Alert Production End to End Flow

02C.07.01.01 DMCS (Data Management Control System)

- DMCS connects to DM Event Services Broker and OCS
- Starts jobs on replicators, distributors and workers.

02C.07.01.02 Orchestration Manager (LDM-230)

- Receives processing jobs from DMCS (one for each CCD and wavefront sensor)
- Receives archiving jobs from DMCS (one for each raft and one for WFS images)
- Jobs are distributed to worker machines
  - Retrieve template image (by filter and airmass)
  - Retrieve Objects from last Data Release
  - Retrieve master calibration images

02C.03.01 Single Frame Processing Pipeline
See: Level 1 Calibrated Exposure Processing and LDM-151.
CCDs are treated independently for alert processing.

- Snap processing (per amplifier)
  - Instrumental signature removal
- Combine snaps into a visit
  - cosmic ray rejection / no warping / assumes perfect alignment
- Background estimation
- Determine PSF
- Extract sources
- WCS calibration
- Photometric zero-point

02C.03.04 Image Differencing Pipeline
See: Level 1 Difference Imaging and Moving Object Processing

- Select appropriate template image (filter/airmass specific)
- Difference template and visit
- Detect sources

02C.03.02 Association Pipeline

- Associate DIASources with DIAObjects or SSObjects
- Associate DIAObjects with Objects

02C.03.03 Alert Generation Pipeline

- Retrieve history of detected DIASources
- Generate alert packets
- Publish to brokers

02C.01.02.01 Science Data Quality Metrics

- Calculate additional science quality metrics
- Summarize metrics (PSF, WCS,…)
- Publish metrics to OCS

02C.03.06 Moving Object Pipeline
Two versions (LDM-156):

- NightMOPS predicts the SSObjects that should be seen in a given visit.
  - Coarse ephemerides calculated during day
  - Precise ephemerides calculated at nextVisit trigger
- DayMOPS takes unassociated DIAObjects and determines whether they are consistent with a solar system object.

also see Level 1 Difference Imaging and Moving Object Processing

02C.06.01.01 Catalogs, Alerts and Metadata
Databases used:

- Alert database
- Tracklet database
- Moving Object Database

02C.05.03 Alert/Notification Toolkit (LDM-130)

- Display full history of alert
    - include all postage stamps and light curve
    - Object association
    - Possible cross-matching with other catalogs
- Annotate an alert
- View previous annotations

Relevant Key Performance Metrics

⚠ DLP-323 - Jira project doesn't exist or you don't have permission to view it.

⚠ DLP-324 - Jira project doesn't exist or you don't have permission to view it.

⚠ DLP-325 - Jira project doesn't exist or you don't have permission to view it.

⚠ DLP-326 - Jira project doesn't exist or you don't have permission to view it.

⚠ DLP-327 - Jira project doesn't exist or you don't have permission to view it.

⚠ DLP-328 - Jira project doesn't exist or you don't have permission to view it.

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