The development of the LSST Data Management System (DMS) includes a series of four Data Challenges that take place during the Design and Development phase of the project. The Data Challenges are partial prototypes of the full DMS, each validating different aspects of the system. DC1, which was executed in 2006, emphasized scalability of the overall processing and data flows. DC2, which was executed in 2007, prototyped the nightly processing pipelines and the middleware that supports them. DC3, planned for execution in 2008, will prototype the data release pipelines. DC4, the final Data Challenge before construction begins, will focus on data access by the astronomical community and the data processing that supports scientific use of the LSST data.

### Relational Database Management System

- **Object Catalog**
  - ra / dec
  - proper motion / parallax
  - average calibrated magnitude for each filter
  - parameterized lightcurve for each filter
  - object classification
  - shape parameters
  - photo-Z
  - processing flags

- **Data Product Provenance**

- **Orbit**

- **Object Catalog**

- **Alerts**

- **Source Catalog**

- **DIASource Catalog**

- **Query Interface**

- **Alert Consumers**
  - Science Users
  - EPO Users

- **VO Event Distribution**

### Data Release Processing at Archive Center

- **Image Processing**
- **Image Stacking**
- **Deep Detection / Co-measurement**
- **All-sky Photometric and Astrometric Calibration**
- **Object Classification**

### Nightly Processing at Base Facility

- **Image Processing**
- **Image Subtraction**
- **DIA Source Detection and Association**
- **Moving Object Processing**
- **Alert Processing**

### Database contains multiple Data Releases DR1 - DR11, one per year.

- The DR1 Object Catalog contains:
  - 1.9 x 10^10 stars (dominated by Galactic plane/center)
  - 2.3 x 10^9 galaxies

- Alerts are generated within 60 sec of shutter close for the second exposure of a visit.

- Number of alerts is highly dependent on alerting parameters and fields covered (e.g., Galactic center). Can be up to 10^8 per night.