Growing Spectrum Sharing

Databases, TV White Space, and Spectrum Mapping

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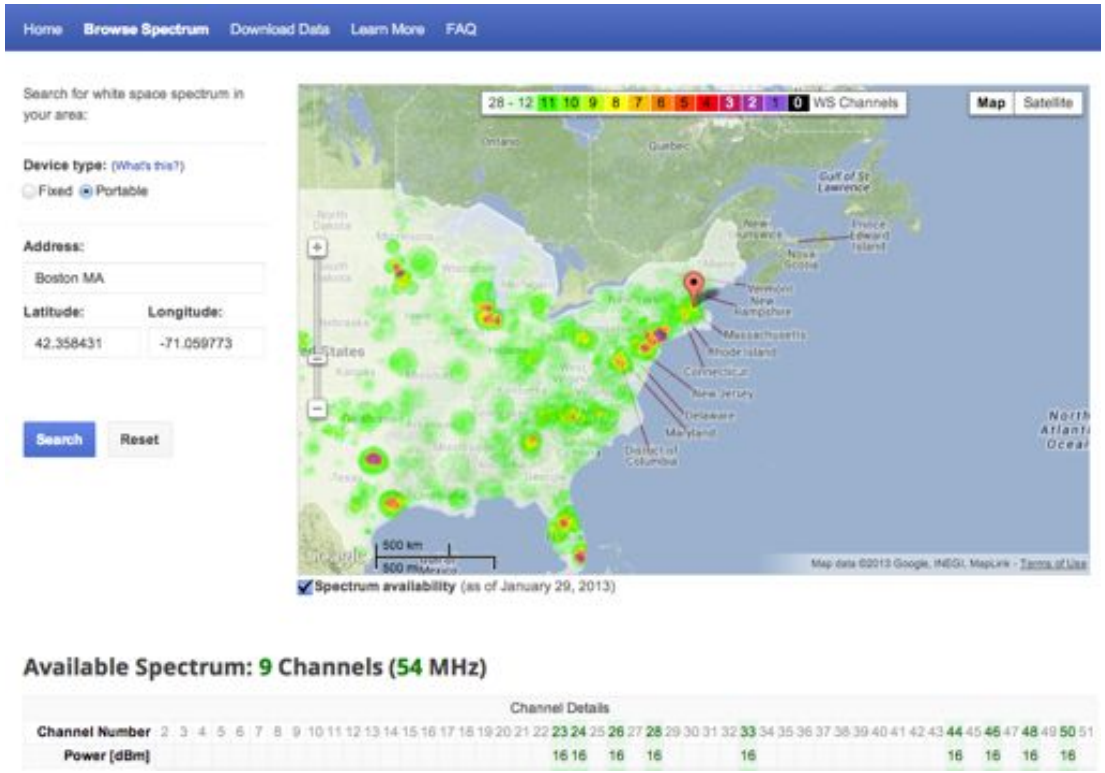
A spectrum database opens unused spectrum and makes it available for expanding broadband

- Makes more spectrum available without taking away existing services
- Increase utilisation of existing spectrum
- Incumbent users can continue to operate as-is
- Computations kept in the database make white space devices simple yet dynamic



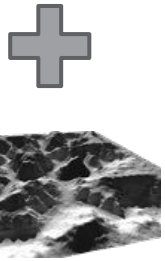
Google's Spectrum Mapping Database
http://www.google.org/spectrum/whitespace/

