

The Changing Face of Research

Anthony Beitz
DART Integration Manager



In the next 5 years, we'll produce more scientific data than in human history.

How can we deal with this data deluge?



Evolving Research Data Lifecycle





e-Research

A set of technologies to support collaborative networked science.

Some of the Challenges

- Acquiring data from instruments
- Storing and managing large quantities of data
- Processing large quantities of data
- Searching and discovering
- Sharing research resources and work spaces between institutions
- Collaborating
- Publishing research

Instruments



Acquire

Manual



ARCHER

A secure and seamless collaborative Research Env:



- Acquisition
- Access
- Analysis
- Annotation
- Metadata Mgmt
- Workflows
- Publish

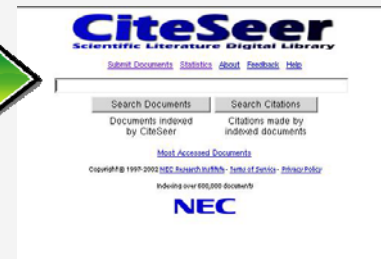


Collaboration Repositories Computational Grids

Publication Repositories



Publish





Changes in Data Analysis

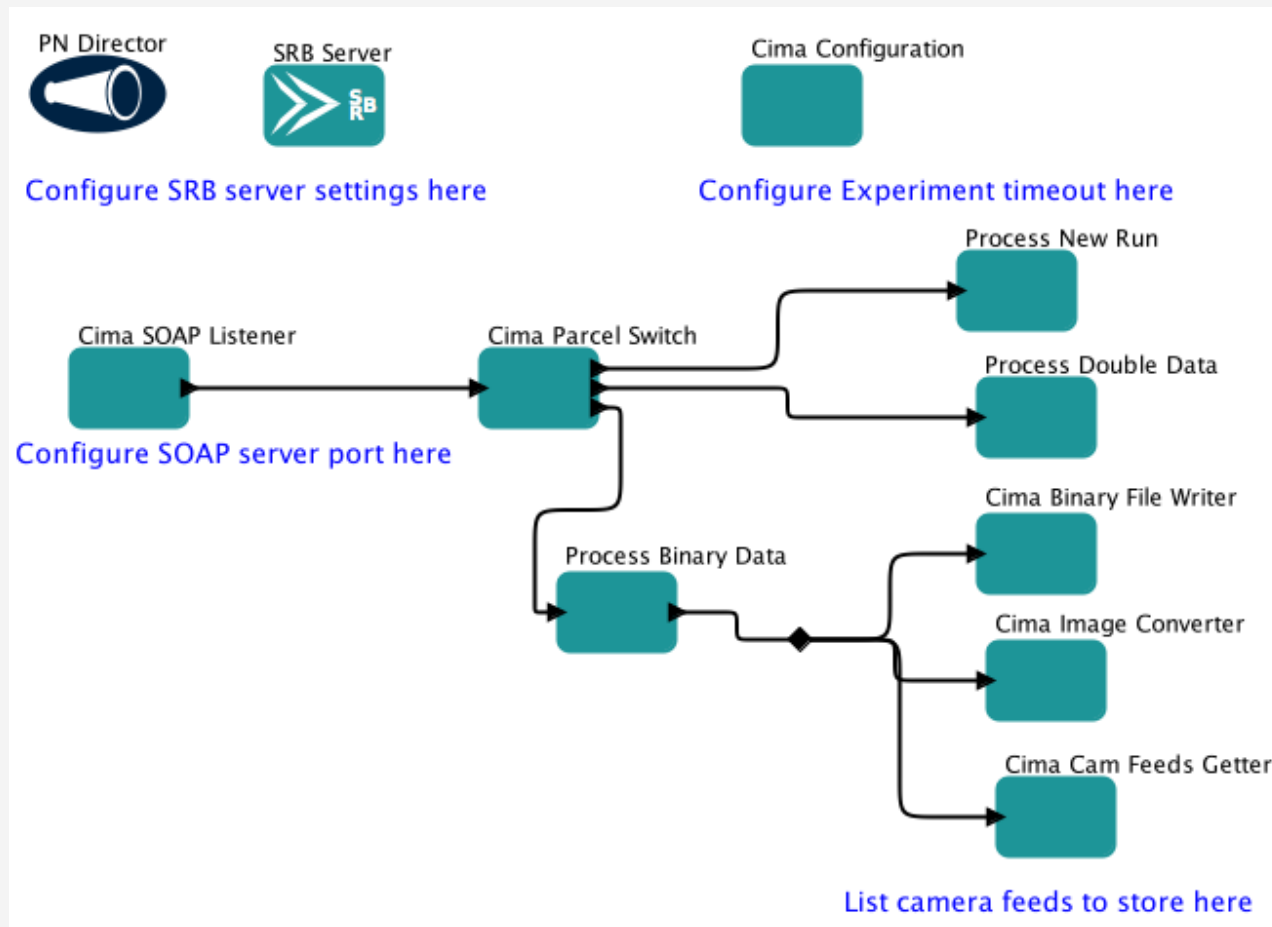
Analysis Challenges

- Legacy
- Disparate Systems
- Proprietary solutions
- Collaboration

Emerging Technologies

- High Performance Computing and Distributed Processing (Nimrod)
- Workflow Engines (Kepler)
- Seamless and scalable security (Shibboleth)
- Collaborative Workspaces and Tools (MAMS IAM & VO)
- Collaborative Filtering (Social Networking Technology)

Kepler Workflow

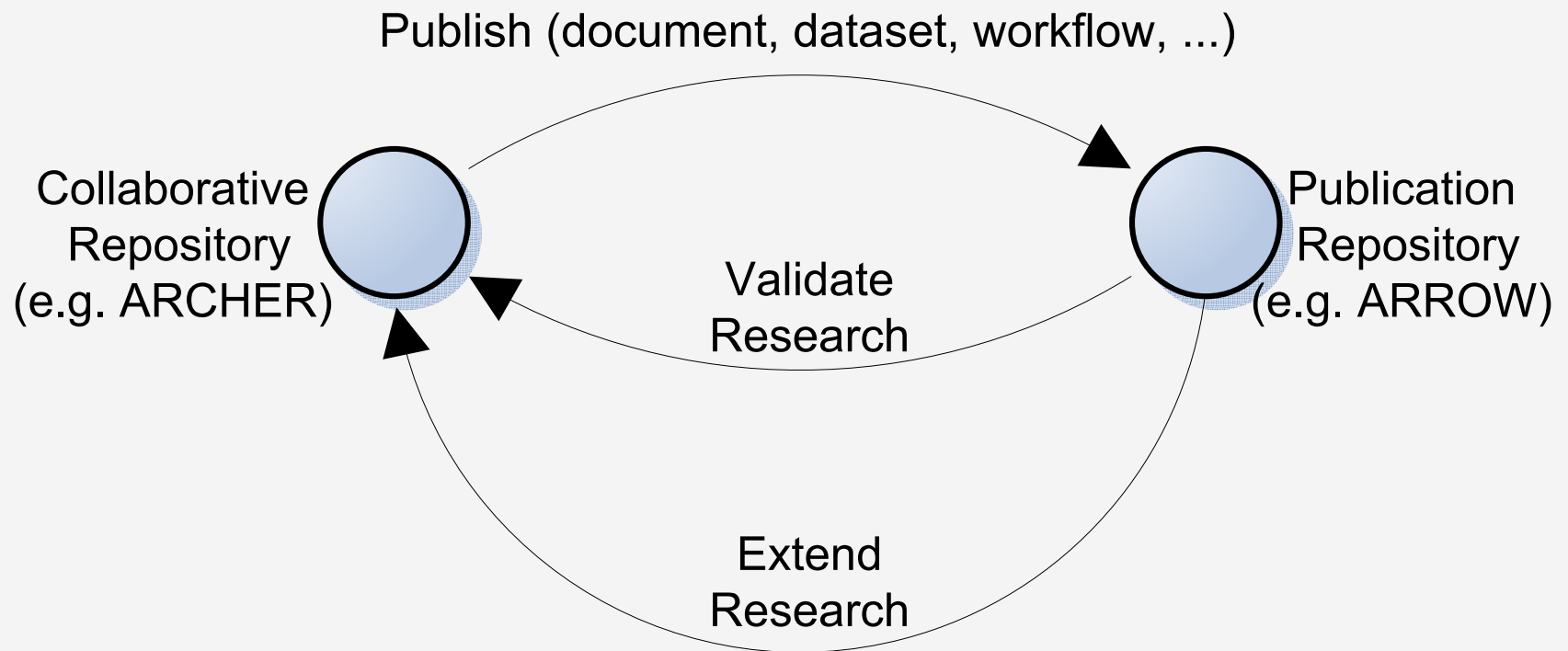




Challenges in Publishing Research

- Legal
- Ownership
- Searching and Discovery
- Preservation
- Object and metadata format
- Limiting Access
- Publication Time
- Validating/Modifying/Extending Research

Changes in Publication





Conclusion

ARCHER will allow Researchers to:

- Better deal with their data deluge
- Collaborate within and between research institutions; and
- Be more effective and efficient in their research