open microscopy environment

OMERO

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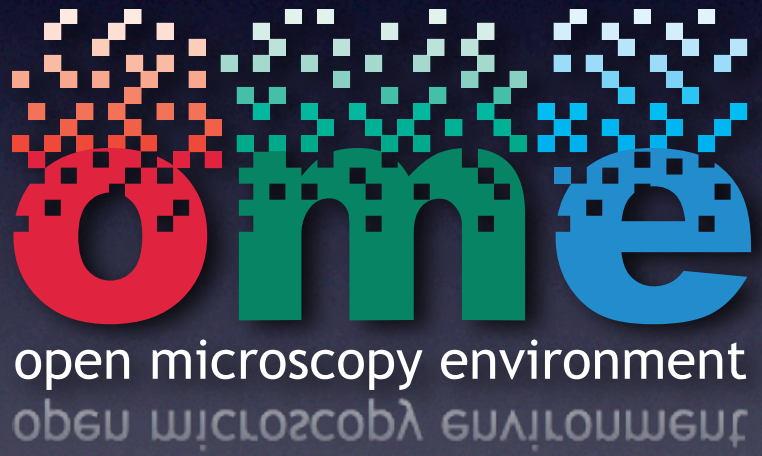
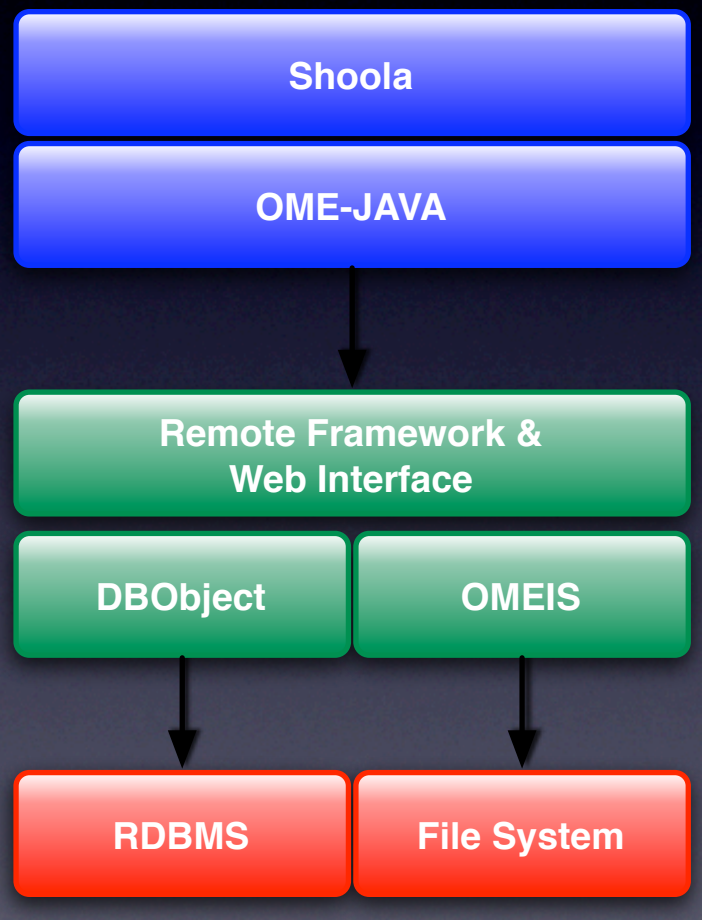
History

- March 2005 meeting
- “OME Lite”
- Josh Moore & Stefan Frank (DKFZ Heidelberg)



