



Transition, Testing, Resources, Schedule

**PDS System Design Review II
Greenbelt, MD**

June 21-22, 2011

Outline

- Transition
- Data Migration
- Testing
- Resources Allocation
- Project Schedule
- Summary

Transition

- Definition
- Concept
- Progress today
- Tasks to do
- Milestones

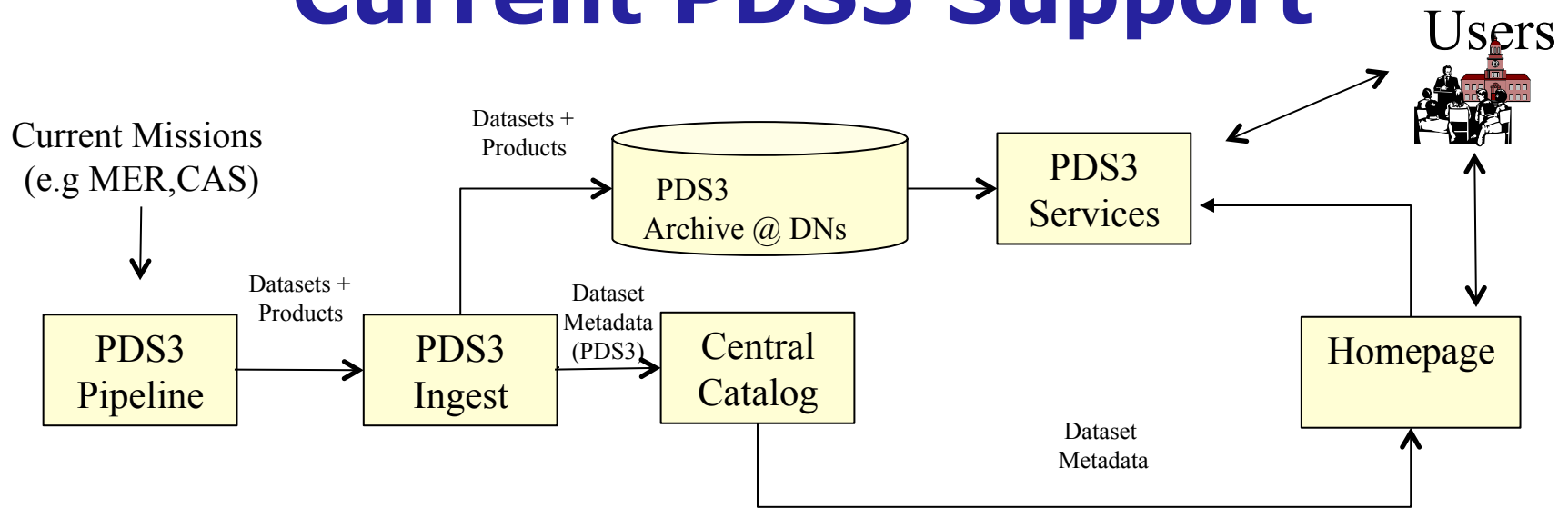
Definition

- Process of moving from the current PDS3 system to PDS4 system
- Decision of what and when to develop and release

