



CICLO DE CONFERENCIAS Y SEMINARIOS

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“Understanding the Reachability of IPv6 Limited Visibility Prefixes”

Día: Lunes, 31 marzo 2014

Hora: 20:00 – 21:00

Lugar: Aula Sur A-6 - EPS

Abstract:

The main functionality of the Internet is to provide global connectivity for every node attached to it. In light of the IPv4 address space depletion, large networks are in the process of deploying IPv6. In this paper we perform an extensive analysis of how BGP route propagation affects global reachability of the active IPv6 address space in the context of this unique transition of the Internet infrastructure. We propose and validate a methodology for testing the reachability of an IPv6 address block active in the routing system. Leveraging the global visibility status of the IPv6 prefixes evaluated with the BGP Visibility Scanner, we then use this methodology to verify if the visibility status of the prefix impacts its reachability at the interdomain level. We perform active measurements using the RIPE Atlas platform. We test destinations with different BGP visibility degrees (i.e., limited visibility - LV, high visibility - HV and dark prefixes). We show that the IPv6 LV prefixes (v6LVPs) are generally reachable, mostly due to a less-specific HV covering prefix (v6HVP). However, this is not the case of the dark address space, which, by not having a covering v6HVP is largely unreachable. When talking about the results we present in this paper a better explanation of traceroute and some basic concepts of BGP will be provided.

Reseña Curricular:

Andra Lutu is currently completing it Ph. D. thesis at IMDEA Networks as Research Assistant. She got a B.S. In 2009 in Networks and Software for Telecommunications at the Polytechnic University of Bucharest. She was a part of the Orange Romania “Top Talents” programme and of the 2012 Internet Initiative Japan - Innovation Institute summer internship programme. She got her Master Degree in 2010 at Universidad Carlos III Madrid . Her master thesis dealt with application of game theory to interdomain routing. She works with Dr. Marcelo Bagnulo, an outstanding contributor to the IETF on IPv6, Shim6 and other related subjects. Andra Lutu main research interest is the analysis of the currently deployed interdomain routing protocol, the Border Gateway Protocol to improve our understanding on how networks modify their routing behavior in order to meet stringent traffic engineering needs. A quantitative study of the impact that can be observed on the rest of the Internet due to the deployment of traffic engineering mechanisms, like prefix disaggregation. A large variety of tools is used like game theory, optimization models or BGP routing data analysis.