The New White Space Database

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Abstract

- **A discussion of general administrator coordinated geographic spectrum sharing with TV Bands white spaces as a use case**

- **Suggestions for administrator communication features that may accommodate varying parameters required for operation in different regions, spectrum allocations, and application types.**
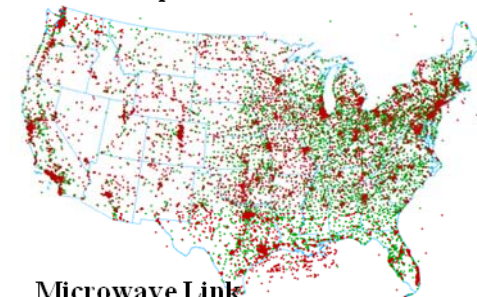
White Space Potential Not Limited to TV Bands

Television Transmitters

Many geographic spectrum sharing strategies are possible. Consider, for example:

- **Public re-use scenarios**

    –Administrator-assisted spectrum sharing can support coexistence in many additional bands beyond VHF/UHF

Satellite Uplink/Downlink

- **Private re-use scenarios**

    –Consider example of "private commons" where private spectrum is made available for other internal applications

Microwave Link

    –Example: Employ aircraft training spectrum for other Government-only uses when aircraft aren't flying
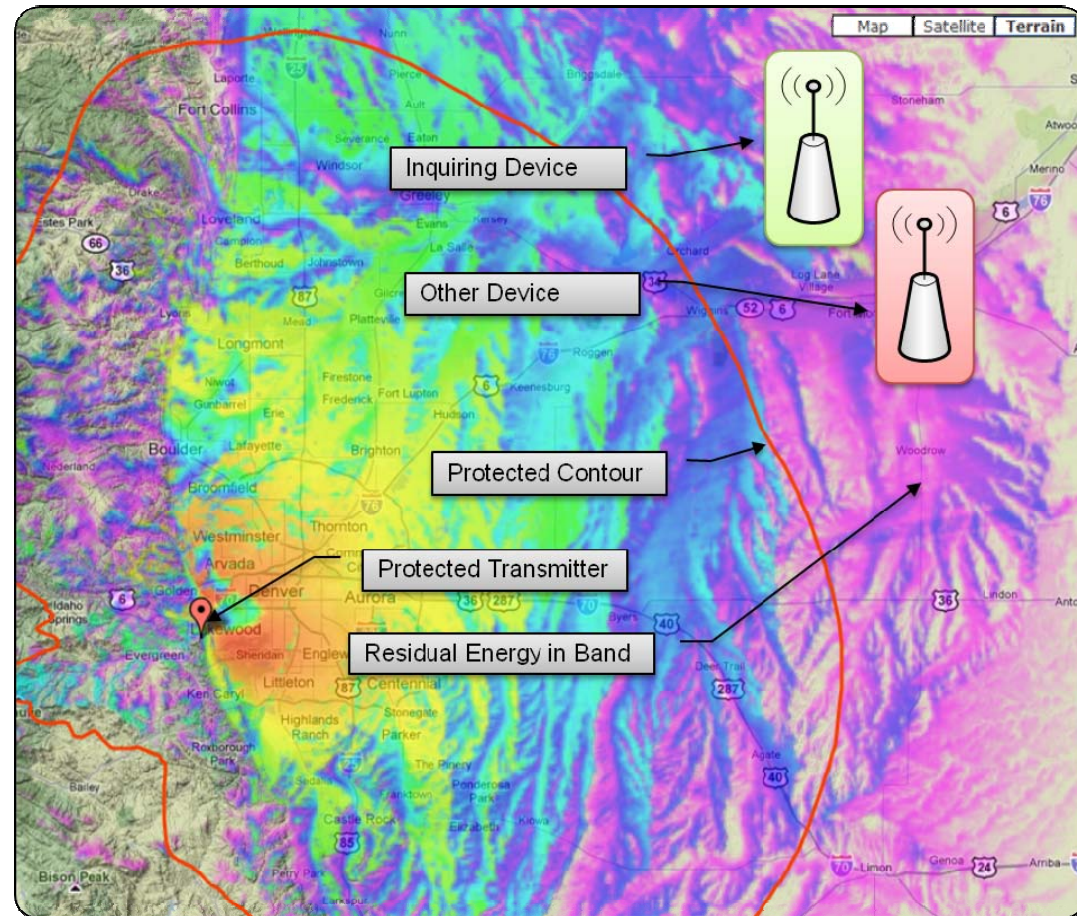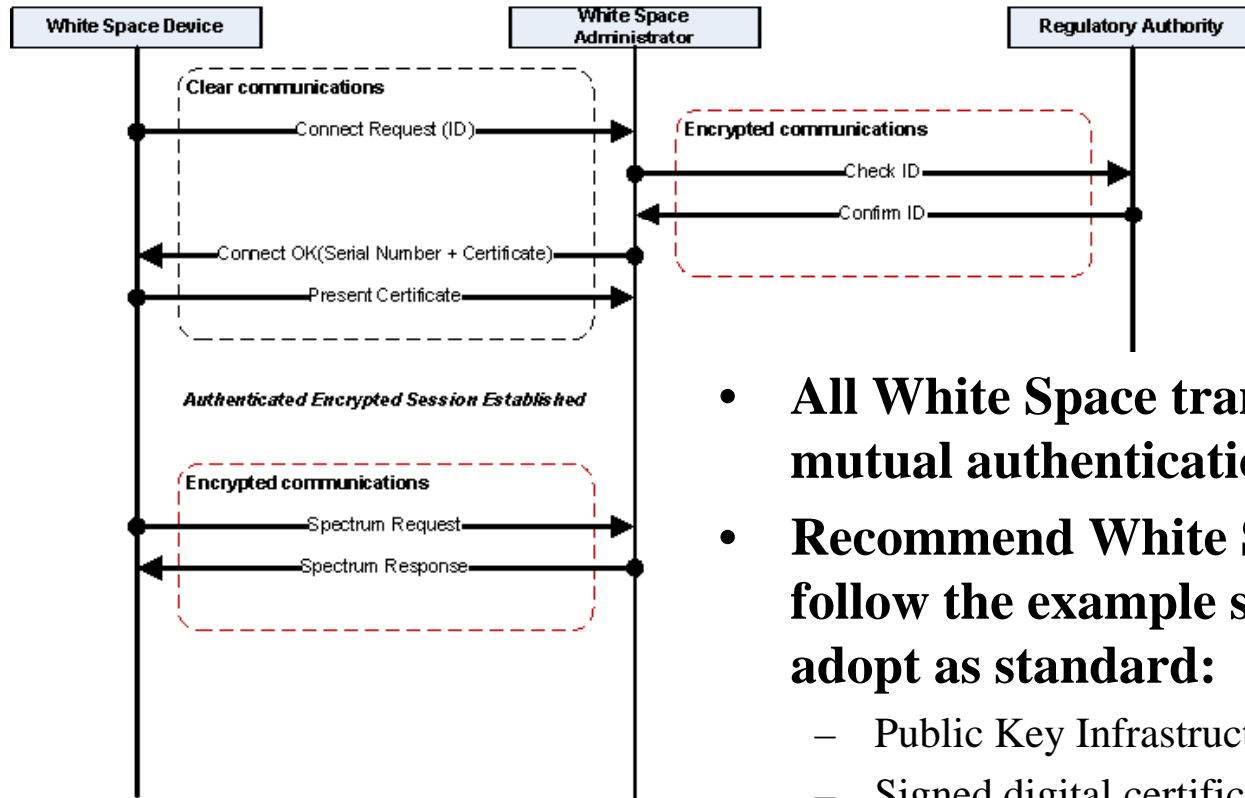
White Spaces are Not Always Suitable for Use

Devices must understand their Spectrum Environments

A White Space administrator can provide comprehensive situational awareness to devices including:

- **Legal spectrum availability**
  - e.g. Channel lists

- **Presence & impact of other devices**
  - e.g. by frequency

- **Channel power in band at location**
  - e.g. total and component

- **Spectrum environmental details**
  - Transmitter distance & heading
  - Service types and TX power
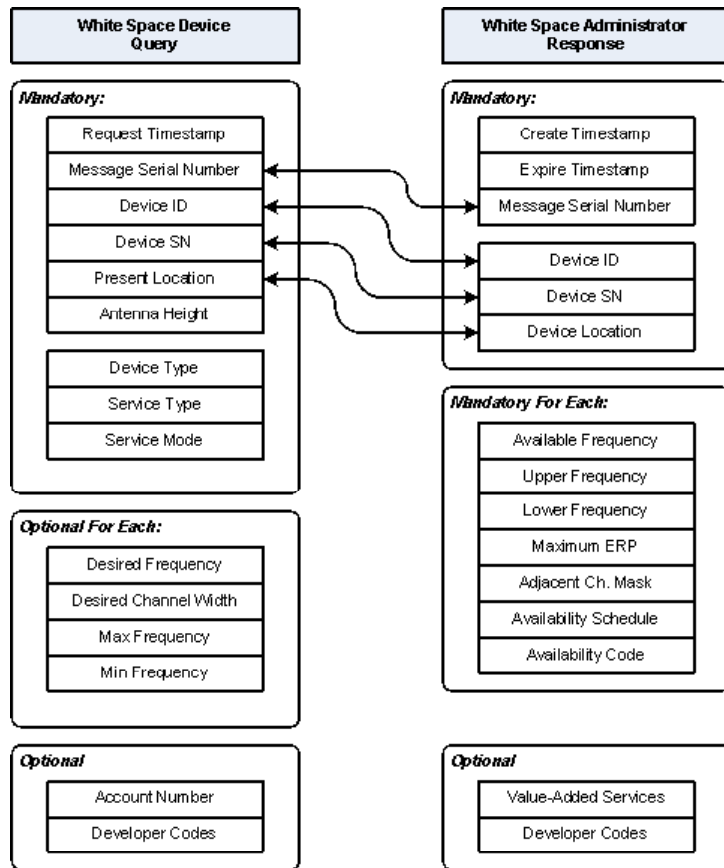 - Schedule and duty cycle
  - Etc.

White Spaces Require Secure Communication

- **All White Space transactions require mutual authentication**

- **Recommend White Space ecosystem follow the example set by WiMAX and adopt as standard:**
  - Public Key Infrastructure
  - Signed digital certificates for all administrators
  - Embedded digital certificates in devices
    - In firmware or hardware (not software)

White Spaces Not Limited to 6 MHz Channels

Recommend a message query/response format that accommodates diverse White Space operations that supports:

- Non-UHF frequencies
- Non-channelized allocation
- Sub-channelized assignments
- Variable emission allowances

- **Not all White Space devices may accommodate all available spectrum (e.g. UHF between CHs. 18-21 …)**
  - Let devices communicate their capabilities
- **Some devices may prefer certain frequencies over others (e.g. prefer above 614 MHz …)**
  - Let devices communicate their preferences
- **Some devices may prefer certain channel widths over others (e.g. 25 KHz SCADA …)**
  - Let devices communicate their intended application

Current Activities and Schedule

- **February 28, 2011**
  - Amendments to verify compliance with the final Rules must be submitted to the FCC

- **March 10, 2011**
  - First FCC-organized workshop to address administrator operation, consistency and compliance and to schedule public trials

- **Scheduled Activities**
  - Expect 2 to 3 additional workshops
  - Each separated by 3 to 4 weeks
  - Opportunity for public trials of administrator services
  - Demonstration of availability
  - Verification of compliance
  - Expect multiple administrators may become commercially available May/June/July time frame.

- **Receive weekly updates via DSA-Announce Google Group**
  http://groups.google.com/group/dsa-announce/subscribe

- **Contribute through the Wireless Innovation Forum**
  http://www.wirelessinnovation.org

- **Start listening to IETF PAWS**
  https://www.ietf.org/mailman/listinfo/paws

- **Contact Key Bridge**
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Thank you.

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References