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# INDIANAPOLIS SERVICE DESK





# BLOOMINGTON SERVICE DESK



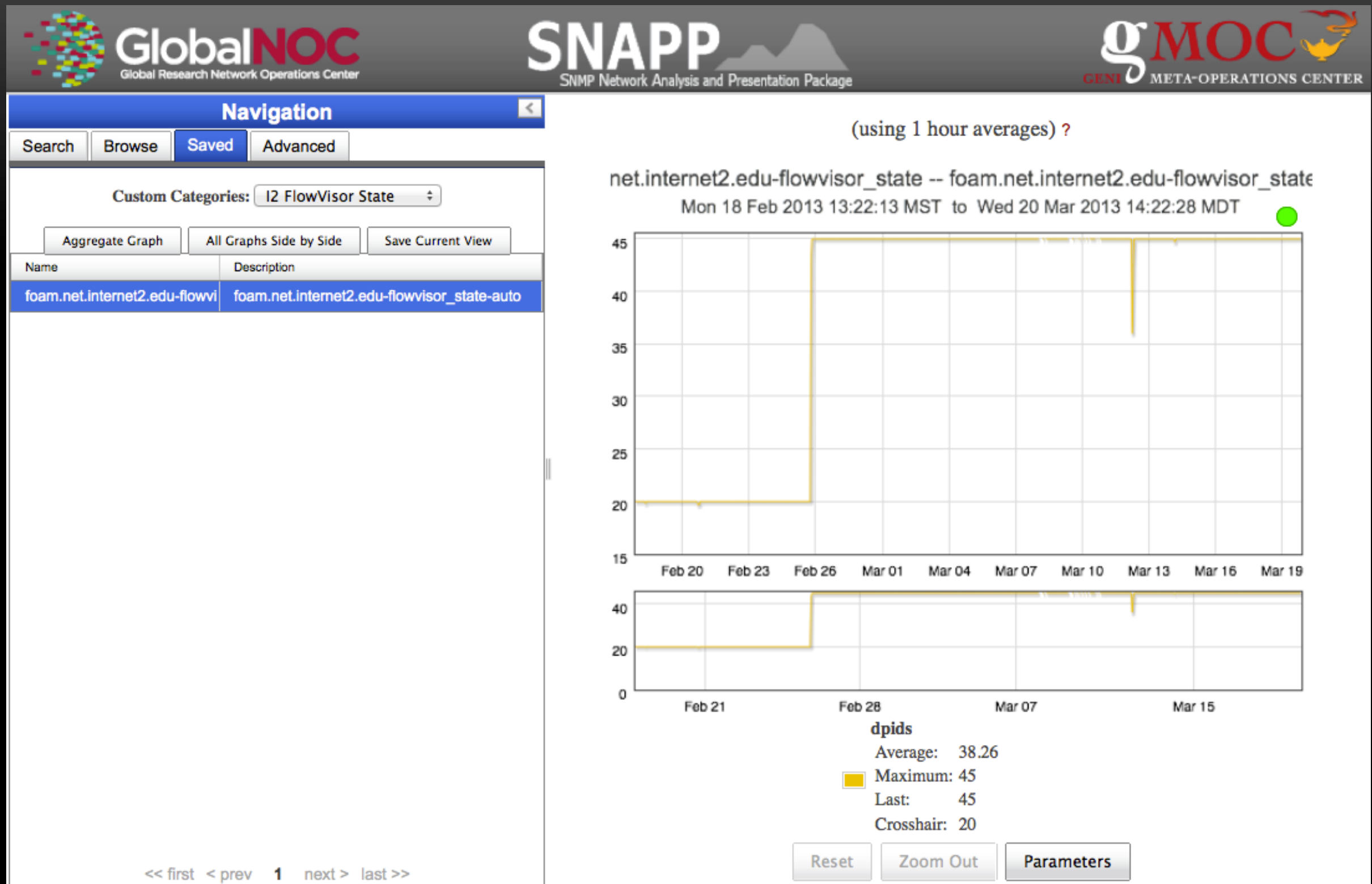
# WE ARE THE GMOC

- ✓ Monitor the GENI OpenFlow network (Mesoscale)
- ✓ Emergency Stop
- ✓ GENI Experimenter Support
- ✓ Manage network/systems alarms, outages, maintenances, Mesoscale provisioning, maintenance freezes, demo reservations and disruptive experiment reservations (and post-mortem)
- ✓ Notifications, Escalation and Reporting
- ✓ Engineering configuration (Internet2, MOXI, Indiana) and new Aggregate site, regional and GENI rack turn-up
- ✓ GMOC Measurement API for GENI Aggregates
- ✓ Develop new tools for network monitoring and measurement

