Science Analysis Software Mission

- Data Pipeline
  - Prompt processing of Level 0 data through to Level 1 event quantities
  - Providing near real time monitoring information to the IOC
  - Monitoring and updating instrument calibrations
  - Reprocessing of instrument data
- Performing bulk production of Monte Carlo simulations

- Higher Level Analysis
  - Creating high level science products from Level 1 for the PI team
    - Transient sources
    - Point source catalogue
  - Providing access to event and photon data for higher level data analysis

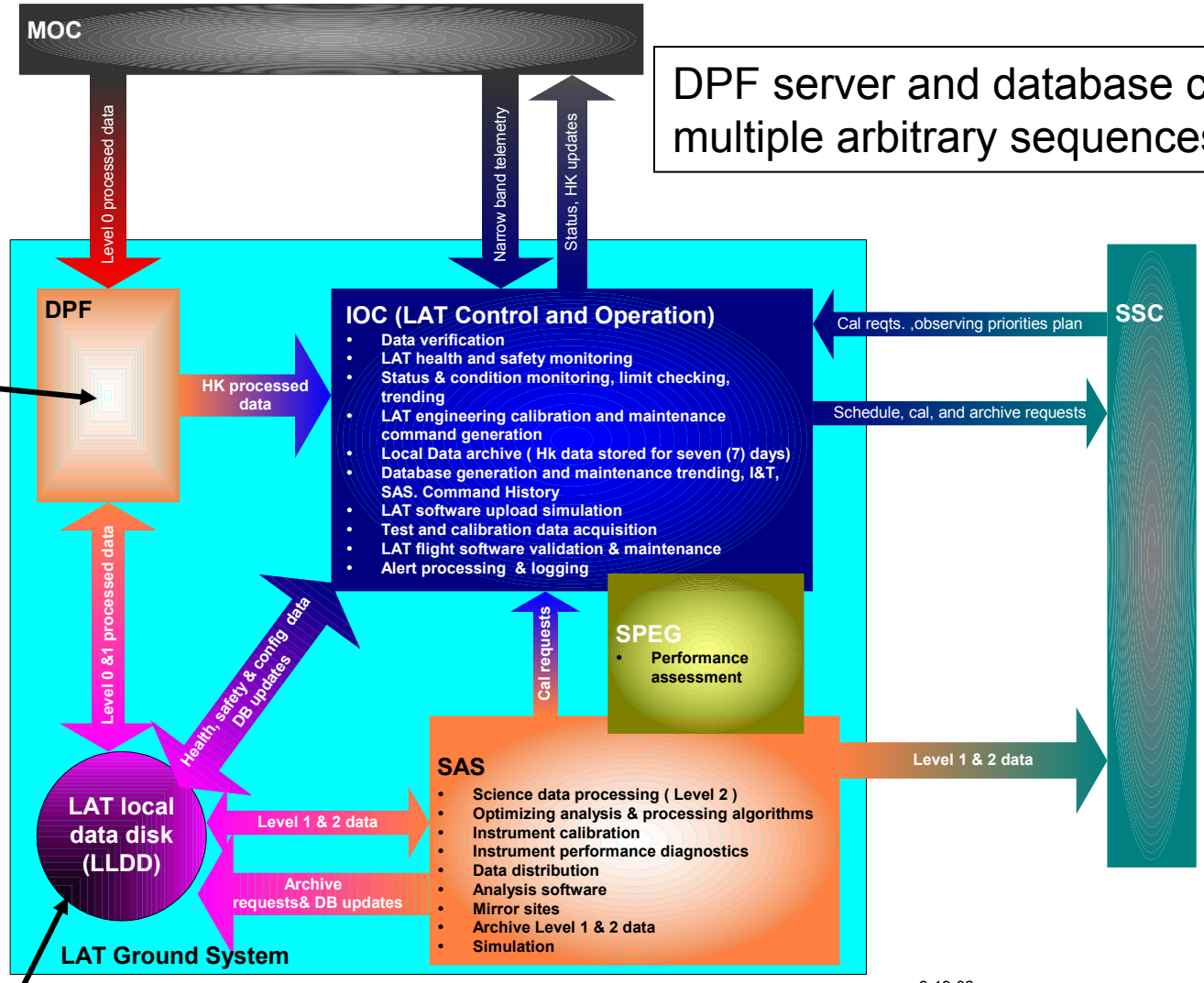
- Interfacing with other sites (sharing data and analysis tool development)
  - mirror PI team site(s)
  - SSC

- Supporting Engineering Model and Calibration tests
- Supporting the collaboration for the use of the tools

SAS in the Ground System

DPF server and database can handle multiple arbitrary sequences of tasks.

DPF is robotic backbone of IOC/SAS process handling – Performs L1 & L2 processing



9-19-02

Keep everything on disk

SAS Status - 1

- **Support of Instrument Design and Engineering Models**
  - **Simulation/Reconstruction**
    - **In place. Optimizing algorithms now.**
    - **Continual improvement in design, QA etc**
  - **Support of EM unit**
    - **In process of translating raw data formats now. In hand.**
    - **Flexible geometry scheme in use for describing device**
    - **TKR bad strip calibrations ready**
    - **CAL gain, pedestal calibrations ready [check with Mark for wording]**
    - **Does not require pipeline processing. Hoping to have it.**
  - **Support of 1x4 Calibration Unit**
    - **Use same tools as EM (a feature)**
    - **Developing TKR alignment algorithms now.**
    - **Calibration database in progress now. Hoping for EM - in hand for CU.**

SAS Status - 2

- **Development of Level 1 Pipeline**
  - Aiming for CDR MC and EM data handling – not required, however
  - First version of sim/recon system tests now in place. Fore-runner of near real time diagnostics suite.
  - Expect to re-use SWIFT mirroring tool (DTS) for moving data to/from SSC, MOC
  - Database designed for flexibility and automated processing – done
    - Grown out of experience from SLD experiment pipeline at SLAC
    - Building server to database spec
    - On track for March time frame for first prototype

- **Development of High Level Science Tools**
  - Extensive planning in which tools are needed and their requirements
    - Had external review (9/2002) to see if we are on the right track
    - No major problems noted
  - In progress with the SSC
    - Sorting out technical basis (HEASARC standards; support of community; re-use of LAT developments)
  - Have initial stab at Level 1 database technology
    - Looks like it will meet performance requirements
    - Starting to implement at GSFC and SLAC
  - Planning two Data Challenges - in 2004-2005, 2006 time-frames
    - Have to be careful of conflict with CU workload

Timeline

DPF prototype

TKR alignment alg

EM Support – data handling, calibrations, etc

CU Support – data handling, etc

MDC

+ continual improvements to Sim/Recon, development of Science Tools and adding components to DPF