

# PAWS: Problem statement

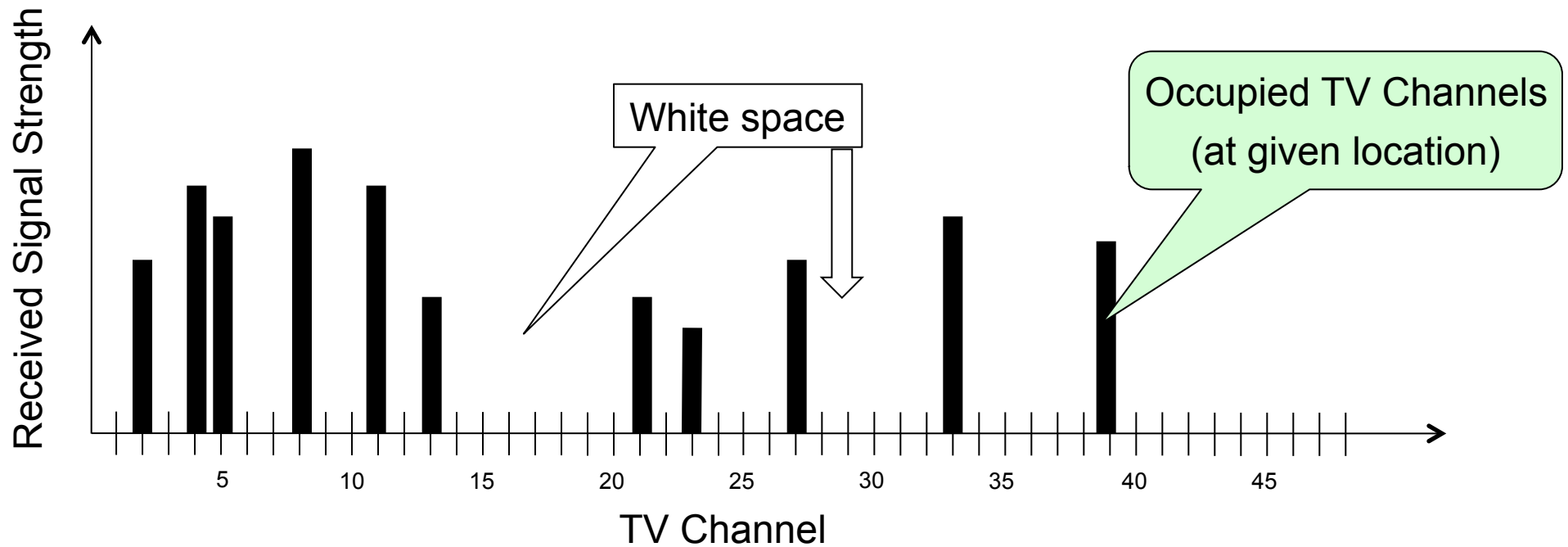
I-D: [draft-patil-paws-problem-stmt-02.txt](#)

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# Overview

- 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
- Concept of a primary user of the spectrum (licensed); However not all of the spectrum may be used all the time or at any location(s)
  - Opens up the possibility of the spectrum being used by secondary users as long as there is no impact to the primary user

# White Space



# Problem statement

- λ Devices can utilize spectrum on a secondary basis if they can either:
  - λ Sense that no one else is using it at a given time/location
  - λ Verify with a central entity (eg. Database) if spectrum is available for use
  
- λ Sensing is a difficult task
- λ Querying a database is much more simple and hence preferred
  
- In a nutshell: the problem being addressed is the ability to use spectrum by secondary users/devices at a given time/location without causing interference or problems to the primary user through a process of verifying spectrum availability by communicating with a centralized database(s) which store the most relevant and current information about spectrum availability.

# Problems related to querying a database

1. A Device needs to discover the relevant database to query
2. A query protocol that is understood by multiple databases and devices needs to exist
3. The data model used in the query needs to accomodate specific aspects of the spectrum, region and regulation
4. The device needs to be aware of the location where it seeks to find available spectrum

# Other issues

- Spectrum availability (bands) can vary across regions and countries
- The regulations governing the use of such spectrum also depends on regional and national regulatory bodies. The query protocol needs to take this info consideration
- The devices which intend to use the spectrum can vary in terms of their capabilities such as antenna height, power as well as whether they are fixed or mobile

# Next steps

Recommendation:

1. The Problem statement associated with PAWS should be progressed towards publication as an Informational RFC
- Alternatively:
2. The Problem statement can be included within the context of the requirements and use-cases I-D
- Opinions?
  - If we have consensus for (1), request adoption as WG document