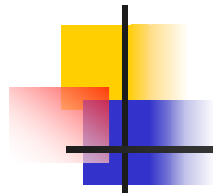




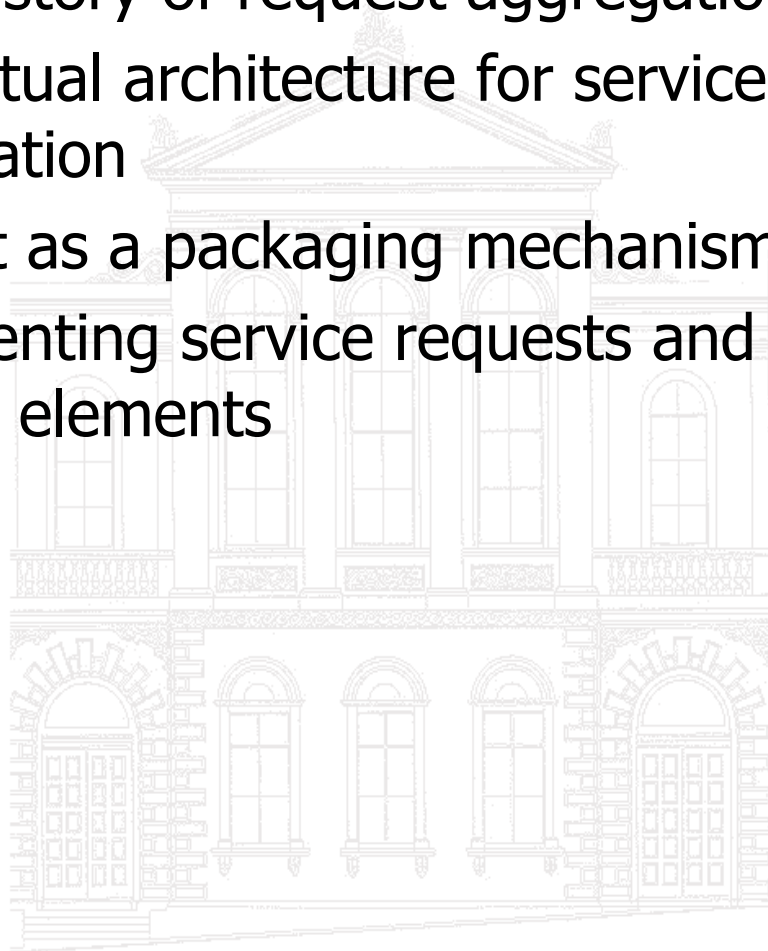
DAIS Request Aggregation

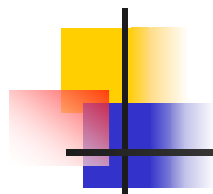
Greg Riccardi, Florida State University
riccardi@cs.fsu.edu



Overview

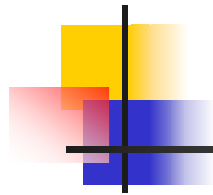
- DAIS history of request aggregation
- Conceptual architecture for service request aggregation
- Dataset as a packaging mechanism
- Representing service requests and responses as dataset elements





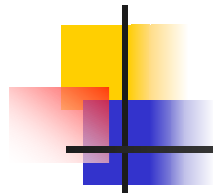
DAIS Request Aggregation, a Brief History

- From the beginning, DAIS adopted a multi-request document interface
 - Original version contained a complex internal naming scheme
 - Parameter definition and substitution
 - A request could reference results of other requests
 - OGSA-DAI had many problems caused by the complex interface
- After GGF 8 (summer 2003), a new strategy was defined
 - Simplified request document by removing interactions
 - Introduced dataset syntax based on Microsoft .Net DataSet class
- August 2003, OGSA Data Services document released
 - Defined data access in terms of method calls
 - No document interface supported
 - [OGSA Agreement document was based on document interface]
- August DAIS F2F at IBM Hursley
 - Removed request aggregation from DAIS spec



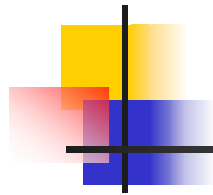
Conceptual Architecture

- Aggregation allows a collection of service requests to be sent to a service as a single unit.
- Request aggregation is based on a document model of service interaction
 - Aggregation service has
 - A single method (perform)
 - A single parameter
 - A single response value
 - Each method has a request schema
- An aggregation of requests is a document
 - Contains a list of requests, each a method call
- The result returned is a document
 - Contains a list of responses, one per request



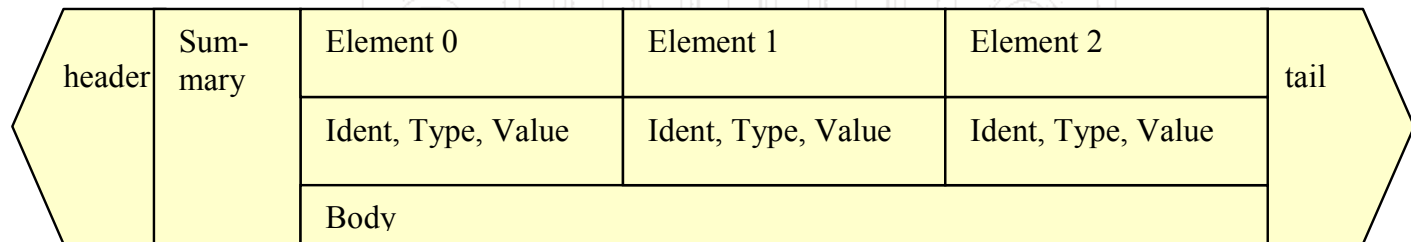
Processing a collection of requests

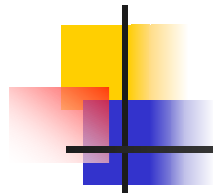
- Simplest semantics
 - The requests are executed as a sequence
 - First error ends processing. I.e. errors are fatal.
 - All results produced before the error are returned
- Alternative semantics
 - Requests processed in sequence without fatal error handling
 - All successful requests return results
 - Requests processed in parallel
 - All successful requests return results
 - Requests executed in sequence as a transaction
 - An error results in rollback of updates



