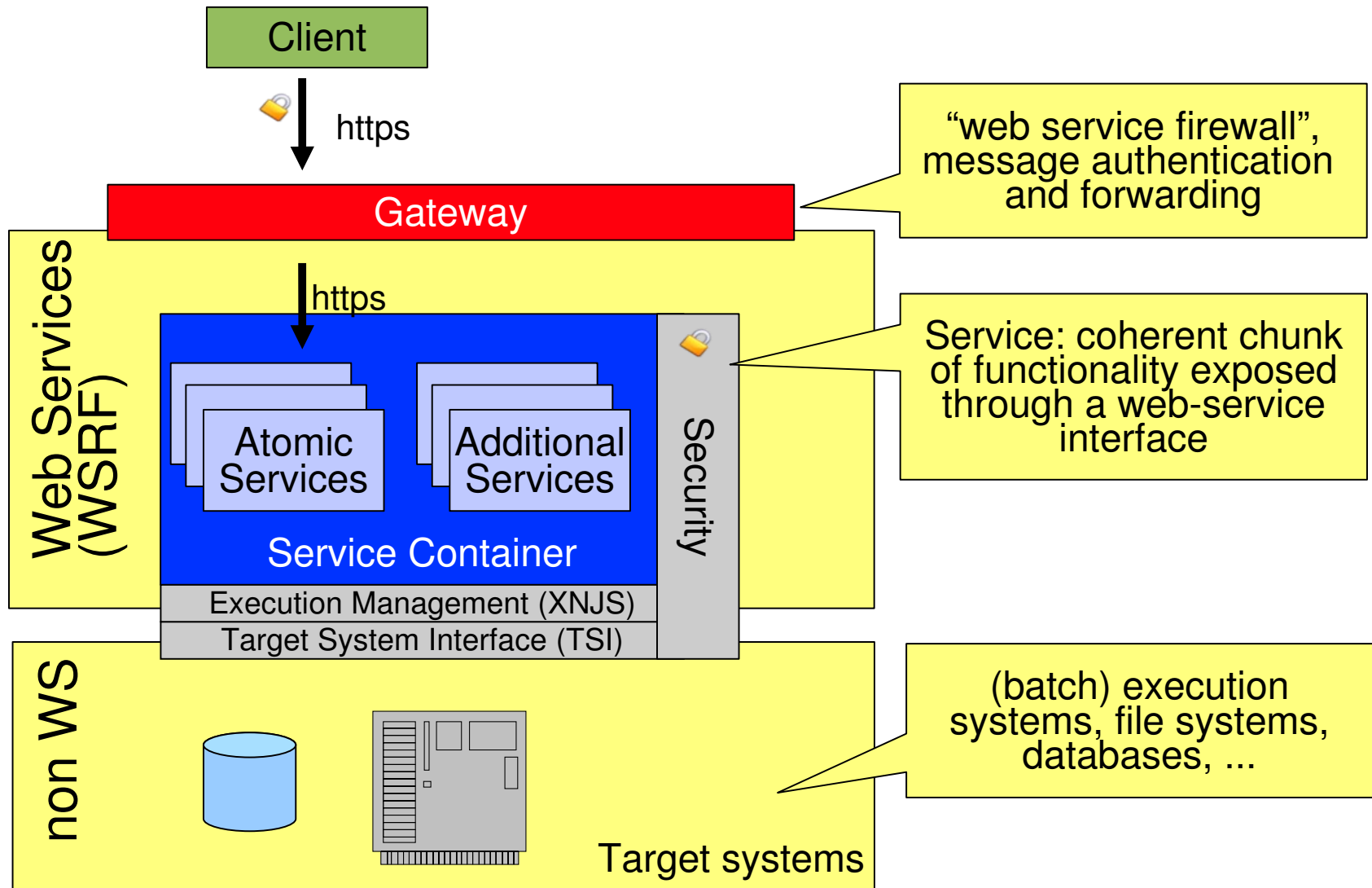
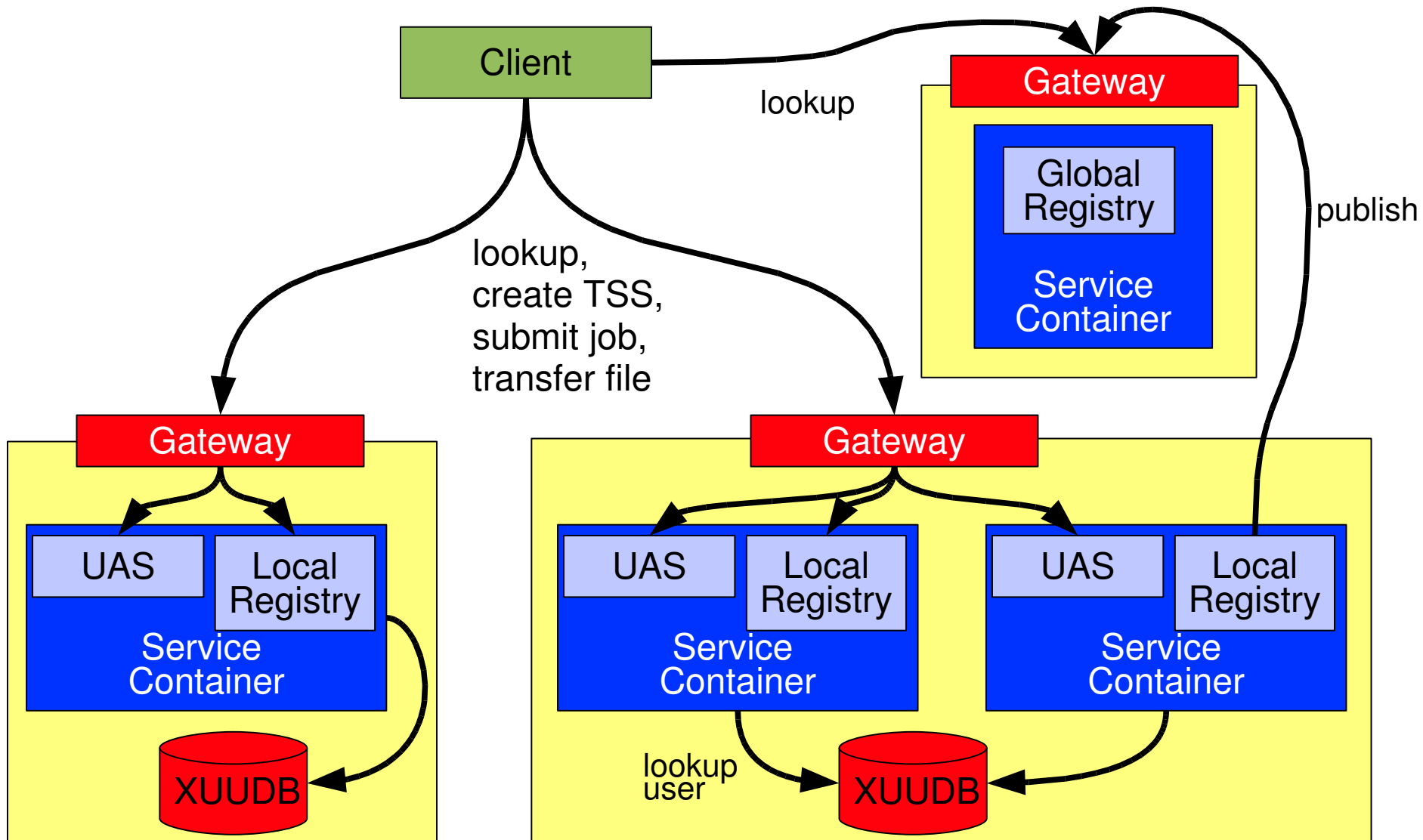


