



# NASA's EOSDIS Implementation of ISO 19115: the Common Metadata Repository

FGDC ISO Implementation Forum and Metadata  
Working Group  
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# Abstract

*Earth Observing System Data and Information System (EOSDIS) generates, archives, and distributes enormous amounts of Earth Science data via its Distributed Active Archive Centers (DAACs). This data is accessed and employed by a broad user community. It is therefore imperative that reliable, consistent, and high-quality metadata be maintained in order to enable accurate cataloging, discovery, accessibility, and interpretation.*

*To this end, the Common Metadata Repository (CMR) has been established to serve as a clearinghouse for these metadata. The CMR employs a metadata model that unifies crosswalk translations between various metadata formats including ISO 19115. This presentation will focus on the usage of ISO 19115 within the CMR including format translations, metadata guidance for new implementers, addressing issues encountered during the CMR model development, and future plans.*

# A Brief Introduction



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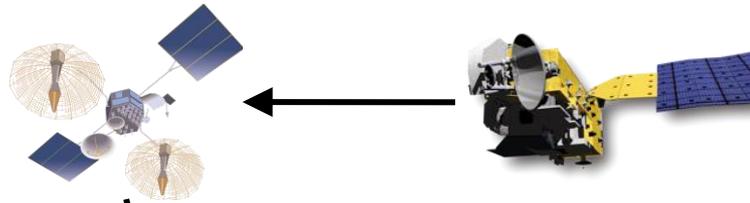
Putting EOSDIS in Context

