Integration, Interoperability and Reuse of Cyberinfrastructure Solutions

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How do your projects discover and evaluate available solutions?

- Partner interactions
- Vendor interactions
- Developed a culture that is constantly evaluating and looking at solutions and solution spaces
- Student internships

How do your projects deal with changing availability of CI?

- Adopted a risk management strategy
- Accept that change in CI is constant and rapid
- Initial efforts at adopting formal “Agile” methods not just for development but also for infrastructure

Can increased awareness/reuse of CI solutions increase interoperability across facilities?

- The easy answer is absolutely
- The challenge
  - Complexity
  - Applicability to domains
  - Tension between new solutions vs. legacy solutions already in production

Can community efforts in integration, interoperability and sustainability lead to well defined interfaces that facilitate access to and incorporation of new technologies?

- Adopting ESNet Data Transfer Node architecture
  - NCAR designed a similar architecture early on
  - this architecture is similar and compatible with ESNet Science DMZ
- Adopting Globus Data Transfer Service
  - NSF funded high-bandwidth transfer service
  - architected for HPC data sizes
  - widely adopted across National Labs
- Allows for consistent interfaces to data irregardless of backing technology

What are the most critical CI gaps that you would like to be addressed?

- Infrastructure and facilities
  - Sampling rates
  - Proprietary formats
  - Why does that keep me awake at night?
    - Highly dynamic computing and data systems will require responsive building automation systems
- Data management and discovery capabilities
  - Complexity is tough to handle
  - Unique research community usage often gets in the way of interoperability
    - Formats
    - Ontologies

CISL Computational & Information Systems Laboratory

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