TV White Space Solutions
Enabled through Spectrum Management Databases

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SPECTRUM BRIDGE

Spectrum Sharing => White Space

Spectrum Sharing is based on the principle of letting others used the unused spectrum (or white space)

TV White Space in the UHF band is reasonably harmonized globally.

The FCC rules are in place

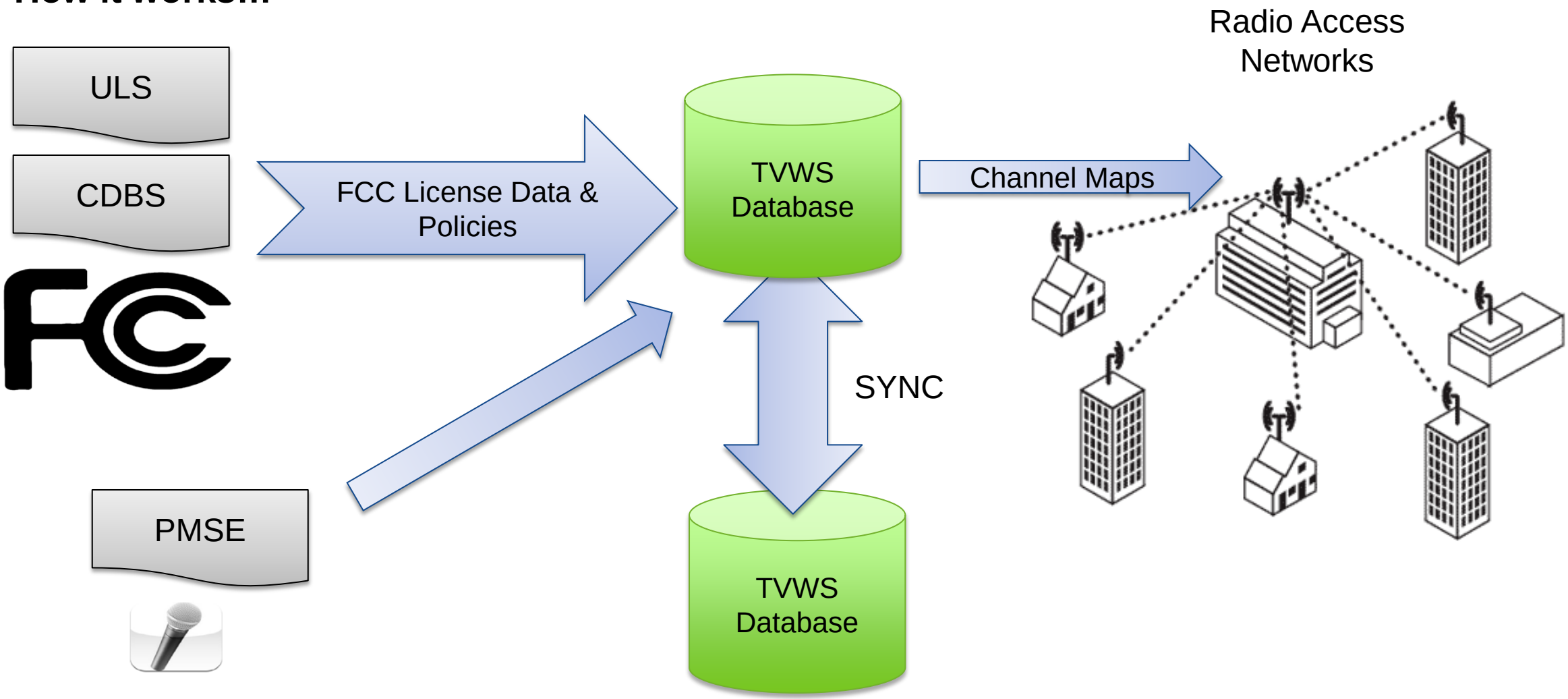
- 2 Databases are currently certified
- 3 radios are certified
- 5 further radios in the certification process with SBI

Multiple trial sites located around the world and several commercial operations in the USA

The Database is the Regulators preferred approach for TV White Space around the world

