

The background of the slide is a dark blue technical drawing. It features various engineering sketches in yellow and light blue, including circular arcs, dashed lines, and structural components. The drawings are partially obscured by the central text and logo.

# Middleware Status, 2019-10



*Large Synoptic Survey Telescope*

# Some Recent Progress Items

- Jim's first [1 of 2] big refactor landed; second now underway
- Repo bootstrapping improvements
- BG3 ci\_hsc now available in Jenkins to guard against regressions
- CPP task conversion is moving along well (Chris W. branches)
- New pipeline def/config yaml from Nate nearing completion
- We know enough now to much more concretely ticket remaining work

# New Pipeline Def'ns

```
name: ProcessCcd
tasks:
  isr: lsst.ip.isr.IsrTask
  charImage:
lsst.pipe.tasks.characterizeImage.CharacterizeImageTask
  calibrate: lsst.pipe.tasks.calibrate.CalibrateTask

contracts:
- >
  calibrate.ref_match.matcher.maxRotationDeg == 1.145916 and
  charImage.repair.cosmicray.nCrPixelMax = 100000
```

# New Pipeline Def'ns

```
name: test_pipeline2
instrument: lsst.obs.subaru.gen3.hsc.instrument.HyperSuprimeCam
inherits:
- location: "{NATES_NOTES}/test_pipeline.yaml1"
  exclude:
  - isr
tasks:
isr: lsst.ip.isr.IsrTask
mwt:
  class: lsst.pipe.tasks.makeCoaddTempExp.MakeWarpTask
  config:
    matchingKernelSize: 29
    makePsfMatched: True
    modelPsf.defaultFwhm: 7.7
    doApplyUberCal: False
    doApplySkyCorr: False
    doWriteEmptyWarps: True
    python: config.warpAndPsfMatch.psfMatch.kernel['AL'].alardSigGauss = [1.0, 2.0, 4.5]

contracts:
- contract: mwt.doWriteEmptyWarps == True
  msg: "Just a check"
```

# Refactor II [Jim: 30]

## DM-21231 Refactor Registry handling of dataset and associated tables

- DM-21764 Better encapsulate dataset storage in Registry
- DM-21766 Add per-dataset-type tables to Registry
- DM-21768 Vectorize dataset insert API
- DM-21770 Vectorize dataset insert implementations
- DM-19807 Avoid savepoints in Gen3 ingest and bulk conversions
- DM-21773 Add support for per-StorageClass metadata fields
- DM-21795 Rework Registry provenance tables to match insert order
- DM-21849 Add specialized uniqueness for collections and dataset types
- DM-21448 Refactor DatasetRef into multiple better-defined classes

# Registry & Schema [Jim: 11, Tim: 9]

- DM-15890 Switch butler schema to use MJD rather than datetime
- DM-15536 Add level of indirection in defining Visits from Exposures
- DM-21794 Add site component to all autoincrement data IDs in Registry
- DM-21854 Ensure Gen3 Registry symbols don't exceed DB-imposed name length limits
- DM-21858 Ensure integer dimension IDs are instrument-unique for LSST data
- DM-21901 Add registry support for ephemeral dataset locations
- DM-21900 More functionality for filename template generation

# Multi-User Registries [Jim: 20]

- DM-21907 Implement multi-user Registries

# Obs Packages [JP: 20, Tim: 8]

- DM-21860 Add basic Gen3 butler support to obs\_cfht
- DM-21861 Add basic Gen3 butler support to obs\_sdss
- DM-21862 Extend Gen3 butler support for obs\_decam
- DM-21864 Extend Gen3 butler support for obs\_lsst
- DM-21865 Extend Gen3 butler support for obs\_cfht



# DRP

- DM-19470 Create jointcal PipelineTask [JP: 50]
- DM-21904 Improve QuantumGraph generation for Jointcal [?: 8]
- DM-21871 Convert pipe\_analysis tasks to PipelineTasks [?: 15]
- DM-21739 Enable fringe and HSC y-band stray light correction in Gen3 IsrTask [CW: ?]
- DM-21872 Final middleware consistency check for DRP pipelines

# AP [KF: 21, Ian: 2, Gabor: 8]

DM-21919 Run ap\_verify end-to-end in Gen 3

DM-21939 Create Gen 3 AP Pipeline

(DM-21862 Extend Gen3 butler support for obs\_decam)

DM-21874 Create PipelineTask version of ImageDifferenceTask

DM-21917 Convert DCR templates to PipelineTasks

DM-21886 Create PipelineTask driver for ap\_pipe tasks that interact with the PPDB

DM-21944 Create Gen 2 Task driver for ap\_pipe tasks that interact with the PPDB

DM-21877 Create "marker" Butler dataset for PPDB

DM-21915 Support Gen 3 ingestion of ap\_verify datasets

DM-21888 Stand up Gen3 version of ap\_verify HiTS (2015) CI test

DM-21885 Convert concrete MetricTasks to PipelineTasks

DM-21911 Retrofit Gen 3 functionality onto MetricTask

DM-21912 Implement PpdbMetricTask.runQuantum

# CPP [Chris W: ??]

- DM-21212 Update existing cp\_pipe tasks to pipelineTasks

# Workflow Tooling

- DM-21421 Create a system to define pipeline level execution and configuration [Nate: wrapping up...]
- DM-21900 More functionality for filename template generation [Nate: 2]
- DM-21892 Implement ctrl\_pool / MPI / Slurm PipelineTask executor [?: 10]
- DM-21898 Create command-line tools for Gen3 repo administration [?: 20]
  - DM-15257 Refactor argument parsing to work with drivers that aren't CmdLineTask [?: 12]

# Provenance

- DM-14358 Enable provenance recording in PipelineTasks [Andy: 4]
- Working group follow-on tasks?

# QA / Squash

- DM-21875 Add StorageClass and Formatter support necessary to persist `lsst.verify.Measurement` in Gen3 repos
- DM-21916 SQuaSH upload of Gen 3 Measurements

# Bugs

- DM-20695 Coadd in Gen3 doesn't have a Selector like the one in Gen2
- DM-21832 lsst.obs.base.FilterDefinition should raise if abstract\_filter is not set
- DM-21840 Handle NULL values for optional implied dependencies in query logic
- There will be more...

# What's the current answer?

Current critical path[s]:

Jim: 61 (@9 sp./mo.)

John Parejko: 50

6 wks effort best case + holidays + unexpected - optimism  
= July 2020

[Conclusion: back to planning, trim and get Jim out sooner...]