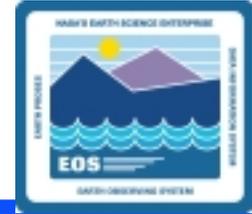


Subsystems and CSCIs: MSS



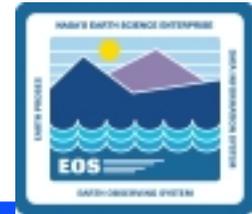
- **System Management Subsystem (MSS)**
 - Provides the set of tools needed by Maintenance & Operations (M&O) staff to manage ECS operations
 - Addresses 5 areas
 - Fault Management
 - Configuration Management
 - Accountability Management
 - Performance Management
 - Security Management
 - Installed at Local System Management (LSM) position at each DAAC and at System Monitoring and Coordination Center (SMC)
 - Uses COTS applications extensively, including Sybase Replication Server

Subsystems and CSCIs: MSS (Cont.)



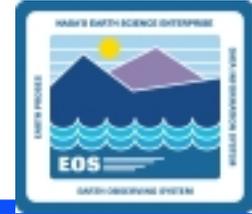
- **Management CSCI (MCI)**
 - Primarily COTS-based, with some custom software
 - Provides services for monitoring and coordinating ECS
 - **Network and Enterprise Management Framework component**
 - HP OpenView Network Node Manager (NNM)
 - Tivoli/Enterprise Console (T/EC)
 - **Security component**
 - Various shareware packages
 - Monitor and evaluate security and report status
 - **Accountability component**
 - Custom software
 - Account Management Tool
 - Order Tracking Tool

Subsystems and CSCIs: MSS (Cont.)



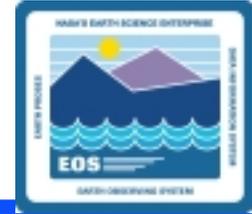
- **Management CSCI (MCI) (Cont.)**
 - **Trouble Ticketing** component
 - Custom-configured COTS software: Remedy Action Request System
 - **Network Backup/Restore** component
 - COTS software: Legato Networker
 - **ASTER E-mail Header Handler** component
 - Custom scripts work with COTS e-mail to add a formatted header to all e-mail exchanges between the ASTER Ground Data System and ECS

Subsystems and CSCIs: MSS (Cont.)



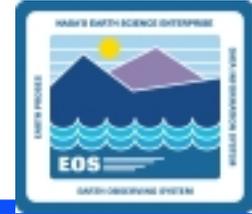
- **Management Agent CSCI (MACI)**
 - **Manages and monitors ECS applications**
 - **SubAgent component**
 - Custom code using COTS libraries (e.g., PEER tools)
 - Manages the startup, shutdown, and monitoring of ECS-developed and COTS applications
 - Three processes: discovery, startup, shutdown
 - **Deputy Agent component**
 - Receives application events from the SubAgent, converts them for handling by HP OpenView
 - Uses Remote Procedure Calls (RPCs) instead of Simple Network Management Protocol (SNMP) for security
 - **Proxy Agent component**
 - Manages non-SNMP COTS products
 - **Master Agent component**
 - SNMP agent (from vendor for each managed host); distributes the management of resources to one or more subagents using a client/server communications paradigm

Subsystems and CSCIs: MSS (Cont.)



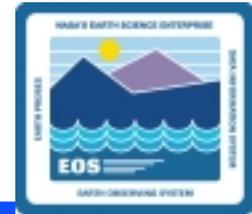
- **Management Logistics CSCI (MLCI)**
 - Implements Configuration Management services
 - **Baseline Manager** component
 - Customized COTS software: an XRP-II application
 - Uses UNIFY Relational Database Management System
 - Helps DAACs, EOC, and SMC maintain records that document the hardware and software items that comprise baselined, operational system configurations

Subsystems and CSCIs: MSS (Cont.)



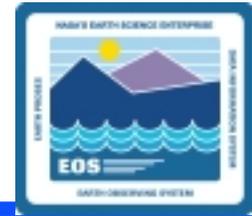
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Inventory/Logistics/Maintenance (ILM) Manager component**
 - **Customized COTS software: an XRP-II application**
 - **Tracks and maintains key data on ECS contract-purchased equipment, hardware, COTS software, COTS documentation (hardware and software), spares and consumable items, and Government Furnished Equipment (GFE)**
 - **Stores and maintains detailed maintenance data on hardware to the component level, including preventive and corrective maintenance**

Subsystems and CSCIs: MSS (Cont.)



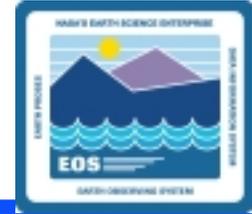
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Software Change Manager** component
 - **Consists of COTS and custom software**
 - ClearCase (with some customization)
 - Supporting UNIX scripts
 - **Helps DAACs, EOC, and SMC organize and partition software, control software changes and versions, and assemble sets of software for release**

Subsystems and CSCIs: MSS (Cont.)



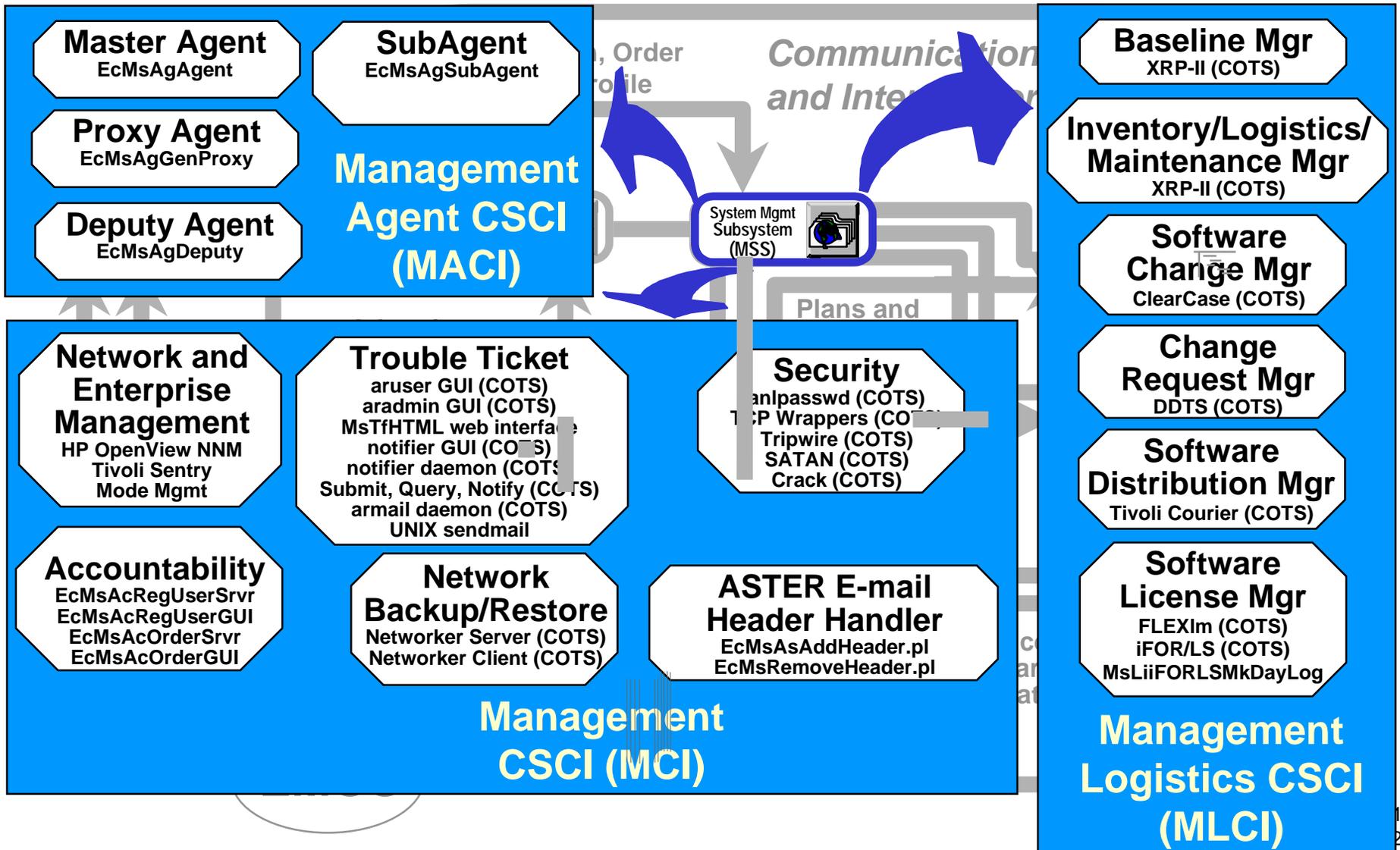
- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Change Request Manager** component
 - Customized COTS application: Distributed Defect Tracking System (DDTS)
 - Enables DAACs, EOC, and SMC to enter, maintain, and track Configuration Change Requests (CCRs)
 - Provides capability to compose and maintain local CCRs and to compose and submit CCRs to the SMC for system-wide consideration
 - Communication between site Change Request Managers can be established through a DDTS utility program and maintained by each site's DDTS administrator

Subsystems and CSCIs: MSS (Cont.)



- **Management Logistics CSCI (MLCI) (Cont.)**
 - **Software Distribution Manager** component
 - COTS application: Tivoli/Courier
 - Enables SMC and DAACs to distribute ECS software, database, software documentation, and commercial software files across a multi-platform ECS network
 - **Software License Manager** component
 - COTS and custom software
 - FLEXIm (license manager) and iFOR/LS (license server daemon) COTS packages
 - Script (MsLiiFORLSMkDayLog) that updates log files with iFOR/LS events when invoked for MCI Tivoli monitoring applications
 - Manages network licensing activities associated with using COTS products; maintains information about license provisions, meters use of installed licenses, and reports on licensing events and statistics

Subsystems and CSCIs: MSS (Cont.)



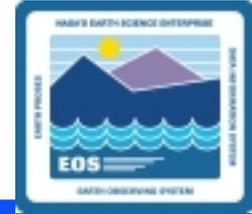
Subsystems and CSCIs: CSS (Cont.)



CSS/Distributed Communications Software

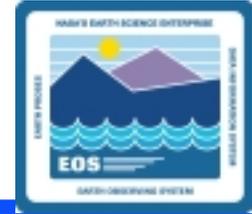
- **Communications Subsystem (CSS)**
 - Provides for interconnection of users and service providers and transfer of information within ECS and between ECS and other EOSSDIS components
 - Supports and interacts with the System Management Subsystem (MSS), ECS Mission Operations Segment (EMOS), and all other subsystems
 - Uses several COTS tools: RogueWave class libraries, Builder Xcessory (GUI Builder tool), Sybase SQL Server (for Subscription Server insert, search, and update), DCE (for security services), UNIX Network Services

Subsystems and CSCIs: CSS (Cont.)



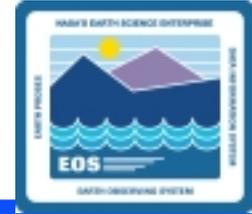
- **Distributed Computing Configuration Item (DCCI)**
 - **Subscription Server (SBSRV) component**
 - Detects previously defined events
 - Performs specified actions for clients that have previously subscribed to those events (e.g., science granule insertion, metadata update, science granule deletion)
 - **ASTER DAR Communications Gateway component**
 - Provides interoperability between DAR Client GUI tool and the DAR API which interfaces to the ASTER servers
 - **ASTER EMailParser Gateway component**
 - Support for automated delivery of ASTER Expedited Data Sets (EDS) from ECS to ASTER Ground Data System (GDS)
 - **Message-Oriented Java Object (MOJO) Gateway component**
 - Gateway for access by the Java DAR Tool to all ECS Services

Subsystems and CSCIs: CSS (Cont.)



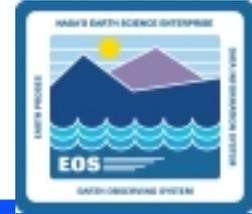
- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **DCE Service Group** component
 - COTS software set (Cell Directory, Security, Time Services)
 - **FTP (File Transfer Protocol)** component (standard application for file transfers)
 - **FTP Notification** component (for notification of successful FTP pulls from a pull area)
 - **BDS (Bulk Data Server)** component (fast file transfer over high-speed networks such as HIPPI)
 - **NFS (Network File System)** component (for file systems sharing among computers)
 - **Filecopy** component (a simple utility to copy large files from a specified source to a specified destination, with compression options)

Subsystems and CSCIs: CSS (Cont.)



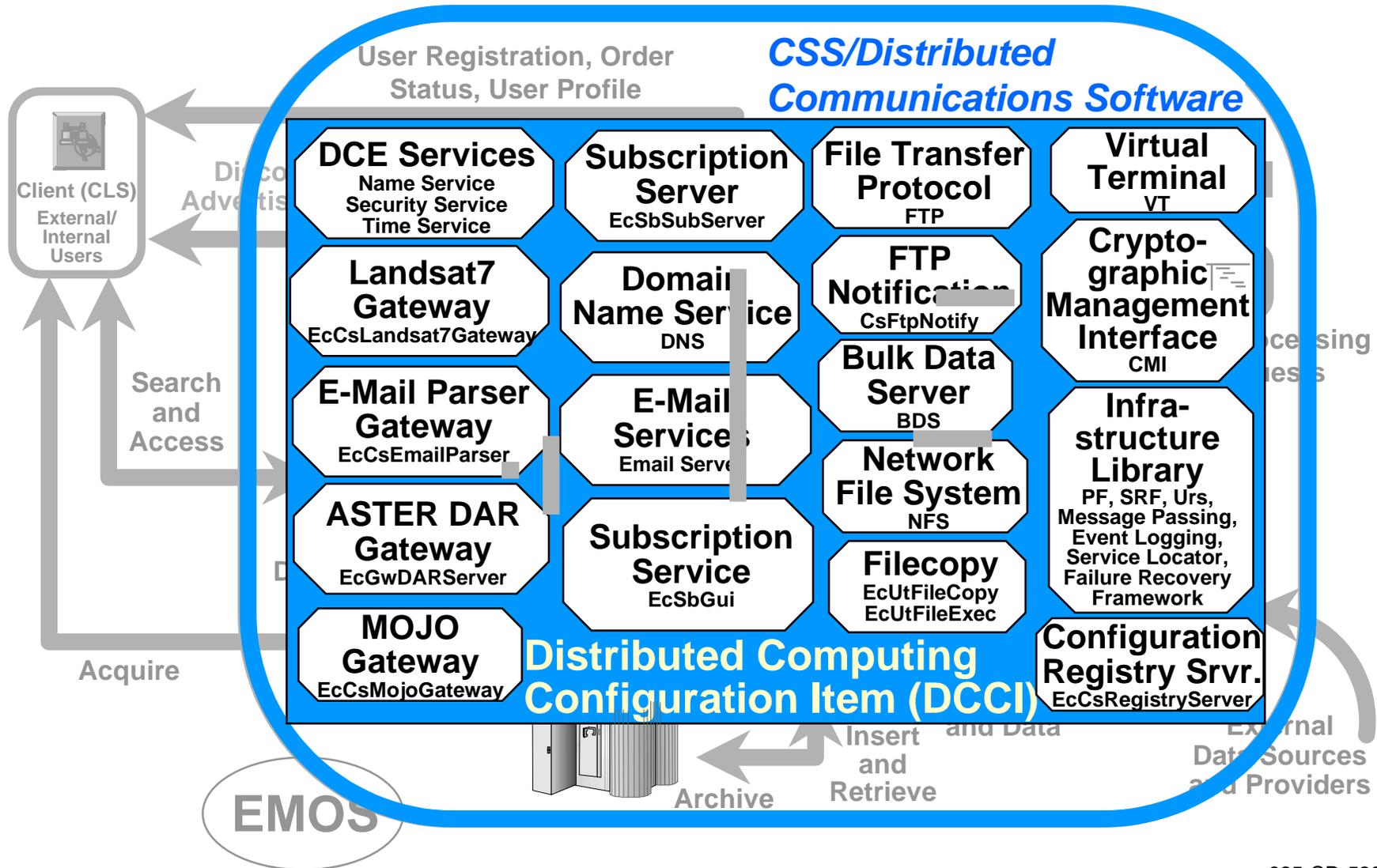
- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **Landsat-7 Gateway** component
 - User access to data collected by Enhanced Thematic Mapper Plus (ETM+) instrument on Landsat-7 satellite
 - **Mail Support Group** component
 - Provides electronic mail, with an interactive interface and an object-oriented application program interface
 - **Virtual Terminal** component
 - Provides operators the capability for remote logon to ECS machines
 - **Cryptographic Management Interface (CMI)** component
 - Allows operators to obtain randomized passwords for access to non-DCE services (e.g., Sybase)

Subsystems and CSCIs: CSS (Cont.)

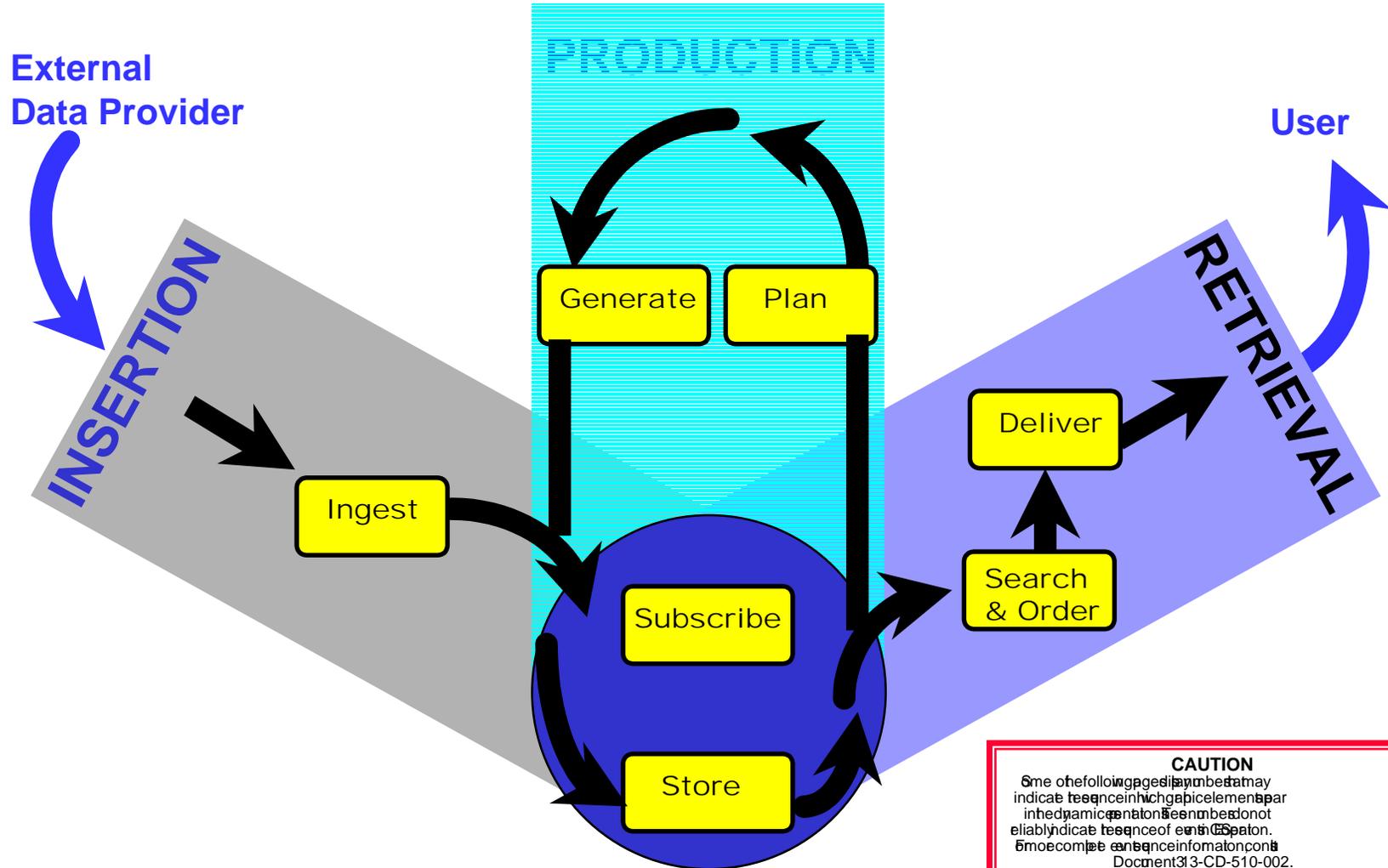
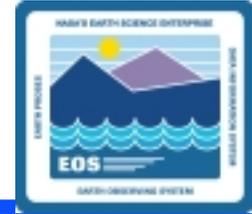


- **Distributed Computing Configuration Item (DCCI) (Cont.)**
 - **Domain Name Service (DNS) component**
 - Provides information about host names and addresses on a network by querying and answering queries
 - Performs naming between hosts within the local administrative domain and across domain boundaries
 - **Infrastructure Library component**
 - Provides a set of services to facilitate the implementation of client-server applications; includes Process Framework (PF), Service Request Framework (SRF), Message Passing, Universal References (URs), Event Logging, Service Locator, and Failure Recovery Framework
 - **Configuration Registry Server component**
 - Provides a single interface to retrieve configuration attribute-value pairs for ECS servers from the Configuration Registry Database, via Sybase Server

Subsystems and CSCIs: CSS (Cont.)

