



# Large Synoptic Survey Telescope

## The LSST System

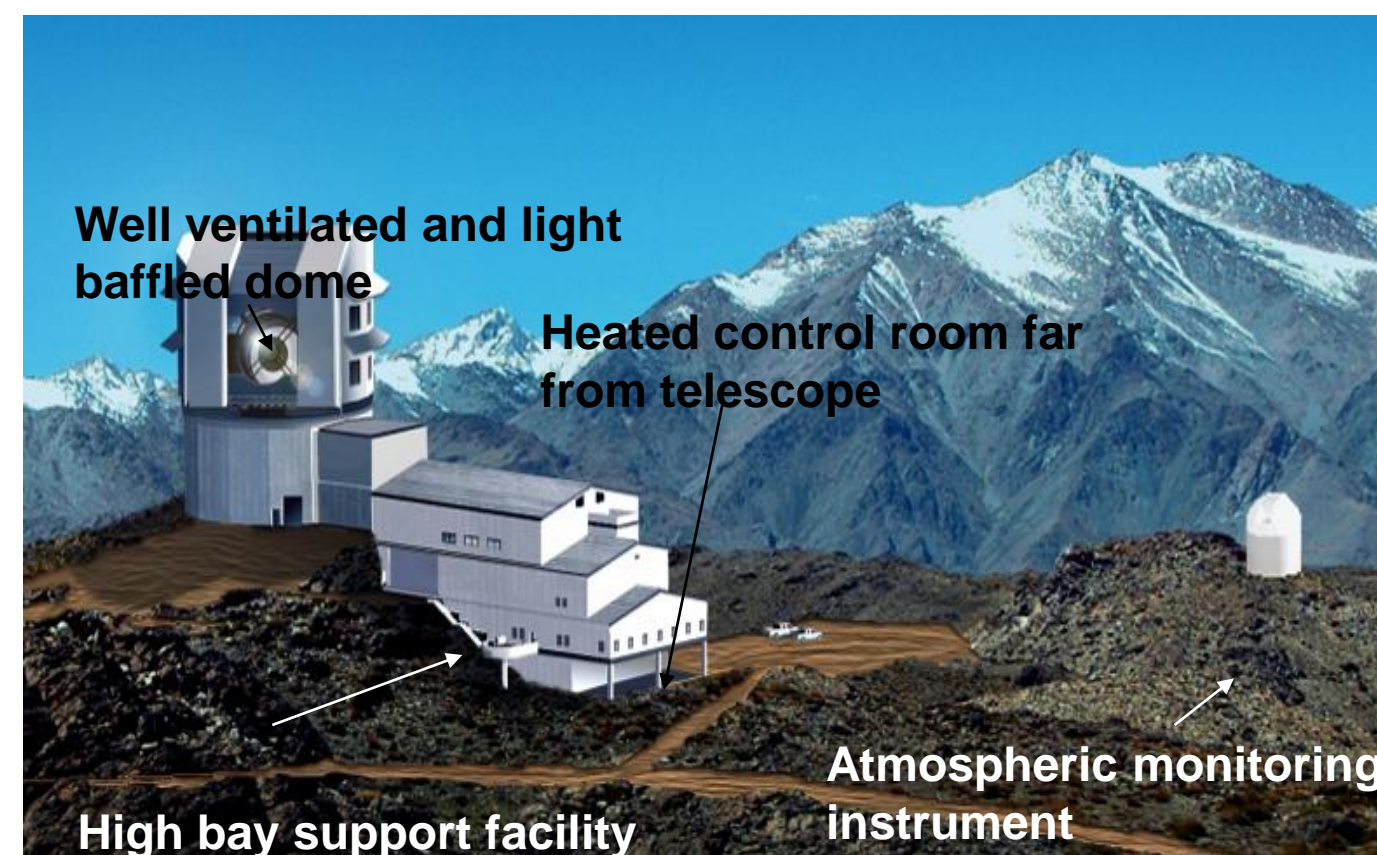
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- An 8.4m (6.5m effective), wide-field (9.6 degree<sup>2</sup>), ground-based telescope with a 3.2 GPixel camera
- Survey over 20,000 degree<sup>2</sup> with 1,000 re-visits over 10 years in six visible bands
- Acquire, process, and catalog the world's largest database of optical astronomical data
- Scheduled to begin full scientific operations in 2016

