

System/SDWG Update

Management Council Face-to-Face
Washington D.C.
March 29-30, 2011

Sean Hardman

Topics

- System Design Working Group (SDWG)
- Design Progress
- Development Progress
- Build 2 Deployment
- Build 3 Plans

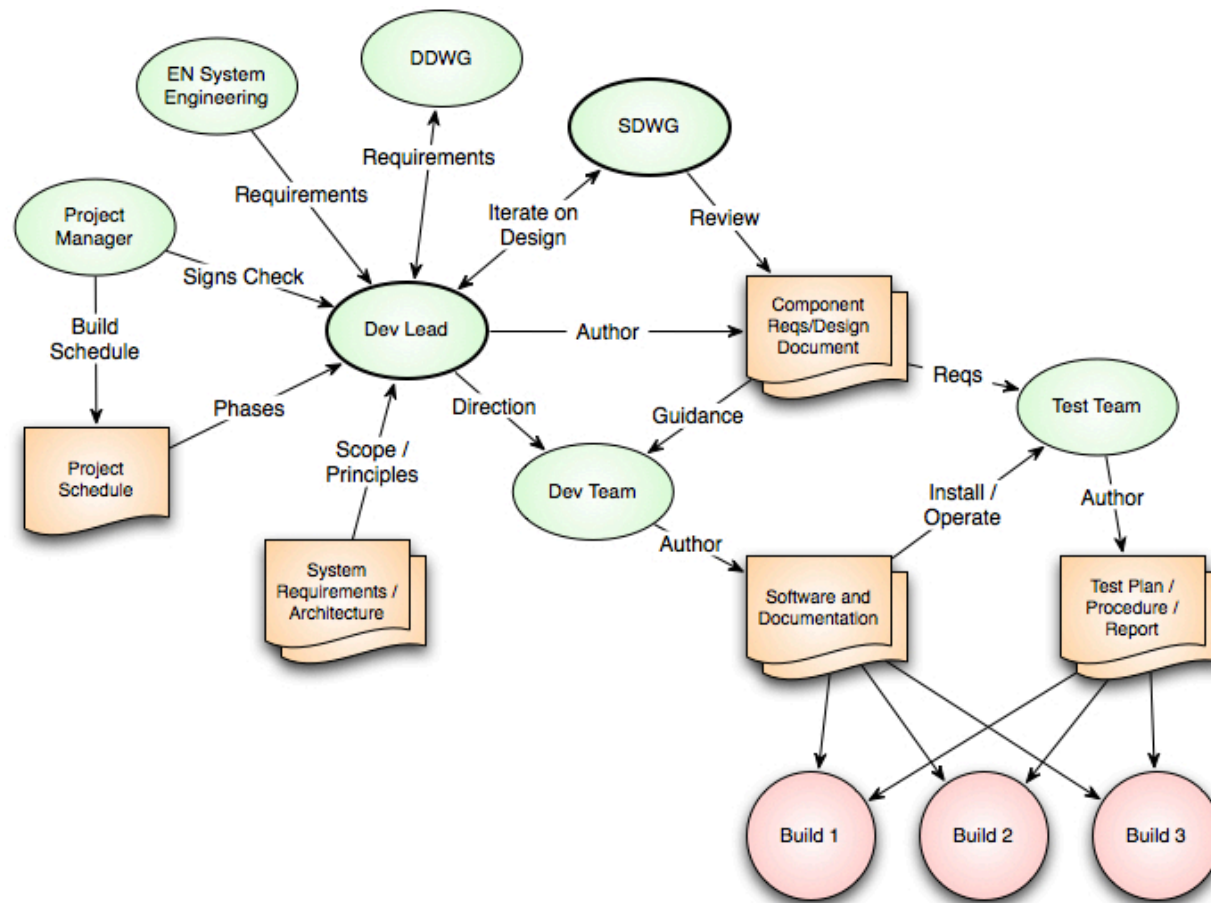
SDWG: Charter

- Investigate and select the core technologies utilized in the development and operation of PDS 2010.
- Define component-level requirements and design to guide software development.
- Capture technology standards and service development guidelines for the PDS.

