Product Tree and Document Tree

Gabriele Comoretto

SW Configuration and Release Engineer

DMLT Face-to-Face

November 6-8 2018

Presentation Summary

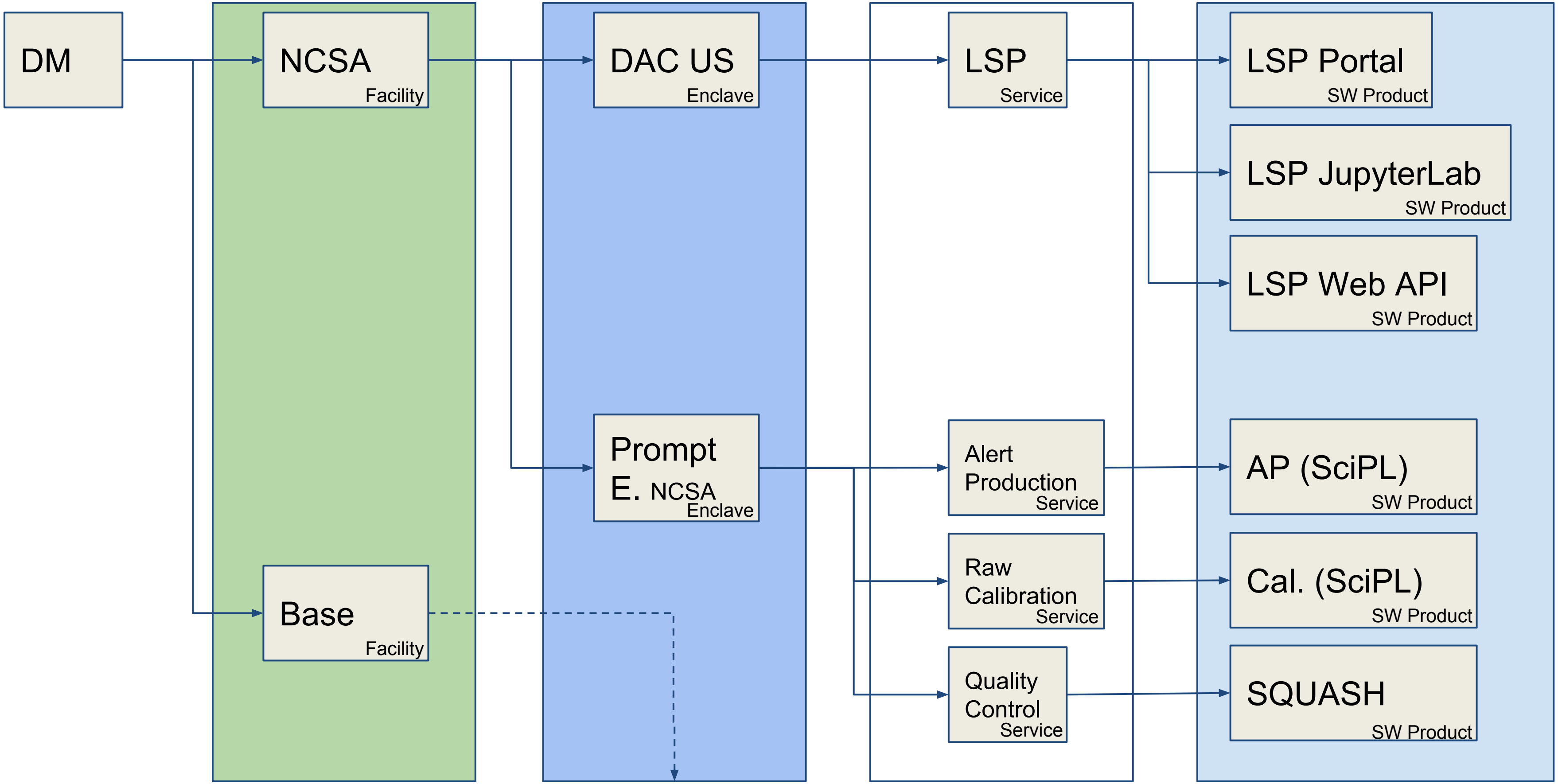
- The Product Tree
  - Introduction
  - Decomposition Example
  - High Level Product Tree
  - Deployment Map
  - DM Services
  - DM SW Products
  - Products List
  - Conclusions

- The Document Tree
  - Docs per Product
  - Documents Status
  - Tree Summary
  - Relevant Products
  - Missing documents