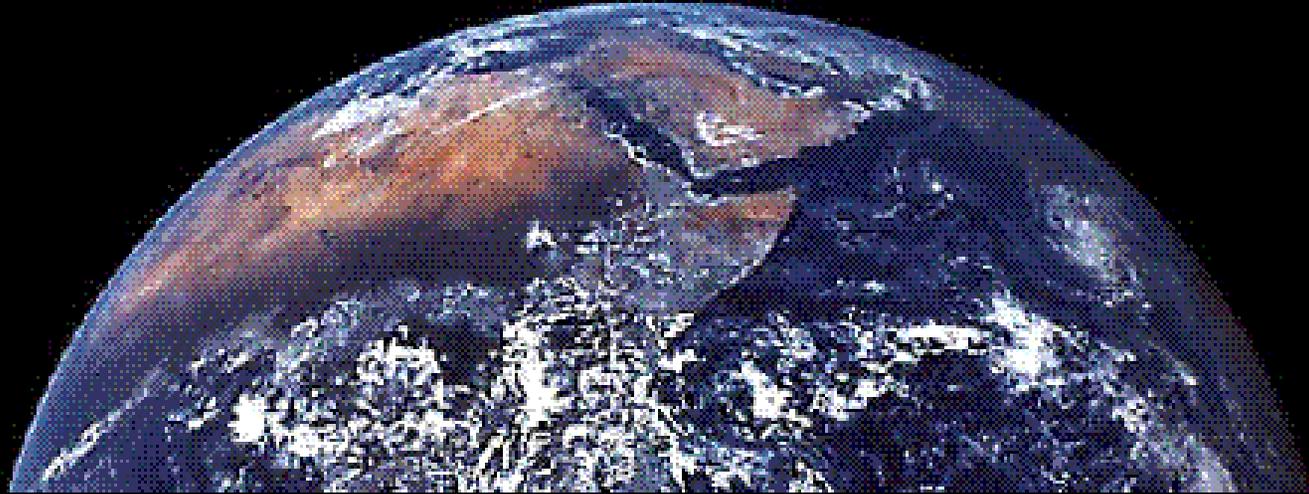
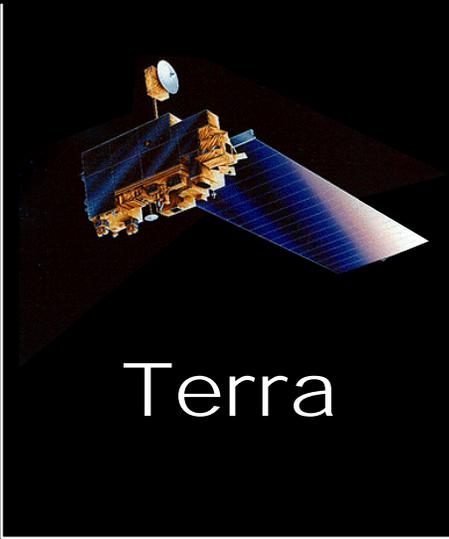
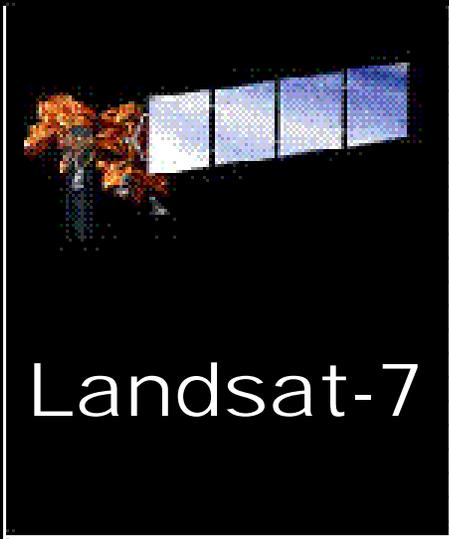
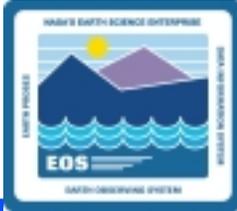


ECS Operational Functioning

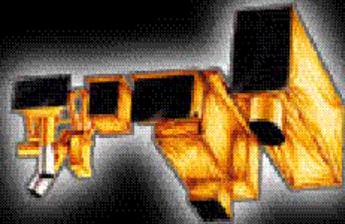


CAUTION
 Some of the following information may indicate the presence of hazardous materials in the dynamic environment. Do not rely on the information contained in this document for safety or health information. Document 313-CD-510-002.

ECS Release 5 Focus



ASTER Scenario



ASTER

- 1 DAR Support
- 2 Chaining
- 3 Expedited Data

ASTER Goals

- Java DAR Tool Usage
- Chaining Workaround
- SCF QA Metadata Update Workaround
- Simplified ASTER Expedited Data Support
- Data Tape Ingest

ASTER Preconditions

ASTER ESDTs Inserted into ECS

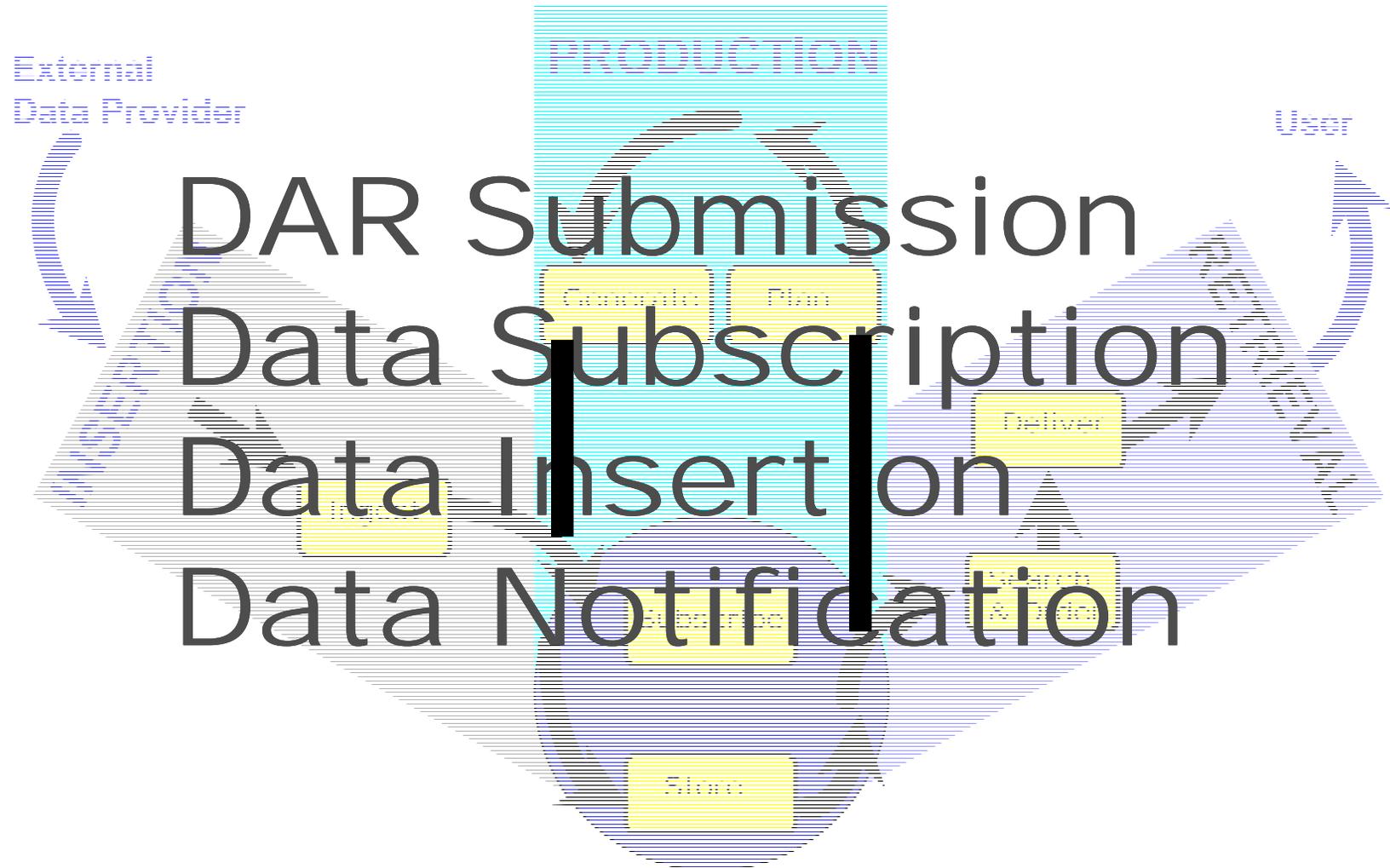
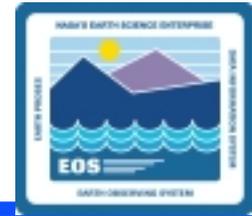
- AST_ANC, AST_EXP, AST_L1A, AST_L1BT, AST_09T, AST_04, AST_05, GDAS0ZFH

ASTER PGEs passed SSI&T and installed

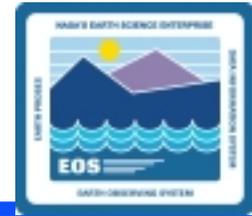
- ACT, ETS, BTS

Ancillary data inserted into Data Server

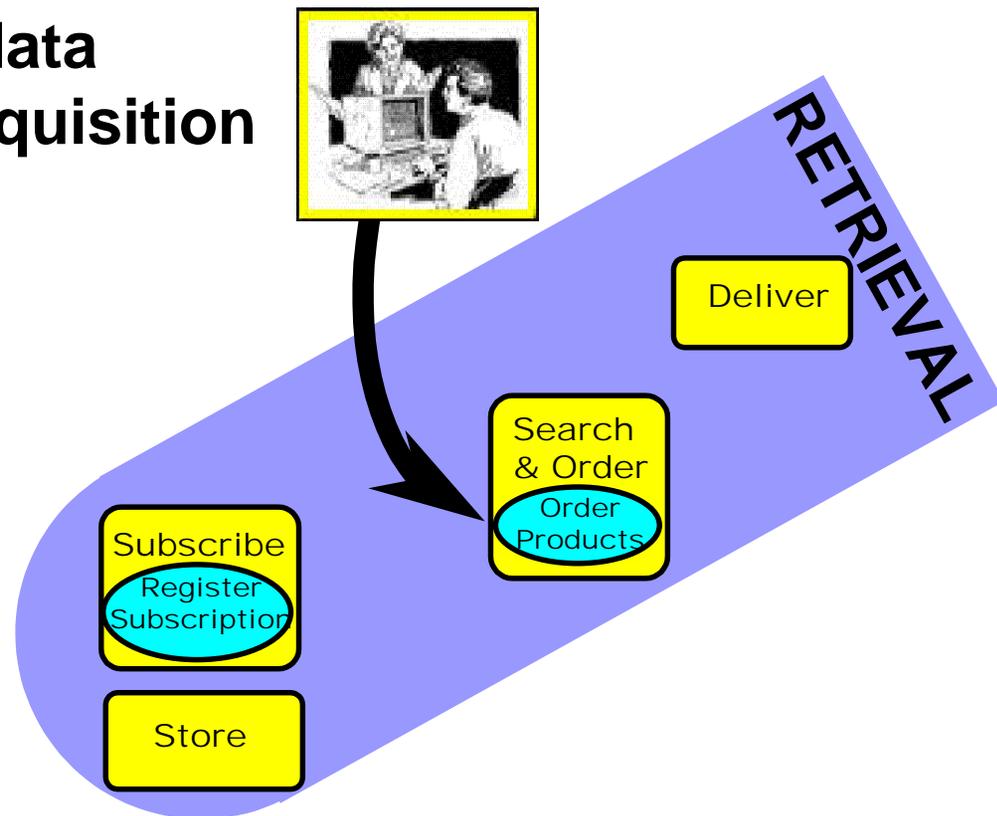
ASTER Scenario: DAR Support



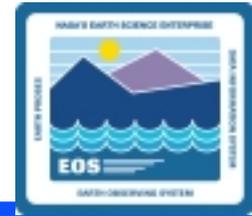
DAR Support



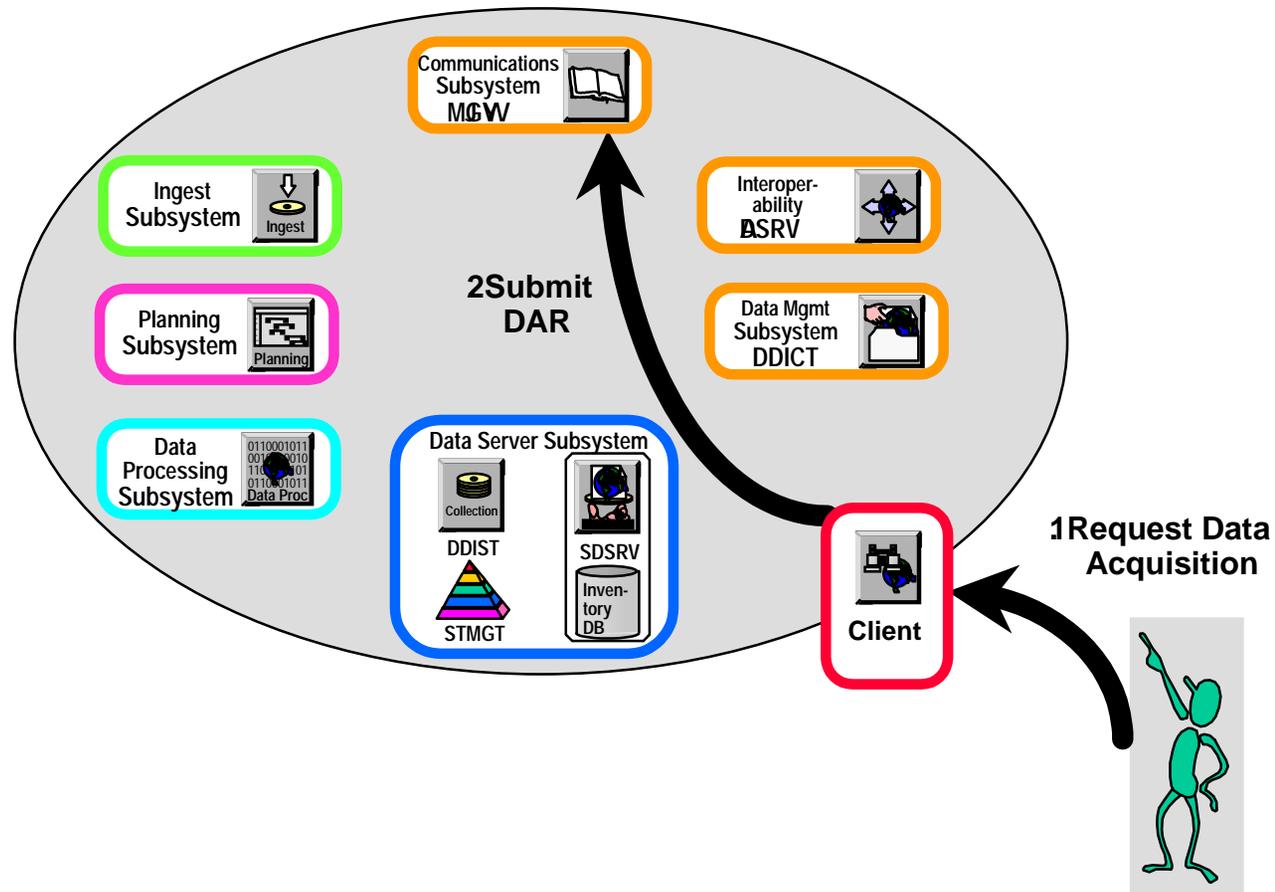
ASTER Scientist decides to request ASTER data requiring a Data Acquisition Request



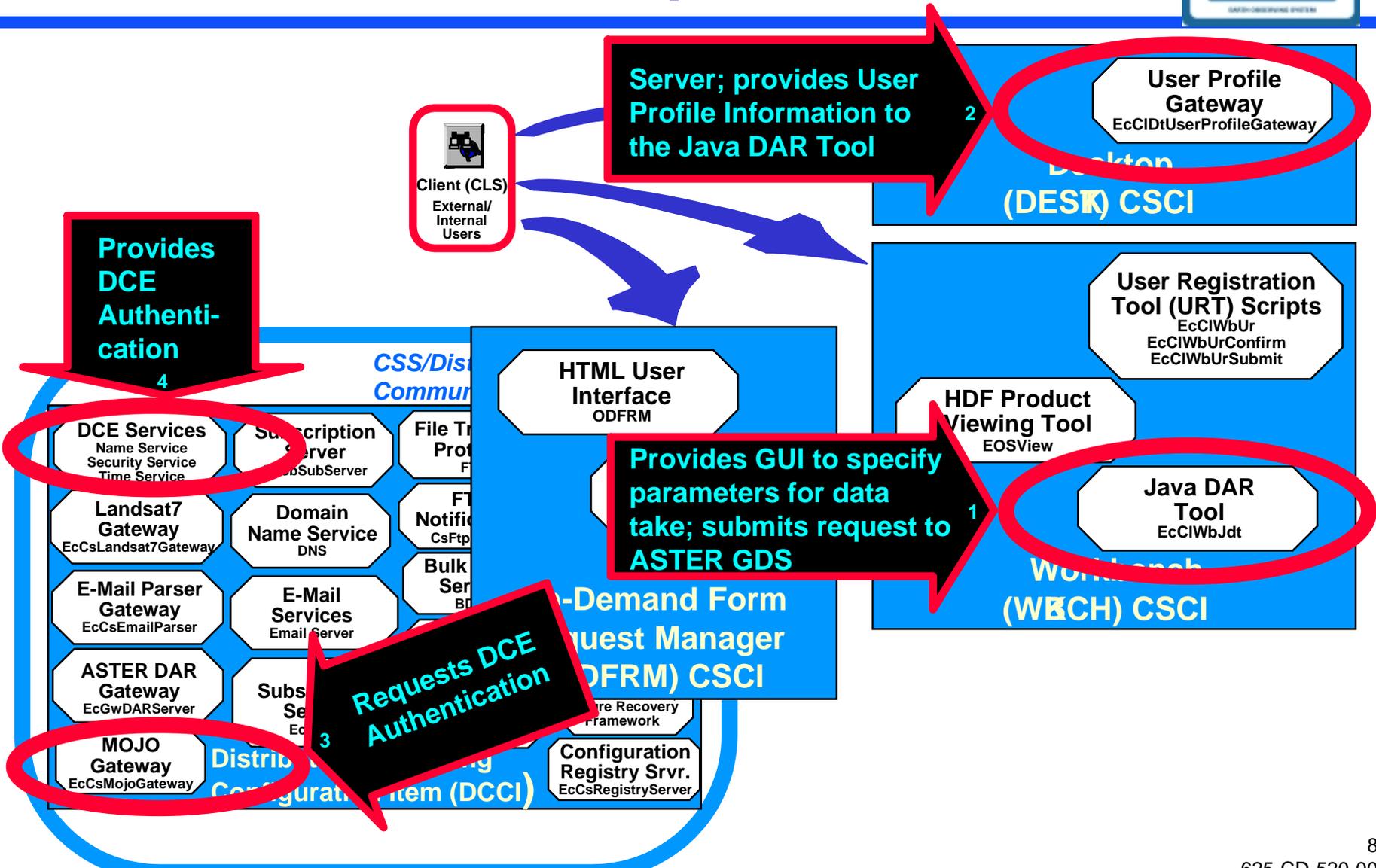
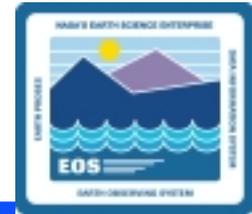
ASTER: Client Request Process



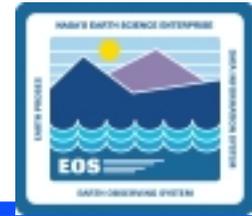
ASTER Scientist determines an area of interest. The scientist decides to request an ASTER data take over that area, using the Java DAR Tool.



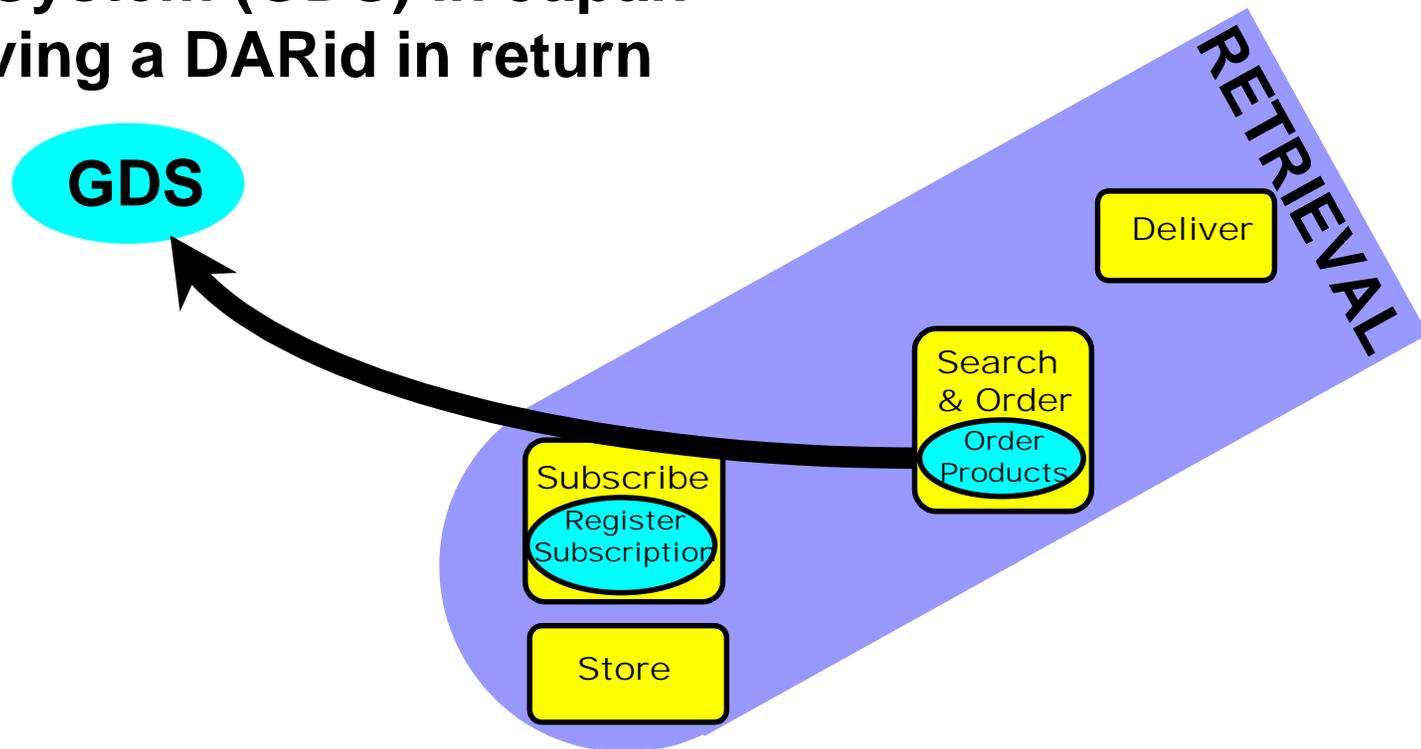
ASTER: CSCI/Component Role in Client Request



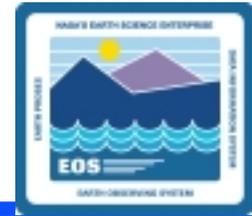
DAR Support (Cont.)



