Aggregate Manager

GENI Cluster B

Architecture

Service Requesters
(Clearing House or other Entities)

Service Definition Interface:

- A "service definition" is defined which informs the client (requester) what services are available from this Aggregate Manager (and associated substrate)
- Well defined User API
- Native definition is in form of Web Service WSDL file
- PlanetLab Style RSPEC also supported

Substrate Resource Aware and Control

- Understands the heterogeneous set of resources in the substrate
- Can decided (compute) which resources are needed to satisfy a client request
- Direct the various controllers to satisfy client request.
- Aggregate Manager workflows will be required to evaluate user requests, compute options, synchronize and coordinate the individual resource controllers.

Aggregate Manager

DRAGON Network Controller | PlanetLab Controller | Eucalyptus Cloud Controller

Technology-Specific Controller Layer:

- specific to the underlying resource - DRAGON, PlanetLab, Cloud Computing resources, etc.
- Detailed resource management and provisioning

DRAGON Resources | PlanetLab Resources | Cloud Resources

Resources and Infrastructures

- actual physical and logical resources provided by the aggregate

PlanetLab Slices | PlanetLab Slices | PlanetLab Slices

GENI Slice

- functional, experiment-specific combination of diverse aggregates and their components

Implementation

RSPEC Definition Instance

```
<?xml version="1.0" encoding="UTF-8"?>
<rspec xmlns="http://www.maxgigapop.net/sfa/rspec/07/09">
 <capacity>
      <netspec name="predefined_physical_topology">
      <nodespec name="planetlab2">
           <node>planetlab2.dragon.maxgigapop.net</node>
           <ifspec name="eth1.3033" linkid="3033"/>
      </nodespec>
      <nodespec name="planetlab3">
           <node>planetlab3.dragon.maxgigapop.net</node>
           <ifspec name="eth1.3033" linkid="3033"/>
           <ifspec name="eth1.3034" linkid="3034"/>
      </nodespec>
      <nodespec name="planetlab4">
           <node>planetlab4.dragon.maxgigapop.net</node>
           <ifspec name="eth1.3034" linkid="3034"/>
      </nodespec>
      </netspec>
</capacity>
```

PlanetLab SFA RSPEC embedded here

Service Requester
(ClearingHouse, Researchers, Other Aggregate Managers)

Aggregate Manager Defined Services

ListCapabilities
ListNodes
ListSlices
CreateSlice
DeleteSlice
UpdateSlice
StartSlice
StopSlice
ResetSlice
QuerySlice
CreateSliceVlan
DeleteSliceVlan
QuerySliceVlan
CreateSliceNetwork
DeleteSliceNetwork
QuerySliceNetwork

Web Service WSDL defined Services

```
<!-- CreateSliceNetwork request definitions -->
<xs:element name="CreateSliceNetwork" type="tns:CreateSliceNetworkType"/>
–<xs:complexType name="CreateSliceNetworkType">
     –<xs:sequence>
     <xs:element name="sliceID" type="xs:string"/>
<xs:element name="rspecNetwork" type="tns:RSpecTopologyType"/>
</xs:sequence>
</xs:complexType>
```

Service Definition (Capabilities and Interface)
MAX Aggregate Manager Service Interface
-Definition
http://geni.dragon.maxgigapop.net:8080/axis2/services/AggregateGENI?wsdl
-SOAP API Interface
http://geni.dragon.maxgigapop.net:8080/axis2/services/AggregateGENI

Aggregate Manager has internal workflows to coordinate underlying resource controllers in pursuit of user request

Aggregate Manager

Service Definition (Capabilities and Interface)
-Web Browser Provisioning Interface:
https://idc.dragon.maxgigapop.net:8443/OSCARS/
-Service Definition
https://idc.dragon.maxgigapop.net:8443/axis2/services/OSCARS?wsdl
-SOAP API Interface
https://idc.dragon.maxgigapop.net:8443/axis2/services/OSCARS

Service Definition (Capabilities and Interface)
MAX MyPLC Service Interface
-Human Web Browser Interface
https://max-myplc.dragon.maxgigapop.net/
-XML-RPC/SOAP Interface
https://max-myplc.dragon.maxgigapop.net/PLCAPI/

DRAGON Network Controller | PlanetLab Controller

DRAGON Resources | PlanetLab Resources

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