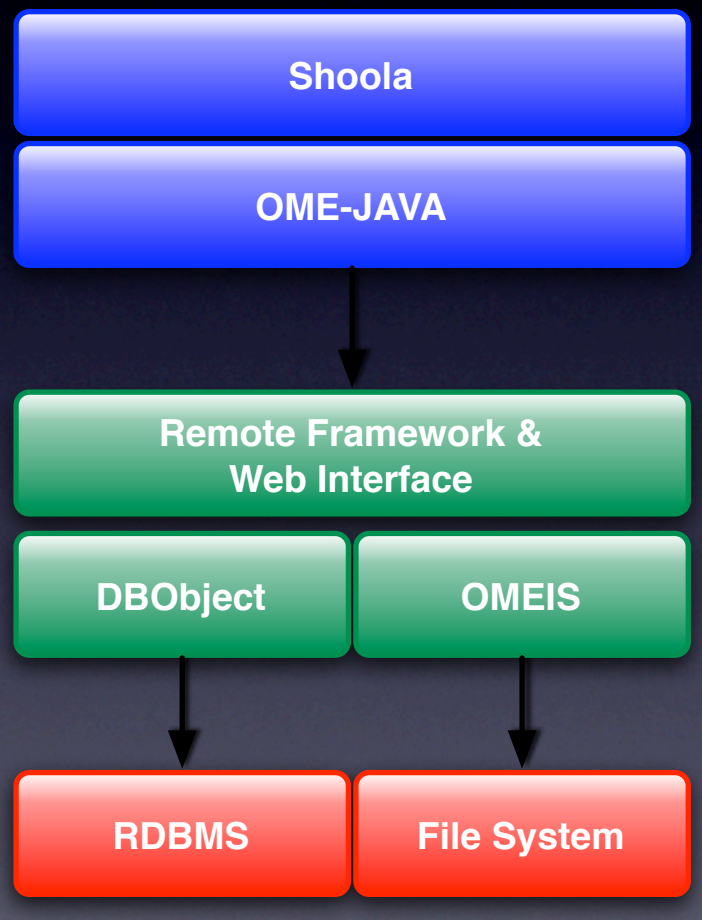
Why? — Code Reuse

- Remote object code generation
- Remote dispatch
- Object relational mapping
- HTTP header parsing

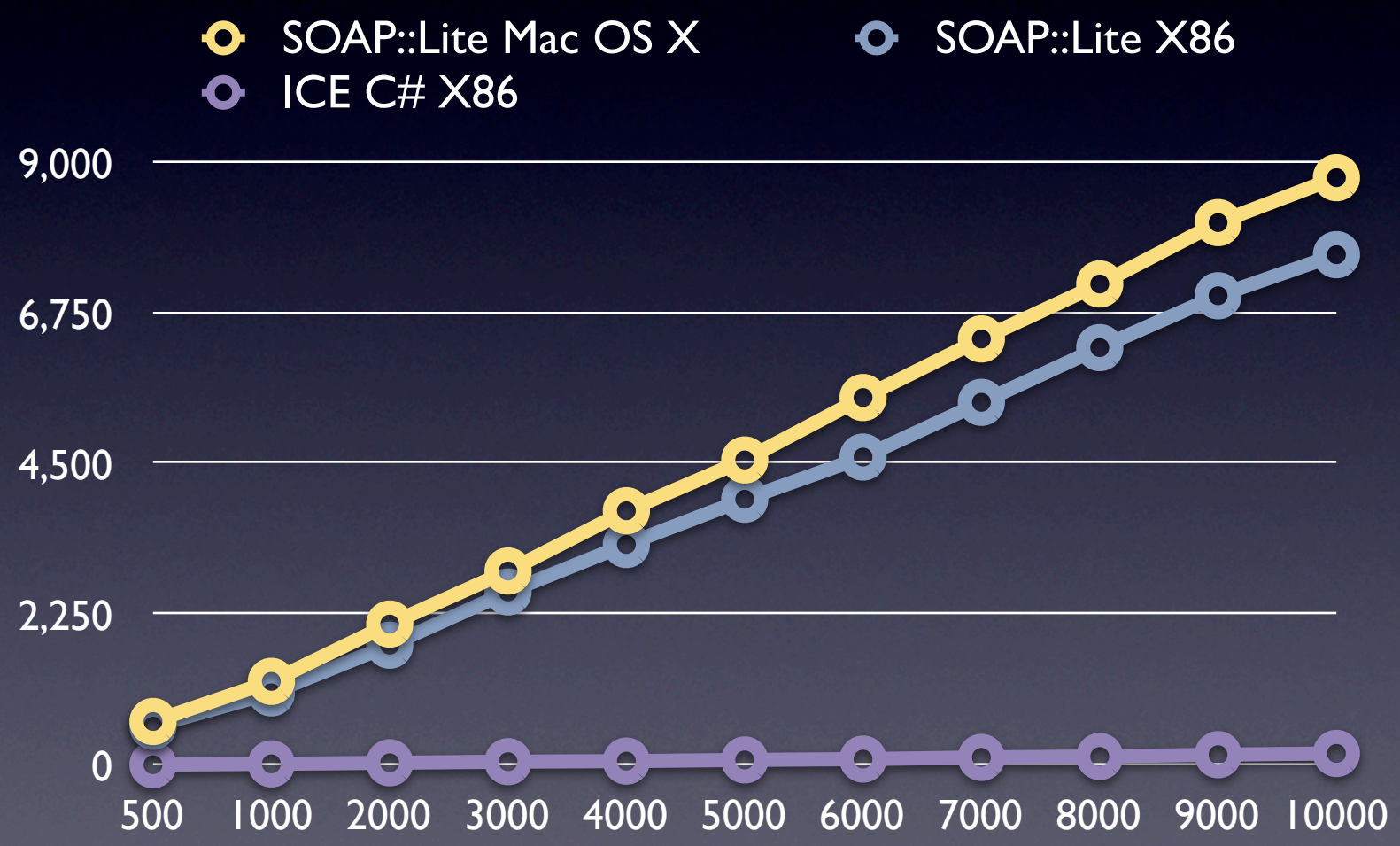


Why? — Scalability

- Memory usage
- Performance
- Easy tasks are made harder
- Lack of stateful services



