
Toward a Federated Materials Science Data Observatory

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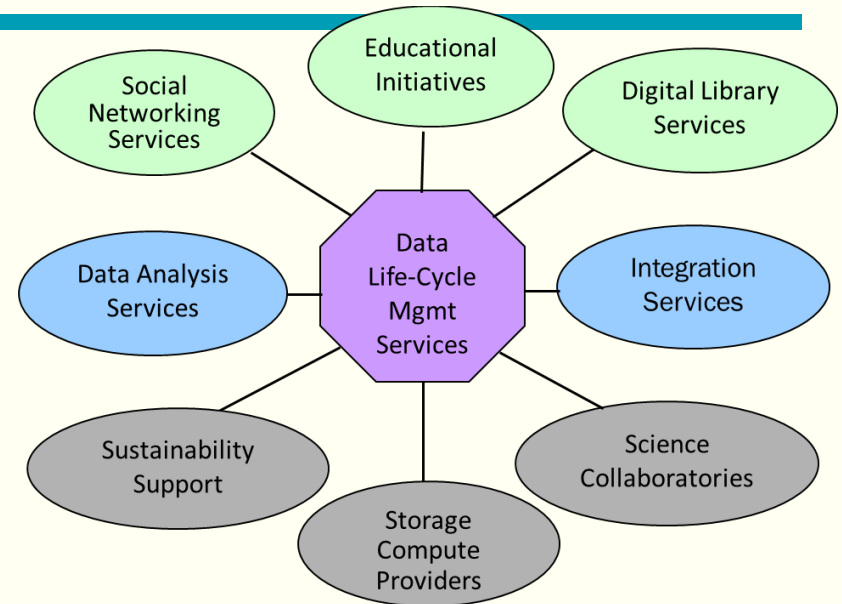
A Materials Science Data Observatory

- **Goals:**

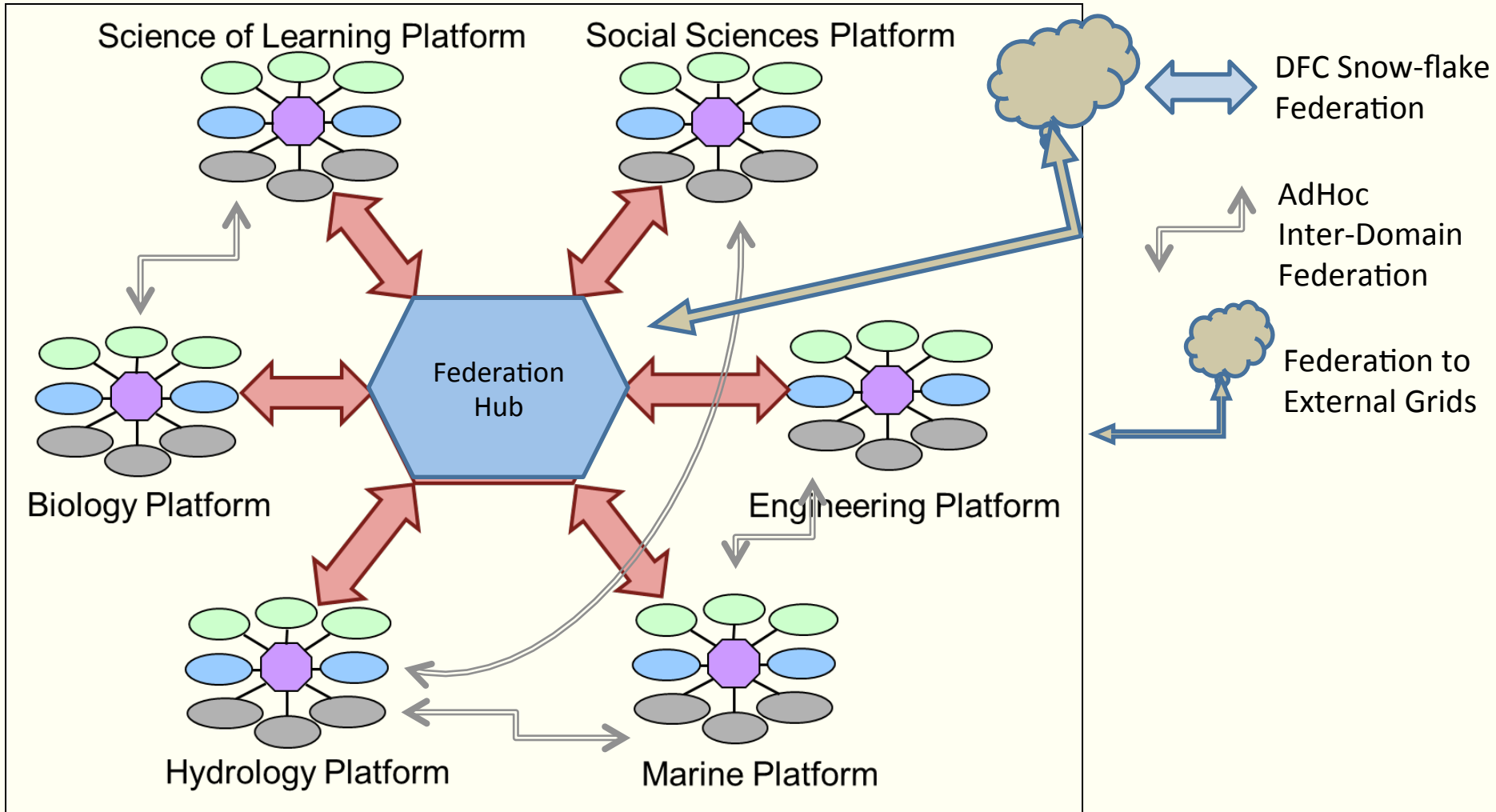
- Support data capture, management, and curation for the global materials science community
 - From large centers & departments thru to individuals
- Provide technology to support data sharing
 - (and enable transdisciplinary science)
- Enable light guidance of community-sourced approach to development of shared services, metadata, etc specific to the materials science community
- Empower users with local control over policies, data ownership, access rights etc while enabling (to the degree they desire) their data to be federated and searchable

