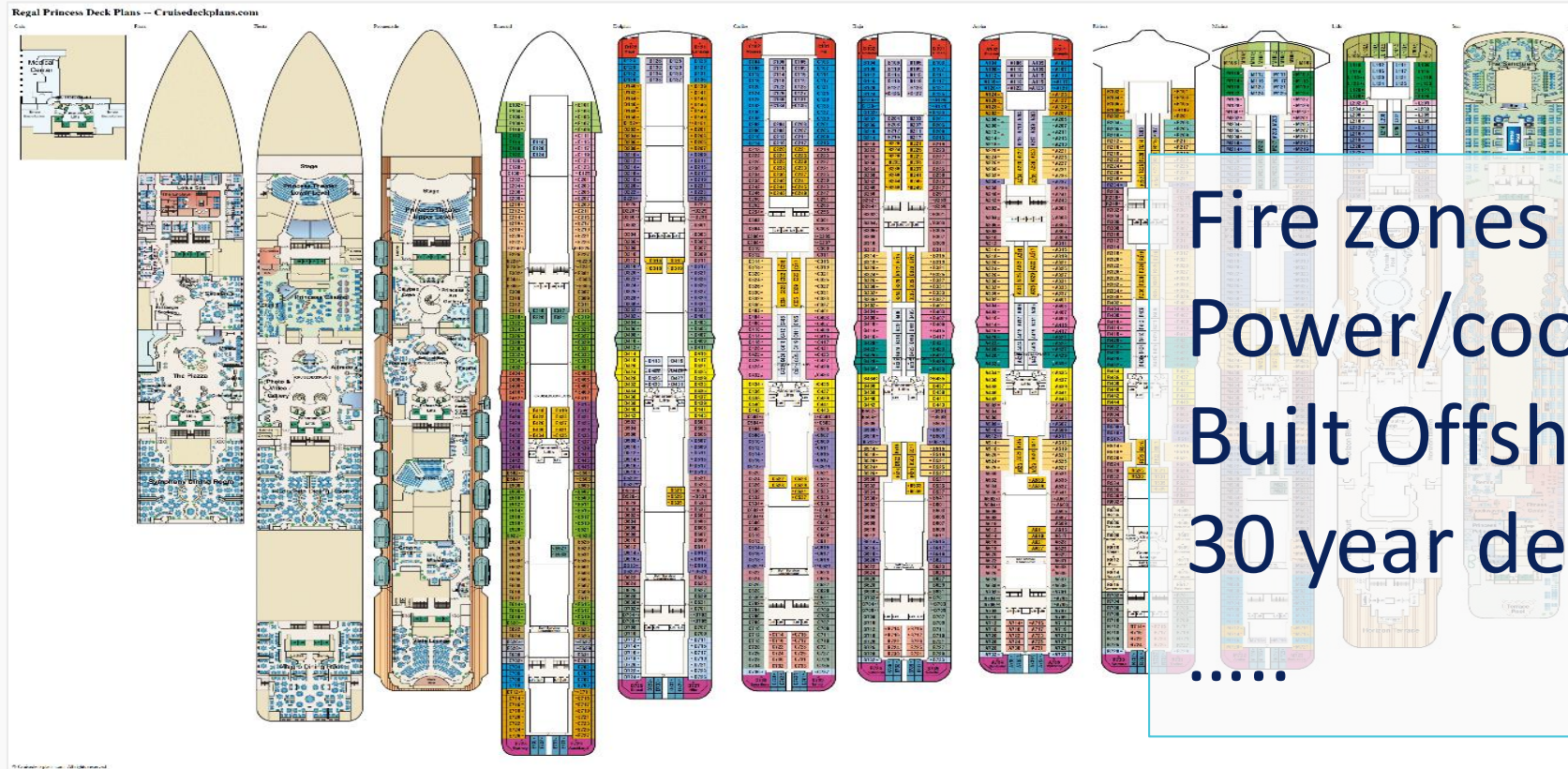
Inaugural Cruise: 2014
Cabins/Guests: 1,780/3,560
Decks: 19

Tonnage: 141,000
Length: 1,083 feet
Height: 217 feet

Cruise Ship Considerations

Like an Enterprise network, but ...

<https://www.cruisedeckplans.com/assets/deckimages/org/www.cruisedeckplans.com-deckplan.php-ship=Regal-Princess.png>



Fire zones
Power/cooling/airflow
Built Offshore
30 year design lifespan
.....

Product Sampler

More at www.nbaset.org



[Apple iMac Pro](http://www.apple.com/imacpro)

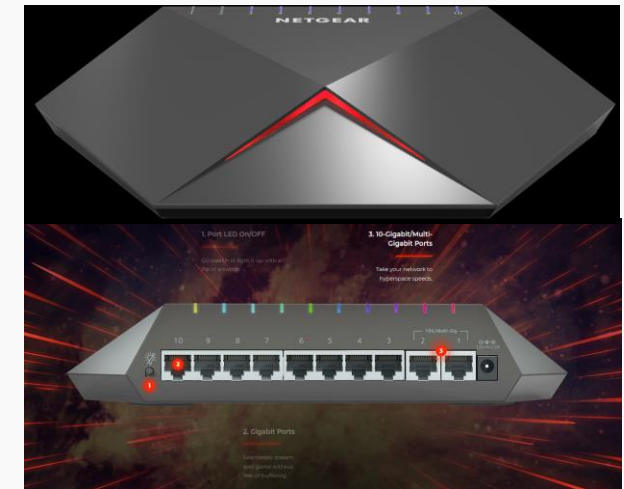
Vision Systems
DESIGN
2017 Innovators
Awards
GOLD



<https://www.e2v.com/products/imaging/cameras/uniiqa-4k-mono-and-colour/>



<http://www.buffalotech.com/products/terastation-5010-series>



[Netgear Gaming Multi-Gig Ethernet Switch](http://www.netgear.com/products/switches/gaming)



WRAP-UP

NBASE-T – Key Industry Messages



“ *NBASE-T* will transition *wireless LAN to being additive* to the *Ethernet switch market*. NBASE-T will require higher speeds through the network and *drive higher prices* which will *amplify revenue growth*.

Tam Dell’Oro
Founder & CEO, Dell’Oro Group
January 2018

NBASE-T will play a critical role as *PCs, APs, and other IOT* devices begin to drive connections in excess of 1 Gbps. NBASE-T is *continuing to gain traction* with all campus switch vendors expected to ship offering by the end of 2018 and port shipments expanding to be a *significant portion of the enterprise market*.

Alan Weckel
Founder & Technology Analyst
650 Group
January 2018

The *growth of NBASE-T* in the enterprise market is accelerating rapidly. It’s key that CIM help its readers *maximize the benefits for their customers and networks*. I look forward to working with the NBASE-T Alliance and the Ethernet ecosystem to continue to deliver *trusted advice to the industry*.

Patrick McLaughlin
Chief Editor –
Cabling Installation and Maintenance
February 2018

”

The fastest speeds...



Cat6A

... need specific infrastructure!

Rethink possible..



Cat5e/6

Add Value

Evolve the network,
enable the business

Thank You

