Introduction to White Space

I-D: draft-probasco-paws-overview-usecases

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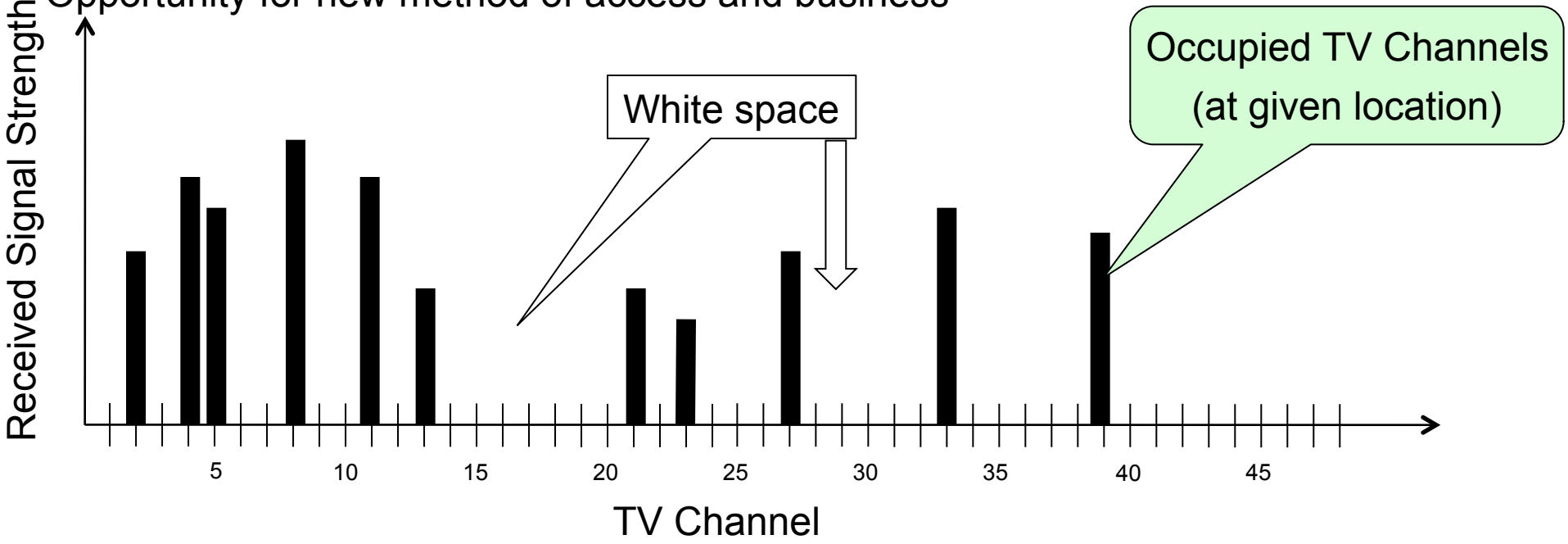
Overview

- Introduce White Space concept
- Why use White Space
- How does White Space work
- Relevance of PAWS work to IETF

What is White Space (WS)?

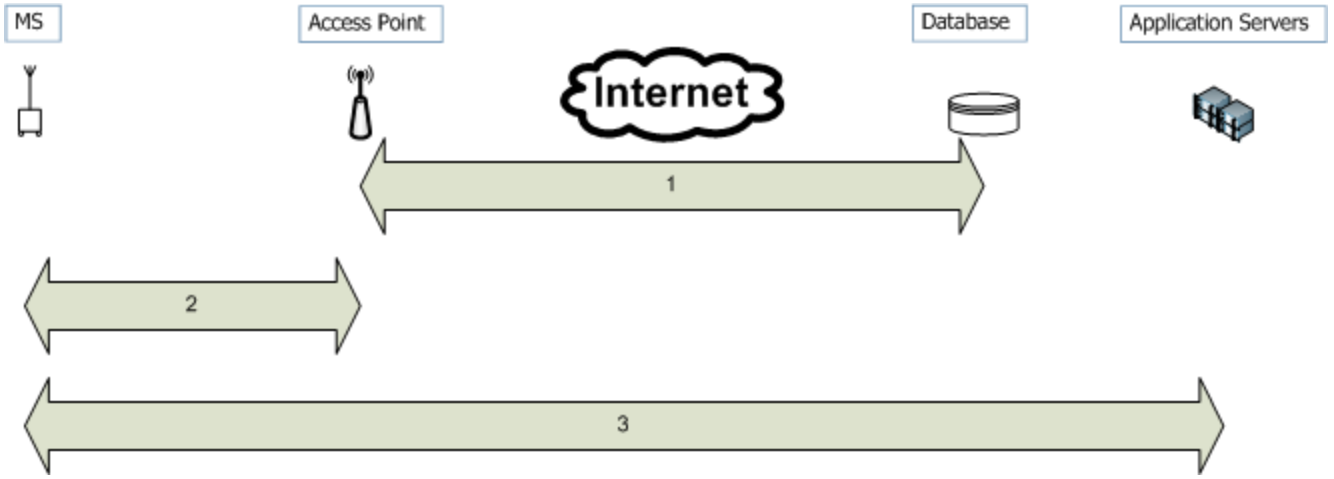
- White space (WS): In a spectrum band that is licensed to primary users, the part of spectrum that is unused by the primary user at specific **locations** and sometimes at specific **time**.
  - Example: Television Channels – not every channel is used in every town
- White space allows secondary users to use the portions of spectrum not actually used by the primary user. This **increases** the amount of available **spectrum**
- A key requirement is to **protect the primary user** from any interference.
- Opportunity for new method of access and business



Why use White Space?

- Radio spectrum is a **finite resource**, controlled & allocated by National Governments
- Spectrum resources can be better (or more optimally) utilized
- Governments around the world are investigating ways to **increase available spectrum**
- A typical example is the National Broadband Plan in the United States:
  - Expand opportunities for innovative spectrum access models by creating new avenues for opportunistic and unlicensed use of spectrum and increasing research into new spectrum technologies.
- Similar thinking in other Countries around the world
- White space **does not replace Wi-Fi**, or other, **it adds extra capacity**

How does White Space work?



1. AP is installed, powered on
   Registers with DB
   Sends Channel List Request, including location
   Gets Channel List
2. MS scans and finds AP. Associates with AP
3. AP assigns channel (which must be on Channel List from DB)
4. MS connects to internet via the AP, e.g. Web Browsing

→ **Requires database service** for specific locations and times,
"ask and answer"

Why PAWS is needed?

- Many Regions & Countries interested in White Space
  - European Union, United Kingdom, United States, India, Singapore, …
  - Each having jurisdiction to write own operational requirements
- Different spectrum bands are being considered, not just TV bands
- Many different kinds of devices may be able to use the same spectrum
- Single Global Standard
  - Country independent
  - Spectrum band independent
  - Device (phy/mac) independent

Background

WS/CC Demonstration Systems and Regulatory

- Other Demos

Microsoft

SPECTRUM BRIDGE

- Regulatory and Stds

FCC Federal Communications Commission

CEPT ECC Electronic Communications Committee SE43 report

Ofcom

IEEE Advancing Technology for Humanity

ETSI RRS

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NOKIA

CC and WS Developments Globally