## What is EOSDIS?

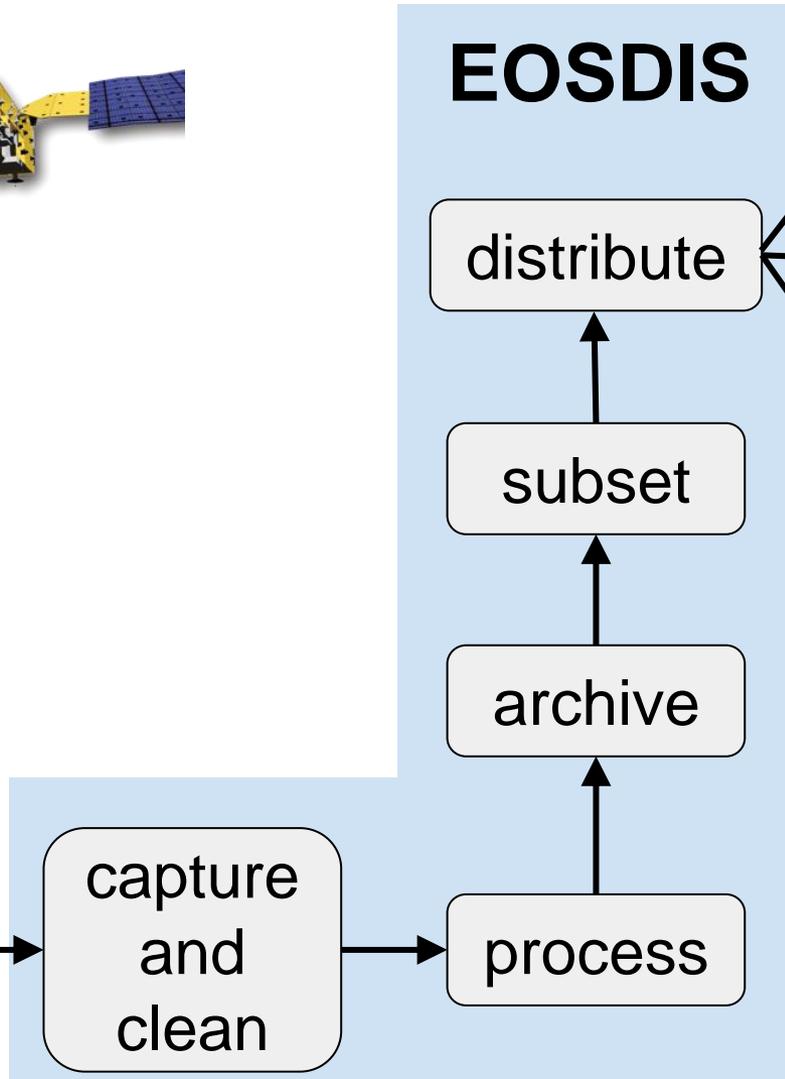




# EOSDIS Functions



data  
downlink



Research

Applications

Education

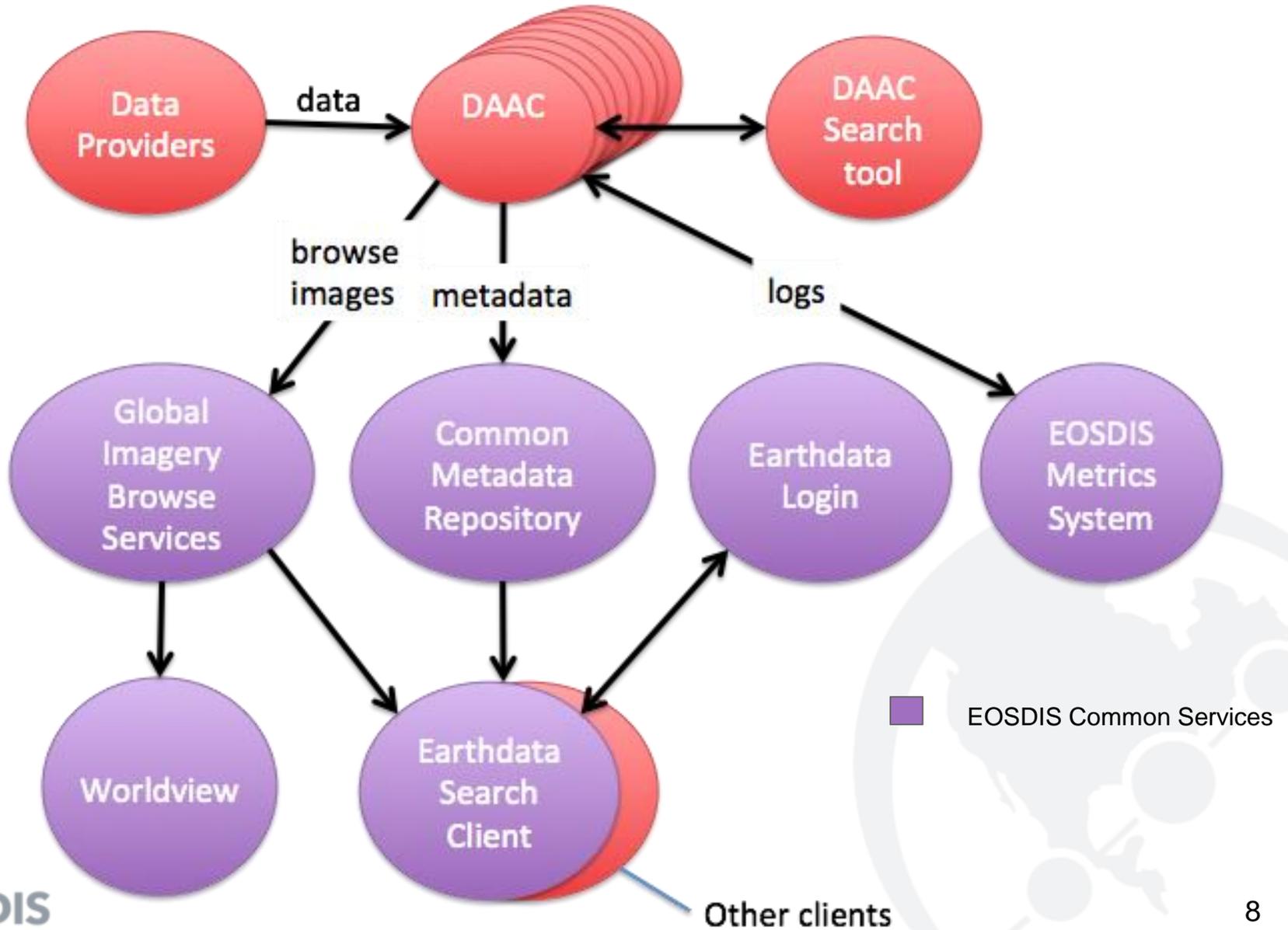
*Users*



# Discipline-Focused Distributed Active Archive Centers (DAACs)



# EOSDIS Common Services





# Looking at Our Metadata

## **Growing Pains**

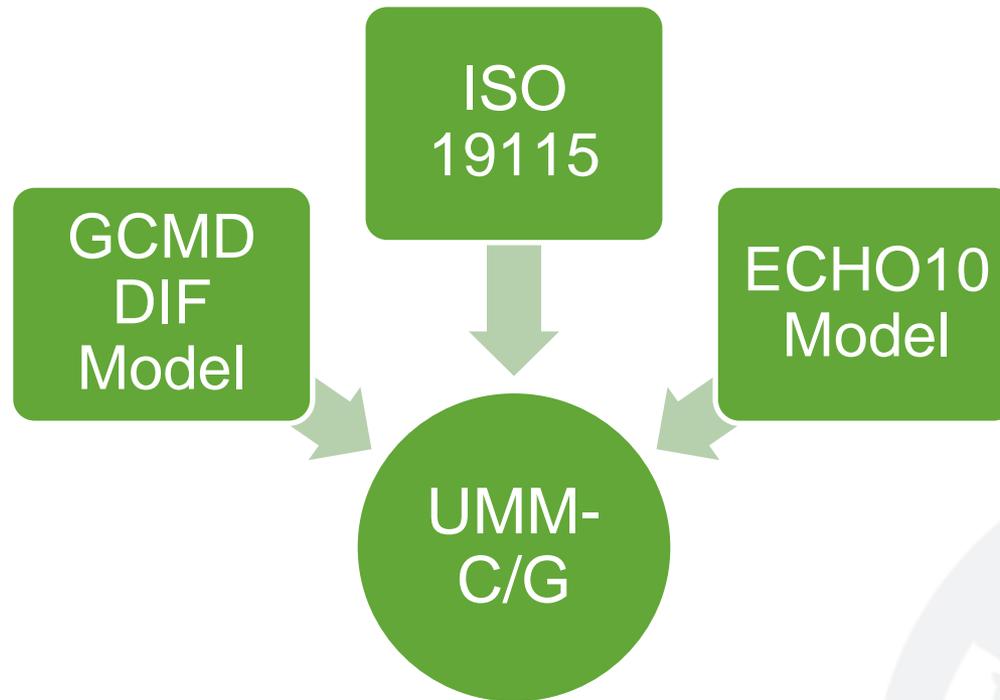


# Converging Problems

- Combining two legacy metadata catalogs
  - GCMD (30k collections, not all EOSDIS)
  - ECHO (6500 collections, 260+ million granules, all EOSDIS )
  - 12 EOSDIS DAACs to reconcile (that's a whole different presentation)
- New Missions requiring ISO 19115 compliant metadata
- **Bottom Line: Several new metadata formats required support while continuing to support legacy requirements**



