PDS 2010 Project Update

PDS Management Council

April 2, 2009

Dan Crichton

What we want to communicate today

- Overview of progress in each of the groups

  - Data design and distributed infrastructure teams will present

  - Elizabeth will discuss the plans for the PDS4 standards reference

- Plans for upcoming tech session

- Project Timeline

- Specific discussion on plans for the PDS4 standards reference

What we said…

- Specific goals for PDS 2010 *
  - Simplified, but rigorous, archiving standards (PDS4) that are consistent, easy to learn, and easy to use
  - Adaptable tools for designing archives, preparing data, and delivering the results efficiently to PDS
  - On-line services allowing users to access and transform data quickly from anywhere in the system
  - A highly reliable, scalable computing infrastructure that protects the integrity of data, links the nodes into an integrated data system, and provides the best service to both data providers and users

* PDS 2010 Executive Summary, July 2008

Guiding Information for Design

- Roadmap
    - http://pds-engineering.jpl.nasa.gov/projects/PDS4/Exchange/PDS_Roadmap.pdf

- PDS Level 1, 2, 3 (System-Level)
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=5&cid=72
    - Really, not a PDS3 set of requirements

- PDS4 Concept Papers
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=100&cid=119 (Architecture)
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=100&cid=120 (Data Model)
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=100&cid=121 (User Support)

- PDS Vision and Exec Summary
    - http://pds-engineering.jpl.nasa.gov/projects/PDS4/pds2010-execsummary20080701.pdf

- PDS 2010 Architecture
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=100&cid=131 (System Architecture)
    - http://pds-engineering.jpl.nasa.gov/index.cfm?pid=5&cid=125 (Data Architecture)

PDS 2010 Plan

- Study Phase (August 2007 - March 2008)
- Project Definition (January 2008 - July 2008)
- High Level Architecture (July 2008 – January 2009)
    - Includes trade studies and transition planning
- Implementation Sub-projects (2009 - 2011) [each follow lifecycle]
    - Sub-project I: PDS 2010 Data Standards
    - Sub-project II: Distributed Infrastructure
    - Sub-project III: Core Tools
    - Sub-project IV: Catalog System
    - Sub-project V: Portals
    - Sub-project VI: Data Movement
- Transition to PDS 2010 (2012+)

Summary of Progress

- After discussing the high level architecture in November 2008 for the data and system architecture with the MC, two project teams were created to focus on
  - Design and Definition of Data Standards
  - Design and Implementation of Distributed Service Infrastructure

- Both groups established an implementation plan and timeline consistent with the overall PDS 2010 project schedule

- Both teams hold weekly teleconferences and are marching through their projects plans

- Both teams are planning for preliminary/early designs for the upcoming tech session
  - Purpose is to ensure PDS-wide visibility, input and alignment as we move forward
- Begin releasing capabilities for review and to seed the PDS 2010 investment

Data Design

- Definition of standard information model and structure
    - New data dictionary
    - Standard data structure for products
    - New grammar (e.g., XML)

- Develop PDS 4 data standards
    - Release of PDS4 Standards Reference

- More on this from the data design presentation coming up…

Distributed Infrastructure

- Technical standards for building services (e.g., REST-based services)

- Design and development of core PDS services
  - Network-based
  - Allow for local and distributed access
  - Improve flow and sharing of data from ingestion to delivery to NSSDC

- Deployment of common services

- More to come in the upcoming systems presentation…

8

PDS 2010 Schedule (from November)

Activity Name	Duration (Work Days)	Start Date	Finish Date	2007	2008				2009				2010				2011			
				Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth
Concept/Study Phase…	240.00	8/20/07	7/18/08																	
Project Planning…	133.00	1/7/08	7/9/08																	
PDS 2010 Architecture/System Engineering	254.00	7/10/08	6/30/09																	
Level 1,2,3 Requirements Changes	127.00	1/5/09	6/30/09																	
Preliminary PDS 2010 Data Architecture & Information Model	87.00	7/10/08	11/7/08																	
Form Architecture Team	1.00	7/10/08	7/10/08																	
Draft Information Model Specification	50.00	7/11/08	9/18/08																	
Prototype Node Examples in PDS 2010	50.00	9/1/08	11/7/08																	
Preliminary PDS 2010 System Architecture Specification	87.00	7/10/08	11/7/08																	
Form Architecture Team	1.00	7/10/08	7/10/08																	
System Definition and Decomposition	40.00	7/11/08	9/4/08																	
Service Definitions and Service Model	46.00	9/5/08	11/7/08																	
PDS 2010 Tech Session (Architecture Development)	2.00	9/24/08	9/25/08																	
MC Summary Presentation (Fall MC)	1.00	11/20/08	11/20/08																	
Finalize High Level Architecture	30.00	11/21/08	1/1/09																	
PDS 2010 Tech Session (Services and Data Design)	1.00	5/11/09	5/11/09																	
P1. PDS 2010 Data Standards Project…	406.00	1/2/09	7/23/10																	
P2. Distributed Infrastructure Project…	586.00	11/21/08	2/18/11																	
P3. PDS 2010 Tools Project…	445.00	1/11/10	9/23/11																	
P4. Distributed Catalog System Project…	435.00	9/30/09	5/31/11																	
P5. Portals, Search and Distribution Project…	350.00	6/14/10	10/14/11																	
P6. Data Movement and Delivery Project…	661.00	1/29/09	8/11/11																	
				Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth	First	Second	Third	Fourth