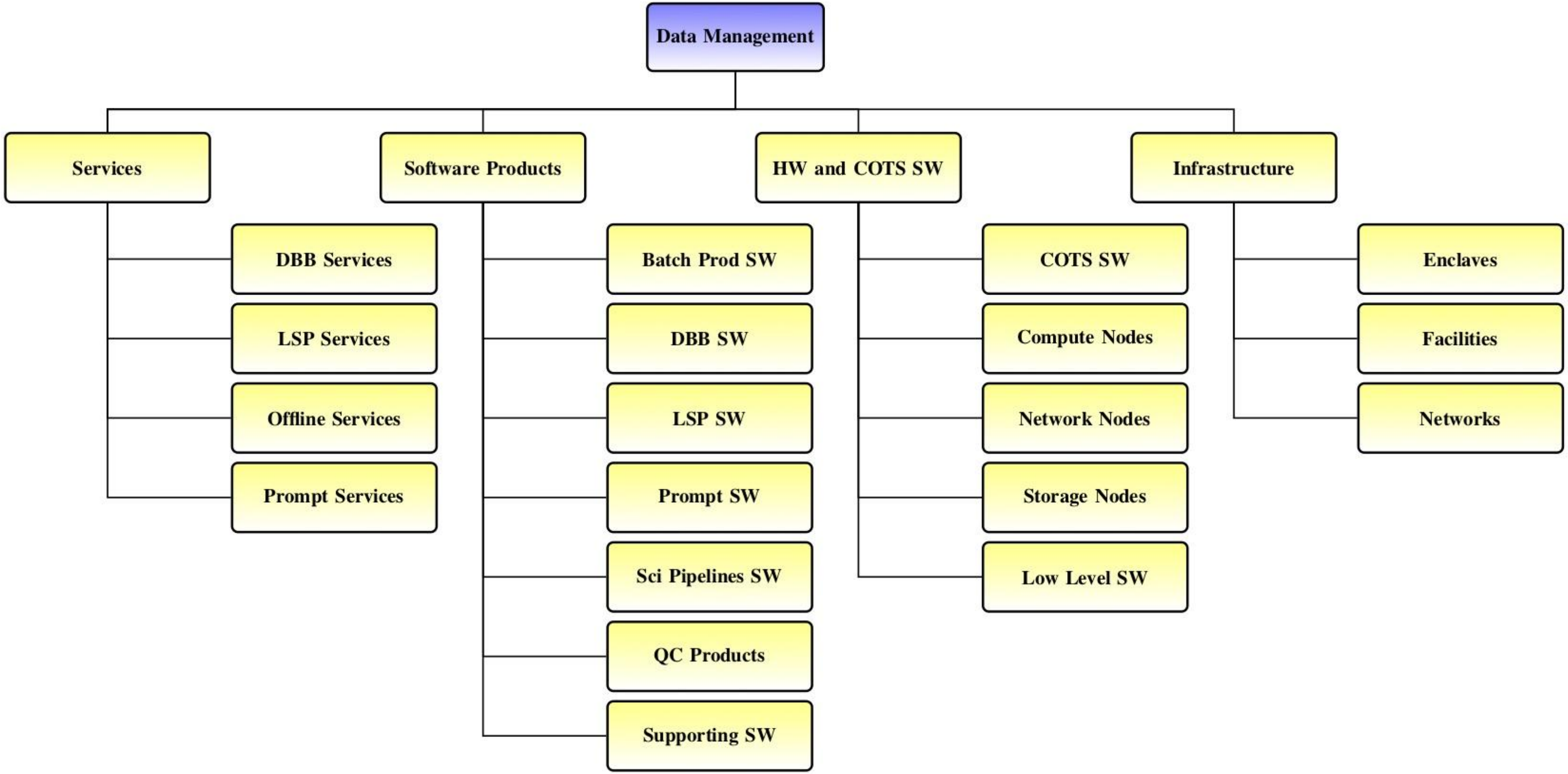
Product Tree Introduction

- Follow-up of my presentation from May on DM Operational Product Tree
- The DM subsystem has been modeled in MagicDraw following SE guidelines
  - using an object oriented approach
  - integrating model information with:
    - Requirements
    - Signals
    - Other LSST subsystems information
- Identify - Organize - Describe - Characterize → For each product we shall have:
  - Name (Reference for the product)
  - Reference person in DM
  - Abbreviation (unique KEY string - acronym)
  - Description (used to describe the products in LDM-148 and LDM-294, not all products are listed in those docs)
  - Documentation (see following Doc Tree slides)
- The logic used to derive the Product Tree is:
  - Given a DM Product, what other products are needed to implement it
- The objective is not to fix the product tree to a static situation but:
  - Been able recognize what product we have in a dynamic way…

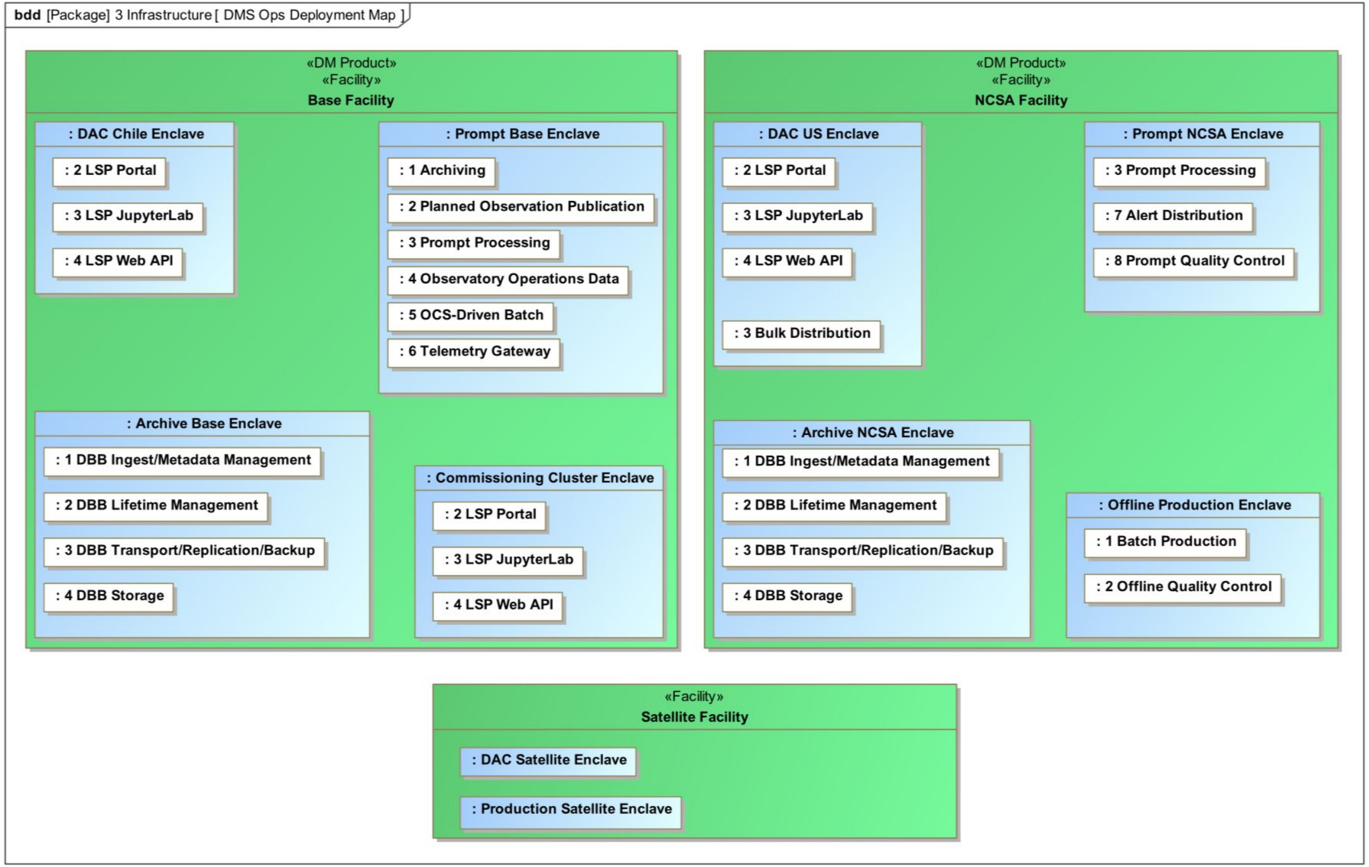
Decomposition Example



High Level Product Tree



Deployment Map



bdd [Package] 3 Infrastructure [DMS Ops Deployment Map]

