INAF
ISTITUTO NAZIONALE
DI ASTROFISICA

OSSERVATORIO ASTROFISICO DI ARCETRI

SKA CONTROL SOFTWARE

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On behalf of RSN5

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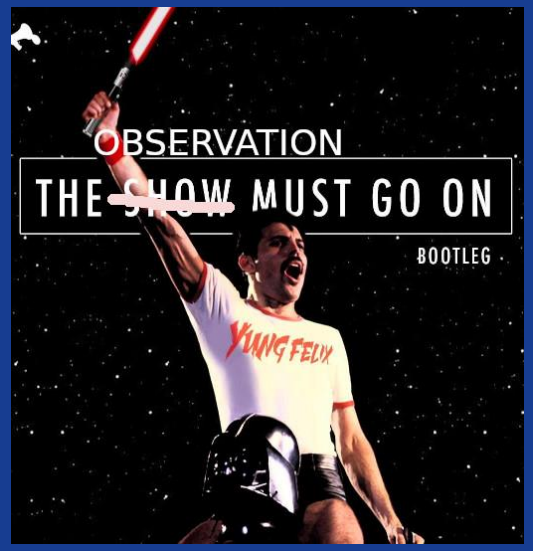
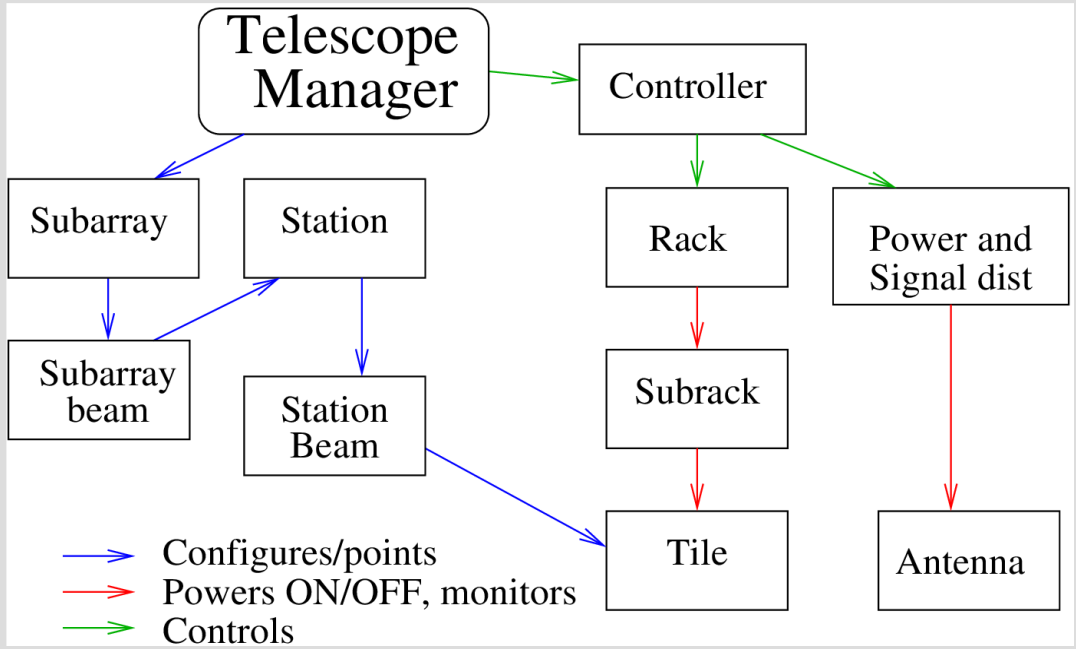
SKA SOFTWARE SYSTEM: THE CHALLENGES



- Same software for two different telescopes
- Huge system
  - 100K's elements. Faults will happen
  - 10^5-10^6 Flexible interconnections
- Tolerant to local failures and configuration changes
- Flexibility
  - Automatic dynamic scheduling
  - Concurrent observations: up to 16 subarrays
    - Completely independent
    - Resources (stations, correlator units) shared between subarrays
- Huge data rates
  - Raw: >> TB/s
  - Science: ~GB/s
  - Engineering: ~MB/s