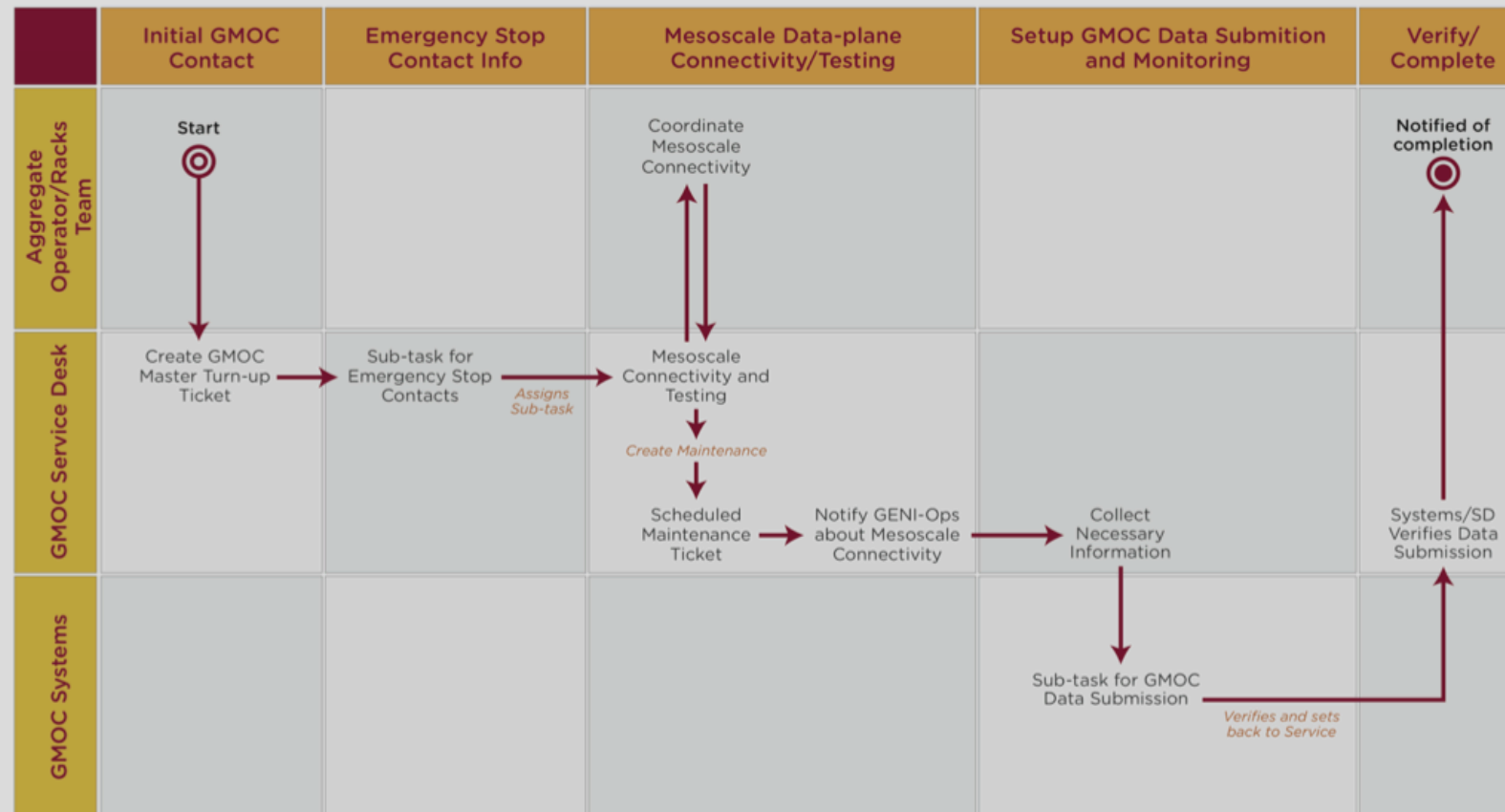
# GMOC DATABASE IMPROVEMENTS

- ✓ UI re-design and improvements – Emergency Stop contacts, etc...
- This was helpful during recent Emergency Stop Tests with Racks
- ✓ Backend re-design including data download from GMOC-DB
- ✓ A couple of storyboards:

# GMOC Measurement



# GENI AGGREGATES TURN-UP VIA GMOC



## GENI Aggregate GMOC Turn-up Process

The GENI Meta-Operations Center (GMOC) uses this process for creating a new GENI Aggregate to accomplish tasks such as:

1. Collecting Emergency Stop contacts for each GENI Aggregate.
2. Coordinating and notifying the GENI community of Mesoscale data-plane connectivity and testing when an Aggregate is ready to connect to Internet2 and/or National LambdaRail.
3. Helping an Aggregate set up measurement, monitoring, and metadata submission to GMOC via GMOC APIs.
4. Ensuring site is ready for GMOC outage/ maintenance notifications and reporting.

### Contact GMOC

Web: <http://gmoc.grnoc.iu.edu>

Email: [gmoc@grnoc.iu.edu](mailto:gmoc@grnoc.iu.edu)

Phone: (317) 274-7783

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# MONITOR, TRACK AND MANAGE

**Current Network Status**  
 Last Updated: Tue May 1 17:02:50 UTC 2012  
 Updated every 60 seconds  
 Nagios® Core™ 3.2.2 - [www.nagios.org](http://www.nagios.org)  
 Logged in as mibooher

[View Service Status Detail For All Host Groups](#)  
[View Host Status Detail For All Host Groups](#)  
[View Status Overview For All Host Groups](#)  
[View Status Grid For All Host Groups](#)

**Host Status Totals**

Up	Down	Unreachable	Pending
