FIU introduced In-band Network Telemetry (INT) project at the European TNC19 conference

MONTREAL, QUEBEC, CANADA, August 12, 2019 /EINPresswire.com/ -- Jeronimo Bezerra, AmLight's Chief Network Engineer at Florida International University presented AmLight-INT: In-band Network Telemetry to support big data applications at the TNC19 pan-European conference hosted by GÉANT. AmLight-INT is a project of CIARA at FIU, funded by the U.S. National Science Foundation (OAC-1848746), that is deploying INT-capable switches on the AmLight Express and Protect (AmLight-ExP) backbone network, in collaboration with the programmable SDN switching infrastructure vendor, NoviFlow.

In-band Network Telemetry (INT) is a framework that enables INT-capable network switches to collect and report in-depth information about the state of the network in real-time. The motivation for the AmLight-INT project is to increase understanding of how to support the high-throughput data requirements of science instruments that move data across wide geographic distances in a reliable and predictable manner, such as the Large Synoptic Survey Telescope (LSST). "Using NoviFlow's INT-capable switches, we will be able to measure the state of the AmLight-ExP network in real-time, as well as respond to network events in real-time", said Jeronimo Bezerra. When AmLight-INT detects an event on the AmLight network that could impact LSST data flows, for example packet loss, AmLight-INT can program the NoviFlow switches to automatically reroute the LSST flows to an alternate path in a millisecond time-scale, preventing an interruption of the flow of data from the LSST application.

> "
> The combination is the ideal platform on which to deliver the advanced network monitoring, optimization and automation required by the AmLight-ExP project."
>
> *Dominique Jodoin, president and CEO of NoviFlow*

At TNC19, Jeronimo Bezerra clearly explained why it's challenging and costly to attempt measuring network performance in real-time – "... polling SNMP or network counters in a sub-30 second interval is not recommended, because of the impact to a switch's performance." He described "microbursts" as network events normally not detected, because the sampling rates of the detectors are too coarse. "The ability to see deeper into the network has the potential to transform how we troubleshoot networks, significantly reducing the amount of time network engineers spend troubleshooting network anomalies",

said Julio Ibarra, Principal Investigator of the AmLight-ExP project.

AmLight-INT is using the NoviFlow WB5132 switches that support OpenFlow 1.3+, has 32 100Gbps ports, uses the Barefoot Tofino chip and the NoviWare Network Operating System (NOS) software that enables INT. Preliminary results were presented at TNC19, showing data of the state of the network at a much granular level that can be used to detect microbursts and other anomalies normally not detected.

According to NoviFlow's President and CEO, Dominique Jodoin: "NoviFlow's Programmable match-action pipeline technology combines Barefoot Network's 6.4 Terabit-per-second Tofino chip with NoviFlow's NoviWare NOS to deliver unprecedented visibility and real-time control of network behavior. The combination is the ideal platform on which to deliver the advanced network monitoring, optimization and automation required by the AmLight-ExP project."

AmLight-INT is in its first year of a two-year project. Better results are scheduled to be presented at the Internet2 Technology Exchange, in New Orleans, on December 10th.

About [AmLight ExP](): AmLight Express and Protect (ExP) implements a hybrid network strategy that combines optical spectrum (Express) and leased capacity (Protect) that builds a reliable, leading-edge diverse network infrastructure for research and education. AmLight ExP operates high-performance network links connecting Latin America to the U.S., funded by the National Science Foundation (NSF award #OAC-1451018); With significant investments from the Academic Network of São Paulo (ANSP), Rede Nacional de Ensino e Pesquisa (RNP), and the Association of Universities for Research in Astronomy (AURA), the total bandwidth provided by AmLight ExP between the U.S. and South America is expected to grow to more than 680 Gigabits per second in aggregate capacity by 2019 (http://www.amlight.net/).

About CIARA: Florida International University's Center for Internet Augmented Research and Assessment (CIARA), in the Division of IT, exists as a vehicle to contribute to the pace of research and the quality of education at FIU. CIARA is an evolving interconnection point between research scientists, graduate students, and faculty. These interconnections foster a domain-specific tailoring of Internet technologies to support faculty research and, in the process, improve graduate education. Institutions affiliated with CIARA use an interconnecting cyber infrastructure that ties together science and engineering research and education communities in the U.S. with peer communities in Latin America and the Caribbean (http://www.ciara.fiu.edu).

About FIU: Florida International University is an urban, multi-campus, public research university serving its students and the diverse population of South Florida. FIU is committed to high-quality teaching, state-of-the-art research and creative activity, and collaborative engagement with its local and global communities. FIU is Miami's first and only public research university, offering bachelor's, master's, and doctoral degrees. FIU is number one in the nation in awarding bachelor's and master's degrees to Hispanic students. Designated as a top-tier research institution, FIU emphasizes research as a major component in the university's mission (http://www.fiu.edu).

About GÉANT: GÉANT is Europe's leading collaboration on network and related infrastructure and services for the benefit of research and education, contributing to Europe's economic growth and competitiveness. The organization develops, delivers and promotes advanced network and associated e-infrastructure services, and supports innovation and knowledge-sharing amongst its members, partners and the wider research and education networking community (www.geant.org)

About LSST: Large Synoptic Survey Telescope (LSST) project activities are supported through a partnership between the National Science Foundation (NSF) and the Department of Energy. NSF supports LSST through a Cooperative Agreement managed by the Association of Universities for Research in Astronomy (AURA). The Department of Energy funded effort is managed by the SLAC

National Accelerator Laboratory (SLAC). Additional LSST funding comes from private donations, grants to universities, and in-kind support from Institutional Members of LSSTC (http://www.lsst.org/)

About NoviFlow: NoviFlow Inc. provides high-performance SDN-based switching and cybersecurity solutions to network carriers, data center operators, government agencies and enterprises seeking greater control, security and flexibility over their networks. NoviFlow has offices in Montreal, Singapore, Sunnyvale and Seattle, and representatives in the Asia Pacific, Europe, and the Middle East. (http://noviflow.com/)

About TNC19: TNC19 conference brings together over 700 participants from over 70 countries, truly representing the diverse global research and education community, for a packed schedule of keynote speeches, demonstrations, meetings, presentations to give participants a unique overview of the latest developments in research and education networking (https://tnc19.geant.org/)

Vasilka Chergarova
Center for Internet Augmented Research and Assessment, FIU
+1 305-348-4105
email us here
Visit us on social media:
Facebook
Twitter
LinkedIn

This press release can be viewed online at: http://www.einpresswire.com