India Spectrum Management Conference
Considerations for Unlicensed Spectrum in India

Alan Norman
Public Policy Director
Meta Platforms, Inc.

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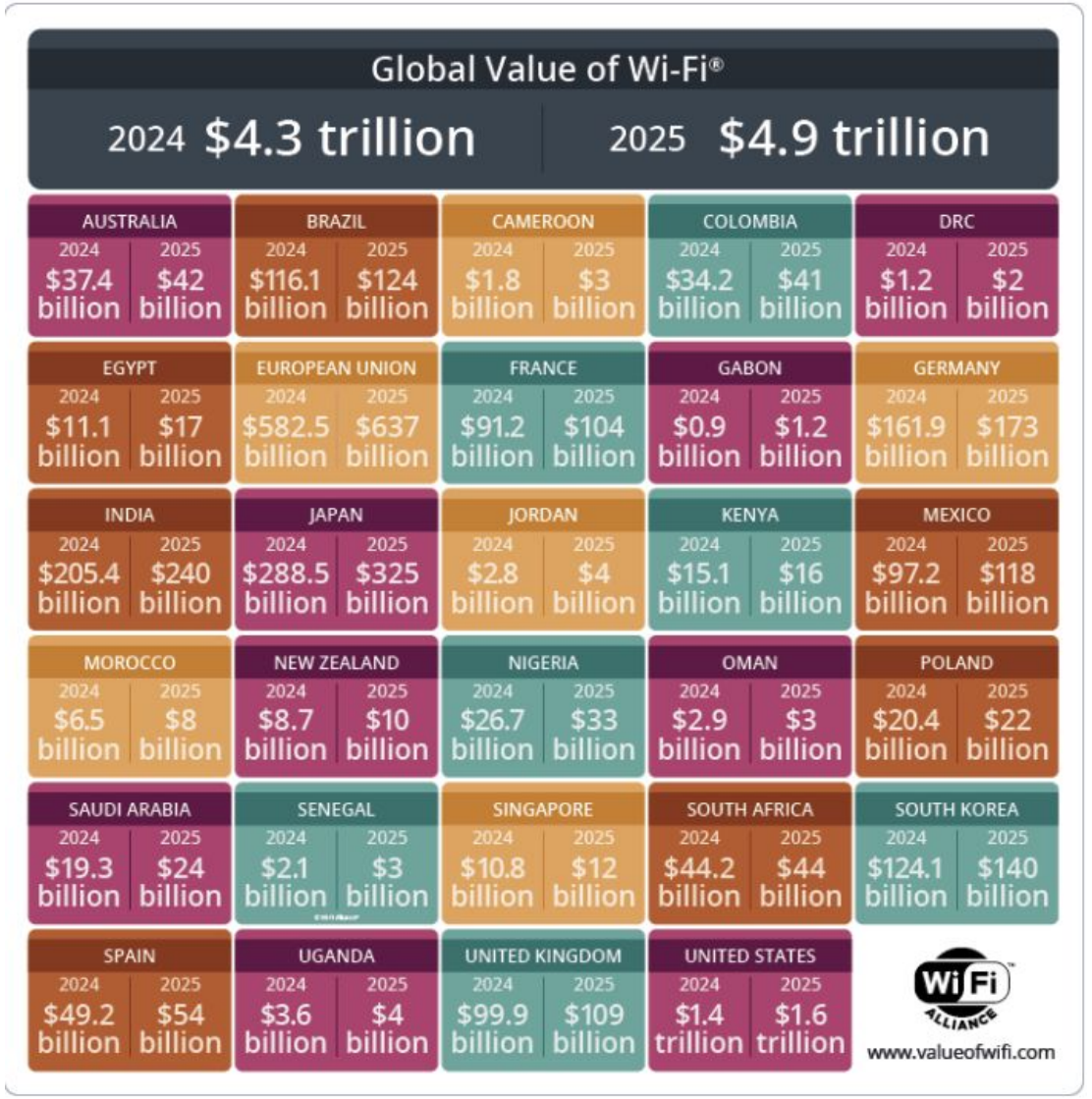
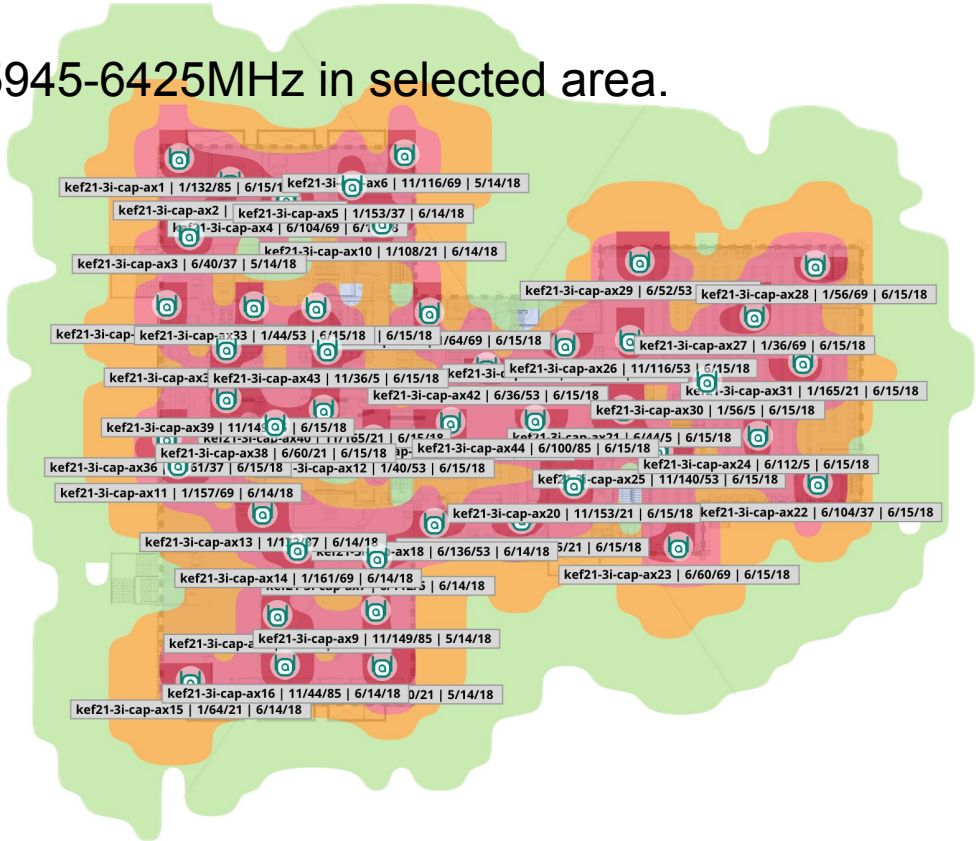
Value of Wi-Fi to grow by 600 Billion in 2025



