



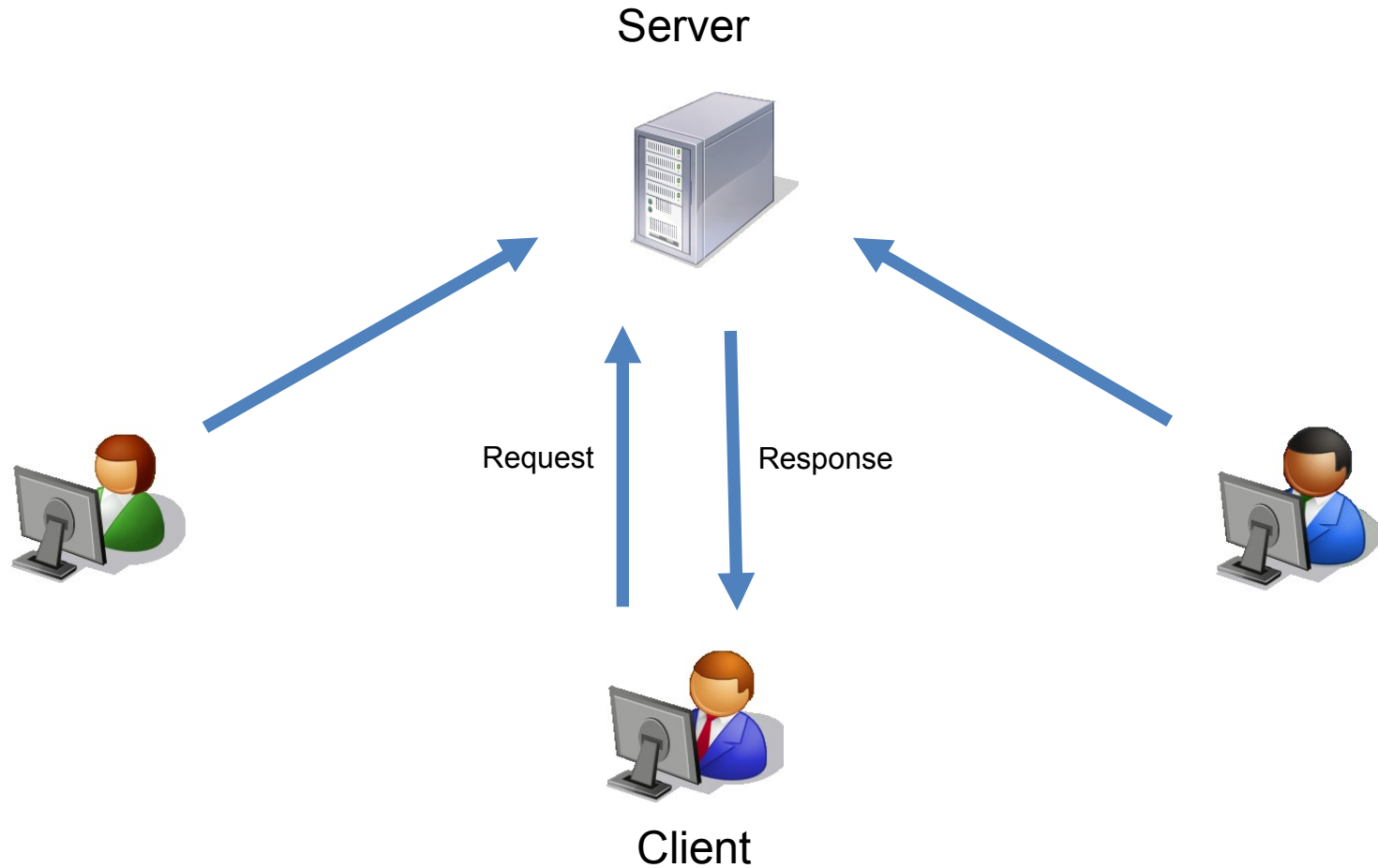
Messaging in EMI

Laurence Field (CERN)
Infrastructure Area Leader