9

PDS 2010 Schedule (Current)

	Activity Name	Duration (Work Days)	Start Date	Finish Date
1	**Concept/Study Phase...**	240.00	8/20/07	7/18/08
10	**Project Planning...**	133.00	1/7/08	7/9/08
20	**Architecture/System Engineering...**	254.00	7/10/08	6/30/09
34	**P1. Data Standards Project**	455.00	1/2/09	9/30/10
35	PDS 2010 Data Standards Implementation Plan	1.00	1/2/09	1/2/09
36	General Data Model (Draft)	84.00	1/5/09	4/30/09
37	Product Data Model (Draft)	84.00	1/5/09	4/30/09
38	Data Dictionary Model (Draft)	84.00	1/5/09	4/30/09
39	Grammar Options Outlined	84.00	1/5/09	4/30/09
40	PDS Standards Reference (Outline)	84.00	1/5/09	4/30/09
41	Review and Comment by Tech Group (Tech Session)	1.00	5/4/09	5/4/09
42	Data Dictionary Model (Final)	109.00	5/1/09	9/30/09
43	Grammar Decision	109.00	5/1/09	9/30/09
44	PDS Standards Reference (Draft)	109.00	5/1/09	9/30/09
45	General Data Model (Final)	259.00	10/5/09	9/30/10
46	Product Data Model (Final)	259.00	10/5/09	9/30/10
47	PDS Standards Reference (Final)	259.00	10/5/09	9/30/10
48	PDS Data Dictionary (Content)	259.00	10/5/09	9/30/10
49	**P2. Distributed Infrastructure Project**	586.00	11/21/08	2/18/11
50	Implementation Plan	20.00	1/5/09	1/30/09
51	Technologies and Standards Identification	140.00	11/21/08	6/4/09
52	Phase I (Security, Registry, Dictionary, Report)	215.00	2/9/09	12/4/09
53	*Requirements/Design*	95.00	2/9/09	6/19/09
54	*Implementation/Test*	105.00	5/11/09	10/2/09
55	*Release/Deploy*	45.00	10/5/09	12/4/09
56	Phase II (Search)...	345.00	6/22/09	10/15/10
62	Phase III (Search)...	180.00	6/14/10	2/18/11
66	**P3. Tools Project**	260.00	10/1/10	9/29/11
67	Tool Migration Project to PDS 2010...	256.00	10/1/10	9/23/11

Timeline header: 2007 (4th), 2008 (1st, 2nd, 3rd, 4th), 2009 (1st, 2nd, 3rd, 4th), 2010 (1st, 2nd, 3rd, 4th), 2011 (1st, 2nd, 3rd, 4th)

10

Tech Session (June 2009)

- Originally targeted May, but June worked better for everyone's schedule

- 3-days (June 9-11, 2009)
  - Day 1
    - Splinter meetings
  - Day 2 & 3
    - Review and discussion of designs and deployment plans
    - Discussion of the PDS 4.0 Standards Reference
    - Review and discussion of migration/transition plan (and the critical dependencies)

What the MC can expect

- Today is a work in progress discussion

- In August, after the tech session, we expect
  - there will be a comprehensive report for the MC
  - emerging draft documents and early software services
  - a critical discussion on transition and migration plans

- Sufficient time to engage community through the node processes
  - We want early deliverables so they can be used for concrete discussions and feedback

Transition Planning

- Transition planning will be on-going throughout PDS 2010 development (e.g., multiple transition points)

- Dependent on new data standards (sub-project 1!)
  - Initial design meeting with PDS tech staff planned for May 2009
  - Multiple releases will be performed with a final 4.0 release planned for Sep 2010

- Migration plan will be in place for system components
  - Retire aging system components
  - Each component will have a transition plan. An initial plan is already being developed based on the architecture decomposition.

- The major transition will be accepting data in PDS 4.0 standard
  - Will ensure that access and use of PDS3 data will remain viable
    - Multiple options have been discussed; May tech session will review migration options and present tradeoffs to MC at August meeting
  - *Target Acceptance of PDS 4 Data in 2012*