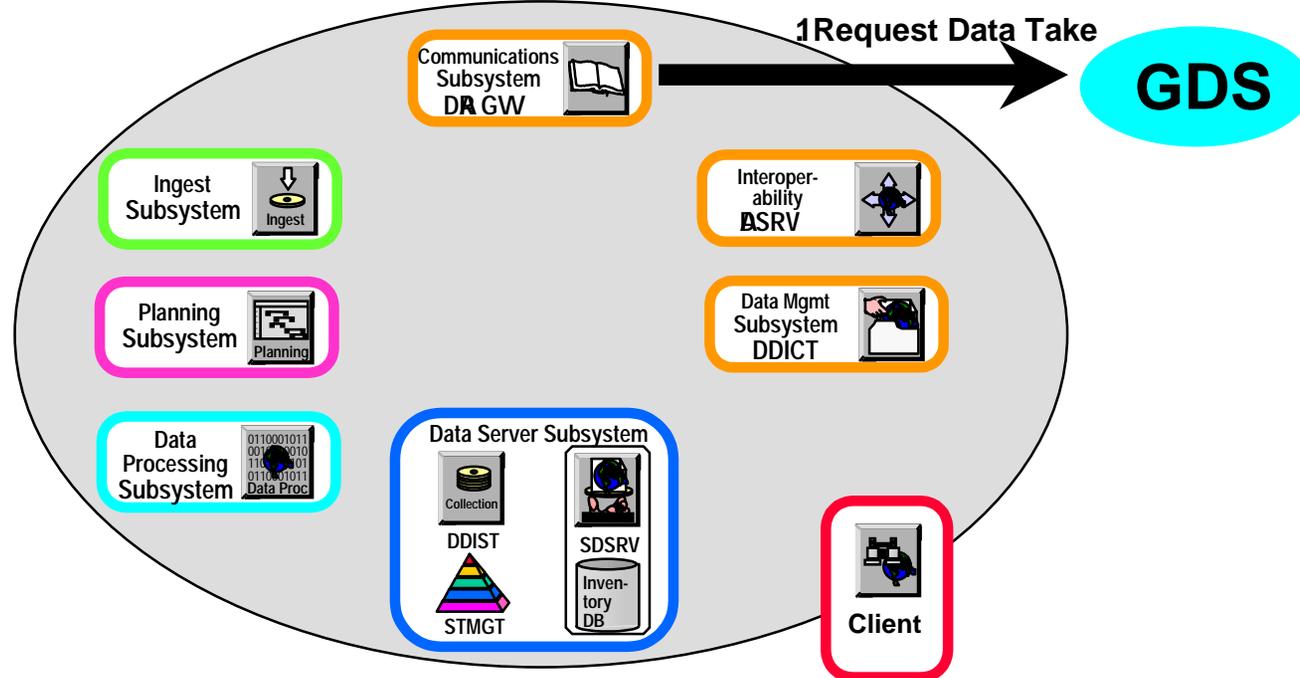
ECS submits DAR to ASTER Ground Data System (GDS) in Japan receiving a DARid in return



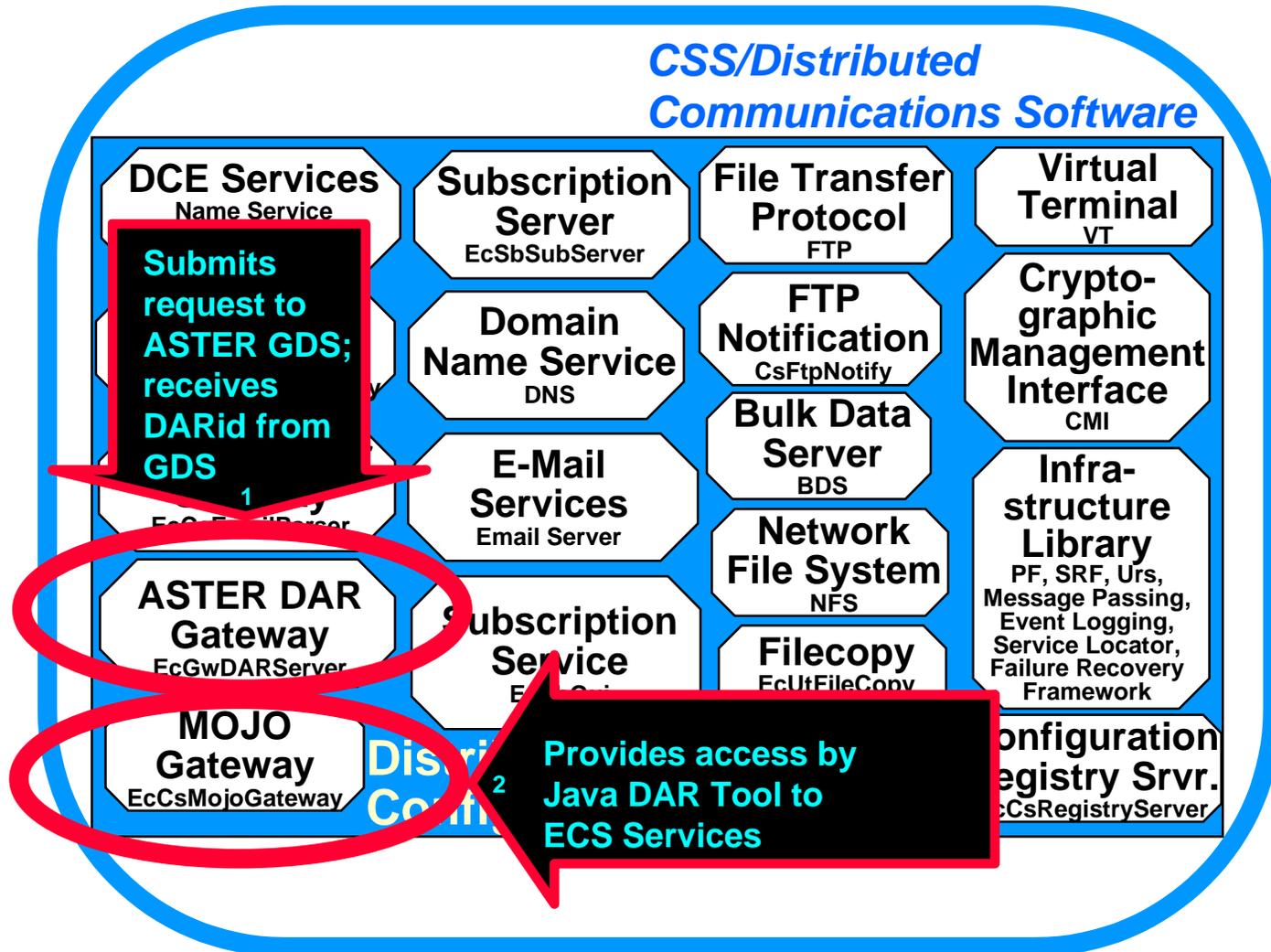
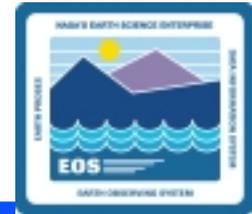
ASTER: Request Data Take Process



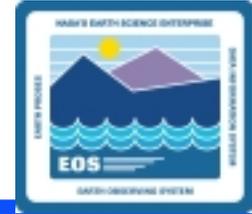
ECS-GDS Gateway submits a request for a data take over the area of interest. GDS responds with a DARid.



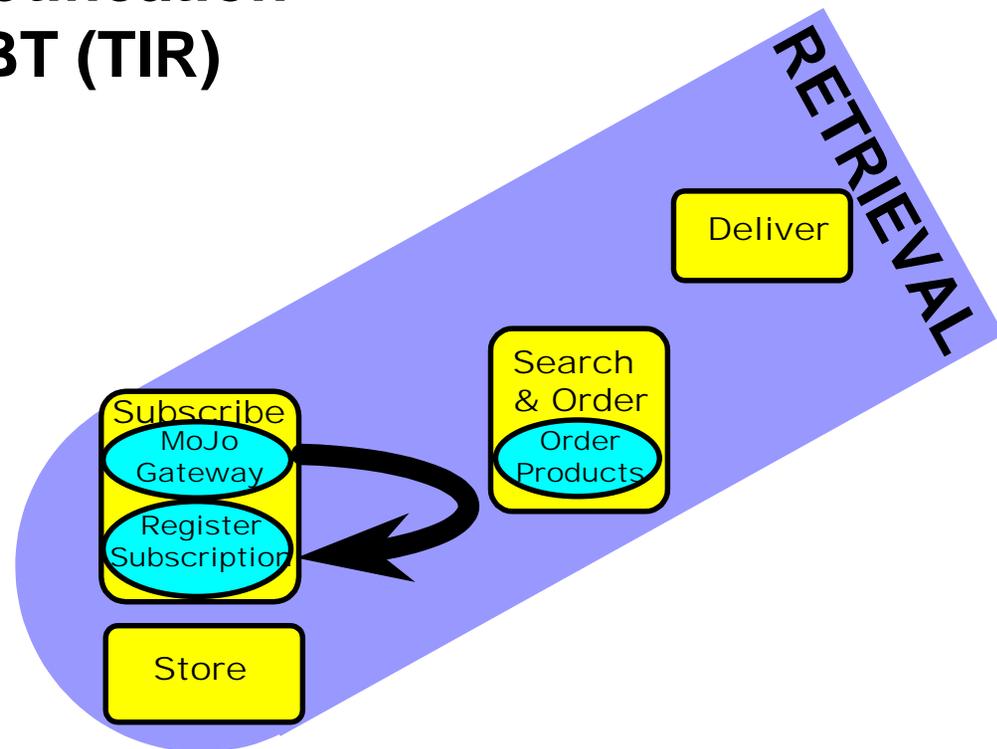
ASTER: CSCI/Component Role in Data Take Request



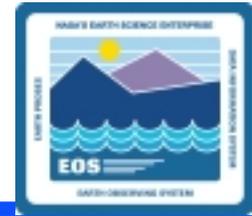
DAR Support (Cont.)



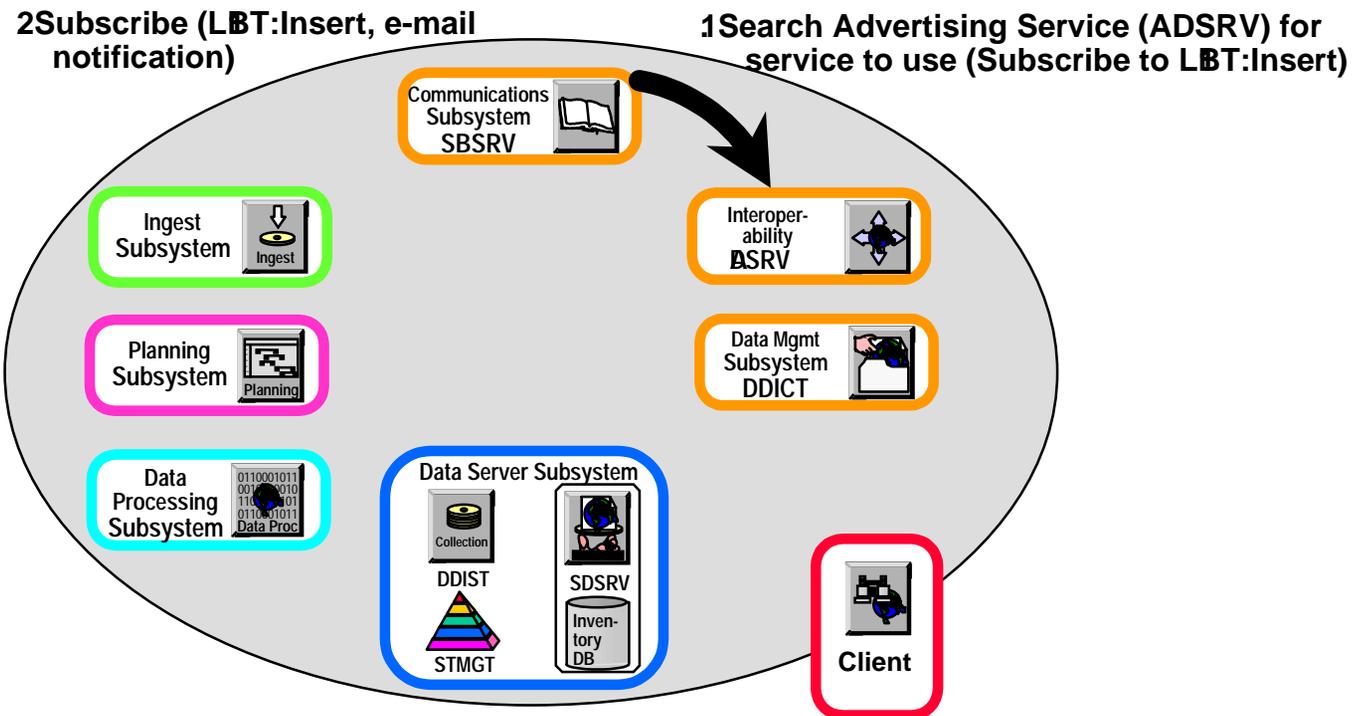
Subscription is submitted on behalf of user for notification on receipt of **ASTLBT (TIR)** data



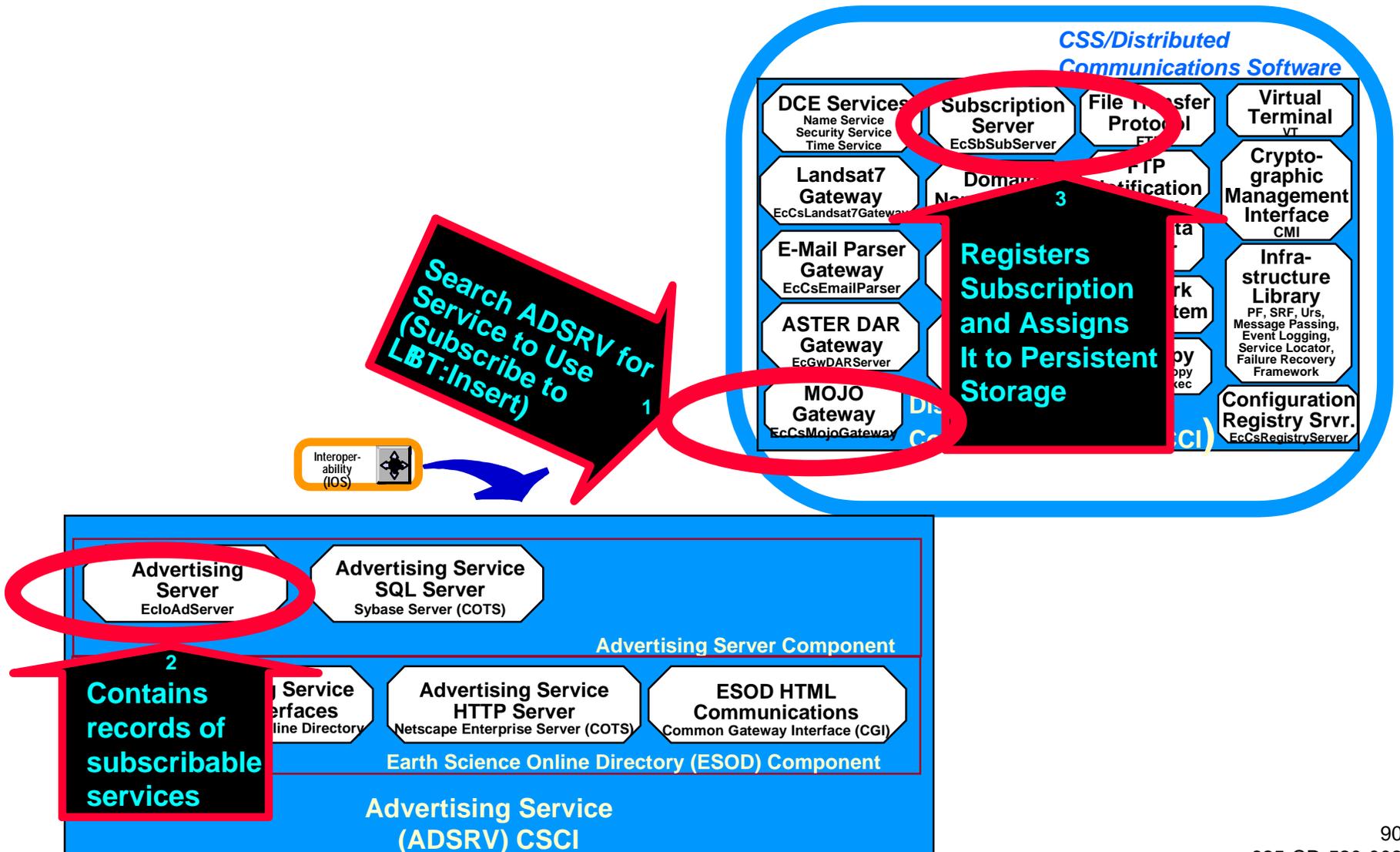
ASTER: Submit Subscription Process



MoJo Gateway submits subscription for notification on the occurrence of **ASTLBT:Insert** event, qualified with the **DARid**.



ASTER: CSCI/Component Role in Subscription Submission

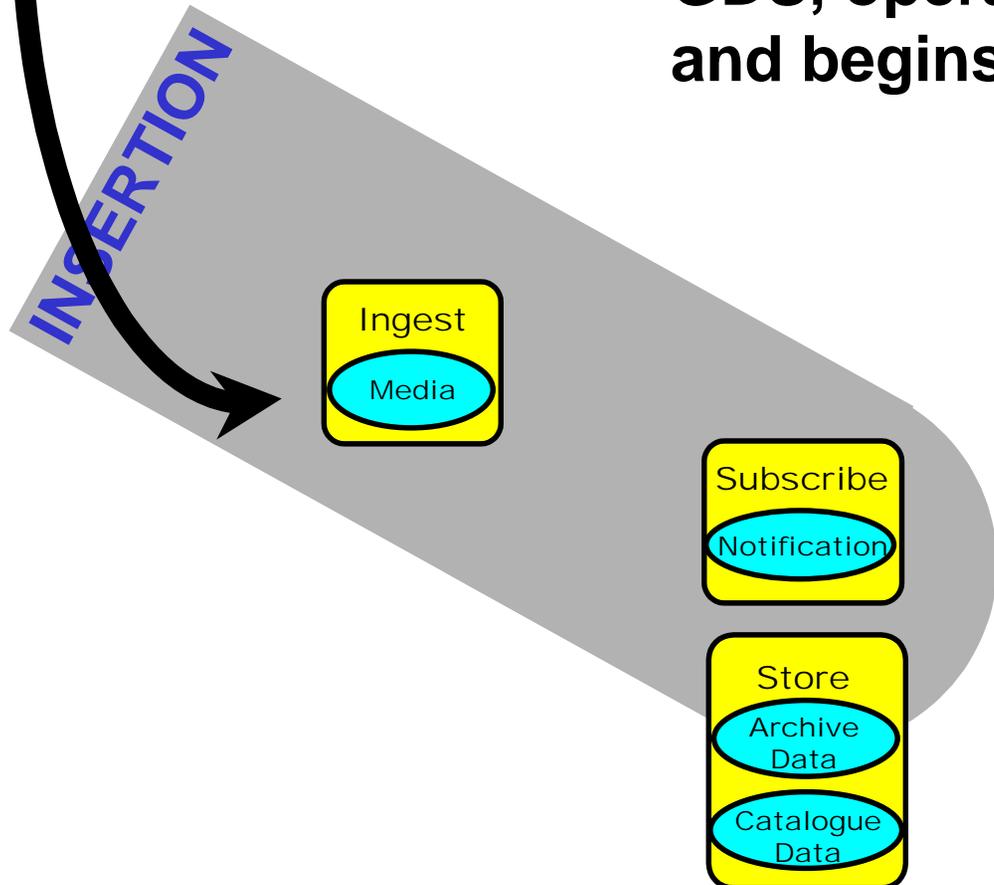


DAR Support (Cont.)