0	0	0	0

**All Problems All Types**

0	89
---	----

**Service Status Totals**

OK	Warning	Unknown	Critical	Pending
0	0	0	0	0

**All Problems All Types**

0	571
---	-----

**Status Summary**

Host Group
<a href="#">Wave Layer 1 (Wave Layer 1)</a>
<a href="#">Wave Layer 2 (Wave Layer 2)</a>
<a href="#">Wave Layer 3 (Wave Layer 3)</a>
<a href="#">Wave DCR (Wave DCR)</a>
<a href="#">Wave Server Systems (Wave Server Systems)</a>
<a href="#">Wave Server Systems On-Cat (Wave Server Systems On-Cat)</a>
<a href="#">Participant Edge Devices (Participant Edge Devices)</a>

**GlobalNOC AlertMon**

**Current Alerts**  
 Last Updated 20:49:23 UTC

**Unacknowledged Alerts**  
 There are no active

**Acknowledged Alerts**

2011-08-04 21:46:05	I-Light: I-Light bbsxipiu Nagios Testing ***T
2011-06-24 13:45:57	I-Light: I-Light TDM Member DOH Scott Co

**Project Home**  
 Create Ticket  
 Global Ticket  
 Quick Ticket  
 Address Book  
 Search  
 Reports  
 Flashboard  
 Knowledge Base  
 My Preferences  
 Calendar  
 Administration  
 Help  
 Logout

**My Dashboard**

**Project Totals - GMOC**

Active	8	Service Desk	7
Engineering	0	Customer	1
Vendor	0	Resolved	0
Request	0	Closed	199

**Numara FootPrints 9**  
**Welcome to Numara FootPrints 9**  
 Now Featuring:  
 ○ Mobile interface  
 ○ Saved searches in Dashboard  
 ○ Drill down on graphical charts  
 ○ Multi-browser Description editor  
 Click to see [What's new in 9](#)

**Global Tickets**  
 There are no Global Tickets at this time

Display **Current search results** Refresh **Displaying 1 - 8 of 8 Tickets** Report