# Developing a Model



# Crosswalking Each Element

## Abstract

### Element Specification

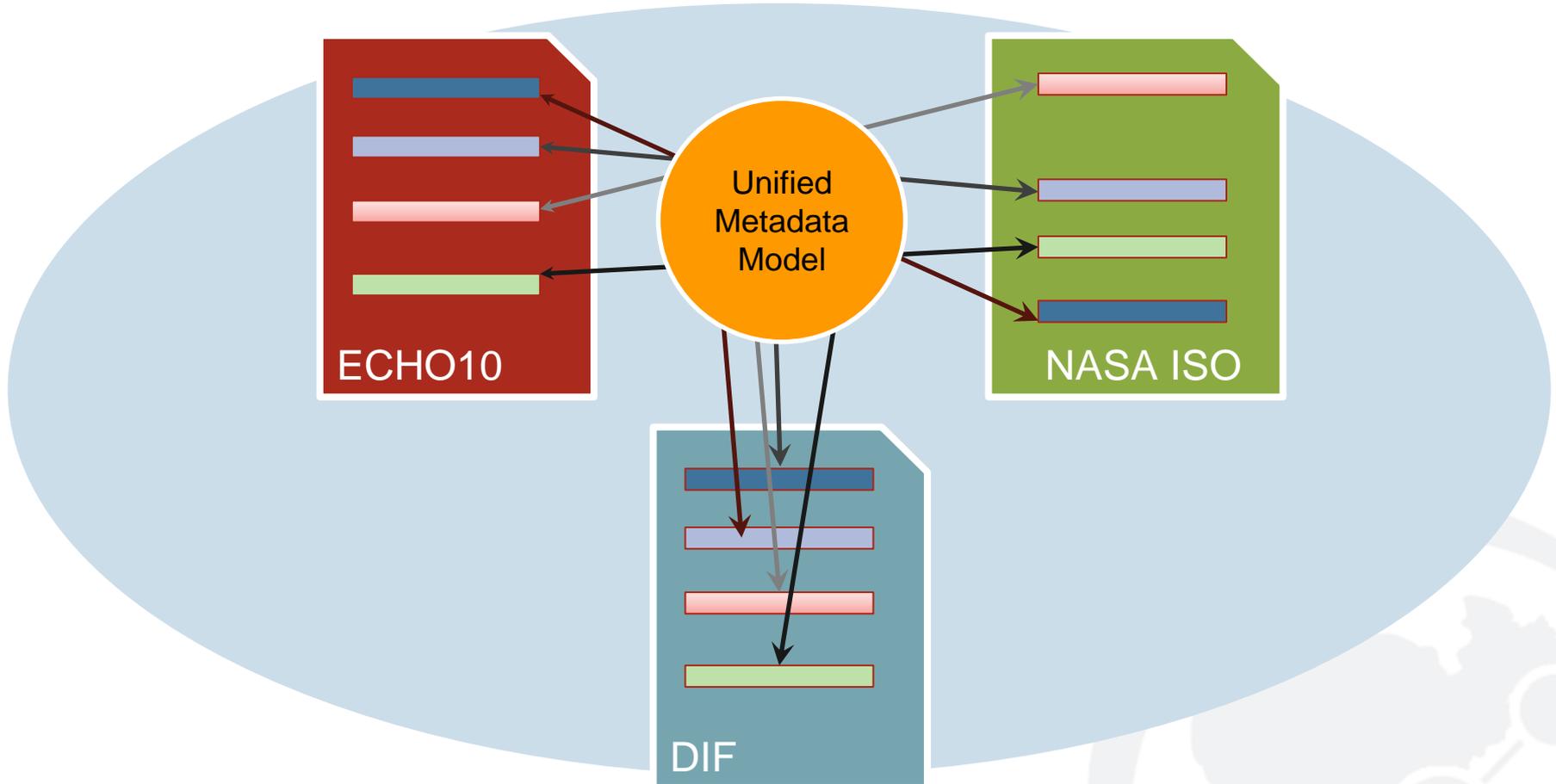
Abstract

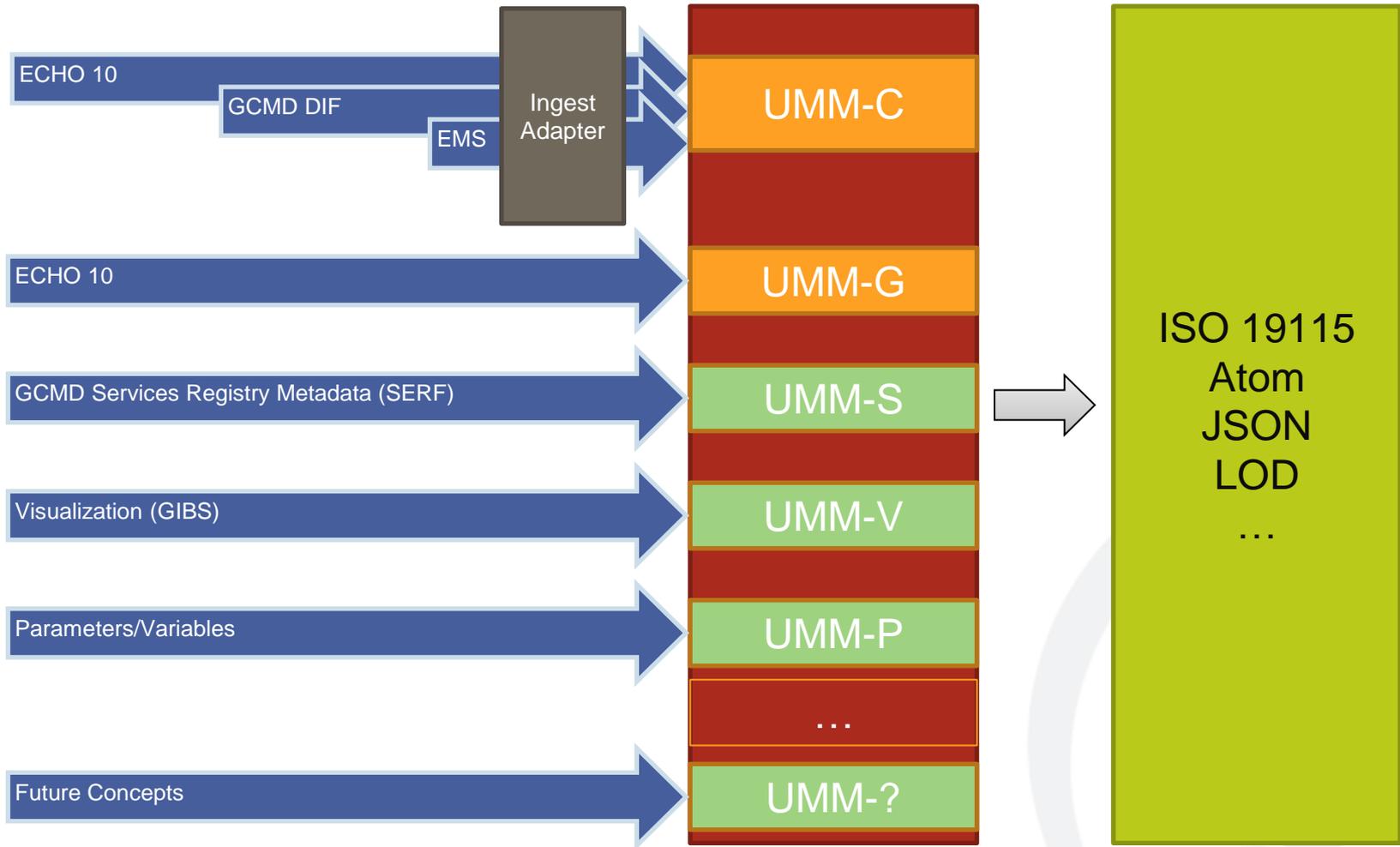
### Description

Abstract provides a brief description of the resource the metadata represents.

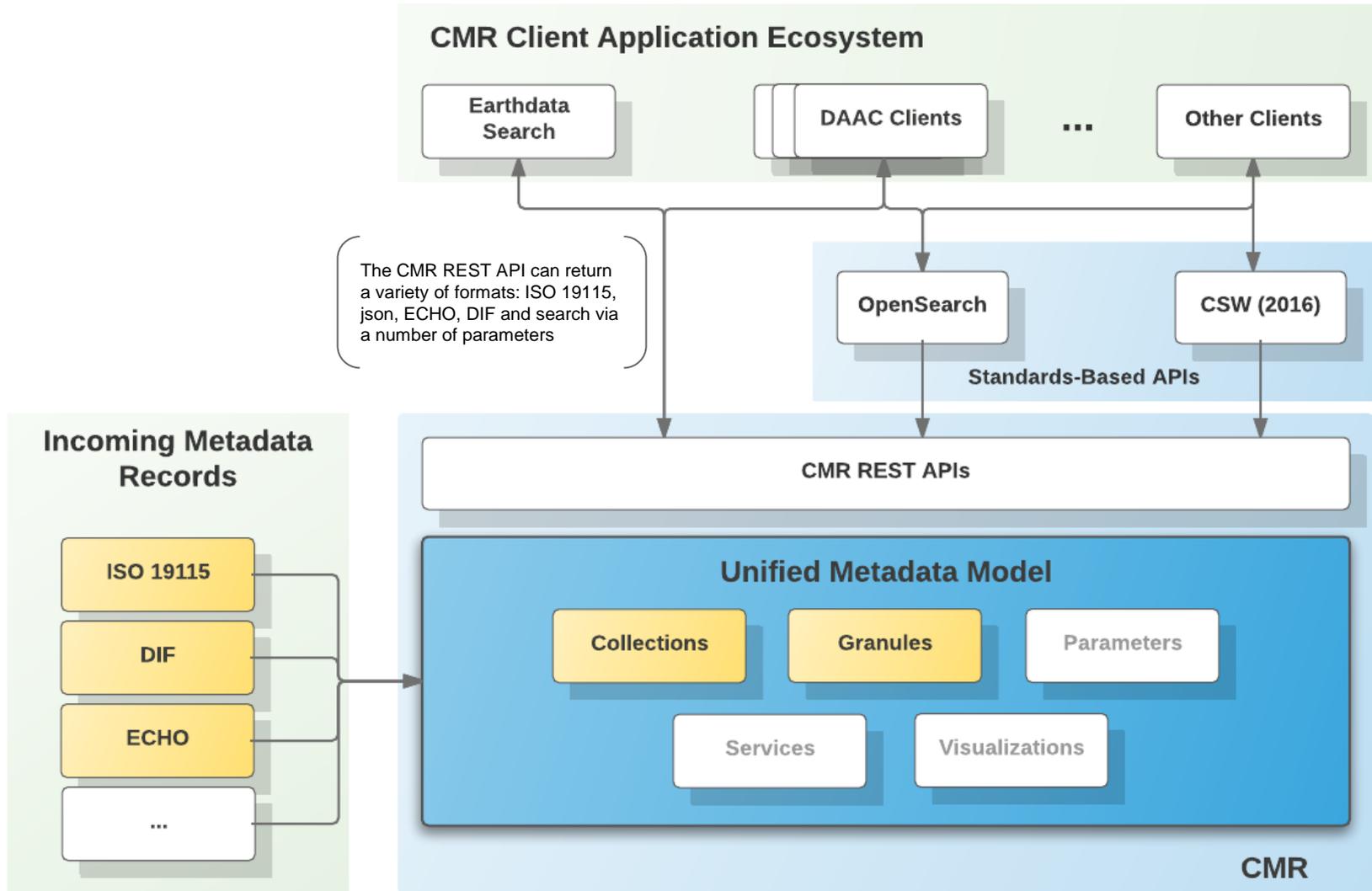
### Mapping

|                    |  |
|--------------------|--|
| DIF 9              | /DIF/Summary/Abstract  |
| DIF 10             | /DIF/Summary/Abstract  |
| SERF               | /SERF/Summary/Abstract   |
| ECHO 10 Collection | /Collection/Description  |
| ECHO 10 Granule    | N/A  |
| ISO 19115-2        | /gmi:MI_Metadata/gmd:identificationInfo/gmd:MD_DataIdentification/gmd:abstract/gco:CharacterString |
| ISO 19115-1        | /mdb:MD_Metadata/mdb:identificationInfo/mri:MD_DataIdentification/mri:abstract/gco:CharacterString |