SDWG: Members and Artifacts

- The working group consists of the following personnel:
 - Sean Hardman (Engineering)
 - Todd King (PPI)
 - Mike Martin (Management)
 - Paul Ramirez (Engineering)
 - Alice Stanboli / Jordan Padams (Imaging)
 - Tom Stein (Geosciences)
- Periodic teleconferences held to review and discuss component designs.
- Utilize a Wiki for capturing minutes and design artifacts.
<http://oodt.jpl.nasa.gov/wiki/display/pdscollaboration/System+Design+Working+Group>
- Official artifacts are posted to the PDS Engineering Node web site.
<http://pds-engineering.jpl.nasa.gov/index.cfm?pid=145&cid=134>

SDWG: Design Process



Design Progress

- Each component has a corresponding requirements and design specification.
 - Level 4 and 5 requirements traced back to PDS Level 1, 2 and 3 requirements.
 - Each specification has multiple drafts with comments incorporated.
- Specifications completed and reviewed:
 - Registry, Harvest, Security and Report
- Specifications in process:
 - Preparation (tools) and Search
- Specifications upcoming:
 - Operator Portal, Monitor

Development Team

- Focused on PDS 2010 development
 - As the requirements and design firm up for the components, implementation and integration efforts are initiated.
 - Evaluating and incorporating off-the-shelf solutions (Open Source and COTS) where appropriate.
- Just finished up Build 1c
 - Continued development of core services (Registry, Harvest and Security).
- Working towards Build 1d (August 2011)
 - Introduction of the Search Service and search-related applications.
 - Replacing PDS3 infrastructure with PDS4 infrastructure.

Development Progress

Delivered in Build 1

- Prototype Ingestion Subsystem
 - This includes the Registry, Harvest and Security components.
 - Although not related to ingestion, the Report component was also included.
- Initial Data Provider Tool Suite
 - This includes the Validate Tool and User Guides for using the selected off-the-shelf products for the Design Tool.

Development Progress

Delivered in Build 1c

- Registry Service
 - Added support for registry configuration from the data model.
 - Added support for MySQL as a backend database.
 - Additional support for service registrations, general query improvement and better alignment with the ebXML standard.
- Harvest Tool
 - Added support for validation of products prior to ingestion.
 - Added support for persistent crawling.
 - Modified for more robust handling of Association registrations as well as to keep pace with changes occurring in the PDS4 data model.

