

GEC-4

Control Framework

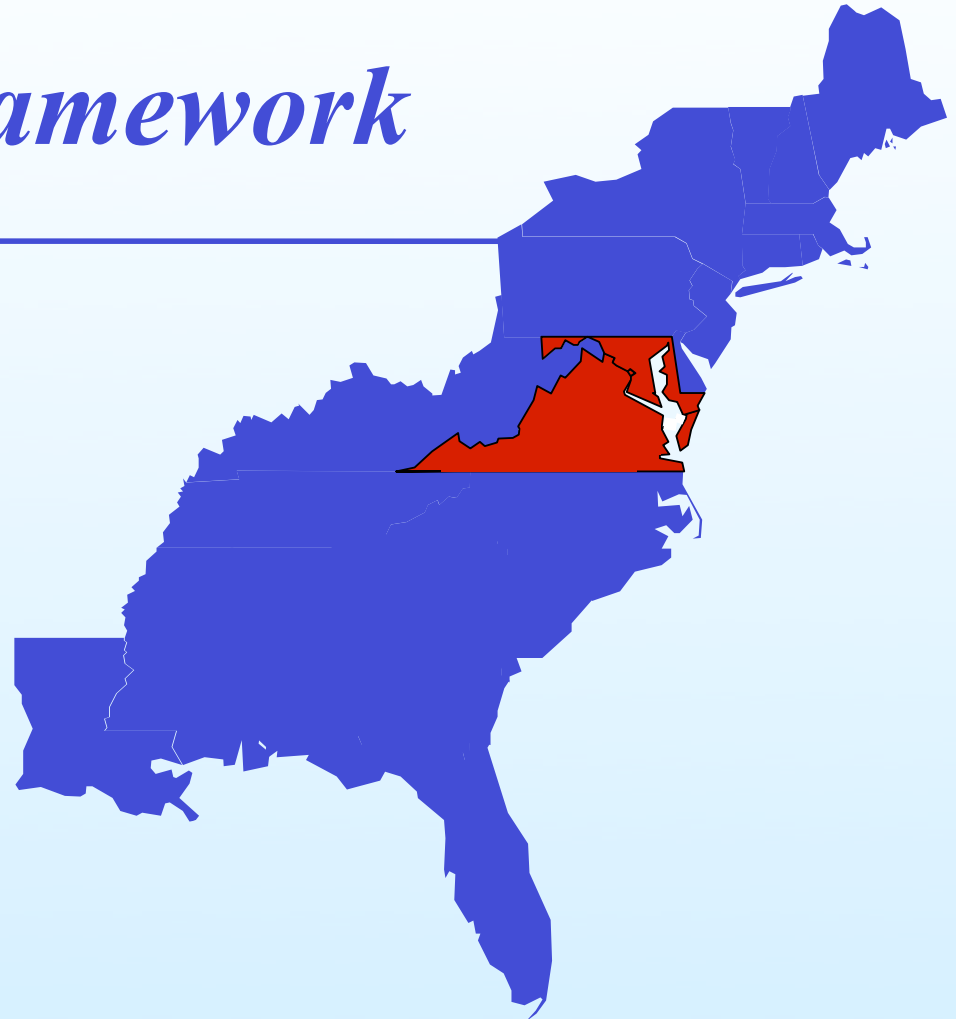
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Cluster B Participant

March 31st, 2009



Recent Activities

- PlanetLab / MyPLC related
 - Total of 5 nodes have been deployed on DRAGON
 - 1 is running MyPLC-native
 - 4 are running PlanetLab BootCD distributed around the DRAGON regional network (with varying capabilities)
 - » currently connected at GigE to DRAGON dynamic Layer 2 network
 - » testing 10GigE NIC in one of our larger systems soon
 - PLCAPI working - will be used as part of GEC4 demo
 - geniwrapper has been deployed
 - » still being configured and tested
 - 802.1Q tagged VLAN interfaces working
 - » however we still do not have a way to configure these via PLCAPI

Recent Activities

- Collaboration with University of Nebraska-Lincoln
 - Praga Angu, Mukesh Subedee, Byrav Ramamurthy
 - deployment of MyPLC
 - » <https://geni.maxgigapop.net/twiki/bin/view/GENI/Deploying-MyPLC>
 - » (details on our geniwrapper experiences also posted here)
 - deployment of DRAGON / OSCARS code
 - » to be used for managing Ciena CoreDirector switches
 - » switch driver for supporting Netgear GSM7224 Ethernet switch

Recent Activities

- Feb 13th Cluster B meeting in Denver
 - Focused discussion regarding interface between Aggregate Managers
 - » <http://groups.geni.net/geni/wiki/ClusterB>
 - XMLRPC versus SOAP / WSDL
 - RSpec
 - PlanetLab geniwrapper / sfi user application demo

Recent Activities

- Collaboration with GENI MOC
 - data collection from DRAGON network elements
 - » Ethernet switches
 - » ROADMs / OADMs
 - » end hosts
 - format for monitoring data