# Unified Metadata Model in Context



# Tools for Metadata Editing

**Metadata Management Tool (MMT)**  
EDF\_DEV02

Quick Find: Enter Entry Id Find

Dana Shum Change Provider Logout Full Metadata Record Search

### MANAGE METADATA

#### Create New Record

- New Collection Record
- New Service Record **Coming Soon**
- From Template **Coming Soon**
- From Blank Record **Coming Soon**

OR use search to find an existing record to use as a basis for a new record

Create Record

#### Your Open Drafts

- 2015-11-03 | TestRecord2  
This is test record 2
- 2015-11-03 | testRecord1  
This is test record 1
- 2015-11-03 | TestRecord3  
This is test record 3
- 2015-10-05 | <Blank Entry Id>  
<Untitled Collection Record>
- 2015-10-05 | <Blank Entry Id>  
<Untitled Collection Record>

#### Upload XML Files

Select files **Coming Soon**



# Tools for Metadata Editing

The screenshot displays the NASA Metadata Management Tool (MMT) interface. The main header includes the NASA logo, the title 'Metadata Management Tool (MMT)', and a search bar with the text 'Quick Find Enter Entry Id Find'. Below the header, the user 'Dana Shum' is logged in, and the page title is 'MANAGE METADATA'. The main content area shows a record for 'ASTER Level 1 Full Resolution Browse Thermal Infrared V003'. The record is in a 'PUBLISHED RECORD' state, and the 'EDIT RECORD' button is visible. A red circle highlights the 'Download XML' button in the record's action bar. A modal dialog box is open, titled 'Download XML', and lists available metadata formats: Native, ATOM, DIF 9, DIF 10, ECHO 10, ISO 19115 (MENDS), and ISO 19115 (SMAP). The dialog also includes a 'Close' button. The background of the interface shows a satellite image of a coastal area.

**Download XML**

Available Metadata Formats:

Native | ATOM | DIF 9 | DIF 10 | ECHO 10 | ISO 19115 (MENDS) | ISO 19115 (SMAP)

Close

# Tools for Metadata Editing

The screenshot displays the NASA Metadata Management Tool (MMT) interface. At the top, the NASA logo and the text "Metadata Management Tool (MMT)" are visible, along with a user profile for Dana Shum and a search bar. The main content area is titled "MANAGE METADATA" and shows a breadcrumb trail: "Dashboard > ASTER Level 1 Full Resolution Browse Thermal Infrared V003".

On the left, a sidebar offers options to "Create New" metadata, including "New Collection", "New Service", "From Template", and "From Blank Record". Below these is a "Preview" section for the selected record, showing details such as "Entry Id: AST\_F...", "Version: 3", "Entry Title: AS...", "Abstract: ASTE...", "Data Dates 1", "Type: Create", and "Date: 2015-0...".

The main view shows the "DRAFT RECORD" for "ASTER Level 1 Full Resolution Browse Thermal Infrared V003". A green notification bar at the top states "Draft was successfully created". Below this, there are buttons for "Publish", "Download XML", and "Delete Draft". A "Quality Score: 20" is displayed with a note "Required fields not complete".

A red error message box indicates: "This draft has the following errors: Organizations is required".

At the bottom, a "Metadata Fields" section shows progress indicators for various fields:

- Data Identification: 0/6 (0 filled)
- Descriptive Keywords: 0/6 (0 filled)
- Metadata Information: 0/6 (0 filled)
- Temporal Extent: 1/6 (1 filled)
- Spatial Extent: 0/6 (0 filled)
- Acquisition Information: 0/6 (0 filled)
- Distribution Information: 1/6 (1 filled)