TV White Space in the US

How it works…



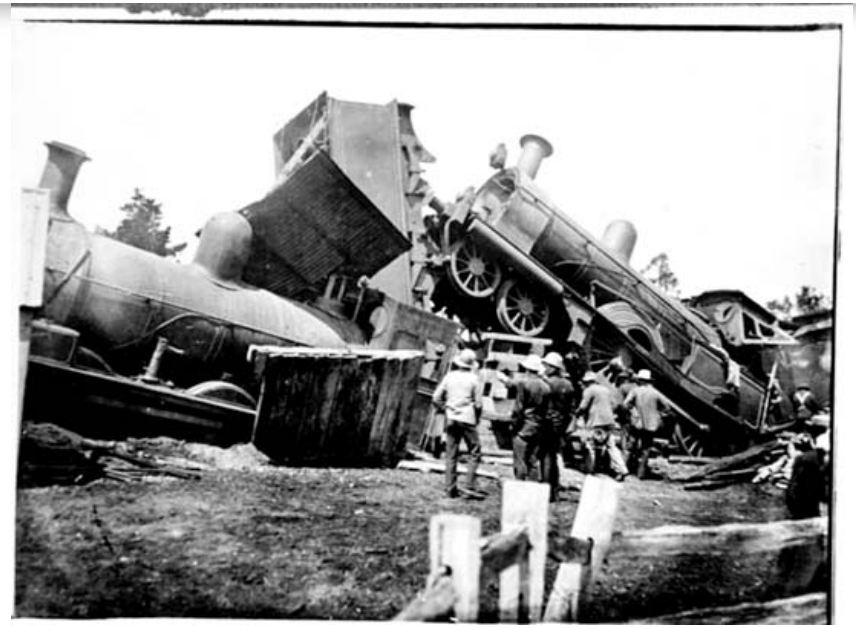
US Incumbent Status

Broadcasters were originally very concerned about the Database process

Could the database operators be trusted?

Would they get the answers right?

How would they (incumbents) deal with multiple database operators?



As a result of the cooperation between FCC, industry and the broadcasters they are much less concerned.

The FCC workshops helped significantly.

