AMPATH Joins MANRS Initiative to Improve Routing Security

In **December 2021**, AMPATH (AS20080) became a Network Operator member of the Mutually Agreed Norms for Routing Security (MANRS), a global initiative supported by the Internet Society (ISOC) that propagates actions to reduce routing security threats.

MANRS has the following objectives: (1) Raise awareness of routing security problems and encourage the implementation of actions that can address them; (2) Promote a culture of collective responsibility towards the security and resilience of the Internet's global routing system; (3) Demonstrate the ability of the Internet industry to address routing security problems; and (4) Provide a framework for network operators to better understand and address issues relating to the security and resilience of the Internet's global routing system. To achieve such objectives, MANRS recommends four actions: filtering non-compliant packets and advertisements, implementing anti-spoofing techniques, improving coordination between network operators, and deploying a global validation trusting mechanism. As a member of MANRS, AMPATH is ready to prevent the propagation of invalid routing information, avoid traffic from spoofed sources, and facilitate communication between service providers. More information about MANRS can be found at https://www.manrs.org/.

In the scope of MANRS, AMPATH has deployed the Resource Public Key Infrastructure (RPKI). RPKI is a solution to validate inter-domain received prefixes and detect anomalies, thereby avoiding the use of hijacked prefixes and delivering a reliable and secure experience to the Internet community. The validation results are used not only for the routing decision at AMPATH, but they are advertised to connectors to support their routing policies.

The AMPATH and AmLight community members benefit from the increased security of elements that connect to the Internet, thus reducing vulnerability to malicious attacks and increasing the robustness of the global routing table used for data traffic worldwide. "*AMPATH is excited to be a member of the MANRS community and to contribute towards making the Internet more secure*," said Dr. Julio Ibarra, Principal Investigator of AMPATH. RNP's Associate Director of Engineering and Operations Ari Frazão Jr. stated "*For us at RNP, we are going to be able to benefit from an infrastructure that follows the good security practices recommended by MANRS, which certainly brings us a very important gain*".

The AMPATH BGP Policy is available at https://ampath.net/policies.

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. Fostering a greater international understanding, FIU is a major international education center with a primary emphasis on creating greater mutual understanding among the Americas and throughout the world. FIU is Miami's first and only public research university, offering bachelor's, master's, and doctoral degrees. Designated as a top-tier research institution, FIU emphasizes research as a major component in the university's mission (http://www.fiu.edu).

About AMPATH: Florida International University's Center for Internet Augmented Research and Assessment (CIARA), in the Division of IT, has developed an international, high-performance research connection point in Miami, Florida, called AMPATH (AMericasPATH; www.ampath.net). AMPATH extends participation to underrepresented groups in Latin America and the Caribbean, in science and engineering research and education through the use of high-performance network connections. AMPATH is home to the Americas Lightpaths Express and Protect (AmLight-ExP) high-performance network links connecting Latin America to the U.S., funded by the National Science Foundation (NSF), award #OAC-1451018; and the AtlanticWave-SDX: NSF Award# OAC- 1451024, 2015-2020, IRNC: RXP: AtlanticWave-Software Defined Exchange: A Distributed Intercontinental Experimental Software Defined Exchange (SDX) (www.ciara.fiu.edu)

About RNP: The Brazilian Education and Research Network (RNP), qualified as a Social Organization (OS) by the Brazilian government, is supervised by the Ministry of Science, Technology, Innovation and Communications (MCTIC), and is maintained through the Inter-Ministry RNP program, which also includes the Ministries of Education (MEC), Health (MS), Citizenship and Defense (MD). The first Internet provider in Brazil with national coverage, RNP operates a high-performance nationwide network, with points of presence in all 26 states and the national capital, providing service to over 1200 distinct locations. RNP's more than four million users are making use of an advanced network infrastructure for communication, computation and experimentation, which contributes to the integration of the national systems of Science, Technology and Innovation, Higher Education, Health and Culture (http://www.rnp.br/en).

About Rednesp (f.k. ANSP): The Research and Education Network of São Paulo (Rednesp) provides connectivity to the top R&E institutions, facilities, and researchers in the State of São Paulo, Brazil, including the University of São Paulo, the largest research university in South America. Funded by FAPESP since its beginning, Rednesp cooperates with international academic consortia and networks such as AmLight, RedCLARA, and GNA-G. Rednesp also links 36 research institutions in the state (www.rednesp.br).

About RedCLARA: CLARA, the Latin American Cooperation of Advanced Networks (Cooperación Latino Americana de Redes Avanzadas), is a non profit organization whose members are the NRENs of Latin America, and which is in charge of the management, development and operation of RedCLARA as well as the coordination of Latin America's research networking activities. RedCLARA directly connects to AmLight links in Sao Paulo, Miami and Tijuana. Latin American NRENs connected to redCLARA: Argentina (Innova-Red), Brasil (RNP), Chile (REUNA), Colombia (RENATA),Costa Rica (RedCONARE), Ecuador (CEDIA), El Salvador (RAICES), Guatemala (RAGIE), México (CUDI), Panamá (RedCYT), Perú (RAAP), Uruguay (RAU), and Venezuela (REACCIUN) (www.redclara.net).

About REUNA: Red Universitaria Nacional, REUNA, provides a leading digital platform that articulates, connects, and fosters collaboration between those entities that based in Chile

belong to the fields of science, education, and the Chilean local culture, connecting them to the rest of the world throughout innovating services. With over 20 years' experience and currently made up of 31 institutions, REUNA's digital platform covers 13 regions between the northern city of Arica and the southern city of Osorno. (www.reuna.cl/en/)

About TENET/SANReN: The Tertiary Education and Research Network of South Africa (TENET), and South African National Research Network (SANReN) jointly form the South Africa's NREN. The TENET is South Africa's national research and education network organization (https://www.tenet.ac.za/). SANReN is a business unit inside the South African CSIR's Meraka Institute and is responsible for the design, acquisition and roll-out of national and international capacity for the South Africa NREN, as well as the development and incubation of advanced services (https://www.sanren.ac.za/). TENET operates the SANReN, which is a key component of the South African government's National Integrated Cyberinfrastructure System (NICIS), alongside the Centre for High Performance Computing (CHPC) and the Data Intensive Research Initiative of South Africa (DIRISA).

About UbuntuNet Alliance: UbuntuNet Alliance is a regional research and education network in eastern and southern Africa, that works with its member NRENs, and coordinates and collaborates with peer regional R&E networks, such as GEANT and RedCLARA. The UbuntuNet Alliance seeks to extend the capacity and resilience of its broadband research and education backbone network with high-speed connections to NRENs worldwide and the Internet. (https://ubuntunet.net/)

About WACREN: West and Central African Research and Education Network (WACREN) is a regional research and education network serving the west and central region of Africa. The WACREN's mission is to build and operate a world class network infrastructure, develop state of the art services, promote collaboration among national, regional, international research and education communities and build the capacity of the REN community. (https://www.wacren.net/)

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