Reluctant Spectrum Sensing

In search of … a low cost distributed sensor capability that is good but not great

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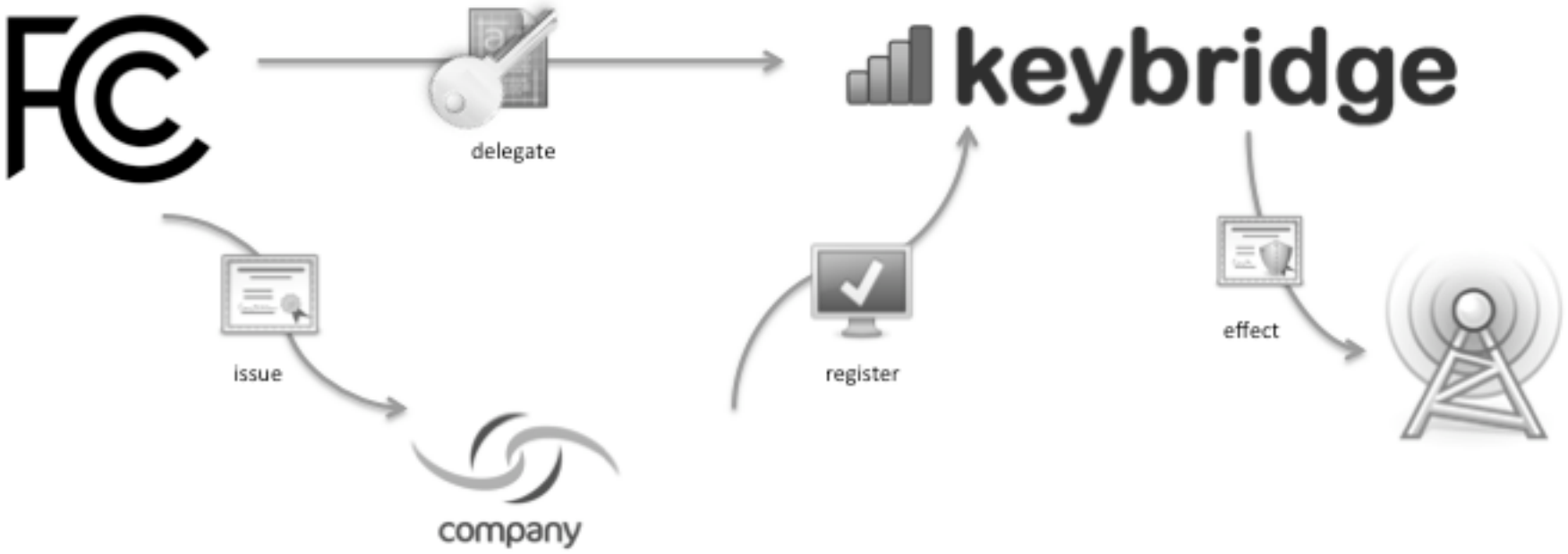
HOW DOES SHARED SPECTRUM ADMINISTRATION WORK?