Why? — Performance



Why? — Activation Energy

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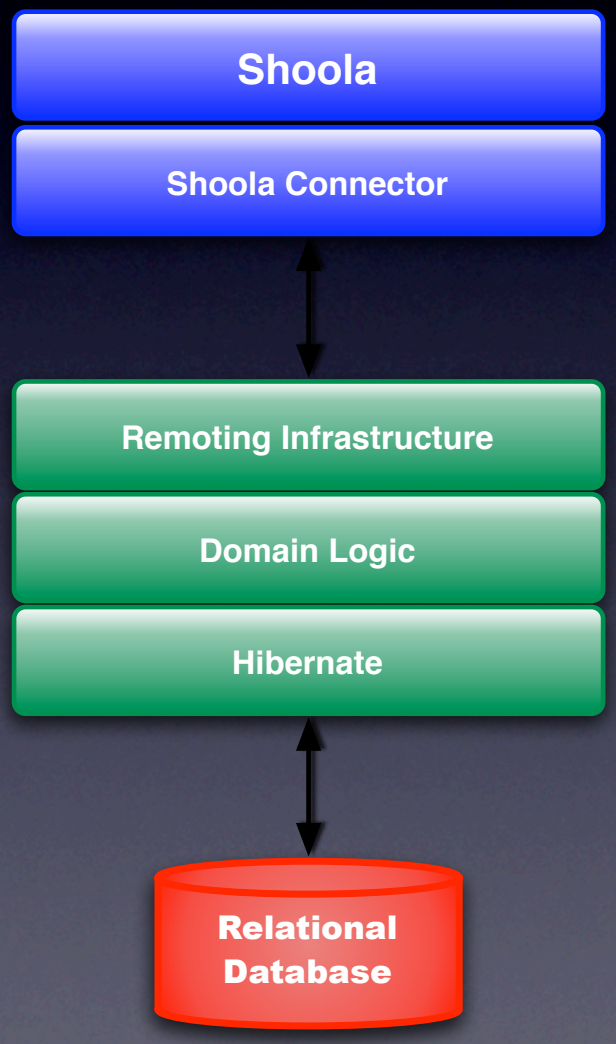
Deployment!

OMERO2

Providing the Technology

Architecture

- Hessian remoting
- Tomcat and Spring
- OME CVS data model
- Read-only architecture
- Data management types only