Spectrum Database Basics

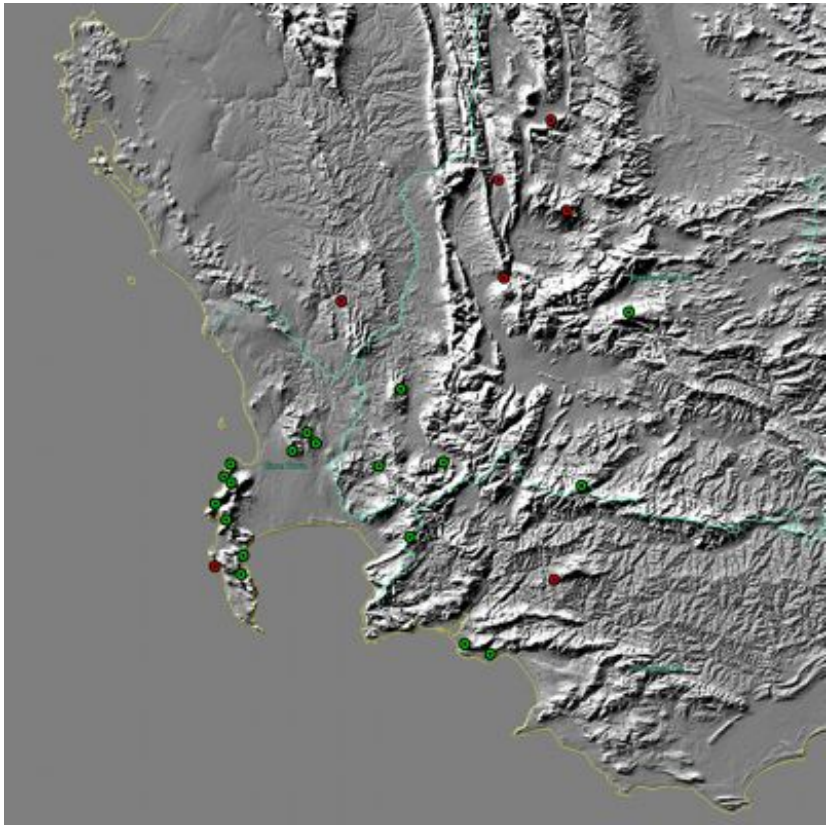
1 Start with transmitter data

Location
Height
Frequency
Power
Antenna pattern
Signal type
Name or Identifier

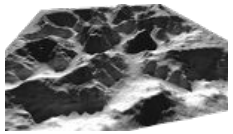
Spectrum Database Basics