Dataset as a packaging mechanism

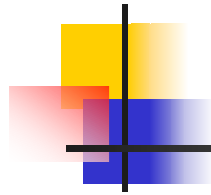
- The dataset mechanism allows various items of data to be collected and handled as a unit.
 - Each item has an identifier, a type, and a value
 - May be stored and moved
 - No predefined limitations on types of values



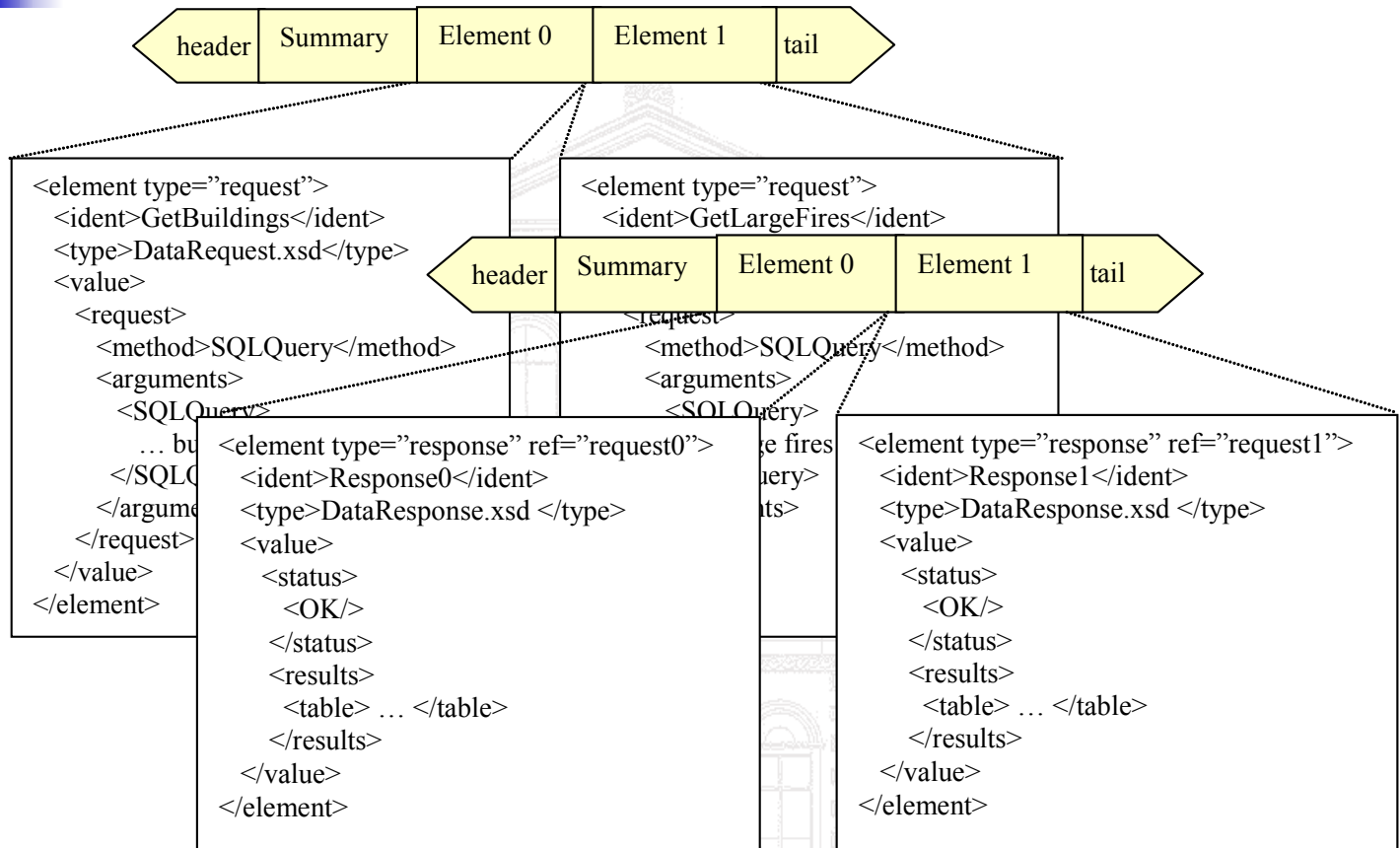


Representing Service Requests and Responses as Dataset Elements

- An aggregation of requests is represented as a dataset
 - A dataset that has one or more request items
 - Items whose type is request
 - Value of a request item is a request document that represents a single method call
- The response to an aggregation of requests is represented as a dataset
 - A dataset that has one or more response items
 - Value of a response item is the response document produced by the corresponding method call



Example of request and response datasets





Moving Toward Specification

- Define schema for document interface for DAIS
 - Can we use SOAP?
- Define schema for dataset
- Implement for OGSA-DAI

