



Wi-Fi 6 – 2020

Presented by Kevin W. Tolly
Founder, The Tolly Group



www.tolly.com

▶ Latest Trends & Benefits



Wi-Fi Growth Forecast – 1



There will be 3.6 networked devices/connections per person and nearly 10 devices and connections per household by 2023.



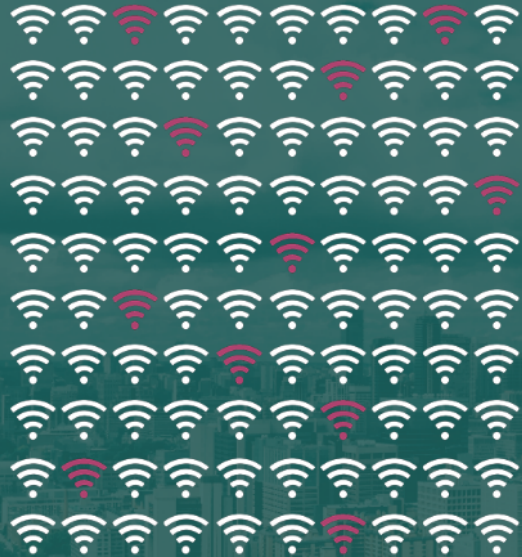
Cisco Annual Internet Report 2020

www.wi-fi.org

www.tolly.com
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Wi-Fi Growth Forecast – 2



Wi-Fi 6 hotspots will grow 13-fold and will make up 11 percent of all public Wi-Fi® hotspots by 2023.



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Wi-Fi 6: Some Key Enhancements and Practical Benefits

Tech Enhancement	Acronym/ Reference	Purpose	Practical Benefit
Orthogonal Frequency Division Multiple Access	OFDMA	Subdivide channel	Improve performance with smaller data sizes (e.g. VoIP). OFDMA brings reliability to Wi-Fi operation. With AP scheduling clients, access to medium is regulated and thereby reliable.
Spatial Reuse (Overlapping Basic Service Set)	SR and OBSS aka "coloring"	Enables decentralized cooperation	Enables channel reuse, better spectrum use in dense deployments
Target Wake Time	TWT	Allow client wake times to be scheduled (i.e. "longer sleep time")	Improve battery life especially for IoT and handhelds
1024 Quadrature Amplitude Modulation	1024 QAM	More advanced modulation technique	Efficient transmissions. Transmit 25% more data, improves channel availability
Multi-User Multiple Input Multiple Output	MU-MIMO	Simultaneous transmissions. Extended to include uplinks	Improve throughput for multi-antenna stations



Increasing High-bandwidth & High-concurrency Services

Smart manufacturing

AGV
>512Kbps , < 10ms



Smart Home



Smart Education



Future office

Remote work / holographic office
>400Mbps , < 50ms



Future Smart City



Cloud VR / AR

Highly interactive ultra-HD
game
>400Mbps , < 10ms



Typical Applications of Future Smart Education

VR / AR Teaching



Capacity: 30 users
Coverage: 60m²
Mobility: able to move around
Terminal type: fixed
Latency: < 20ms
Uplink speed: 5Mbps
Downlink speed: 60Mbps

Capacity: Internet access for 50 users + screen mirroring for 10 users
Coverage: 1.36m² / user
Mobility: limited mobility
Terminal type: not fixed
Latency: < 50ms
Uplink speed: Android 10Mbps / iOS 40Mbps
Downlink speed: 32Mbps



