ECS Architecture

Richard Meyer, Narayan Prasad

rmeyer@eos.hitc.com, nprasad@eos.hitc.com

ECS Release A SDPS/CSMS Critical Design Review
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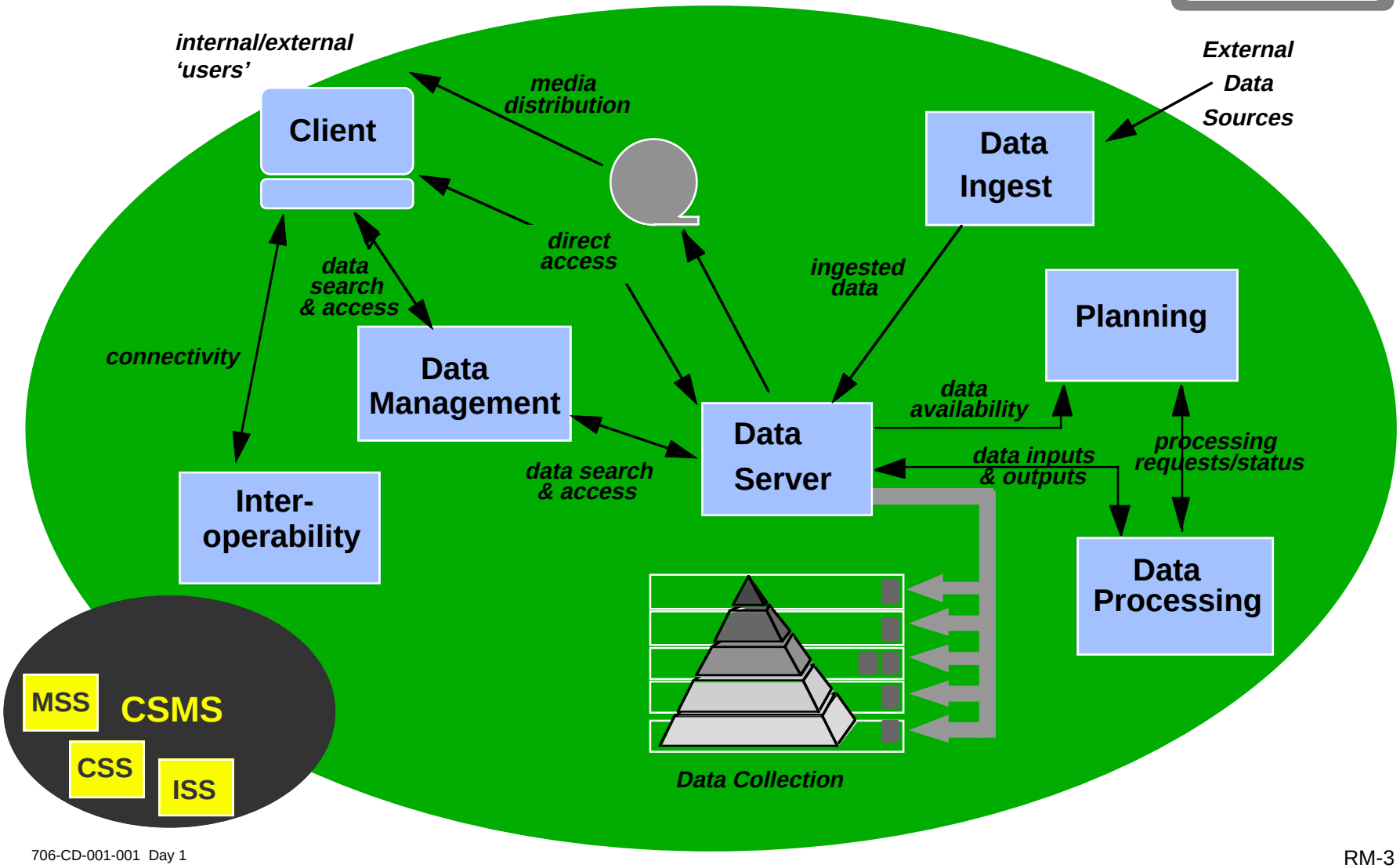
Presentation Roadmap

