

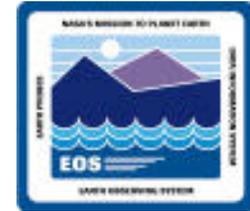
Spectacular Event Scenario

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Context



Major geophysical event (e.g., marine oil spill) leads to many requests for images of the event

Assume most requests are for a single data type (e.g., MODIS L1B)

Likely to request spatial subsetting

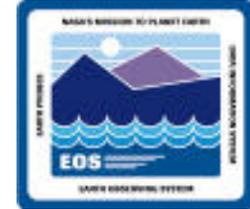
- **MODIS granules are 300 MB and cover 4.6×10^6 km²**
- **Event region (~several $\times 10^4$ km²) allows reduction by factor of ~100**
- **Spectral subsetting requested by some users**

Data requests at many times normal rate (exceeding capacity)

Potential impacts:

- **Interference with Standard Product production due to**
 - **large load on Data Server**
 - **heavy traffic on DAAC LANs**
- **Interference with research data requests due to**
 - **large pull load on Data Server**
 - **heavy traffic on DAAC LANs and Internet**

Design Drill-Downs



Push+Pull drill-downs:

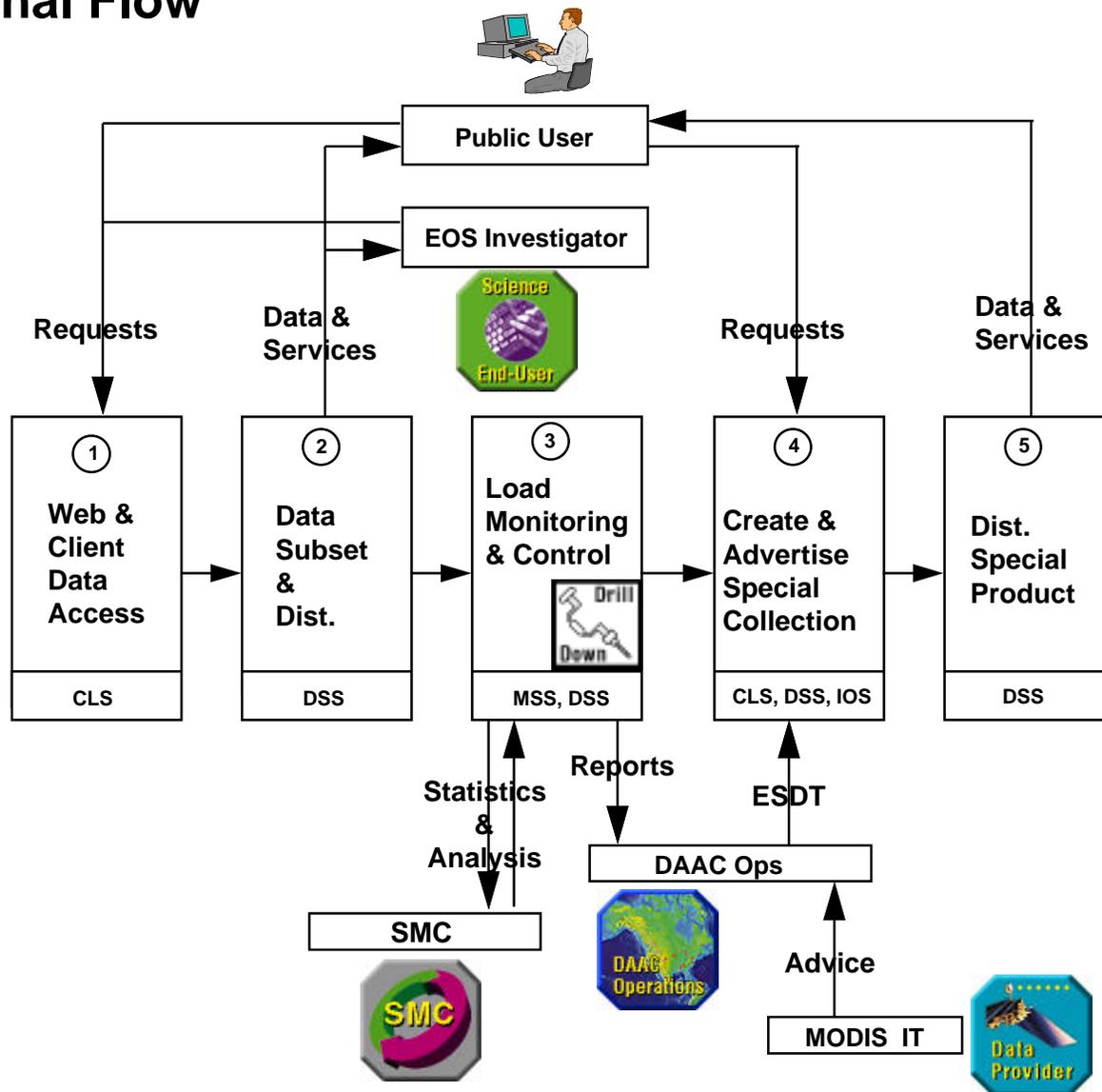
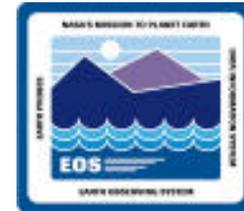
- **DAAC LAN Architecture** - separates push/pull traffic
- **Load Throttling** - ensures access for high-priority functions
- **SMC Statistics and Reporting** - provides system-wide view of access patterns and system loads