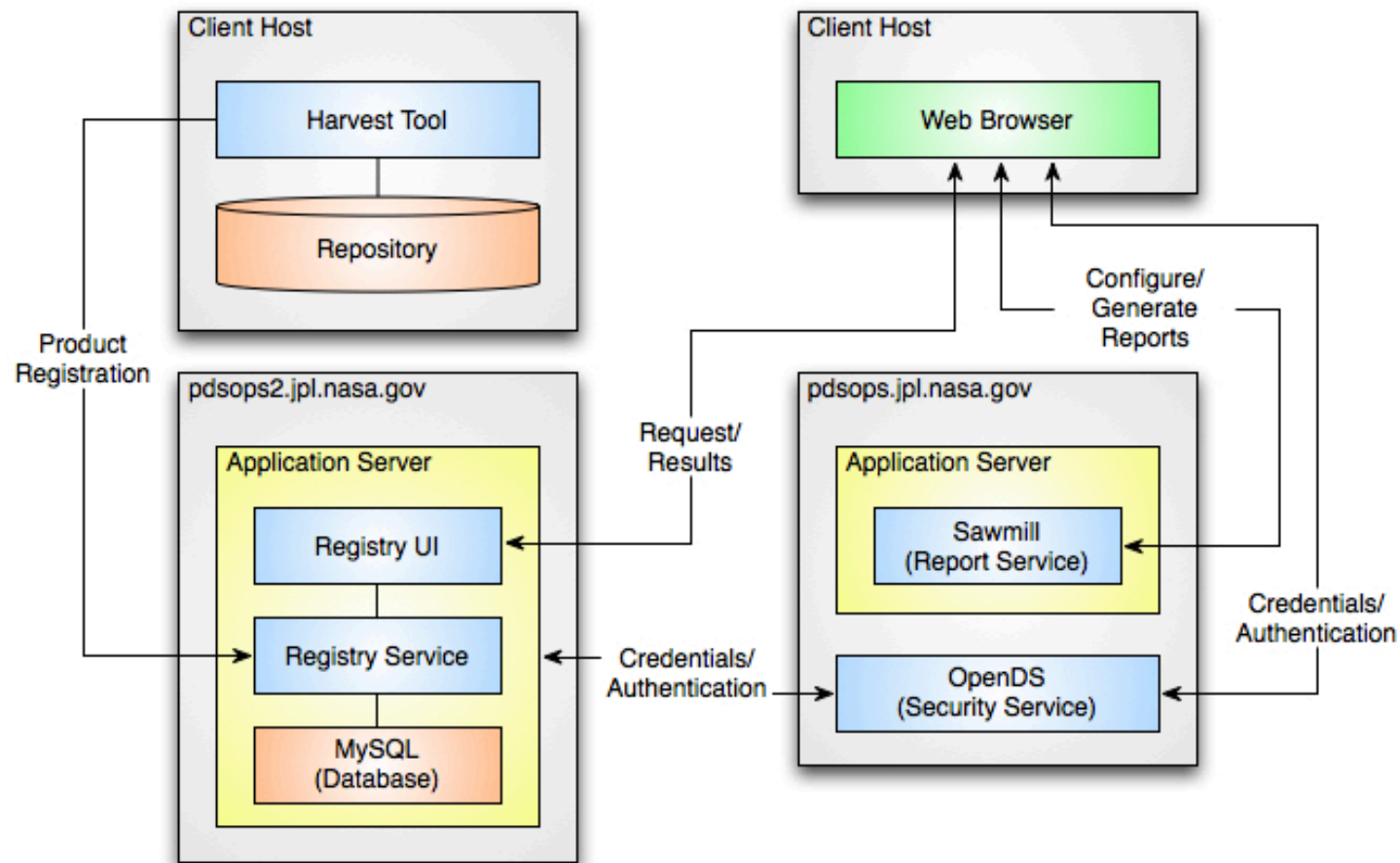
Development Progress

Delivered in Build 1c (cont)

- Security Service
 - Simplified the open source solution for ease of deployment.
- Validate and Design Tools
 - Updated according to the latest data model.
- Registry User Interface
 - Modified to keep pace with Registry Service interface changes.
- Report Service
 - Not technically part of this release.
 - Actively populating and testing the off-the-shelf product.

Development Progress

Delivered in Build 1c (cont)



Development Progress

Registry User Interface

Registry Browser

GUID LID Name Submitter Object Type Status

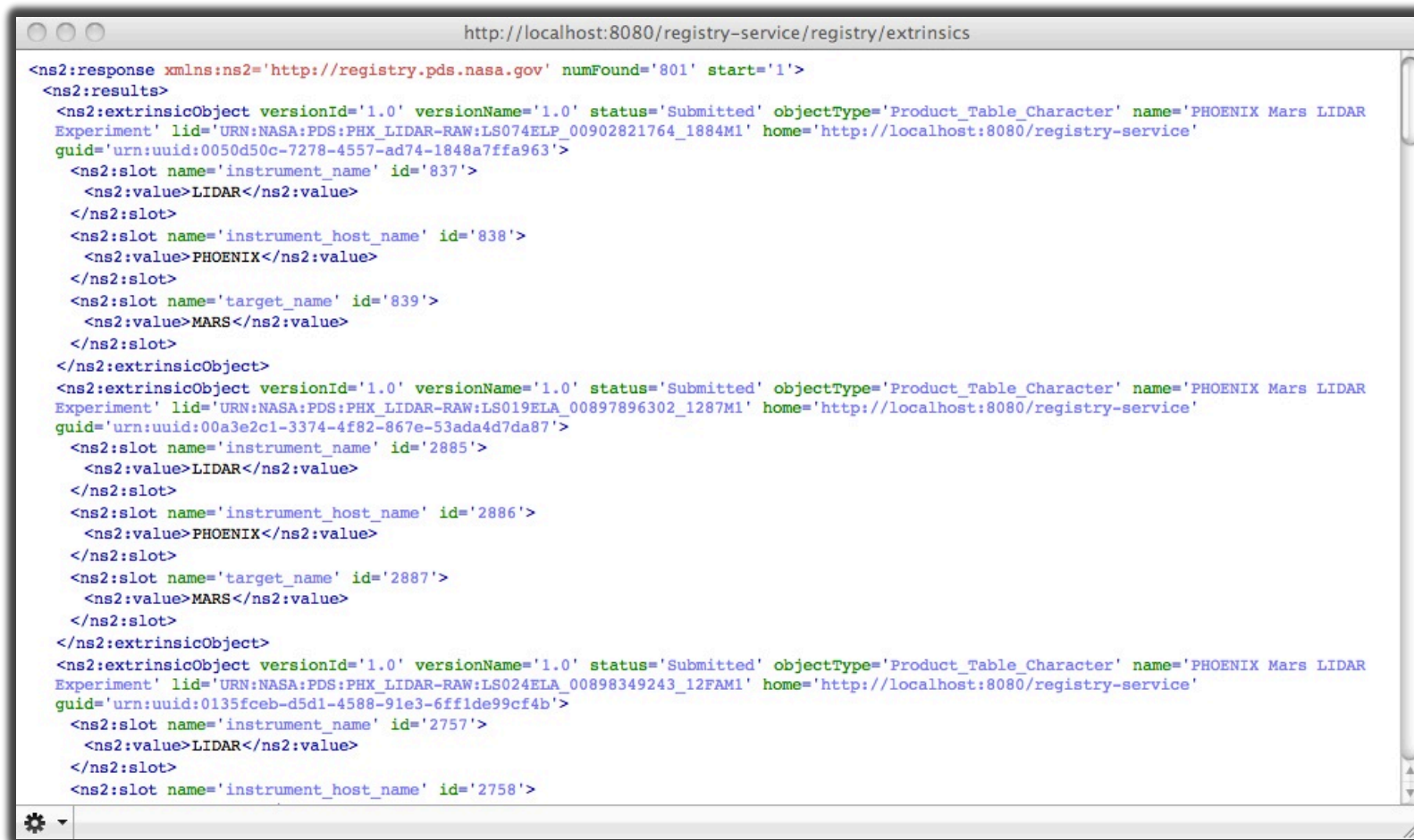
Product Registry				
Name	LID	Version ID	Object Type	Status
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS074ELP_00902821764_1884M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS019ELA_00897896302_1287M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS024ELA_00898349243_12FAM1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS082ELA_00903455355_1968M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS036ELP_00899397654_1412M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS008ELS_00896917626_1191M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS099ELA_00904970534_1B9AM1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS035ELA_00899354517_13FDM1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS098ELS_00904876232_1B5DM1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS039ELS_00899685039_1446M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS068ELA_00902267484_17B3M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS044ELS_00900083899_0113M1	1.0	Product_Table_Char	Submitted
PHOENIX Mars LIDAR Experiment	URN:NASA:PDS:PHX_LIDAR-RAW:LS019ELA_00897887805_1285M1	1.0	Product_Table_Char	Submitted
Name	LID	Version ID	Object Type	Status