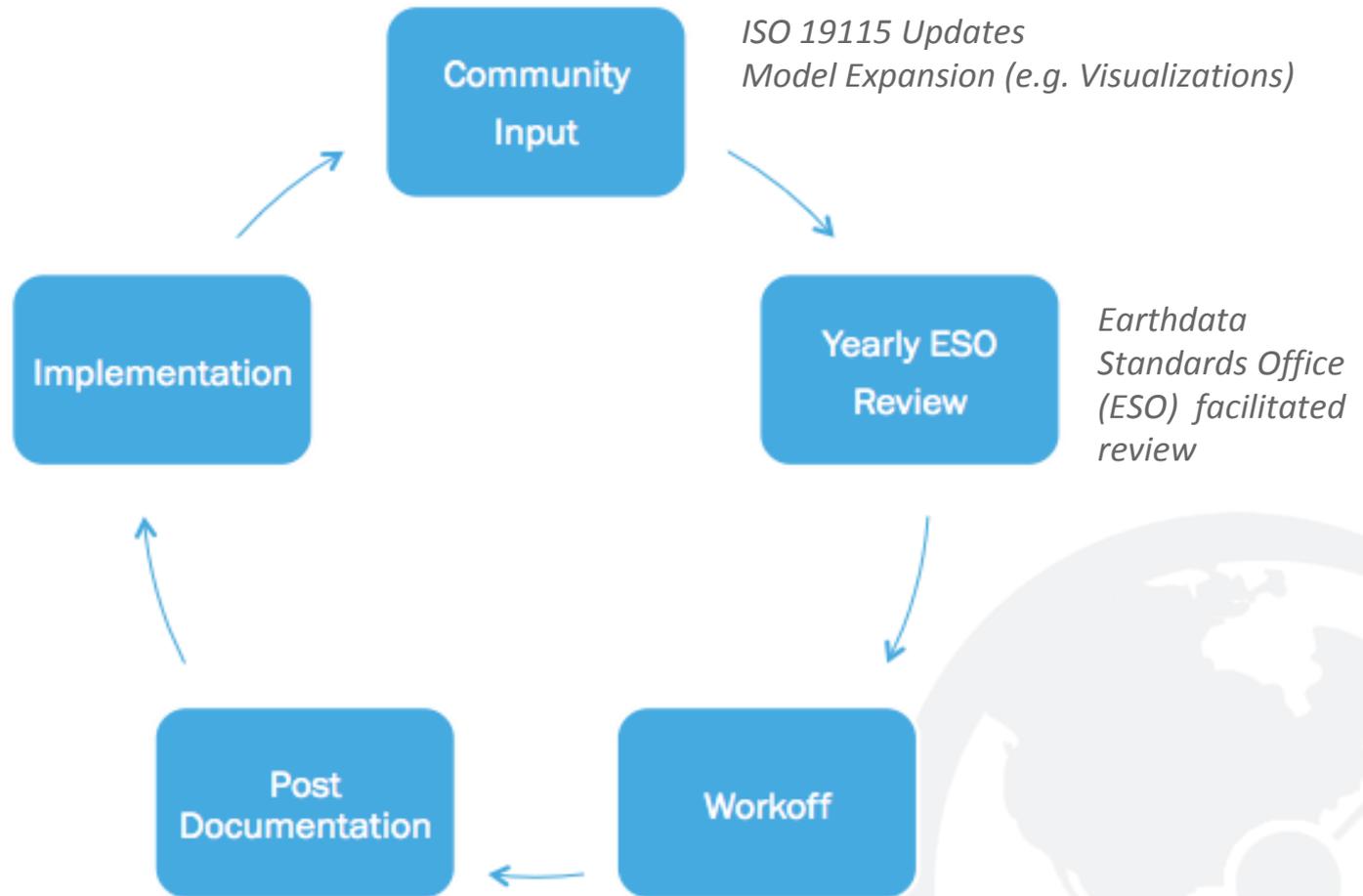


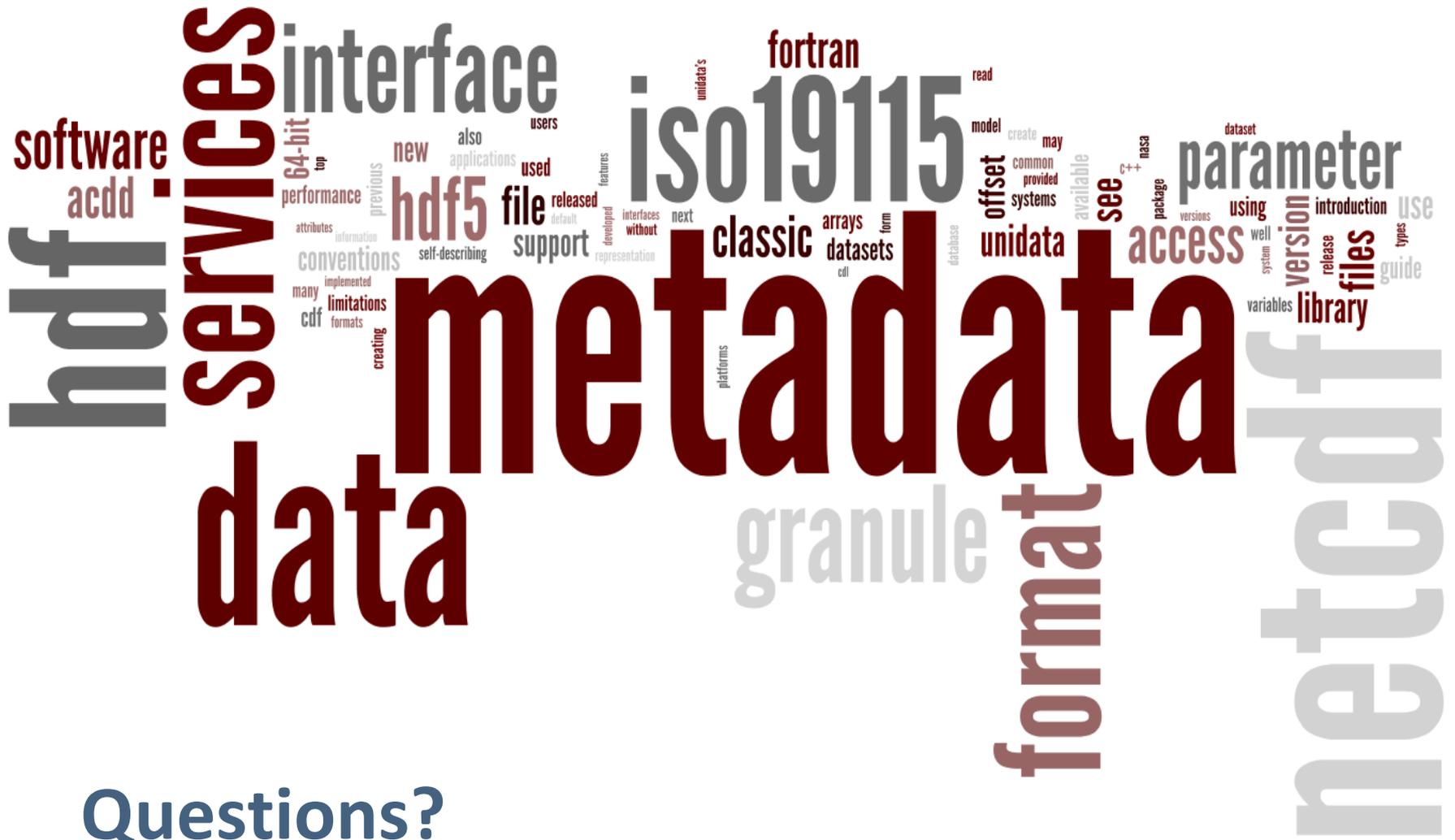
Keeping up with the times

## **Model Governance**



# Governing the Unified Model Lifecycle





Questions?