Previous drill-downs:

- **Adding new ESDTs and Services** - creating special “event” collections
- **Advertiser** - advertising special event products
- **Session Management** - options for managing pull load

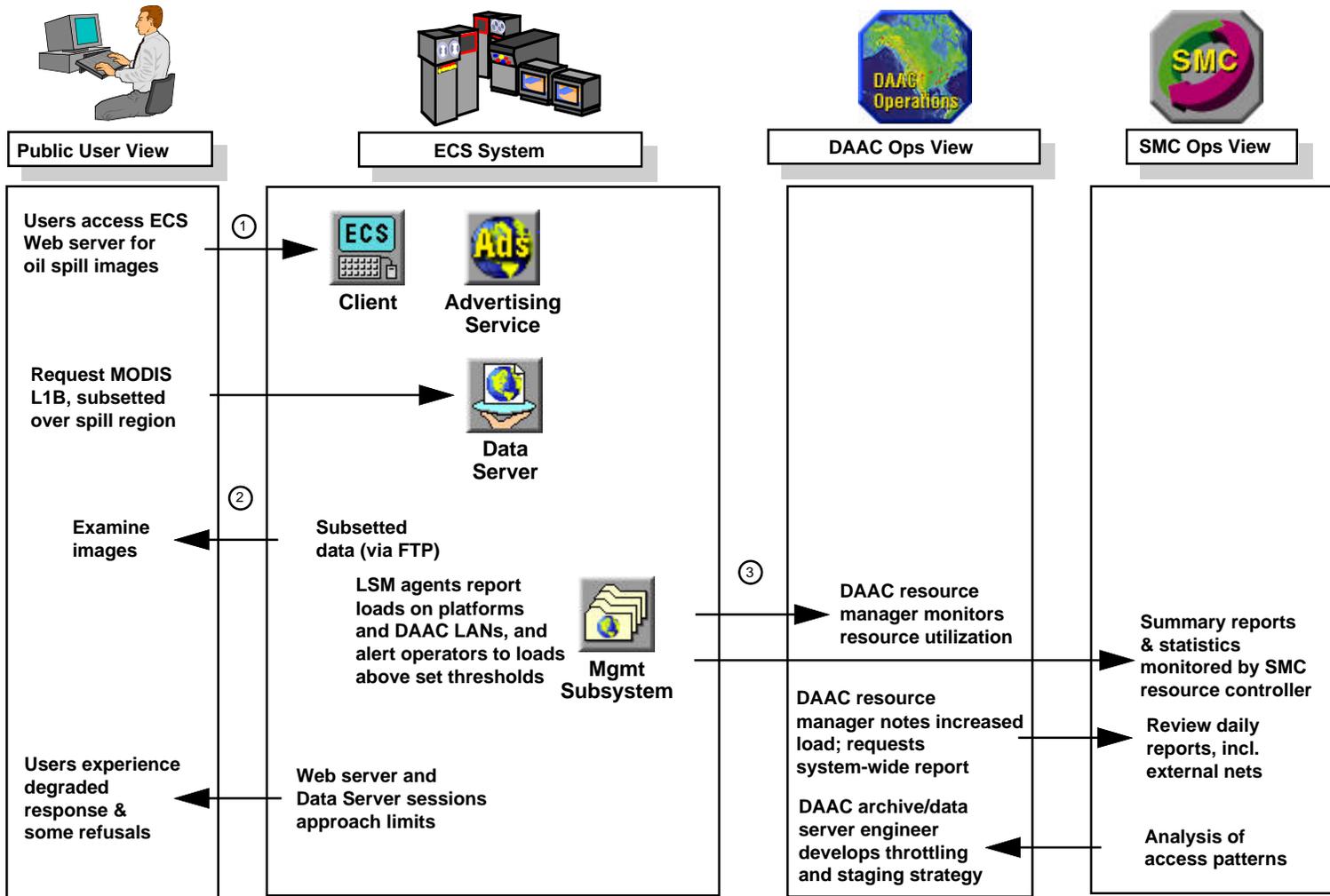
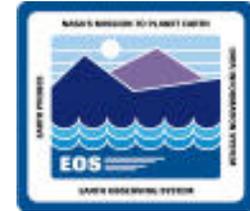
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Functional Flow