«DM Product»
«Facility»
Base Facility

: DAC Chile Enclave
- : 2 LSP Portal
- : 3 LSP JupyterLab
- : 4 LSP Web API

: Prompt Base Enclave
- : 1 Archiving
- : 2 Planned Observation Publication
- : 3 Prompt Processing
- : 4 Observatory Operations Data
- : 5 OCS-Driven Batch
- : 6 Telemetry Gateway

: Archive Base Enclave
- : 1 DBB Ingest/Metadata Management
- : 2 DBB Lifetime Management
- : 3 DBB Transport/Replication/Backup
- : 4 DBB Storage

: Commissioning Cluster Enclave
- : 2 LSP Portal
- : 3 LSP JupyterLab
- : 4 LSP Web API

«DM Product»
«Facility»
NCSA Facility

: DAC US Enclave
- : 2 LSP Portal
- : 3 LSP JupyterLab
- : 4 LSP Web API
- : 3 Bulk Distribution

: Prompt NCSA Enclave
- : 3 Prompt Processing
- : 7 Alert Distribution
- : 8 Prompt Quality Control

: Archive NCSA Enclave
- : 1 DBB Ingest/Metadata Management
- : 2 DBB Lifetime Management
- : 3 DBB Transport/Replication/Backup
- : 4 DBB Storage

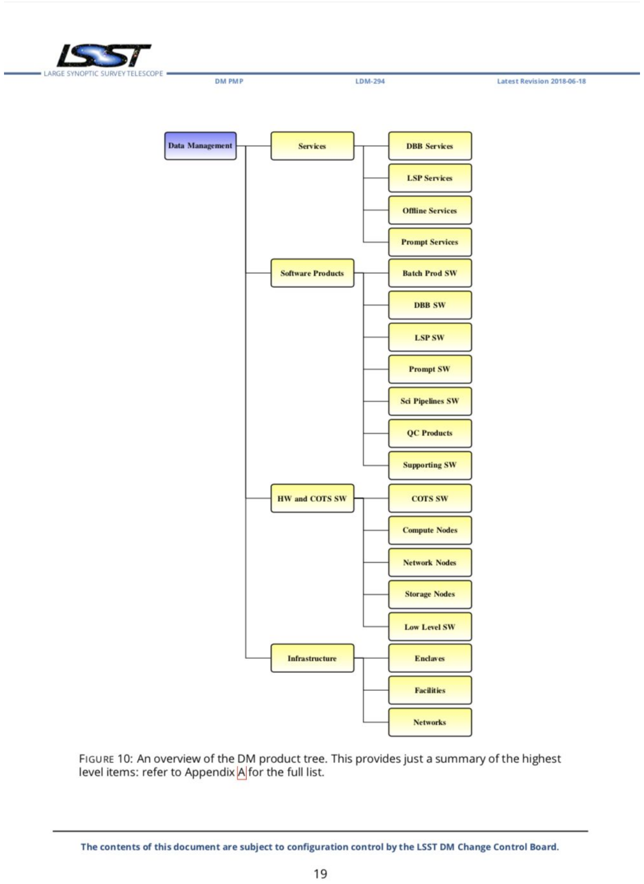
: Offline Production Enclave
- : 1 Batch Production
- : 2 Offline Quality Control

«Facility»
Satellite Facility

- : DAC Satellite Enclave
- : Production Satellite Enclave

LDM-294 and LDM-148

- The *main* DM components are documented LDM-148 and LDM-294
  - The source text for that components is defined in MD in order to have one single source of true
- LDM-294 provides
  - a list of all DM products extracted from MD (in appendix)
  - the top level Product tree (only the first 2 levels)
- Is this Product Tree up-to-date? Need to look more in detail..



LARGE SYNOPTIC SURVEY TELESCOPE

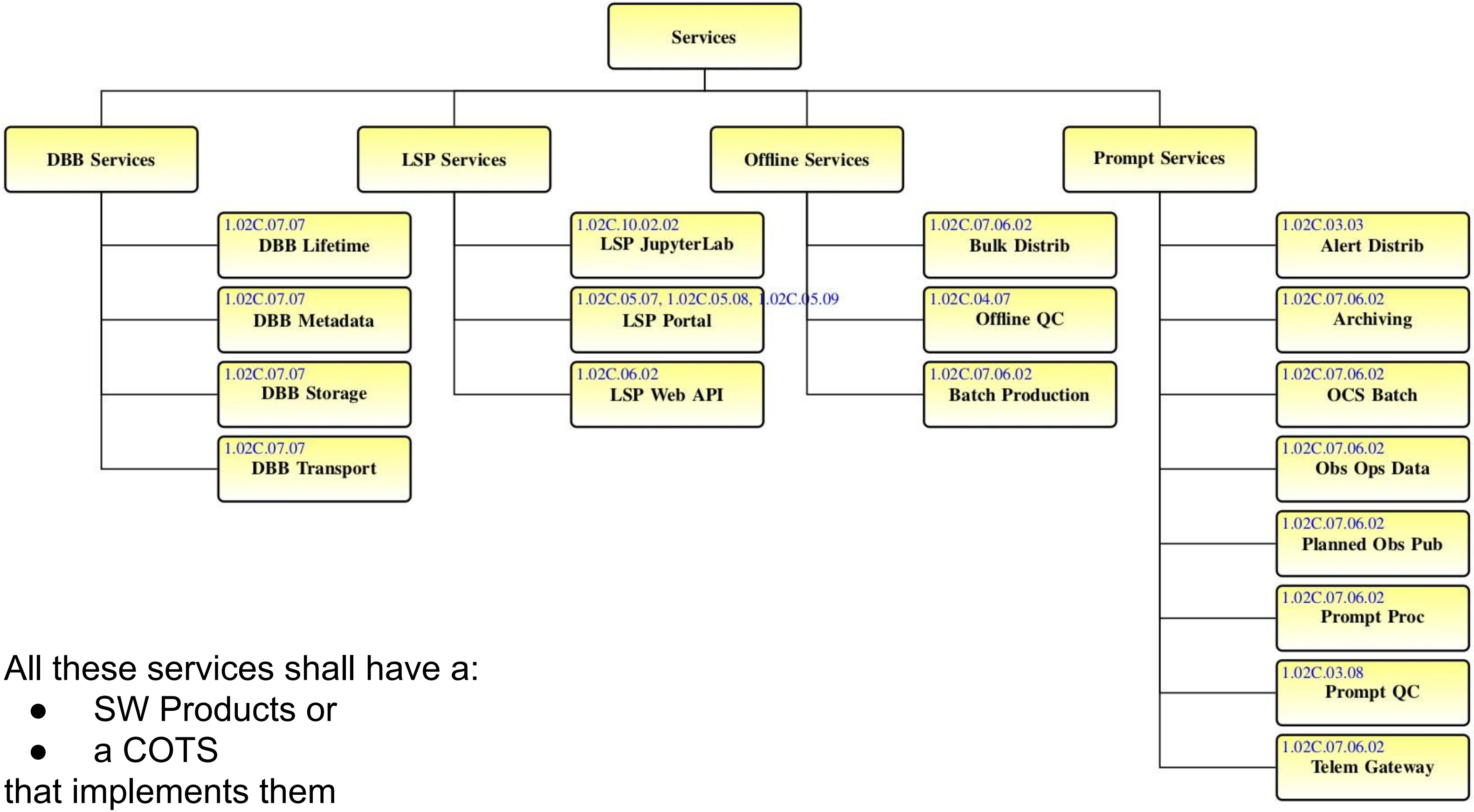
DM PMP LDM-294 Latest Revision 2018-06-18