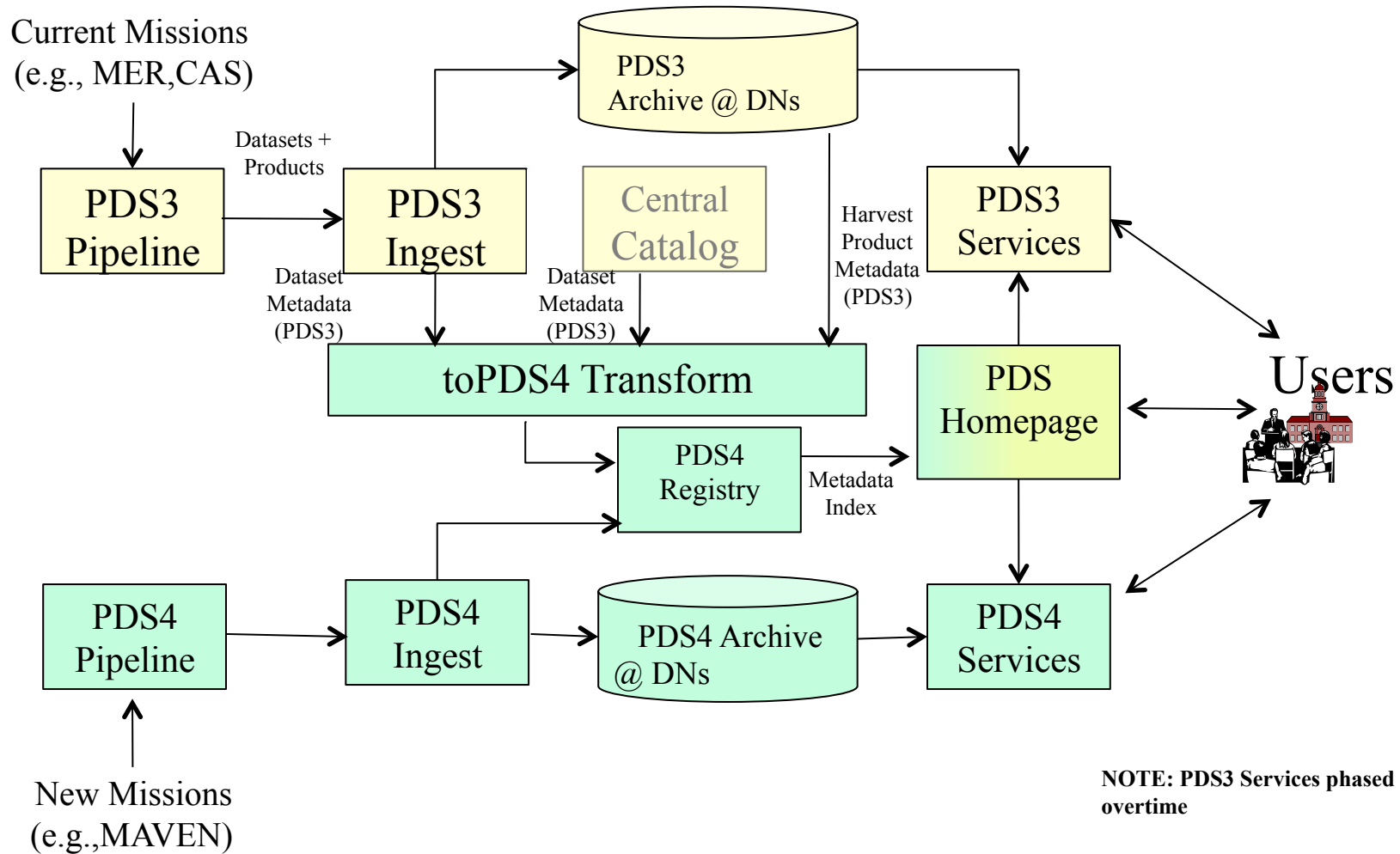
Transition Concept

- Allow for phased transition to PDS4 over time
 - Existing PDS3 pipelines will remain supported during life of mission
 - Support ingestion and distribution of PDS4 data when ready
 - Missions and IPDA partners can transition when they want to
- Ensure PDS will serve data from PDS3 and PDS4 repositories
- The challenge: Introduce PDS4 software without breaking “PDS”
 - The order of how the system is deployed becomes important
 - The phasing of the project takes into account this issue
 - “Build 2” forms a baseline which will then allow us to upgrade easier and take advantage of the significant improvements in the PDS4 standards, software architecture/approach

Current PDS3 Support



Transition to PDS4 Support



Progress Today

- Deployed test environment
- Completed Build 1a and 1c I&T
- Deployed Build 1a and 1c system
- Deployed validation tool
- Migrated 95% of central catalog to Build 1c registry

Tasks To Do

- Deliver Build 1d
- Deploy infrastructure
- Configure software system
- Complete migration of central catalog to new system
- Complete I&T
- Deliver Build 2
- Complete alpha testing
- Conduct Operational Readiness Review (ORR)
- Resolve liens if any found at ORR
- System go online (Build 2 release) allowing phased deployment at the Nodes