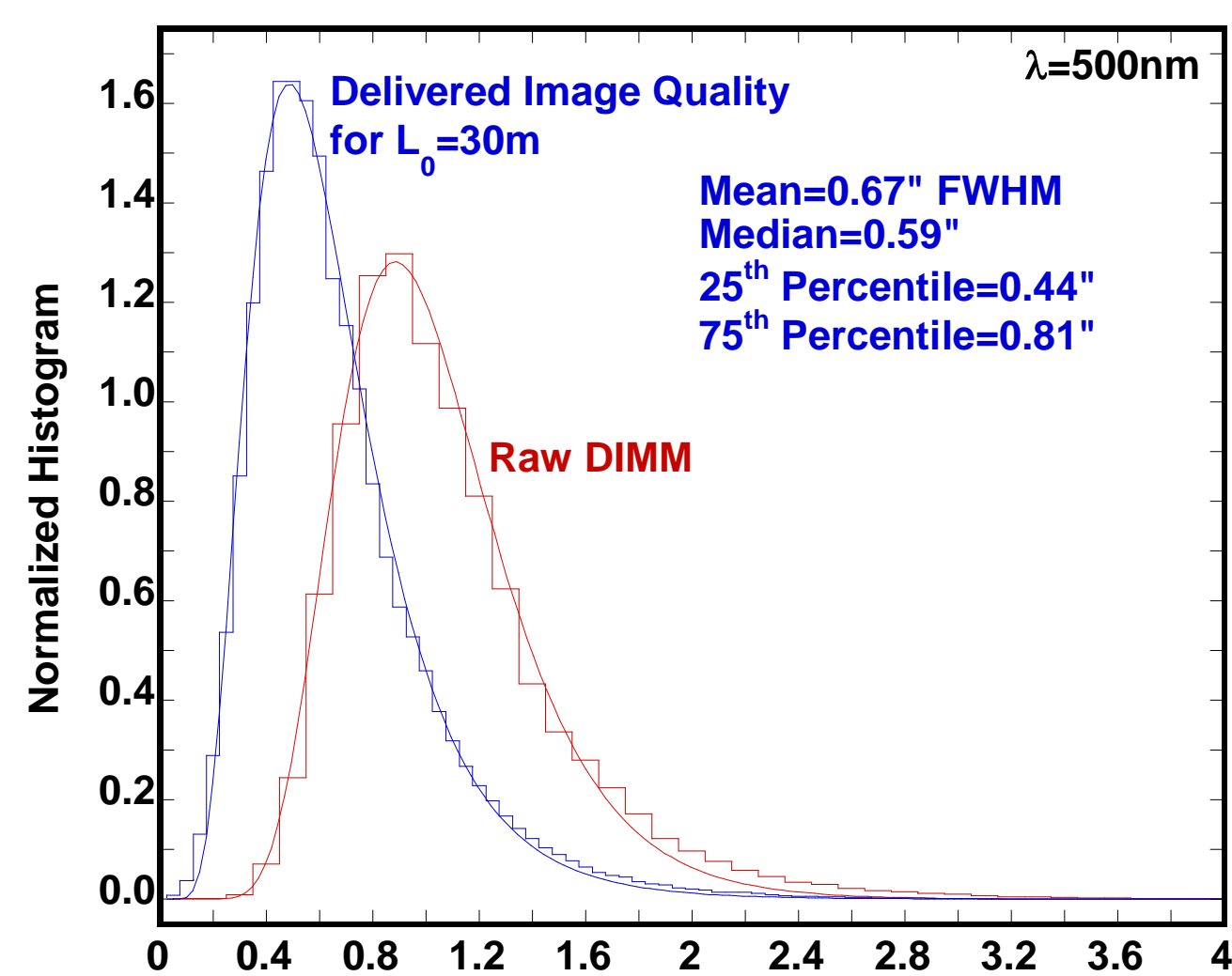
### Observatory Site



Site location near La Serena, Chile



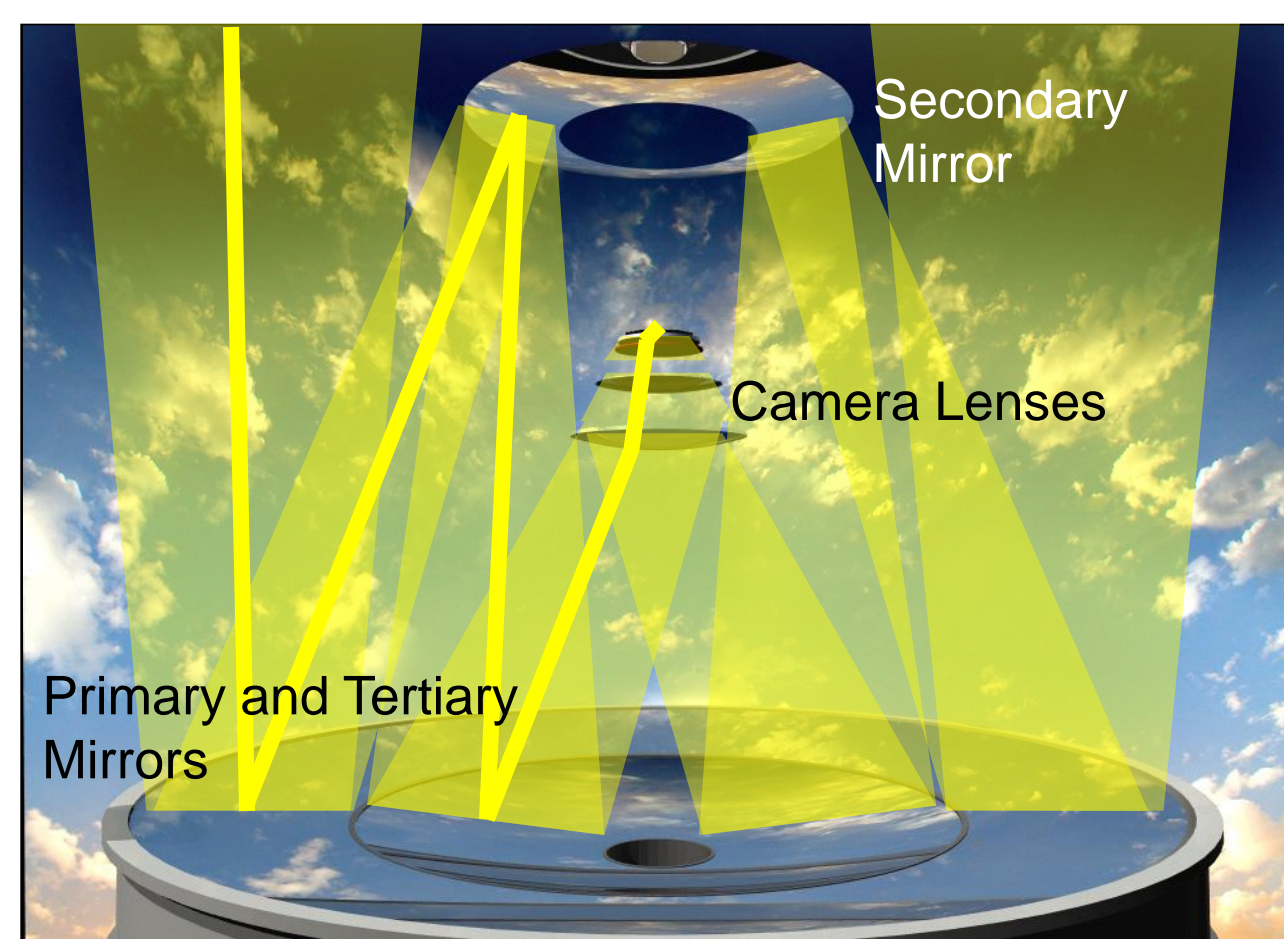
Site layout



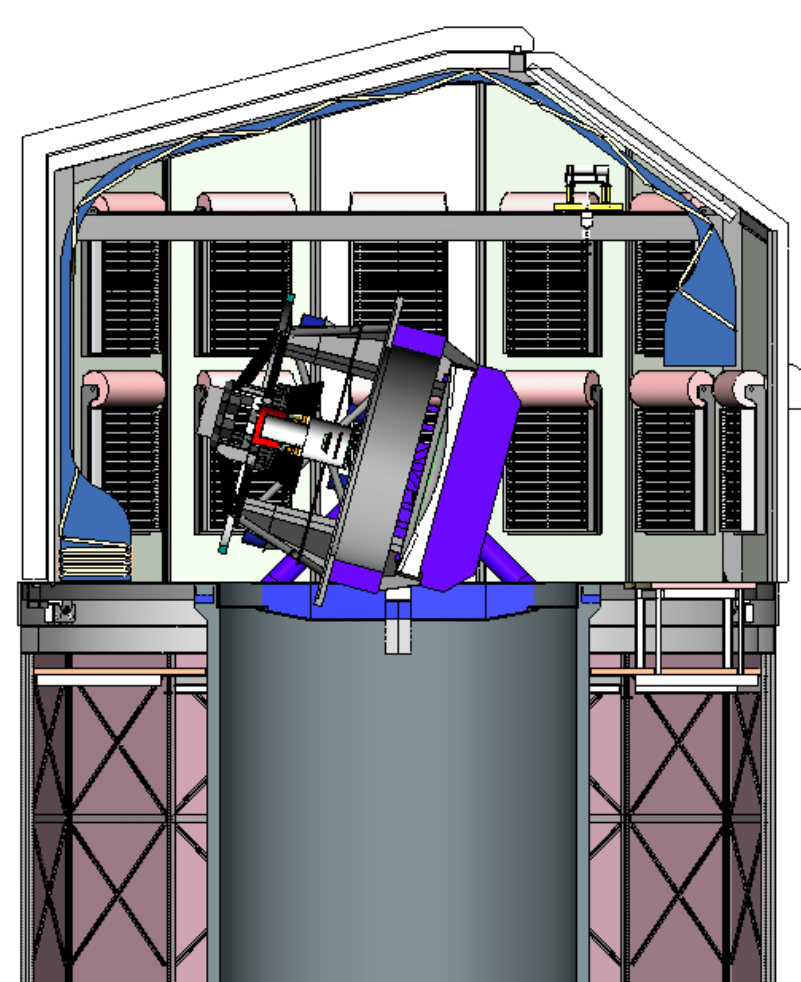
Site Seeing: Delivered ~ 0.7 arcsec median

### Telescope

- High throughput optical system  
8.4 meter primary aperture  
3.5 degree field of view  
f/1.2 beam
- Tight control of systematic error  
PSF shape control  
Delivered Image Quality – 0.3" FWHM
- Quick and agile telescope system  
32 second visit per pointing  
5 Sec slew & settle" between visits  
Robust Scheduling and Control
- High efficiency and duty cycle  
Repeating all night, each night for 10 years  
Unscheduled downtime < 3%  
Maintenance support to limit downtime