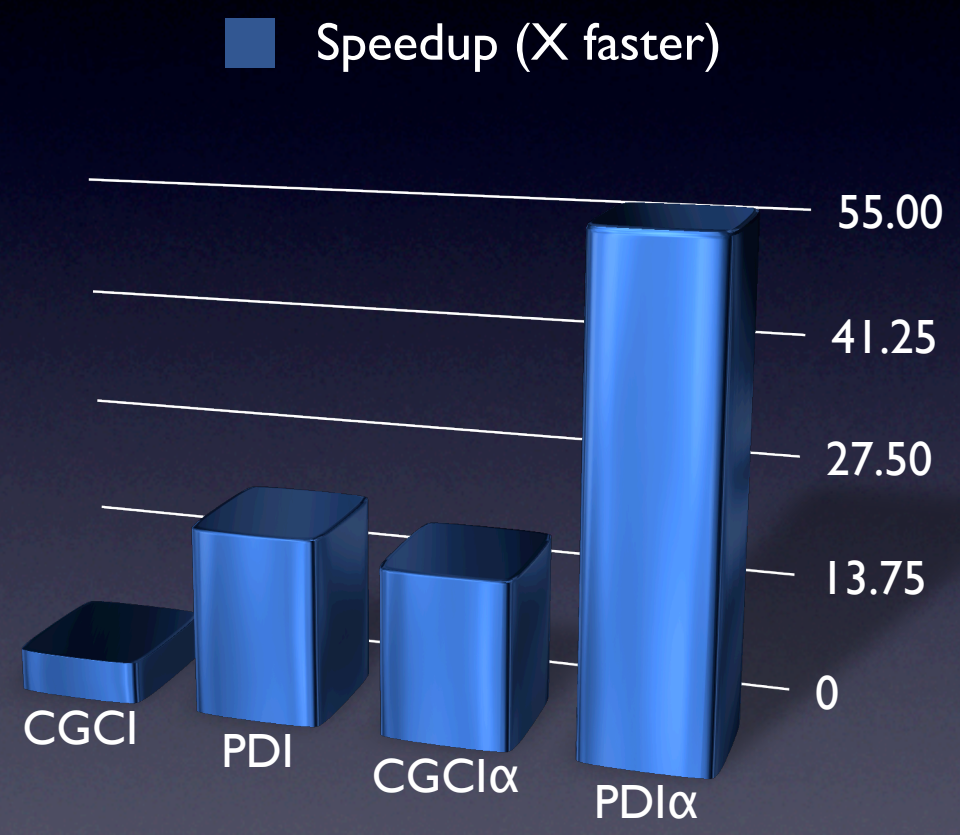


Initial Successes

- OME-JAVA elimination (read queries)
- Performance increases
- Successful data modeling using Hibernate
- Reducing the “activation energy”

Performance

- Basic queries
  ~ 4.5 - 20 times faster
- Complex queries
  ~ 20 - 100 times faster



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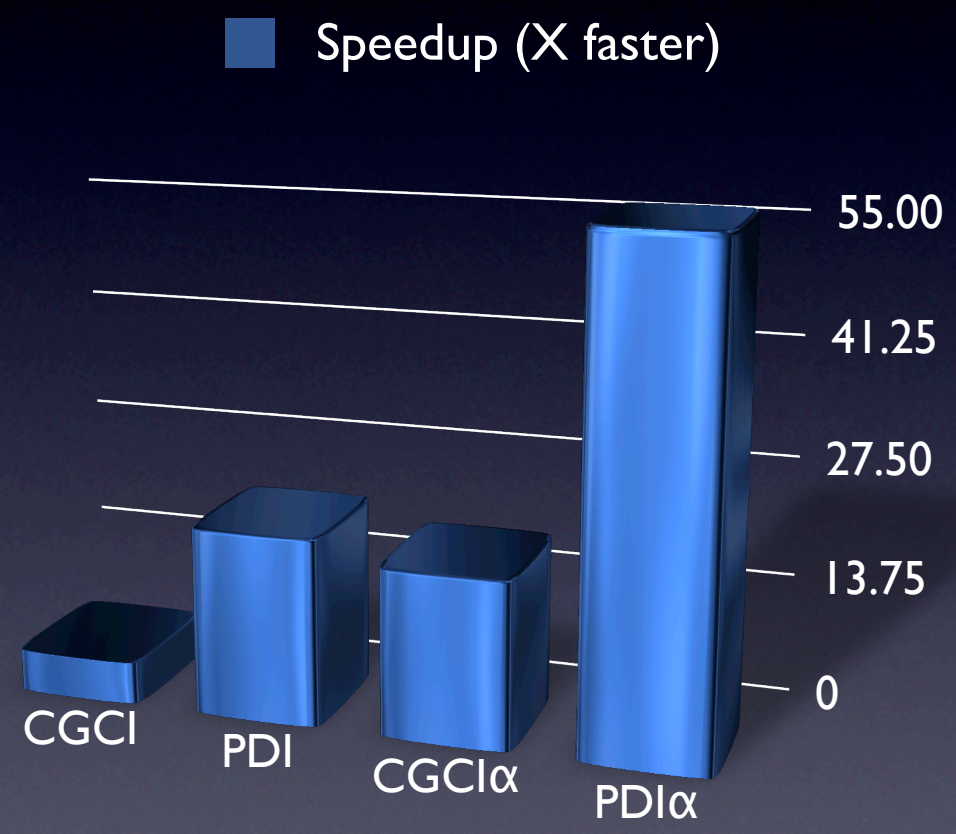


From minutes to seconds!

“Activation Energy”

