PDS4 Data Standards Implementation Plan

PDS 2010 System Review

March 22-24, 2010

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Agenda

- Purpose
- Approach
- Structure
- Resources
- Tasks and Deliverables
- Schedule

Purpose

- Design and Implement the PDS4 Data Standards
  - *Information Model, Data Dictionary, Grammar, and Standards Process*
  - Maintain consistency with the PDS 2010 Architecture and PDS Level 1, 2, and 3 requirements.
  - Design data standards that are extensible, flexible, and scalable.

Approach

- Used PDS Level 3 requirements as a baseline
- Derived components of the data architecture from the Planetary Science domain information view
- Followed a multi-phase process involving study, architecture, design, and development
- Involved domain experts from across the PDS and International Community
- Formed Working Groups
- First identified PDS3 gaps and issues
- Developed a plan to address requirements and gaps
- Designed using a data-driven approach (to be discussed)
- Developed a model that is independent from the implementation.

Structure

- In conjunction with the study, architecture and design phases, the following three key activities have been underway
    - January 2008: Formed working group that assessed gaps in PDS3 data standards implementation relative to drivers and architecture plans for PDS 2010
    - July 2008: Formed Data Architecture Working Group (DAWG) which prepared a high level architecture plan for the PDS4 Data Architecture
    - January 2009: Formed Data Design Working Group which is developing the PDS4 data standards

Note: Each phase involved members from across the PDS

Structure (2)

- The DDWG is made up of members from across the PDS
  - Steve Hughes (Lead)
  - Mitch Gordon (Rings)
  - Edward Guinness (Geosciences)
  - Lyle Huber (Atmospheres)
  - Ron Joyner (EN)
  - Anne Raugh (SBN)
  - Elizabeth Rye (Imaging, Standards)
  - Steve Joy, Joe Mafi, Debra Kazden (PPI)
  - Ed Bell (Observer)
  - Dick Simpson (Radio Science - Observer)

Structure (3)

- A two hour telecon is held almost every week
  - Agenda topics have prepared material
  - Action items are captured and managed
  - Decisions are documented and captured in model
- Participated in June 2009 Technical Session
  - Presented overview, status, design goals, design tradeoffs, and specific data product examples.
- Held four-day face-to-face meeting in January 2010 to address more complex issues.
  - Additional workshops are being considered.

Structure (4)

- Prototype Information Model was available in Dec 2008
  - Model is updated continually to reflect DDWG decisions
  - In late 2009, each node created a prototype data product to test the model.
    - Each node reported on their exercise at the Dec 2009 MC meeting.
    - Problems and issues were captured and are being resolved.
  - Second round of node exercises is starting.
  - Transforms from FITS to PDS4 data formats and in reverse have been successfully tested.
- Maintain a Wiki site
  - Provides links to documents and design artifacts.
  - Issues and research topics are posted for discussion.

Resources

- DDWG Support thru September 2010
    - Anne Raugh (.3)
    - Mitch Gordon (.3)
    - Lyle Huber (.3)
    - Ed Guinness (.3)
    - Steve Joy/Joe Mafi (.3)
    - Boris Semenov (.1)
    - Dick Simpson (.1)
    - Elizabeth Rye (.8) (.4 EN; .4 IMG)
    - Steve Hughes (.5)
    - Ron Joyner (.5)
- EN: 1.4 FTE; DN: 2.1 FTE

- +.2 support/node for PDS4 burst activities per node

Tasks and Deliverables

- Information Model
  - Archive Model
    - Data Formats
    - Product Model
  - Query Model
  - Archive Organization
- Data Dictionary
  - Model
  - Content
- Grammar
- Standards Process
  - Documents