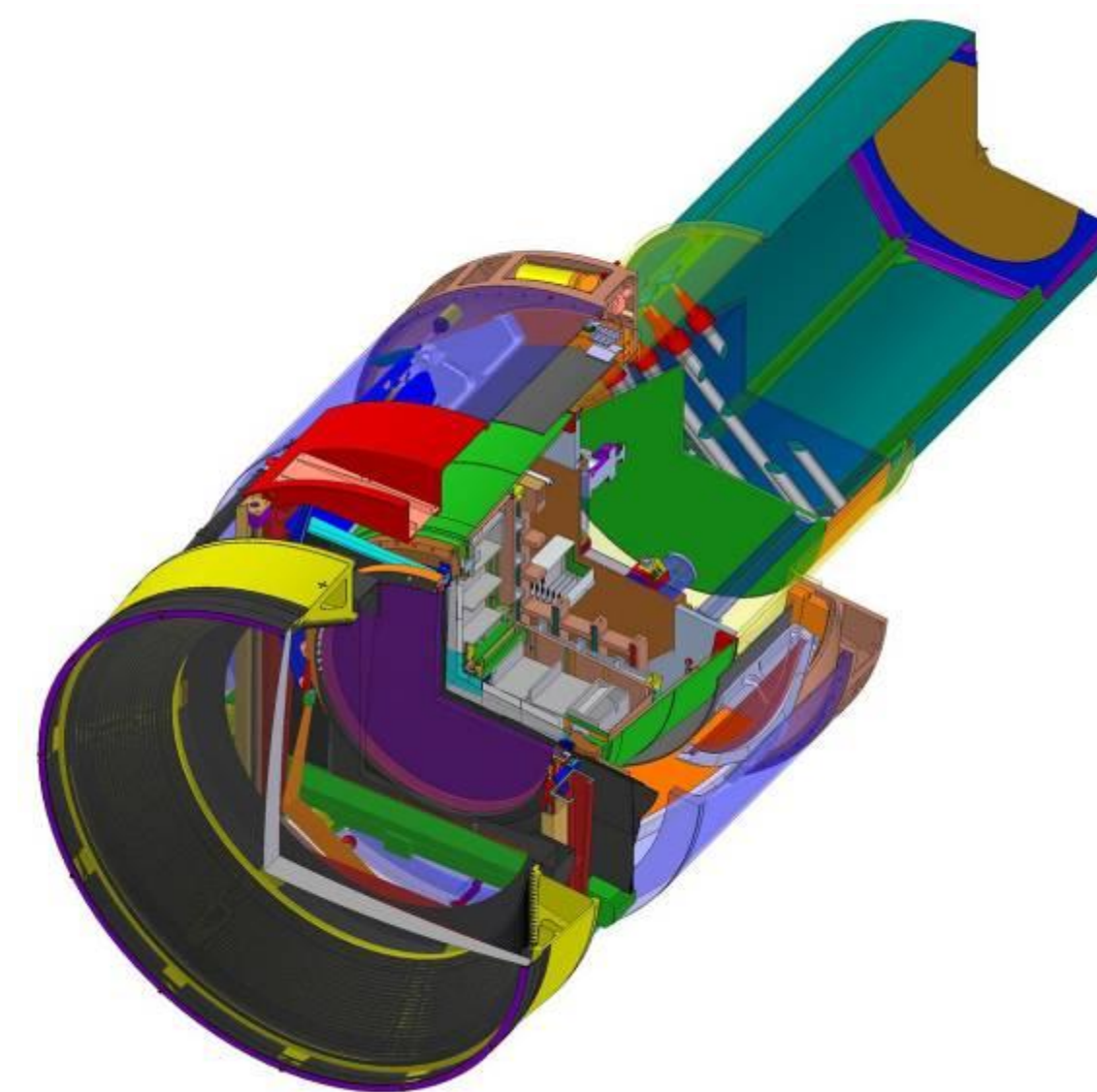


Optical Configuration



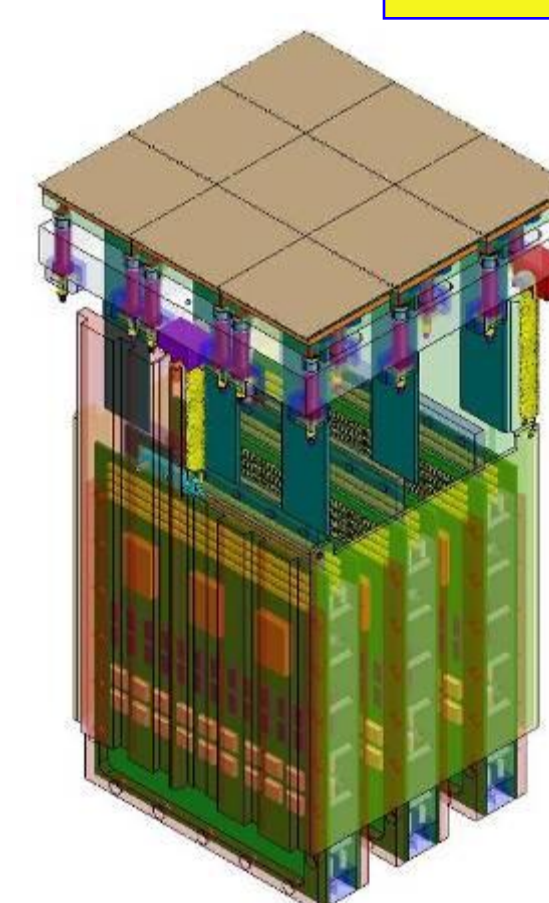
Carousel dome

### Camera



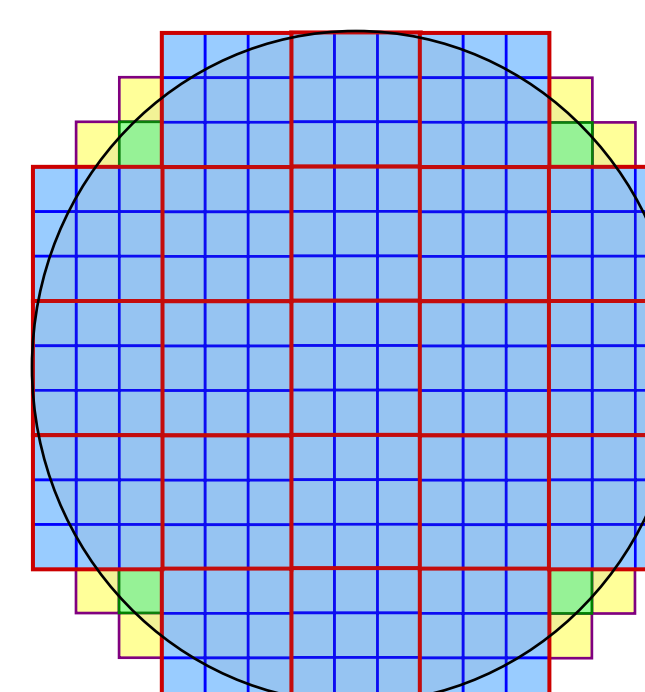