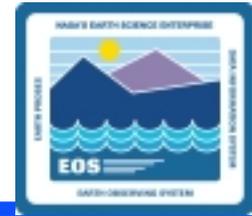


D3
Tape

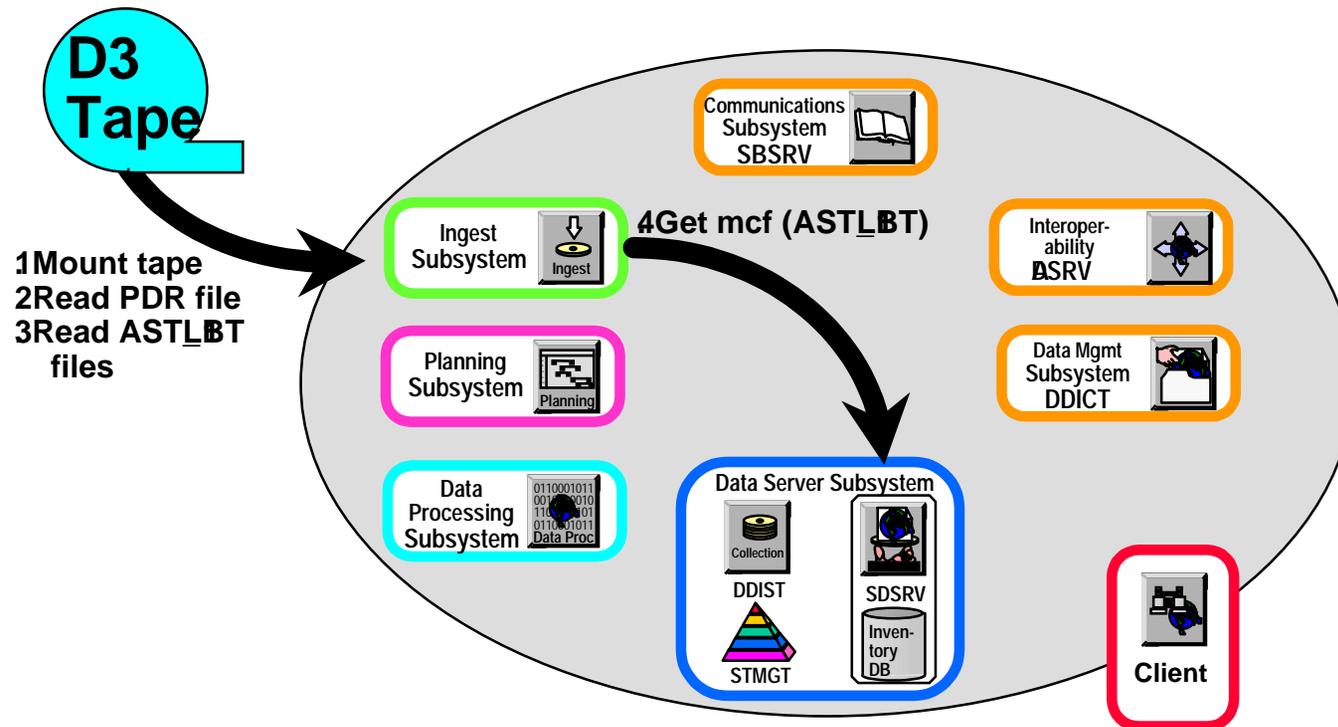
After receiving D3tape from GDS, operator mounts tape and begins ingestion of data



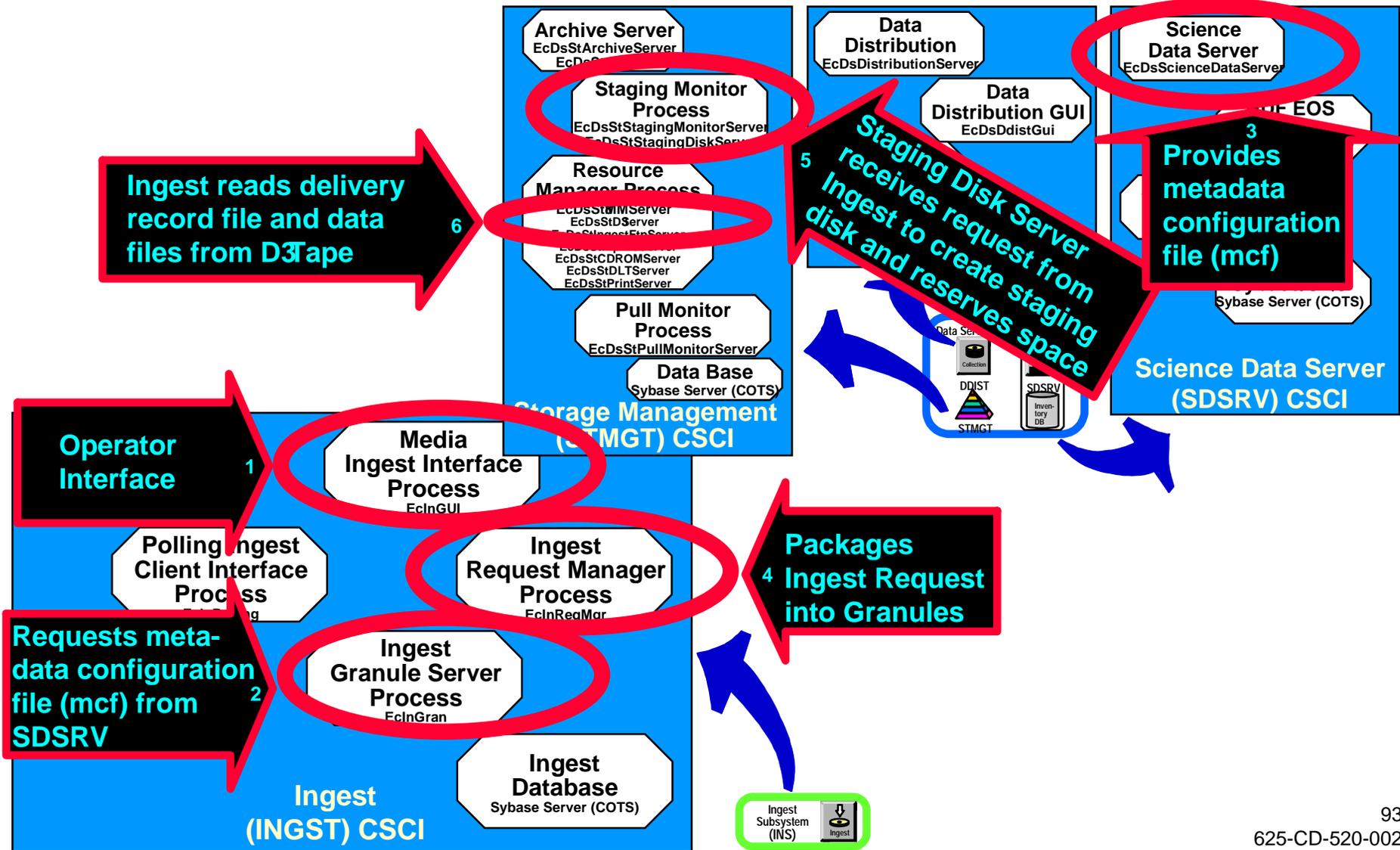
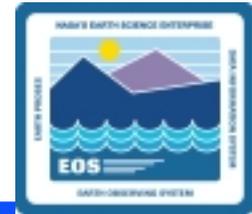
ASTER: D3Tape Ingest Process



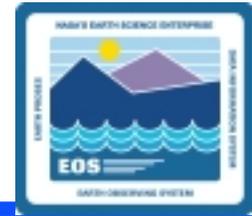
Some time later, after receiving D3tape in a shipment, DAAC Operator mounts tape and begins ingest activities. Tape contains ASTLBT (LB TIR) data.



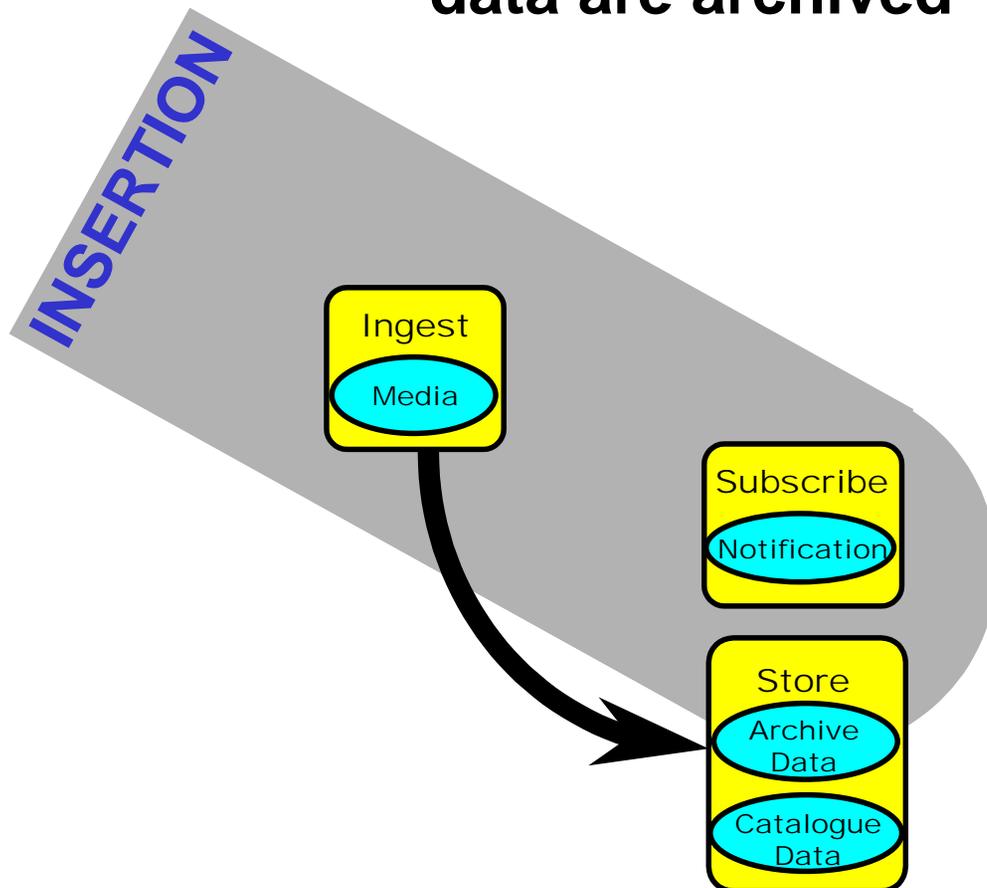
ASTER: CSCI/Component Role in Ingest D3Tape Operations



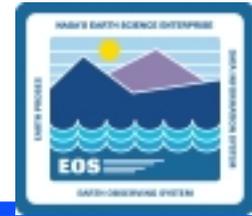
DAR Support (Cont.)



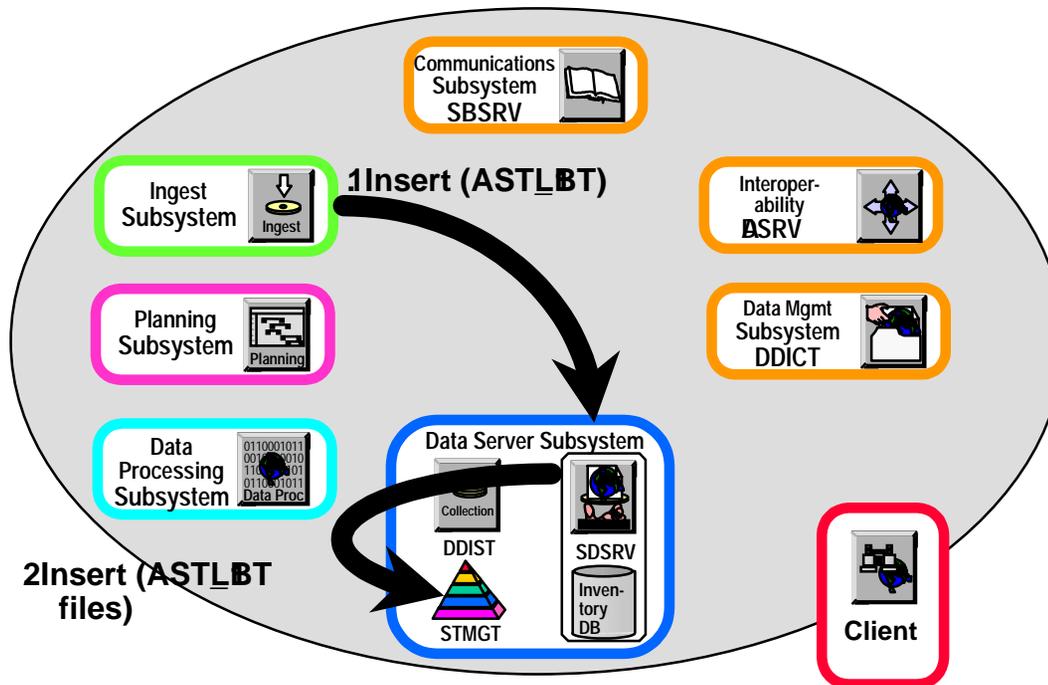
Ingested AST_LBT
data are archived



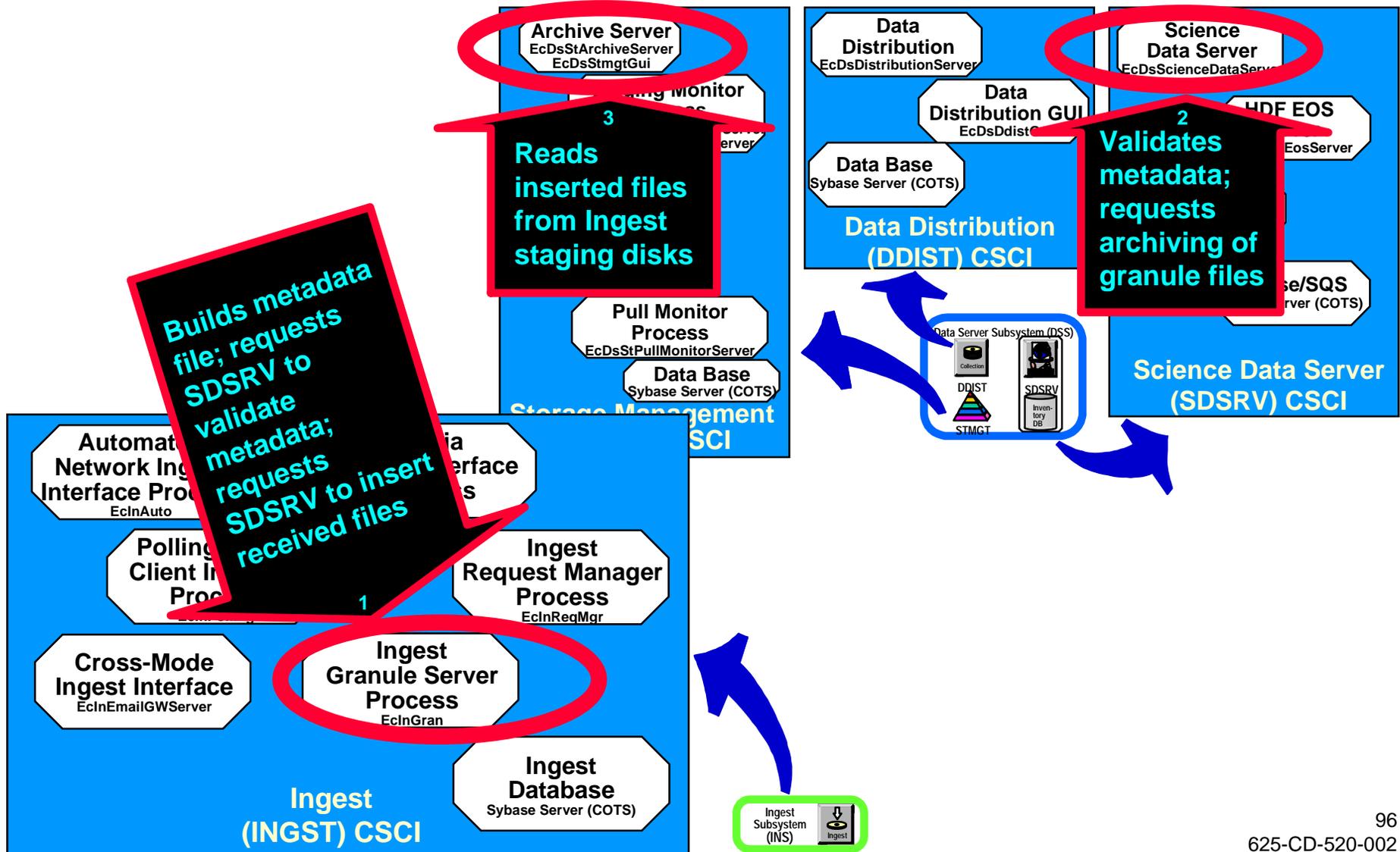
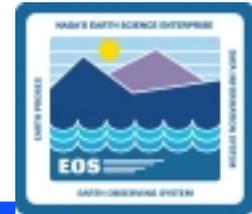
ASTER: Ingest Archive Insertion Process



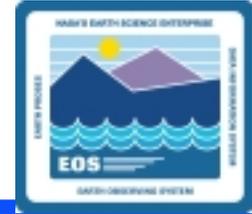
Archive AST_LBT (LB TIR) data granules.



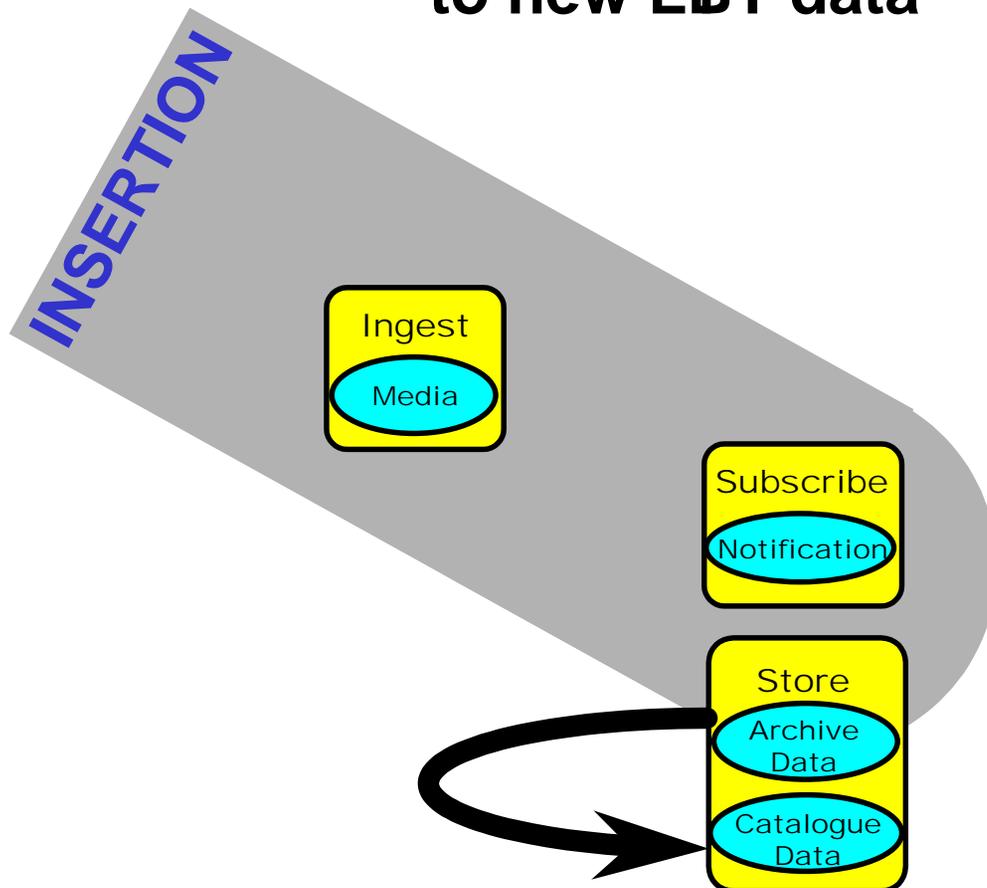
ASTER: CSCI/Component Role in Ingest Archive Insertion



DAR Support (Cont.)



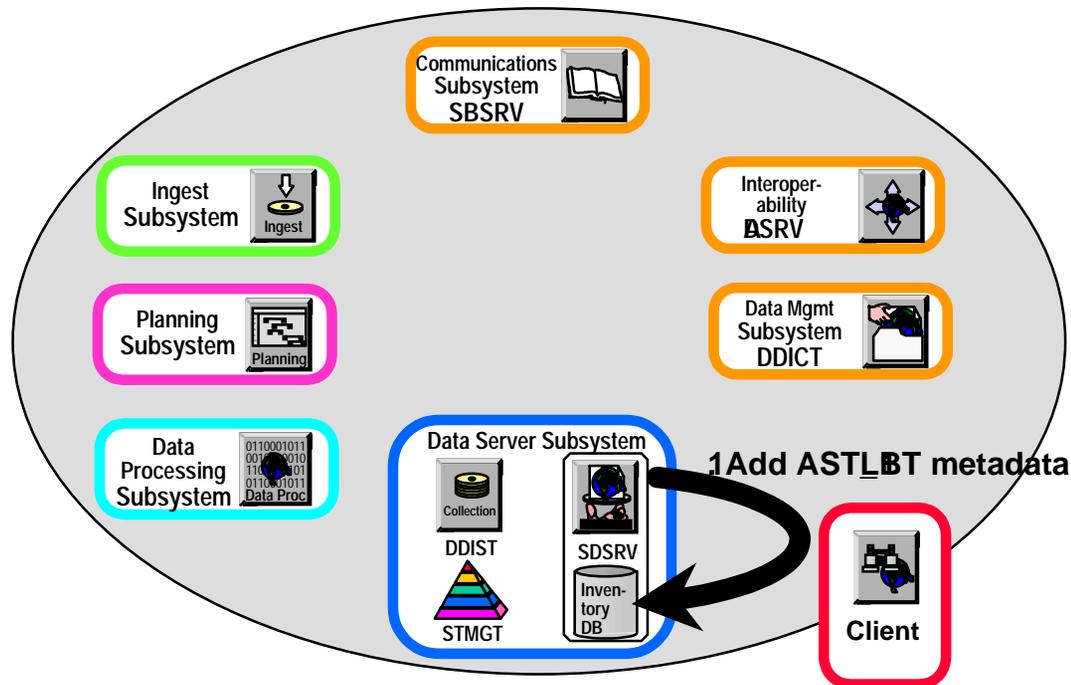
Update catalogue with reference to new LBT data



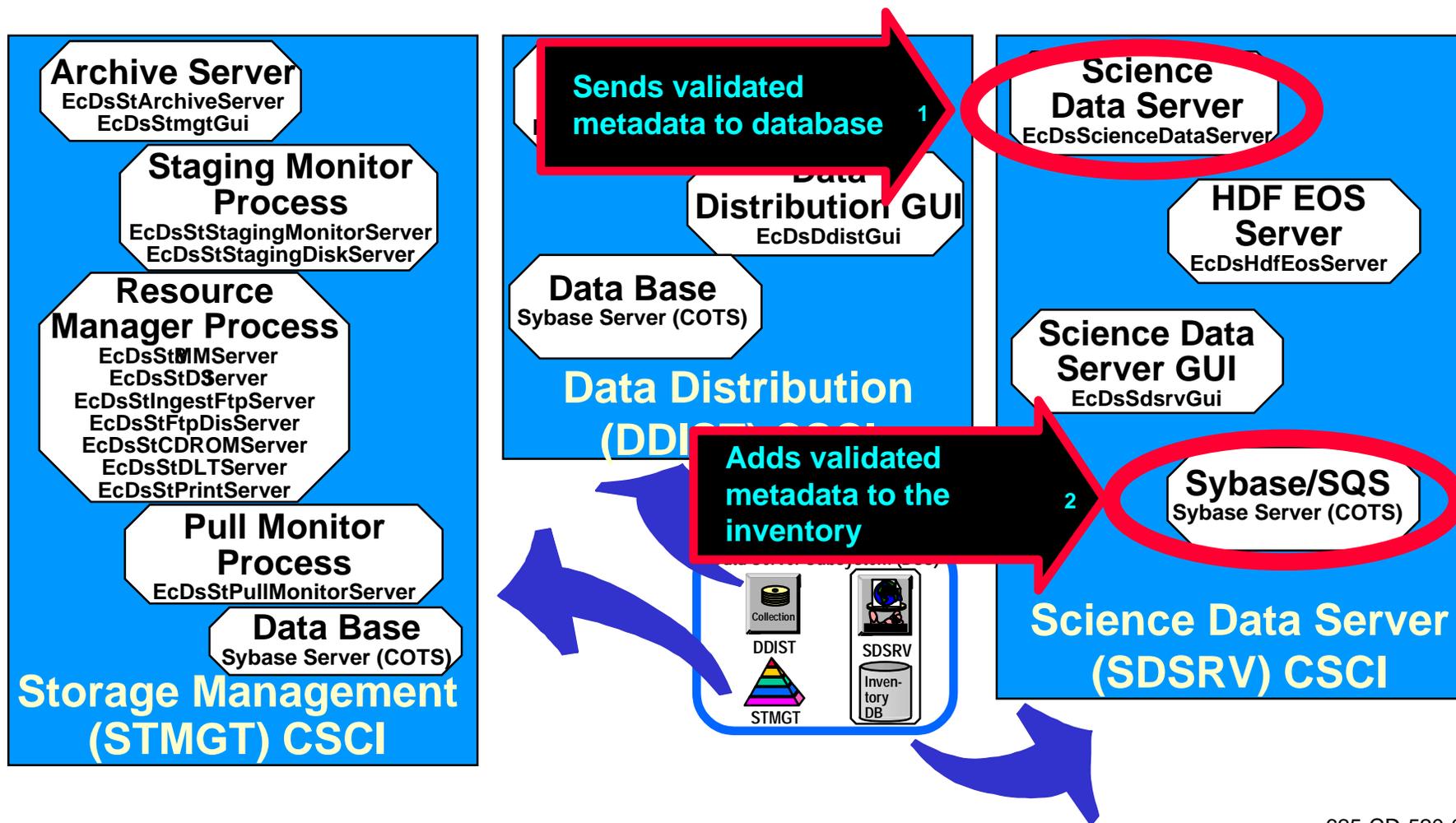
ASTER: Inventory (Metadata) Update Process



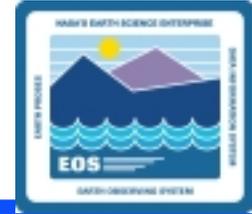
Add metadata for ASTLBT (LB TIR) data granules to the Sybase/SQS database.



