CICompass

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EPOC Assistance for Team Science

by Jason Zurawski

NSF Ecosystem Lightning Talks

March 1, 2022
CI Compass Cyberinfrastructure for NSF Major Facilities Workshop

USC Viterbi School of Engineering Information Sciences Institute
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EPOC Support of the NSF CI Ecosystem

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ESnet
ENERGY SCIENCES NETWORK

INDIANA UNIVERSITY

12/2/2020

National Science Foundation Award #1826994

Agenda

- ***What's an 'EeePock'?***
- Things we have seen, heard, and champion
- Where do we fit into the NSF CI Ecosystem?
- How (and why) to engage with EPOC

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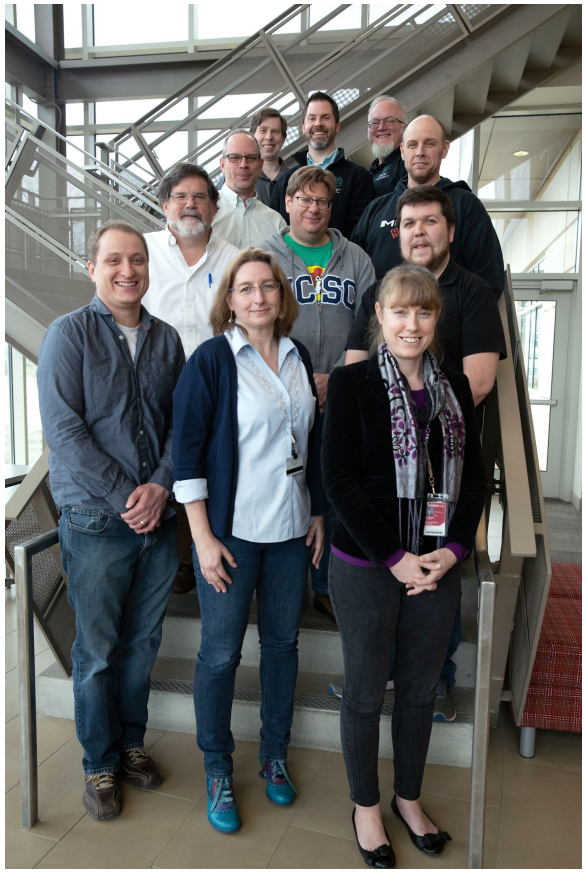
- Joint project between Indiana University and ESnet
- Part of CC* program for domestic science support
- Award #1826994, $3.5M over ~~3~~4 years
- Heavily leverage partnerships: networking, infrastructure, and science communities that spans funding agencies



- “End to End” focus drives our activities.
- Direct engagement with end users to understand the full pipeline.
- Leverage relationships with entities to understand and improve science outcomes

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Network as ~~Infrastructure~~ *Instrument*

Connectivity is the first step – ***usability*** must follow

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Focus Areas & Stats

- ***Roadside Assistance & Consulting***: “Ask us anything”: how to set something up, or help in fixing a long standing performance issue. 225+ cases over project lifetime.

- ***Scientific “Deep Dives”***: Investigating science drivers, and technology desires, for a campus, facility, or network provider. ~10 published reports (https://epoc.global/materials), 6 more in progress.

- ***Network Analysis (NetSage)***: Deeper understanding into the behavior of network traffic and flows. 45 deployments (and counting) on networks, campuses, and other facilities.

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Focus Areas & Stats (Cont)

- ***Network Service Integration***: Extending critical CI services (data mobility, network engineering, monitoring) to a wider audience through regional networking operators.

- ***Training***: Partnerships with CI Trainers (U of SC Cyberlab: http://ce.sc.edu/cyberinfra/) to deliver both theory and practical experience in CI components.

- ***Data Mobility Exhibition***: "How well ***CAN*** I move research data?" Direct engagement with researchers to test, understand, and improve they way they handle data mobility in their workflows. Striving to reach 1TB/hr (e.g. 2.2Gb/s or 277.8 MB/s)

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EPOC Experiences

- There are lots of broken things
  - Not everyone knows that things are broken
  - Not everyone knows how to fix a broken thing
- Research workflows are very retro
  - Science requirements are anything but retro
- Nudges are valuable, and work well
  - EPOC provides the nudge to understand ”why” but asking hard questions
- Everyone has a role in making science successful
  - This isn’t just researchers, it isn’t just IT, it isn’t just leadership

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EPOC's Role in the CI Ecosystem

- ***Operations Mentality:*** Everything is open, everything is tracked, and everything is monitored.
- ***Fast***: We respond within a day, and work with the end-user on their schedule.
- ***Reliable***: All tickets are closed to the satisfaction of the reporter. It stays open as long as they want it to.
- ***Fully Featured***: If we don't know an answer, we find someone who does. Questions are not turned away.
- ***Community BCP-Based***: Knowledgebase that spans decades, and is constantly updated.

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EPOC Examples

- ***Roadside:*** Typically we are trying to uncover slow data mobility. Sometimes that leads to “rescue missions” that span oceans: https://www.tacc.utexas.edu/-/continuing-arecibo-s-legacy
- ***Deep Dives***: 10+ reports have uncovered that the state of support for science on campus can use assistance. Routinely recommending upgrades to support larger data volumes, sharing, and reviews of policies that allow access to critical CI infrastructure
- ***NetSage Monitoring***: ”You can’t fix what you can’t find. You can’t find what you can’t see.” NetSage visibility has helped identify a number of series cross—world performance issues.

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Summary

- We are here to help users of all shapes, sizes, and requirements. Funding stream, location, science use case, etc. do not matter
- Not all problems resolve the same
  - Technology upgrades aren’t always the answer, science understanding and technology adaptation always are
- Patience is a virtue
- So is ensuring that everyone is hearing (or at least listening) to what is being said

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More Information

- Single point for all matters:
  - epoc@iu.edu
- More about EPOC:
  - http://epoc.global
  - Brand new newsletter! https://epoc.global/newsletter/
- Jason Zurawski, zurawski@es.net

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