Five filters are resident in the camera; the active filter can be changed in less than 90 seconds

4K x 4K pixels on 10μm centers  
16 readouts/sensor  
330 nm to 1070 nm response  
1 second read time



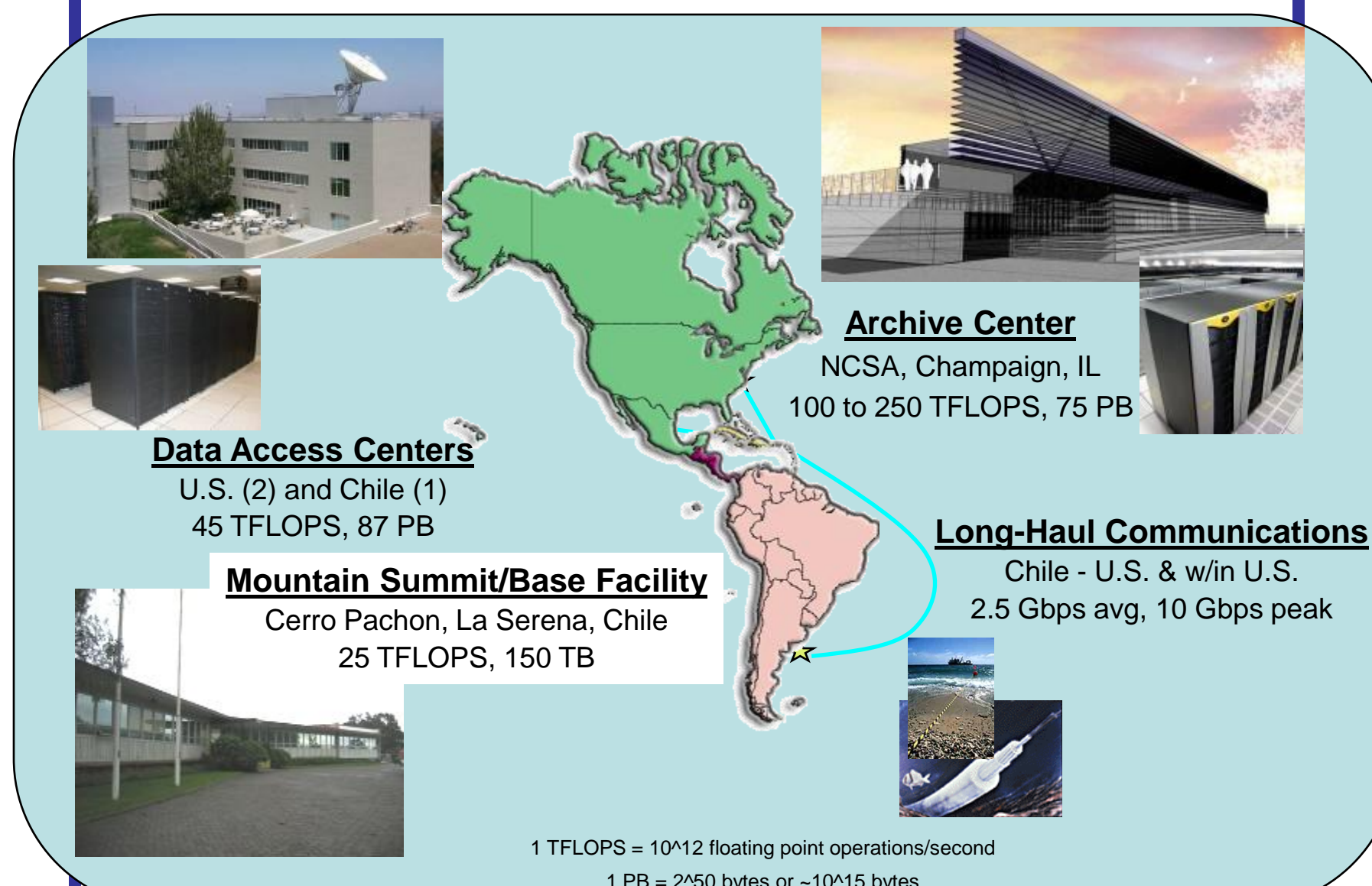
9 CCD's assembled into one raft  
21 rafts in the camera

