OPERATIONS EXCELLENCE COMMUNITY REVIEW PROCESS
OVERVIEW AND FREQUENTLY ASKED QUESTIONS
April 12, 2016

A major 2016/17 goal for the Internet2 Network Services division is implementation of an IT Service Management (ITSM) plan that documents operational excellence and service goals for delivery of the Internet2 network service portfolio. Productive work has already been accomplished through a formal IT Service Management Review in 2014 and a security assessment that took place in 2015, but implementation of the recommendations from those studies is not complete. One aspect of the ITSM Plan is managing success criteria for key agreements when services are not provided "in house" at Internet2.

Network Services is now reviewing 3 key operating agreements that reach their initial term at the end of 2016 for integration into the new service management plan. With sponsorship from Internet2 Board leaders, a community advisory team on Operations Excellence (see list of community members included below) has been established to guide staff as it reviews requirements for new contracts to replace the expiring ones.

The following frequently asked questions are meant to address these efforts and provide clarity to the Internet2 community on a variety of topics related to our efforts to achieve operations excellence.

What are Internet2's objectives in reviewing these contracts?
Internet2 seeks to achieve two primary goals: (1) to put agreements in place that include service objectives that articulate high expectations, accountability, measurability and transparency that will replace existing and long standing generalized agreements; (2) to allow the Internet2 Board of Trustees to meet its financial obligation to the membership by benchmarking and comparing options for sourced services.

What community participation and engagement efforts are planned?
Since 2014, Internet2 staff have received advice and input from a community steering team on the operations and security reviews that were completed in 2014 and 2015 respectively. That advisory group included:
- Dave Swartz - American University

- Kelli Trosvig - University of Washington
- Steve Fleagle – University of Iowa (Internet2 Board Member)
- Charlie McMahon - Tulane University (former Board member)
- Joe Fredosso - MCNC (former Board Member, left MCNC in 2015)
- Pankaj Shah- LEARN (Board Member, replaced Fredosso in 2015)

As Internet2 looks to review a broader set of requirements for its future operations needs, this initial group has been expanded to include additional community member representatives including:
- Michele Norin – Rutgers University
- James Deaton – OneNet
- Steve Corbato - Oregon Health and Science University
- Kathy Gates – University of Mississippi
- William Deigaard – Rice University
- John Krogman – University of Wisconsin
- Patty Giuntoli - BerkleyLab/ESnet
- David Lois – WiscNet

The expanded community steering team met for the first time in April, 2016 and will provide guidance to Internet2 on the requirements and process that will be used for a market survey and assessment of options for future operations contracts. The Ciena equipment maintenance negotiation will be conducted by Internet2 staff with results shared with key community groups and the Internet2 Board of Trustees.

What is the community group charged with doing?
The community steering team has been asked to provide guidance on the development of requirements, execution of process and veracity of analysis as review of Internet2's important network operating contracts proceeds. They will provide input and advice to the staff and, ultimately, be the community's window into the process. The Community Steering Team is key to validating that the updated requirements Internet2 sets for the next 3-5 years and against which it reviews its options are the right set of requirements that will meet the community's needs.

How is the UCAID/Internet2 Board of Trustees involved?
As the Internet2 Board of Trustees does not have an operations committee, the full Board of Trustees reviewed and discussed the 2014 Operations Review and the 2015 Security Review and provided guidance

around Internet2 adoption of IT service management standards and security best practice objectives.

During the fall of 2015, the Board of Trustees Audit and Finance Committee, chaired by California State University System Executive Vice Chancellor/CFO Steve Relyea and vice-chair John Evans, asked the Internet2 executive staff to conduct market surveys and adopt clear and measurable service level objectives tied to financial commitments for all major service impacting contracts.

The Board executive committee is also directly involved in providing guidance to Internet2 leadership and the community steering team on the operations contract reviews. Board of Trustees Vice Chairman Patrick Gallagher (Chancellor, University of Pittsburgh) and Audit and Finance Committee Chair Steve Relyea (Executive Vice Chancellor & CFO, California State University System) will serve as executive sponsors of the Board to staff and community steering team efforts.

