US versus UK approach for TV Whitspaces: A quick comparison

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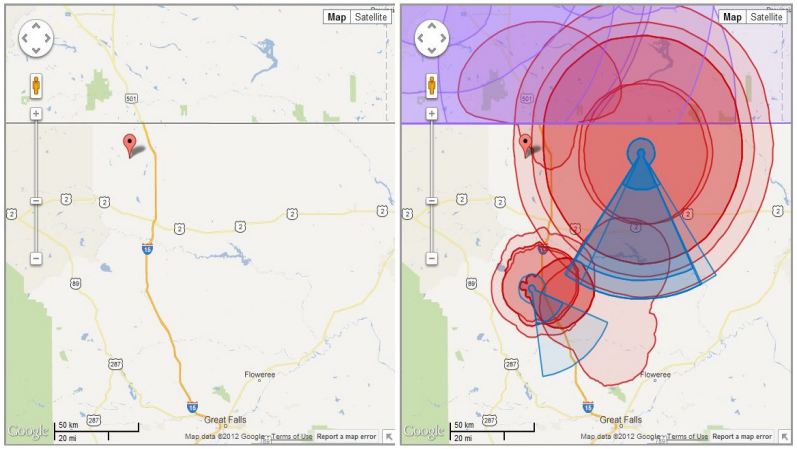
WSRD Workshop, 31.03.2014

Overview

- There are currently several tests going on around the globe
- Two very different approaches are the US and the UK one
- The technical requirements have strong impact on a potential business model
- US model is ok in rural areas but insufficient in major cities.
- Examples are shown on the next slides

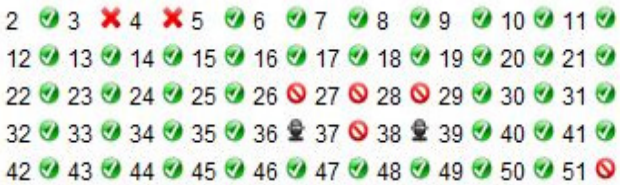
WSDB Challenge: Channels Availablility

Example: Sweet Grass, Canadian Boarder



Infrastructure Site

(4W but reserved channels)



-> 41 channels available

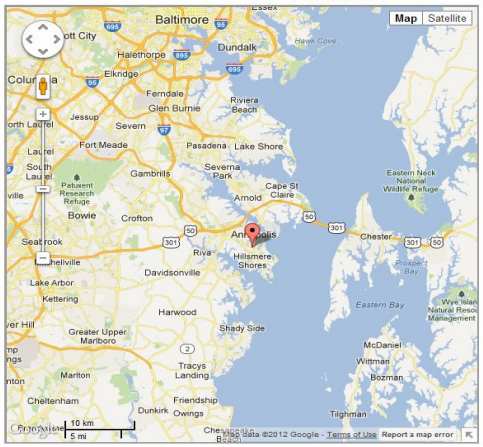
Low Power Site

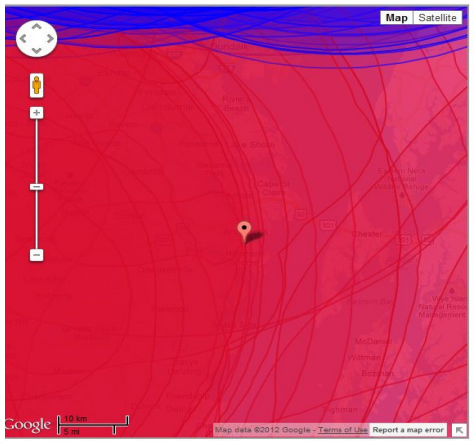
(100mW, no reserved channels)