Smart Classroom

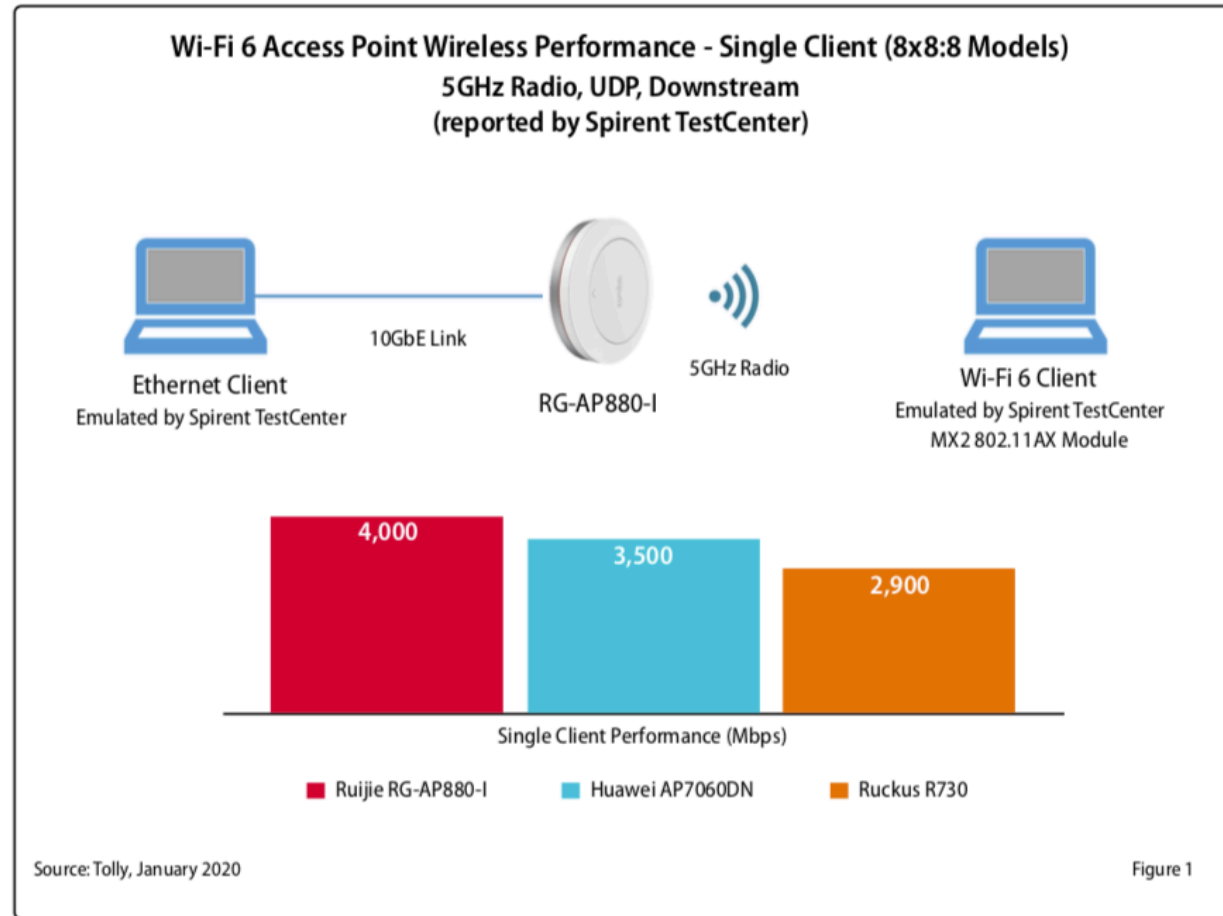
Wireless Cloud Class



Capacity: 60 users
Coverage: 100m²
Mobility: fixed
Terminal type: fixed
Latency: < 50ms
Uplink speed: 5Mbps
Downlink speed: 20Mbps



Ruijie Achievements – 1





Ruijie Achievements –2

Ruijie Wi-Fi 6 Access Points User Capacity

User Capacity	
RG-AP880-I	1,024
RG-AP850-I(V2)	1,280 (the largest capacity test that Tolly has run to the test date)
RG-AP840-I	1,024
RG-AP820-L	1,024

Source: Tolly, January 2020

Table 2



Conclusion

- ▶ Wi-Fi 6 is a Game Changer
- ▶ 2020 is the Year of Wi-Fi 6
- ▶ *Thank You!*