Transition Milestones

Activity Name	Finish Date	Resource	2011					2012
			August	September	October	November	December	January
Transition Tasks	1/3/12							
Deliver Build 1d	8/30/11	EN	▲					
Deploy infrastructure	8/30/11	EN	▲					
Configure software system	9/15/11	EN		▲				
Finalize central catalog migration	9/15/11	EN		▲				
Complete Build 2 I&T	10/18/11	EN			▲			
Deliver Build 2	10/25/11	EN				▲		
Complete alpha testing	11/15/11	Nodes					▲	
Conduct Operational Readiness Review (ORR)	11/28/11	PDS						▲
Complete any lien found during ORR and Release Build 2	1/3/12	EN						▲

Data Migration

- Definition
- Concept
- Progress today
- Tasks to do
- Milestones

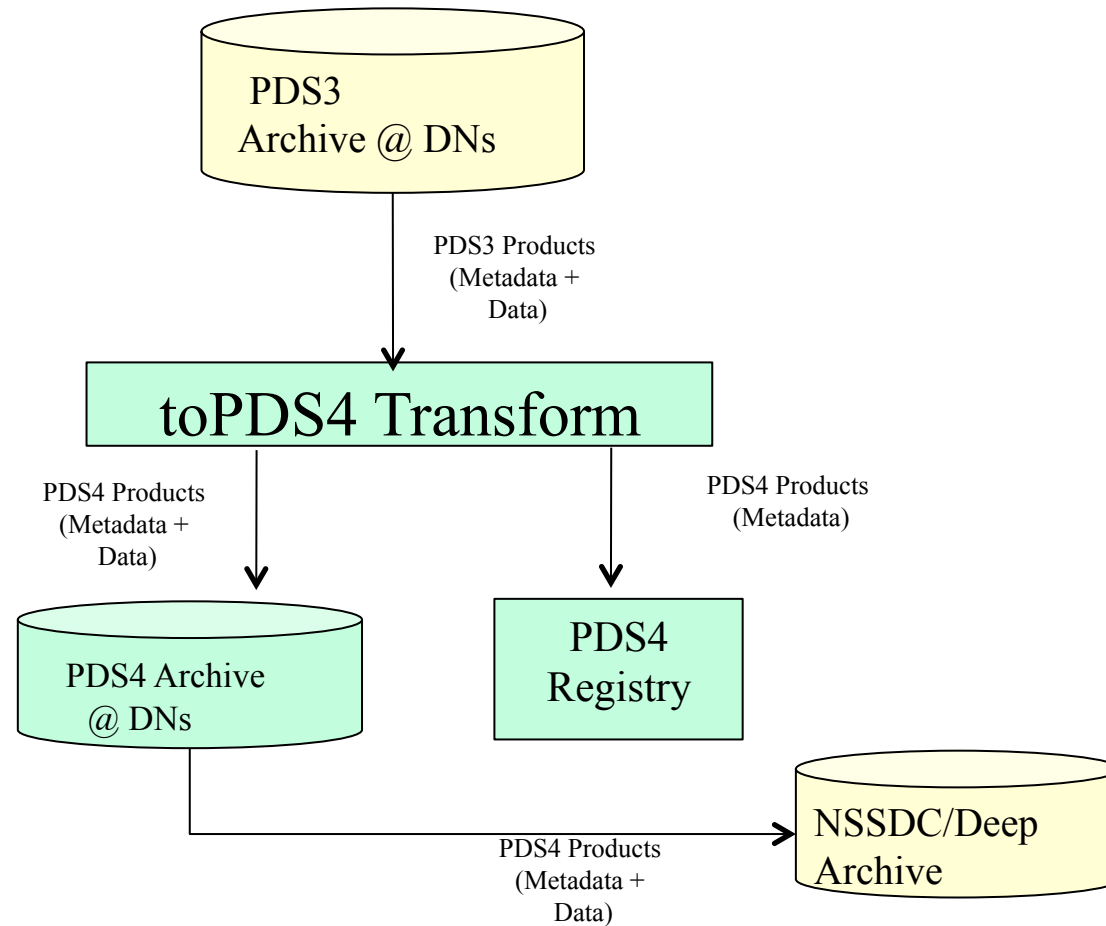
Definition

- Process of migrating existing data in the archive from PDS3 to PDS4
- Decision of what and when to execute the migration