FIGURE 10: An overview of the DM product tree. This provides just a summary of the highest level items: refer to Appendix A for the full list.

The contents of this document are subject to configuration control by the LSST DM Change Control Board.

19

DM Services



Services

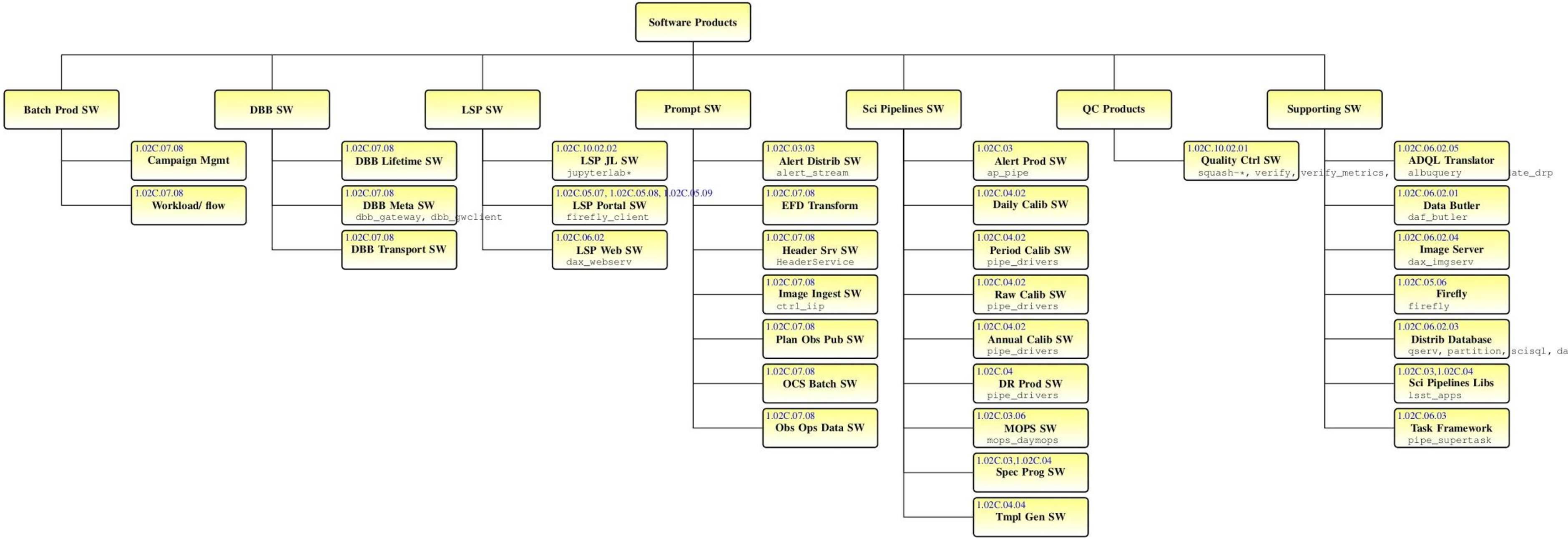
- DBB Services
  - 1.02C.07.07 DBB Lifetime
  - 1.02C.07.07 DBB Metadata
  - 1.02C.07.07 DBB Storage
  - 1.02C.07.07 DBB Transport
- LSP Services
  - 1.02C.10.02.02 LSP JupyterLab
  - 1.02C.05.07, 1.02C.05.08, 1.02C.05.09 LSP Portal
  - 1.02C.06.02 LSP Web API
- Offline Services
  - 1.02C.07.06.02 Bulk Distrib
  - 1.02C.04.07 Offline QC
  - 1.02C.07.06.02 Batch Production
- Prompt Services
  - 1.02C.03.03 Alert Distrib
  - 1.02C.07.06.02 Archiving
  - 1.02C.07.06.02 OCS Batch
  - 1.02C.07.06.02 Obs Ops Data
  - 1.02C.07.06.02 Planned Obs Pub
  - 1.02C.07.06.02 Prompt Proc
  - 1.02C.03.08 Prompt QC
  - 1.02C.07.06.02 Telem Gateway

All these services shall have a:

