

Digital Object Registry in GENI

Corporation for National Research
Initiatives

Scope of Work - FY09

1.
 - a. Analyze the five control framework clusters to understand how the Handle System or the Digital Object Registry (DOR) could be used to build a GENI clearinghouse.
 - b. Define a plan to meet a registry in one (or more) of the control frameworks
2. Time and budget permitting, develop a clearinghouse registry and integrate with one (or more) of the control frameworks
3. Identify security requirements and recommend approaches for implementing a GENI clearinghouse
4. Analyze and define a plan to use the DOR for providing registry services to manage experimental tools and services

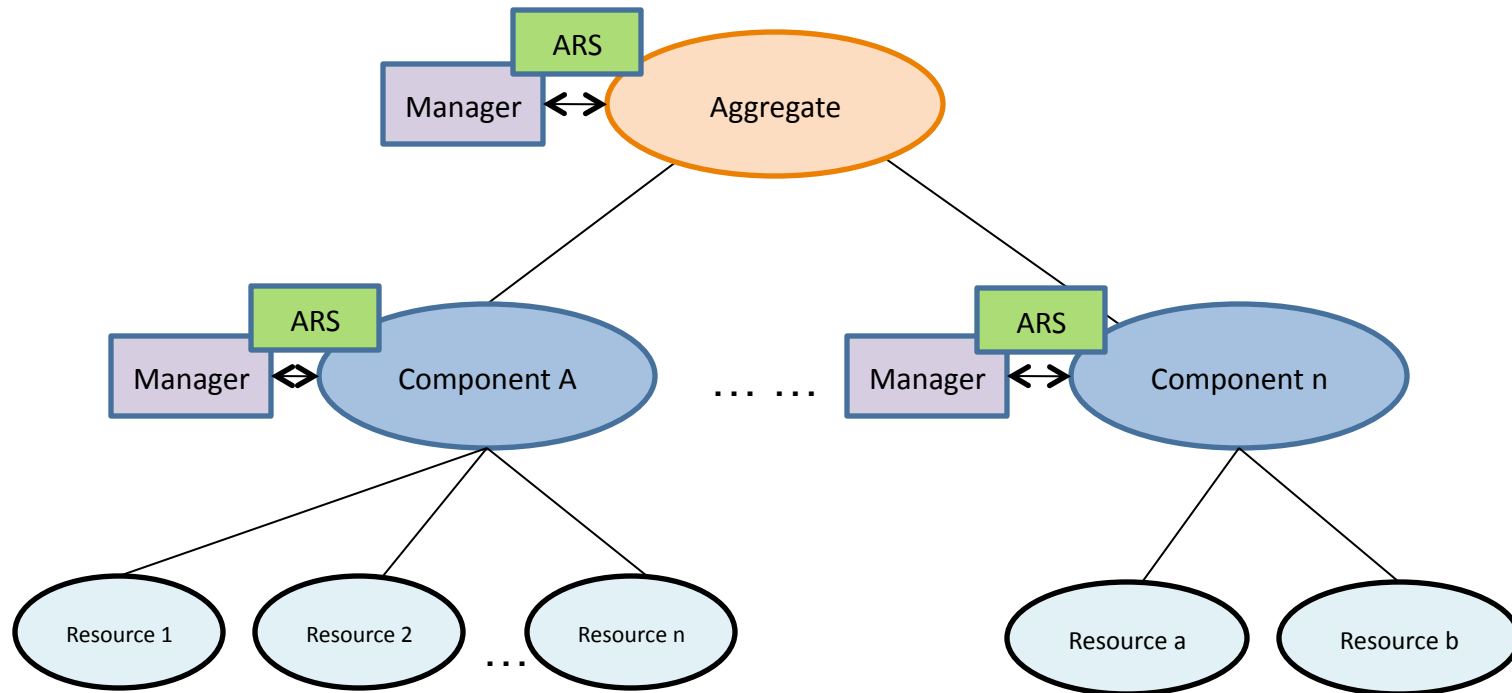
What we achieved – FY09

- 3/4 of the milestones would be completed by the GEC5 timeframe, and all the milestones by the end of the contractual year
- Successful in collaborating with ProtoGENI and Million Node GENI projects to design and stand-up our proposed GENI Federated Clearinghouse
- Produced a normalized GENI clearinghouse specification that at least works for two groups
- Studied security requirements for implementing a clearinghouse and proposed an solution to deal with certificate management in a scalable and distributed fashion
- Contributed to mailing lists on topics such as unique, interoperable, and resolvable identifiers leveraging our experience in digital libraries

