

Ingest Activities

- **Ingest of data from Rel. A external data providers (e.g., SDPF, TSDIS, NOAA/NESDIS, etc.) and V0 data migration**
 - **Data transfer and transmission checking**
 - **Data conversions (as required)**
 - **Metadata extraction (as required)**
 - **Critical metadata checking**
 - **Storage of Level 0 data for one year**
 - **Provides Level 0 data to Data Processing**
 - **Inserts higher-level data into the Data Server**
- **Provides single point of monitoring and control of data ingested from external data providers**
- **Nominal ingest process is fully automated with minimal operator intervention**

Terminology

- **Client host** - The computer within the Ingest Subsystem that interfaces to data providers and supports data transfer, conversion, checking, and other data ingest functions
- **Ingest client** - The software that runs on the client host (or Data Server CPUs) that performs the ingest functions
- **Working storage** - Magnetic staging disks within the Ingest Subsystem that provides temporary data storage
- **Rolling storage** - The archive within the Ingest Subsystem that provides storage for Level 0 data for a period of one year

Terminology con't

The following are four message types typically used in the data ingest process. Candidate fields are identified for each message.

- **Data Availability Notice (DAN) - Notice sent to Ingest by external data provider specifying data which is available for ingest**
 - **Contains the following field groups: message header (2 fields), exchange data unit label (7 fields), DAN label (7 fields), and parameter value statements (as required)**
- **Data Availability Acknowledgment (DAA) - Message sent from Ingest acknowledging the receipt and status of the DAN**
 - **Contains the following fields: message type, message length, DAN sequence number, disposition, and transfer start time**

Terminology con't

- **Data Delivery Notice (DDN) - Notice sent from Ingest to the data provider indicating status of the transfer and archive of the data**
 - **Contains the following fields: message type, message length, DAN sequence #, disposition, spares, time stamp, and throughput**
- **Data Delivery Acknowledgment (DDA) - Message sent to Ingest acknowledging the DDN and terminating the connection**
 - **Contains the following fields: message type, message length, DAN sequence #, disposition, and time stamp**

Roles and Responsibilities

- **Data Ingest Technician (DIT)** -- supports hard media data ingest; monitors electronic ingest
- **Production/QA Monitor (QAM)** -- supports ingest data problem resolution
- **Data Archive Manager (DAM)** -- responsible for ingest, archive, and distribution on-line operations (may be shared with Data Server Subsystem)
- **System Administrator** -- system setup, shutdown, startup; other computer ops

Ingest Operational Activities

- **Network Ingest**
- **Ingest Request Log/Request Queue Use**
- **Media Ingest**
- **Ingest Configuration Maintenance**
- **Event Log Use**
- **Ingest Report Generation**

Network Ingest

- **Automated process under operations control**
- **Persistent ingest client software is automatically initiated at system startup**
 - **Operations capability to shutdown and restart ingest clients (DAM)**
 - **Operations capability to suspend and resume ingest client activity (DAM) (post-Release A)**
- **Requires operations support (using GUI I/F) for:**
 - **Ingest Request Log/Request Queue monitoring (DIT/DAM)**
 - **Ingest process control (e.g., tuning the number of ingest requests in the system) (DAM)**
 - **Error Log monitoring (DIT/DAM)**
 - **Anomaly detection and resolution (DIT/DAM/QAM)**

Ingest Request Log/Request Queue Use

- **Capability to view all logged requests in chronological order (given start/stop times)**
- **Capability to view by:**
 - **request type (e.g., external data provider)**
 - **data type**
 - **final service status**
- **Capabilities for ongoing requests:**
 - **Monitor ongoing requests (ingest status display)**
 - **Cancel/kill a request (controlled abort with notification msgs)**
 - **Suspend an interface session (post-Release A)**
 - **Hold a request (post-Release A)**
 - **Resume a session or request (post-Release A)**
- **Periodic generation of Ingest summary reports**

Media Ingest

- **Performed by Data Ingest Technician (DIT)**
- **Multiple media types:**
 - **Release A--8mm tape**
 - **Future releases--other media (e.g., 4mm tape, optical disk)**
- **DIT invokes ingest client software via GUI**
- **DIT prompted to mount media on specific device**
- **DIT responds to error messages displayed at the GUI; data errors are reviewed with the DAM, QAM and/or with the data provider**
- **Request/error log monitoring as before**

