

Planning the Migration to Part 96



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Meet our Presenters

- **Ken Jackson**, Technical Account Director at Federated Wireless
Ken has more than 25 years of experience developing technology and telecommunications solutions with over 15 years in wireless and 3 years in CBRS. Past companies include several technology start-ups along with AT&T, Sprint PCS, and Citrix.
- **Todd Gore**, VP of Sales at Federated Wireless
Todd brings more than 15 years of experience in leading and building sales teams in the wireless and telecom industry with a specific focus on software sales to service providers. Before joining Federated Wireless, Todd was the regional vice president of sales for Telecom at Citrix Systems following the acquisition of ByteMobile in 2012.
- **Matt Mangriotis**, Director of Product Management at Cambium Networks, currently leading the Cambium Point-To-Multipoint (PMP) portfolio of products
Matt has spent over 20 years in telecommunications, leading New Product Introduction for Motorola. Maintaining continuity through the inception of Cambium Networks, Matt launched the PMP 450 portfolio. Most recently, Matt has launched the cnMedusa™ Massive Multi-User MIMO technology, enabling Cambium customers to take advantage of CBRS.

Fixed Wireless Market Dynamics

- Protect from New Entrants
- Increase Market Share
- Enter New Markets
- Attract Investment



CBRS Part 96 and You

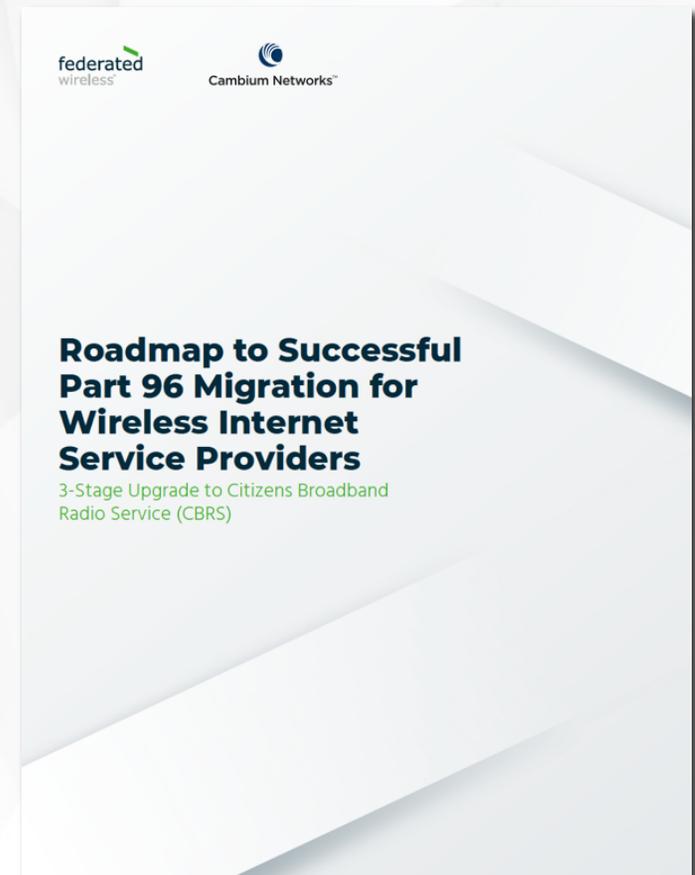
Business Case for CBRS

- Cost-effectively serve customers with higher transmit power limits
- Improve performance, customer satisfaction, retention, and Average Revenue Per Unit (ARPU) using up to 3x the current available bandwidth
- Strengthen competitive differentiation and expand service offerings
- Easily handle surges in connectivity demands



3 Steps for Migration

1. Pre-Migration (Immediately)
 - ✓ Understand Technical Landscape and Equipment Migration vs. Replacement
 - ✓ Understand other CBRS Operations Nearby
 - ✓ Get CPI Certified
2. Migration (Before October 17, 2020)
 - ✓ Activate SAS Subscription
 - ✓ Map out Migration Activities
 - ✓ Create Service Interruption Contingency Plan
3. Post-Migration
 - ✓ Confirm CBRS Network Operations
 - ✓ Update Service Plan and Pricing



Quiz Time

Answer in the Chat Window. First correct answer wins a \$25 Visa giftcard!