- ❑ Subsystems & Capabilities
- ❑ Top-Level Configuration Items
- ❑ Design Objectives & Approaches
- ❑ Hardware & Network Overview (N. Prasad)
- ❑ Security Overview (N. Prasad)
- ❑ Sizing Approach (N. Prasad)

SDPS Subsystems



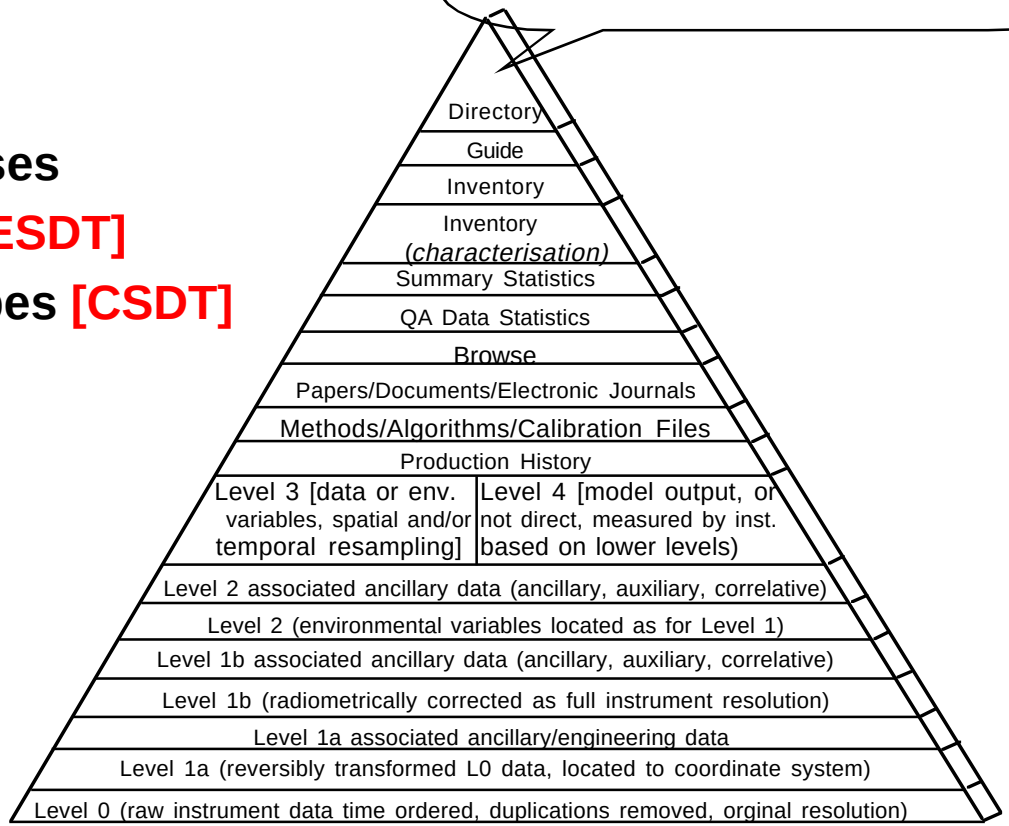
EOSDIS Data Model

Data Model is a critical part of the overall design

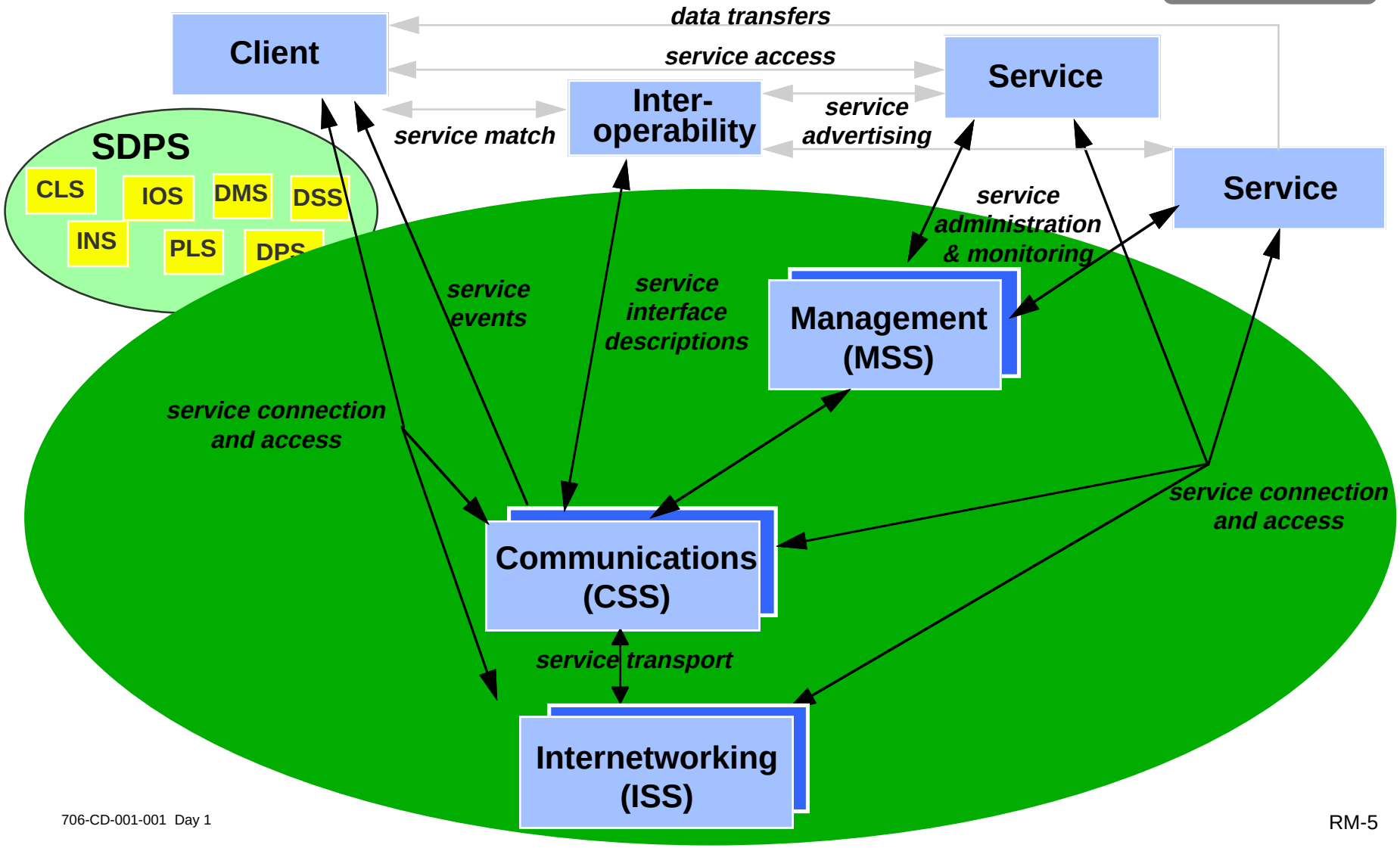
Key features . . . . . .

- ❑ **Data Collections**
- ❑ **Organized Into Object Classes**
- ❑ **Earth Science Data Types [ESDT]**
- ❑ **Computer Science Data Types [CSDT]**

More About This In The Data Engineering Presentation



CSMS Subsystems



Release A Capabilities

Client, Interoperability, Data Management

- User Interface with ECS Data Through V0 Client
- Single GUI interface for Management of Desktop Objects
- Interactive Browsing, Searching and Submission of Advertisements
- Gateway between V0 and ECS protocols

Data Server

- Accept and Archive all TRMM Data, V0 Migration Data, and HTML and ASCII Documents
- Distribute Data Electronically and on Hard Media
- Support of Subscription Based Distribution of Data
- Provide GUI for Operations Control of Storage and Distribution

Release A Capabilities

Ingest

- Ingest Data from TSDIS, DAO, and NESDIS
- Ingest CERES/LIS L0 data from SDPF
- Support Early Interface Testing (e.g. EOS AM-1, Landsat-7)
- Provide Ingest Operator Interface

Processing & Planning

- Generation and Activation of Candidate Plans
- Support CERES and LIS L1- L4 Product Generation
- Monitor and Control Production Through Operator GUI

Release A Capabilities

CSS

- **Provide Infrastructure Services and Applications, e.g.,**
  - **Distributed Objects, Security**
  - **File Transfer, E-mail, Time, Directory**
  - **Bulletin Board Service (BBS)**