- SW Products or
- a COTS

that implements them

DM SW Products



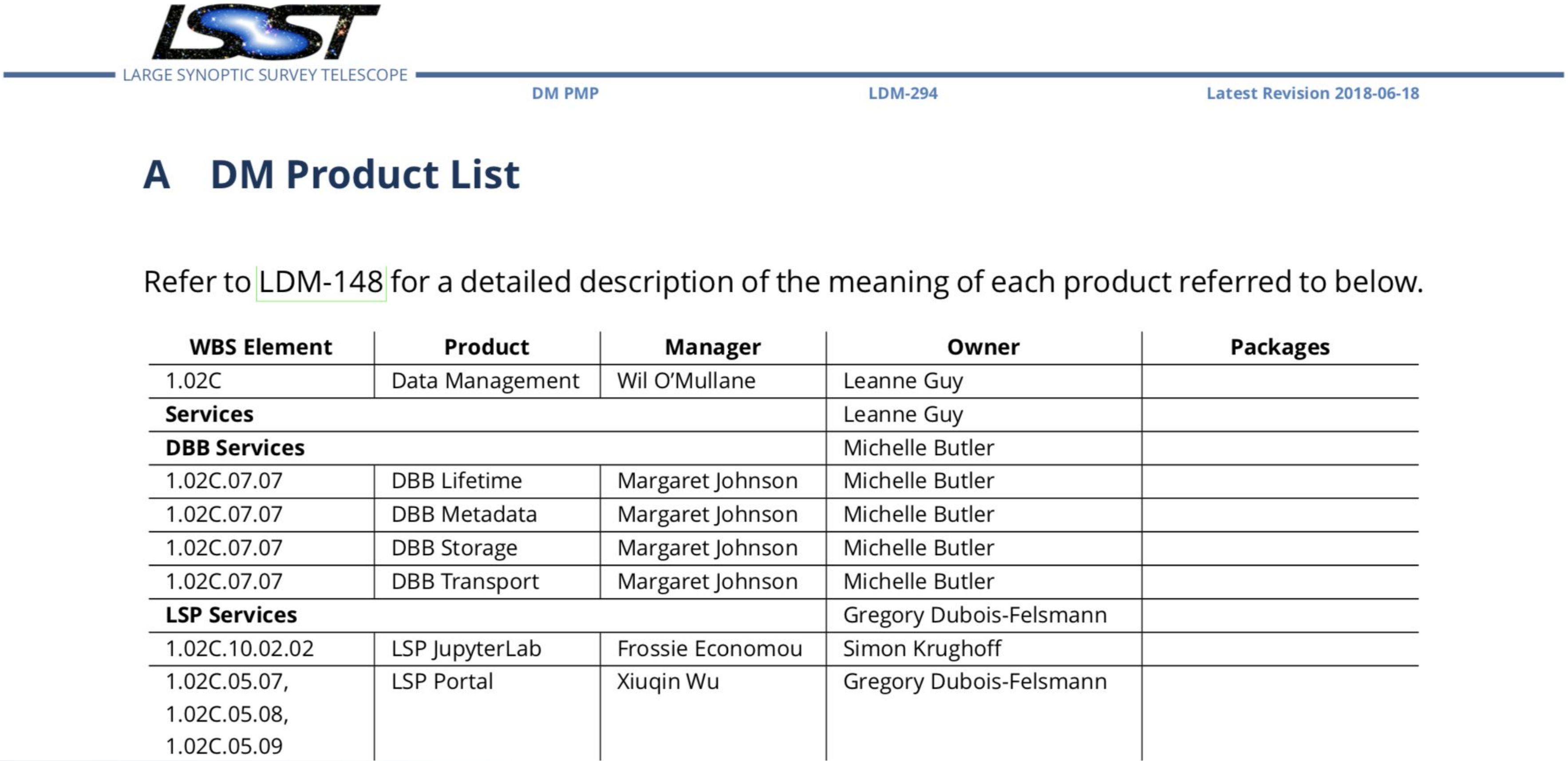
Software Products

- Batch Prod SW
  - 1.02C.07.08 Campaign Mgmt
  - 1.02C.07.08 Workload/ flow
- DBB SW
  - 1.02C.07.08 DBB Lifetime SW
  - 1.02C.07.08 DBB Meta SW `dbb_gateway, dbb_gwclient`
  - 1.02C.07.08 DBB Transport SW
- LSP SW
  - 1.02C.10.02.02 LSP JL SW `jupyterlab*`
  - 1.02C.05.07, 1.02C.05.08, 1.02C.05.09 LSP Portal SW `firefly_client`
  - 1.02C.06.02 LSP Web SW `dax_webserv`
- Prompt SW
  - 1.02C.03.03 Alert Distrib SW `alert_stream`
  - 1.02C.07.08 EFD Transform
  - 1.02C.07.08 Header Srv SW `HeaderService`
  - 1.02C.07.08 Image Ingest SW `ctrl_iip`
  - 1.02C.07.08 Plan Obs Pub SW
  - 1.02C.07.08 OCS Batch SW
  - 1.02C.07.08 Obs Ops Data SW
- Sci Pipelines SW
  - 1.02C.03 Alert Prod SW `ap_pipe`
  - 1.02C.04.02 Daily Calib SW
  - 1.02C.04.02 Period Calib SW `pipe_drivers`
  - 1.02C.04.02 Raw Calib SW `pipe_drivers`
  - 1.02C.04.02 Annual Calib SW `pipe_drivers`
  - 1.02C.04 DR Prod SW `pipe_drivers`
  - 1.02C.03.06 MOPS SW `mops_daymops`
  - 1.02C.03,1.02C.04 Spec Prog SW
  - 1.02C.04.04 Tmpl Gen SW
- QC Products
  - 1.02C.10.02.01 Quality Ctrl SW `squash-*, verify, verify_metrics,` `ate_drp`
- Supporting SW
  - 1.02C.06.02.05 ADQL Translator `albuquery`
  - 1.02C.06.02.01 Data Butler `daf_butler`
  - 1.02C.06.02.04 Image Server `dax_imgserv`
  - 1.02C.05.06 Firefly `firefly`
  - 1.02C.06.02.03 Distrib Database `qserv, partition, scisql, da`
  - 1.02C.03,1.02C.04 Sci Pipelines Libs `lsst_apps`
  - 1.02C.06.03 Task Framework `pipe_supertask`

All these SW Products shall have:

- A corresponding top level git SW package
- A list of dependent low level git SW packages
  - Each (low level) git SW package should be included in only one SW Product

Product List - LDM-294 appendix A



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DM PMP LDM-294 Latest Revision 2018-06-18

A DM Product List

Refer to LDM-148 for a detailed description of the meaning of each product referred to below.

WBS Element	Product	Manager	Owner	Packages
1.02C	Data Management	Wil O'Mullane	Leanne Guy	
Services			Leanne Guy	
DBB Services			Michelle Butler	
1.02C.07.07	DBB Lifetime	Margaret Johnson	Michelle Butler	
1.02C.07.07	DBB Metadata	Margaret Johnson	Michelle Butler	
1.02C.07.07	DBB Storage	Margaret Johnson	Michelle Butler	
1.02C.07.07	DBB Transport	Margaret Johnson	Michelle Butler	
LSP Services			Gregory Dubois-Felsmann	
1.02C.10.02.02	LSP JupyterLab	Frossie Economou	Simon Krughoff	
1.02C.05.07, 1.02C.05.08, 1.02C.05.09	LSP Portal	Xiuqin Wu	Gregory Dubois-Felsmann	

Product Tree Conclusions

- Model need to be completed and updated:
  - Integration ongoing between the MD and NCSA-Archimate model
  - Update existing information
  - SW Products - top level git SW package
    - Not all SW Products have a top level git SW package: need to be defined
    - Identify corresponding low level SW packages using dependency information
      - For each low level SW package, to be included in git (README.md?):
        - Reference DM Person
        - Name and abbreviation
        - Description

- Detailed 3rd party libraries (COTS)
  - Relevant information to trace them:
    - External documentation Link
    - Why we need that library
    - Who is responsible (or just a reference) in DM for that library?
  - Do we need a registry? CMDB or just Product Tree COTS section?