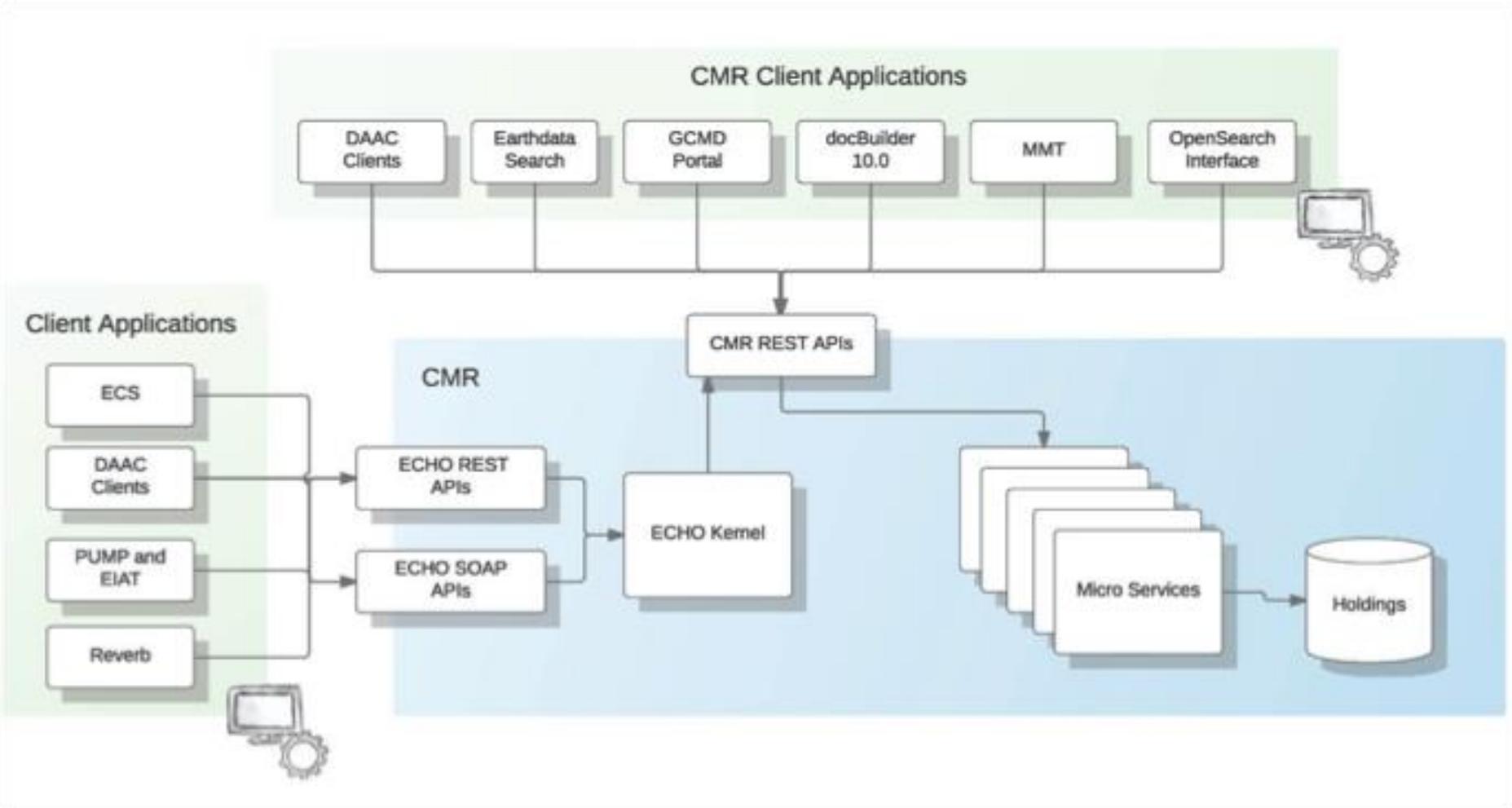
[katie.baynes@nasa.gov](mailto:katie.baynes@nasa.gov)