MSS

- **Local DAAC Monitoring and Management, SMC DAAC Monitoring**
- **Accountability Management**
- **Trouble Ticketing**
- **Configuration Management**
- **Ground Event Planning**
- **System Management GUI**

SDPS CI Overview

Client (CLS)

- Desktop CSCI **DESKT**
- Workbench CSCI **WKBCH**

Interoperability (IOS)

- Advertising Service CSCI **ADSRV**
- Advertising Server HWCI **ADSHW**

Data Management (DMS)

- Local Information Management CSCI **LIMGR**
- Distributed Information Management CSCI **DIMGR**
- Data Dictionary Services CSCI **DDICT**
- Version 0 Interoperability Gateway CSCI **GTWAY**
- Data Management Server HWCI **DMGHW**

Data Server (DSS)

- Science Data Server CSCI **SDSRV**
- Document Data Server CSCI **DDSRV**
- Storage Management CSCI **STMGT**
- Data Distribution CSCI **DDIST**
- Access Control & Management HWCI **ACMHW**
- Working Storage HWCI **WKSHW**
- Document Data Server HWCI **DDSHW**
- Data Repository HWCI **DRPHW**
- Distribution & Ingest Peripherals HWCI **DIPHW**

Ingest (INS)

- Ingest CSCI **INGST**
- Ingest Client HWCI **ICLHW**

Data Processing (DPS)

- Processing CSCI **PRONG**
- SDP Toolkit CSCI **SDPTK**
- Algorithm Integration & Test CSCI **AITTL**
- Science Processing HWCI **SPRHW**
- Algorithm QA HWCI **AQAHW**
- Algorithm Integration & Test HWCI **AITHW**

Planning (PLS)

- Production Planning CSCI **PLANG**
- Planning HWCI **PLNHW**

HARDWARE CI

CSMS CI Overview

Communications Subsystem (CSS)

- Distributed Computing Software CSCI
  DCI
- Distributed Computing HWCI
  DCHCI

System Management Subsystem (MSS)

- Management Software CSCI
  MCI
- Management Agents CSCI
  MACI
- Management Logistics CSCI
  MLCI
- Management Hardware HWCI
  MHCI

Internetworking Subsystem (ISS)

