# NASA Information and Data System (NAIADS)
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Objective

- Develop prototype framework for Earth Science processing and data fusion with maximum information content
- Develop middleware with characteristics:
  - Optimized I/O and data workflow
  - Standard I/O and transit data format
  - Event Builder in offline software
  - Massive process scaling by data-Events (streaming) in Cloud environment
  - In-memory science applications
  - Operations with large and distributed data sets
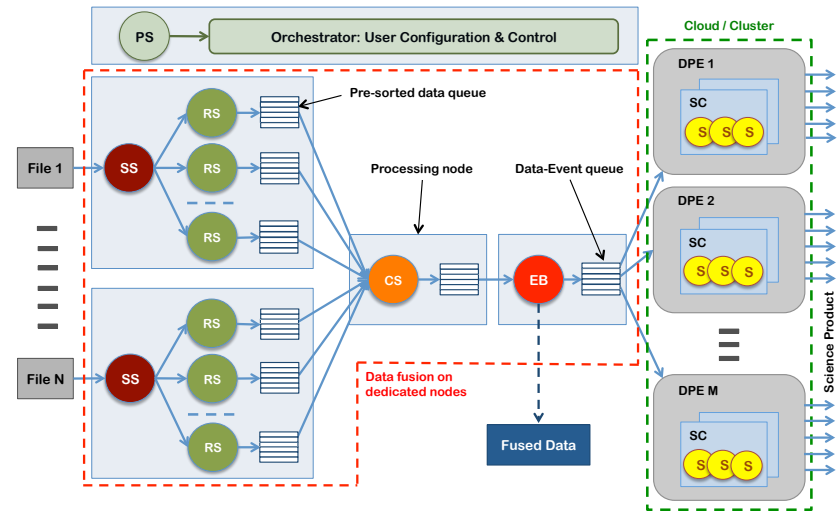
NAIADS: Architecture and Workflow

Accomplishments

- Implemented Zero-MQ-based data streaming and data processing framework software design in Python, Java, and C++
- Implemented data fusion science case code and workflow
- Created data read and streaming standards: NetCDF and HDF reading services, data streaming in NetCDF (support Python, Java, C++)
- Created data analytics service including four statistical data objects/types (1 and 2 dimensional histograms and profiles);
- Implemented a real-time system monitoring web service created with Web Dashboard (based on Grafana and Influx DB);
- Tested the software integration in the AWS Cloud environment;
- Performance assessment and benchmarking for all functions of the NAIADS framework completed.

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$TRL_{in} = 3$ $TRL_{out} = 6$