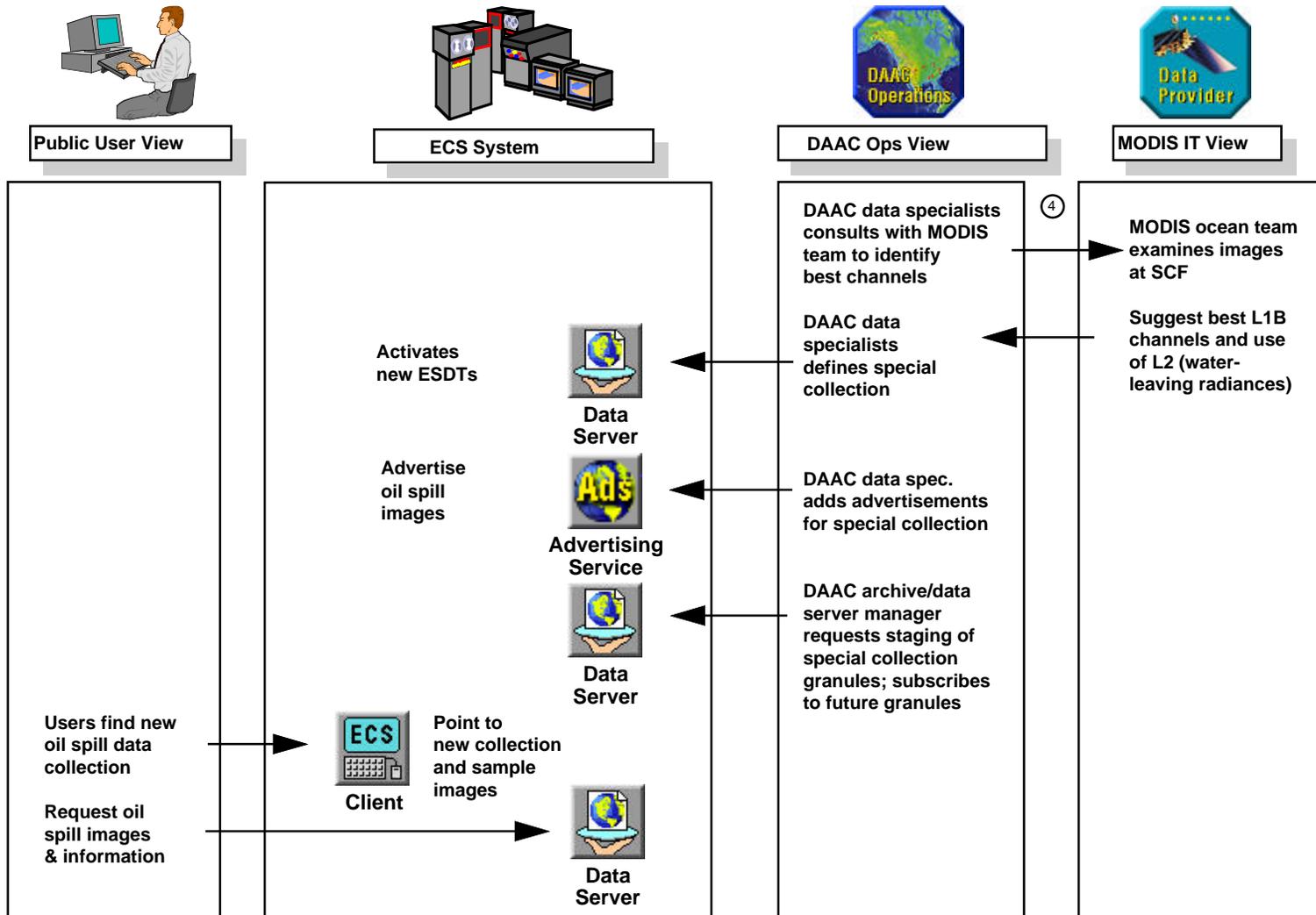
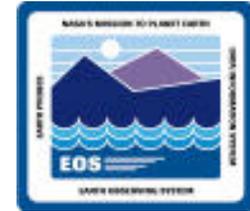
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Points of View - 1