UNICORE Server Components - Detailed View

Job Submission: Software Layers



Example Deployment Scenario



WSRF

- ▶ Web Services Resource Framework
- ▶ WS Resource
 - ▶ Stateful web service
 - ▶ Represented by an XML document
 - ▶ Resource properties
 - ▶ Standard methods: getter, setter, queries
 - ▶ Lifetime
- ▶ Service Group
 - ▶ List of WS addresses
 - ▶ Used for Registry
- ▶ WS-BaseFaults

Configuration

▶ Service Container

- Web Services to be deployed
- Address of the shared Registry
- XUADB address, „Grid Component ID“
- Address of the Gateway

▶ Gateway

- connection list

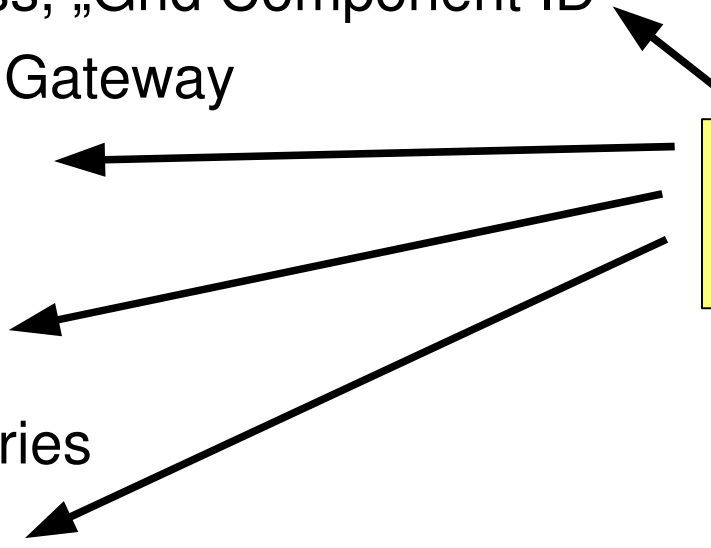
▶ Registry

- Lifetime for entries

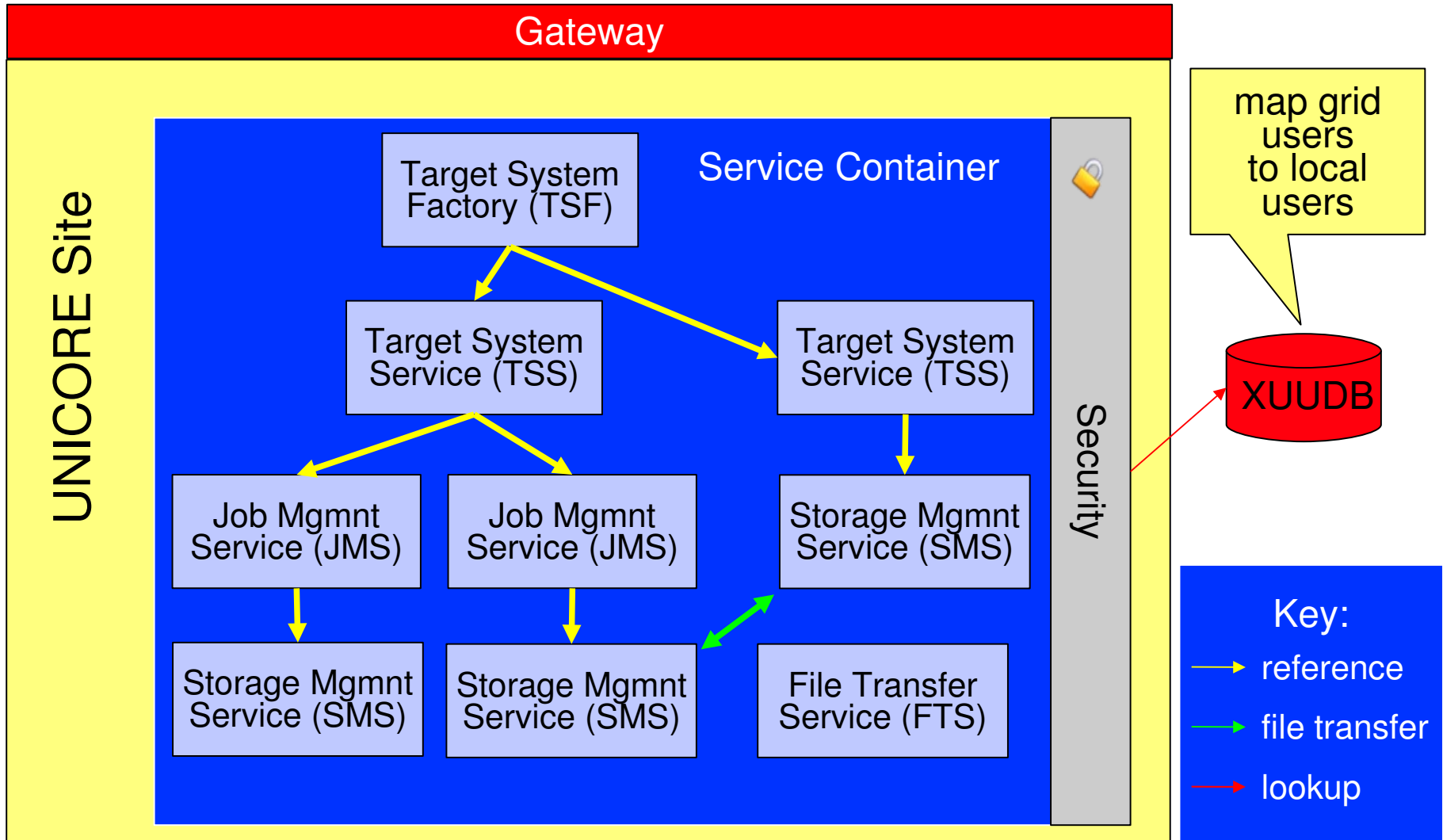
▶ Client

- Registry Address

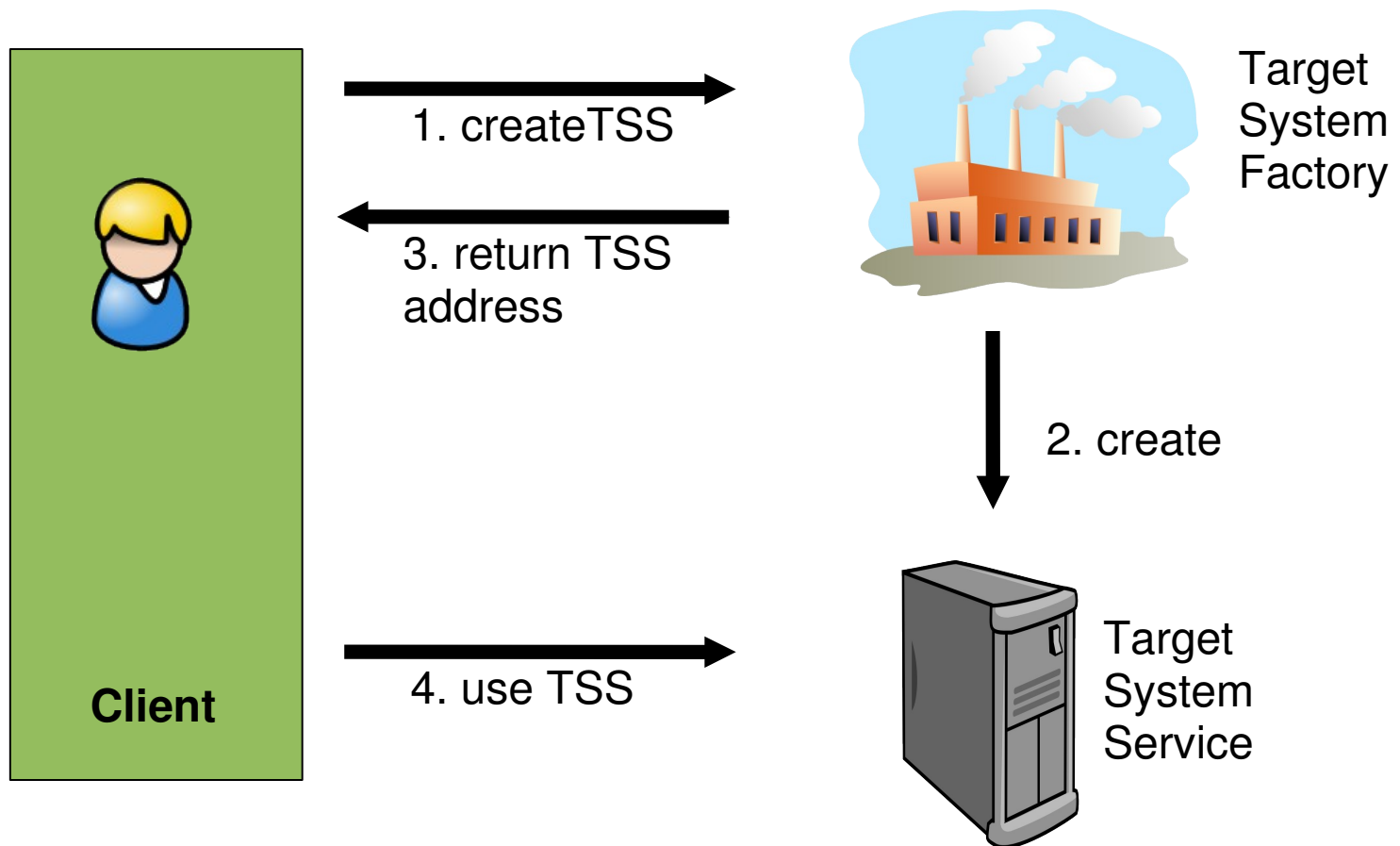
Everybody:
Security settings
(Keystore, certificate, ...)

