National Aeronautics and
Space Administration

PDS 4 Data Architecture
Part I (2)

PDS 4 Data Architecture Team

September 2008

National Aeronautics and
Space Administration

Fundamental Issues

Big Goals: Customers, Drivers, Priorities

Organization of the full PDS Data System

Hold for Part II

“fewer, simpler formats”

Data Structure

National Aeronautics and
Space Administration

Fundamental Issues

Big Goals: Customers, Drivers, Priorities

Organization of the full PDS Data System

Hold for Part II

“fewer, simpler formats”

Data Structure

National Aeronautics and
Space Administration

Fundamental Issues

Big Goals: Customers, Drivers, Priorities

Organization of the full PDS Data System

Hold for Part II

“fewer, simpler formats”

Data Structure

National Aeronautics and Space Administration

Ray Arvidson's Questions

f. Enable "one-stop shopping", I.e., seamless access to data that reside at multiple nodes?

g. Help users by delivering derived data products in the format, coordinate system, and map projection from the user requests?

h. Help data providers by automating the design, production, and delivery of PDS data sets?

i. Ensure that PDS standards are simple, straightforward, and consistent so that data providers and users can easily understand [and uniformly] apply them?

j. Ensure that data sets can be safely and efficiently archived in NSSDC and retrieved on demand?

k. Improve the data transfer, data integrity, and maintenance of PDS data sets?

l. Simplify addition of future user services -- robust building blocks at the foundation of our structure?

National Aeronautics and Space Administration

Consensus vs. Distributed Control – Aspects to use or avoid.

Consensus Extreme

- Objects & elements defined globally
- One interface into PDS holdings
- Local repositories use one layout
- Nodes & data location transparent
- Structures & formats highly rigid
- Global configuration control
- General utilities support all classes
- No mission or discipline tailoring
- Cheap, universal software
- "1 PDS "
- Simpler for providers

Distributed Extreme

- Highest-level requirements global
- DNs use independent catalogs
- Local repositories independent
- User sees DN not PDS as whole
- High flexibility
- Nodes handle configuration control
- Utilities produced by DNs
- User-Oriented Service
- Limited interoperability
- Requirement Proliferation
- Frustrating for providers

National Aeronautics and
Space Administration

End of Part I

Let's take a break!

National Aeronautics and
Space Administration