-> 25 channels available

WSDB Challenge: Channels Availablility

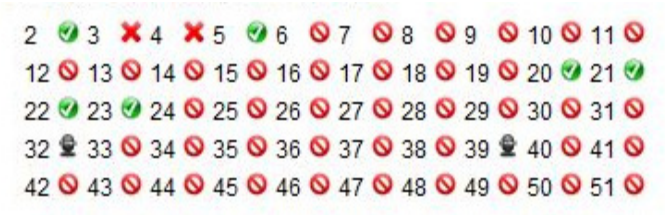
Example: Annapolis/Maryland





Infrastructure Site

(4W but reserved channels)



-> 6 channels available

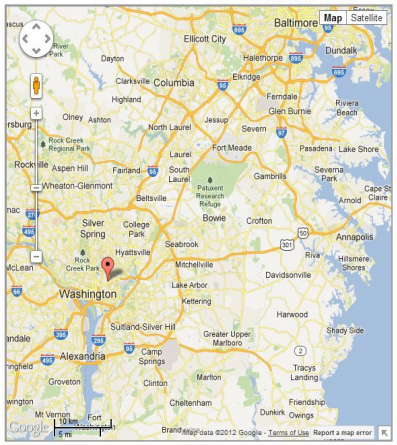
Low Power Site

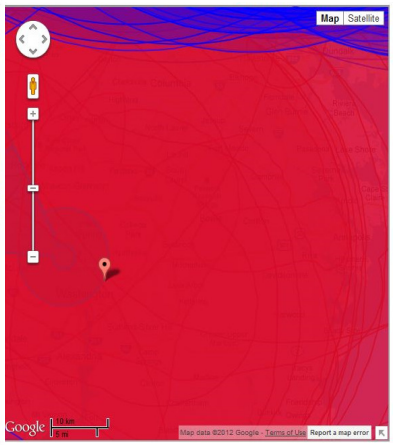
(100mW, no reserved channels)

-> 3 channels available

WSDB Challenge: Channels Availablility

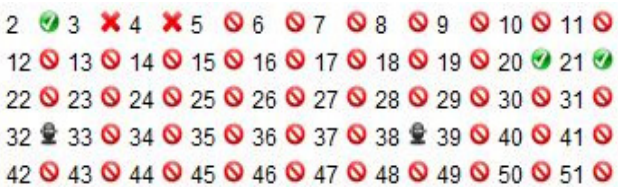
Example: Washington, DC





Infrastructure Site

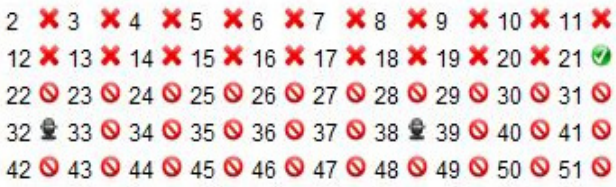
(4W but reserved channels)