A yellow rectangular box on the right side of the slide contains the text 'Everybody: Security settings (Keystore, certificate, ...)'. Three black arrows originate from the left side of this box and point towards the 'XUADB address, „Grid Component ID“' item under 'Service Container', the 'Gateway' section, and the 'Registry' section.

UNICORE Atomic Services (UAS)



UAS: Target System Factory Service



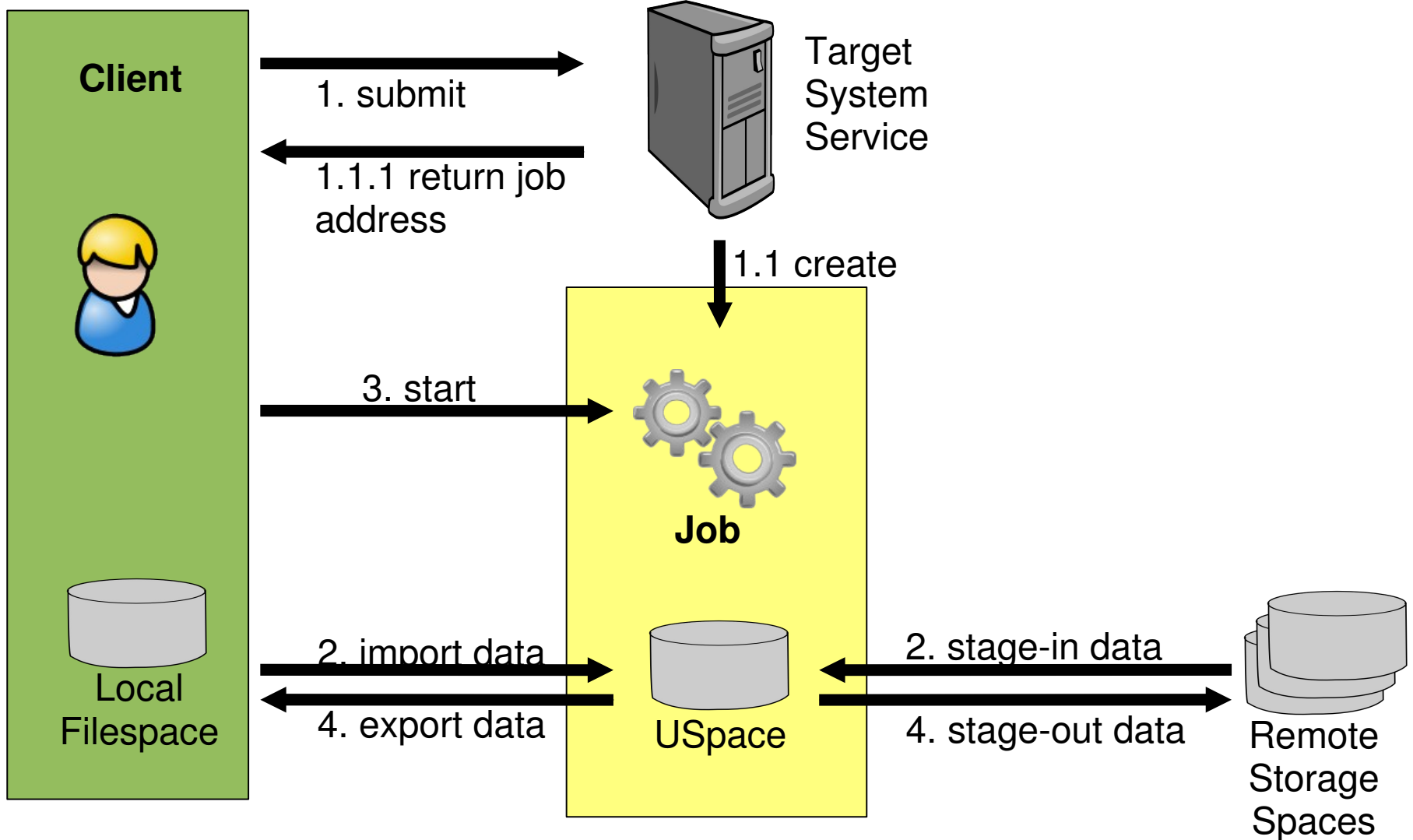
UAS: Target System Service

- ▶ Abstract web service interface to target system
 - ▶ List of applications
 - ▶ Links to jobs and storages (e.g. user home)
- ▶ Security
 - ▶ User authentication through XUADB, can be used for accounting & billing
 - ▶ Authorization: Users' target system instances and jobs protected by configurable XACML policy
 - ▶ Secure job submission through message signing
- ▶ Extensible: virtualisation