Concept

- On-demand Migration
 - Migrate data sets to PDS4 as needed and scheduled by Nodes
 - Users continue to have access to PDS3 and PDS4 data
 - System in place to support both PDS3 and PDS4
- Data dependent
 - Only "label" will be migrated (data is acceptable)
 - Both label and data will be migrated (data needs to be improved)

Concept



NOTE: Deliveries to the Deep archive will be performed if actual data has been transformed.

Progress Today

- Migration pipeline prototyping in progress
 - ATMOS
 - IMAGING

Tasks To Do

- Hold a technical session to establish migration plan after Build 2
 - what and when to execute the migration per Node

Testing

- Approach
- Process
- Progress today
- Tasks to do
- Milestones

Testing Approach

- Perform software testing to ensure compliance with requirements & usability
- Drive system improvement
- Align testing with increment builds
- Test system under CM
- Document test plan, report and issues
- Perform regression test over time

Testing Process

- Software Test per system build
 - Unit Test perform by EN development staff
 - Integration Test perform by EN operations staff following Test Plan and Procedures
 - Alpha Test perform by Nodes staff
 - Beta Test perform by users
- Defects and issues
 - Utilize JIRA for issue tracking
- Report
 - Collect metrics (e.g., # of defects, test cases)
 - Document test results

Progress Today

- Completed Build 1a and 1c testing against requirements
- Documented test plans, procedures and reports
- Posted at Build 1a Deliverables and 1c Deliverables @ EN pages:
 - <http://pds-engineering.jpl.nasa.gov/index.cfm?pid=145&cid=169>
 - <http://pds-engineering.jpl.nasa.gov/index.cfm?pid=145&cid=167>
- Issues recorded @ JIRA:
 - <https://oodt.jpl.nasa.gov/jira/secure/IssueNavigator.jspa?>

Testing Tasks

	Build 1 I&T	Build 1c I&T	Build 1d I&T	Build 2 I&T	Build 2 Alpha	Build 2 Beta
	Nov 10-Feb 11	Mar 11-May 11	Jun 11-Aug 11	Nov 11 -Jan 12	Nov 11 -Jan 12	Nov 11 -Jan 12
Ingestion						
Design Tool	EN, DN				EN, DN	
Validate Tool	EN, DN	EN, DN	EN, DN		EN, DN	
Harvest Tool	EN, DN	EN, DN	EN, DN	EN, DN	EN, DN	
Registry Service	EN, DN	EN, DN	EN, DN	EN, DN	EN, DN	
Security Service	EN	EN				
Distribution						
Transform Tool (Initial)			EN	EN, DN	EN, DN	User
Search Service			EN	EN, DN	EN, DN	
Transport Service			EN	EN, DN	EN, DN	User
Portal (Home Page, etc.)			EN	EN, DN	EN, DN	
Operations						
Report Service	EN	EN, DN	EN, DN	EN, DN	EN, DN	
Monitor Service			EN	EN	EN	
Regression						
Unit and Integrated Tests		EN	EN	EN	EN	21

Tasks To Do

- Build 1d I&T testing
 - Distribution (search service, transport service, home page integration) & report service
 - Regression test of Build 1c
- Build 2 I&T testing
 - Monitor service
 - Regression test of Build 1d
- Alpha testing prior to ORR
 - Node testing of registry, harvest, validation, report, home page
- Beta testing after Build 2 is operational
 - User testing

Milestones

Activity Name	Finish Date	Resource	2011					2012
			August	September	October	November	December	January
Testing Tasks	1/13/12							
Complete Build 1d I&T	8/25/11	EN	▲					
Complete Build 2 I&T	10/18/11	EN			▲			
Complete Alpha Testing ready for ORR	11/15/11	Nodes				▲		
Start Beta Testing	1/13/12	Users						▲