-> 3 channels available

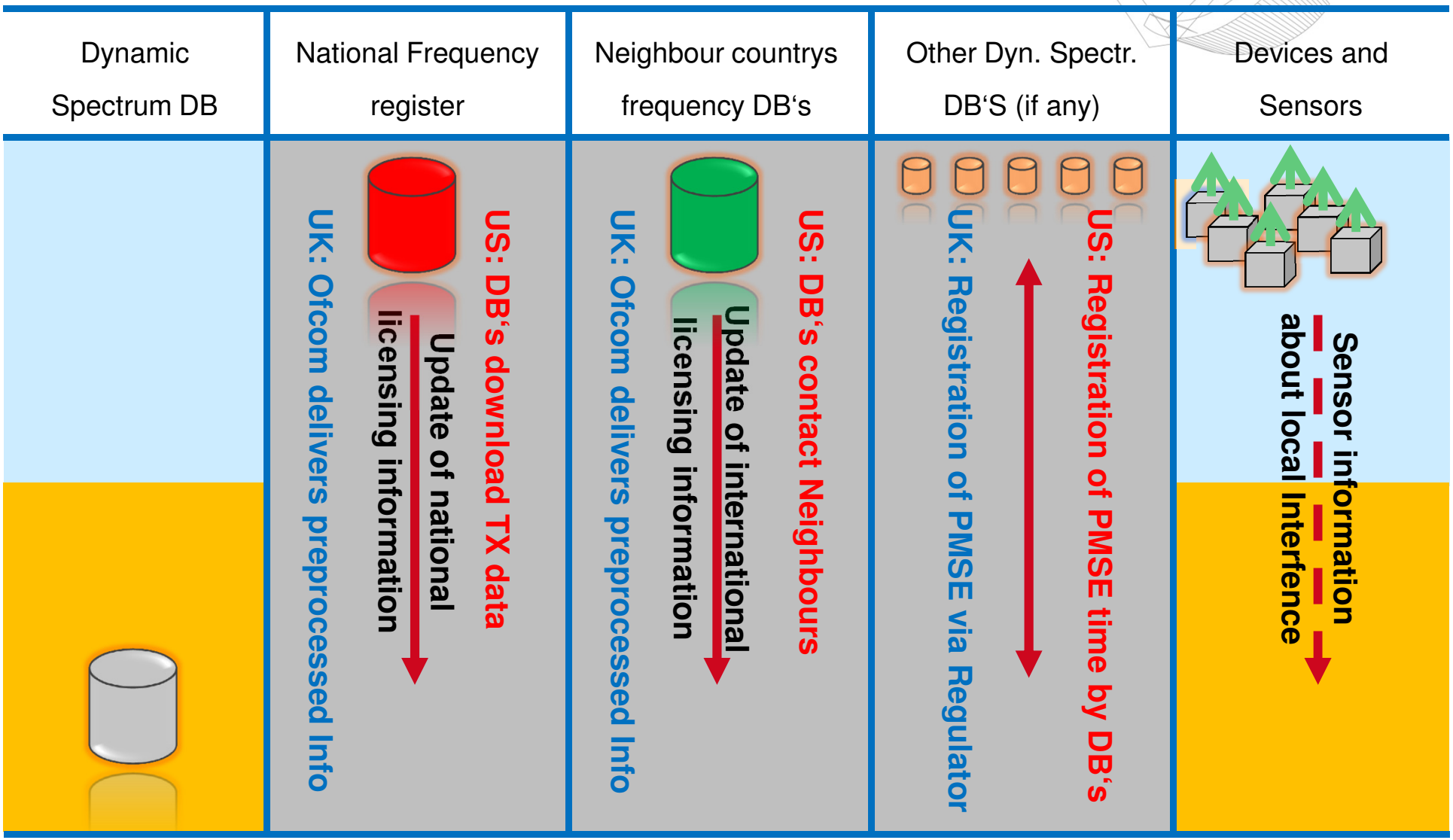
Low Power Site

(100mW, no reserved channels)



-> 1 channels available

US vs. UK model: External communication



US vs. UK model: Device communication

Component	Step1	Step2	Step3	Step4	Step5	Step6	Step7
Device or network element	Secure connection is initiated	GPS position	Report position and device information	US: Exclusion areas by contour models UK: Probability analysis Analyse inter-ference	Ship list of available frequencies	Check for best quality	Negotiate with neighbours
Spectrum DB							

US vs. UK model: Differences

- The UK model ties the database operators much closer to the Regulator
- The matrixes containing the key information about coverage probability for DTT and PMSE are delivered by Ofcom
- The applied UK propagation model is more sophisticated, considering terrain effects
- Pixel based approach: coverage is distinguished in bins of 50x50m
- Update frequency in US: 15 minutes in UK: 3 hours
- Probability approach: a certain influence on DTT is accepted as long as the residual coverage probability is high enough

Short summary

- Both models have their pro‘s and con‘s
- The US approach will not work too perfect in central Europe‘s high popualtion density
- The complex UK approach may raise substantial computation power requirements at the regulator if faster turn around times are required.

Thank you for your attention!

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