- Internetworking CSCI
  INCI
- Internetworking Hardware HWCI
  INCI

HARDWARE CI

Release A Design Objectives

Support Release A Requirements

Minimize Release A Schedule Risk

- **OTS**
- **Software Reuse - Infrastructure**

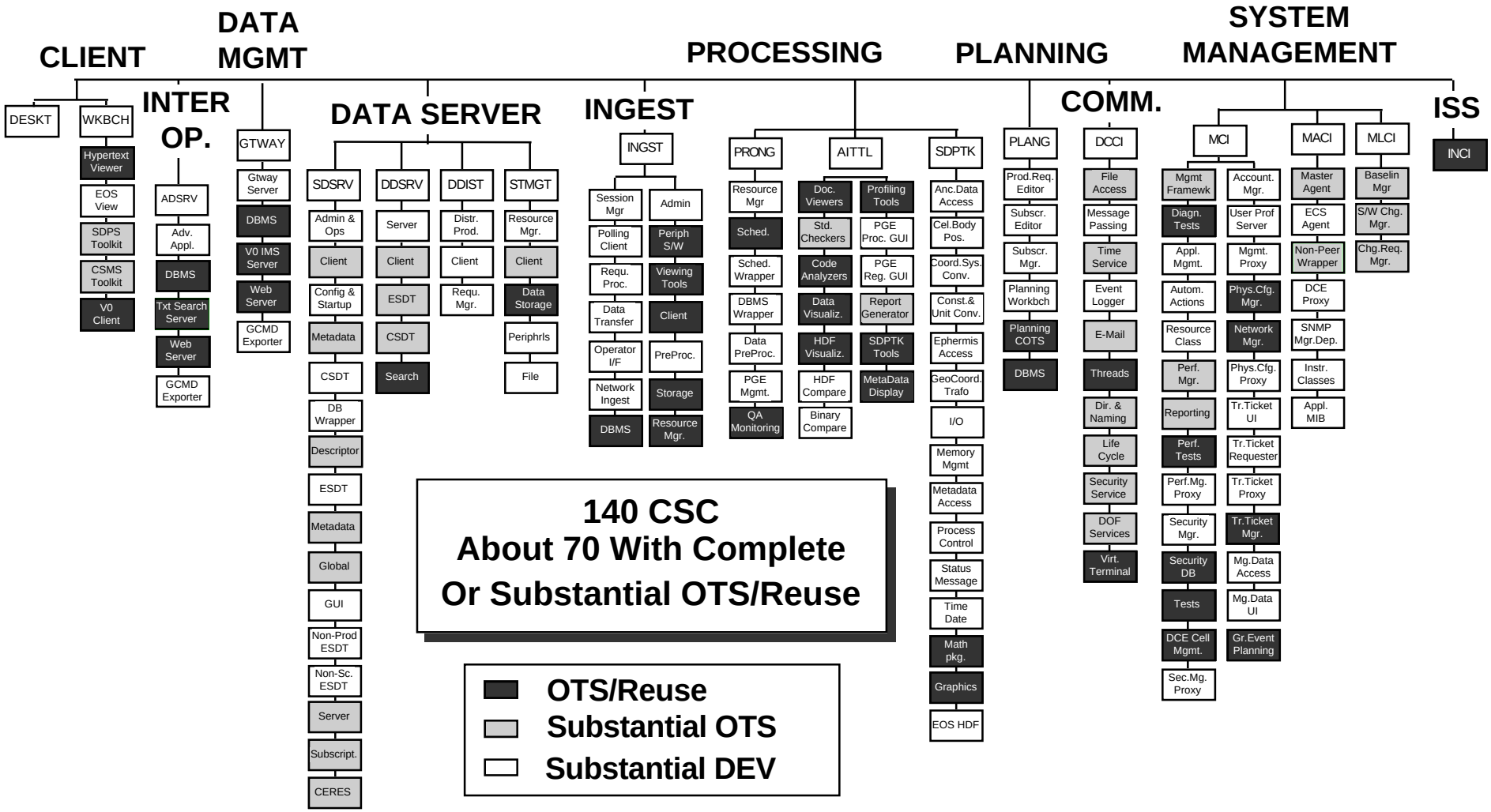
Minimize Breakage for Release B

- **Minimize Technology Insertion Between A and B**
- **Encapsulate COTS**
- **Anticipate Release B Requirements**