Which agreements are under consideration for review and potential changes in 2016/17?
In 2016-17, current contracts between Internet2 and three major suppliers including (a) the Indiana University's GlobalNOC, (b) the Level 3 for Dedicated NOC services, and (c) the Ciena hardware maintenance agreements will expire. Internet2 intends to follow best practice and review each of these contracts during the year, both to improve contract terms and to look for changes in requirements that could result in new contract terms, ultimately leading to better operational support for Internet2 members.
- Ciena Equipment Maintenance - Approximately $4.5M/year used by both Internet2 and ESnet – 3-year term FY 2017-2020
- Indiana University GlobalNOC - Approximately $3M/year - Typically 5-year term FY 2017-2022
- Level 3 DNOC (Layer 1) - Approximately $2M/year - Options of 5-year terms tied to the Fiber IRU FY 2017-2022

What is the timeline for the review? Has any work started?
The goal is to have the substance of the review process done by early fall, 2016. Some negotiation of agreements would occur following completion

of the analysis work, potentially extending in to early 2017. As of April, 2016, Internet2 staff have begun the process of developing requirements that will seed the community steering team discussions.

NOTE - We are very pleased to announce that Internet2 and the Global NOC at Indiana University have agreed to a one-year extension of their contract that will now extend to the end of 2017.

Do you anticipate there will be a single new agreement emerging from the market review?

The current intent is to survey all of the NOC services Internet2 receives from GlobalNOC and Level 3, with some separation of major functional areas like service desk, engineering, physical network support, logistics, software development. There are likely to be different requirements and agreements emerging from each of these areas.

Does Internet2 view the Indiana University GlobalNOC as just a vendor?

No. Internet2 views the GlobalNOC as an enduring partner and substantial contributor to the Internet2 community in the delivery of R&E services. At the same time, Internet2 is accountable to the community through a Board of Trustees and community governance. Internet2 Network Services is being asked by community leaders on the Board to be more mature in managing services to measurable outcomes. To move to more mature "best practice" where service level expectations are clear, and reciprocal documentation of expectations, accountability, transparency, and the reporting of performance metrics will require development of strong agreements.

How do these reviews relate to Internet2's Operational Excellence and Security programs?

Timely and formal reviews at the end of major contracts have already become a more routine and planned activity at Internet2 since completion of the BTOP network program. As part of each agreement review, we look at issues such as requirement changes, financial targets, intellectual property, and privacy & legal issues. With regard to the NOC operating

agreements, the expiration of the Level 3 Dedicated NOC and GlobalNOC agreements will allow us to mesh the Operations Excellence and Security program recommendations and expectations, together with new operating requirements from the community, with updated and aligned contract terms.

What did the Operations and Security reports say?
Both the operations review against the ISO/IEC20000 standard and the security review against the NIST800-53 controls indicated there were opportunities for improvements with people, processes and tools both inside Internet2, with suppliers and with partners to support a more mature operation and a more secure network environment.

Will my service be affected by these reviews?
Internet2 has a contract with the GlobalNOC through the end of 2016 and with Level 3 DNOC through April, 2017. The GlobalNOC and Level 3 will honor their contracts and there will be no change in the level of service an Internet2 member receives today. In addition, Indiana and Internet2 have signed a one-year extension through the end of 2017 to the current contract.

What changes in NOC service is Internet2 looking for?
Based on the security and operations review, Internet2 has been given direction from our Board that the Network Services team needs to update current general agreement terms to include measurable service objectives with clear assurances, controls, performance indicators, transparency and contractual obligations that the community can depend on. We also would like to see the contracts include accountability and improvement opportunity language if areas for improvement are identified or discovered during the full contract term.

Will an RFP be issued for any of these services?
Internet2 and the community steering team have not yet made the decision to issue an RFP for any of the services under assessment in 2016. It is best practice in the IT industry to do competitive analysis of sources and that sometimes takes the form of an RFP. In the case of our operations contracts, we are looking at an appropriate market study approach that allows us to meet the Board Audit & Finance Committee's

requirement to execute its fiduciary responsibility. That may not include a formal RFP process.