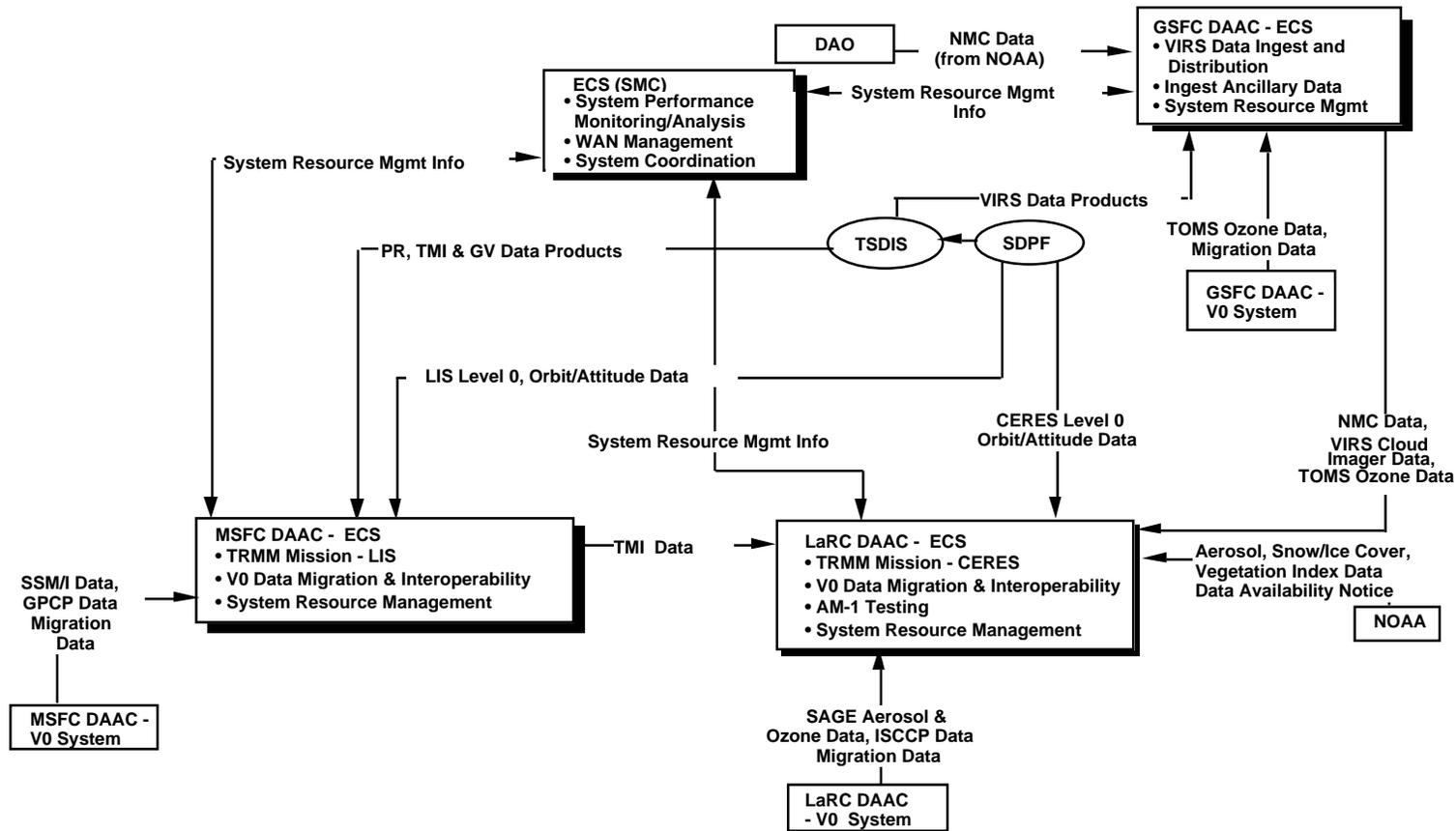
Ingest Configuration Management

- **Baseline ingest configuration set up at system startup:**
 - Identification of associated Data Server(s)
 - Setup of initial tunable parameters
- **DAM control of ingest configuration:**
 - Capability to allocate peripheral devices or sets of devices (e.g., allocate devices for V0 migration)
 - Capability to move devices off-line (e.g., for preventative maintenance) and on-line (and to add new devices)
 - Capability to set and install tunable parameters (e.g., number of requests allowed in the system)
- **System administrator implements configuration changes**