Ticket #	Customer Impact	Assignees	Last Edited On	Status	Title
203	4-Normal	GMOC NOC Service	07/06/2012	Service Desk	GENI credential Registration Inquiry
194	4-Normal	GMOC NOC Service	07/06/2012	Service Desk	GENI ExoGENI Racks Contact Info and Measurement Turn-up
185	4-Normal	GMOC NOC Service	07/05/2012	Service Desk	GMOC - University of Alaska Fairbanks Publishing Status of Resources Inquiry
170	3-Elevated	GMOC NOC Service	07/02/2012	Customer	GENI ES Contacts and Measurement API for Regional SoX
167	4-Normal	Eldar Urumbaev	07/05/2012	Service Desk	GENI Credentials and Ping monitoring Slivers for GMOC Request
165	4-Normal	GMOC NOC Service	07/06/2012	Service Desk	GENI Maintenance Freeze for GEC14
151	4-Normal	Eldar Urumbaev	07/03/2012	Service Desk	GENI Monthly Experimenters List Update
128	4-Normal	GMOC NOC Service	06/28/2012	Service Desk	GENI OpenFlow Backbone Redesign Master Ticket

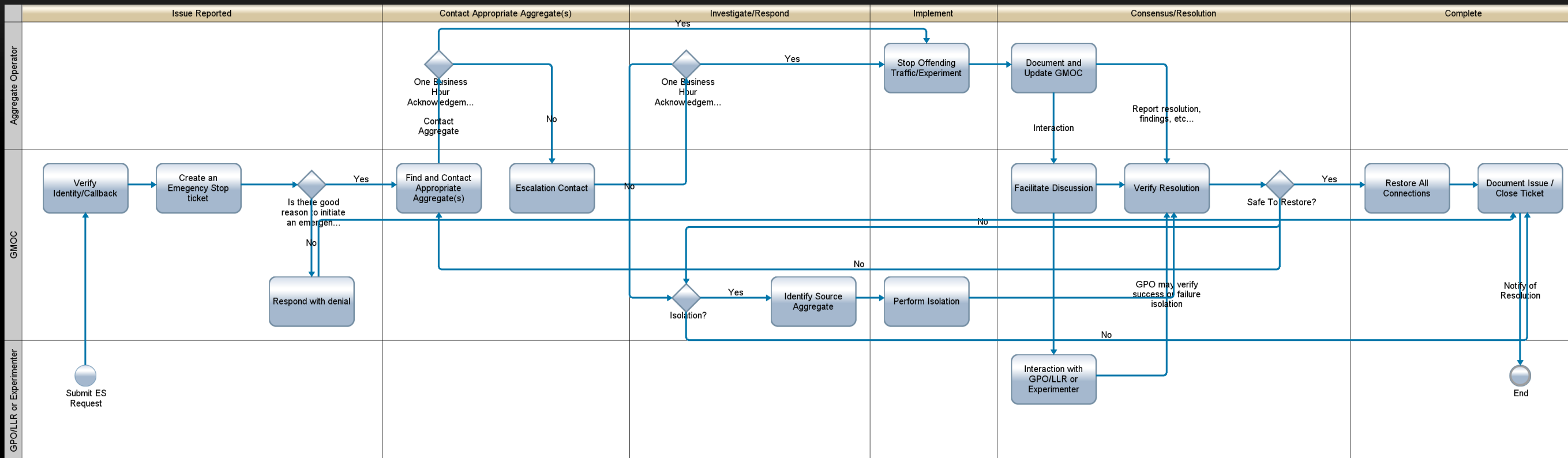
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# OPS CALENDARS (WEB, ICAL, RSS)