Schedule and Progress Chart

Data Dictionary Model
ISO/IEC 11179 adopted

Generic Product Model
Designed and in testing

Fundamental Structures
Designed and in testing

Data Formats
Initial set designed and in testing

Data Element Nomenclature
Rules drafted

Data Dictionary
Clean-up started

Context Model
Design started

XML/Schema
Designed and in testing
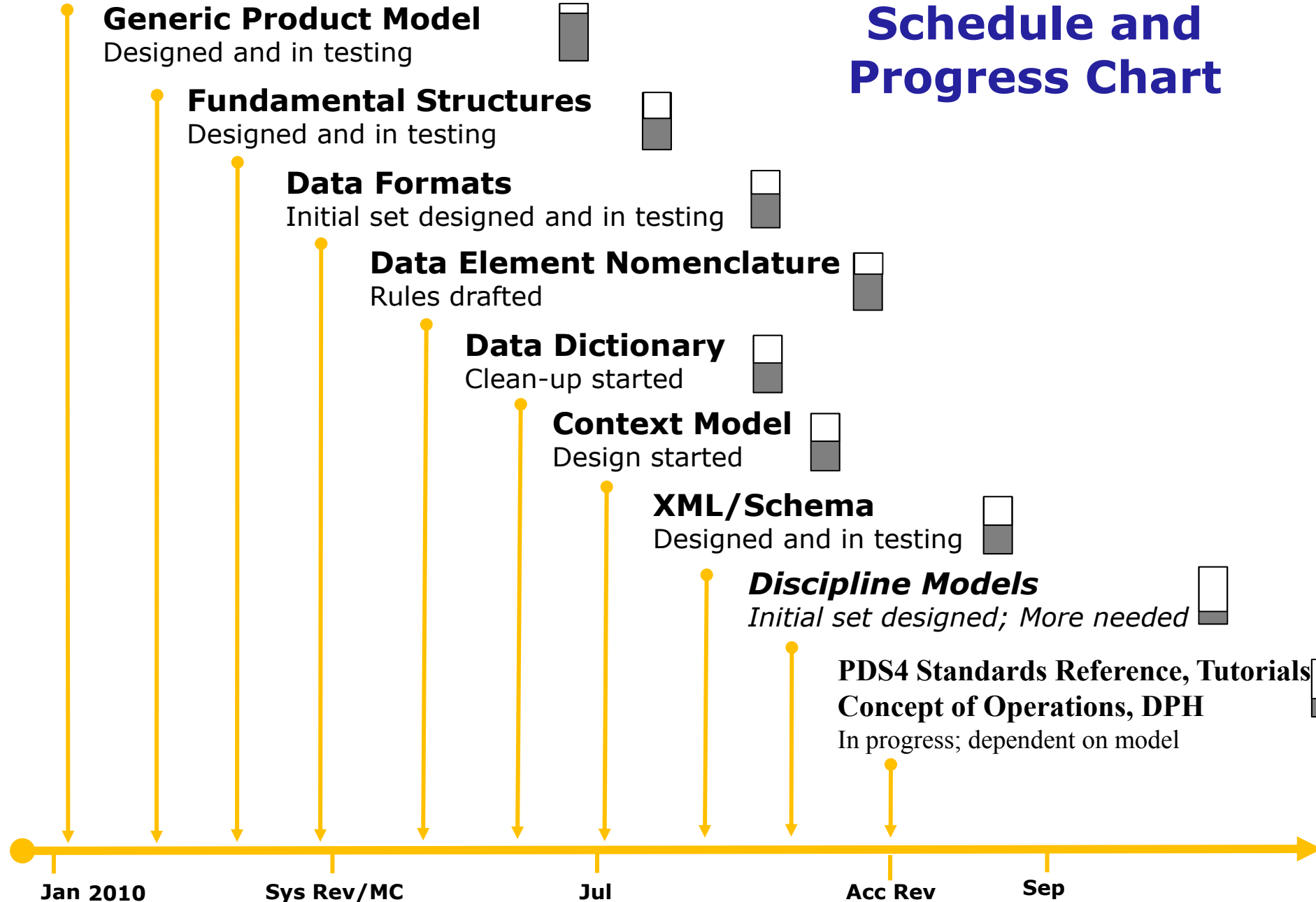
Discipline Models
Initial set designed; More needed

PDS4 Standards Reference, Tutorials
Concept of Operations, DPH
In progress; dependent on model

Jan 2010   Sys Rev/MC   Jul   Acc Rev   Sep