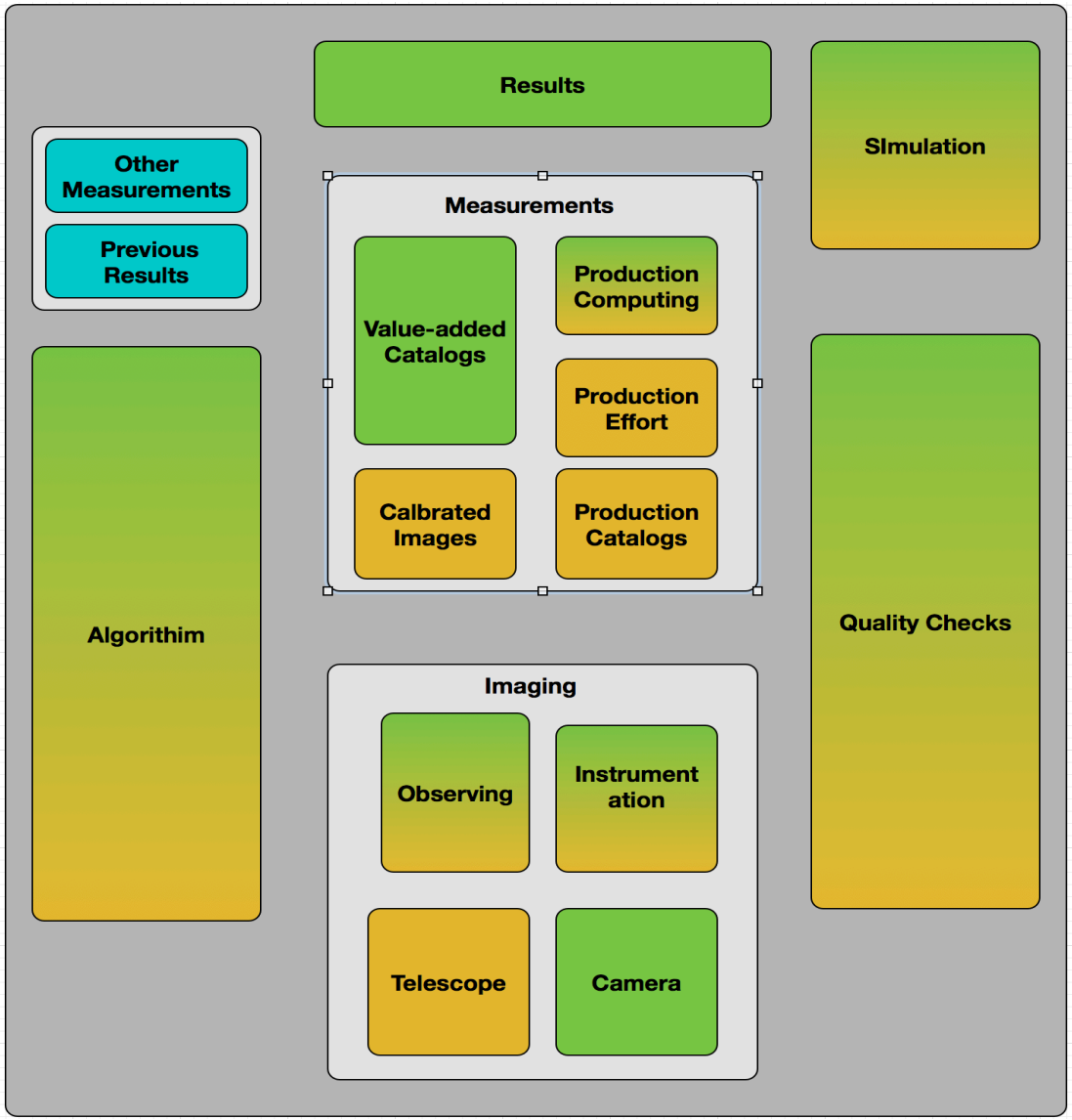
A view from the Cosmology Frontier

Don Petravick

NCSA

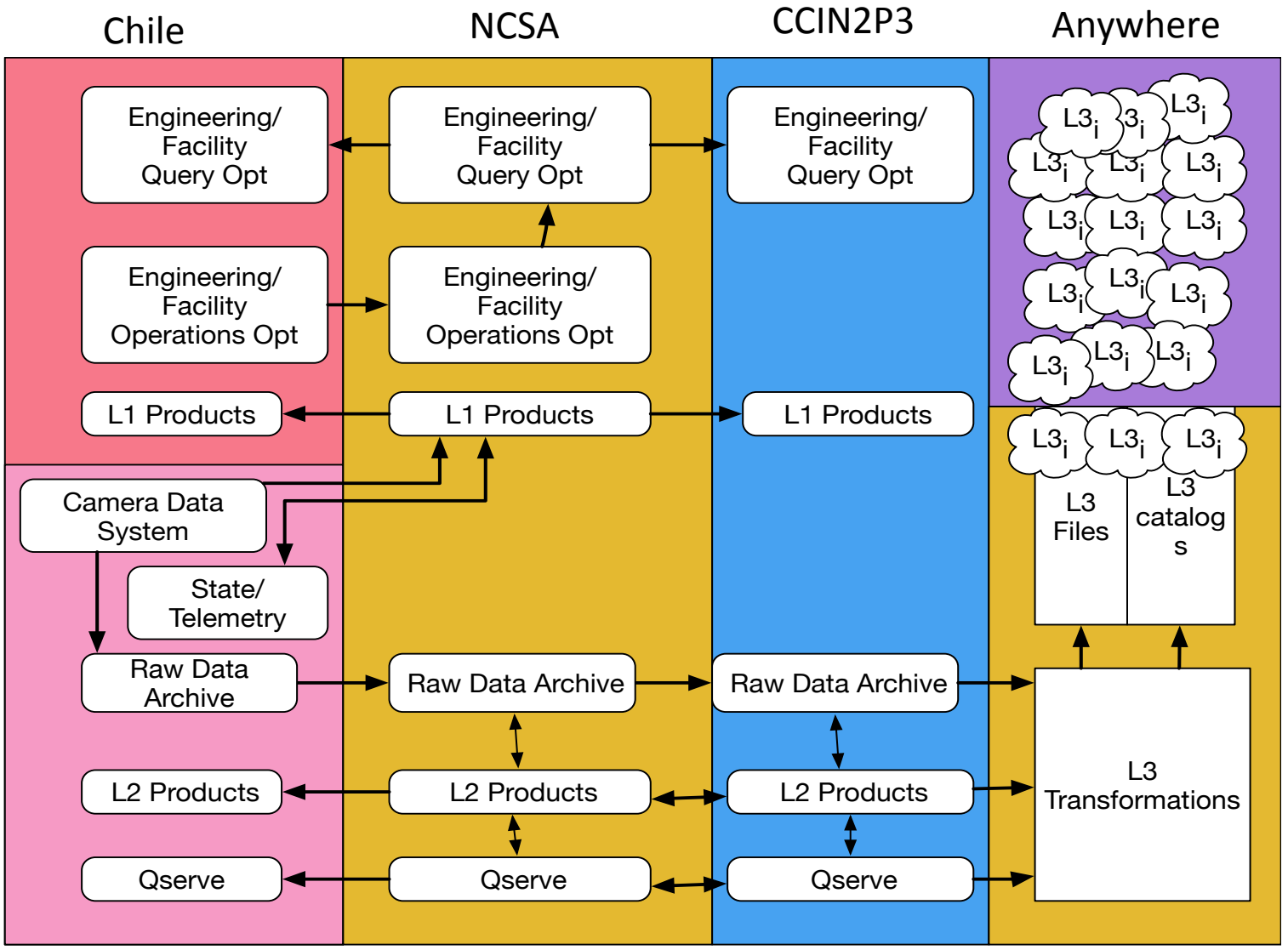
LDSESST

- The “or” of DES and LSST from my view of the projects I have worked on over the last 5 years.
- My Point of view is from leading production efforts at NCSA + LSST information sec.
- I see distributed, integrated effort from instrumen-tation to results.