Enterprise Deployments have grown significantly

- 50 access points deployed on a single floor of the library building to provide a seamless coverage and sufficient capacity.
- 2.4GHz Wi-Fi decommissioned in Dec. 2024 due to poor user experience. Bandwidth limitation, high CCI, interference from non Wi-Fi devices.
- All channels (**21x20MHz**) in 5GHz band are used to avoid high CCI in open space.
- **6x80MHz** channels in 5945-6425MHz in selected area.

UNSW



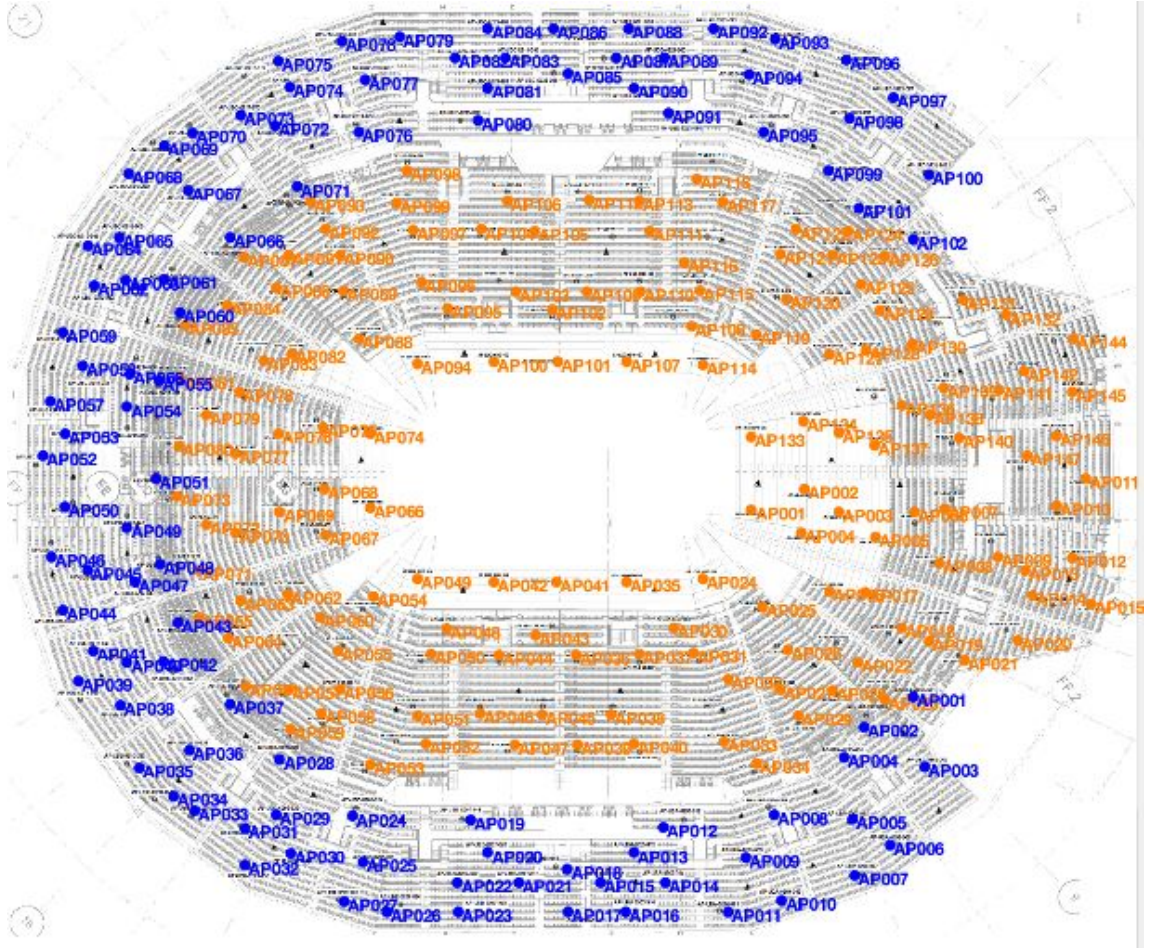
Significant adoption at Large Public Venues

CHASE CENTER

"The Warriors are obsessed with creating world class experiences, and providing fast, reliable connectivity for sold out crowds of 18,000+ fans at games and events at Chase Center is an incredibly important part of that. With the addition of Wi-Fi 6E Access Points in the arena bowl, we can provide fans a more immersive experience that we believe is unmatched by any other professional sporting venue."

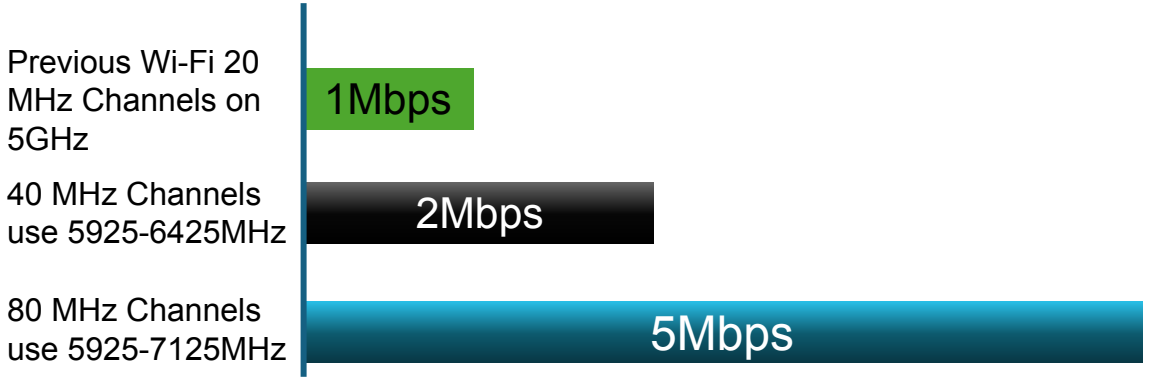
Brandon Schneider, Warriors President and Chief Operating Officer