1 of 17

Num Records: 801

Development Progress

Registry API Interface



The screenshot shows a web browser window with the address bar displaying `http://localhost:8080/registry-service/registry/extrinsics`. The main content area displays an XML response from the Registry API. The XML is a SOAP-style response with a root element `<ns2:response>` containing a `<ns2:results>` element. This element contains three `<ns2:extrinsicObject>` elements, each representing a different LIDAR experiment. Each object includes metadata like `versionId`, `versionName`, `status`, `objectType`, `name`, `lid`, and `home`, as well as a `guid` and a list of `<ns2:slot>` elements. Each slot contains a `name` and a `value`.

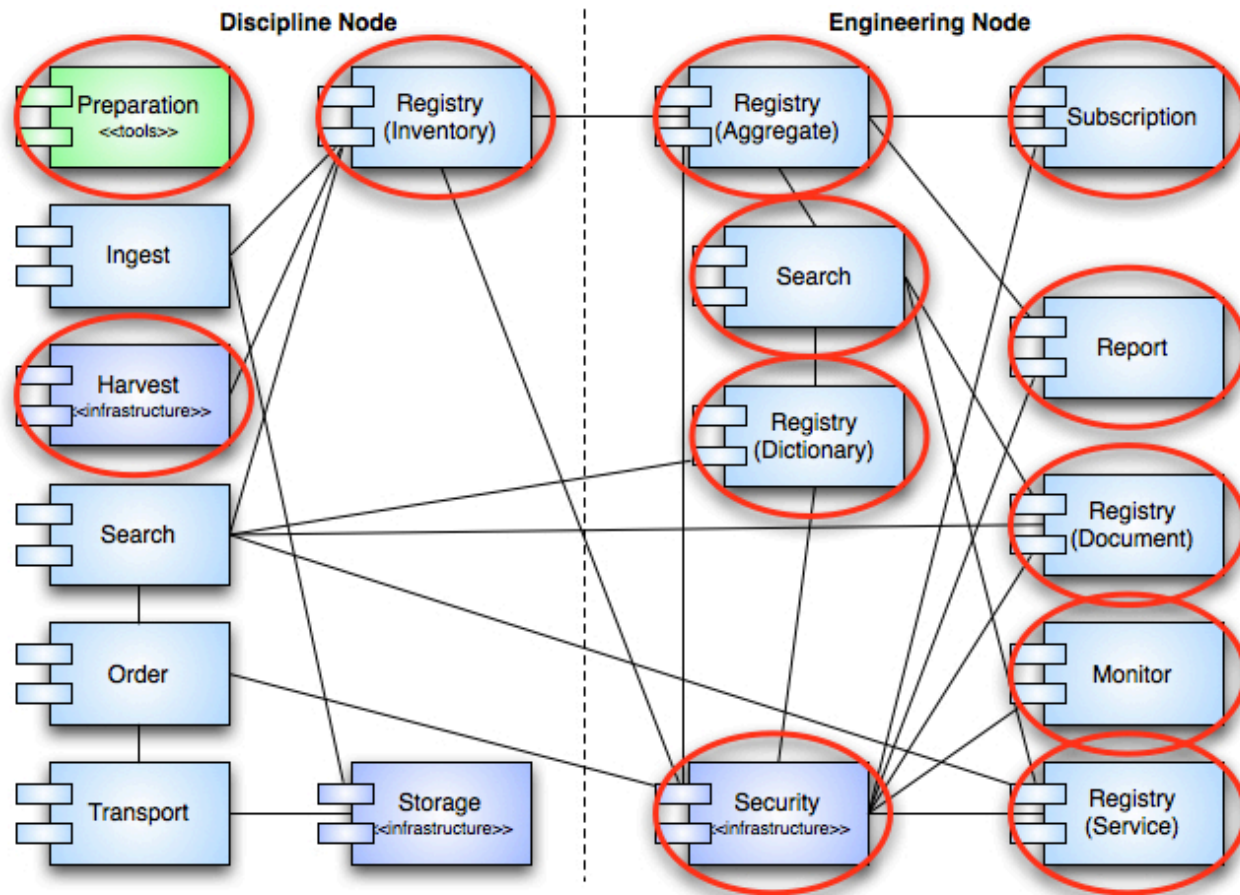
```
<ns2:response xmlns:ns2='http://registry.pds.nasa.gov' numFound='801' start='1'>
  <ns2:results>
    <ns2:extrinsicObject versionId='1.0' versionName='1.0' status='Submitted' objectType='Product_Table_Character' name='PHOENIX Mars LIDAR Experiment' lid='URN:NASA:PDS:PHX_LIDAR-RAW:LS074ELP_00902821764_1884M1' home='http://localhost:8080/registry-service' guid='urn:uuid:0050d50c-7278-4557-ad74-1848a7ffa963'>
      <ns2:slot name='instrument_name' id='837'>
        <ns2:value>LIDAR</ns2:value>
      </ns2:slot>
      <ns2:slot name='instrument_host_name' id='838'>
        <ns2:value>PHOENIX</ns2:value>
      </ns2:slot>
      <ns2:slot name='target_name' id='839'>
        <ns2:value>MARS</ns2:value>
      </ns2:slot>
    </ns2:extrinsicObject>
    <ns2:extrinsicObject versionId='1.0' versionName='1.0' status='Submitted' objectType='Product_Table_Character' name='PHOENIX Mars LIDAR Experiment' lid='URN:NASA:PDS:PHX_LIDAR-RAW:LS019ELA_00897896302_1287M1' home='http://localhost:8080/registry-service' guid='urn:uuid:00a3e2c1-3374-4f82-867e-53ada4d7da87'>
      <ns2:slot name='instrument_name' id='2885'>
        <ns2:value>LIDAR</ns2:value>
      </ns2:slot>
      <ns2:slot name='instrument_host_name' id='2886'>
        <ns2:value>PHOENIX</ns2:value>
      </ns2:slot>
      <ns2:slot name='target_name' id='2887'>
        <ns2:value>MARS</ns2:value>
      </ns2:slot>
    </ns2:extrinsicObject>
    <ns2:extrinsicObject versionId='1.0' versionName='1.0' status='Submitted' objectType='Product_Table_Character' name='PHOENIX Mars LIDAR Experiment' lid='URN:NASA:PDS:PHX_LIDAR-RAW:LS024ELA_00898349243_12FAM1' home='http://localhost:8080/registry-service' guid='urn:uuid:0135fceb-d5d1-4588-91e3-6ff1de99cf4b'>
      <ns2:slot name='instrument_name' id='2757'>
        <ns2:value>LIDAR</ns2:value>
      </ns2:slot>
      <ns2:slot name='instrument_host_name' id='2758'>
```