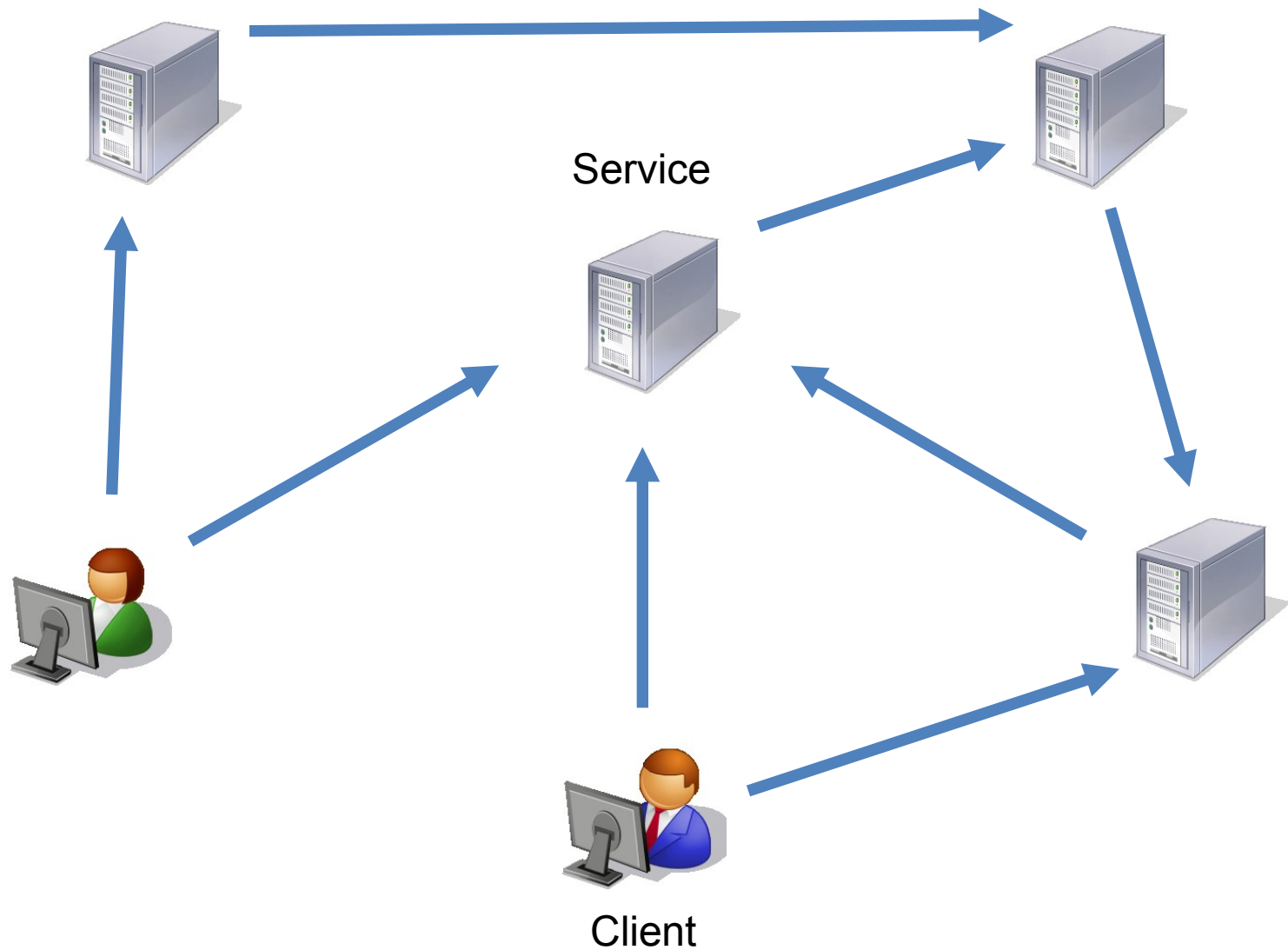
Overview

- What is the problem?
- Why Messaging?
- Messaging in EMI
- Official EMI objectives