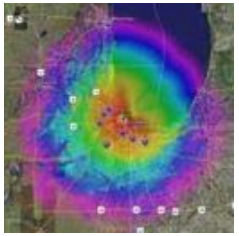


2 Add terrain data



Spectrum Database Basics



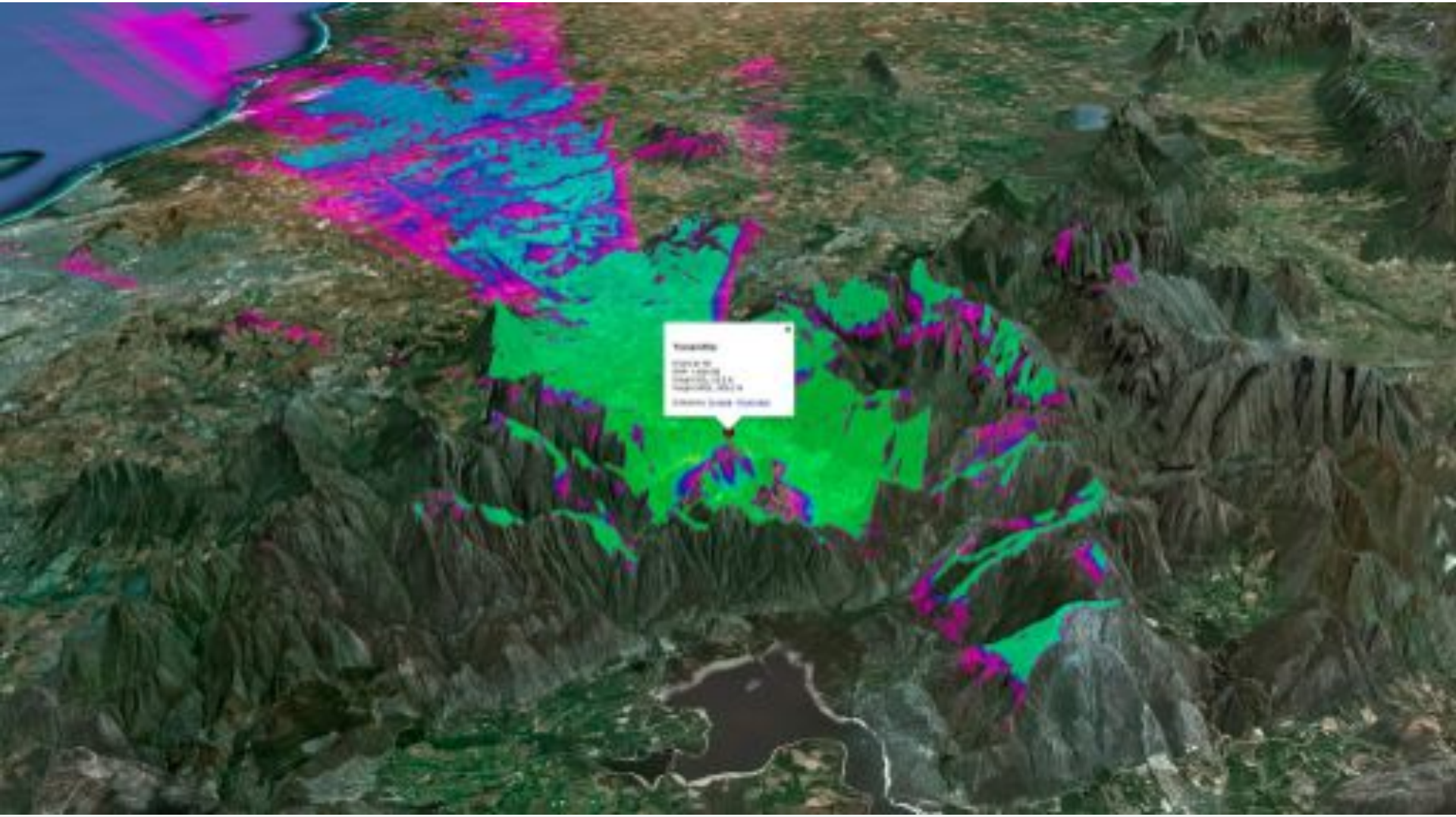


3

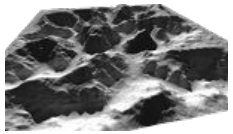
Apply propagation modeling algorithms...