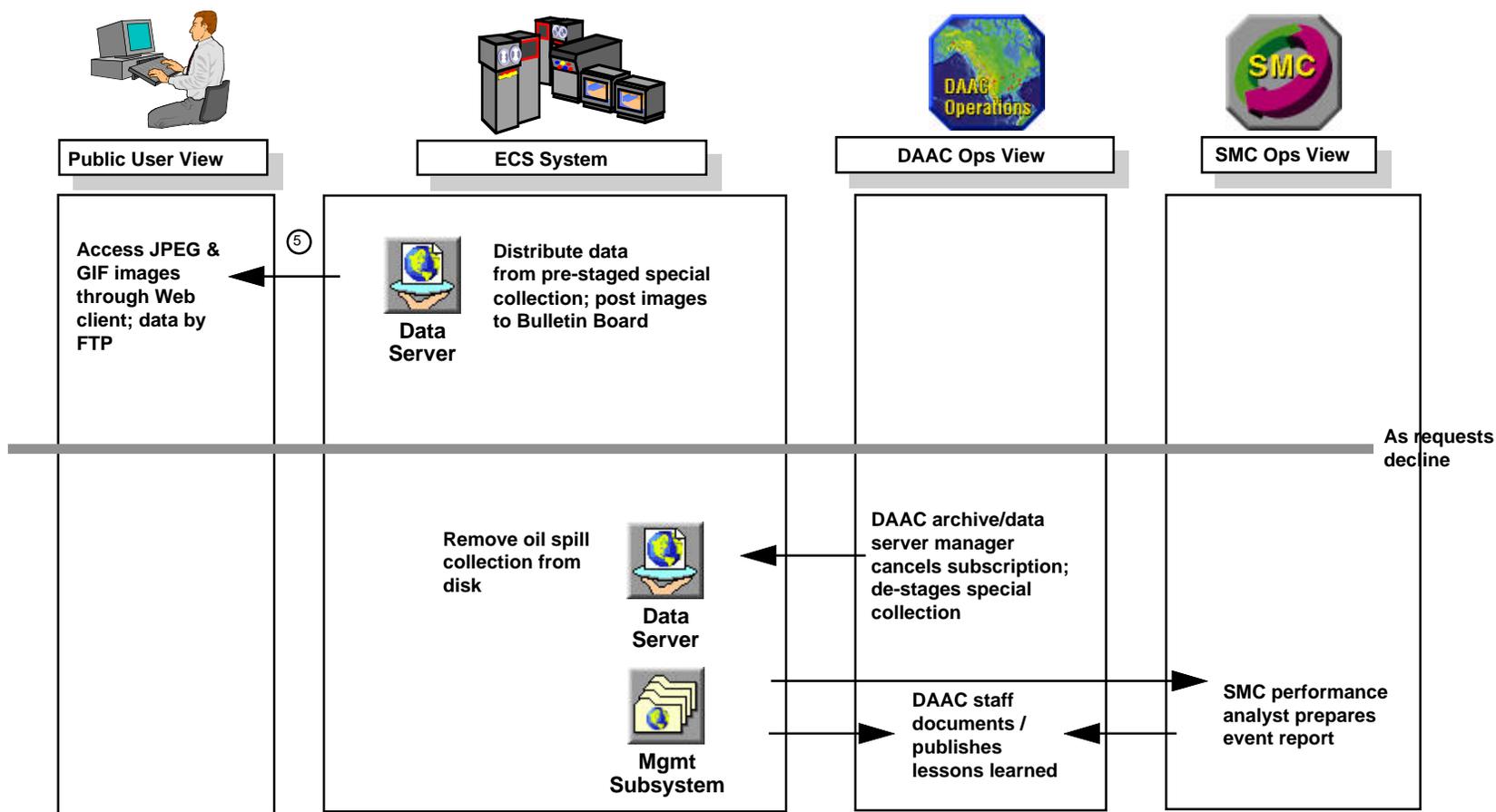
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Points of View - 2

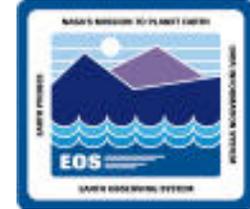


Spectacular Event

Points of View - 3



Summary



Design has built-in resiliency for surges in user demand

- **Separate DAAC LANs for push and pull traffic protects push activity**
- **DSS Sessions may be reserved for higher priority transactions**
 - **Users limited in total sessions available**
 - **Allocated separately for general users vs. EOS Investigators**
 - **Will refuse additional sessions when quotas are reached (fail-safe default)**
 - **Can suspend / resume sessions, if necessary**
- **DSS recognizes requests for same data for distribution**
- **Special collections can be defined, pre-computed, and pre-staged**
 - **Supported by extensible ESDTs and Advertisements**
 - **System-wide view from SMC assists in pre-staging special collections to optimize response / system resource utilization**