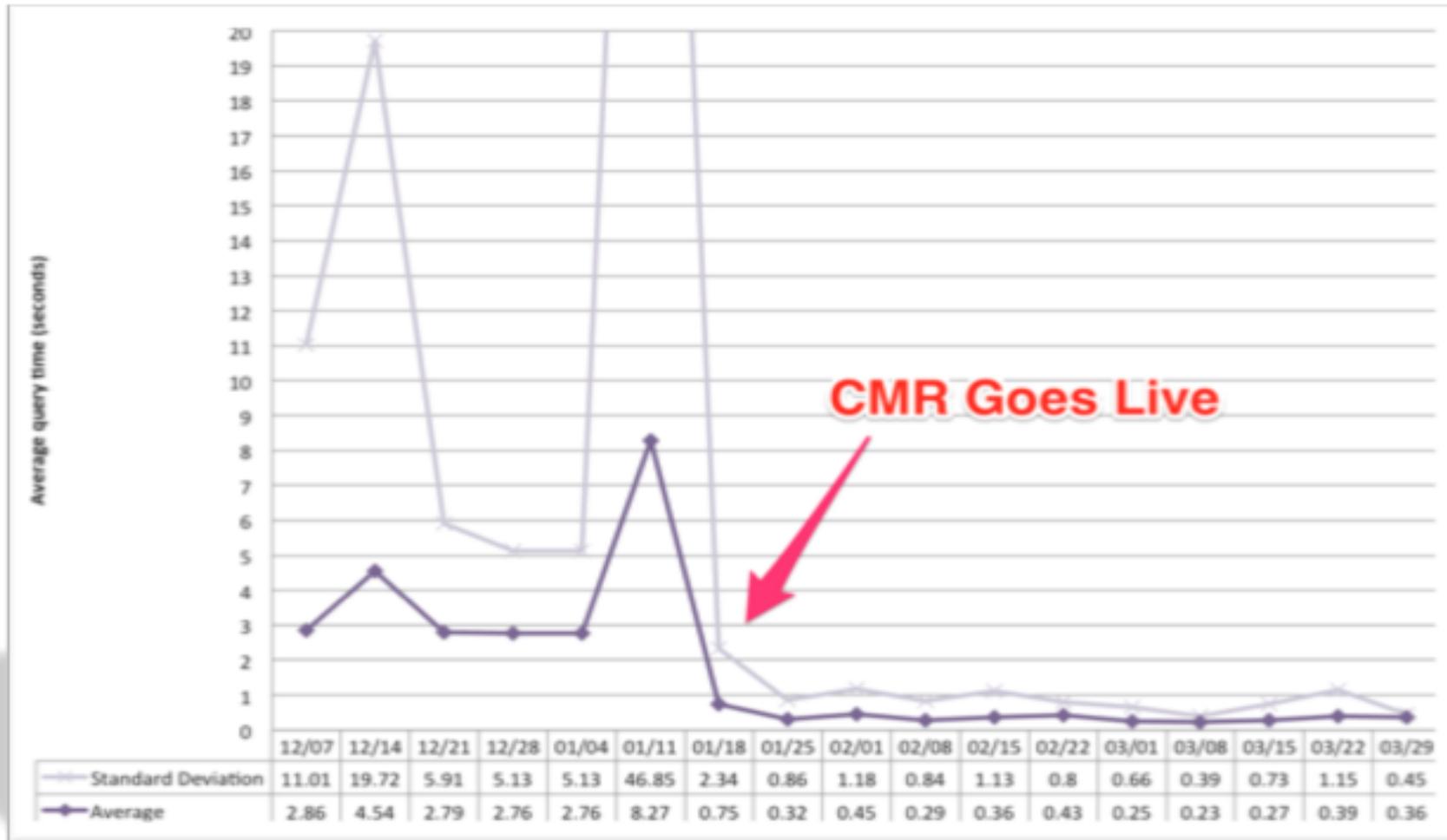
Need More Info?  
**Backup Slides**



# ECHO + CMR Transition Architecture

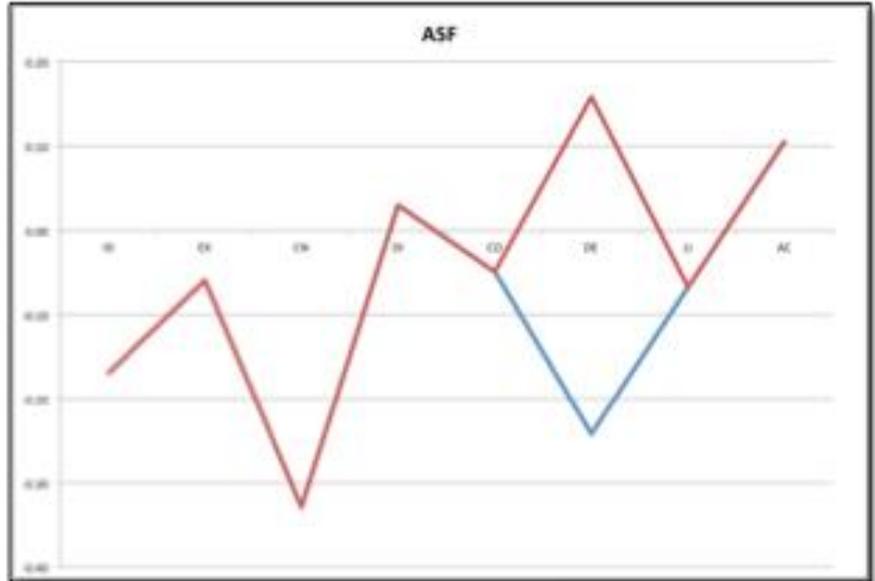


# CMR Performance Metrics



# Coming Soon: Quality Scoring

Quality Score: 20  
 Required fields not complete



| Description                        | Revision Date        | Action by | Review Status | Quality Score | Revision Notes | Actions                                 |
|------------------------------------|----------------------|-----------|---------------|---------------|----------------|---|
| 5 - Published <a href="#">View</a> | 2015-11-02T16:00:09Z | ECHO_SYS  | Reviewed      | 82            |                |   |
| 4 - Revision <a href="#">View</a>  | 2015-09-15T14:44:59Z | ECHO_SYS  | Reviewed      | 82            |                | <a href="#">Revert to this Revision</a> |
| 3 - Revision <a href="#">View</a>  | 2015-09-11T17:48:26Z | ECHO_SYS  | Reviewed      | 82            |                | <a href="#">Revert to this Revision</a> |
| 2 - Revision <a href="#">View</a>  | 2015-09-11T13:49:03Z | ECHO_SYS  | Reviewed      | 82            |                | <a href="#">Revert to this Revision</a> |
| 1 - Revision <a href="#">View</a>  | 2015-09-10T19:31:45Z | ECHO_SYS  | Reviewed      | 82            |                | <a href="#">Revert to this Revision</a> |