Deployment Steps

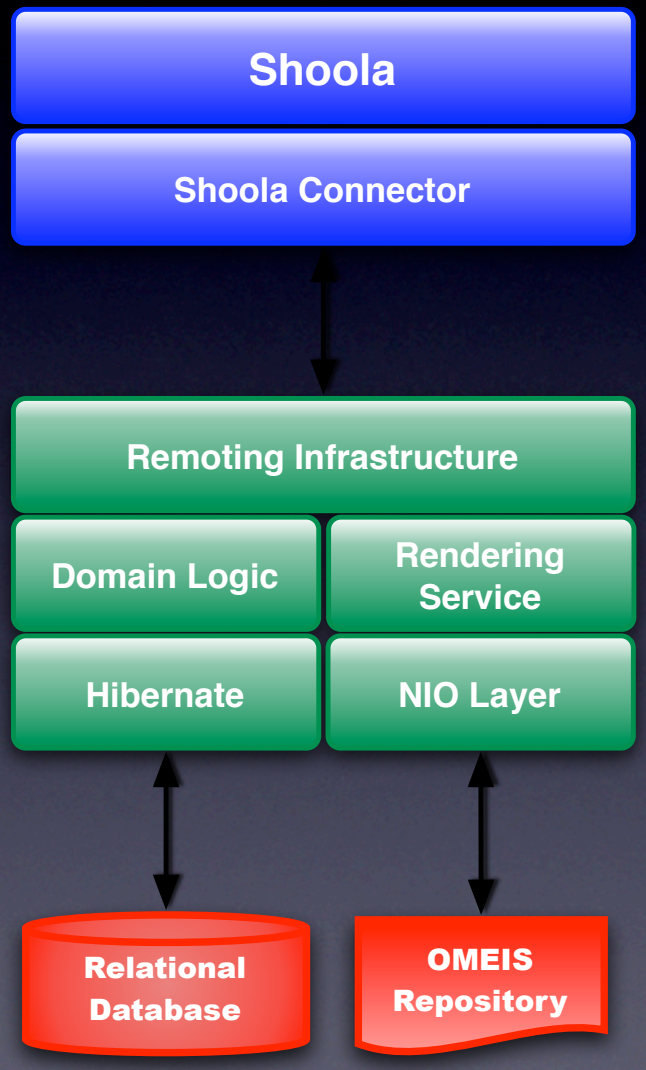
1. Download Tomcat bundle and extract
2. Download OMERO bundle and extract
3. Configure hibernate.properties
4. Deploy OMERO WAR in Tomcat
5. sh run.sh
6. Profit!