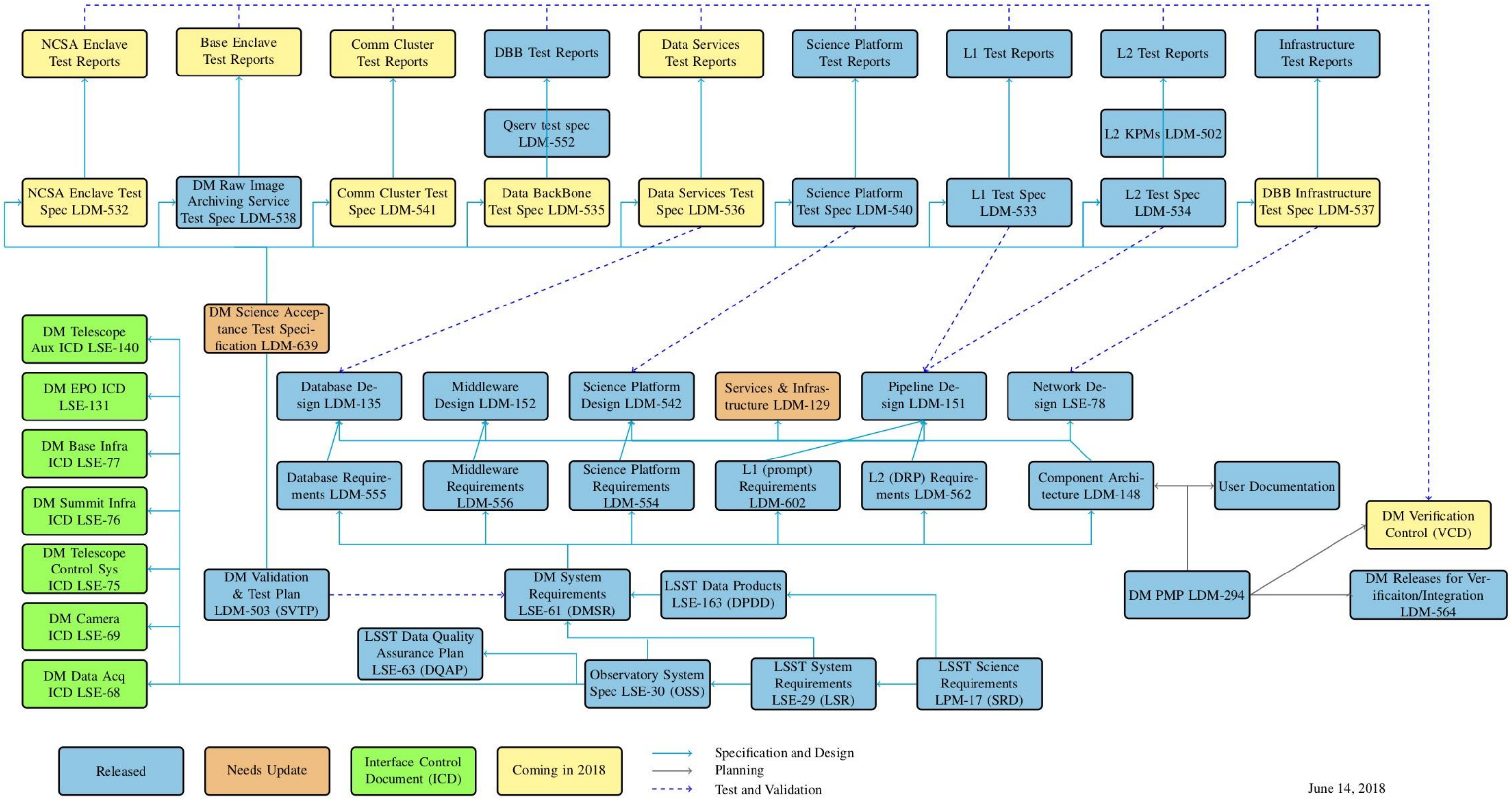
Questions?
Actions?

Document Tree - per Product

- From the above slide number 3:
  - Each product in the Product Tree requires documentation
- This documentation is:
    - Requirements
    - Design
    - User Manuals
    - Test Specifications
    - Test Reports
    - Release Notes

- Let’s have a look on the documentation status, and try to much it with the product Tree

Document Status - LDM-294


NCSA Enclave Test Reports

Base Enclave Test Reports

Comm Cluster Test Reports

DBB Test Reports

Data Services Test Reports

Science Platform Test Reports

L1 Test Reports

L2 Test Reports

Infrastructure Test Reports

Qserv test spec LDM-552

L2 KPMs LDM-502

NCSA Enclave Test Spec LDM-532

DM Raw Image Archiving Service Test Spec LDM-538

Comm Cluster Test Spec LDM-541

Data BackBone Test Spec LDM-535

Data Services Test Spec LDM-536

Science Platform Test Spec LDM-540

L1 Test Spec LDM-533

L2 Test Spec LDM-534

DBB Infrastructure Test Spec LDM-537

DM Science Acceptance Test Specification LDM-639

DM Telescope Aux ICD LSE-140

DM EPO ICD LSE-131

DM Base Infra ICD LSE-77

DM Summit Infra ICD LSE-76

DM Telescope Control Sys ICD LSE-75

DM Camera ICD LSE-69

DM Data Acq ICD LSE-68

Database Design LDM-135

Middleware Design LDM-152

Science Platform Design LDM-542

Services & Infrastructure LDM-129

Pipeline Design LDM-151

Network Design LSE-78

Database Requirements LDM-555

Middleware Requirements LDM-556

Science Platform Requirements LDM-554

L1 (prompt) Requirements LDM-602

L2 (DRP) Requirements LDM-562

Component Architecture LDM-148

User Documentation

DM Verification Control (VCD)

DM Validation & Test Plan LDM-503 (SVTP)

DM System Requirements LSE-61 (DMSR)

LSST Data Products LSE-163 (DPDD)

DM PMP LDM-294

DM Releases for Verificaiton/Integration LDM-564

LSST Data Quality Assurance Plan LSE-63 (DQAP)