Development Progress

Planned for Build 2 (Oct 2011)

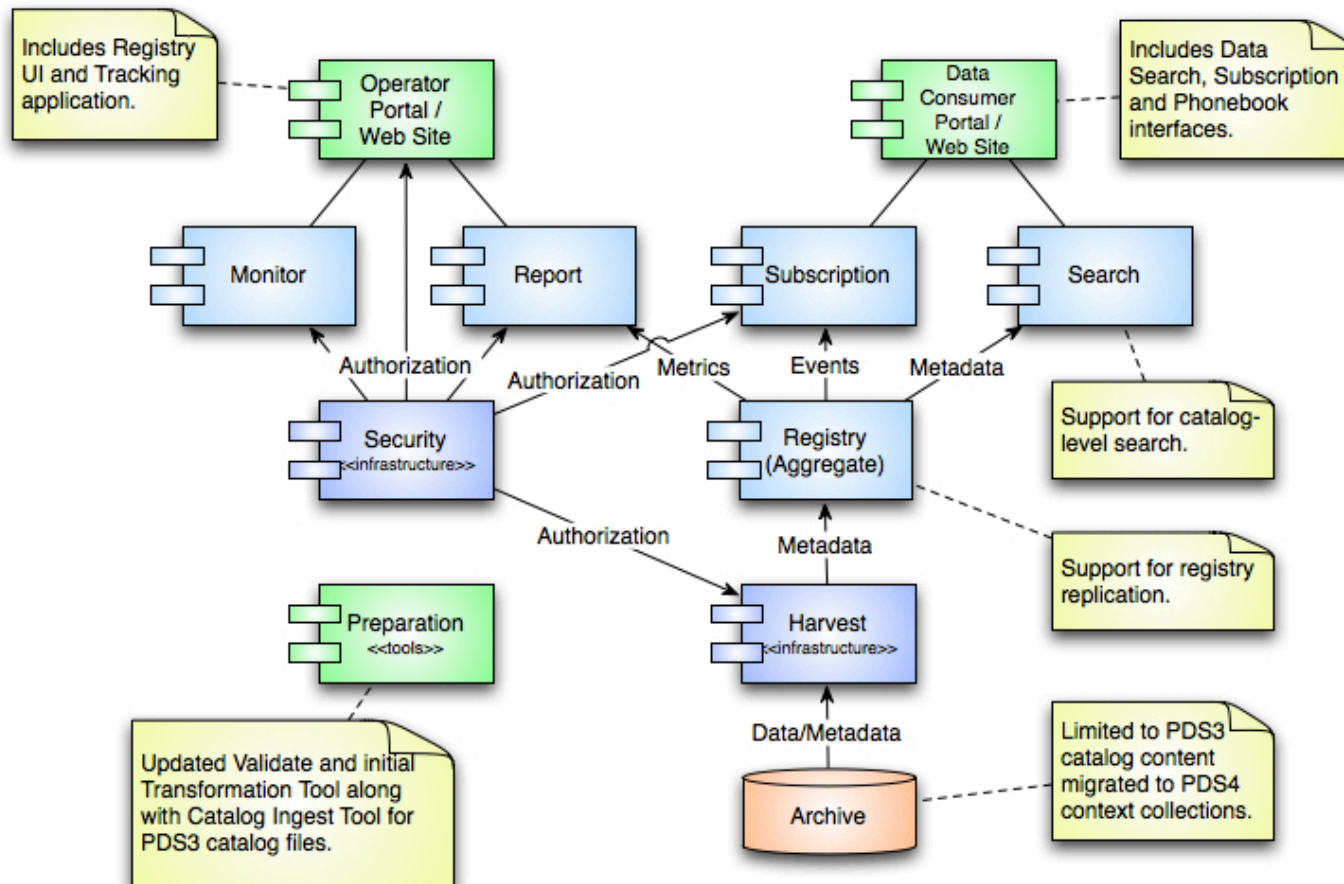
- Initial Distribution Subsystem
 - This includes the Search component and an updated Data Search interface at the EN.
 - Replicate EN functionality with PDS 2010 infrastructure.
- Ingestion Subsystem
 - Further development of the Registry, Harvest and Security components.
 - Support for PDS3 products and keeping pace with changes in the data model.
- Operations
 - Configuration of the Report component, selection of an off-the-shelf product for Monitor, and development of Tracking, Subscription and Phonebook interfaces.