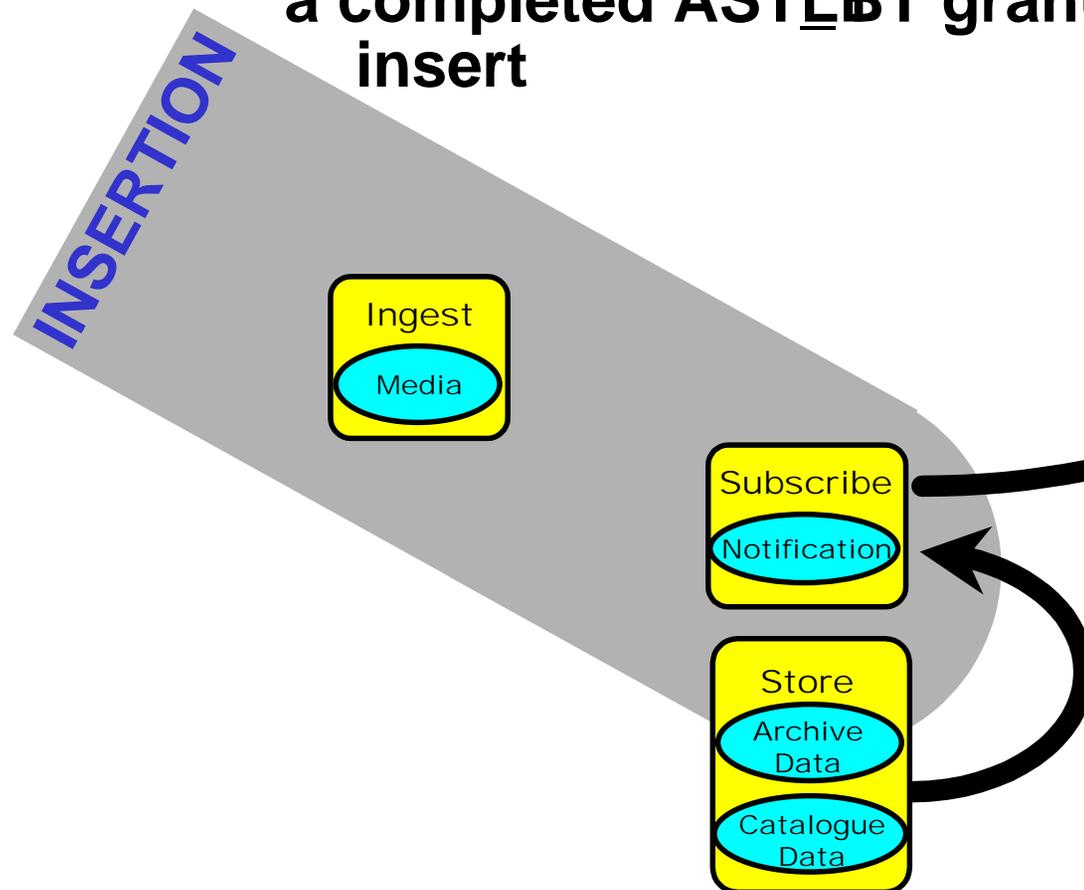
ASTER: CSCI/Component Role in Inventory (Metadata) Update



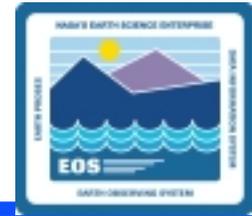
DAR Support (Cont.)



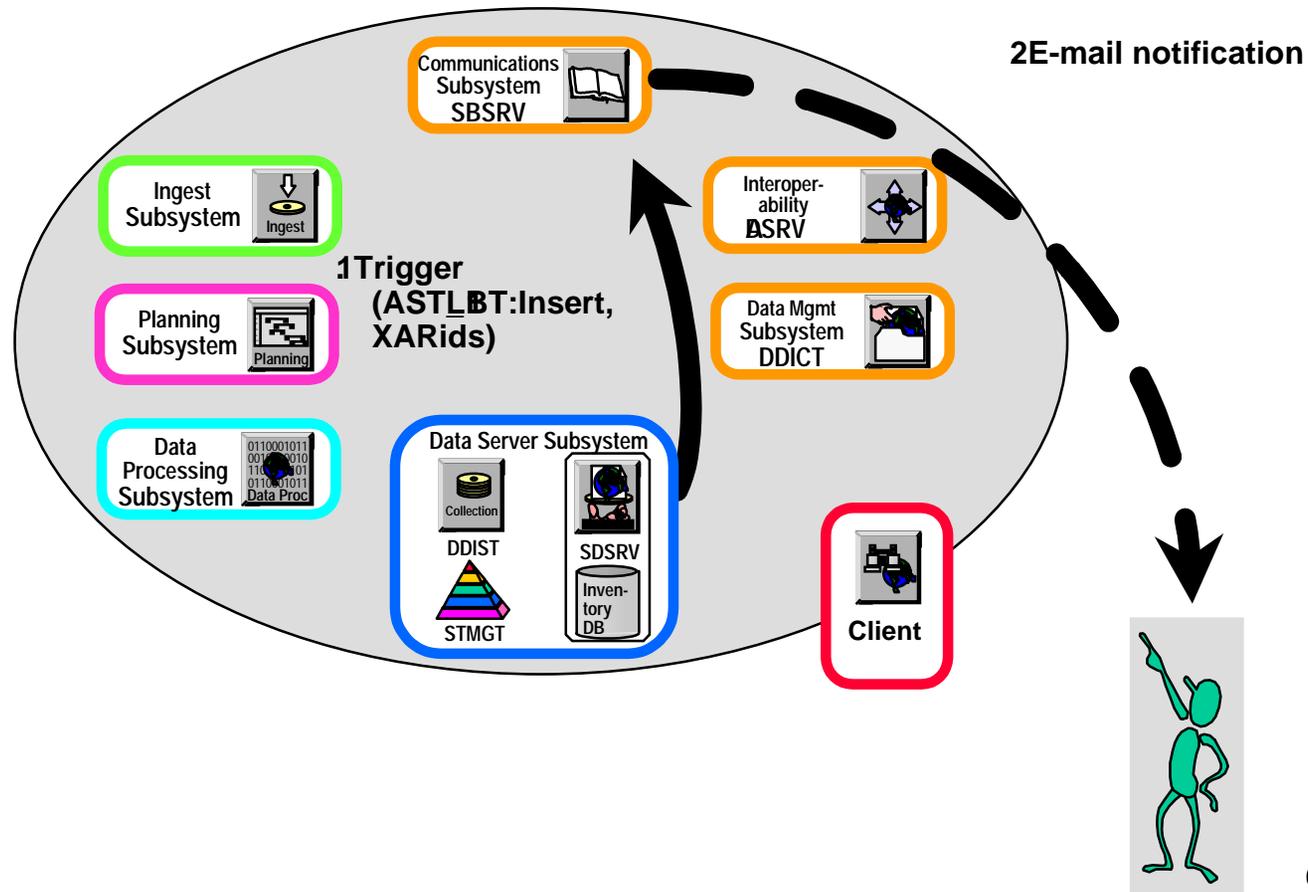
Insert terminates with an insert event notification to Subscribe. Subscribe e-mails ASTER Scientist notice of a completed AST_LBT granule insert



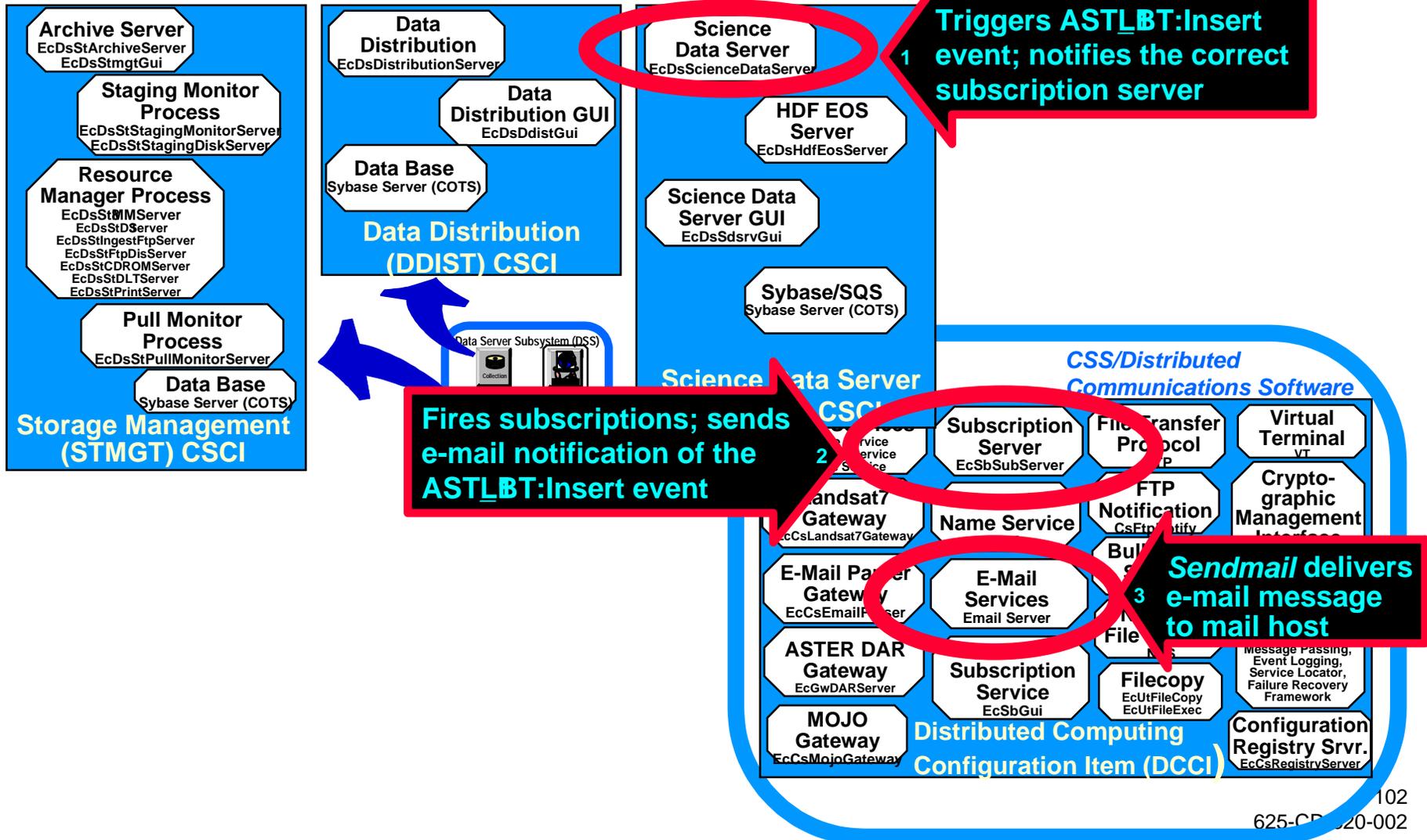
ASTER: Event Notification Process



Notify all ASTLBT:Insert event subscribers whose DARid numbers are matched with the ingested granules.



ASTER: CSCI/Component Role in Event Notification



ASTER Scenario: Chaining

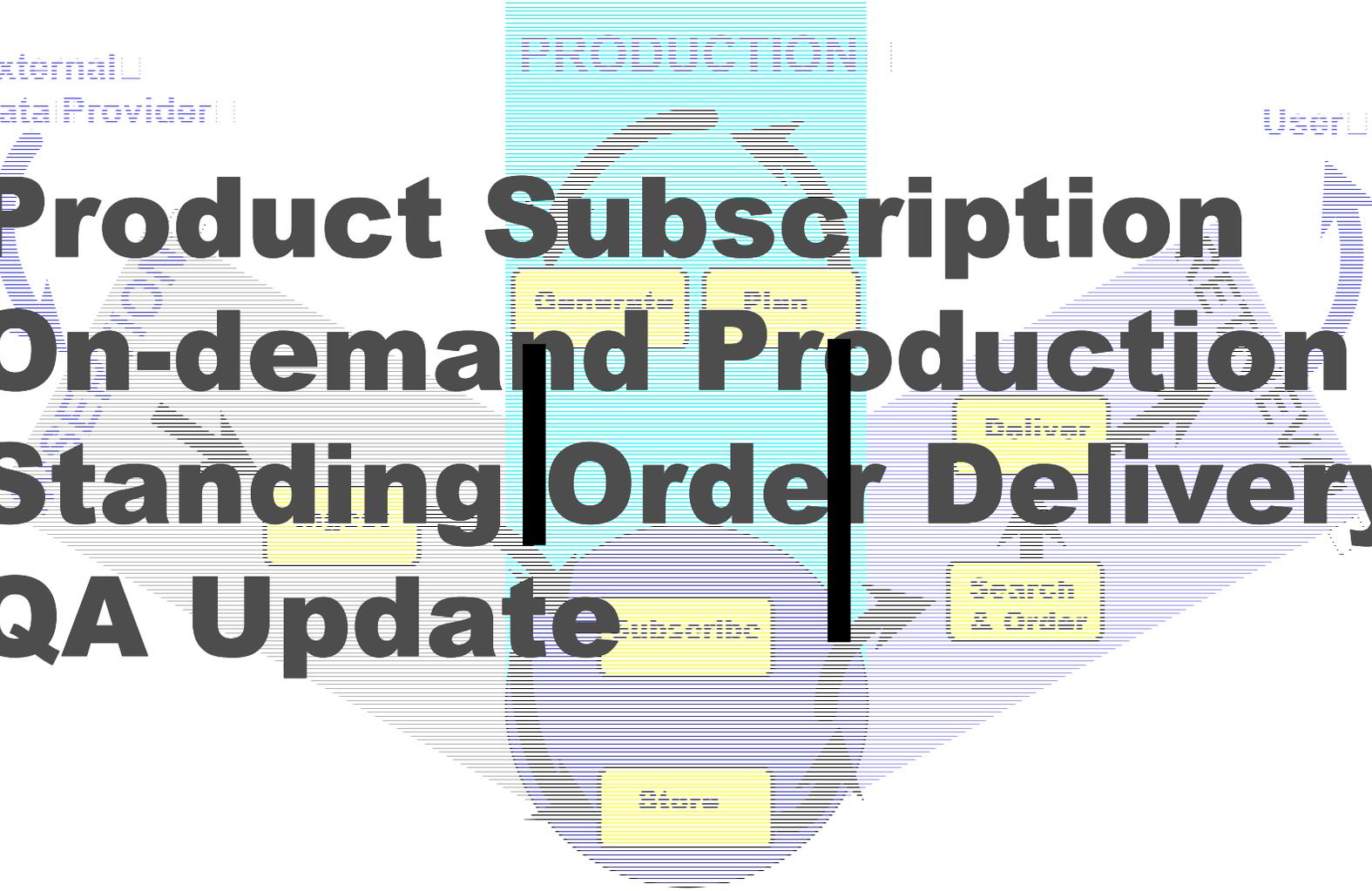


External
Data Provider

PRODUCTION

User

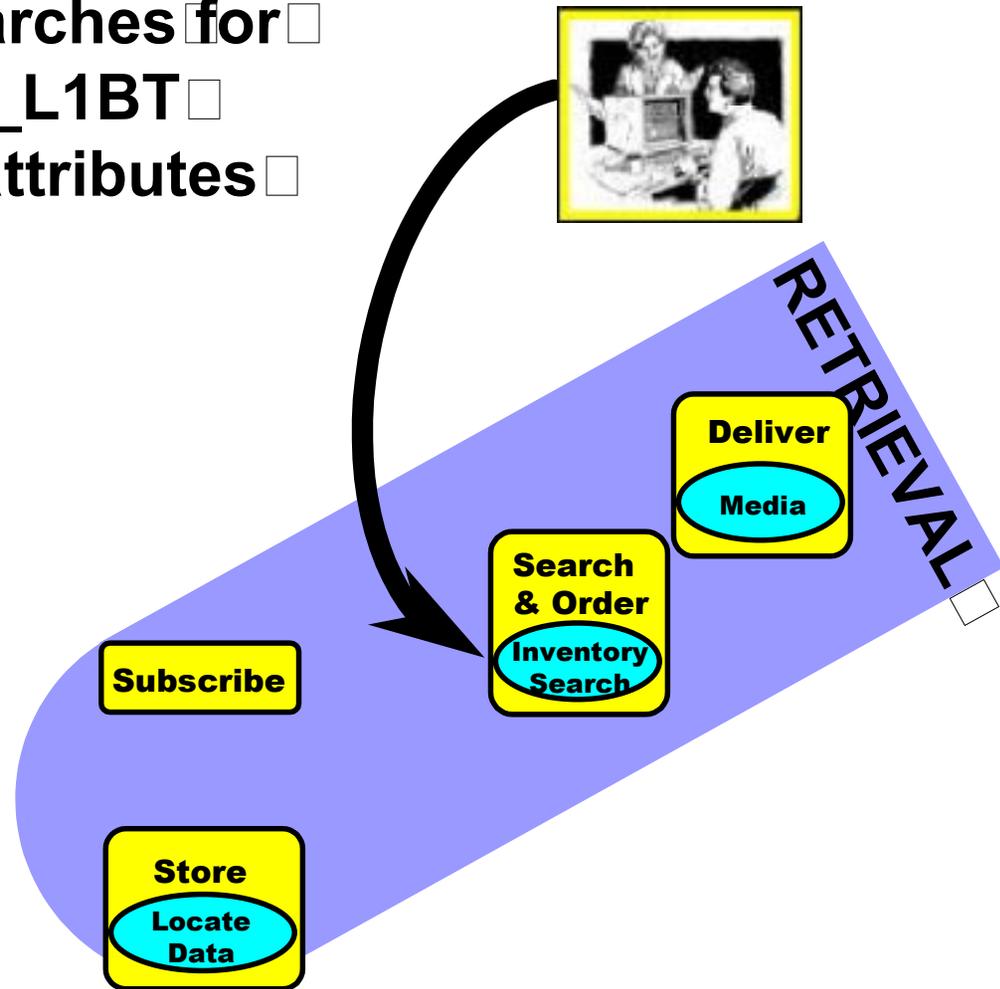
Product Subscription
On-demand Production
Standing Order Delivery
QA Update



Chaining



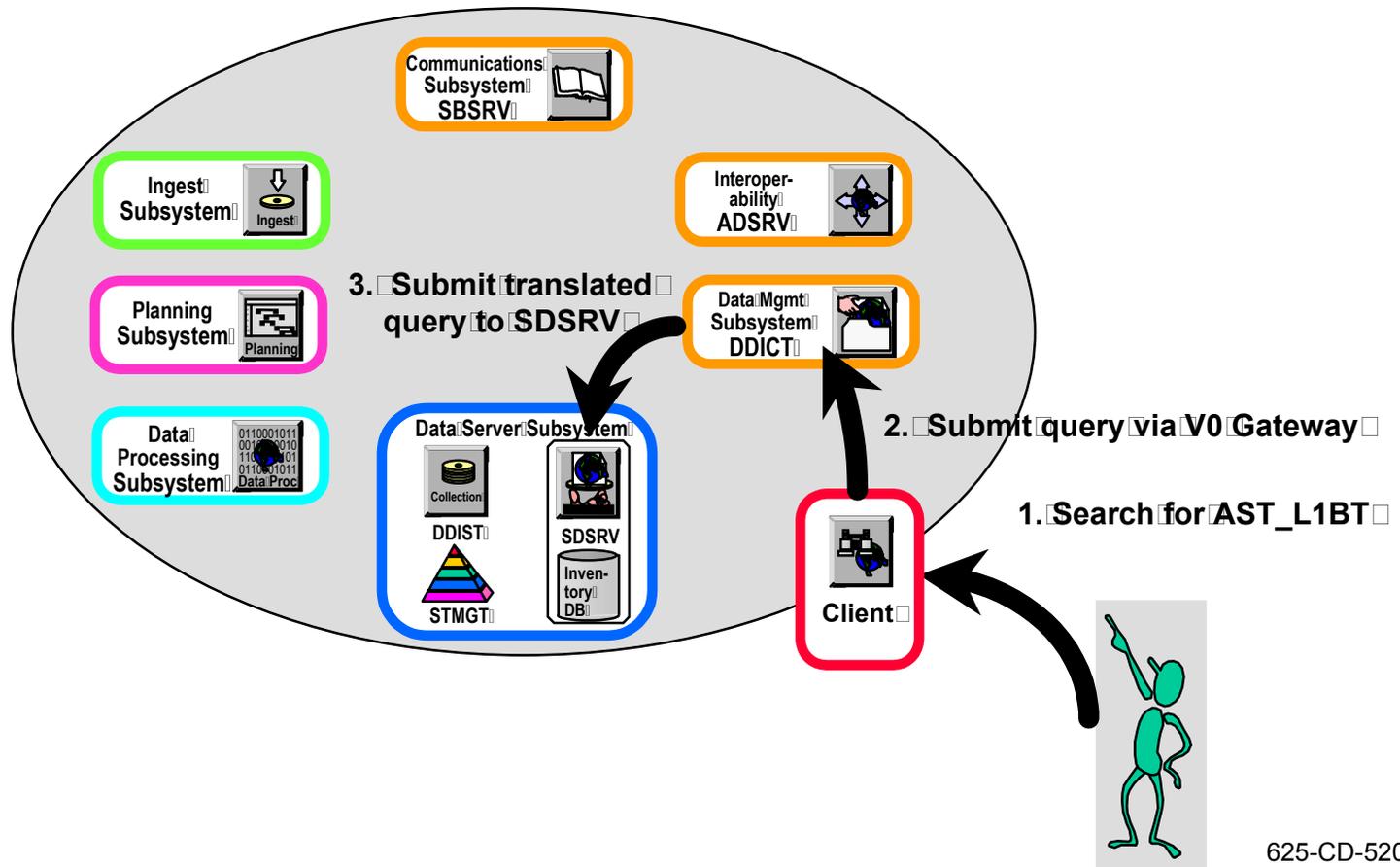
ASTER Scientist searches for newly ingested AST_L1BT granules, verifying attributes