Resources

- Standards Allocation
- Development Allocation
- Operations Allocation

Resources

- The project is scoped and planned according to available resource
- PDS Nodes have been supporting both DDWG and SDWG
- Actual data migration will be funded out of PDS operations budgets

Data Standards Resources Allocation

- Data Model (40% effort)
 - Common Model (DDWG members)
 - Discipline Model/Specific Product Types
- Prototyping PDS4 Products (20% effort)
 - This continues to be a focus
 - Preparation of DN prototype products (from PDS3 and candidate missions); support for prototype ingestion
- Data Dictionary (10% effort)
 - Incremental improvements to documents
- Tutorial Material (10% effort)
 - Incremental improvements to documents
- Standards Documents (20% effort)
 - Incremental improvements to documents
 - APG/PAG upgrade to PDS4

System/Software Resources Allocation

- Distribution (40% effort)
 - Integrate web interface with PDS4 ingestion infrastructure
 - Prepare distribution infrastructure (search, remote access, etc)
 - Work with nodes to support integration
 - Support development/integration of transformation libraries
- Ingestion (50% effort)
 - Extend build 1 services, particularly registry service, for improvements in dictionary, service, product management for tracking and search
 - Extend the PDS4 validation tool
 - Package and distribute registry service
 - Prepare security, report, etc services for production use
- System/Software Engineering (10% effort)
 - Prepare for second system review (distribution)
 - Incremental improvements to requirements and design documents

Operations Resources Allocation

- Integration & Test, Assessment (40% effort)
 - Produce test plans for builds
 - Perform testing, record issues
 - Document test results
 - Participate in standards review
 - Support prototype data products validation
- Deployment (30% effort)
 - Deploy H/W and S/W infrastructure
 - Support CM
 - Deploy mirror site
 - Prepare security, report, etc services for production use
- Migration (30% effort)
 - Migrate central catalog content to system registry

Schedule

- Major builds
- Increment builds
- System/Data Preparation for Build 2
- PDS4 release
- Operational readiness
- Overall project schedule

Major Software Builds

Phase	Purpose	Release	Date
I Prototype Build 1 Ingestion	<ul style="list-style-type: none"> • Release a prototype Ingest Subsystem • Baseline PDS4 model, standards reference (beta release) • Enable PDS3 to PDS4 catalog migration • Support testing of Node interfaces • Support PDS4 product prototypes 	<ul style="list-style-type: none"> • PDS4 beta info model, standards reference, data dictionary, schemas baseline • PDS 2010 Ingestion subsystem including Harvest, Registry (Inventory, Document, Dictionary, Service), Report and Security services • Initial data provider tool suite • First set of process, documentation and tutorial 	October 2010
II Operational Build 2 Distribution	<ul style="list-style-type: none"> • Initial operational PDS 2010 system and PDS4 Standards • Allow acceptance of PDS4 data into operational archive • Enable data migration from PDS3 to PDS4 • Allow user to search and access both PDS3 and PDS4 data 	<ul style="list-style-type: none"> • E2E PDS 2010 system, Distribution subsystem including Search and Monitor services, revised web site, general portal applications • Complete tool suite • Production release of PDS4 standards reference, data dictionary • Enhanced process, documentation and tutorial 	October 2011
III Operational Build 3 User Capabilities	<ul style="list-style-type: none"> • Incremental release of operational PDS 2010 system to enhance user capabilities • Support data transformation • Support science services 	<ul style="list-style-type: none"> • Integration of DN applications and science services • Order and Subscription services 	June 2012

Incremental Builds

- Build 1b – Update to standards documents (Completed: December 15, 2010)
 - Improvements to existing standards documents
 - Info model delivery
- Build 1c – Software/tool delivery (Completed: March 2011)
 - Improvements to software tools and components based on testing
 - Updates to standards document
 - Info model delivery
- Build 1d – Integrated delivery (Target: August 2011)
 - Additional software tools/components; updates; homepage integration
 - Updates to standards document
 - Info model delivery
- Build 2 – Full delivery (Target: October 2011)
 - Standards, Ingestion, Search/Distribution

System Preparation for Build 2 (Ingestion)

- Add support for querying slot content and for registry aggregation for the Registry Service.
- Add support for registering file objects
- Test PDS3 harvesting.
- Add support for bundle validation to the Validate Tool.
- Complete development of the Catalog Ingest Tool.
- Design and develop the Tracking Application.
- Deliver software for build II
- Prepare for the Operational Readiness Review.

