

Architecture Overview

KIAN-TAT LIM
DM SYSTEM ARCHITECT



Large Synoptic Survey Telescope



Architecture Role



The Architecture Team is responsible for creation, maintenance, dissemination, and ensuring adherence to a common, consistent system architecture for the Data Management System. A system architecture is "the fundamental organization of a system, embodied in its components, their relationships to each other and the environment, and the principles governing its design and evolution". This includes both software and hardware components of the system.

The Architecture Team monitors construction activities to ensure consistency with the defined architecture, and performs investigations needed to support its core responsibilities.

Architecture Definition



This WBS element includes all activities related to documenting the high-level architecture of the LSST Data Management System. This includes writing and maintaining documents that define and describe the DMS's high-level components and their interfaces, both internal and external, as well as how they work together and are operated to meet the DM System Requirements.

This work is performed in conjunction with the technical leadership of the DM teams as well as that of other LSST subsystems.

Architecture Oversight



This WBS element includes all activities related to ensuring that the constructed LSST Data Management System, including the computing and storage systems, the processing systems, and the science pipelines, adheres to its architectural principles and standards and that the Data Management development processes are followed.

Interactions with LSST System Engineering, Operations Planning, Risk Management, and Change Control are contained within this WBS, as is architectural representation in the DM-level Technical Control Team.

Architecture Oversight

Examples

- Tracking software development
- Leading, advising, and educating during design, code, sprint, and other reviews
- Contributing to the completeness of verification testing
- Maintaining the DM Risk Register
- Communicating the DMS architecture internally and externally
- Making decisions on design and process changes to ensure emergent properties of the system such as usability, reliability, understandability, and maintainability

Architecture Oversight



Mechanisms

The Architecture Team provides input to decision-making personnel and bodies but does not supervise, directly control, or exercise a veto over development work except where explicitly delegated that role. Architecture Team input about low-level code is conveyed to individual developers during reviews. Input about refinement of designs is conveyed to technical leads and the NCSA Steering Committee. Input about revisions to designs or plans is conveyed to technical managers and the NCSA Steering Committee for incorporation into prioritization.

Architecture Investigation

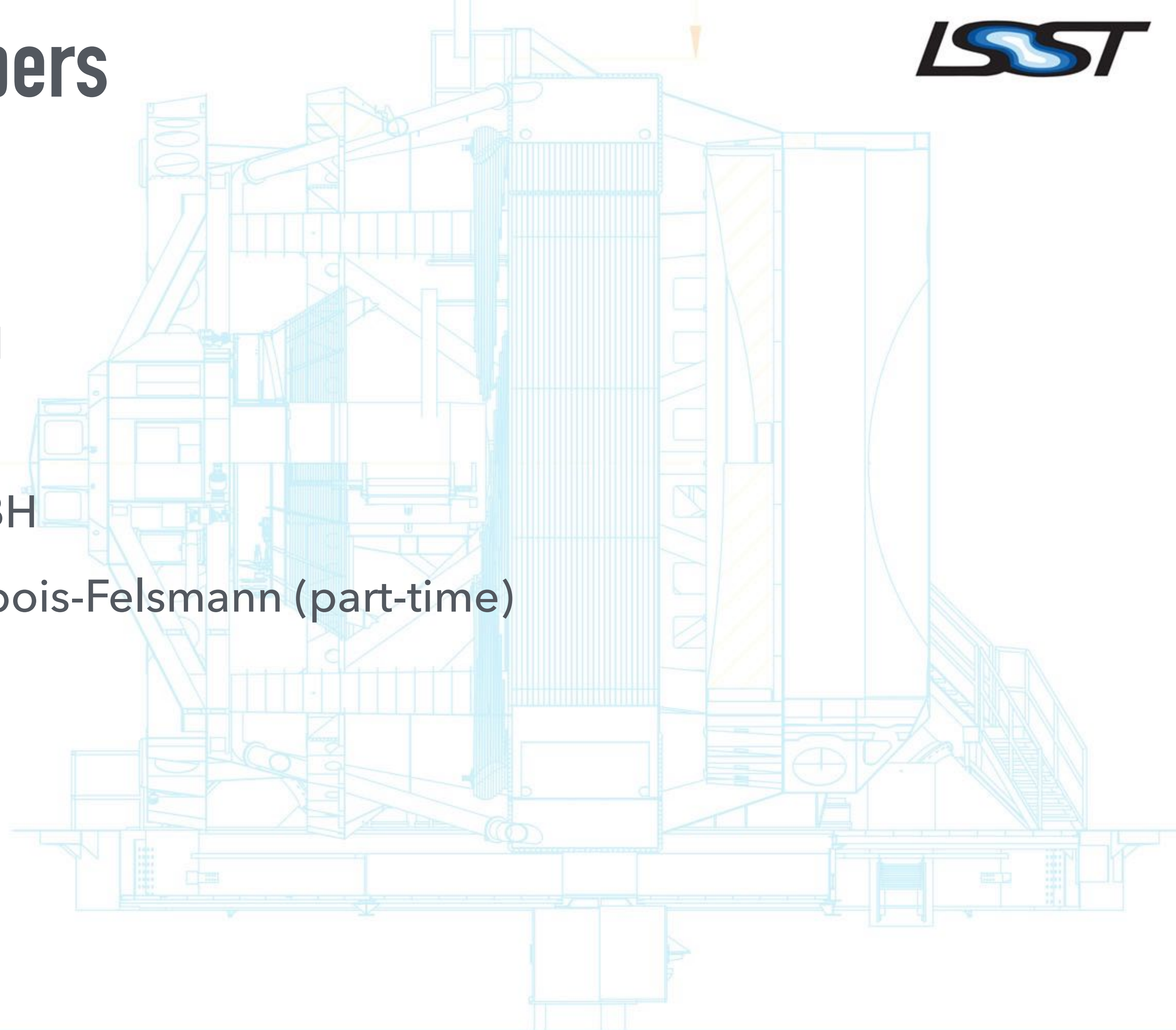
This WBS element includes all activities related to obtaining the data necessary to make architectural decisions, including literature research, prototyping, and model-building.



Architecture Team Members



- System Architect: Kian-Tat Lim
 - Architecture Investigator: TBH
- System Engineer: Tim Jenness
 - Assistant System Engineer: TBH
- Interface Scientist: Gregory Dubois-Felsmann (part-time)



Agile For Architecture

- Definition: planned as epics and stories for delivery of documents and document revisions, although substantial amounts are still LOE.
- Oversight: LOE.
- Investigation: planned as epics and stories for delivery of documents, data, and software, although most can only be defined at the cycle or even sprint level rather than at the DM Roadmap level.

Architecture In The Development Process



The Architecture team acts as a consultant for other teams and has an oversight role in helping to verify that designs and implementations are consistent with the overall architecture and standards. It provides requirements, assists in developing definitions of "done", and gives input to priorities especially when inter-team or inter-subsystem dependencies play a role.