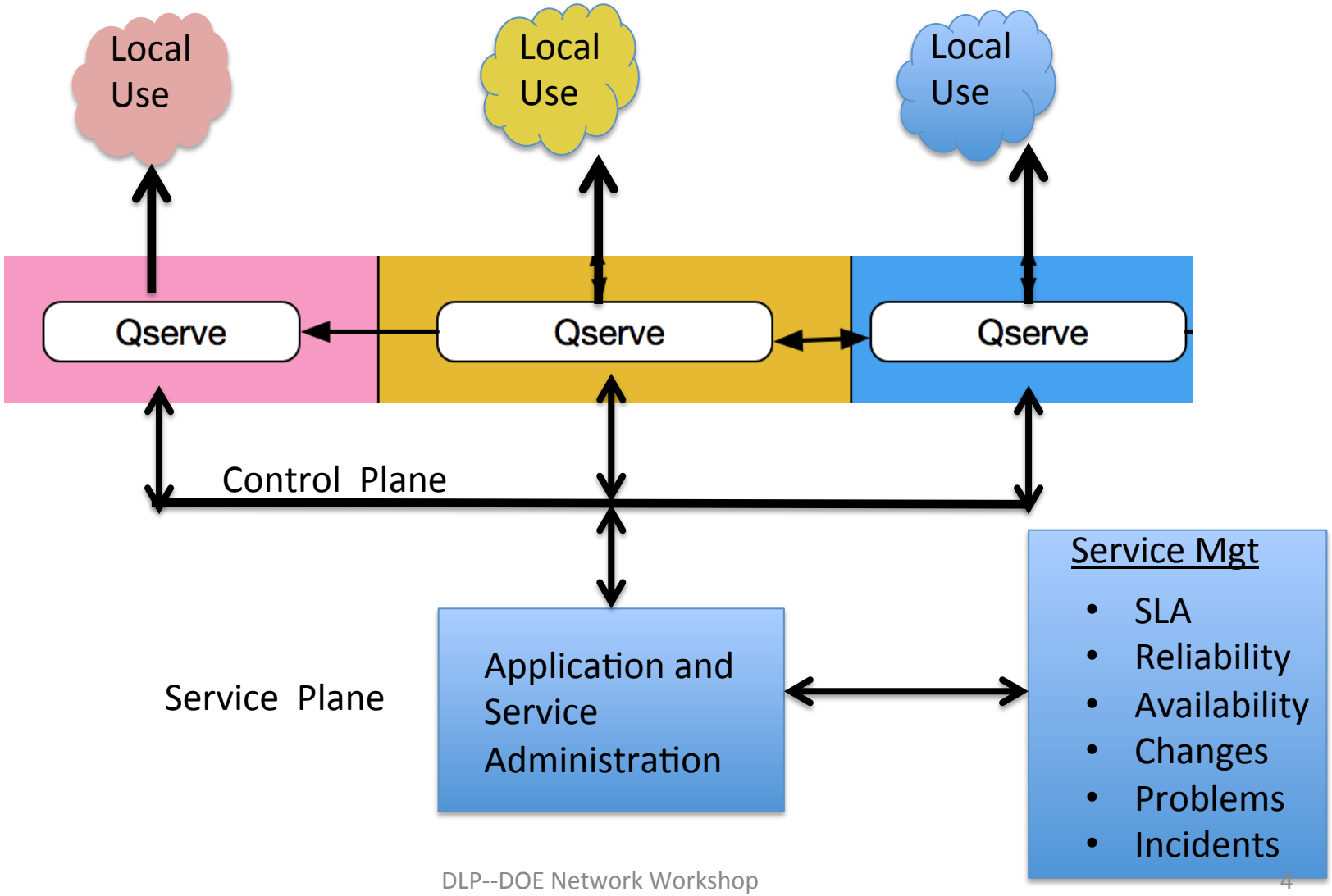


A view of two cosmology Frontier Projects. Green Indicates DOE support. Gold indicates NSF support

LSST MREFC Data Backbone (draft)



Example Slice



Example/Putative Network Capabilities

- **Software Defined Experiment Infrastructure**

1. International, flexible, extensible “scada” enclaves for instrument support
2. Unified storage for files, and more structured data, with transfers embedded in the middleware controlled by policy.
3. Unified service -level management and adminstration

- **Software Defined Networking**

1. Trans-national, dynamic Enclave Boundaries/security infrastructure.
2. Low level, connectivity apropos for distributed object or file stores; disaster recovery. (high -> low rate)
3. Control planes allowing use of normal tools typically used within a trust boundary.