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European success in Future Internet research

CREATE-NET

An intercontinental test demonstrates the effectiveness of a new model for managing networks based on SDN and software open. GARR, CREATE-NET and CNIT-University of Rome Tor Vergata in Italy and Onlab in the US had been working on the test, using the GÉANT testbed service.

Open and sustainable, what is the future of the Internet? An answer comes from the international result of the test which has been conducted between the United States and Italy to demonstrate that innovations in the way the Internet works are possible, using an open source software for the network management, even over long distances. The demo has been shown at the conference Open Networking Summit 2015, which took place from 15 to 18 June in Santa Clara in California.

An international team of researchers from ON.Lab, CREATE-NET, CNIT / University of Rome Tor Vergata and the Italian research network GARR has demonstrated, on a dedicated data transmission network, how the paradigm SDN (Software Defined Network) created by the Open Networking Operating System (Onos), developed by ON.Lab and based on OpenFlow, can reach a very high level of functionality and reliability managing a network between the two shores of the Atlantic. The paradigm SDN aims to simplify the network nodes, by decoupling the hardware (used for the routing plan) from the software (for the controlling plan) which are now held together in a router. The objective is to promote a dynamic, flexible, open source, more standardized model of the network management, able to run regardless of the type of hardware. For these reasons, the paradigm SDN is considered one of the most important innovations of the last years in the ICT field and a key pillar in the services virtualization.

'For several years GARR has been active in supporting research on the Future Internet,' said Mauro Campanella, coordinator of European projects in GARR. 'As a research network we collaborate to explore new technological paradigms to give a strong contribution to the development of the next-generation networks.'

The test has started from the center ON.Lab in the US involving several prestigious American universities and has used research networks Internet2 (US), GÉANT (Europe) and GARR (in Italy) to end in Italy in the Trento research center CREATE-NET and the University of Rome Tor Vergata. The testbed service has been offered by GÉANT and has hosted the European control centre of the Onos System, run by Italian researchers. The interaction with its respective American control centre, which has occurred without any evidence of a significant transmission delay, has demonstrated that controllers can ensure high reliability, even if they are thousands of kilometres apart and are managed remotely. This activity has been the result of the European project DREAMER, funded by European network GÉANT, which has studied the best way to deploy SDN in production environments, also applying it to the IP network operators. The international significance of the test has been amplified by the Open Networking Summit, an international point of reference in technological innovation related to SDN technologies which every year involves industry pioneers, innovators, researchers, users and over 1600 ICT companies.

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