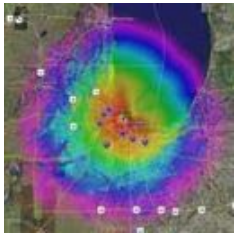
...to calculate OCCUPIED spectrum

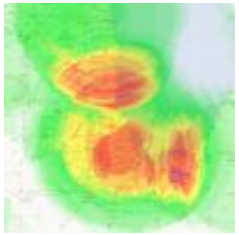
Mapping occupied spectrum



Spectrum Database Basics





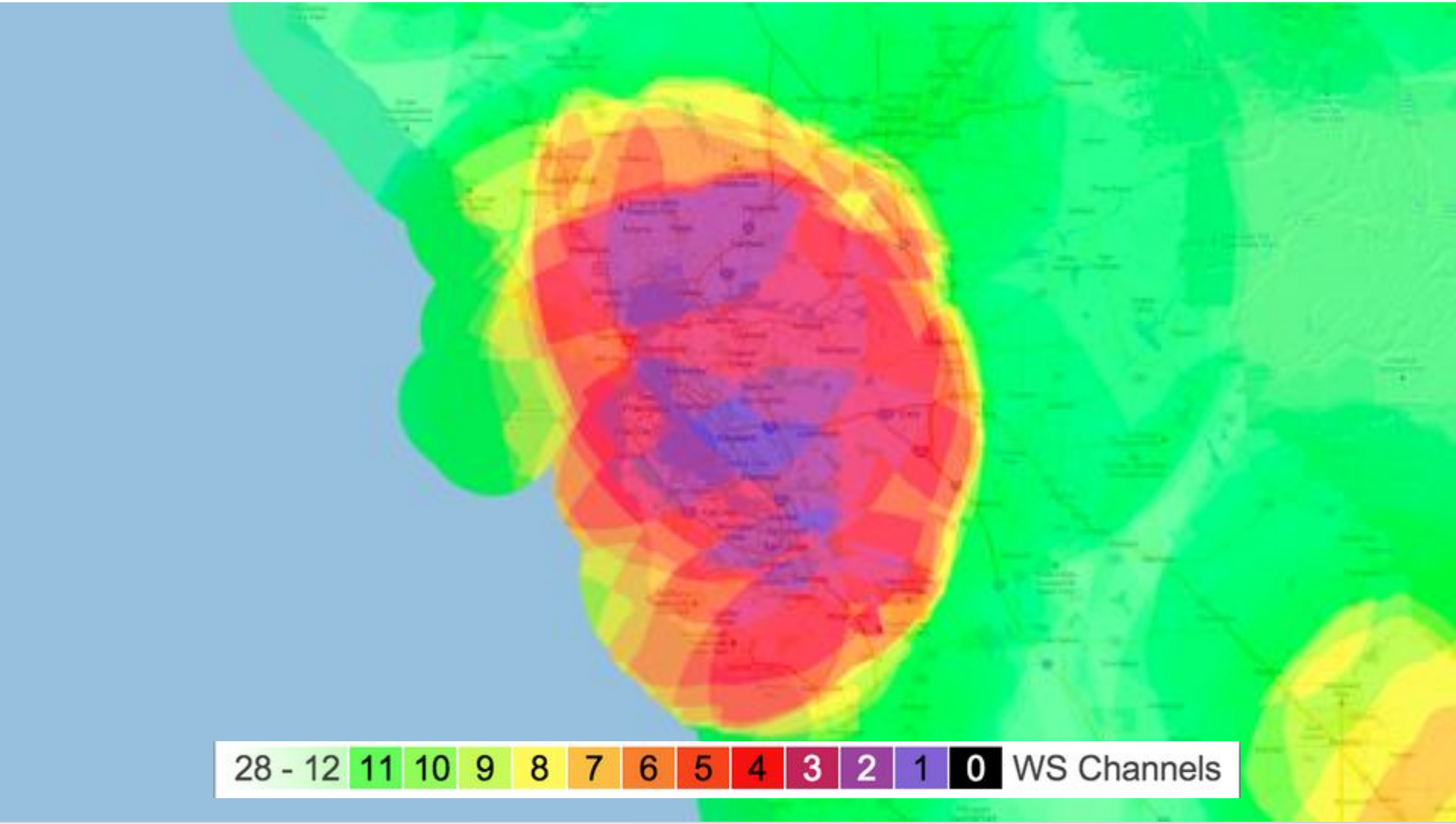


4

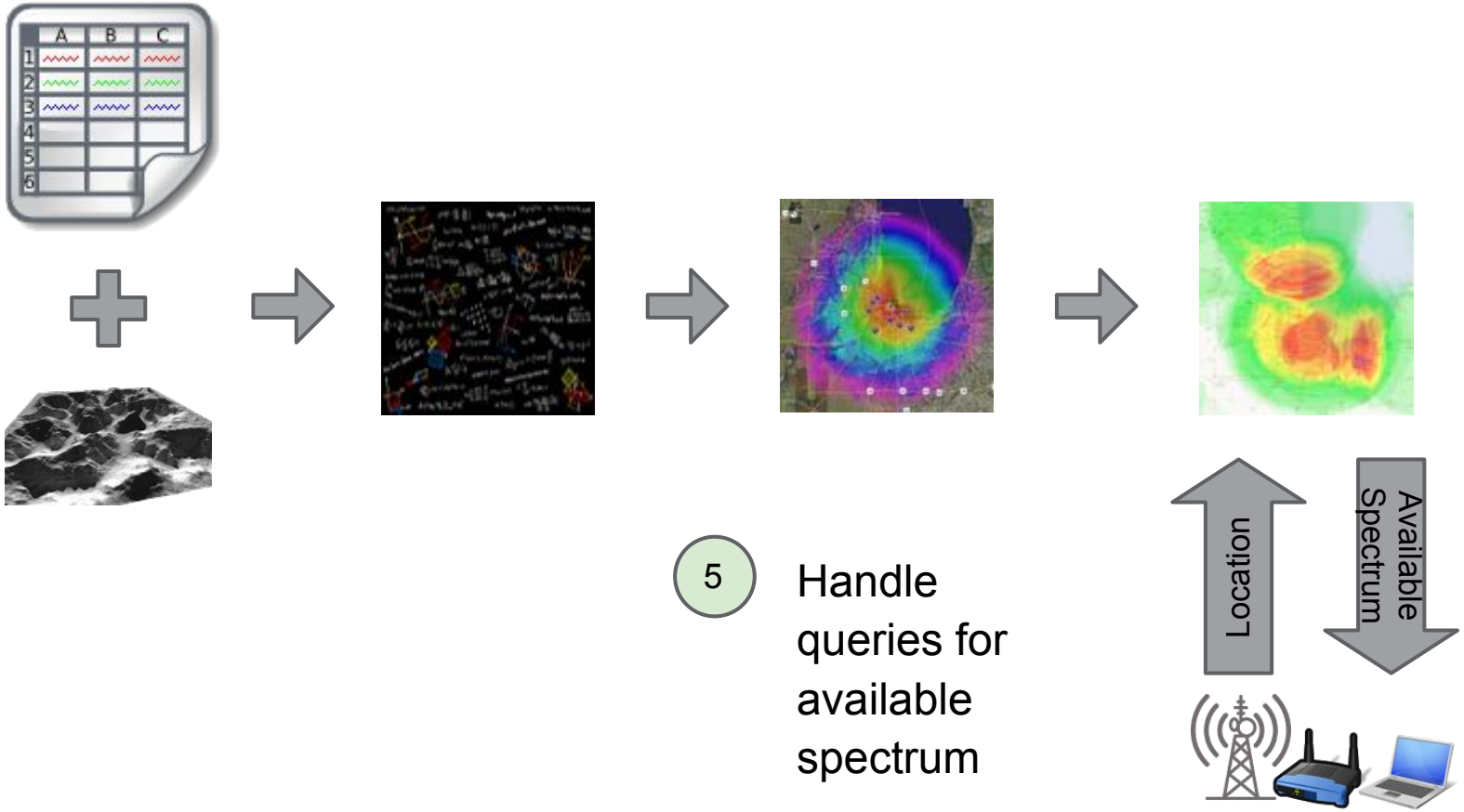
Apply interference avoidance algorithms

