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## Internet2 deploys ONOS SDN operating system

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Internet2, through the Internet2 NOC at Indiana University, has deployed the [Open Network Operating System \(ONOS\)](#) from ON.Lab and the ONOS Project. Internet2 has connected five institutions -- Duke University, Florida International University, the Indiana GigaPoP, MAX and the University of Maryland – College Park, and the University of Utah – to a virtual slice of the research and education (R&E) nationwide [fiber-optic network](#).

Internet2 says the new capabilities leverage the network's software-defined networking (SDN) substrate to enable the provision of virtual networks based on FlowSpace Firewall. An ONOS cluster is deployed in the virtual network slice and controls 38 OpenFlow-enabled Brocade and Juniper switches. An SDN-IP Peering application on top of ONOS is able to peer with other traditional networks, according to Internet2. It of course works with other networks that have deployed ONOS as well. For example, Internet2 says it has used the app to peer with deployments of ONOS at other universities and national R&E networks, including GEANT/GARR in Europe and the South American focused AmLight/FIU.

Use of ONOS and a centralized control plane should heighten network efficiency, Internet2 expects. In general, SDN capabilities will improve network programmability, lower total cost of ownership, and remove vendor lock-in as well, the organization believes.

"This is a major milestone in the SDN era," said Rob Vietzke, vice president of network services at Internet2. "We are pleased to partner with the ONOS project team to deploy this breakout software-defined capability for the first time on a nationwide production network. This work is a notable contribution by the R&E community in the effort to explore new research ideas in the field of networking and create prototype services that will influence the next generation of the Internet."

Meanwhile, the ONOS Project expects the application will offer a reference point for other deployments as well as a learning experience.

"ON.Lab, the ONOS Project, and Internet2 have a very synergistic collaboration. At ON.Lab we develop interesting open source SDN platforms and Internet2 is a keen early adopter bringing new capabilities to its customers," said Bill Snow, vice president of engineering for ON.Lab. "With the deployment of ONOS on Internet2's nationwide network, we get to validate and demonstrate ONOS's scalability, performance, and high availability in a production setting and learn from this experience to make ONOS better."

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