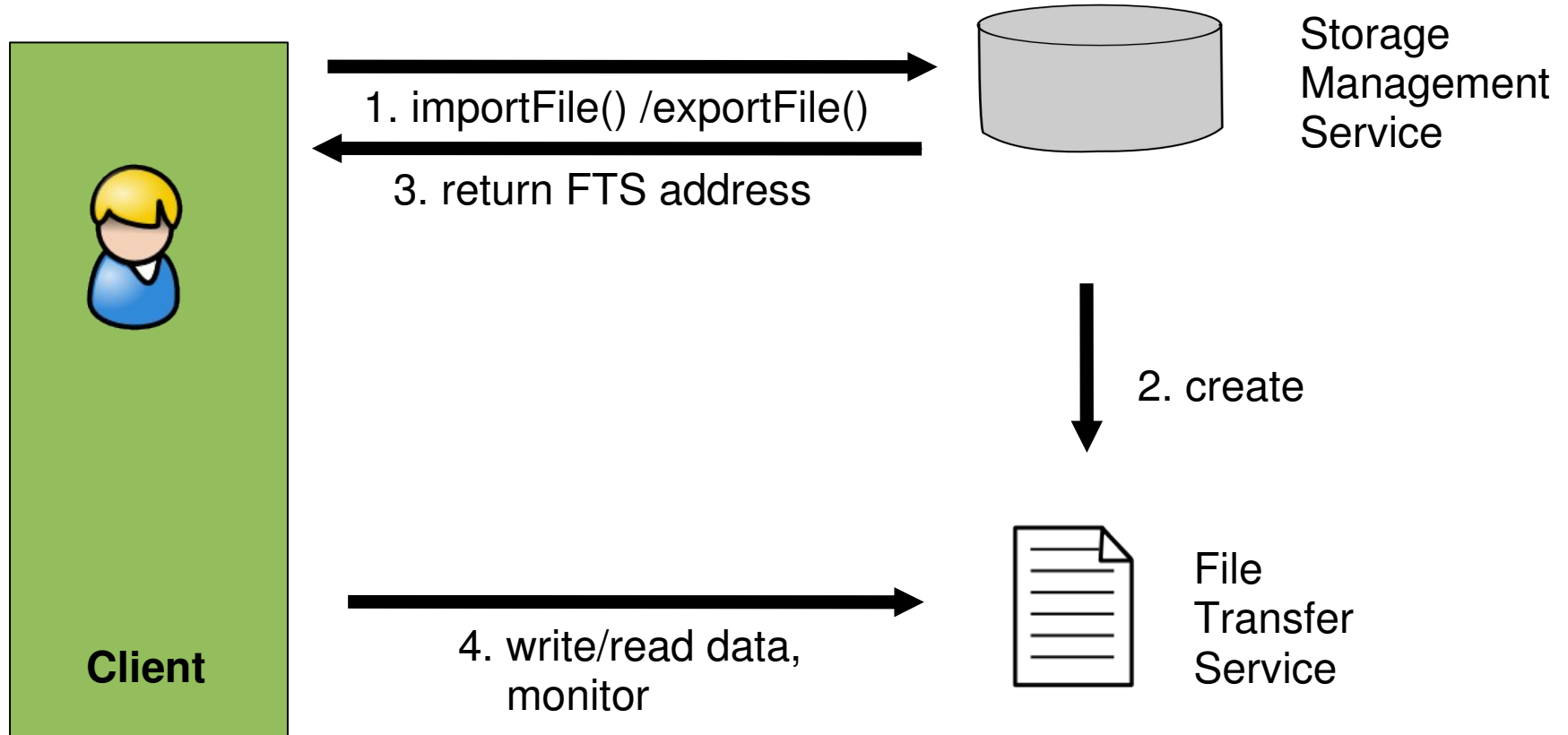
UAS: Job instances

- ▶ Web service interface to submitted jobs
 - ▶ Can be accessed from anywhere
- ▶ Job status (queued, running, finished, failed, ...)
- ▶ Detailed execution log
- ▶ Exit code of the application
- ▶ Applications are abstracted: no need to know path to installation
- ▶ Contain a copy of the job description (in JSDL)
 - ▶ Can be used for resubmission
- ▶ Have a lifetime (like all WS-Resources)
 - ▶ Can be used for automatic clean-up (e.g. filespace)