...to calculate AVAILABLE spectrum

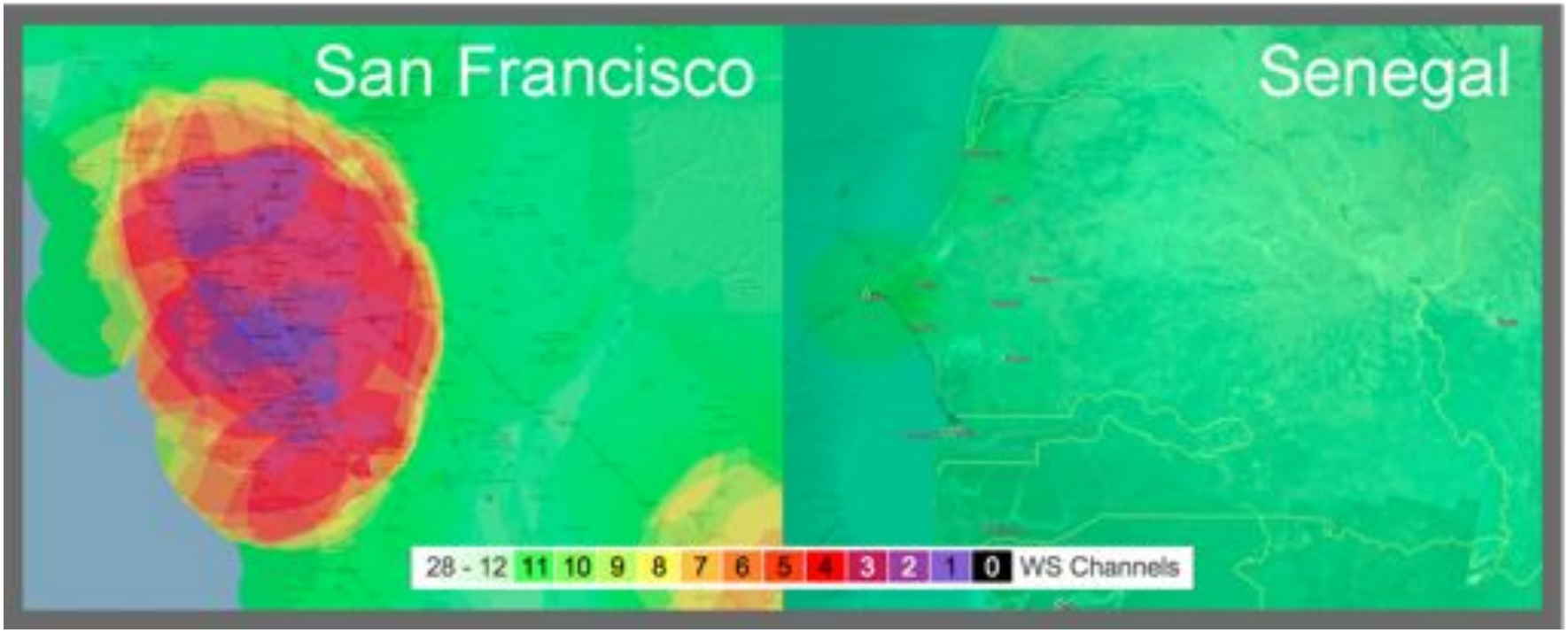
Mapping available spectrum



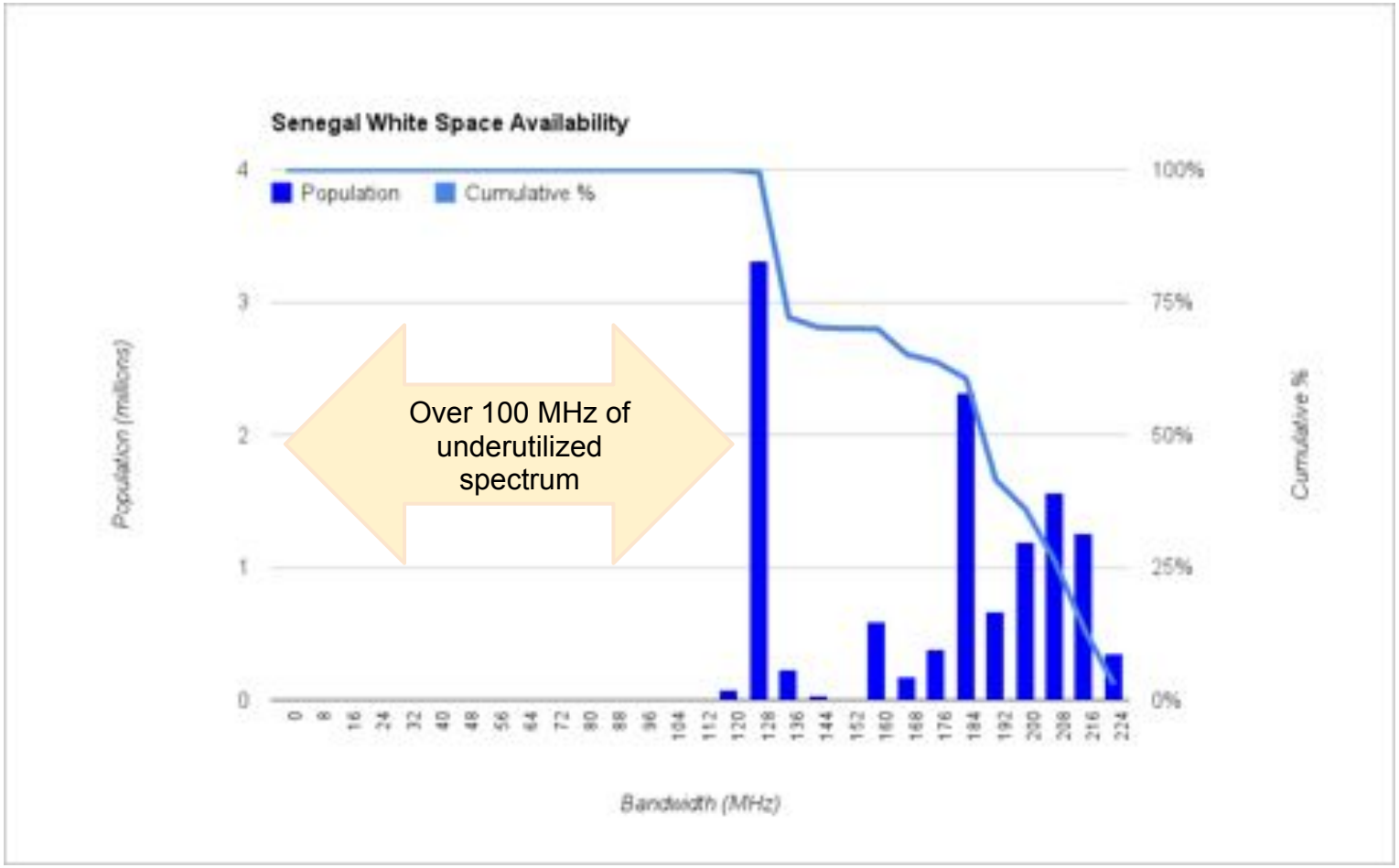
Spectrum Database Basics



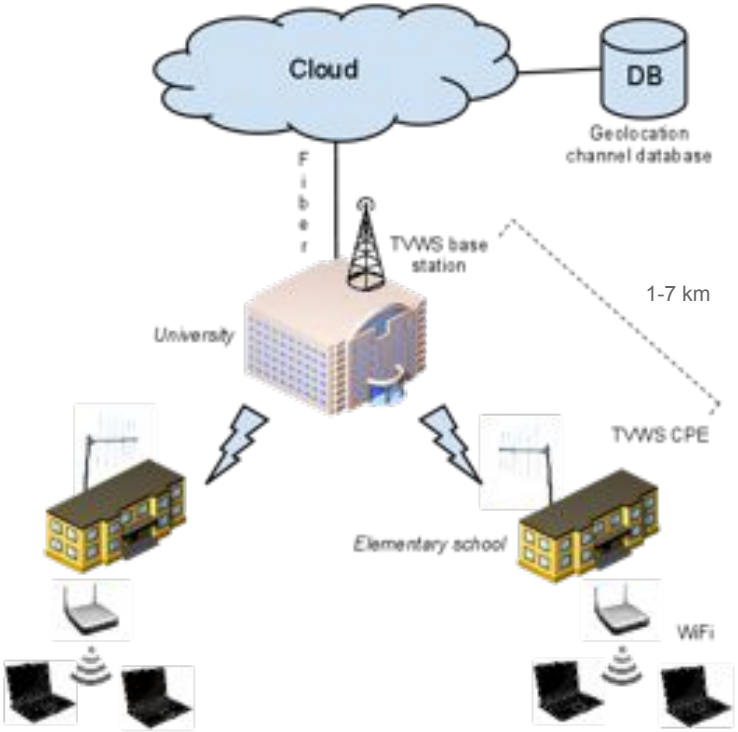
There is a lot of TV White Space available in most countries!