Ultimate fan experience at Chase Center



- Supports goal of delivering the ultimate fan experience for the Golden State Warriors.
- Challenge to provide high performance for immersive applications and live streaming in a dense environment.
- Deployed 250 Wi-Fi 6E APs in the bowl area, approximately 1 AP per 60 seats.
- Proximity of APs requires 20+ non-overlapping channels to avoid co-channel interference issues.

Testing and simulations in the Chase center indicate that the expected user experience will be 5x better if 80 MHz channels are available vs 20 MHz



The Kallang – Singapore Sports Hub

https://news-blogs.cisco.com/apjc/2025/11/06/kallang-alive-sport-management-elevates-fan-experiences-with-next-generation-public-wi-fi-at-singapore-sports-hub/

And outdoors as well…

BottleRock Napa Valley

- Over 650 CW9179F access points
- Over 44 TB of data transferred
- Over 55,000 unique Wi-Fi devices
  - OpenRoaming and WPA3 OWE

https://www.cisco.com/site/us/en/about/case-studies-customer-stories/live-nation-entertainment.html

Rapid uptake for ISPs and Residential

COMCAST

- 31.8 million **broadband customers***
- 7.5 million **mobile lines***
- 23 million **Wi-Fi hotspots**

90% of smartphone usage over Wi-Fi

94% of devices in home connect over Wi-Fi

1% of customers have ~150 connected devices

Wearables and AI driving innovation and adoption

6 GHz band delivers US $2.94 trillion for USA

2025-2027 cumulative

Economic value of RLAN access to full 6 GHz band = US$2.94 trillion

Economic value of RLAN access to lower 500 MHz of 6 GHz band = US$830 million

Cumulative economic benefit increases by 72% / US$2.11 trillion with unlicensed access to full band

Reasons why economic value grows with full band –

- **Improved capacity and latency for Enterprise networks**
- **6 GHz relieves congestion on 2.4 and 5 GHz bands, reducing utility**
- **Differentiated benefit accelerates adoption of Wi-Fi**

Source: Telecom Advisory Services (2025)

Delicensing Lower 6 GHz band delivers USD $2.9 trillion for India

2024-2034 cumulative

Economic value if Wi-Fi access limited to existing bands plus lower 500 MHz of 6 GHz band = US$ 2.9 trillion

Auction and future uptake of IMT in upper 700 MHz = US$ 0.25 trillion

Sources of economic value –

- Public and Free Wi-Fi serving the needs of the un(der) served broadband population) **($489B)**
- Improved Residential and Rural Wi-Fi, including reduced latency **($241B)**
- Improved speeds for Enterprise Wi-Fi, including reduced latency **($2,112B)**
- Cost Savings and Revenue for ISPs **($3B)**
- Growth for India Wi-Fi Industry **($67B)**

Source: Telecom Advisory Services (2024)

Conclusion

1. **Request that India move forward with Delicensing Lower 6 GHz now**
   - Industry and ecosystem are ready
   - Substantial economic and public value to be unlocked ($2.9 trillion)
   - A key to enabling innovation for India, especially for AI

2. **Recommend that India proceed cautiously with Licensing on the Upper 6 GHz**
   - There is still regulatory uncertainty globally and a nascent ecosystem, which will limit Auction Revenue and prolong Deployments
   - There are unresolved technical considerations that implicate economics and usability
   - There is substantial economic value at stake ($1 trillion), and
   - Rapidly evolving AI use cases may dictate different spectrum policy

Thank you!