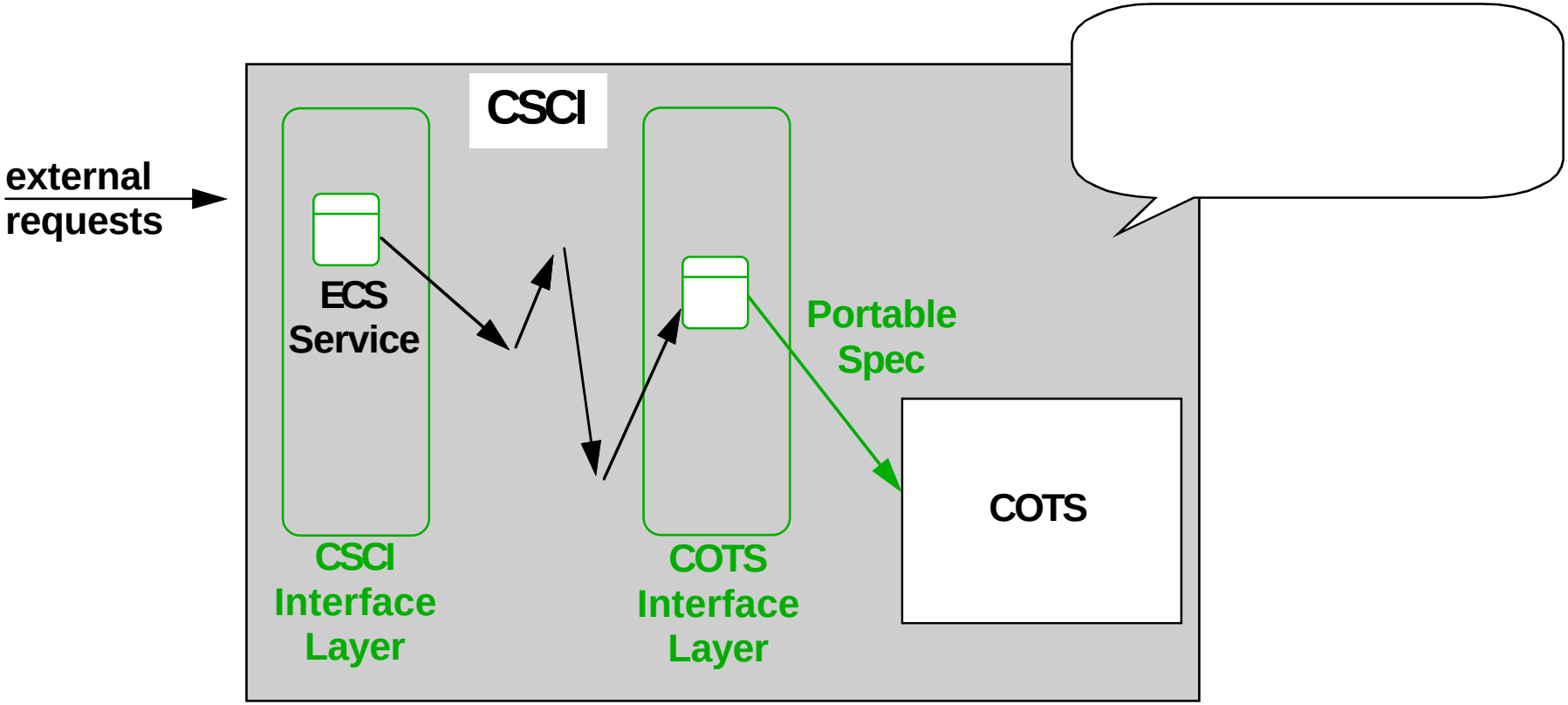
Provide Basis for Future Releases and System Evolution