OMERO3

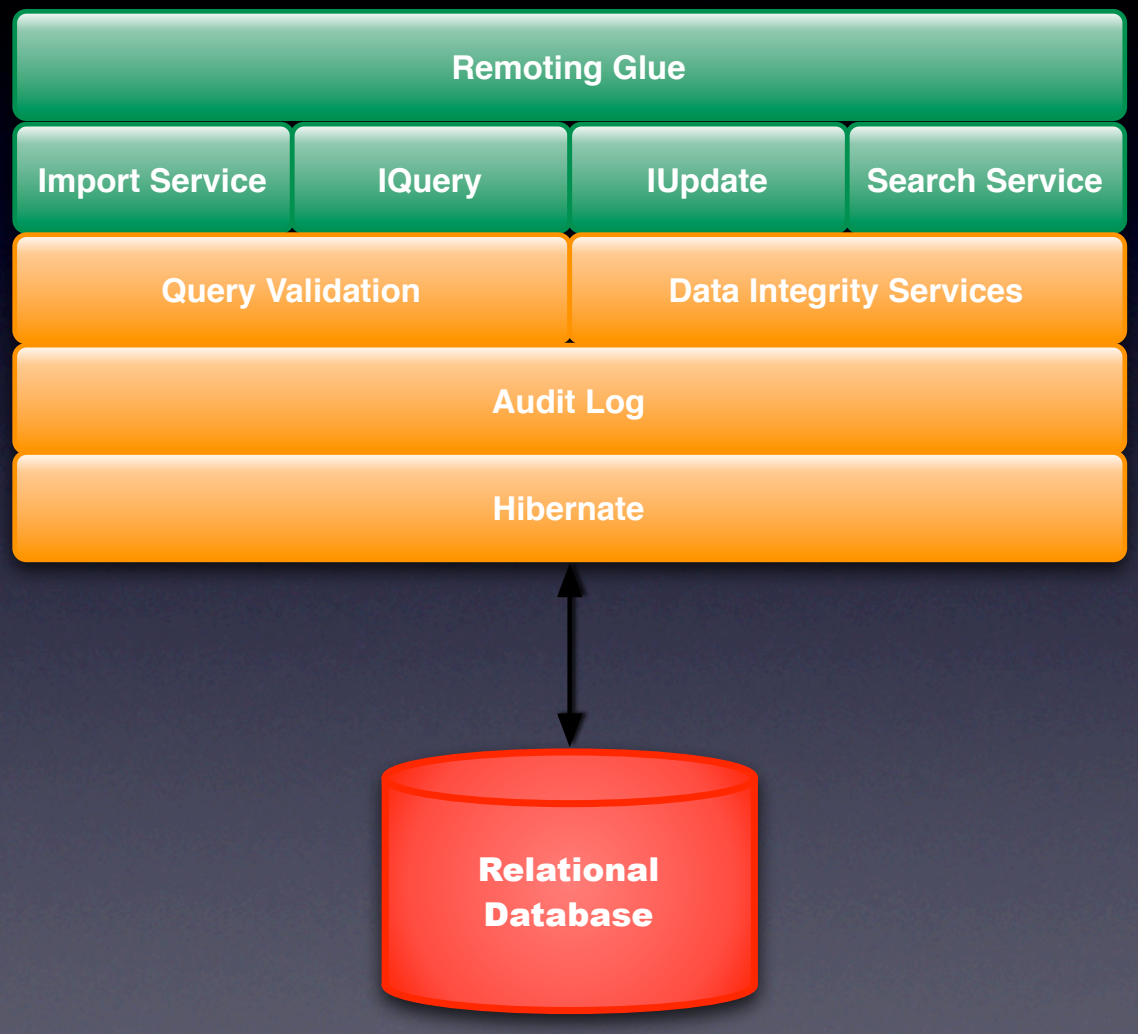
Towards Enlightenment

What's new?

- Application server
- Read-Write API
- Two-pronged data access
- Database independence
- Stateful services
  - Rendering
  - Import
- **Security**