GENI Federated Clearinghouse Model

- Types of records managed by the GENI Federated Clearinghouse:
 - User
 - Resource
 - Component
 - Sliver
 - Slice
 - Service:
 - Component Manager
 - Aggregate Manager
 - Slice Authority

GENI Federated Clearinghouse Model

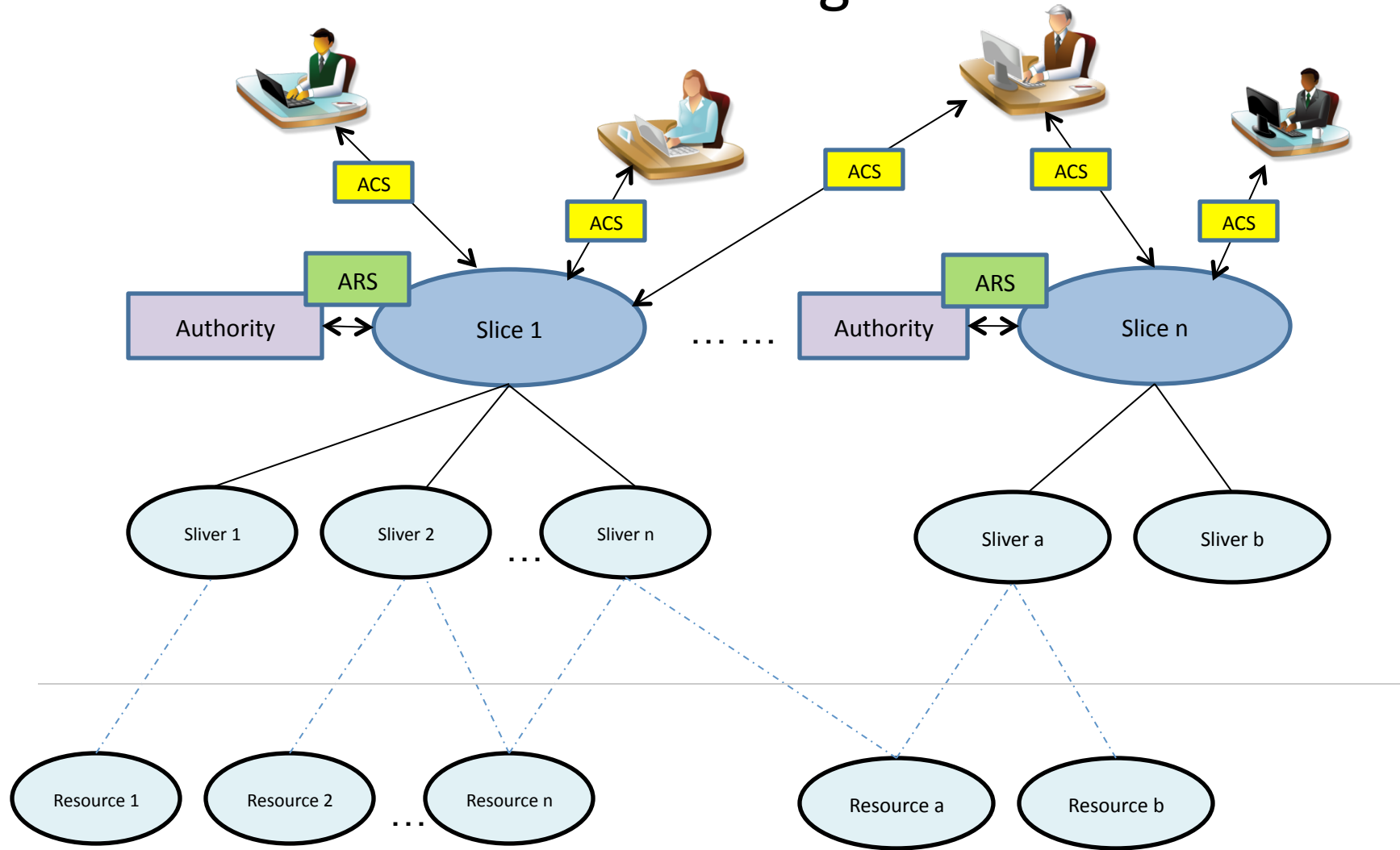


Clearinghouse Entities Relationship

ARS = Access Rules Set (Policies)

ACS = Access Credentials Set (Tickets and other credentials)