A SAS perfects a spectrum rights under limited, delegated authority



3.5 GHZ BAND REQUIRES SENSING, OTHERS PROBABLY TOO

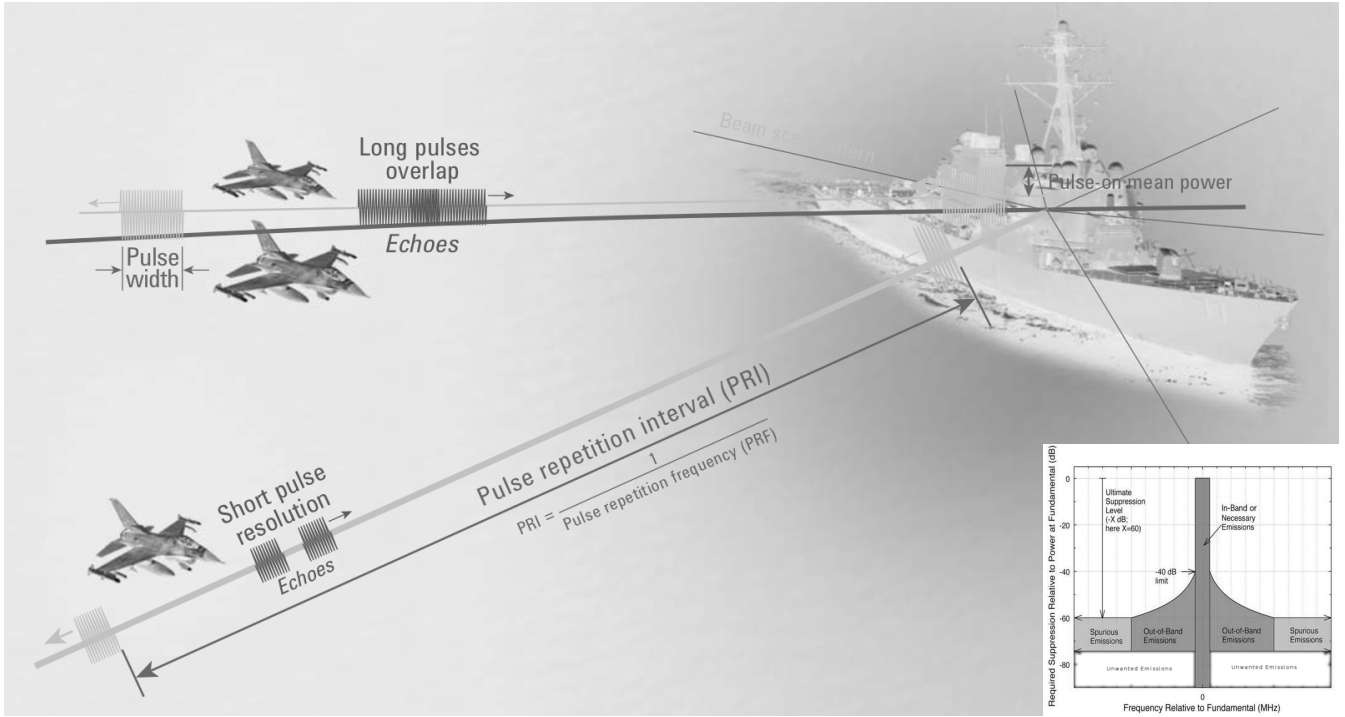
Frequency Band (MHz)	BW (MHz)	Usage	Allocation
1300-1350	***50***	***Shared***	***Aeronautical Radionavigation***
1350-1390	***40***	***Federal***	***Fixed, Mobile, Radiolocation***
1675-1680	5	Shared	Meteorological Satellite (to 1695)
1680-1695	***15***	***Shared***	***Meteorological Satellite***
2020-2025	5	Non-Federal	Fixed, Mobile
2700-2900	***200***	***Federal***	***Meteorological Aids, Aeronautical Radionavigation***
2900-3100	***200***	***Shared***	***Radiolocation, Maritime Radiolocation***
3100-3550	***450***	***Shared***	***Radiolocation***
3550-3700	**150**	**Shared**	**Radiolocation, Fixed, Mobile**
5350-5470	120	Shared	Earth Exploration Satellite, Radionavigation
5850-5925	75	Shared	Radiolocation, Fixed Satellite (Earth-to-space), Mobile

Source: NTIA (2015) Fifth Interim Progress Report on the Ten-Year Plan and Timetable, Table B-1, p6