Observatory System Spec LSE-30 (OSS)

LSST System Requirements LSE-29 (LSR)

LSST Science Requirements LPM-17 (SRD)

Released

Needs Update

Interface Control Document (ICD)

Coming in 2018

Specification and Design

Planning

Test and Validation

June 14, 2018

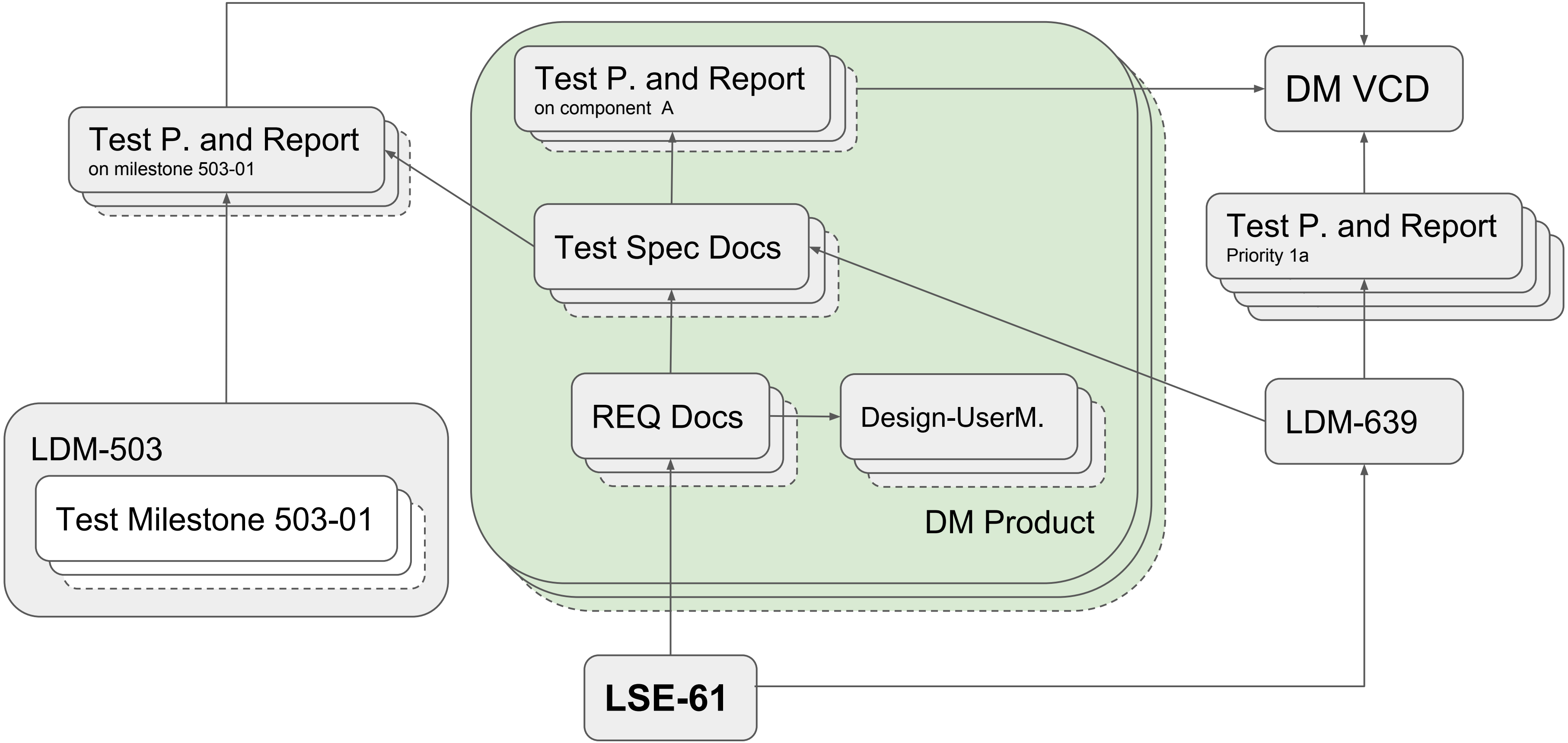
Document Status - 2

- Is DM documentation in good shape?
- What are we missing?
- What is the relation with the Product Tree and these documents?
  - Are our products well documented?

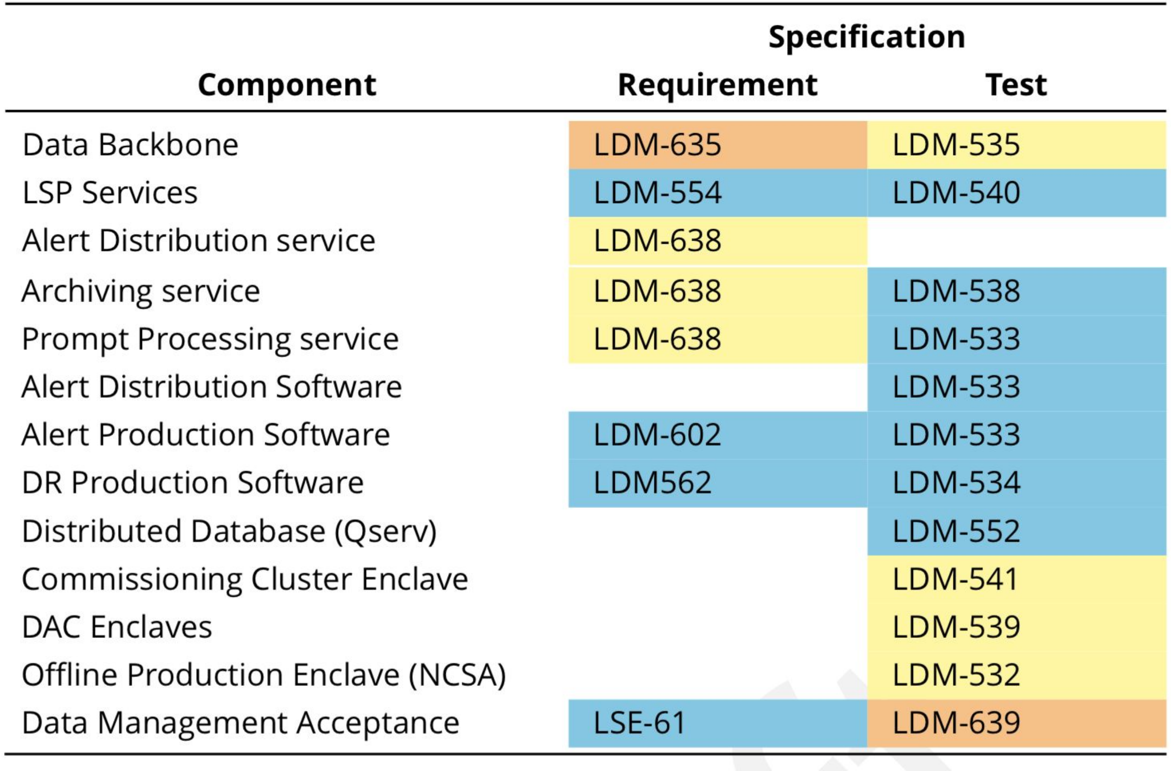
- It is easy to see, that not all DM products can be spotted there
  - How have those products been selected?
  - Are we sure we are not missing anything?