The 63cm diameter focal plane has 189 CCD's arranged on 21 modular rafts

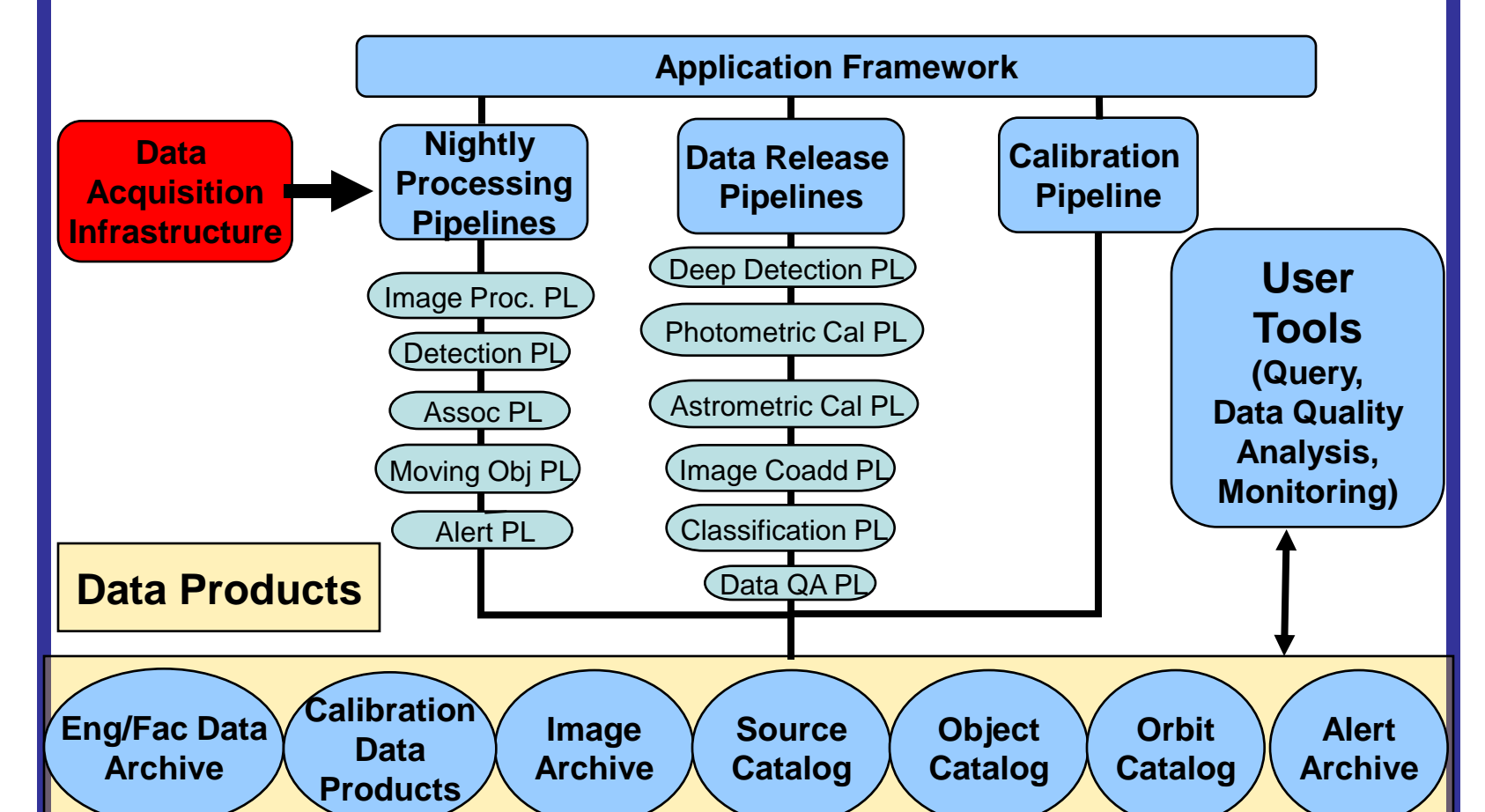


### Data Management

The LSST Observatory will produce **15 Terabytes** of data per night