3.5 GHZ BAND HAS A NON-INFORMING INCUMBENT USER

Detect, classify and recognize incumbent signatures in real time

- Pulsed, unmodulated transmissions



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CURRENTLY, EACH SENSOR IS A MAJOR INVESTMENT

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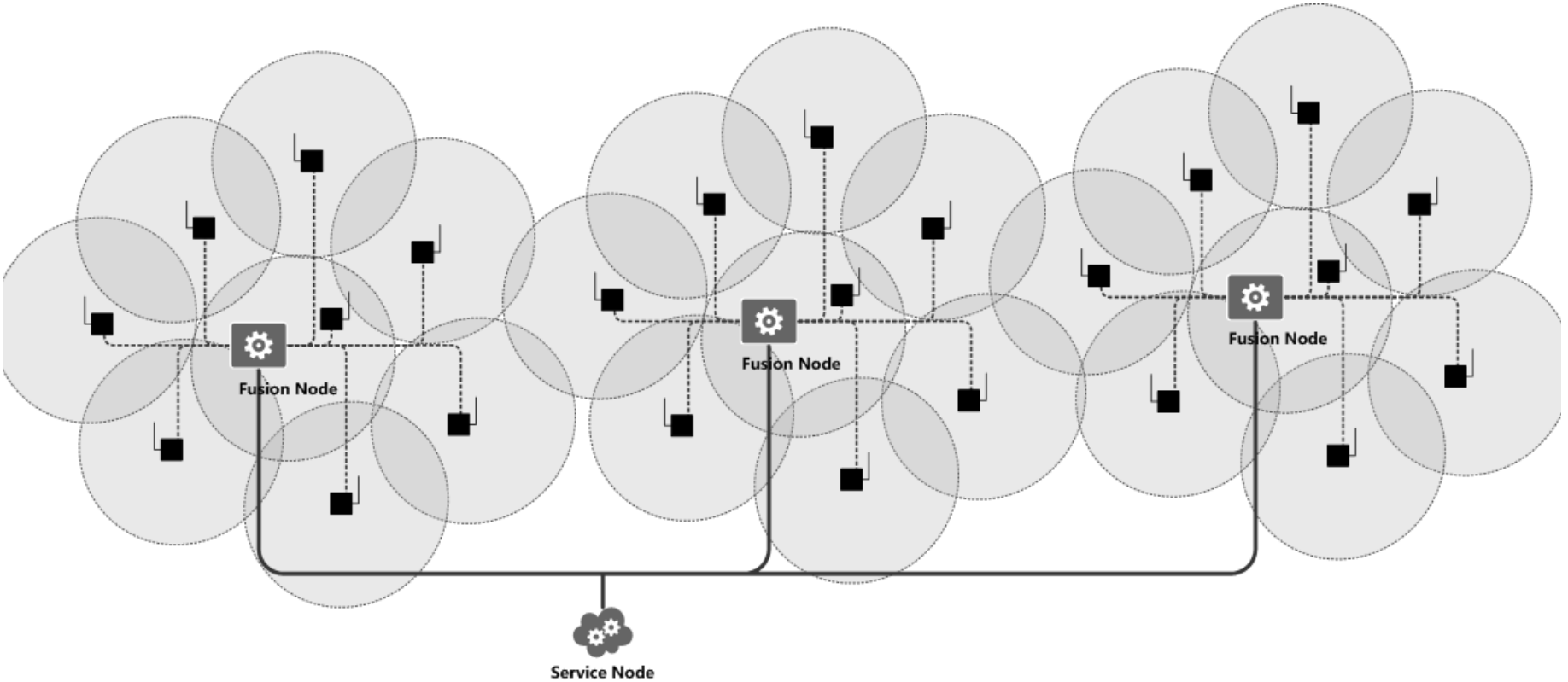
IDEALLY ANY AVAILABLE SENSOR COULD BE TASKED



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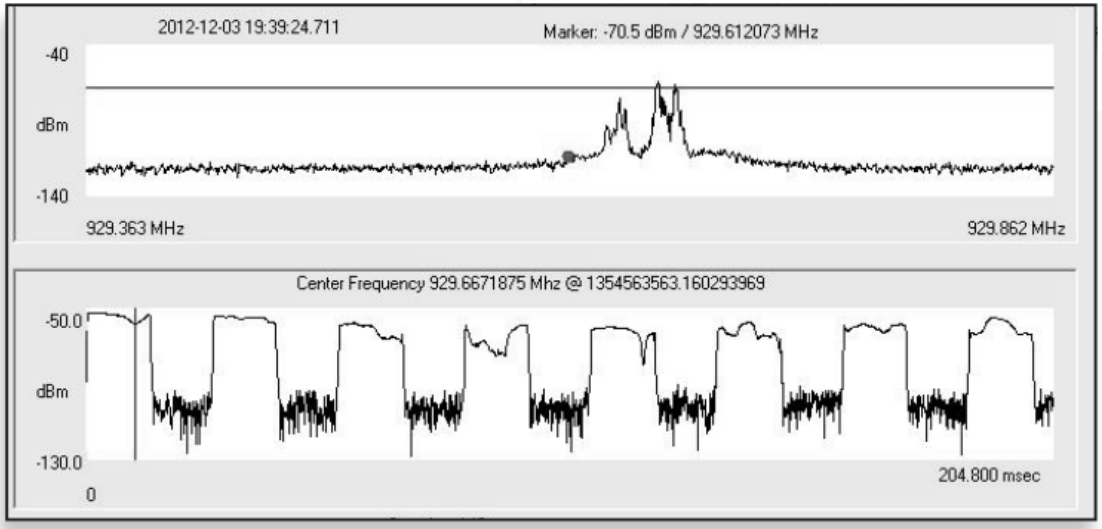
THIS CALLS FOR A STANDARDIZED SENSOR DESCRIPTION & PROTOCOL