DataNet Federation Consortium

- **Technology elements:** policies, workflows, services, collaboration provided by a common middleware platform
- **Consortia elements:** representation across multiple science & engineering domains
- **Goals:** enable reproducible science by providing common framework for authoring domain-specific customizations

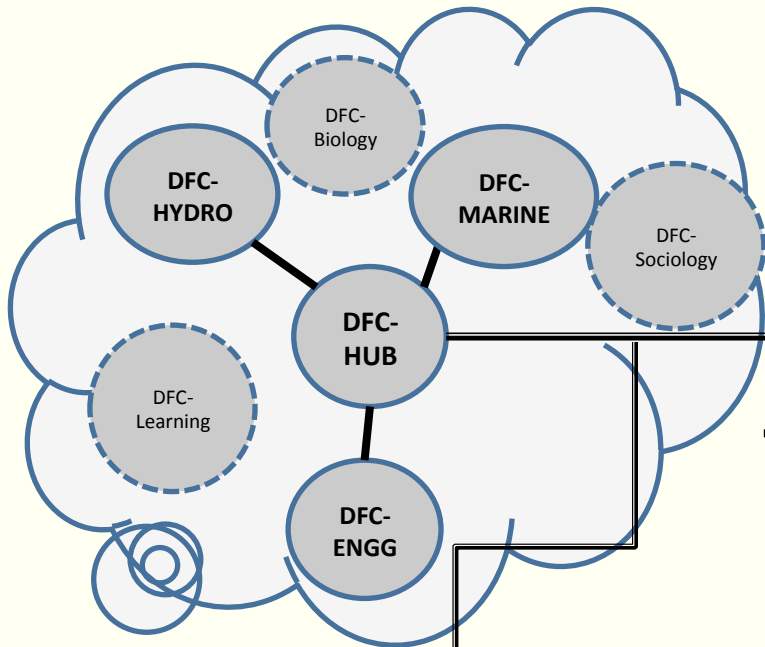


DFC Federation

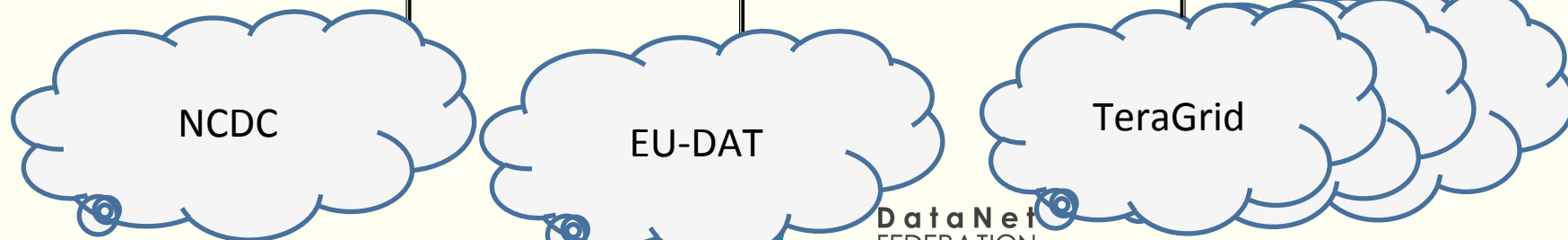
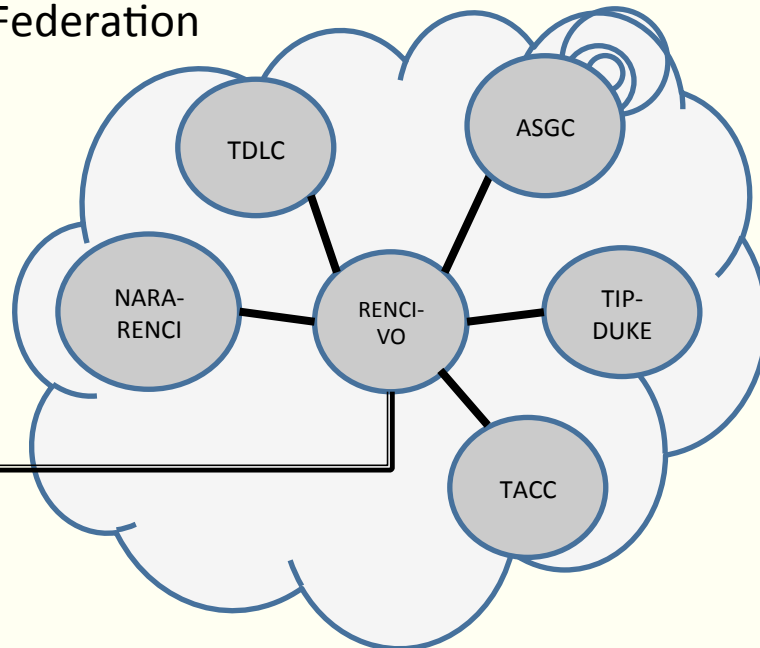


Federation of Federations

DFC Federation



RENCI Federation



Going Forward

- **DFC Infrastructure is available, for free, and is opensource and has a wide user community**
 - iRODS
- **Federation infrastructure enables bottom-up creation of shared information community**
- **Services already exist for some needs of the materials science community**
 - Provenance, workflow capture, etc
- **What is the critical need that these tools could be used to bootstrap a solution to?**