- **Scalability and Extensibility**
- **Standards**

Maximize Off-The-Shelf



COTS Encapsulation

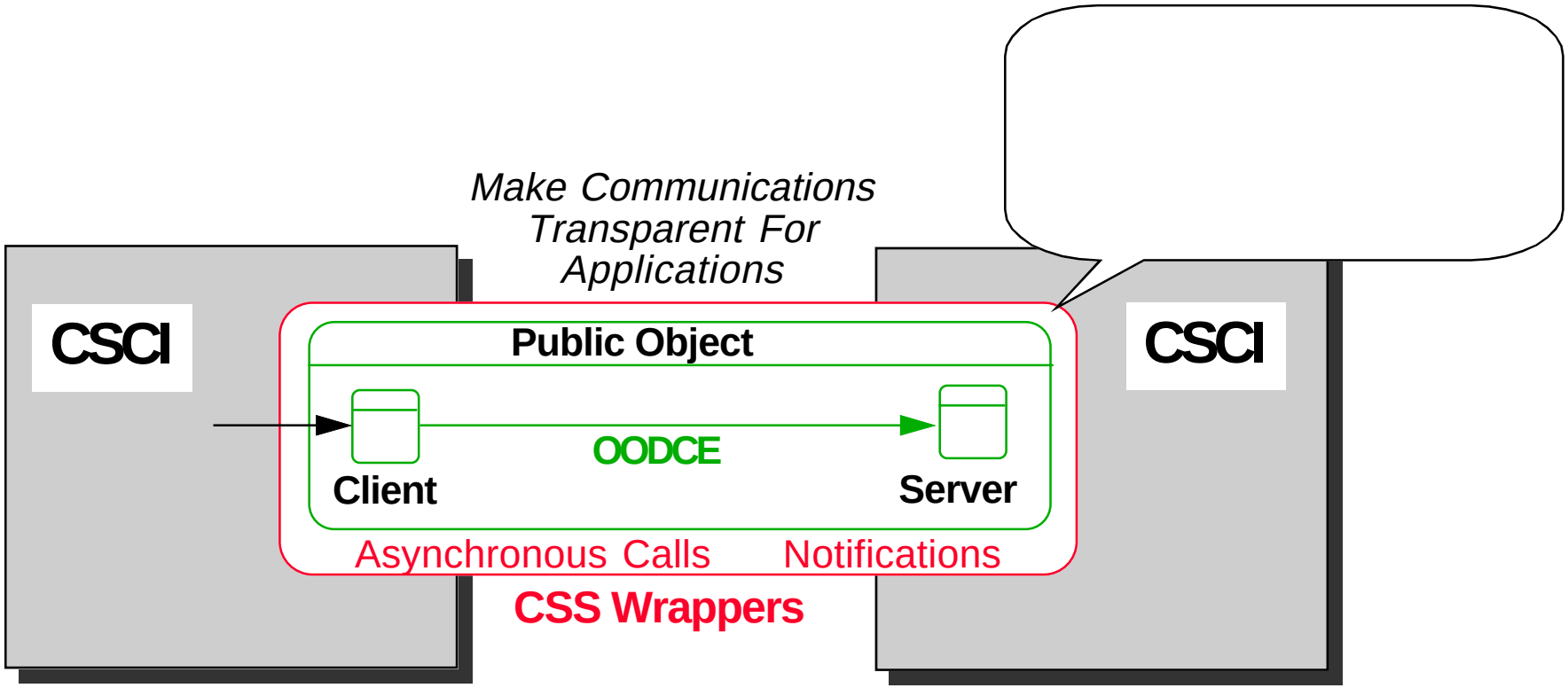


Make COTS Interfaces CSCI-Internal

Isolate CSCI From COTS

Follow Portable Specifications Where Possible

Distributed Objects

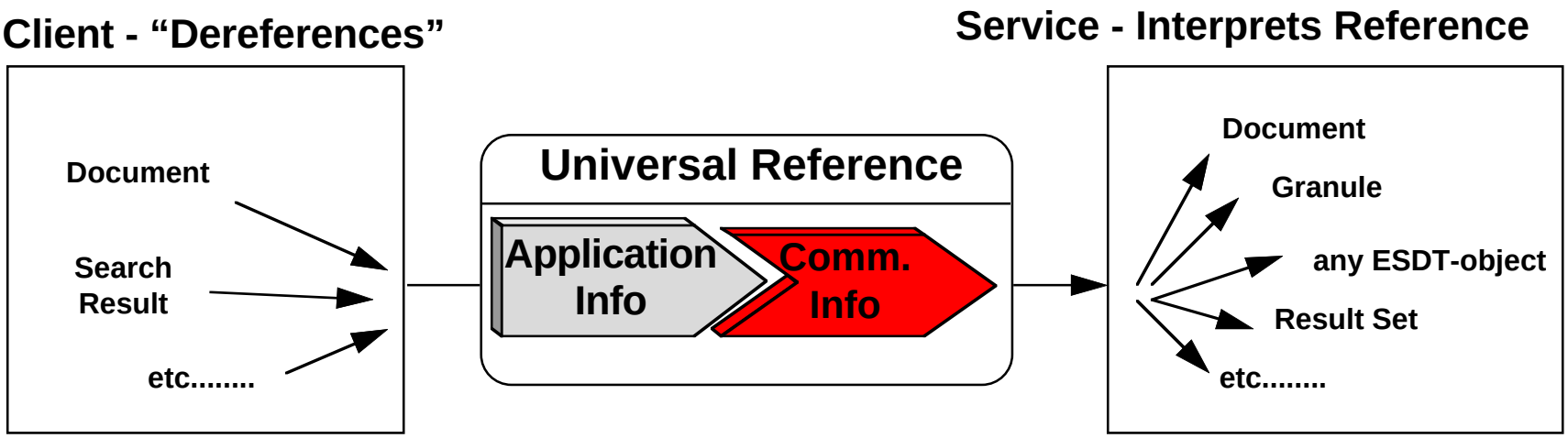


Release A Uses OODCE Plus Encapsulation Software

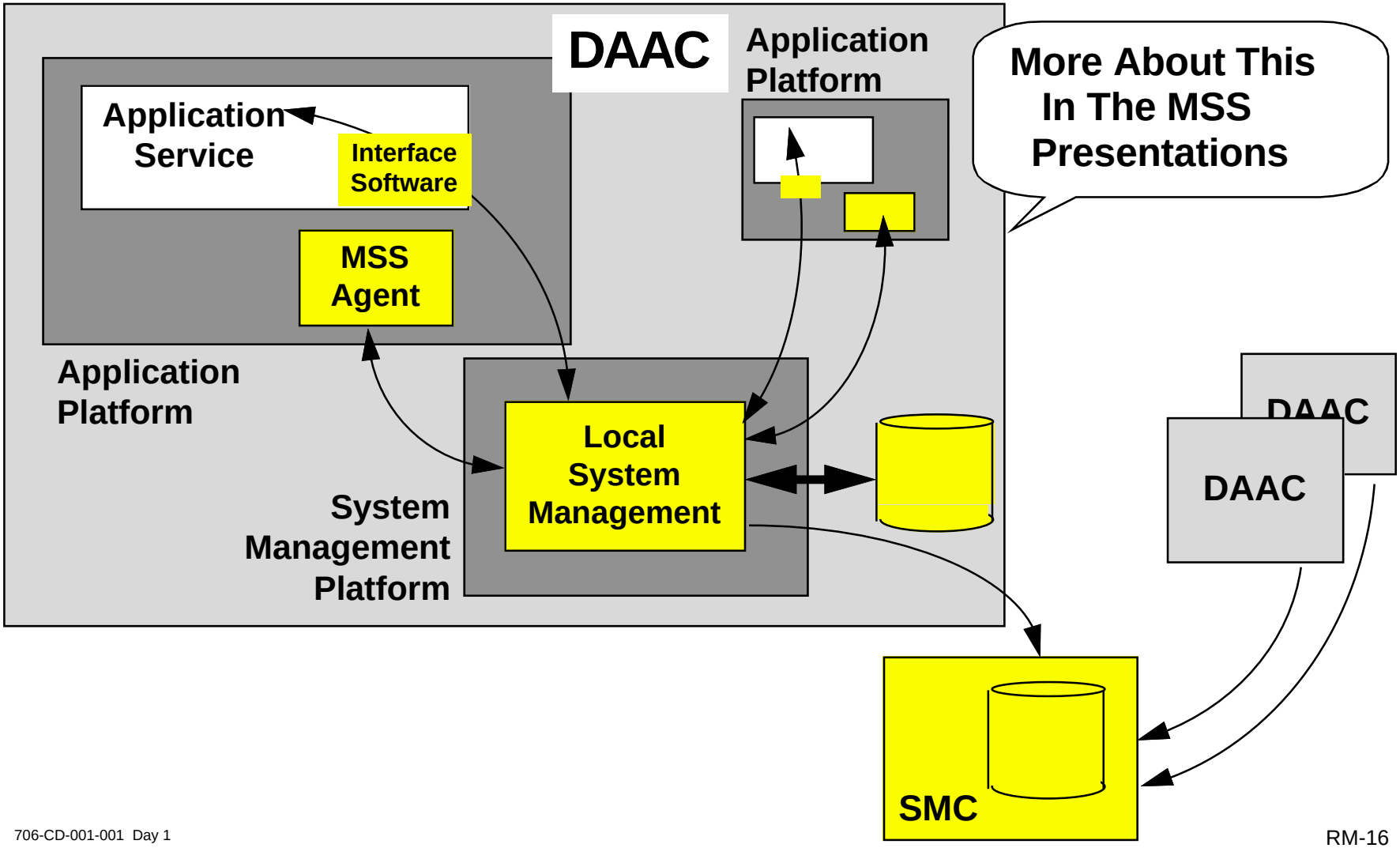
⇒ **Distributed Object Framework**

CSCI Interfaces Are Presented in Terms of Public Objects

Universal Reference



System Management Interfaces



Standards

Communications Architecture Based on DCE

System Management Architecture Based on SNMP

Distributed Object Framework Migration to CORBA Planned

- **Release A Based on OODCE plus Wrappers**

Support for Web Standards At External Interfaces

User Interfaces

- **CDE, Motif**

DBMS Access Relies on Encapsulation Rather Than Just Standards

- **Selection of Science Data Query Language Still Pending (No Clear, Suitable Standard)**

Data Standards

- **HDF-Eos, PVL, HTML (et al), FGDC**