When did the operations review process start?

The operations & security community team, initially led by community member Dave Swartz, first met at the Internet2 Global Summit in April, 2014. Since that time, the Operations Excellence report was completed in Fall, 2014 and the security report was completed in Spring, 2015. Recommendations from those reports were then presented and discussed with the Network Architecture, Operations and Policy Advisory Group (NAOP PAG), community forums (Quilt and Regional Connector meetings), and with Indiana University. Many of the recommendations that didn't require contract related changes have already been implemented. The community team has also provided updates to the Audit and Finance Committee related to their request for a market study.

Does Internet2 intend to "insource" the resources it currently sources from Indiana University and/or Level 3 Dedicated NOC?

There are several different types of positions, pooled resources and services received in current contracts and Internet2 does not believe a single answer of "outsourced" or "insourced" is likely. There is currently no predisposition position on the final balance of resources to meet the developing requirements that will be considered in the market assessment. To support development of the best terms for the Internet2 community, it is important to leave options open so that best practices of peer NREN's and the marketplace can be reviewed as data is collected and proposals are received. Internet2 does expect it will increase its current on-staff engineering and service management talent to expand oversight of its eventual approach and maintain greater visibility and control of its operations as we move to service-focused operations in support of member requirements. Internet2 continues to highly value the terrific individual engineers and support personnel from Indiana University who work with Internet2.

Will Internet2 look at commercial vendors as alternatives to community partners?

Internet2 will look at both commercial and community-based organizations as potential support providers to Internet2. The ability to understand the

R&E community and to be flexible to its needs is a key success criterion for Internet2. We are aware, however, that some commercial vendors offering NOC services have made substantial advances in their service management capabilities. Internet2 feels it is important to include these potential suppliers, and the best practices they are following, in the benchmarking exercise to fully understand how community-sourced activities compare to commercial activities and what opportunities for improvement both approaches could learn from one another. A community-sourced supplier, with an aggressive management-supported plan for continuous improvement in service management, transparency and accountability would be an obvious and significant plus for an organization being benchmarked for services to Internet2.

Has Internet2 done any external benchmarking of its Operations maturity?
Yes. In 2014, Internet2 conducted a two-pronged operations assessment of the Internet2 network organization and the Internet2 Network NOC (IU GlobalNOC). The report highlighted areas for improvement in people, processes and tools that were anticipated as part of a first formal review of IT service management functions. The report also highlighted that Internet2 and its NOC had an informal relationship that lacked processes, clear service ownership and tools that would typically be found in a mature IT service organization. With the help of a community advisory team, Internet2 has been working aggressively to address internal deficiencies found in the report and, where appropriate, working with Indiana to address their respective areas.

Has Internet2 had any external benchmarking of its security posture?
Internal staff leadership of Internet2's CCSO office conducted a comprehensive security assessment in 2014/15 using the NIST800-53 control set. In addition, Internet2 received a report (commissioned by Internet2 but funded by Ciena) to look at the Layer 1 optical network security profile for potential high-security optical layer applications. Internet2 has embarked on a plan to take steps toward resolving the security vulnerabilities identified in the NIST controls review.

Are the Operations and Security Reports available for community review?

The Internet2 Board of Trustees, the community advisory team and Indiana University have all received the results of the reports as they were completed. The full reports will be shared with the expanded community review team. Other individuals wishing to see the reports can make a request to: ops-excellence@internet2.edu.

What additional cost will an IT Service Management system incur for Internet2?

To date, Internet2 has absorbed about $200,000 per year in consulting charges for the assessment and the resulting implementation of an IT Service Management system that is currently underway. In addition, we have expanded management oversight capabilities and reallocated engineering and project management time towards development of the service management system. We anticipate this level of effort will continue indefinitely and will be funded by savings identified in contract negotiations or other efficiencies.

If I have additional questions, who should I ask?

An email list that connects with Internet2 Network Services leadership is available at OPS-EXCELLENCE@internet2.edu . The community steering team will be kept abreast of community input that the staff becomes aware of. They may also be contacted directly.