

# Scaling up the Correlator



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# Things done

- basic functionality for MSSS
- optimizations
  - correlator & PPF
    - cannot run faster
  - I/O
    - redesigned network system software (*ZOID*)
    - use 2<sup>nd</sup> core on I/O node
    - removed input section
    - transpose on 3D torus
  - should be fast enough for full LOFAR
- fault tolerance
  - survives crashed stations / WAN

# Things to be done

- ❑ multiple RSP boards per station
- ❑ snapshots
  - ❑ reboot BG/L sloooow!
- ❑ handle superstation
- ❑ fault tolerant MS writer
  - ❑ BG/L single point of failure
- ❑ MS writer more parallel
- ❑ use distributed file system?
- ❑  $\leq 8$  beams in a **single** observation
  - ❑ no concurrent observations
- ❑ few optimizations I/O node?

# *Hardware changes*

- ½ BG/L rack → 2 racks
  - up to 64 stations
- build new network
- increase storage capacity/bandwidth
- choose right time to replace BG/L