# L1Calo Monitoring Requirements

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- Levels
- Rates
- Hardware

# Monitoring Levels

- SFI
  - Complete L1Calo events for internal L1Calo monitoring
  - Also full events (LAr,Tile) for cross checks with Calo
- ROS
  - For monitoring within each L1Calo subsystem
    - Separate ROS(es) for Preprocessor, Cluster & Jet/Energy processor and for full data readout and RoI readout
- ROD
  - More detailed monitoring and cross checks between L1Calo subsystems (each ROD crate has a slice of the system)
    - ROD functionality for this not yet exercised for real
- VME
  - Some trigger rates read from VME and published to IS
    - Also trigger tower histograms from Preprocessor ASICs

# Monitoring Rates

- As much as we can get away with!
  - NB we were always told in the past that bandwidth would never be a problem...
- Minimum about 10Hz of events at each level
  - For some of our SFI monitoring we would only need complete data from L1Calo (subset of full event)
    - Though for cross checks we need L1Calo+LAr+Tile
  - Could reduce bandwidth by shipping partial events?
- Trigger rates from VME published every few seconds

# Monitoring Hardware

- We expect to have two (possibly three) dedicated L1Calo monitoring PCs in USA15
  - To be used for monitoring events from ROD/ROS level
    - Most likely with GNAM
  - Also for trigger rate monitoring
- We would like to continue using (at least) one of the existing monitoring PCs in SDX1
  - To be used for monitoring full events from SFI
    - Most likely with AthenaPT (though GNAM also a possibility)