

Future Wireless Working Group Home

Group Summary

In March 2020, Internet2 and several of its members established the Future Wireless Working Group to explore areas of collaboration regarding the use of emerging wireless technologies on campuses and across the R&E community. The focus of the group has been the recently commercialized Citizens Broadband Radio Service (CBRS) spectrum and its use by campuses. CBRS presents, for the first time, the opportunity for campuses to own and operate fully private LTE and soon 5G mobile and fixed wireless broadband networks (much like they run private Wi-Fi networks) without the need to spend on expensive spectrum licenses. This was made possible by the FCC's adoption of a shared access model for the 150 MHz of mid-band spectrum (3550 MHz to 3700 MHz) between commercial and Federal/DoD incumbent users.

The shared model employs dynamic spectrum management to mitigate contention across three tiers of priority. The highest priority is for Incumbent Access (IA) users of the spectrum (primarily US Navy radar systems) followed by Priority Access License (PAL) auction winners, which are granted interference protections for 70 MHz of the 150 MHz, and capped up to 40 MHz each, and lastly, General Authorized Access (GAA) users. While GAA users are not provided with any interference protections, their access is coordinated by a cloud-based spectrum access system (SAS). This spectrum management and coordination is performed by FCC approved Spectrum Access System (SAS) administrators via cloud-based systems and include companies such as Amdocs, Commscope, Federated Wireless, Google and Sony. Each university private CBRS network operator would register their network with a single SAS administrator in order to gain access to CBRS spectrum. SAS registration and fees apply and entails commercial agreements with each SAS administrator.

Private LTE networks provide a full mobile and fixed wireless experience including Quality of Service (QoS), seamless high-speed hand-offs, hardened security (SIM cards), low latency, longer range and less power consumption versus Wi-Fi. These capabilities allow campuses to support a full range of mission critical applications, extending their networks to remote locations, improved indoor and outdoor wireless coverage, support research activities, and potentially neutral host network access and macro off-load business models with traditional and emerging Mobile Network Operators (MNOs) and Cable Mobile Virtual Network Operators (MVNOs) .

This working group hosts topical discussions as well as meetings with key ecosystem participants including SAS providers, CBRS equipment providers and managed service providers, with the goal of providing community recommendations and actions.

Sub Groups

This group has three sub groups with different focuses:

- Future Wireless Working Group Business Subcommittee: focused on recommendations around business and financial models.
 - Areas of Focus:
 - Identification of opportunities for university and higher education collaboration on pursuing new CBRS enabled business models, including Private LTE roaming across campuses, and CBRS neutral host networks.
 - Establishing objectives and value propositions based on CBRS private networks that address university and higher education strategic research and development objectives, while enhancing wireless network coverage and quality in support of smart campus initiatives.
 - Engaging with carriers and service providers to plan and conduct proof of concepts for solutions such as neutral host network access and in the future network-to-network roaming.
 - Maintaining ongoing business development and engagement with mobile operators and other service providers to enhance prospects for future collaboration and business relationships on CBRS and other emerging wireless technologies.
- Future Wireless Working Group Technical Subcommittee: focused on recommendations around technical solutions.
 - Areas of Focus:
 - Review of university and higher education institutions use cases and technical capability requirements.
 - CBRS technical planning and requirements development in support of proof of concepts such as Private LTE/5G roaming and neutral host network access.
 - 4G and 5G technology assessments and recommendations.
 - Meetings with CBRS technology vendors to deepen and expand understanding of private LTE/5G equipment and software capabilities and limitations.
- NET+ Future Wireless Advisory Group: focused on potential brokered service cloud offerings in the CBRS and/or 5G spaces.

Participating Institutions

Arizona State University
Boston University
Colorado University
Duke University
Princeton University
Sun Corridor Network
Texas A&M University
University at Buffalo
University of Delaware
University of Delaware
University of Kentucky
University of North Carolina
University of Oregon
University of Virginia
Utah Education Network
Virginia Tech

How to Participate

This group is open only to Internet2 members. If you are an Internet2 member and are interested in participating in this group, please [request to be added here](#).

Future Activities/Meetings

- Next call: TBD

Documents

Documents currently available to group members only.

Past Meetings

- General Group: June 25, 2021 11AM ET
- Vendor Meeting with General Group: April 28, 2021 11AM ET
- Vendor Meeting with General Group: April 7, 2021 4pm ET
- Vendor Meeting with General Group: March 30, 2021 4PM ET
- Vendor Meeting with General Group: March 30, 2021 10AM ET
- Vendor Meeting with General Group: March 23, 2021 4PM ET
- Vendor Meeting with General Group: March 17, 2021 4PM ET
- Vendor Meeting with General Group: March 16, 2021: 4PM ET
- Business Subcommittee: March 2, 2021 1:30PM ET
- Technical Subcommittee: February 3, 2021 12:30PM ET
- Business Subcommittee: February 1, 2021 3PM ET
- General Group: December 10, 2020 1PM ET
- Vendor Meeting with General Group: November 18, 2021 1PM ET
- Vendor Meeting with General Group: November 11, 2021 1PM ET
- General Group: November 4, 2020 1PM ET
- Vendor Meeting with General Group: October 21, 2020 1PM ET
- Vendor Meeting with General Group: October 20, 2020 4PM ET
- Vendor Meeting with General Group: September 18, 2020 12:30PM ET
- Vendor Meeting with General Group: September 16, 2020 12:30PM ET
- Vendor Meeting with General Group: September 14, 2020 3PM ET
- Vendor Meeting with General Group: September 9, 2020 11AM ET
- General Group: July 24, 2020 11AM ET
- General Group: May 18, 2020 4PM ET
- General Group: April 2, 2020: 12PM ET
- General Group: March 12, 2020: 12PM ET

Recent space activity



[Ben Fineman \(internet2.edu\)](#)

[Future Wireless Working Group Home](#) updated Nov 05, 2021 • [view change](#)



[Cammie Willett](#)

[Future Wireless Working Group Home](#) created Jul 28, 2021

Space contributors

- [Ben Fineman \(internet2.edu\)](#) (331 days ago)
- [Cammie Willett](#) (431 days ago)