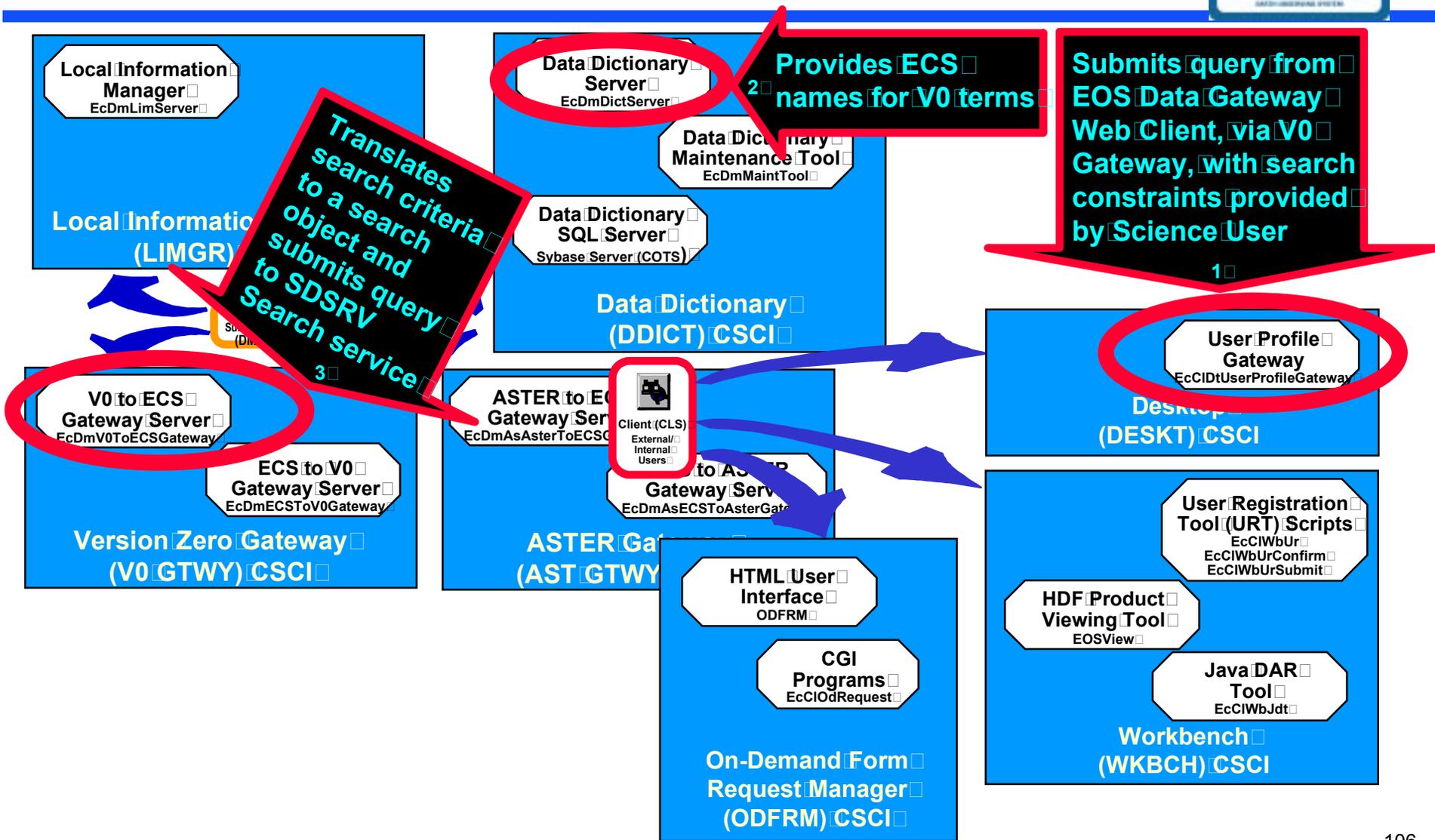
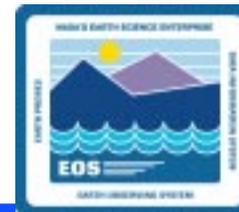
ASTER: Search Process



ASTER Scientist decides to check out the AST_L1BT (L1B TIR) granule that was received. First, the scientist searches for the granule.



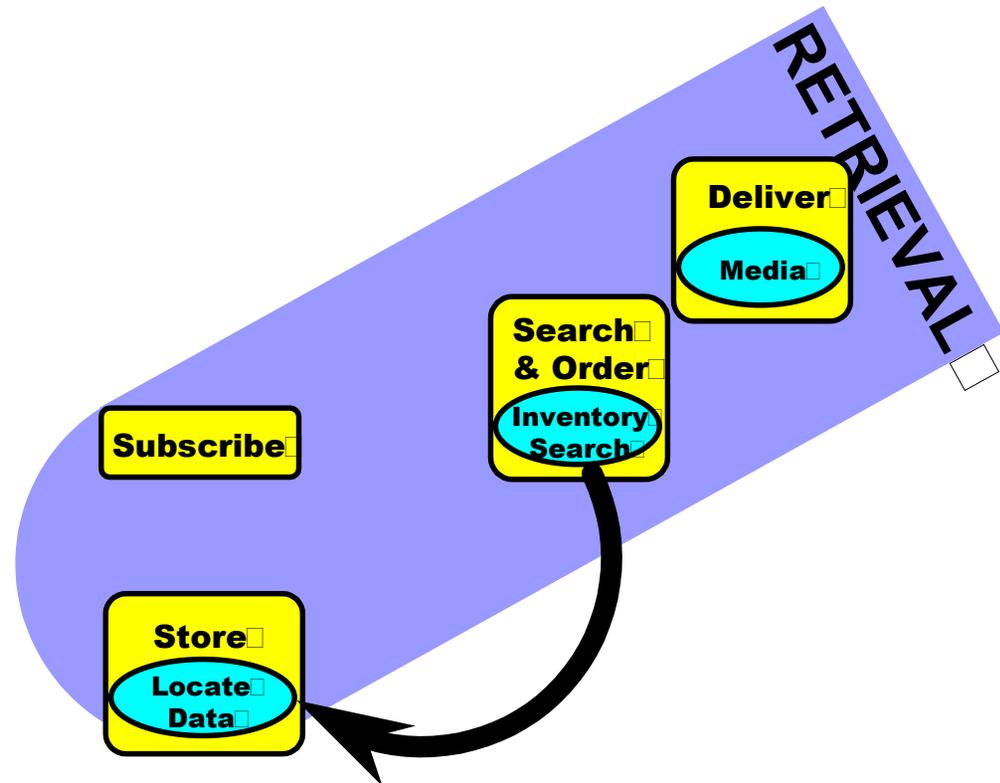
ASTER: CSCI/Component Role in Data Search



Chaining (Cont.)



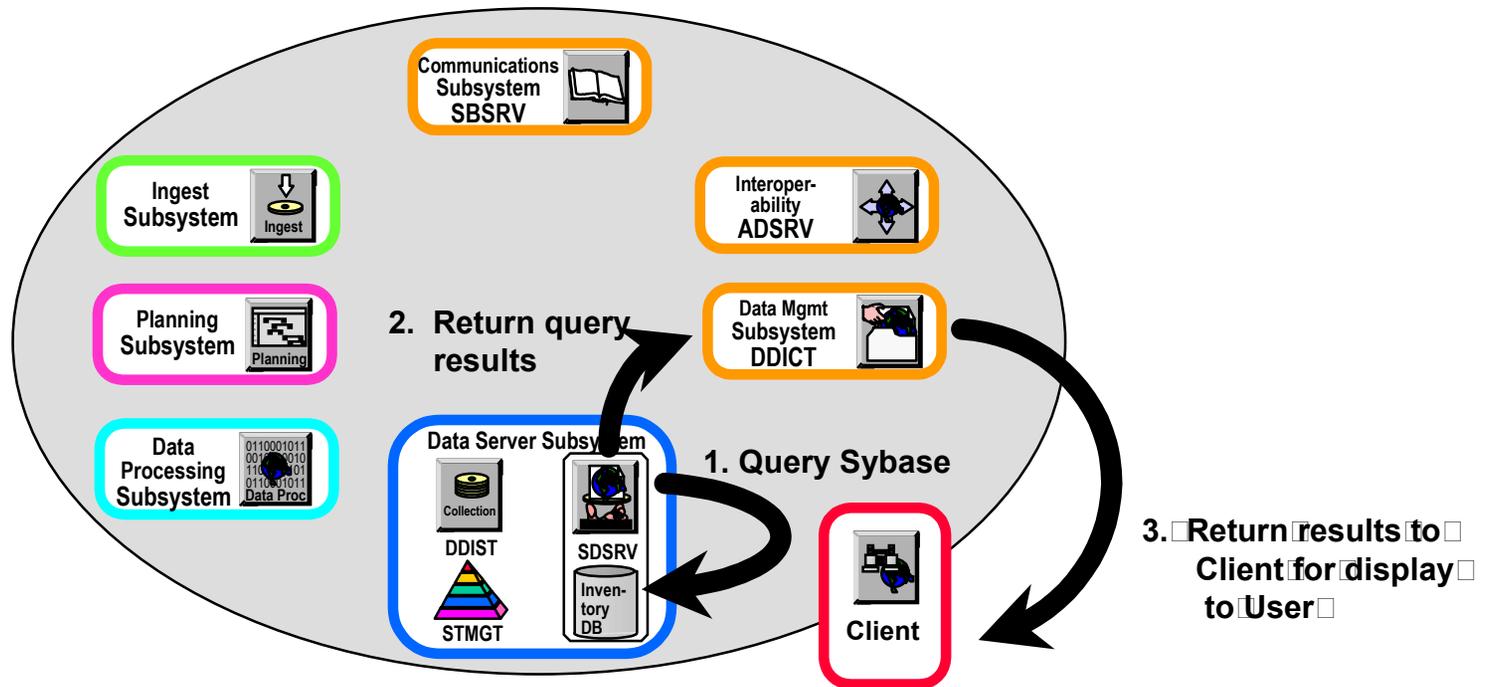
Locate AST_L1BT granules of interest



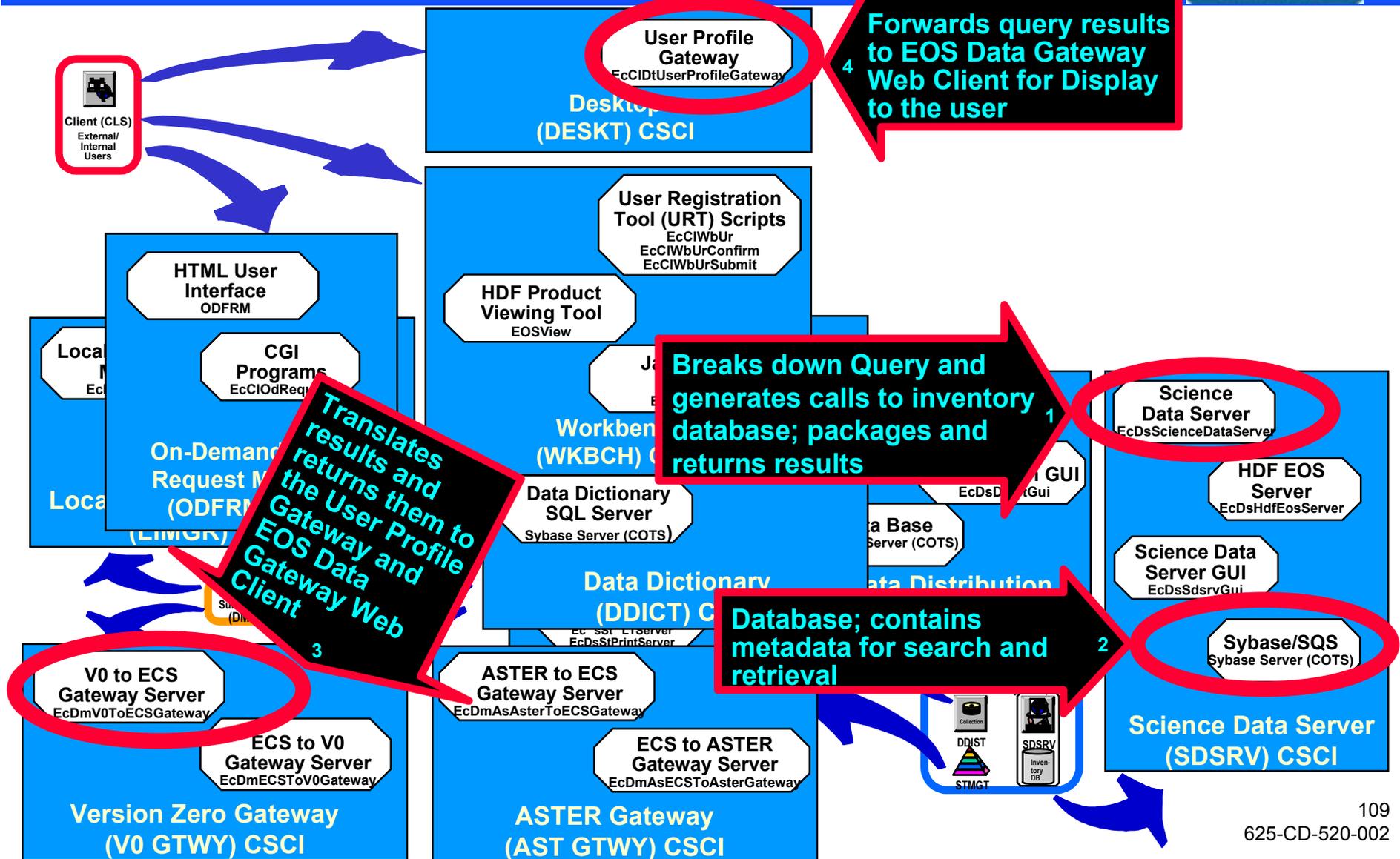
ASTER: Data Location Process



SDSRV queries Sybase/SQS database for AST_L1BT (L1B TIR) granules meeting search criteria.



ASTER: CSCI/Component Role in Data Location



Chaining (Cont.)



PRODUCTION

Process
On
Demand



ASTER Scientist
calls DAAC
requesting
AST_08 to be
produced from
AST_L1BT using
ETS algorithm

Subscribe

Notification

Register
Subscription

Store

Archive
Data

Catalogue
Data

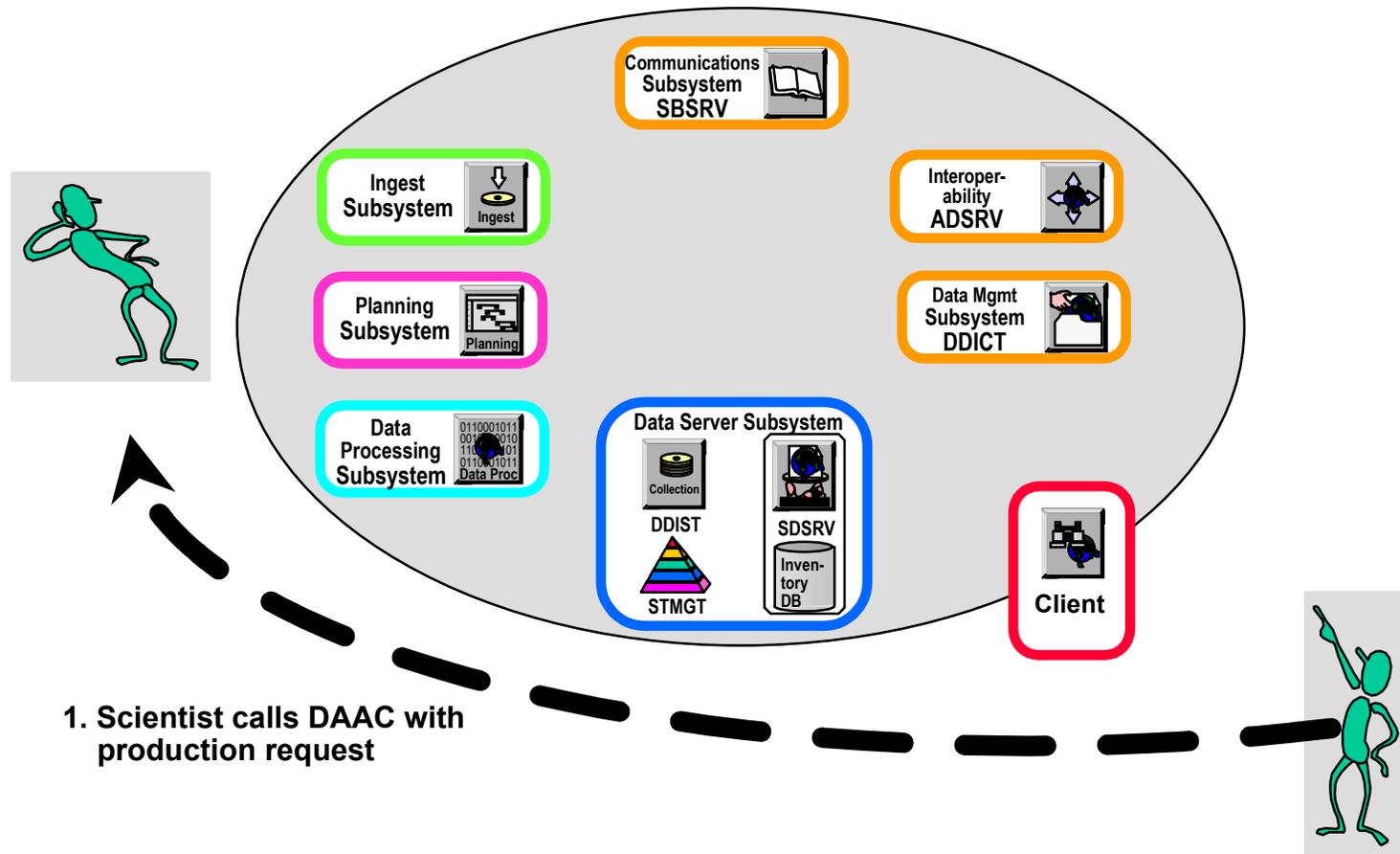
Locate
Data

Retrieve
Data

ASTER: Request for Production Requiring Algorithm Sequence



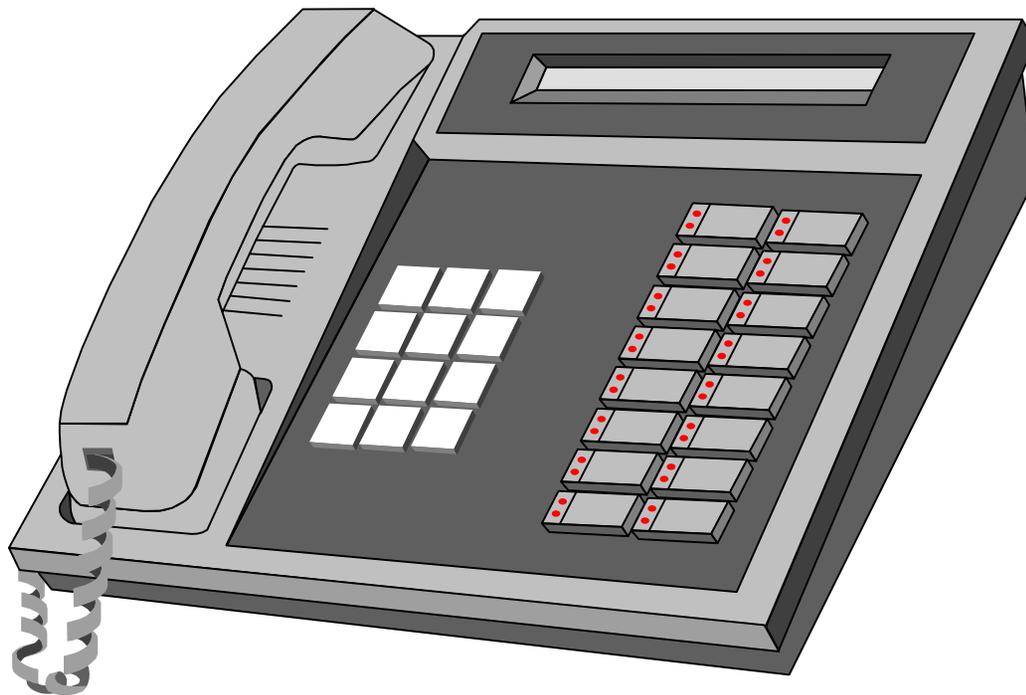
Scientist calls DAAC requesting AST_L1BT (L1B TIR) be generated into an AST_08 (L2 Surface Temperature) product using ETS algorithm.



ASTER: CSCI/Component Role in Request for Algorithm Sequence



No CSCI/Components involved.



Chaining (Cont.)