March 2013						
GMOC - Field Service Request, GMOC - Scheduled Maintenance, GMOC - Unscheduled Outage Calendar						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
24	25	26	27	28	1	2
	<ul style="list-style-type: none"> <li>8:30 382 GENI ExoGENI Rack BBN Ma...</li> </ul>	<ul style="list-style-type: none"> <li>6:00 360 GENI Internet2 OpenFlow ...</li> <li>9:04 383 GENI FOAM Aggregate at B...</li> </ul>	<ul style="list-style-type: none"> <li>1:11 385 GENI NLR FlowVisor Outag...</li> </ul>	<ul style="list-style-type: none"> <li>6:00 386 GENI ExoGENI Rack RENC...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 380 GENI Various Participant...</li> <li>7:21 390 GENI Participant KSU Bri...</li> <li>3:00 387 GENI GMOC-DB Maintenance...</li> <li>11:04 384 GENI NLR OpenFlow Switch...</li> </ul>	
3	4	5	6	7	8	9
	<ul style="list-style-type: none"> <li>3:00 391 GENI Internet2, MOXI and...</li> </ul>	<ul style="list-style-type: none"> <li>8:00 368 GENI NLR OpenFlow Backbo...</li> </ul>	<ul style="list-style-type: none"> <li>8:58 369 GENI NLR OpenFlow Backbo...</li> <li>4:00 392 GENI SIGCSE Tutorial Mai...</li> </ul>		<ul style="list-style-type: none"> <li>2:00 394 GENI GMOC-DB Maintenance...</li> <li>4:00 401 GENI GMOC-DB Maintenance...</li> <li>8:00 400 GENI ExoGENI Racks RENC...</li> <li>11:00 396 GENI Various InstaGENI R...</li> </ul>	<ul style="list-style-type: none"> <li>4:00 401 GENI GMOC-DB Maintenance...</li> </ul>
10	11	12	13	14	15	16
<ul style="list-style-type: none"> <li>4:00 401 GENI GMOC-DB Maintenance...</li> </ul>	<ul style="list-style-type: none"> <li>4:00 401 GENI GMOC-DB Maintenance...</li> <li>5:00 388 GENI NLR OpenFlow Backbo...</li> </ul>	<ul style="list-style-type: none"> <li>4:00 389 GENI NLR OpenFlow Backbo...</li> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> <li>4:58 395 GENI Various Participant...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>
17	18	19	20	21	22	23
<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>	<ul style="list-style-type: none"> <li>5:00 370 GENI GEC16 Maintenance F...</li> </ul>
24	25	26	27	28	29	30

# GENI EMERGENCY STOP PROCESS



<http://gmoc.grnoc.iu.edu/gmoc/documents.html>

# GMOC ITEMS SINCE LAST GEC

- ✓ Emergency Stop Tests with Racks
- ✓ Bi-Weekly Operations Report on Network Core call
  - including Racks Outages/Maintenances



# GENI REGIONALS IN GMOC MONITORING

- CENIC (COTN – California OpenFlow Testbed Network) \*
- NYSERNet (New York) \*
- UEN (Utah Education Network)
- SOX (Southern Crossroads)
- MOXI-CIC and MOXI-Indiana GigaPoP (WiscNet soon!)

\* New since last GEC

# GENI RACKS IN GMOC MONITORING

## InstaGENI

- ✓ BBN – GPO Lab Rack
- ✓ Utah
- ✓ Kentucky \*
- ✓ Northwestern \*

## ExoGENI

- ✓ BBN – GPO Lab Rack
- ✓ RENCi
- ✓ FIU-SCIS - Florida International University School of Computer and Information Sciences (Almost) \*
- ✓ UH - University of Houston (Almost) \*

\* New since last GEC

# FUTURE GENI OPERATIONS SUPPORT NEEDS, CHALLENGES, IDEAS?

- ✓ Targeted Notifications
- ✓ Topology (for Emergency Stop and other needs)
- ✓ Circuits and Nodes in GMOC-DB
- ✓ Pro-active monitoring/alerting
- ✓ Disruptive Experiments Post-mortems
- ✓ Post-mortems for other OpenFlow specific operational issues
- ✓ Tracking outages at Regionals and other dynamic VLAN service providers (ION, AL2S)?
- ✓ Maintenance Freeze (Scale?)



# THANK YOU QUESTIONS ?

## Contact Us

- ✓ [gmoc@grnoc.iu.edu](mailto:gmoc@grnoc.iu.edu)
- ✓ <http://gmoc.grnoc.iu.edu>
- ✓ 317-274-7783

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