GENI Federated Clearinghouse Model

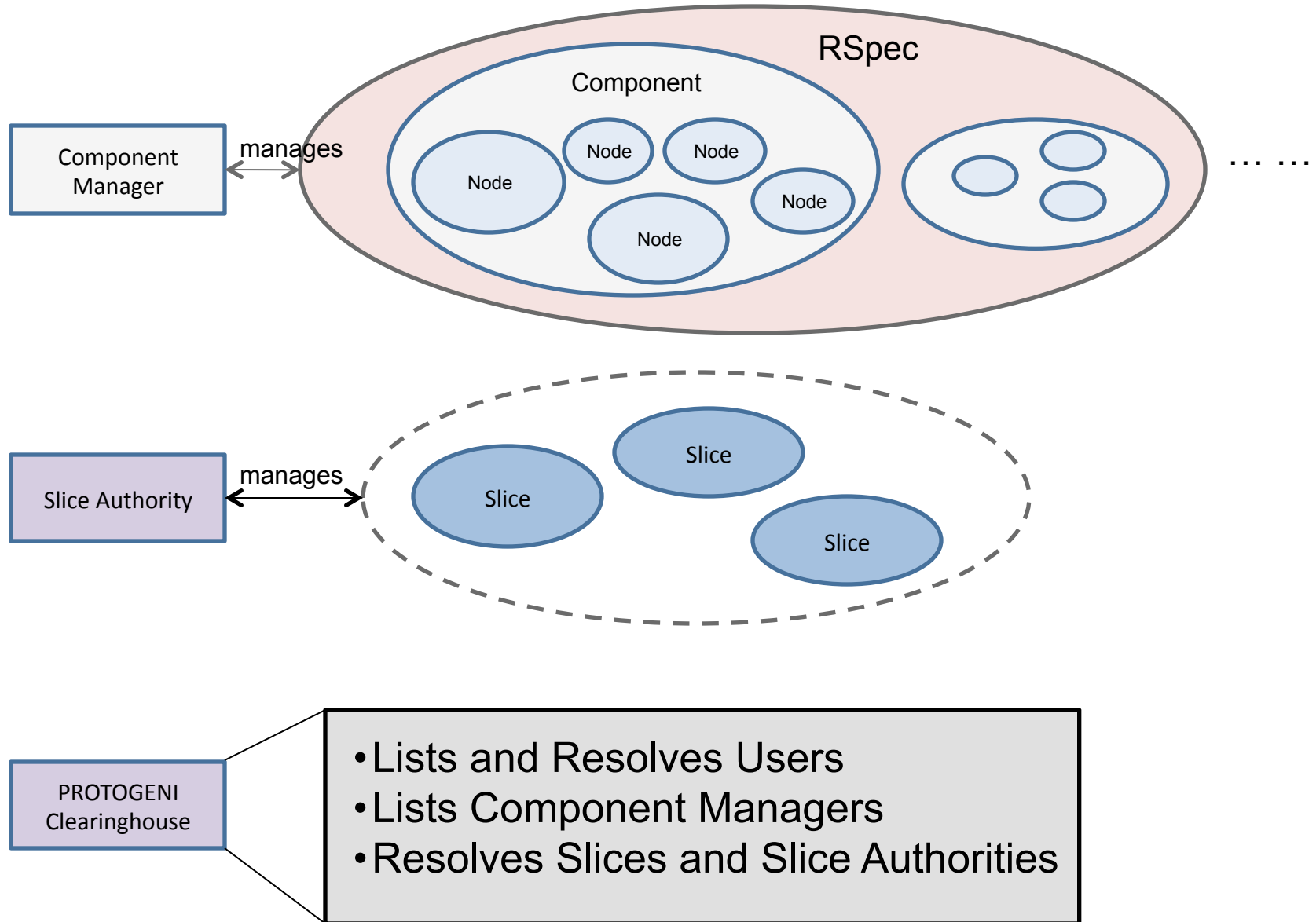


Clearinghouse Entities Relationship

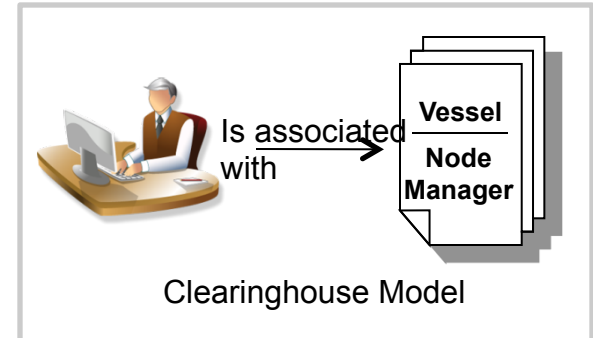
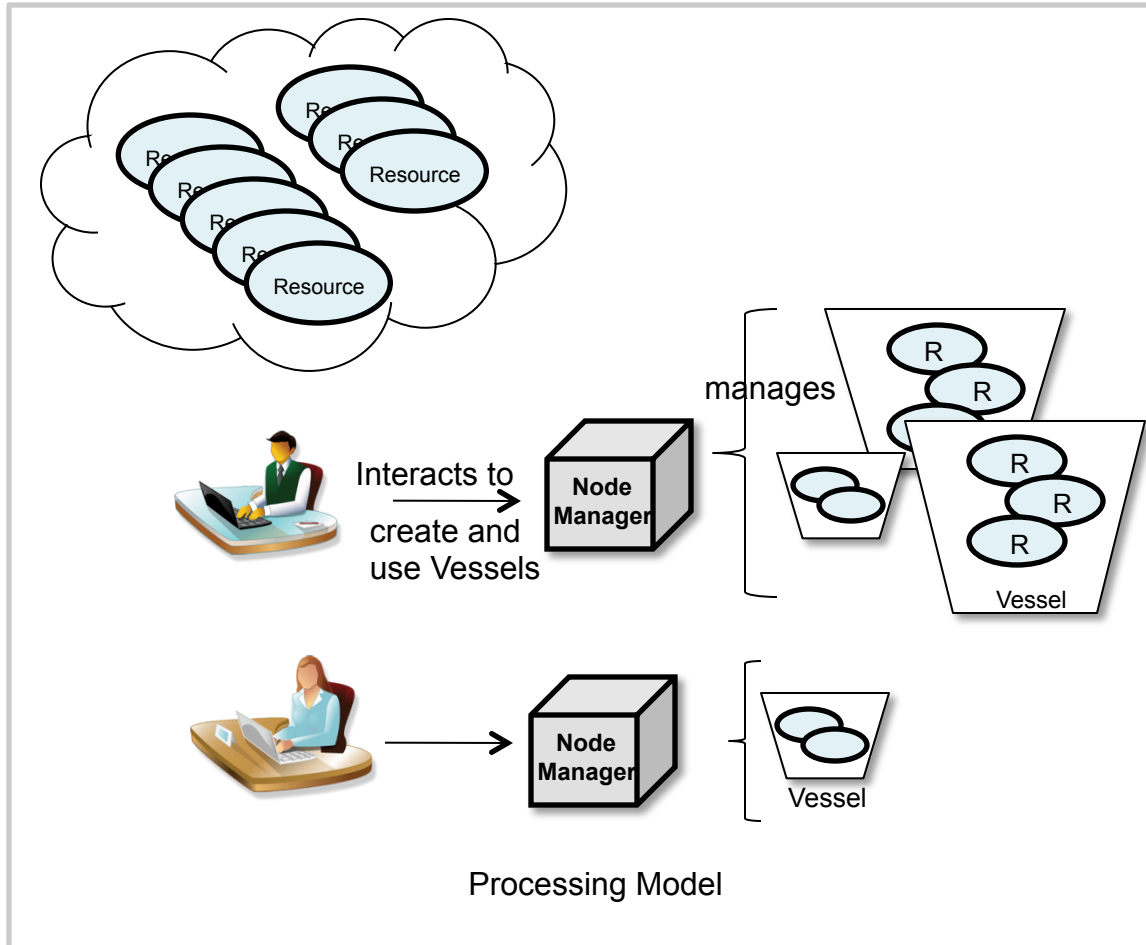
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ProtoGENI Clearinghouse Model



Million Node GENI



Clearinghouse Cross walking Scheme

GFC	ProtoGENI	Million Node GENI
User	User	User
Resource	Node/Component	Resource
Component	Component	Vessel
Aggregate		
Sliver	Sliver	Vessel
Slice	Slice	
Component Manager	Component Manager	Node Manager
Aggregate Manager		
Slice Authority	Slice Authority	Node Manager

Challenges – FY09

- Selling our solutions/technology to GENI members who already have their own implementations
- Limited budget

Spiral 2 Goals

- Clearinghouse
 - Define a normalized and interoperable GENI clearinghouse specification
 - Provide our clearinghouse software to new and existing projects
 - Federate individual clearinghouses into the GENI Federated Clearinghouse allowing researchers to discover resources across GENI
- Security
 - Integrate and make available the proposed PKI solution

Spiral 2 Goals

- Identifiers
 - Unique, persistent, and resolvable identifiers, with a focus on scalability and manageability, integrated into GENI