Build 2 Deployment Provisioning



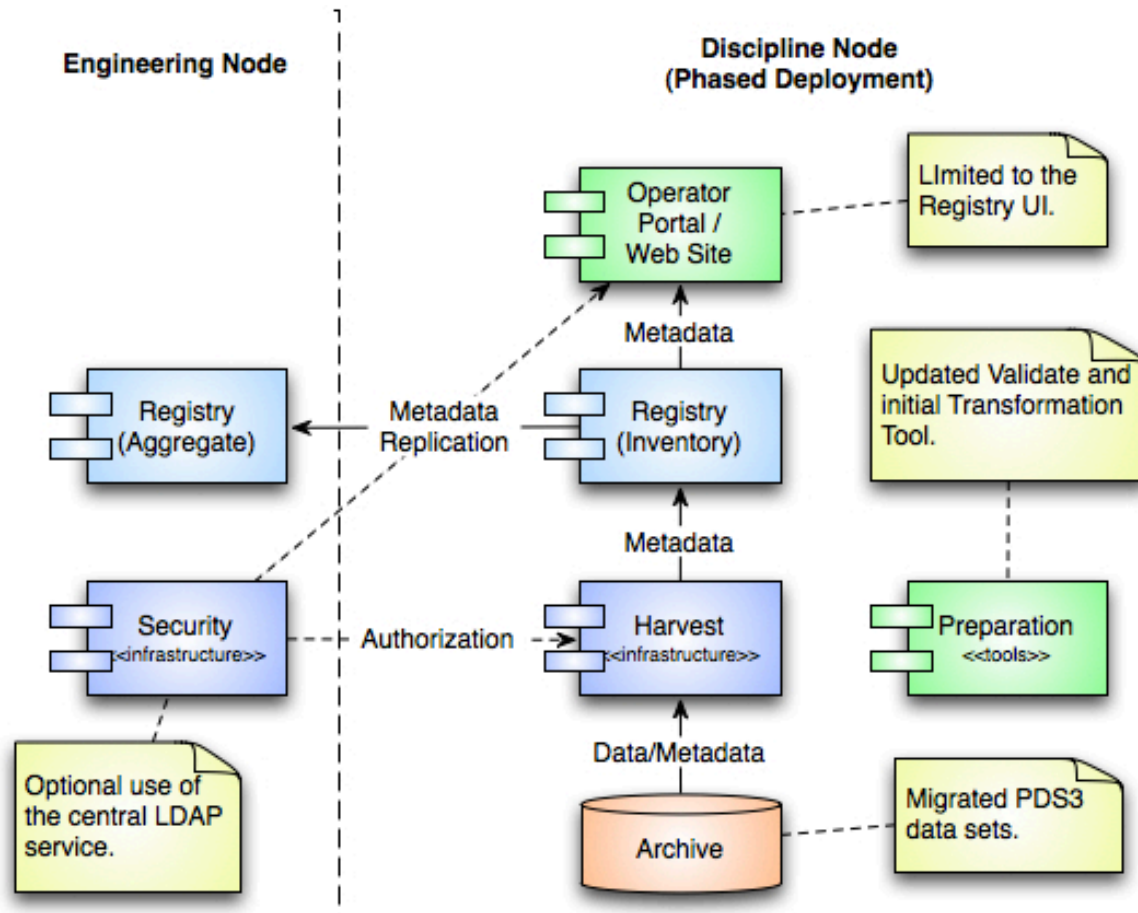
Build 2 Deployment

Engineering Node



Build 2 Deployment

Discipline Node



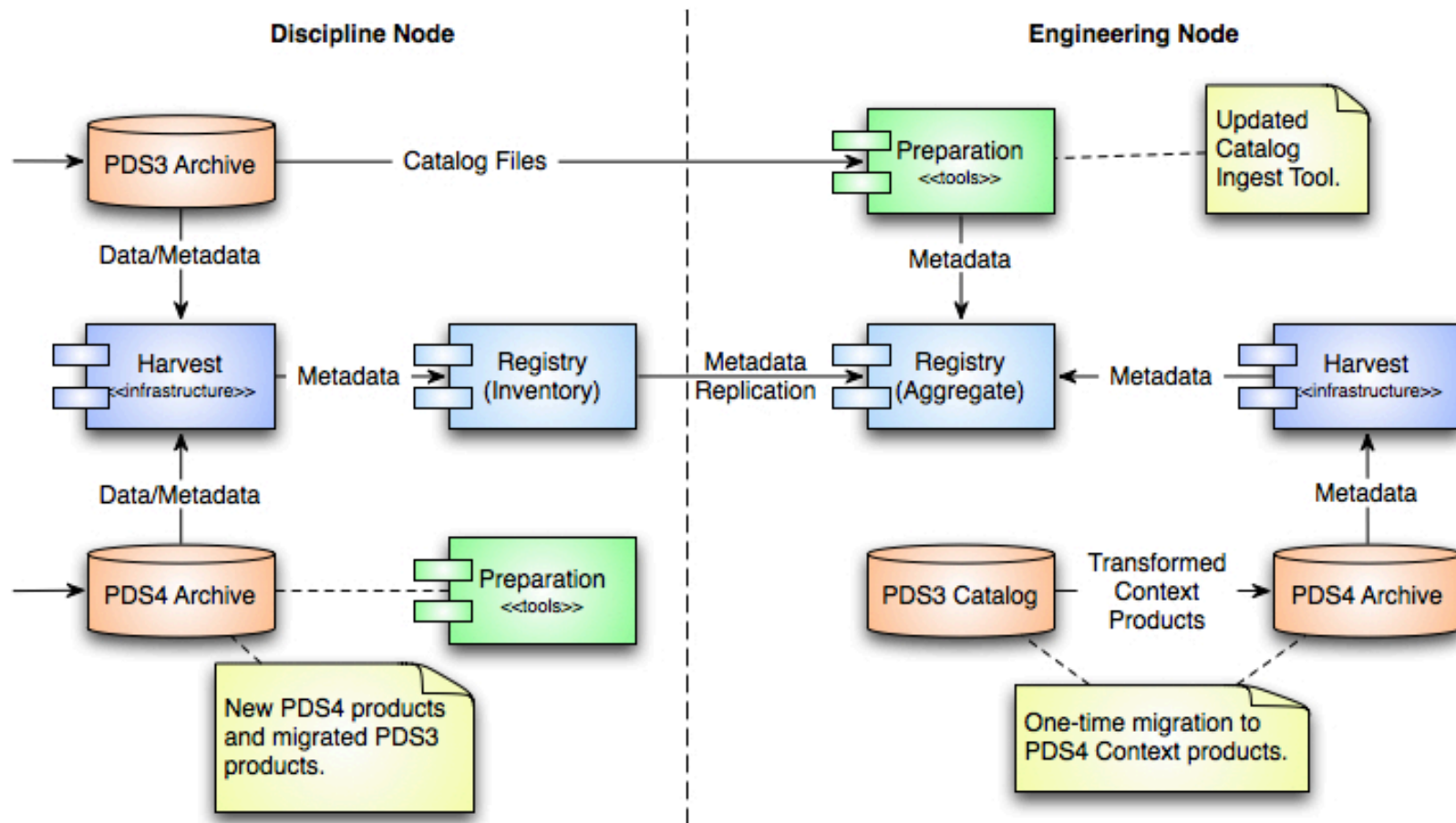
Build 2 Deployment

Additional Details

- Deployment at the Nodes will be phased throughout the year.
- Once deployment is complete, Node should begin registration of PDS3 products with the Harvest Tool.
 - This is not PDS3 product migration.
 - A generic proxy label is generated and registered for tracking purposes.
- In order to populate the Report Service, Nodes should make web and FTP logs available.

Build 2 Deployment

PDS3 Support



Build 2 Deployment

PDS3 Support (Additional Details)

- The Harvest Tool supports both PDS4 registration and PDS3 registration.
 - PDS3 support consists of converting PDS3 labels into PDS4 proxy labels.
 - Registered for tracking and reporting purposes.
 - Will be replaced when the corresponding PDS3 data set is migrated to PDS4.
- The current Catalog Ingest Tool is updated to convert the catalog files to context products and register them with the registry.

Plans for Build 3

(Summer 2012)

- Tools for transformation and visualization.
 - A framework for data product transformation allowing contribution of transformations from others.
 - Replacement functionality for NASAView available as a desktop tool and a library to be integrated with other components.
- Focus on integration of new components with existing Node software and infrastructure.
- Incorporate findings of ongoing research into data movement and storage solutions.

Wrap Up

- Design is progressing at a moderate pace.
 - Fast enough to stay ahead of development.
- Development is progressing as well.
 - Core services (Registry, Harvest and Security) are stable and ready to support further system development.
 - Development of the Search Service will commence shortly followed by applications for Tracking and Subscription.

Questions/Comments