PRODUCTION

Process
On
Demand

Subscribe
Notification Register
Subscription

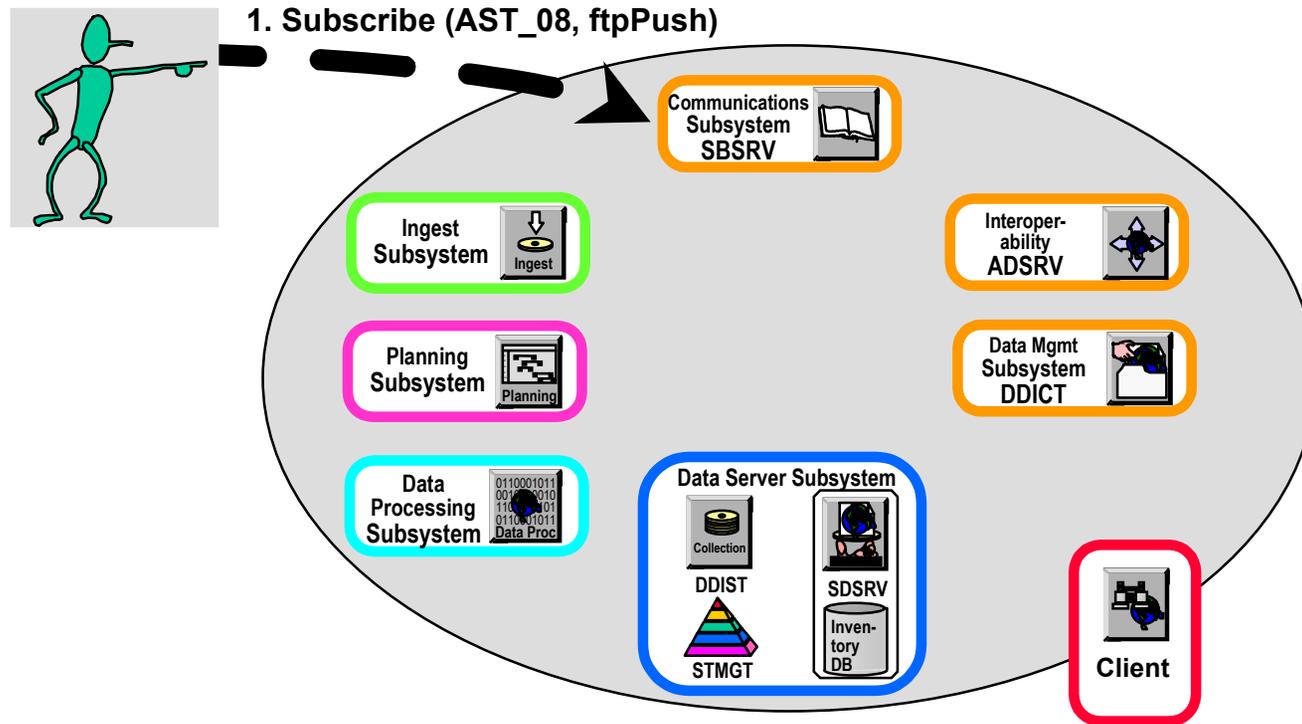
Store
Archive Data Catalogue Data
Locate Data Retrieve Data

DAAC submits
subscription on
behalf of
scientist for
delivery of
AST_08 via
ftpPush

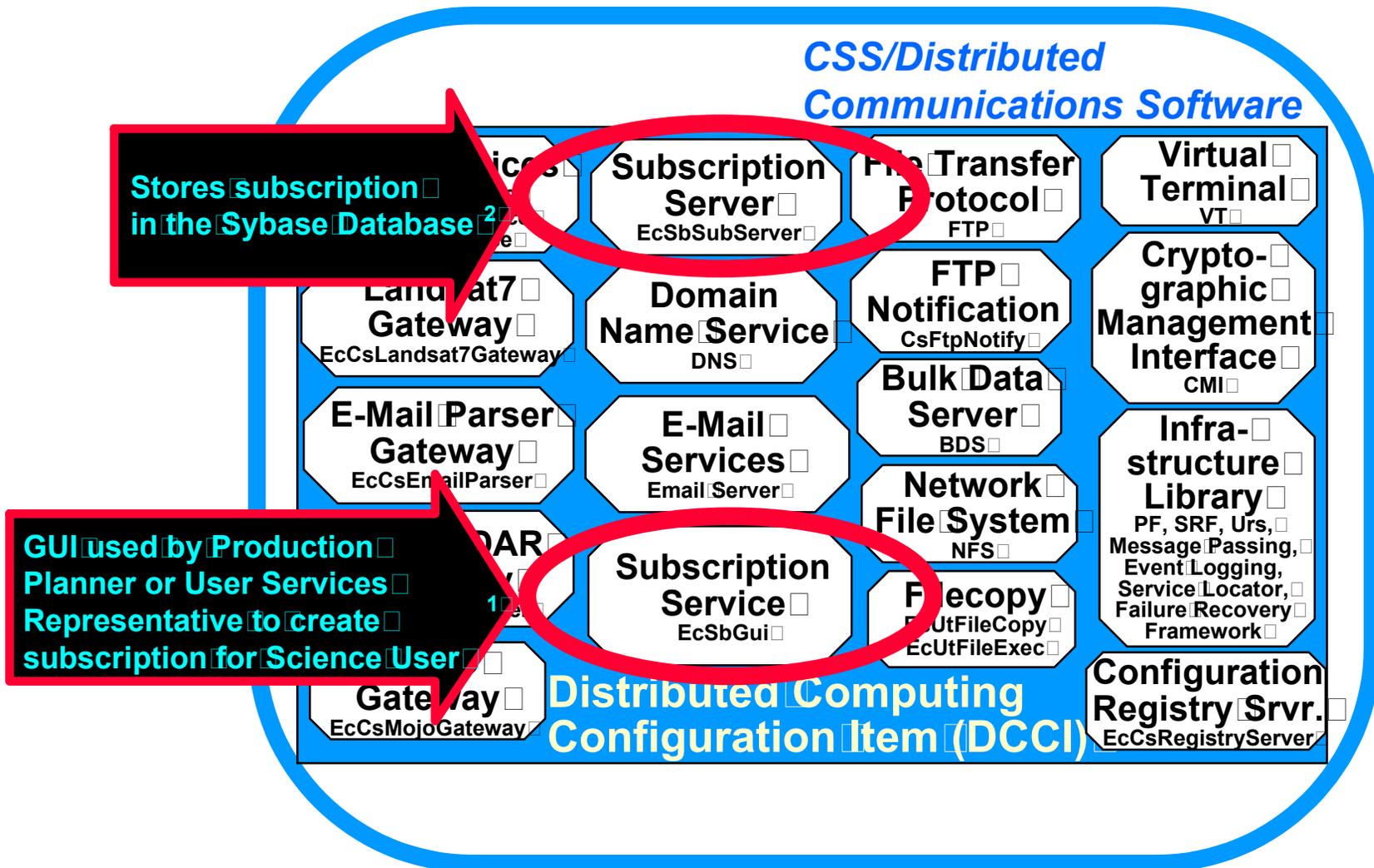
ASTER: User Subscription Registration Process



DAAC enters subscription, on behalf of scientist, for delivery of AST_08 (L2 Surface Temperature) product, via ftpPush, when product is generated.



ASTER: CSCI/Component Role in User Subscription Registration



Chaining (Cont.)



PRODUCTION

Process
On
Demand

Subscribe

Notification

Register
Subscription

Store

Archive
Data

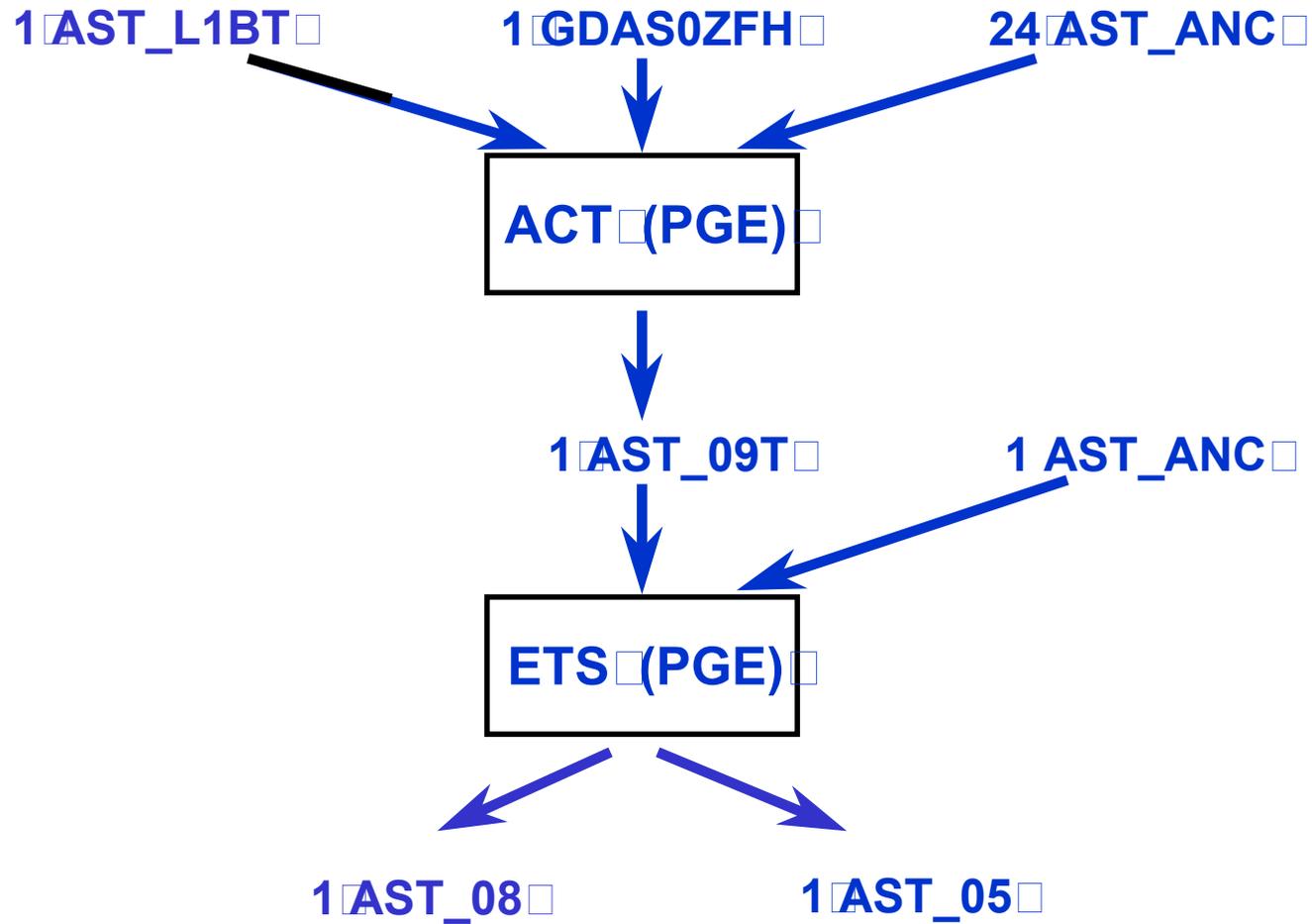
Catalogue
Data

Locate
Data

Retrieve
Data

Operator
determines need
to run ACT PGE
before ETS.
Submits
production
requests for ACT
and ETS, and
then initiates
production

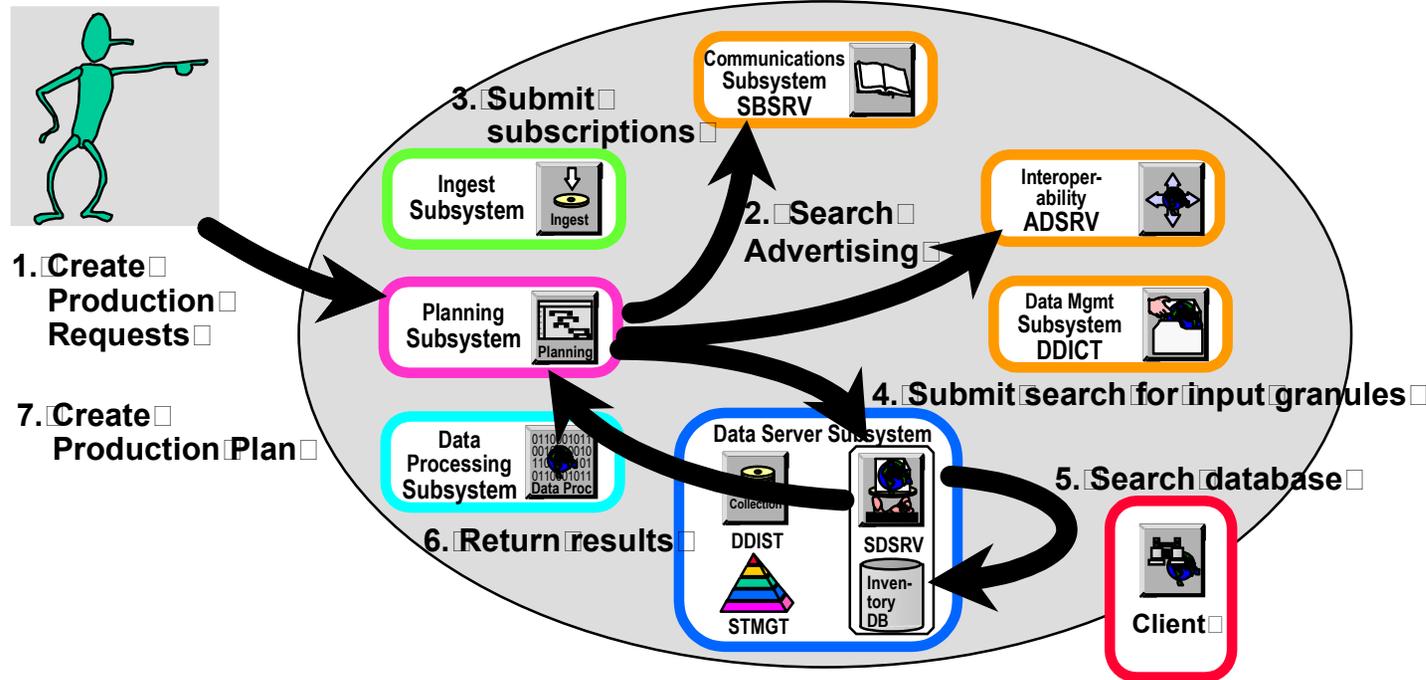
ASTER: PGE Chaining



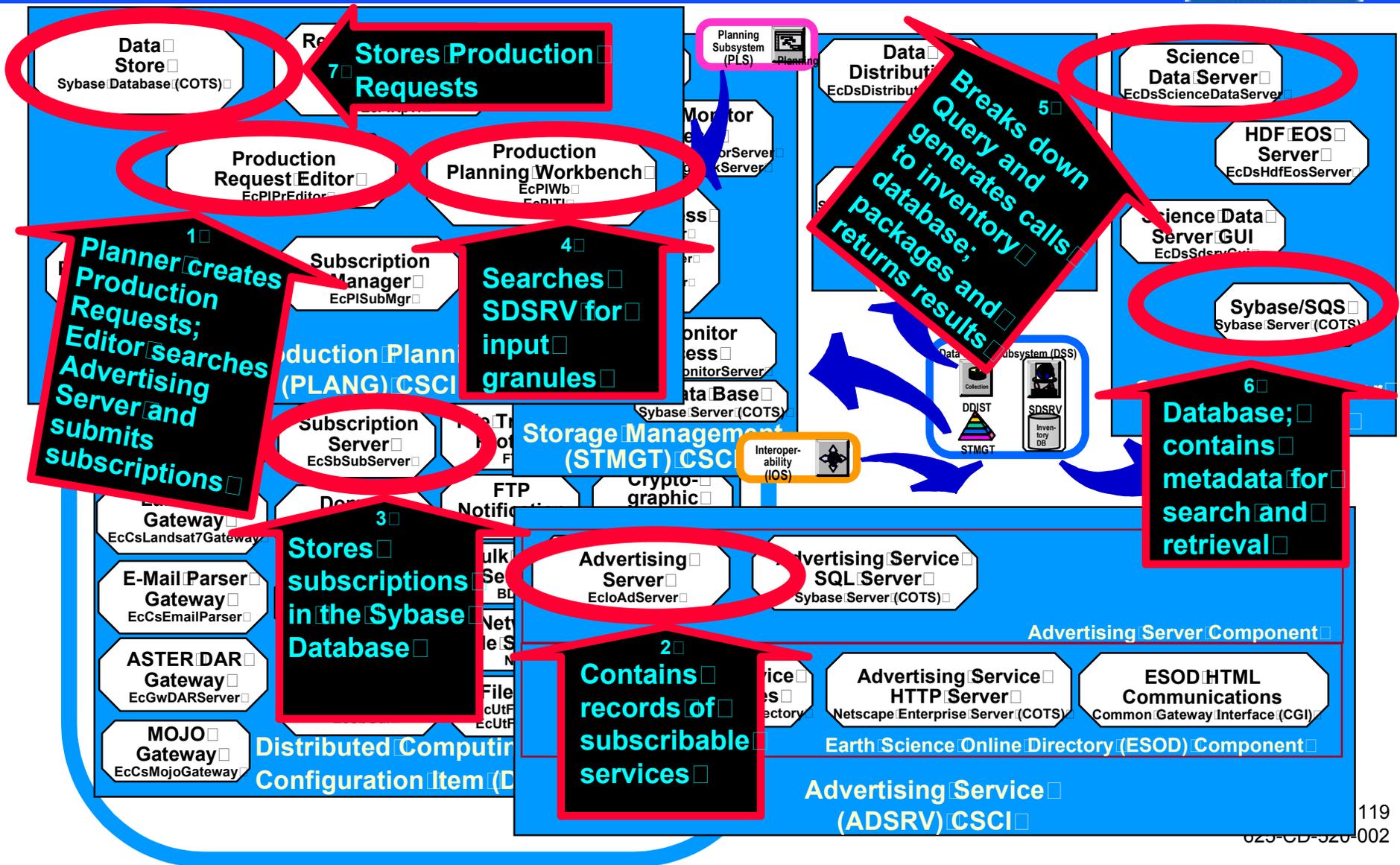
ASTER: Sequenced Production Request Process



Operator determines that, in order to run ETS algorithm on AST_L1BT (L1B TIR), ACT algorithm must be run first. Operator then creates production requests and a plan which includes a DPR for the ACT, with the AST_09 (L2 Surface Radiance TIR) output feeding the ETS algorithm.



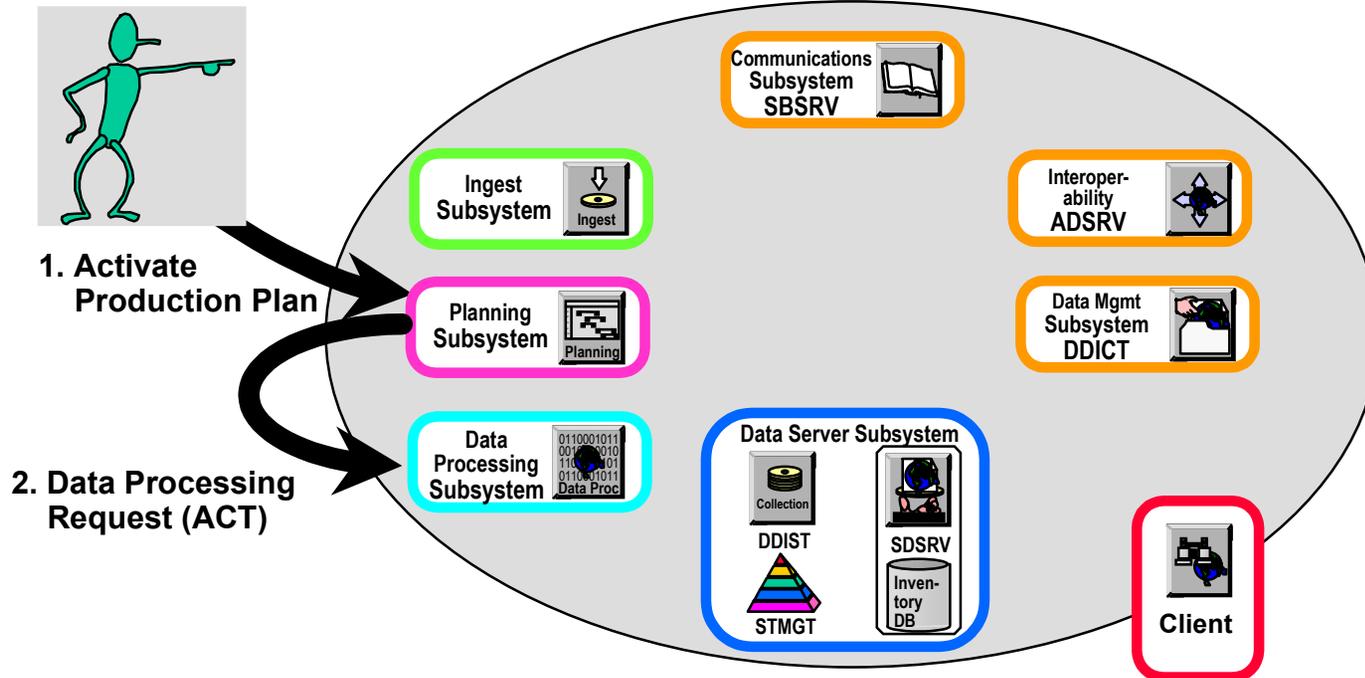
ASTER: CSCI/Component Role in Sequenced Production Request



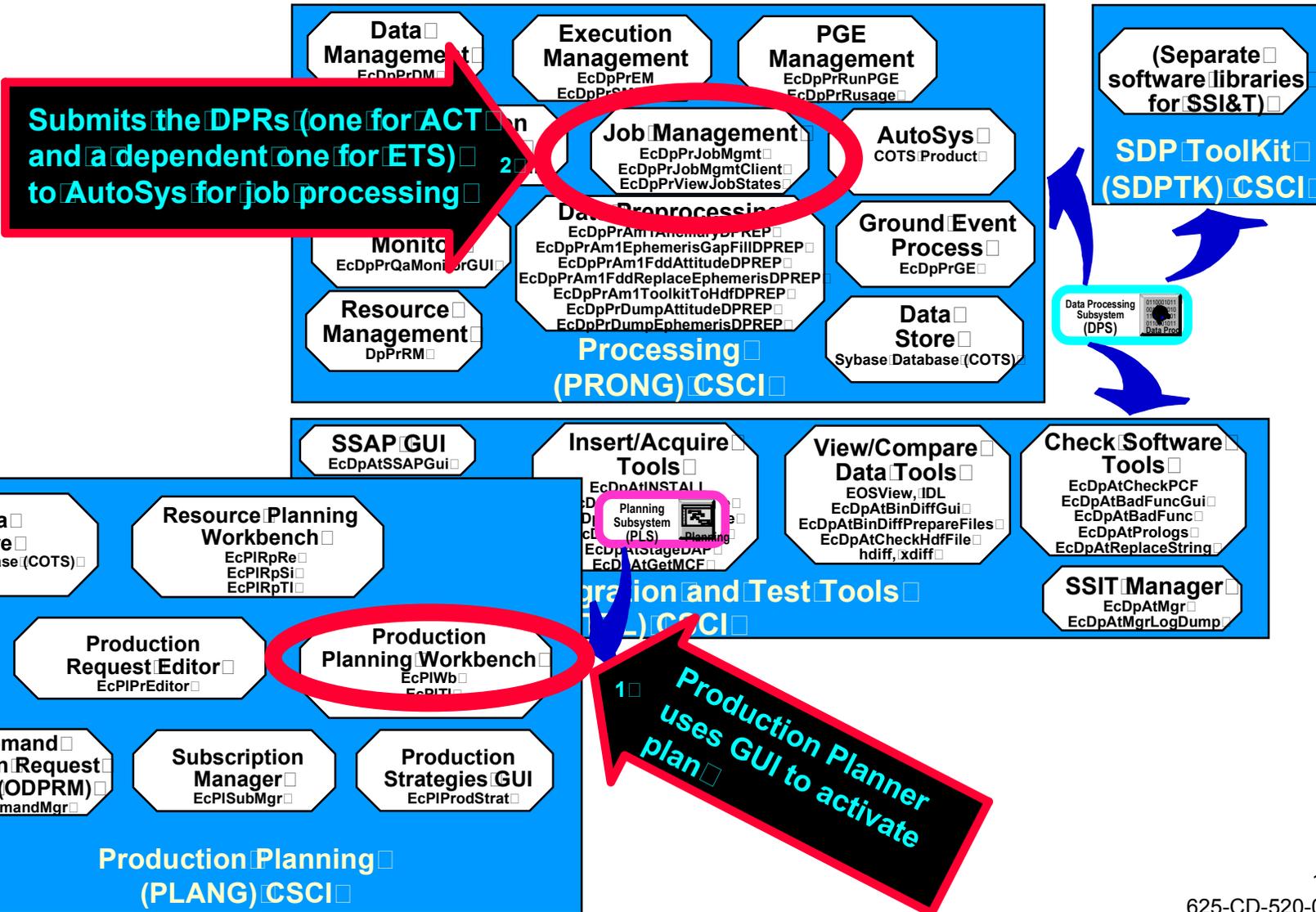
ASTER: Plan Activation Process



Production Planner interacts with the Planning Workbench GUI to create a plan with DPRs for the ACT and ETS PGEs and make it the current processing plan.



