



**EPOC**

Engagement and Performance  
Operations Center

# Supporting CI through Roadside Assistance and Proactive Monitoring

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netSAGE

# Engagement and Performance Operations Center (EPOC)

- Joint project between Indiana University and ESnet
- co-PI Jent (GlobalNOC) and Zurawski (ESNet)
- Part of CC\* program for domestic science support
  - Award #1826994, \$3.5M over 3 years
- Partnerships with regional, infrastructure, and science communities



## Challenge:

# Understanding End-to-End Performance is hard

- Lots of pieces - Host system through networks to host system
- No one controls all the pieces
- Unknown expectations for what performance should be
- Soft failures are hard to find
- Many, many points of coordination



# EPOC Five Main Focus Areas

1. **Roadside Assistance for Performance Problems**
2. Application Deep Dives
3. **Network Analysis (NetSage)**
4. Services “in a box” (DMZ, testpoint in a box, etc)
5. Training



# EPOC Roadside Assistance – epoc@iu.edu

- “This file transfer worked last week, but it doesn’t anymore?”
  - Think of this like a flat tire, crash repair
- Collaboration of 3 teams already doing this
  - Engagement team at ESnet
  - IN@IU
  - IRNC NOC Performance Engagement Team (PET)



# Scaling Engagement – Operations Center Approach

- Central point of contact
  - [EPOC@iu.edu](mailto:EPOC@iu.edu)
- Operations Center Approach
  - Ticketing
  - Service center framework
  - Dedicated team- NOT just volunteers
- Coordination
  - Ties to the community
  - Take advantage of the “coalition of the willing”
  - Strategic partnerships are key