System Preparation for Build 2 (Distribution)

- Complete Search protocol design and development.
- Initiate design and development of the Subscription Service.
- Develop user interfaces for phonebook and dictionary viewing.
- Evaluate off-the-shelf products for satisfying the Monitor Service.
- Deliver software for build II
- Prepare for the Operational Readiness Review.

System Resources/Plan to Support Build 2

- Resource Levels
 - EN: 3.0 FTE; DN: .2 FTE
- System resource plan
 - Requirements/Design (Sean, SDWG)
 - Tracking, Subscription, Monitor, Search Protocol
 - Development/Implementation
 - Complete registry (95%), harvest (95%), validate (85%), catalog ingest (20%), search (20%) (Paul – 100%, Mike – 10%, Hyun – 90%, Jordan – 25%)
 - Implement subscription, tracking, phonebook & dictionary apps/viewers (new) (Mike – 90%, Jordan – 75%)
 - Procure/integrate monitor service (Hyun – 10%)

Data Preparation for Build 2

- Complete the core PDS4 Information Model for build 2
 - Provenance, Targets
- Complete the design of the initial set of discipline node classes necessary for early PDS3 data product migration and the first missions using PDS4 data standards (LADEE, MAVEN).
- Finalize the processes and interfaces for generating mission data dictionaries.
- Deliver Version 1.0 of the PDS4 Data Standards Documents.
- Prepare for the Operational Readiness Review.

Document Status for Build 2

	<i>Document/Artifact</i>	<i>Reviews</i>	<i>Status</i>	<i>Next Steps</i>
1	Introduction	3	Mature	Ready for Build
2	Concepts Document	2, 3	Mature	Ready for Build
3	Glossary	2, 3	Mature	Ready for Build
4	Jumpstart Guide	2, 3	Mature	Ready for Build
5	Data Provider's Handbook	1, 2, 3	Cleanup in Progress	External Review
6	Standards Reference	2, 3	Cleanup in Progress	External Review
7	Data Dictionary	1, 2, 3	Cleanup in Progress	External Review
8	Examples	2, 3	Consistent with model	External Review
10	Schemas	1, 2, 3	Consistent with model	External Review
11	Information Model	1, 2, 3	Core – Almost complete	Release at Build
			Discipline Level – Phase 1	Release at Build

Reviews

- 1 IPDA -1
- 2 Internal PDS
- 3 IPDA -2
- 4 External

Data Resources/Plan to Support Build 2

- Resource Levels
 - EN: 1.4 FTE; DN: 2.2 FTE
- Data Standards resource plan
 - Document editor teams in place to finalize documents (resources: editors)
 - Information model updates to core model (resources: DDWG team)
 - Draft target model under review
 - Draft provenance model under review
 - Discipline/mission model development under review by DN lead nodes for LADEE, MAVEN (resources: leads nodes; EN support)
 - Finalize processes/interface for mission DD to be resolved at upcoming F2F at NMSU (resources: DDWG team)

PDS4 Release

- Deliver PDS4 build 2 (October 2011)
- Conduct Operational Readiness Review (November 2011)
 - Assemble review to assess any final issues that need to be addressed prior to production release of PDS4
 - Finalize steps for release
- Release PDS4 (January 2012)
 - Switch over software system and supporting catalog
 - Post PDS4 standards documents
- Post PDS4 release
 - Continue future build/release process
 - Begin Migration

Operational Readiness

- Review will include representatives from PDS nodes, particularly those that have near-term candidate PDS4 missions
- Address three key objectives as follows:
 - Ensure planned release supports initial mission needs
 - Ensure engineering steps have been completed
 - Ensure PDS4 is ready for use by initial customer (e.g., upcoming PDS4 missions)
- Output will identify liens that need to be resolved prior to release