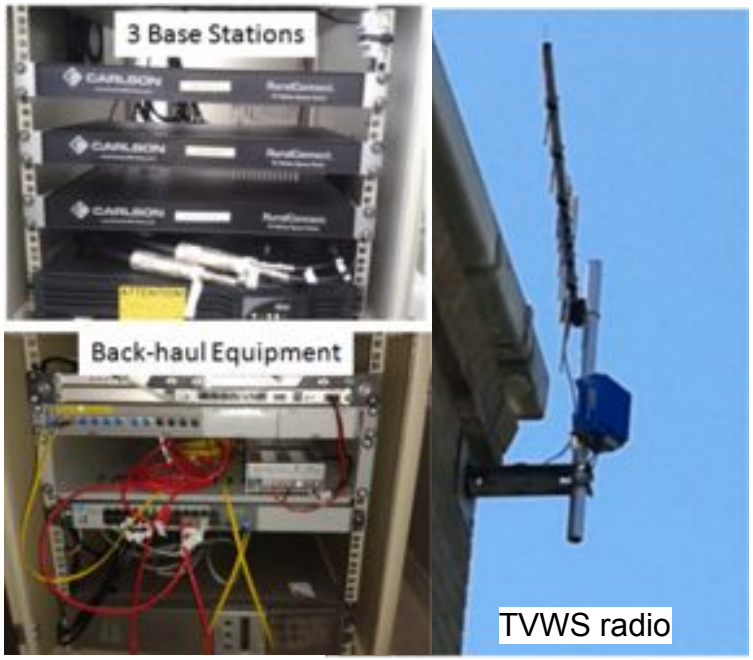


Senegal example: there is lots of TV White Space in rural and urban areas



Google is demonstrating technology in South Africa serving broadband to 10 schools with 6,000 students





Completing the map...

- Database enables more efficient use of spectrum
- Spectrum sharing can help meet universal access goals
- Spectrum mapping can provide the right data to facilitate decision-making

Please get in touch if you would like
to map your available spectrum!

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