In The Beginning



Grid Computing



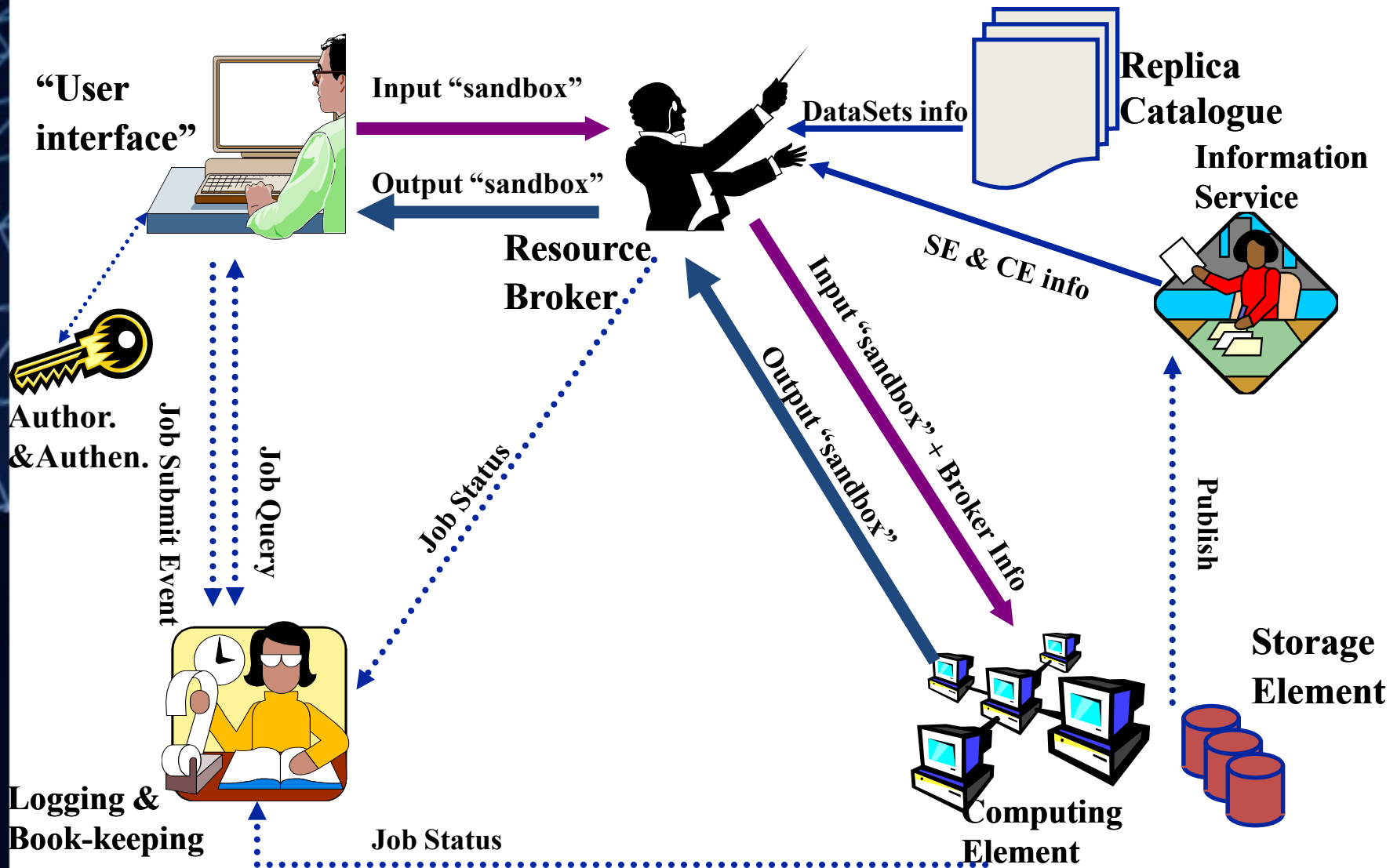
Grid Computing



Grid Computing



The Famous EDG Slide



The Problems

- No common mechanism for exchanging information
 - Between services
 - Between the middleware and higher level consumers
 - e.g. accounting and monitoring tools
- Some agreement on encoding information
 - GLUE
 - Usage Record
- No common transport service
 - Independent of the information content
- Existing custom solutions require
 - Simplification
 - One solution rather than many
 - Improved Reliability
 - Make that one solution robust
 - Leverage experience from others
 - off-the-shelf components
 - Reduced maintained effort
 - Support one solution rather than many

Email for Grid Services

- Transport service to provide (Messaging)
 - standardized access to information
 - common ways of managing
 - Policies
 - Configurations
 - Service requests
- EMI will add such a service to its middleware
 - starting from existing off-the-shelf components
 - Apache ActiveMQ or the MRG messaging service
 - extending them where necessary
 - e.g. support of Grid security mechanisms

Messaging Today

- Common component in distributed systems
- Used for high-level cross-grid applications
 - Adopted by the EGEE infrastructure for operational tools
 - service monitoring, accounting, ticketing and dashboards
 - Used by NDGF for dCache communications
 - Apache ActiveMQ used for most of this work

What Will EMI Do?

- Messaging
 - Evaluation
 - Off-the-shelf components
 - Beginning of the project
 - Enhancements
 - Grid security integration
 - Good practices will be defined
 - For developers of messaging applications
 - Integrate messaging
 - As a low-level component in EMI
 - Support Users of EMI messaging
 - Within EMI itself and external customers

What Will EMI Do?

- Information Services
 - Monitoring and information providers
 - Should make use of the messaging infrastructure
- Accounting
 - Adapt the sensors to use the messaging infrastructure
 - Data format based on the UR specification,
 - extended to provide accounting for data management
- L&B service
 - Extended to cover non-WMS computational jobs
 - Via integration with the messaging infrastructure

What Will EMI Do?

- Service Monitoring and Management
 - Investigate, design and develop
 - A uniform method of monitoring and managing Grid services
 - Including methods for securely accessing services and their log files
 - A remote monitoring and operation interface
 - Operations that are initiated by VO users
- File Catalogue Synchronization
 - status change messages
 - between SEs and catalogues
 - SE publishes the list of files it has lost
 - Catalogue publishes file ACLs that are changed

Official EMI Objectives

- M9: Define the Information Flow architecture describing messaging and non-messaging based information exchange between EMI components
- M10: Provide internal guidelines for integrating messaging with EMI components
- M12: Investigate possible use cases for a common standard messaging system
 - in the accounting area
 - for the service monitoring and management.
 - for the information services
 - for the L&B server
 - in the computing area
 - in the data area
- M24: Provide guidelines for 3rd parties to integrate messaging
- M24: Implement or adapt the accounting record publishers of compute and data area services to use the messaging infrastructure
- M24: Adapt or implement monitoring interfaces, sensors, providers for compute, data, security and infrastructure services to use the messaging infrastructure
- M24: Investigate service management interfaces for compute, data, security and infrastructure services, utilizing the messaging system

Conclusions

- Messaging is a core part of EMI
 - And a core part of the architecture
- Affects many areas
 - Compute Area
 - Data Area
 - Accounting
 - Information Systems
 - Service Monitoring and Management
- A number of official EMI objectives
 - Many investigations in the first year



Thank you

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