- I am not able to answer..
  - A document with an exhaustive description of **all** DM Products (from the product tree) may help

Doc Tree Summary



Relevant Products and Documents



	Specification	
Component	Requirement	Test
Data Backbone	LDM-635	LDM-535
LSP Services	LDM-554	LDM-540
Alert Distribution service	LDM-638	
Archiving service	LDM-638	LDM-538
Prompt Processing service	LDM-638	LDM-533
Alert Distribution Software		LDM-533
Alert Production Software	LDM-602	LDM-533
DR Production Software	LDM562	LDM-534
Distributed Database (Qserv)		LDM-552
Commissioning Cluster Enclave		LDM-541
DAC Enclaves		LDM-539
Offline Production Enclave (NCSA)		LDM-532
Data Management Acceptance	LSE-61	LDM-639

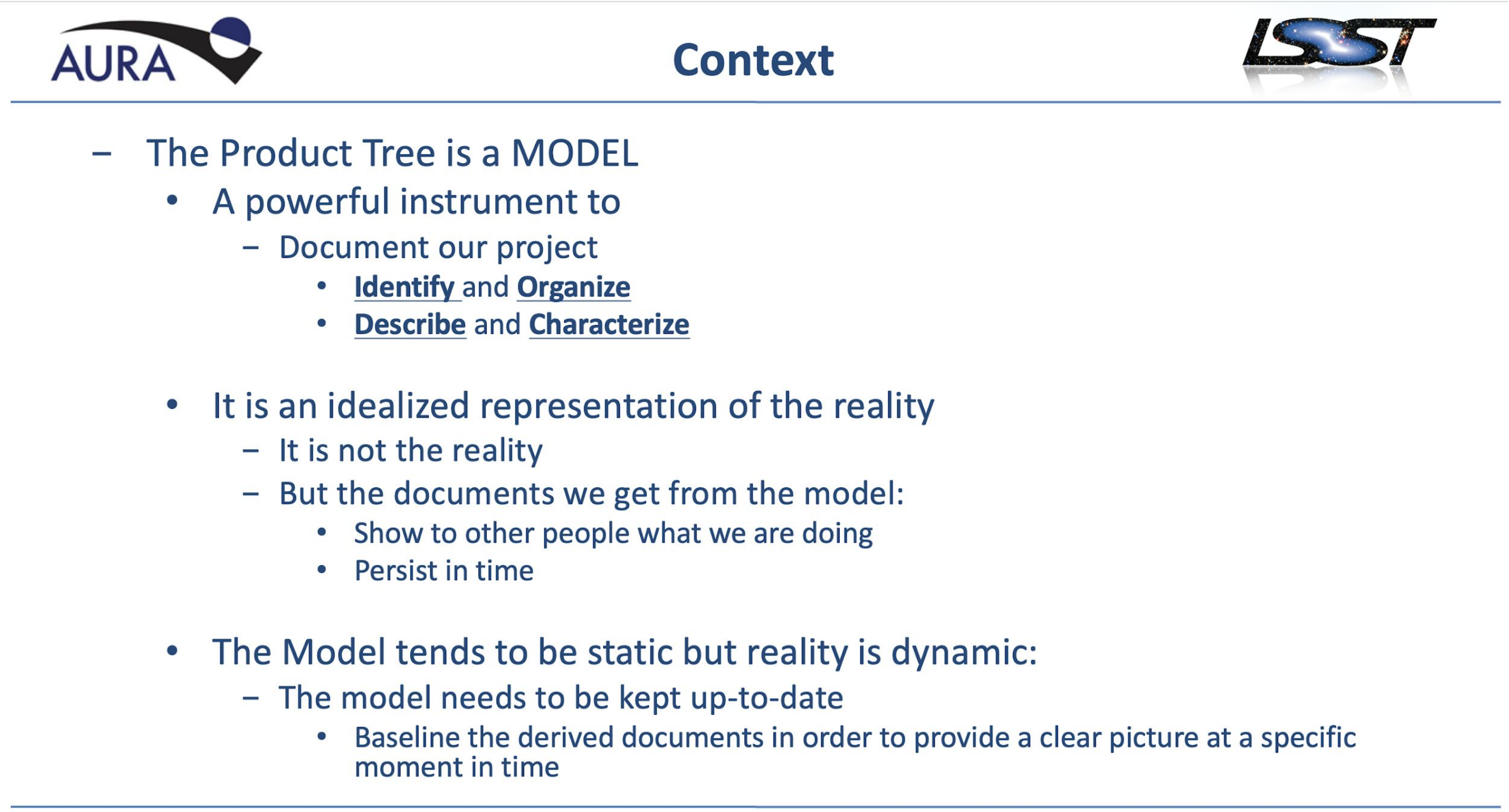
Missing Documents

- Requirements
  - To be added when needed
    - The process to maintain requirements trough MagicDraw is well established
  - However in some cases it is still missing:
    - Traceability to upper level requirements
    - Verification Elements
- Design Documents
  - Should be written as part of the development process
- User Manuals / Guides
  - To extract from the git repo and put them in a document
- Test Documents
  - Follows the test milestones
  - Integrated in Jira

More details in the Test Approach presentation

Questions?

DMLT F2F - May 18



Context

- The Product Tree is a MODEL
  - A powerful instrument to
    - Document our project
      - **Identify** and **Organize**
      - **Describe** and **Characterize**
  - It is an idealized representation of the reality
    - It is not the reality
    - But the documents we get from the model:
      - Show to other people what we are doing
      - Persist in time
  - The Model tends to be static but reality is dynamic:
    - The model needs to be kept up-to-date
      - Baseline the derived documents in order to provide a clear picture at a specific moment in time