- Standardized API
- Standardized Description
- Capabilities Declaration
- Support for
  - Data reduction
  - Signal processing
- Access to
  - FFT trace data
  - I/Q signal data



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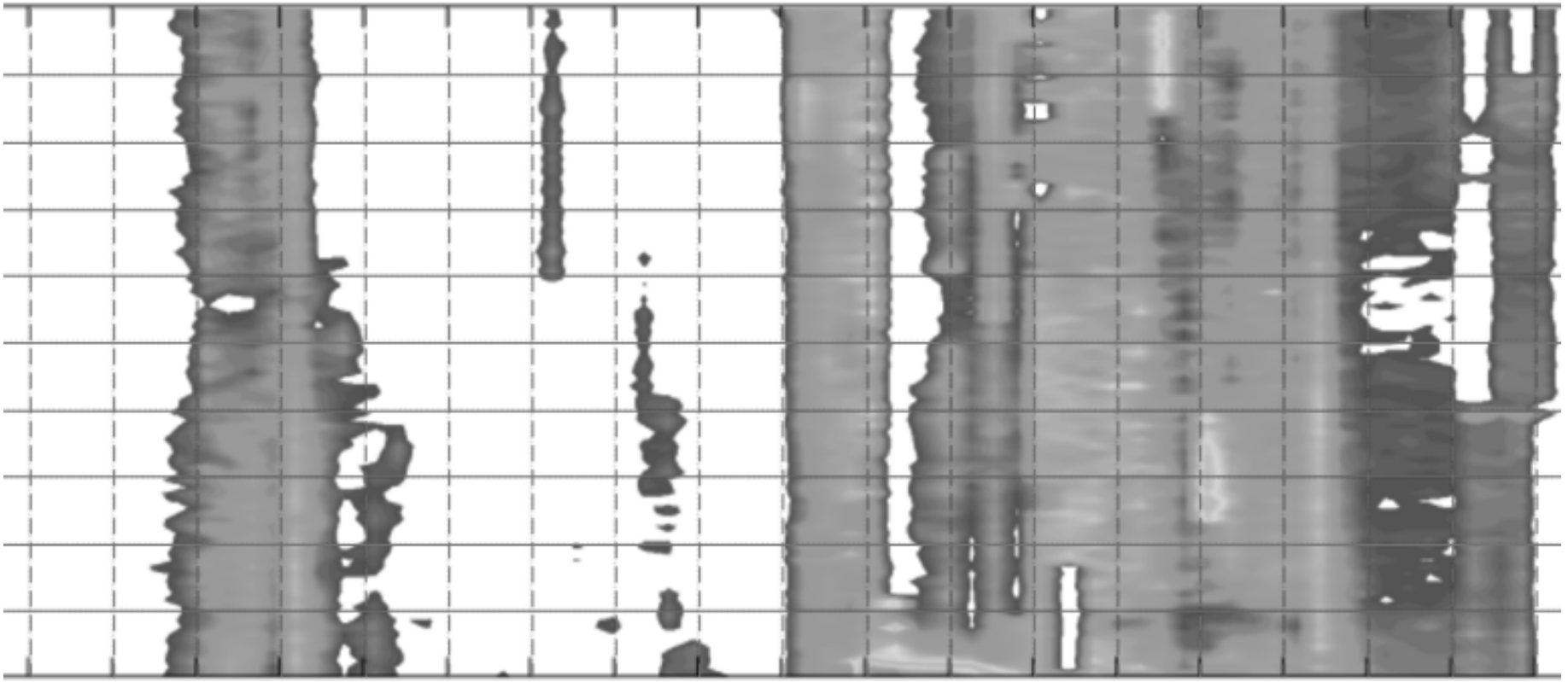
WHAT WE SEE