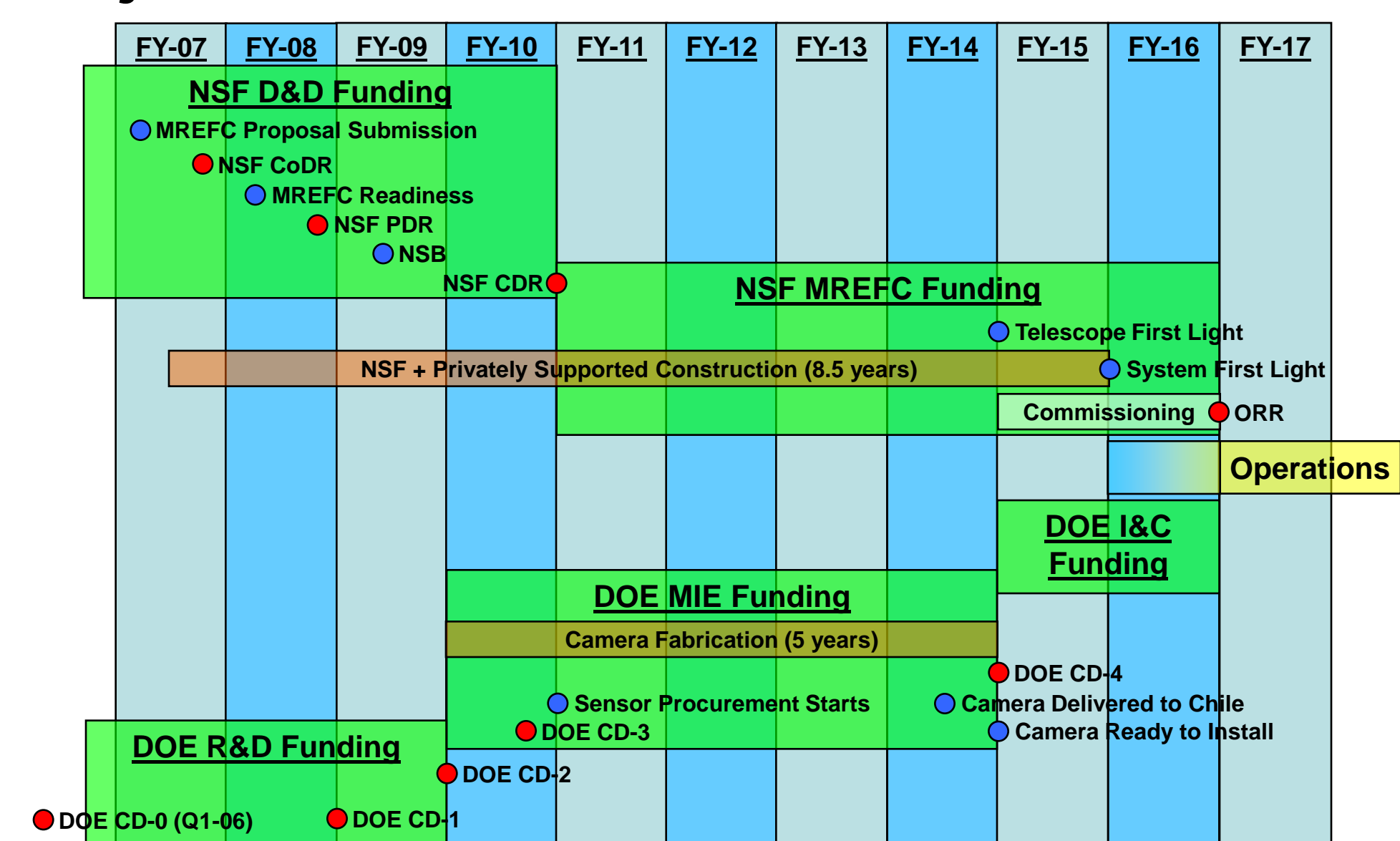


### Infrastructure Layout



### Middleware and Applications Software

### Proposed Project Schedule



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