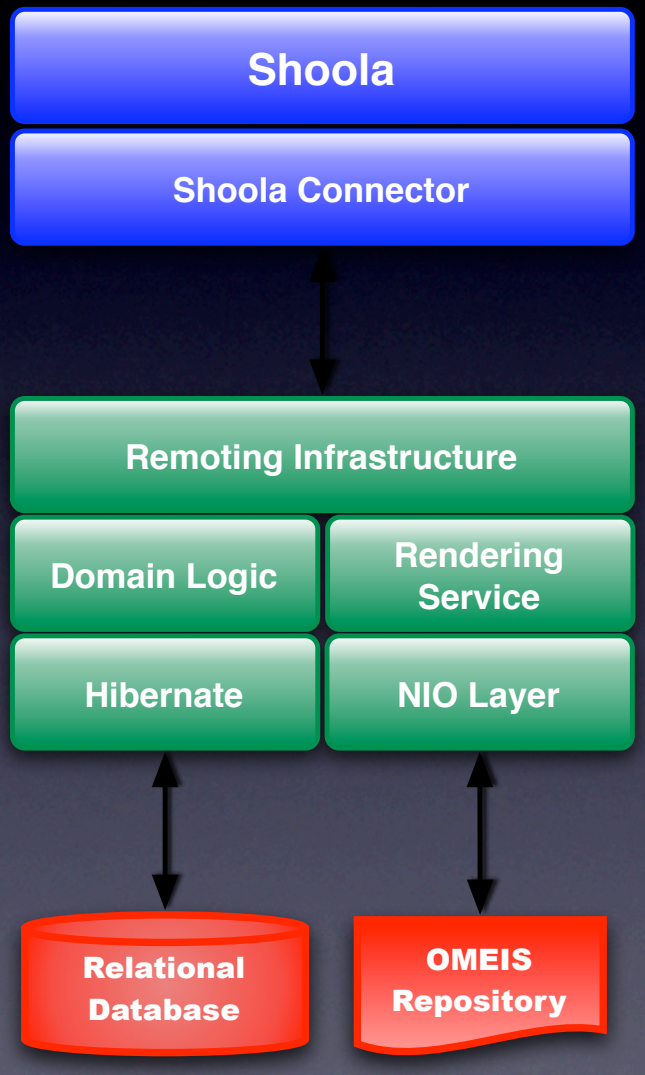


Domain Logic



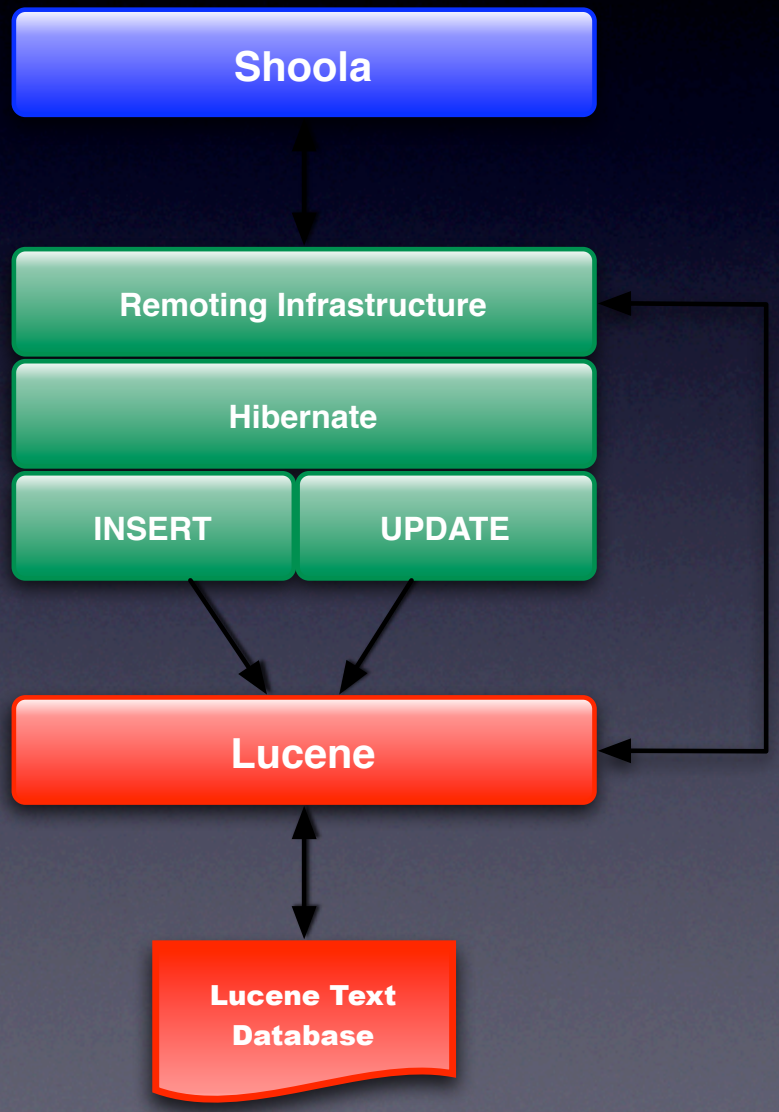
Rendering Service

- OMERO OMEIS
- Server-side rendering
- Data compression
- Reducing client development time
- Consolidating processing resources