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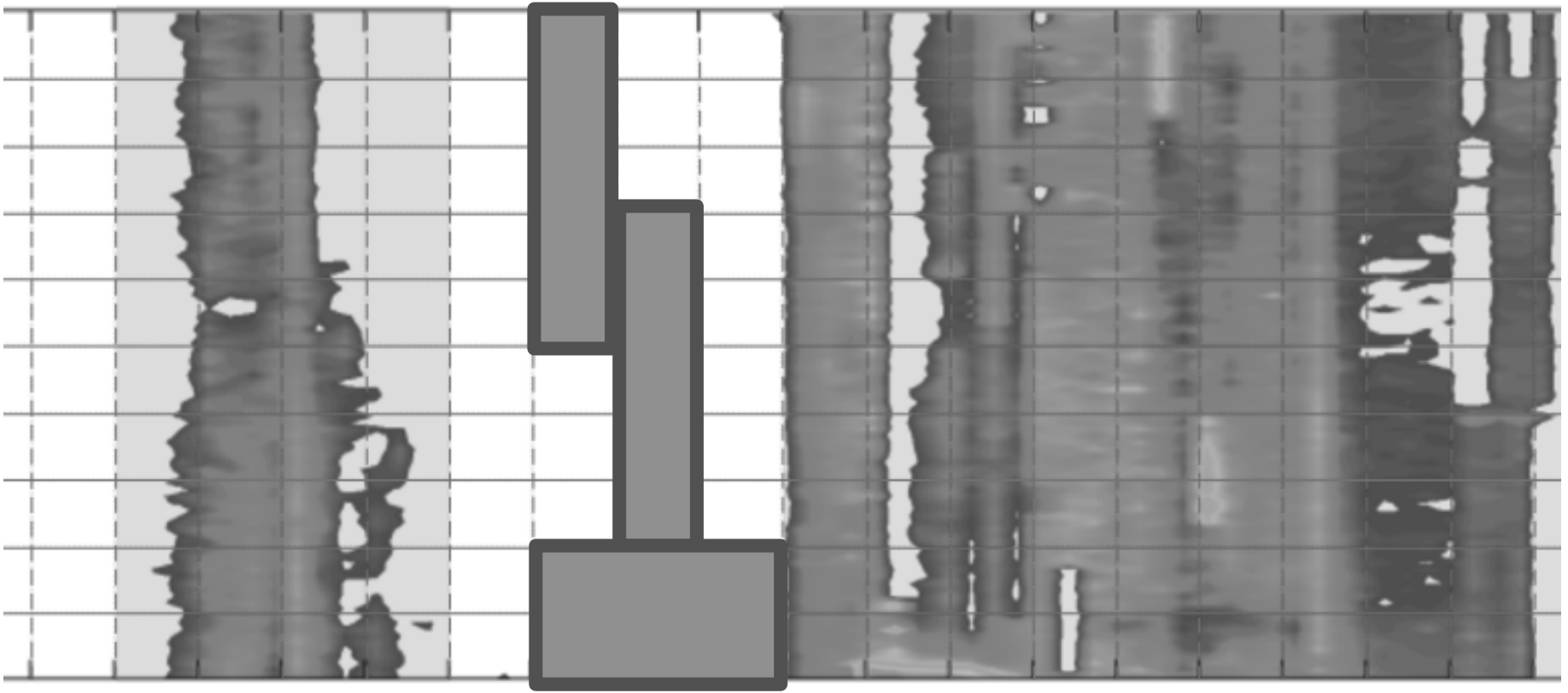
WHAT WE WANT TO KNOW



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