CBRS includes which channels?

- a. 3650 - 3700 MHz
- b. 3600 - 3700 MHz
- c. 3550 - 3700 MHz
- d. 3700 - 3900 MHz

Answer

CBRS includes

- a. 3650 - 3700 MHz
- b. 3600 - 3700 MHz
- c. 3550 - 3700 MHz**
- d. 3700 - 3900 MHz

Tips for Migration

1. Choose SAS and OEM providers wisely
 - Coastal Operations need robust ESC network
 - Operational Support Considerations
 - Proven OEM and SAS Integration Program
 - RF Planning / Spectrum Prediction Tools
 - 5G NR Upgrade Path / Roadmap
2. Start now with some service areas, get a process and proceed with migration in a timely fashion
3. Seek clarity and understand tools available from SAS and OEMs to understand how to simplify the process
4. Engage in forums / chat communities learning from others (RWA, Facebook WISP groups, My Federated)



Federated Wireless Offerings



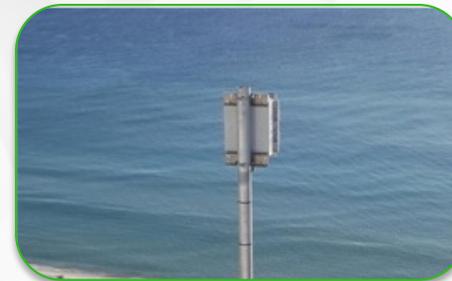
Spectrum Controller

Access to shared spectrum, at cloud-scale and 99.999% reliability



Spectrum Management

Visual tools for planning, managing, analyzing



Nationwide ESC Network

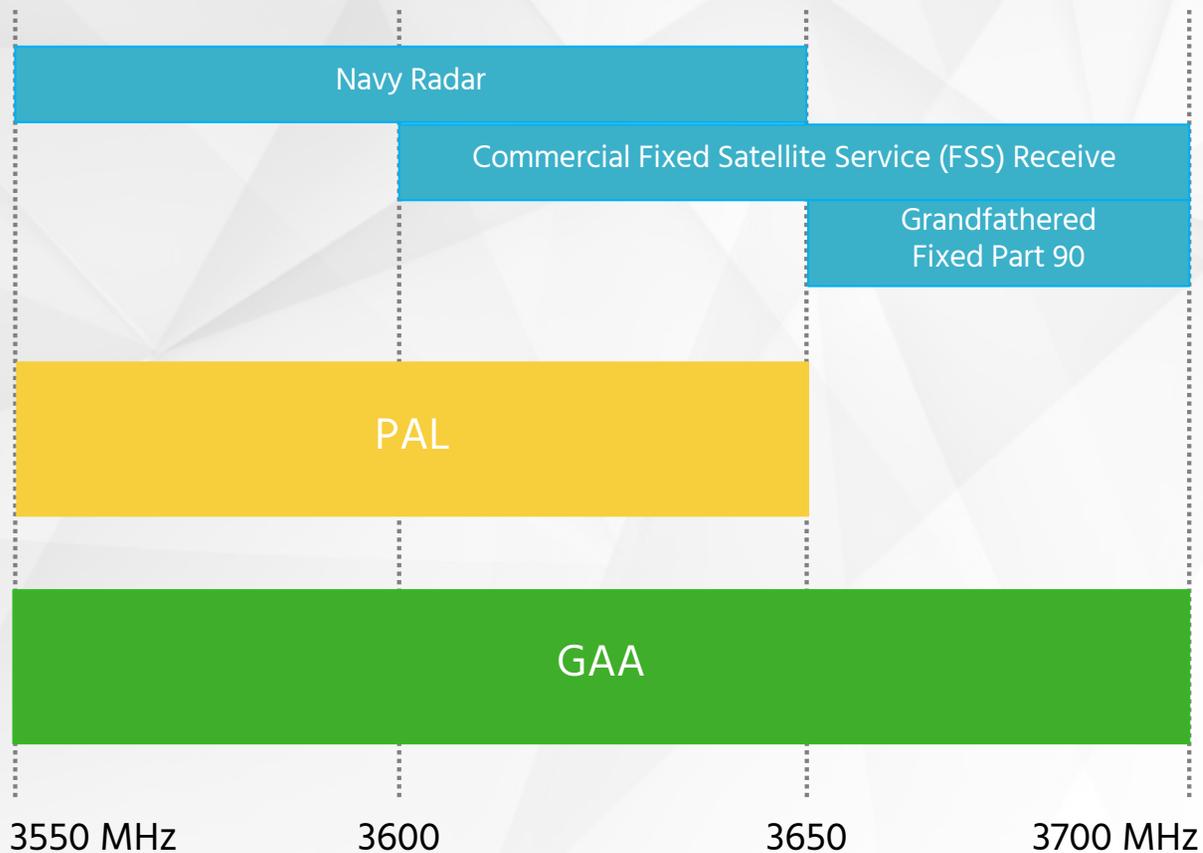
Securely protects Naval incumbents and allows access to lower 100MHz