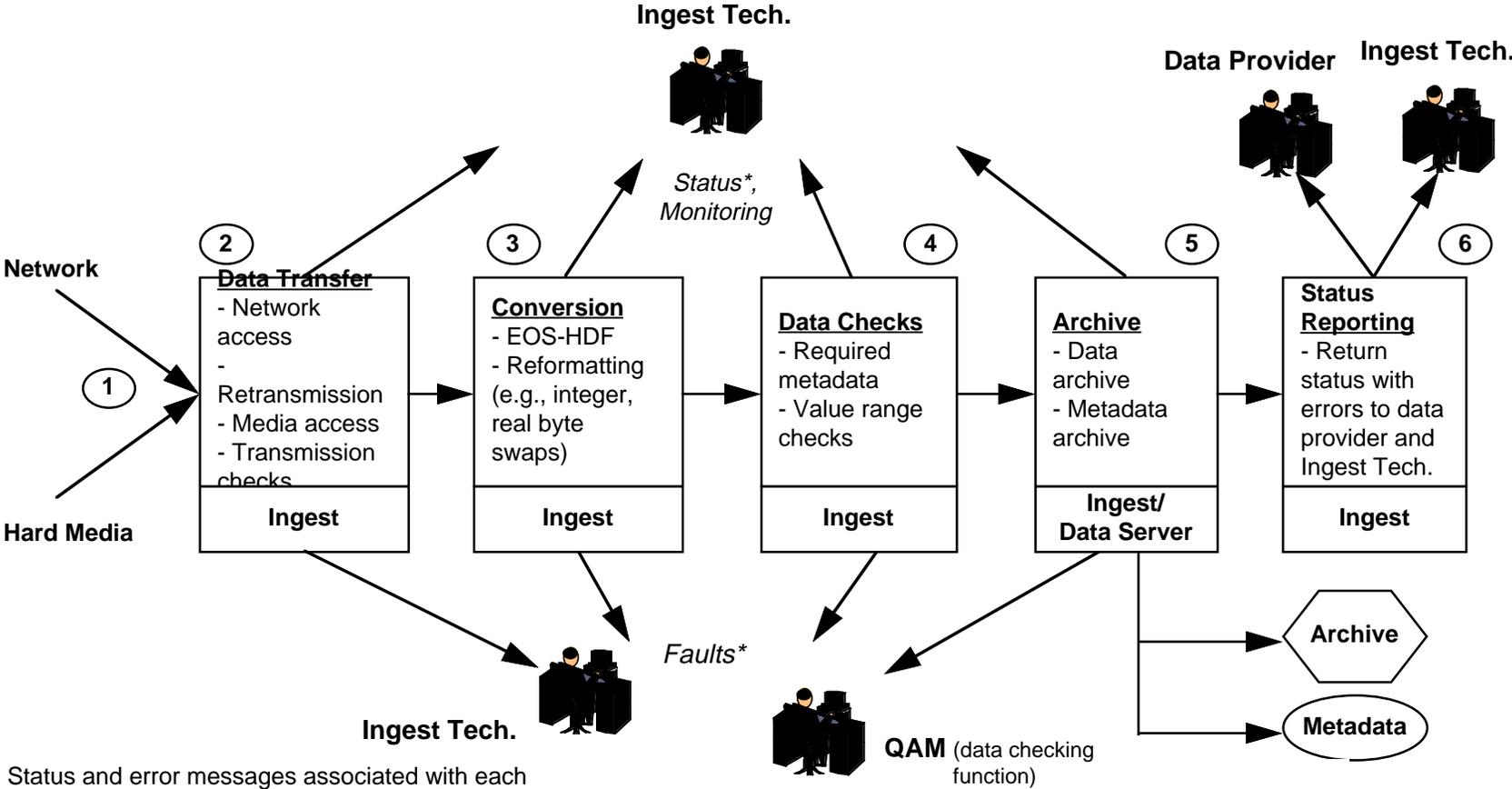
Ingest Event Log Use

- **Data Ingest Technician (DIT) monitors event log (contains status and error messages)**
 - **Capability to view all events in chronological order (given start/stop times)**
 - **Capability to view events by request type (e.g., external data provider)**
 - **Capability to view events by error type (e.g., “parameter out of range”)**
- **Resolution of data anomalies with DAM, QAM and/or data provider**
- **Resolution of system anomalies with sustaining engineering via trouble ticket**

TRMM Ingest Activities - GSFC, LaRC, MSFC



Data Ingest Activities - Process



* Status and error messages associated with each ingest activity and data type will be generated, logged, and available for viewing by operations personnel

Data Ingest Activities - Process

con't.

- 1) **Data Ingest client software receives message of data availability (if applicable)**
 - Generates a corresponding ingest request**
 - Stores the request on a prioritized list and determines the estimated time required to ingest the data**
 - Acknowledges the request**
 - Ingest Tech. may monitor subsequent ingest request processing and cancel requests**
- 2) **Ingest function schedules data ingest and performs data transfer**
- 3) **Data conversion is performed (if necessary)**
- 4) **Ingest function extracts metadata and checks selected metadata parameters (e.g., SFDU header information)**
- 5) **Ingest function requests to store data and metadata in the data repository**
- 6) **Ingest client reports status to the data provider/Ingest Tech. and to the Ingest History Log when the data storage is complete**