Project Schedule

Activity Name	Duration (Work Days)	Start Date	Finish Date	2008		2009				2010				2011				2012					
				3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd			
Concept/Study Phase...	240.00	8/20/07	7/18/08	■																			
Project Planning...	133.00	1/7/08	7/9/08	■																			
Architecture/System Engineering...	254.00	7/10/08	6/30/09	■	■																		
Projects	911.00	11/21/08	5/18/12		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P1. Data Standards Project...	767.00	1/2/09	12/12/11		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P2. Distributed Infrastructure Project...	911.00	11/21/08	5/18/12		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P3. Tools Project...	595.00	11/16/09	2/24/12						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P4. Distributed Catalog System Project...	688.00	9/30/09	5/18/12					■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
P5. Portals, Search and Distribution Project...	425.00	10/4/10	5/18/12									■	■	■	■	■	■	■	■	■	■	■	■
P6. Data Movement and Delivery Project...	171.00	10/1/10	5/27/11									■	■	■	■	■	■	■	■	■	■	■	■
Builds	690.00	11/9/09	6/29/12						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
B0. Infrastructure Build...	20.00	11/9/09	12/4/09						■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
B1. Ingestion Build...	160.00	3/22/10	10/29/10							■	■	■	■	■	■	■	■	■	■	■	■	■	■
B2. Distribution Build...	74.00	6/21/11	9/30/11											■	■	■	■	■	■	■	■	■	■
B3. User Capabilities Build...	30.00	5/21/12	6/29/12																			■	■

Summary

- Well defined plan and process in place with participation from Nodes, MC and users to ensure
 - Successful phased testing, deployments & transition
 - Deployed system and standards that meet requirements and purpose
 - Deployed system and standards that meet stakeholders' expectation

Backup

Data Standards Development Resources

- DDWG Support thru October 2011
 - Anne Raugh/SBN (.3)
 - Mitch Gordon/Rings (.3)
 - Lyle Huber/Atmos (.3)
 - Ed Guinness/Geosciences (.3)
 - Steve Joy/Joe Mafi/Debra Kazden/PPI (.3)
 - Boris Semenov/NAIF (.1)
 - Dick Simpson/Radio Science (.2)
 - Elizabeth Rye (.8) (.4 EN; .4 IMG)
 - Steve Hughes/EN (.5)
 - Ron Joyner/EN (.5)
- EN: 1.4 FTE; DN: 2.2 FTE

* .2 support/node for testing and development activities, etc

System Development Resources

- System Design and Development Support (FY11)
 - Sean Hardman/Engineering (.5)
 - Todd King/PPI (.05)
 - Tom Stein/Geosciences (.05)
 - Jordan Padams/Imaging (.05)
 - Mike Martin (.05)
 - EN Development Support (2.5)
- FY11/FY12 Planned Support
 - 3.0 FTE (Engineering)
 - 0.3 FTE/node for Development; 0.2 FTE for Standards
 - 1.0 FTE (ARC) GUI/tool development*

Operations Resources

- FY10 Planned I&T, Deployment Support
 - 0.4 FTE (Engineering) - develop Build I test plan; support Build I I&T, deploy Build I H/W, S/W, support CM & build management
 - 0.1 FTE (one or 2 selected node) - support Build I I&T and deployment at the node(s)
- FY11 Planned I&T, Deployment & Prototype Support
 - 0.75 FTE (Engineering) - support Build I prototype activities (catalog migration, data prototype validation etc); develop Build II test plan, support Build II I&T, deploy Build II H/W, S/W, support CM & build management
 - 0.1 FTE (all nodes) - support Build II I&T and deployment at the nodes
- FY12 Planned I&T, Deployment & Operations Support
 - 0.75 FTE (Engineering) - support Build II operations; develop Build III test plan & Mirror Site, support Build III I&T, deploy Build III H/W, S/W, support CM & build management
 - 0.1 FTE (all nodes) - support Build III test, deployment and integration at the node(s); development of Build III science services test plan

* *EN Operations, overtime will migrate personnel with each build to support PDS 2010*