Online Training

WinnForum Accredited CPI Training and non-certificate programs

CBRS Sharing Paradigm – The Details



Incumbents

- Protected from lower tier users.
- Shipborne and land-based radars
- Navy periodically uses 10 -20 MHz in select locations – 19 ships
- 17 in-band FSS stations
- Part 90 user's transition to CBRS

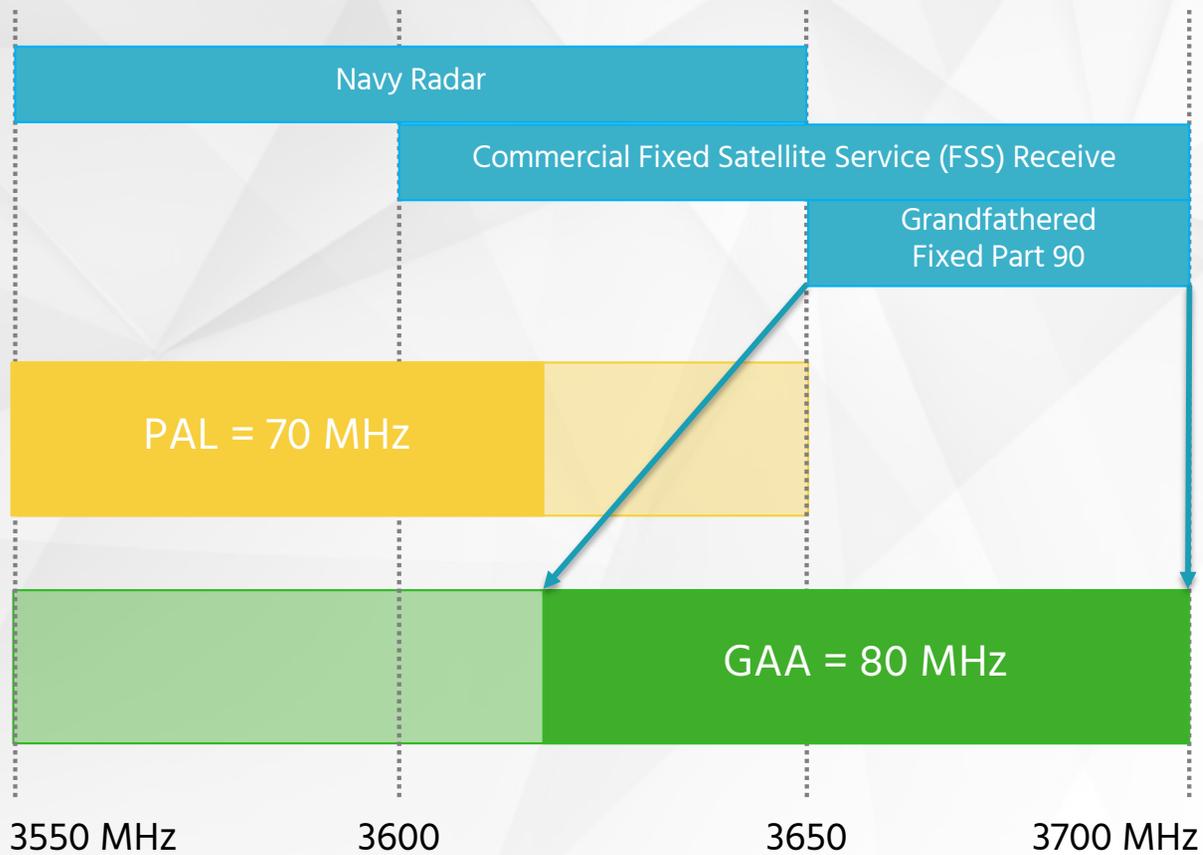
Priority Access License

- Use-or-share priority over GAA
- Licensed via auction (4 max per)
- 10 MHz blocks, up to 7 licenses
- US County based – 10-year term

General Authorized Access

- Can use any spectrum not in use
- Must yield to higher tier PAL and incumbent users
- Available today until PAL Auction and 2021 implementation

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Why Federated ?

Shared Spectrum is All We Do

- **Telco-Grade Reliability**
 - Telco-Grade 99.999% service availability
 - Nationwide triple redundant FCC approved ESC Network, allowing access to lower 100 MHz in all continental US coastal areas
- **Partner Integration Program**
 - 40+ Commercial OEMs integrated with FW SAS
- **Unparalleled Support**
 - 24 x 7 x 365 NOC
 - Knowledge Base / Community Forum for education and support
- CPI Training program developed with Federated SAS examples has certified more CPIs than any other CPI training
- We don't use an info@email address for tech support
- We will never compete with you



Quiz Time!

Answer in the Chat Window. First correct answer wins a \$25 Visa giftcard!

Which category(s) of CBSD is/are required to be installed by CPIs?

- a. Category A devices
- b. Category B devices