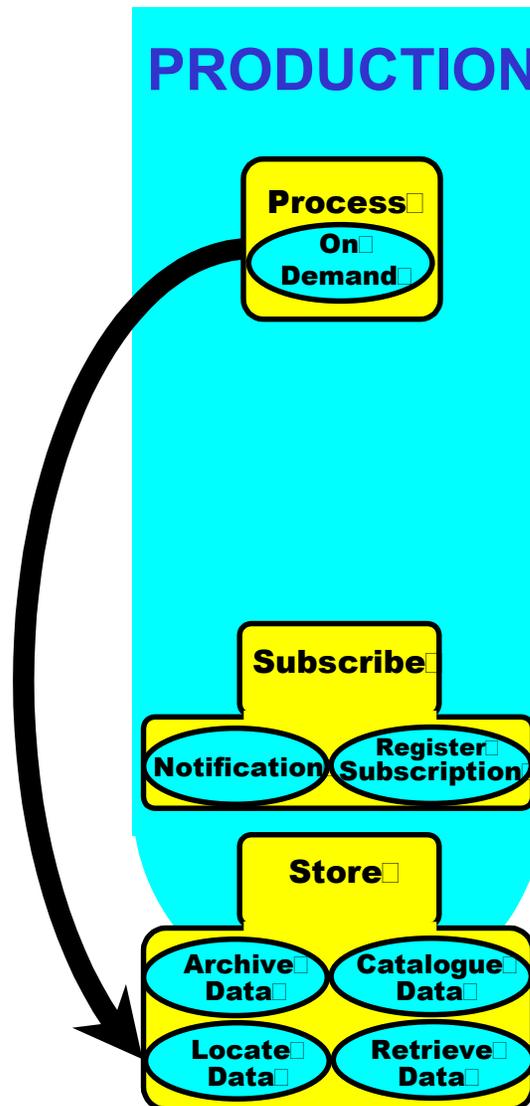
ASTER: CSCI/Component Role in Plan Activation



Chaining (Cont.)



PRODUCTION

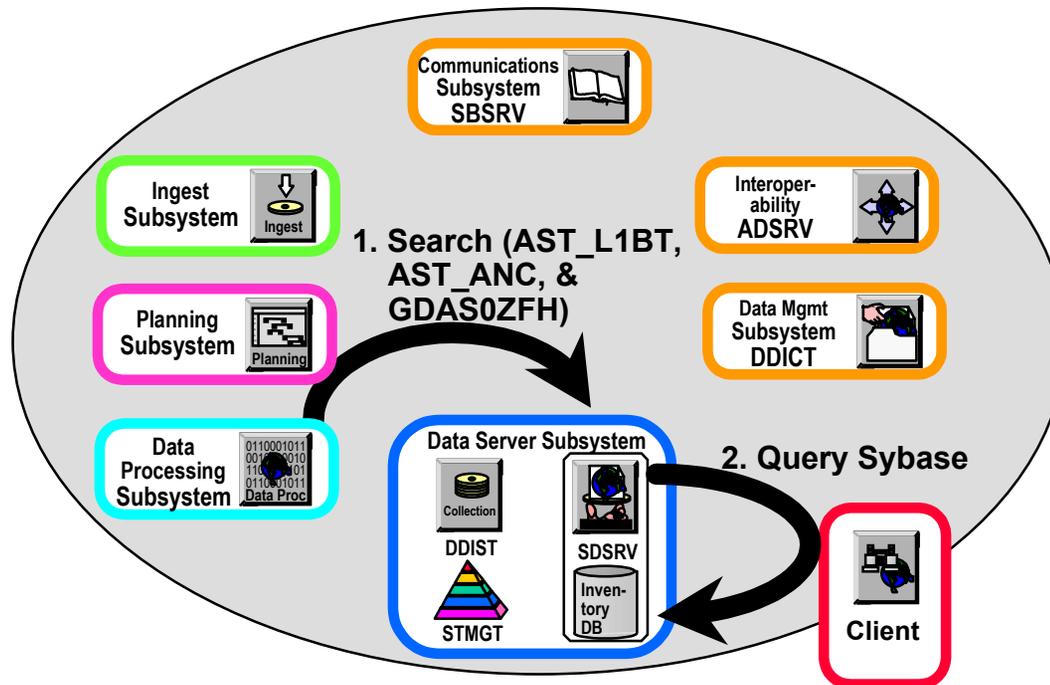


Job locates
AST_L1B,
AST_ANC
(ASTER ancillary
data set), and
GDAS0ZFH
(NCEP ancillary)
data required for
ACT algorithm

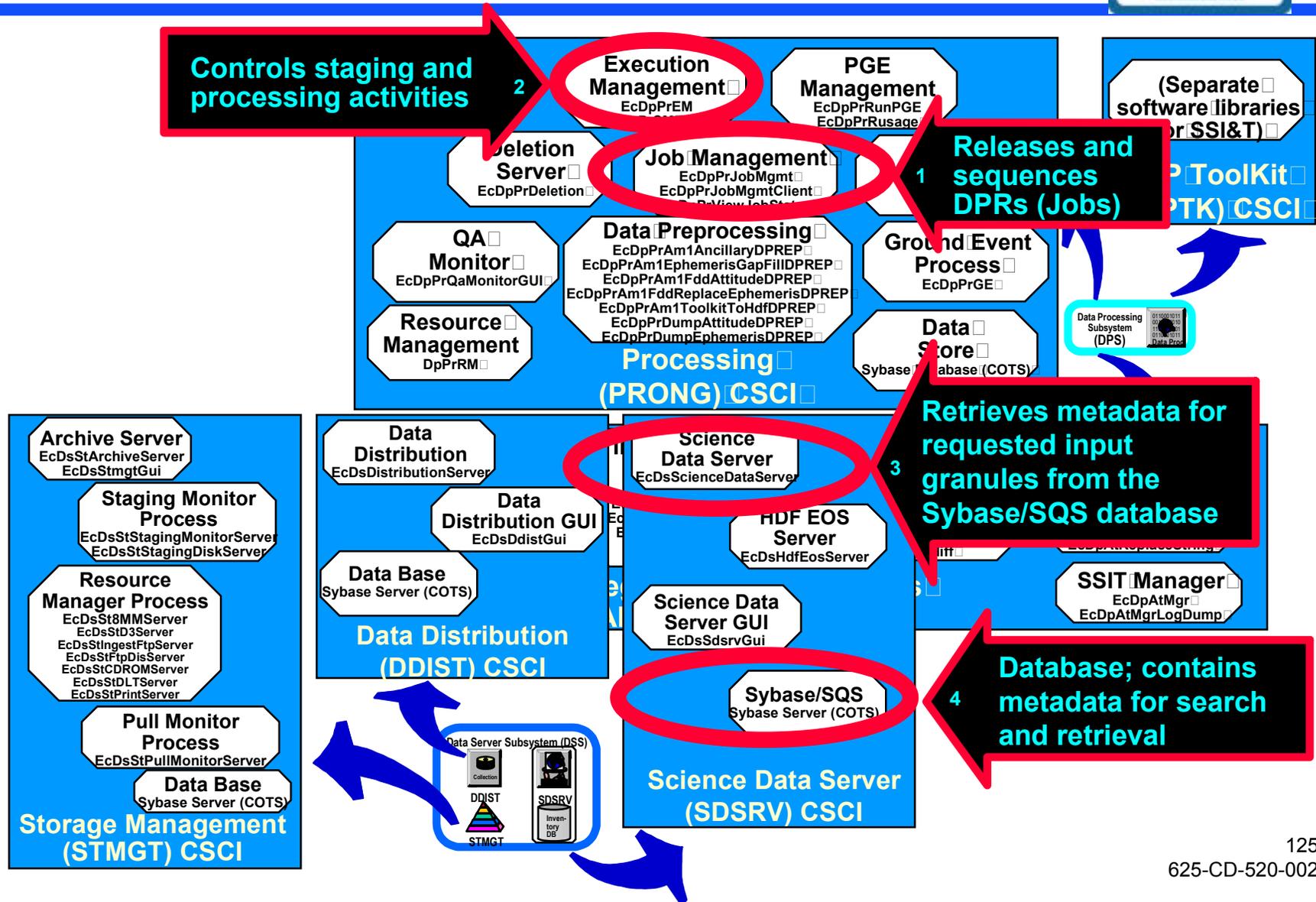
ASTER: Input Data Location Process



ACT locates required AST_L1BT (L1B TIR), AST Anc (ASTER ancillary data set), and GDAS0ZFH (NCEP ancillary) input data granule.



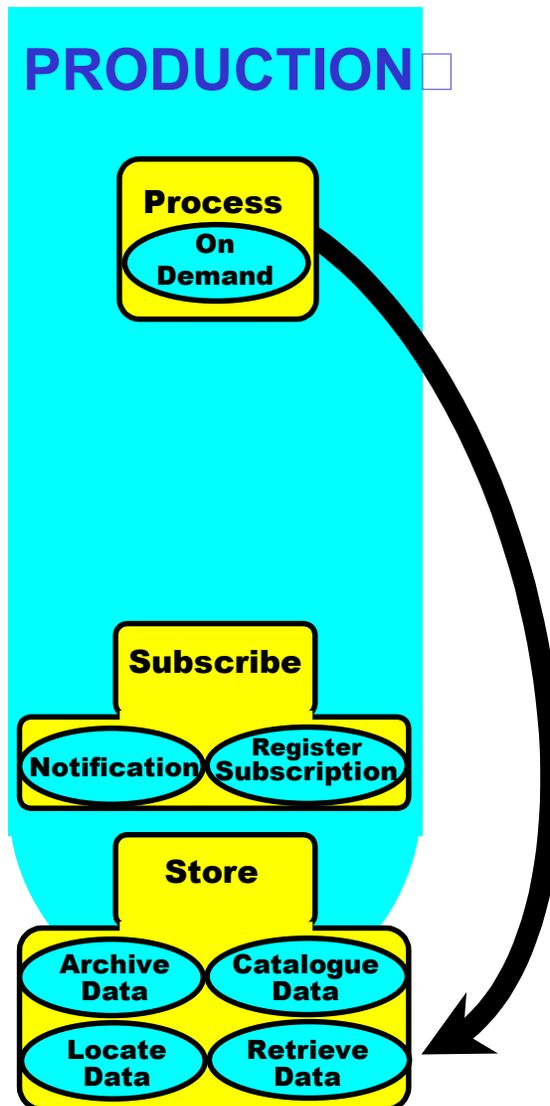
ASTER: CSCI/Component Role in Input Data Location



Chaining (Cont.)



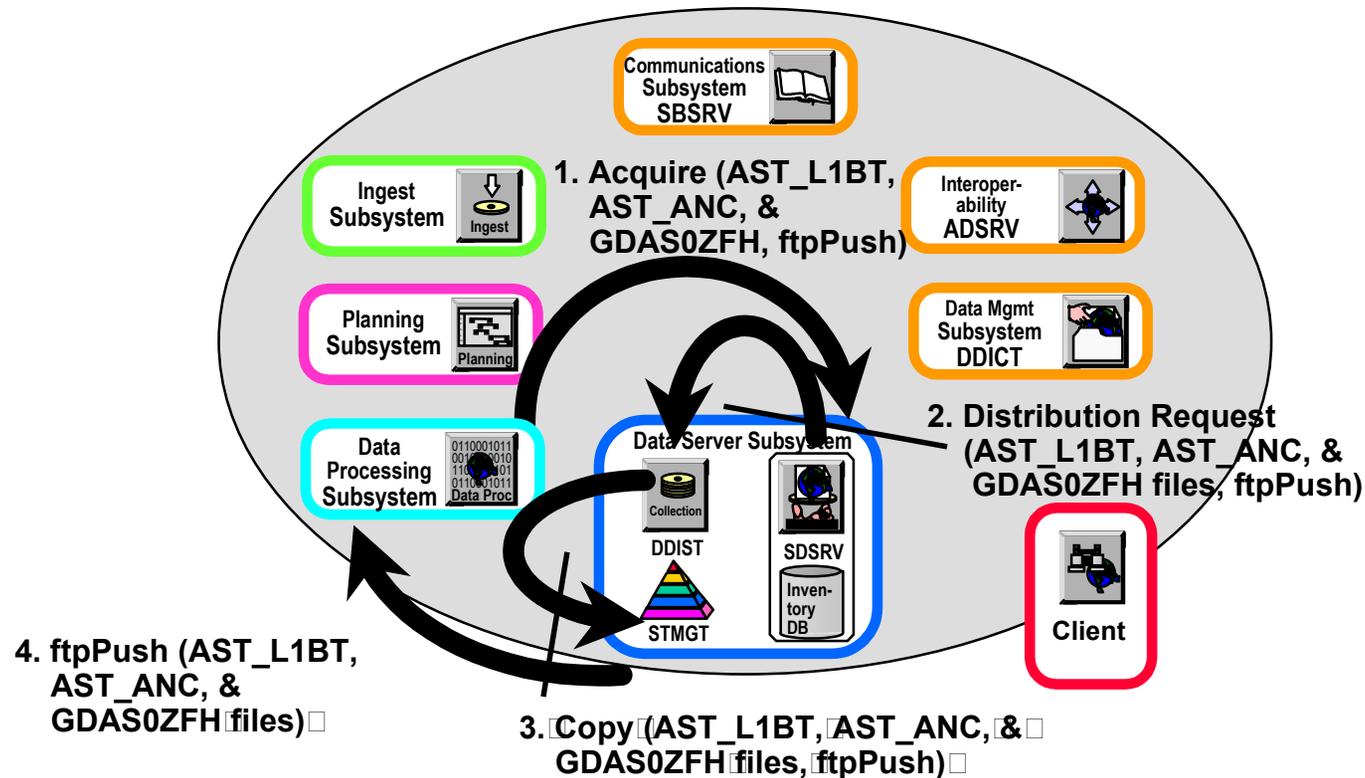
Retrieve
AST_L1B,
AST_ANC
(ASTER ancillary
data set), and
GDAS0ZFH
granules as input
to ACT; PGE
execution begins



ASTER: Job Staging Process



ACT production job retrieves required AST_L1BT (L1B TIR), AST_ANC (ASTER ancillary data set), and GDAS0ZFH (NCEP ancillary) input data granules.



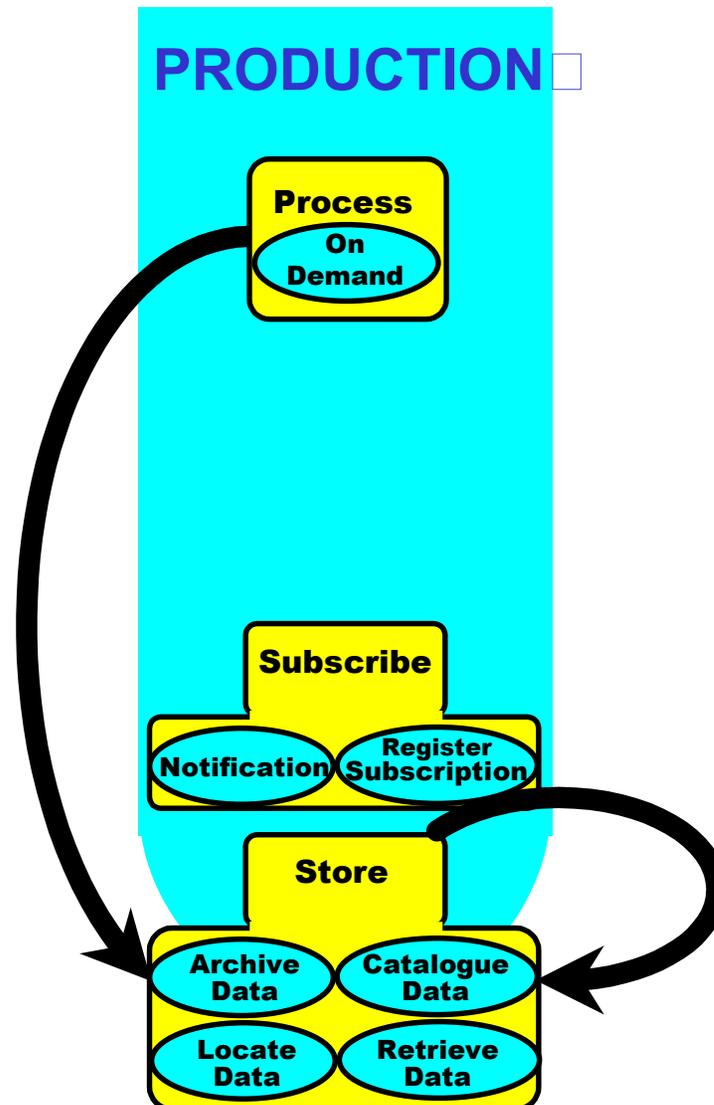
ASTER: CSCI/Component Role in Job Staging



Chaining (Cont.)



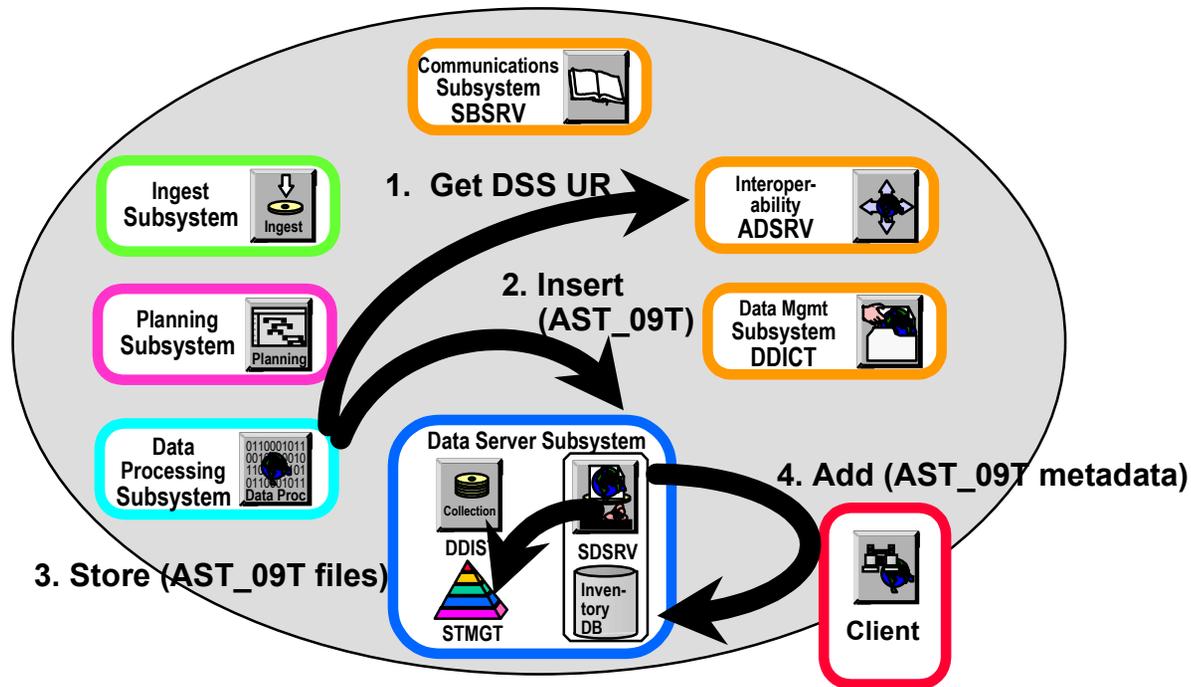
Archive newly created AST_09T (L2 Surface Radiance TIR) granule after completion of ACT PGE; update catalogue with reference to AST_09T



ASTER: PGE Execution and Output Insertion Process



ACT PGE is successfully executed and newly created AST_09T (L2 Surface Radiance TIR) granule is archived; inventory is updated.



ASTER: CSCI/Component Role in PGE Execution and Output Insertion