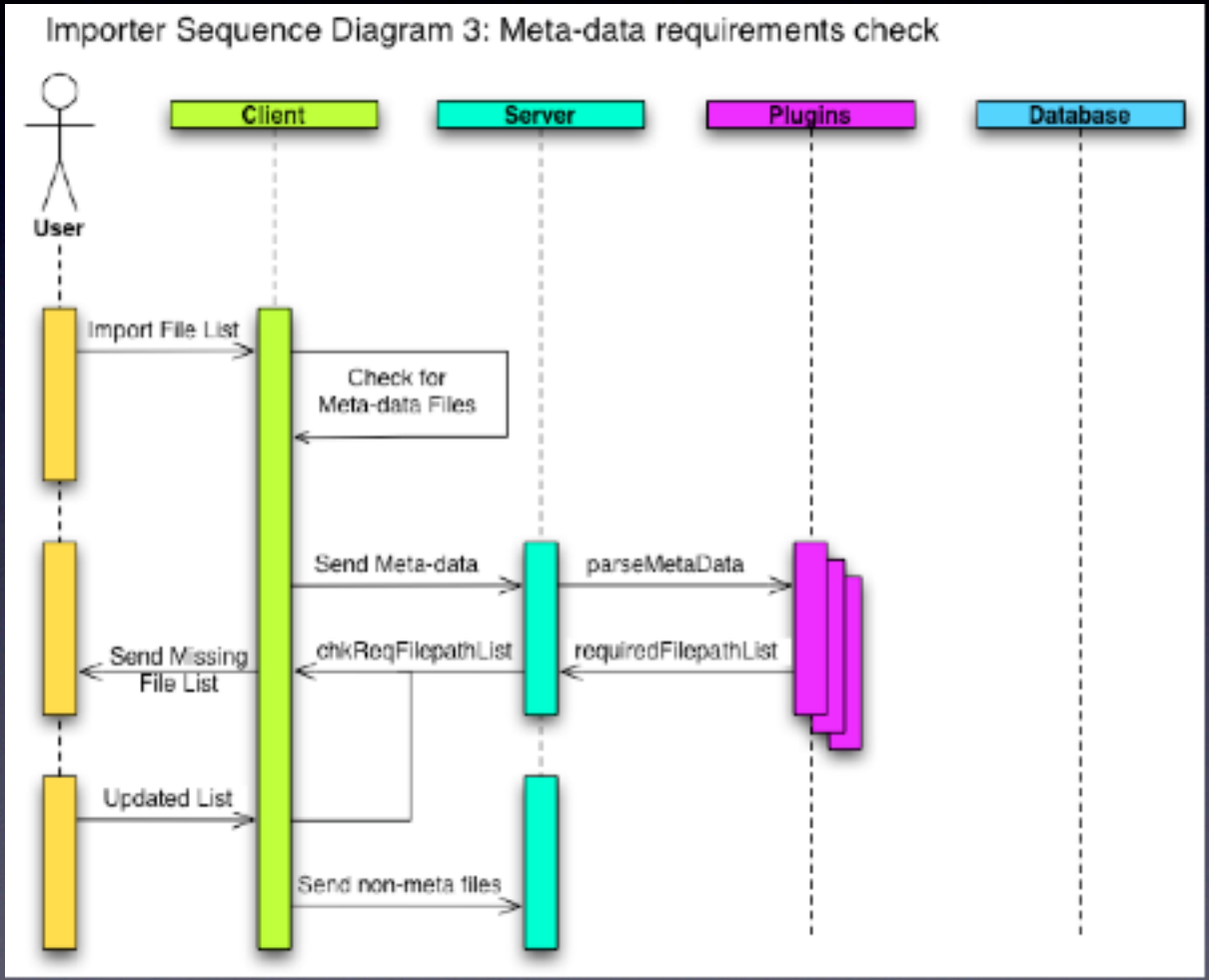


Managed Searching

- Textual cross-referencing
- Google style search API
- Easy integration & configuration



Import Engine



Security

- Java Authentication and Authorization Service (JAAS)
- JBoss Security Framework
- SSL encryption
- Authentication Delegation (PAM-like)

Initial Successes

- Resurrect
- Database independent testing
- Shoola up and running
- Equal "Activation energy"

Resurrect

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- MEX → Event
- Features → ROI5D
- Classifications
- XML Specification adherence & addition

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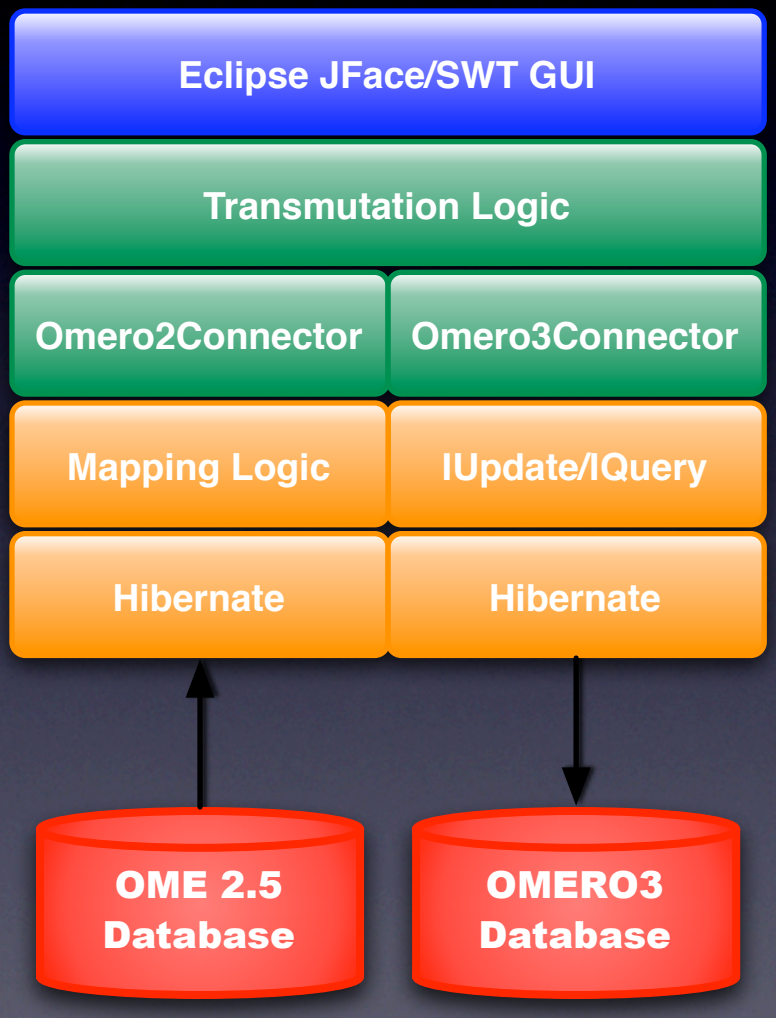

Status

- 3.0-M1: Initial Milestone
  - Components
    - Object Model
    - Read/Write API
    - Resurrect
    - Shoola/Pojos
    - EJBs
    - No Import
- 3.0-M2: Rendering
  - Components
    - Rendering
    - Thumbnailing
- 3.0-M3: Security

http://cvs.openmicroscopy.org.uk/tiki/tiki-index.php?page=Omero+Releases

Acknowledgments

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