UAS: Jobs and Storages



UAS: Storages and File Transfers

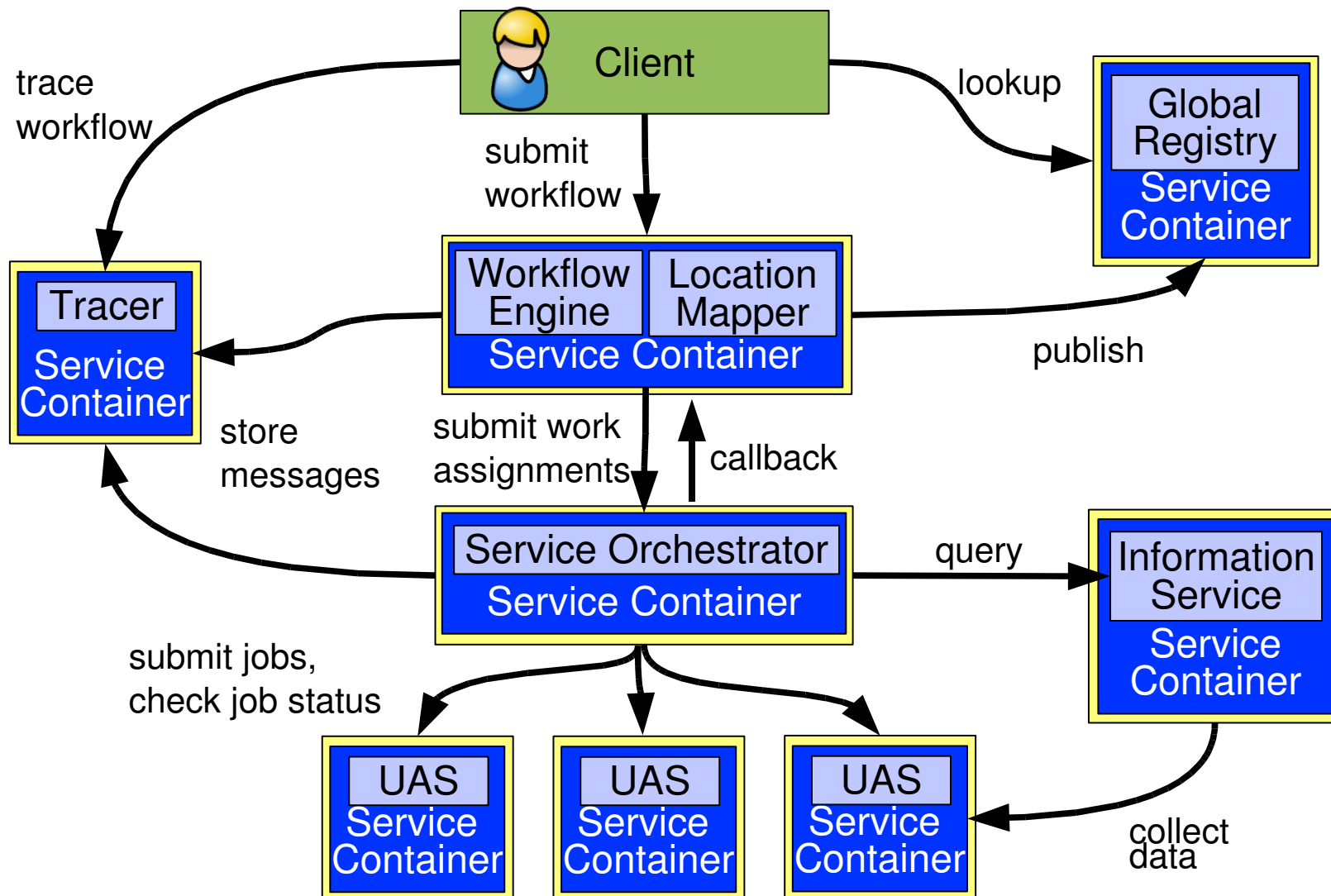


UAS: File Transfer Protocols

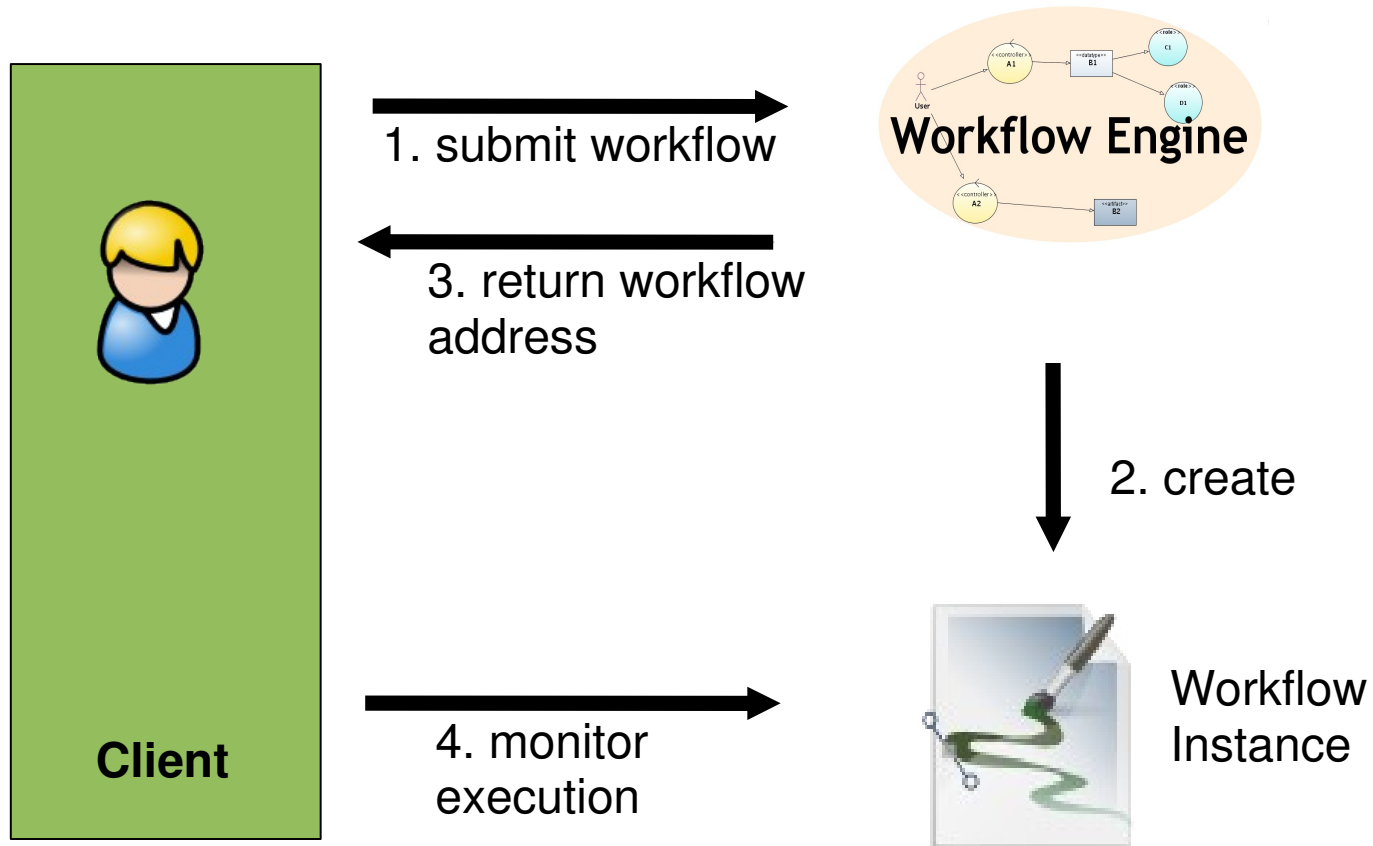
- ▶ Pluggable mechanisms
 - ▶ Both for client-server and server-server transfers
- ▶ Default mechanism: Simple OGSA ByteIO
 - ▶ Sends data as SOAP messages through the **full** stack
 - ▶ Performance of ~400kB/sec
- ▶ Room for improvements
 - ▶ Use other protocols (HTTP, TCP/IP, UDT, ...)
 - ▶ e.g. UGSF Streaming framework:
16-30Megs/sec on a single TCP connection

http://www.unicore.eu/summit/2007/presentations/09_Benedyczak_UGSF-DFC-streaming.pdf

