Bands, Beams, Bits

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Outline

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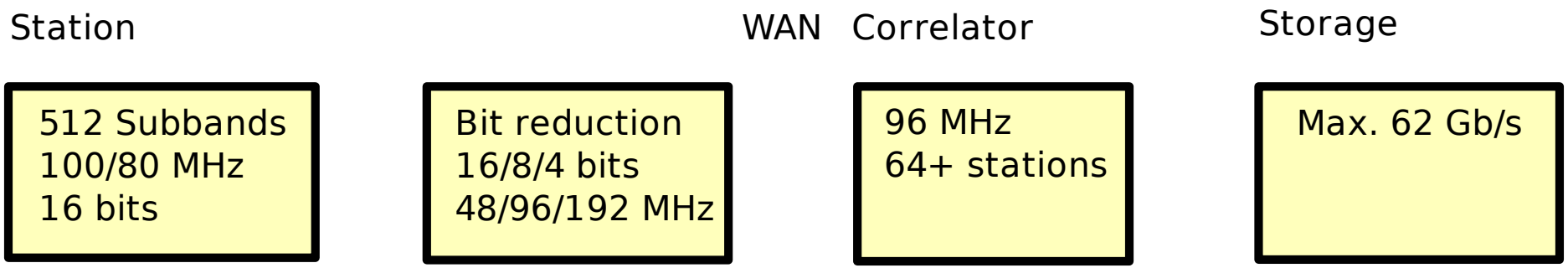
Signal path / parameters



- Total bandwidth$\times$beams
- Nr bits per sample to send off to CEP
- Correlator capacity
- Storage data rate

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Station capacity

- Currently max 8 directions
- Max output 48 MHz in 16 bits
- Busy with partly redesigning BeamServer
- Possibly more beams later

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Correlator Capacity

obs. mode	A	B	C
#stations	64	64	48
#subbands	248	496	992
#bits/sample	16	8	4
obs. bandwidth (MHz * #beams)	48.4	96.9	194
input bandwidth (Gb/s)	64 * 3.1	64 * 3.1	48 * 3.1
output bandwidth (Gb/s)	62 * 0.58	62 * 1.2	62 * 1.3
CPU load compute nodes	35%	70%	85%
CPU load I/O nodes	66%	81%	80%
data loss	~ 0.0001%	~ 0.01%	~ 0.01%

John Romein

- 50% more bandwidth
- One rack only

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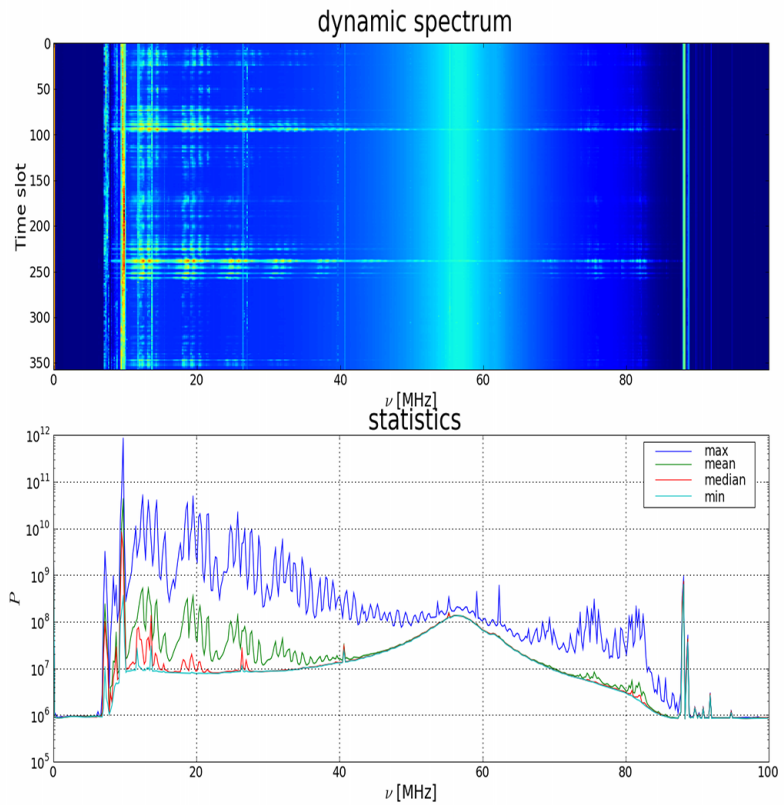
To do



- Verify what fraction of the time 4 bit mode is possible
- Determine max number of simultaneous directions at station
- Implement initial flagging and averaging on-line, before storage