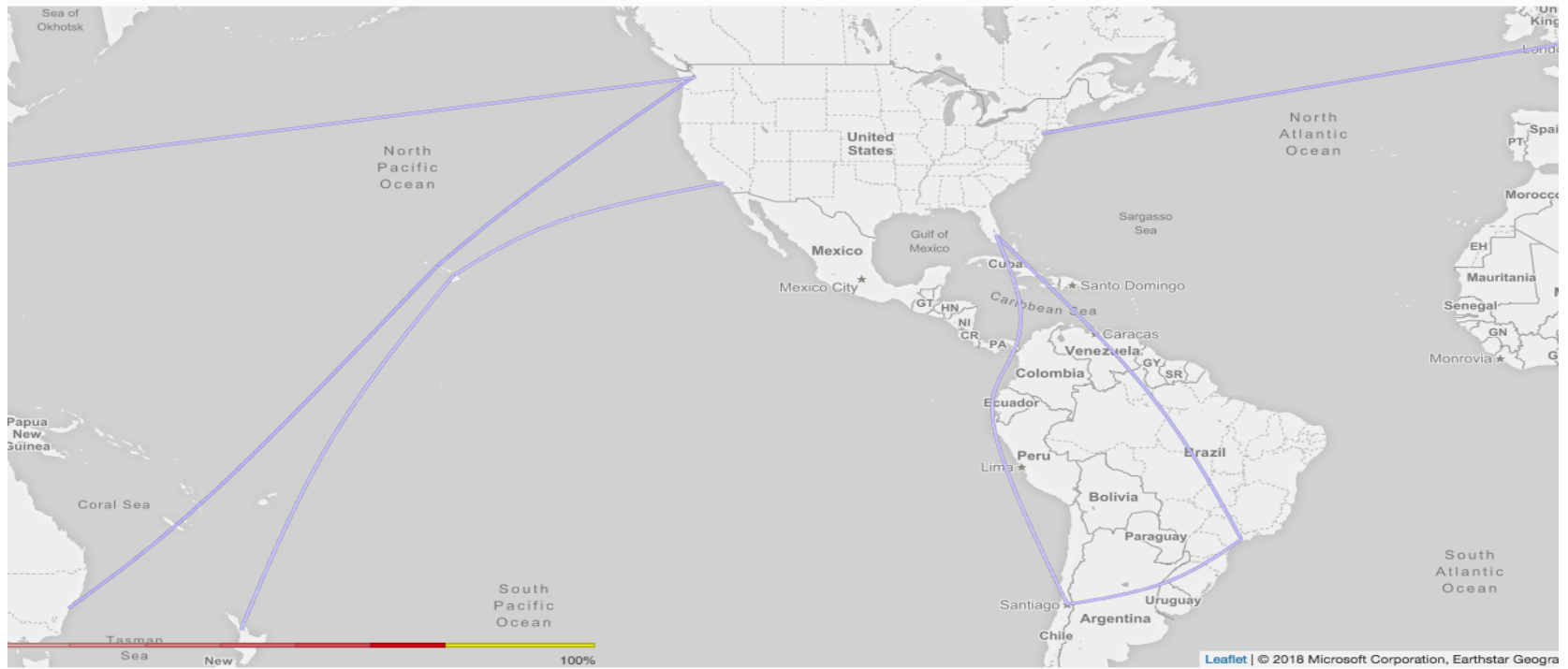


# Need for Measurements

- Performance and Measurements are 2 sides of a coin
- EPOC includes domestic deployments of the NetSage framework
  - SNMP, perfSONAR, Flow, Tstat Data
  - Grafana-based dashboards to visualize performance
  - <http://portal.netsage.global>
- Common basic measurement data is the first step to understanding performance issues

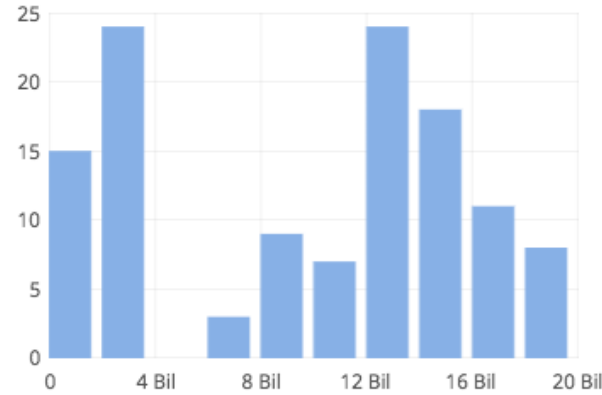
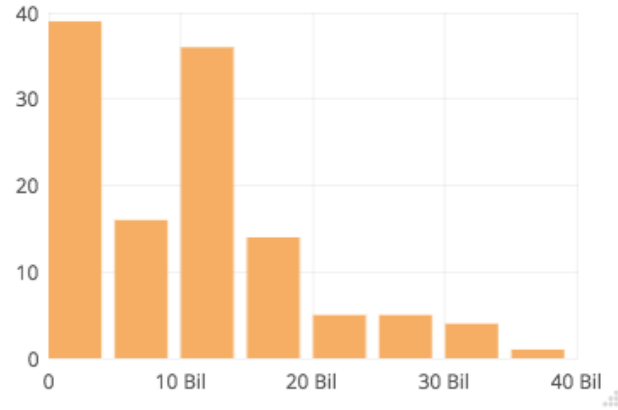
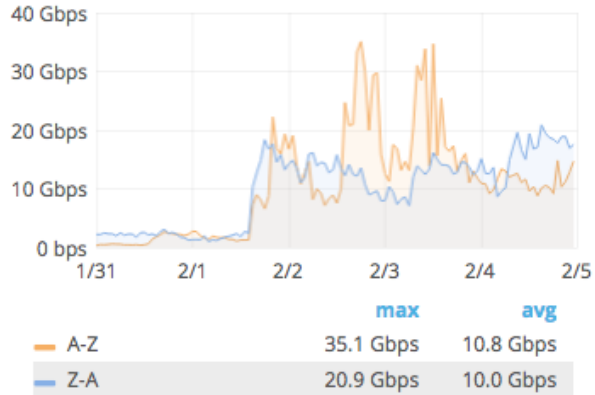