Deployment Scenario: Workflow Services

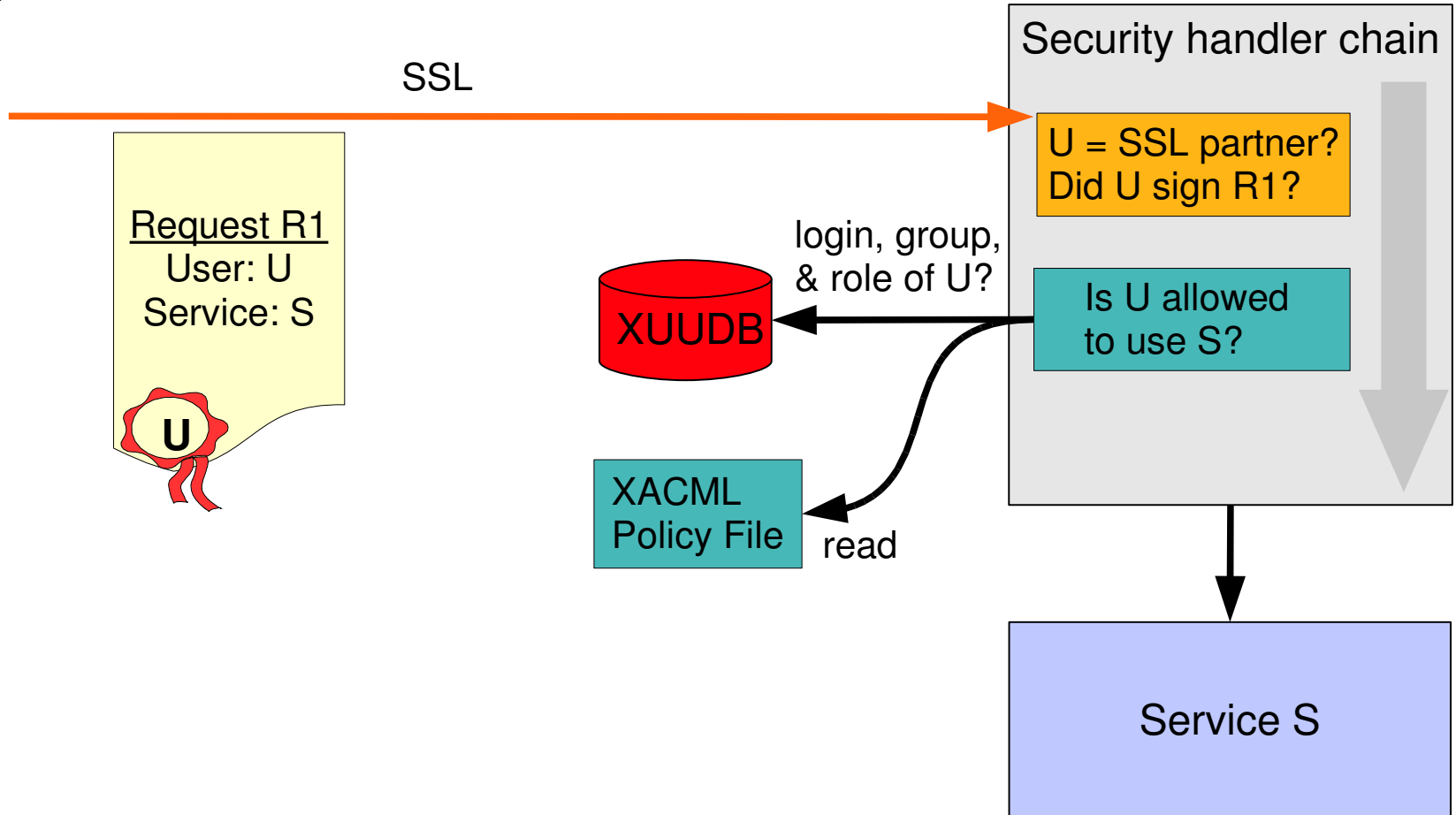


UAS: Target System Factory Service

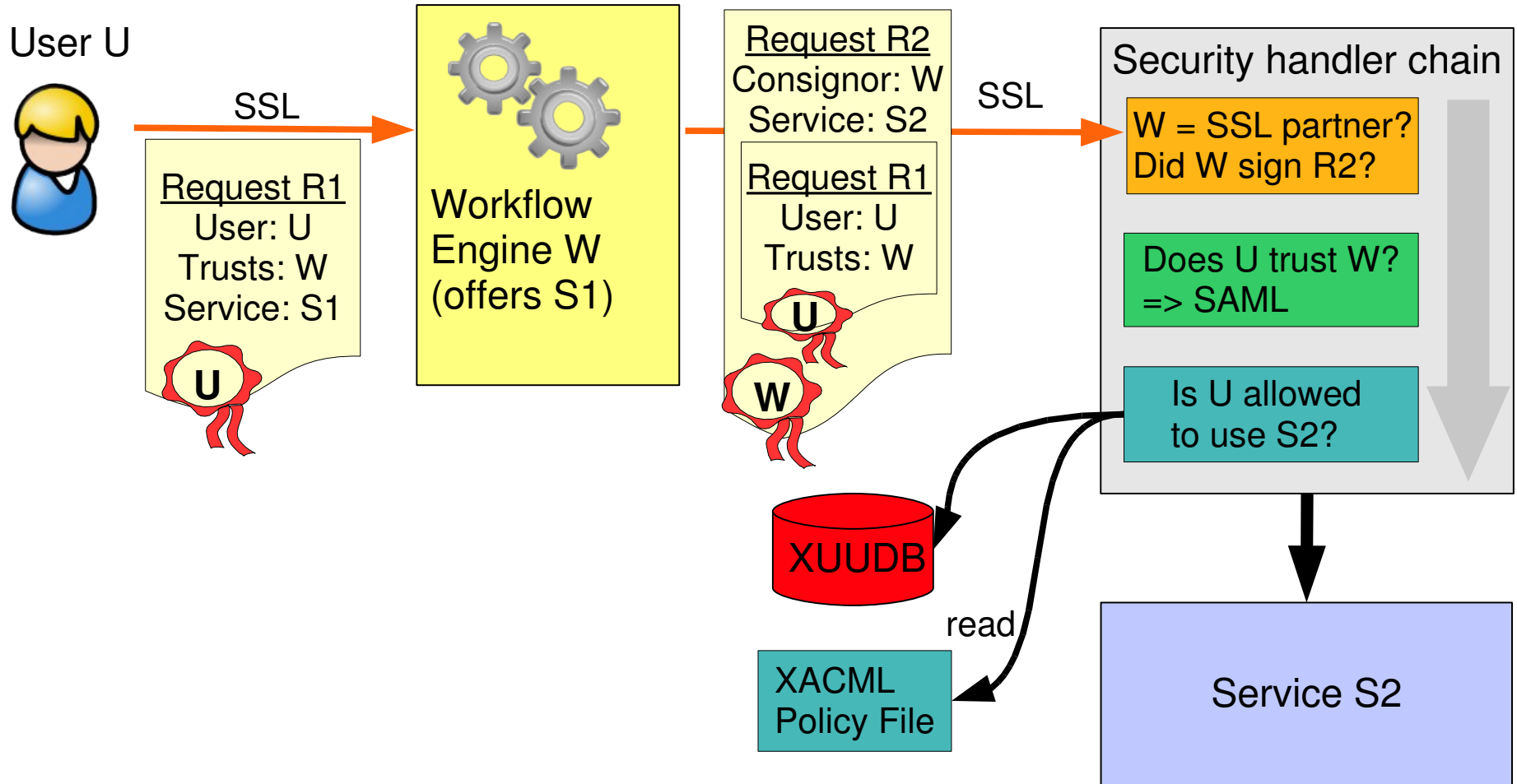


Configurable Security Handlers

User U



Trust Delegation



Ongoing Development (incomplete list!)

- ▶ Improved Grid Monitoring
 - ▶ JSC: Information service (GLUE 2.0)
 - ▶ D-Mon
- ▶ SAML-based VO management
 - ▶ OMII-Europe, Chemomentum
- ▶ Meta-scheduling, advanced reservation
 - ▶ Phosphorus, Chemomentum
- ▶ Hot deployment of services
 - ▶ JSC: Master thesis
 - ▶ BIS-Grid: hot deployment of BPEL Workflows as services
- ▶ Accounting & Billing
 - ▶ OMII-Europe (OGSA-RUS)