Recent Activities

- NetFPGA / OpenFlow
 - purchased 2 NetFPGA cards
 - » to be deployed at 2 core DRAGON POPs
 - * College Park, MD
 - * McLean, VA
 - obtained Xilinx CAD tools through Xilinx University Donation program
 - investigating how collaboration between NetFPGA/ OpenFlow and DRAGON's control plane software might be possible

GEC4 Demo

- Demonstrate:
 - provisioning of VLANs across DRAGON resources
 - connecting PlanetLab slivers to one another via high-speed dynamic circuits
 - transfer of data from a non-PlanetLab host in Los Angeles
 - distribute data set among PlanetLab slivers

GEC4 Demo

- PlanetLab slice provisioning via PLCAPI from laptop:

```
bash-3.2$ python
>>> import xmlrpclib
>>> api_server = xmlrpclib.ServerProxy('https://max-myplc.dragon.maxgigapop.net/PLCAPI/', allow_none=True)
>>> auth={}
>>> auth['AuthMethod']='password'
>>> auth['Username']='chris@maxgigapop.net'
>>> auth['AuthString']='[password]'
>>> authorized = api_server.AuthCheck(auth)
>>> slice_data = {}
>>> slice_data['name'] = 'maxpl_gec4demo'
>>> slice_data['url'] = 'http://dragon.maxgigapop.net'
>>> slice_data['description'] = 'GEC4 Demo Slice'
>>> slice_data['instantiation'] = 'plc-instantiated'
>>> slice_id = api_server.AddSlice(auth, slice_data)
>>> print slice_id
16
>>> me = auth['Username']
>>> api_server.AddPersonToSlice(auth, me, slice_id)
1
>>> api_server.AddSliceToNodes(auth, slice_id, ['planetlab2.dragon.maxgigapop.net',
'planetlab3.dragon.maxgigapop.net', 'planetlab4.dragon.maxgigapop.net', 'planetlab5.dragon.maxgigapop.net'])
1
```

Create Slice

Associate User to Slice

Associate Nodes to Slice

GEC4 Demo

- Login to MyPLC web-based interface to view slice:

Slice details for maxpl_ gec4demo

Choose Action

Slice Name: maxpl_ gec4demo

Description: GEC4 Demo Slice

URL: http://dragon.maxgigapop.net

Expiration: Apr 14, 2009

Instantiation:

Site: [Mid-Atlantic Crossroads PlanetLab Central](#)

[Add a Slice Attribute](#)

Contacts

Default Administrator chris@maxgigapop.net
Jarda Flidr jflidr@maxgigapop.net
Peter O'Neil poneil@maxgigapop.net

[Back to slice list](#)

Slice maxpl_ gec4demo - Nodes

Select a site to add nodes from.

No site nodes or all are already added.

Nodes currently associated with slice

Check boxes of nodes to remove:

planetlab2.dragon.maxgigapop.net
 planetlab3.dragon.maxgigapop.net
 planetlab4.dragon.maxgigapop.net
 planetlab5.dragon.maxgigapop.net

[Back to Slice](#)

People currently associated with slice

Check boxes of people to remove:

chris@maxgigapop.net Default Administrator

[Back to Slice](#)

GEC4 Demo

- SSH to slivers:

```
# ssh -l maxpl_gec4demo -i id_dsa planetlab2.dragon.maxgigapop.net
# ssh -l maxpl_gec4demo -i id_dsa planetlab3.dragon.maxgigapop.net
# ssh -l maxpl_gec4demo -i id_dsa planetlab4.dragon.maxgigapop.net
# ssh -l maxpl_gec4demo -i id_dsa planetlab5.dragon.maxgigapop.net
```

- download software to each sliver:

- one option:

```
[maxpl_gec4demo@planetlab2 ~]$ mkdir bin
[maxpl_gec4demo@planetlab2 ~]$ cd bin
[maxpl_gec4demo@planetlab2 bin]$ wget http://planetlab1.dragon.maxgigapop.net/nuttcp
[maxpl_gec4demo@planetlab2 bin]$ wget http://planetlab1.dragon.maxgigapop.net/nuttscp
[maxpl_gec4demo@planetlab2 bin]$ chmod +x *
```

- or using a script (or plush/gush/raven, for example):

```
bash-3.2$ ./push_tools_to_slivers.sh
```

GEC4 Demo

- DRAGON circuit provisioning, example parameters:

```
interactive=0
url1=https://idc.dragon.maxgigapop.net:8443/axis2/services/OSCARS/
layer=2
sourceEndpoint=planetlab5.dragon.maxgigapop.net
destEndpoint=phoebus.losa.dcn.internet2.edu
vtag=3232
bandwidth=400
description="GEC4 demo: phoebus.losa--planetlab5"
pathSetupMode=timer-automatic
start_time=
end_time=
duration=0.5
```

GEC4 Demo

- Demonstration Movie
 - this demonstration was done live at GEC4
 - please view the screencast movie if you would like to see what was done for this demo