- c. Category B devices and some Category A devices
- d. None of the above

Answer

Which category(s) of CBSD is/are required to be installed by CPIs?

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- c. Category B devices and some Category A devices**
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CBRS Solution from



- **Software Defined Radio** technology that evolves over time
 - Field-proven platform, tens of thousands have already made the transition!
 - **Seamlessly upgrade** existing 3.65 network to Part 96 (CBRS)
 - Alternative to complex and expensive LTE-based systems
 - Many options for scalability and performance, choose the right equipment for your network



- Cambium hosts the domain proxy to interface with Federated Wireless, and will support the end to end solution



Q&A



Contacts

- **RWA – Rural Wireless Association**
<https://ruralwireless.org/>
- **Federated Wireless**
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- **Cambium Networks**
cambiumnetworks.com
Matt Mangriotis - matt.mangriotis@cambiumnetworks.com

Thank you!

A photograph of a farm scene. In the foreground, there is a field of young green plants in neat rows. In the middle ground, a large, multi-sectioned red barn with a dark roof stands prominently. To the right of the main barn, there is a smaller, single-section red barn. In the background, there are more farm buildings, including a white house and a white silo, surrounded by trees and a fence. The sky is a deep blue with scattered white clouds.

Thank You

Look for the
Part 96 Migration Roadmap in your
inbox within 24 hours