Now they have seen the process in operation they are more comfortable

Still work to do

Current deployments are for Fixed radios

Limited number of radios deployed

Still got to see the impact of the

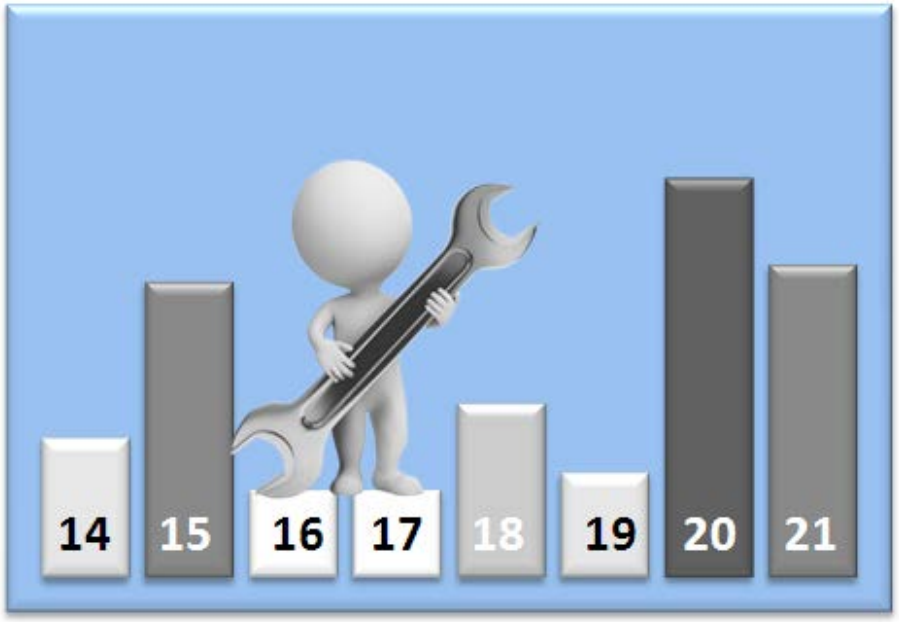
low power personal/portable devices

Database rules still a concern

- 24 hour operation concerns broadcasters
- easily addressed by the database

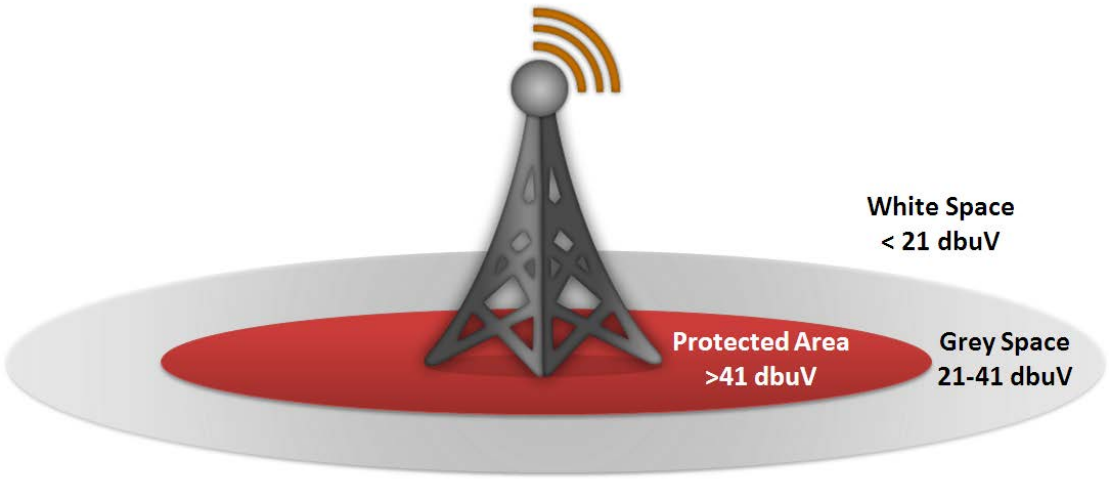
Harmonization with international Regulators

Standards for White Space operation



White Space or Gray Space ?

- A product of mixing ***MegaWatt*** and ***milliWatt*** transmitters in the same ecosystem.
- Need for co-existence is exacerbated by the nature of excellent VHF and UHF propagation.
- A data base provides the opportunity to mitigate the interference effects of TV services and other TVBDs.



USB connected

Available Channels

Channel availability at 28.74806, -81.36445
Height Above Average Terrain = 1.61m

CH	Frequency (MHz)	Type	Noise Floor
29	560 - 566	Microphone, Available	-54
38	614 - 620	Microphone, Exclusive	-55
7	174 - 180	Fixed 3m	-67
15	476 - 482	Microphone, Available	-82
32	578 - 584	PP 40mW	-83
19	500 - 506	Fixed 30m	-84
34	590 - 596	PP 40mW	-86
44	650 - 656	PP 40mW	-86
13	210 - 216	Microphone, Available	-88
25	536 - 542	PP 40mW	-88
42	638 - 644	PP 40mW	-88
28	554 - 560	PP 40mW	-96
24	530 - 536	PP 40mW	-102
8	180 - 186	Fixed 30m	-108
45	656 - 662	PP 40mW	-108
18	494 - 500	Microphone, Available	-111
9	186 - 192	Microphone, Available	-113
20	506 - 512	Microphone, Available	-115
5	76 - 82	Fixed 30m	-117
35	596 - 602	Microphone, Exclusive	-119
14	470 - 476	Fixed 30m	-125
6	82 - 88	Fixed 30m	-162
2	54 - 60	Fixed 30m	-173

Exclusively Available to Microphone Users
Available to Microphone Users
Available to Microphone Users and TVBDs

Further Database Opportunities

Current TVWS rules are rudimentary

The Database can provide very granular and flexible protection

- Change is easy and has no impact on deployed technology
- Updates/enhancements to the rules easily absorbed by the Database
- Rules can be tailored to any combination of location, frequency, time, device

The Database does not have to provide free (unlicensed/license exempt) access to spectrum

- Clearing house options
- Alternative to auctioning spectrum

The Database can manage priority access, QOS and coexistence (1750MHz and 4900MHz)

- Permissions can be limited to maximum “clearing” time
- Permissions can be rescinded for priority use
- The “air traffic controller” for radios

Thank You

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