# <http://portal.netsage.global>

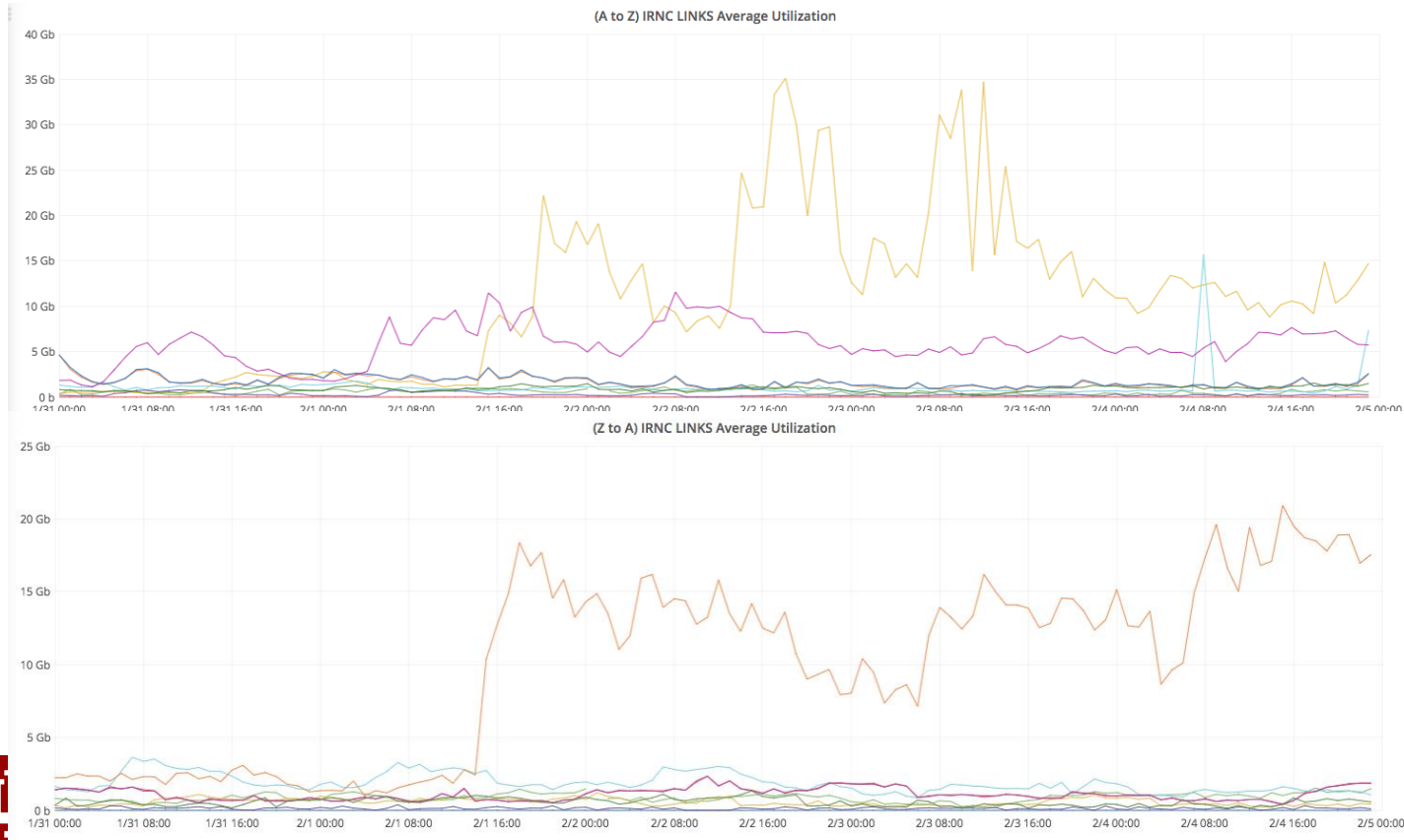




# NetSage- per link information



# NetSage – Time and Bandwidth information



# Takeaways

- EPOC is an NSF-funded operations center to help scale science engagement and problem resolution
- Single point of contact to help with end-to-end performance issues
  - [epoc@iu.edu](mailto:epoc@iu.edu)
- NetSage gives us the measurement flexibility needed
  - <http://portal.netsage.global>
- More about EPOC:
  - <http://epoc.iu.edu>
  - Jennifer Schopf, [jmschopf@iu.edu](mailto:jmschopf@iu.edu)

