Press release
Nota de prensa

Madrid, Spain 14 October, 2012

Silicon Valley, the powerhouse of high-tech R&D, funds Madrid-based research on BGP

Institute IMDEA Networks launches a pioneering research effort backed by the Cisco University Research Program Fund, a corporate advised fund of Silicon Valley Community Foundation. This new project aims at identifying and designing new key features of BGP (the core Internet protocol).

Route servers, which have seldom undergone research, will be one of the focuses of the first project involving IMDEA Networks and CISCO Systems. The project, entitled "BGP* Route Servers: scaling and convergence", will identify and design key features that will make them even more attractive to Internet Exchange Point (IXP) members, as well as improving the performance of their implementation.

The foreseen emergence of IXPs in some parts of the world, not only for the benefit of expanding access to broadband Internet, but for their socio-economic impact associated to the reduction of internet operation costs, may indeed trigger an increased interest in the performance of BGP route servers. IXPs form a key part of the overall Internet infrastructure, as they provide different Internet Service Providers (ISPs) with an interconnection point, thus improving traffic efficiency, with the result of a better service for the end user and potential savings for their ISP members.

A newly born IXP benefits a lot from the use of a route server, in terms of the amount of traffic that is actually exchanged over the platform. IXP members connected to a route server do not need to establish an explicit eBGP (External BGP) session with other members to be able to send and receive traffic over the platform. Hence, this type of technology speeds up the return on investment for new IXP members.

Support for differentiated policies, scalability, and convergence time make the development of efficient Route Server platforms challenging. Cisco Systems, the industry leader in IP networking technologies, has released a version of IOS, the CISCO routing platform operating system, which supports the Route Server capability. It mainly builds on Virtual Routing and Forwarding instances, commonly used for BGP/MPLS VPNs. In this project, the IMDEA Networks – CISCO – Silicon Valley alliance identifies the key investigation tracks for the route server technology, and improves its support in IOS.

The investment made by Silicon Valley Community Foundation in the Madrid-based Institute gives testimony to the quality and capabilities of its leading research team, which is making remarkable headway on the advancement of the science of communication networks. This touchstone project, which will serve as a bridge for further collaborations, started on August 1st,

2012 and will run until July 1st, 2013. It is led by Dr. Pierre François, a Staff Researcher at IMDEA Networks, and a long-standing CISCO collaborator. Juan Camilo Cardona will be the PhD Student assisting him on this research initiative. His experience in ISP operations will be a great asset.

**BGP: Border Gateway Protocol*

Read more:

- Madri+d Noticias (in Spanish)
- AlphaGalileo
- Universidad Carlos III de Madrid - Noticias: La UC3M participa en una investigación financiada por Silicon Valley

Source(s): IMDEA Networks Institute

URL: Silicon Valley, the powerhouse of high-tech R&D, funds Madrid-based research on BGP

About us

IMDEA Networks Institute, promoted by the Regional Government of Madrid, is a research organization on computer and communication networks whose multinational team is engaged in cutting-edge fundamental science and technology. As a growing, English speaking institute located in Madrid, Spain, IMDEA Networks offers a unique opportunity for pioneering scientists to develop their ideas. IMDEA Networks has established itself internationally at the forefront in the **development of future network principles and technologies**. Our team of highly-reputed researchers is designing and creating today the networks of tomorrow.

Some keywords that define us: 5G, Big Data, blockchains and distributed ledgers, cloud computing, content delivery networks, data analytics, energy-efficient networks, fog and edge computing, indoor positioning, Internet of Things (IoT), machine learning, millimeter-wave communication, mobile computing, network economics, network measurements, network security, networked systems, network protocols and algorithms, network virtualization (software defined networks – SDN and network function virtualization – NFV), privacy, social networks, underwater networks, vehicular networks, wireless networks and more…

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