SKA-LOW APERTURE ARRAY



- INAF roles:
  - Signal processing architecture
  - Control system architecture
  - Low level software (HW-SW boundary)
- Hardware elements:
  - 15,000 physical devices
  - 30,000 IP addresses
  - 1 Million control/monitor points
  - 150,000 Tango devices
- People
  - Gianni Comoretto
  - Simone Chiarucci
  - Carolina Belli
  - Hossein Ghobadi

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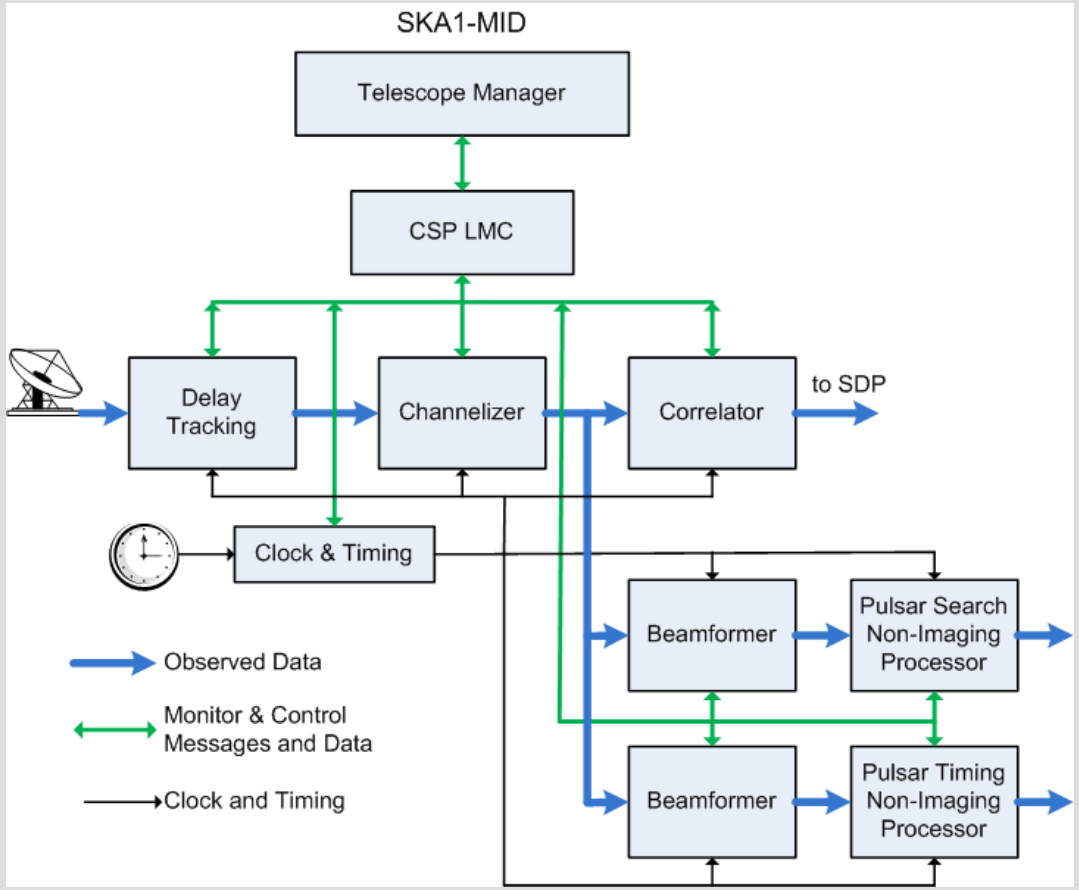
SKA-CSP LOCAL MONITOR AND CONTROL



- INAF roles:
  - Monitoring and status wrap-up
  - Control system of data
  - Translation of Science commands in HW commands
- Hardware elements:
  - 3 instruments: Correlator, PSS and PST
  - Complex observing modes, commensality
  - Millions of control/monitor points
- People
  - Elisabetta Giani
  - Gianluca Marotta
  - Carlo Baffa

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