Towards an Improved Internet Topology Model

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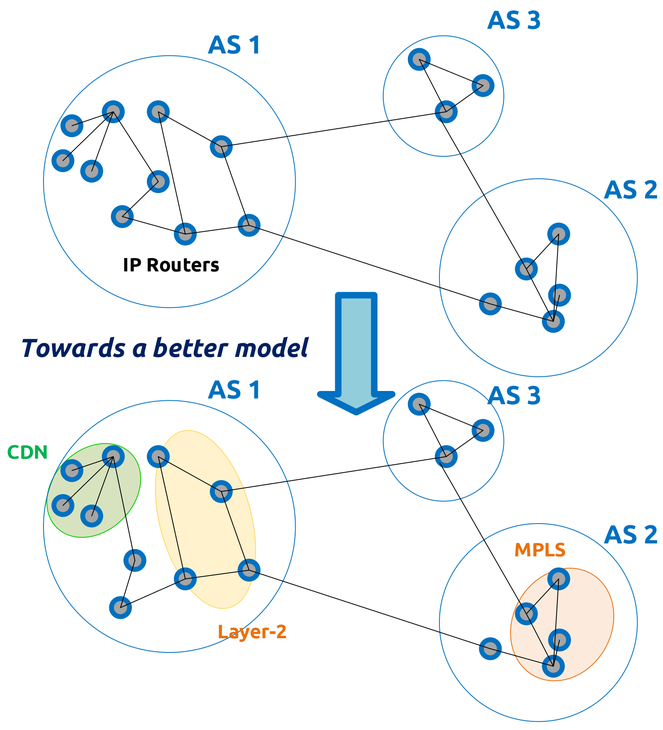
ABSTRACT

Since the late nineties, a good amount of research has been conducted in order to obtain data regarding internet topology and how operators create and make use of it. New measurement techniques have been developed to reveal the technologies involved in the internet; i.e., Multiprotocol Label Switching (MPLS), 2-layercloud devices, etc.; and new technological paradigms have been added, i.e., Segment Routing (SR), Content Delivery Networks (CDN), etc. Additionally, research has been focused on describing and modeling internet topology with new enlightened metrics such as k-core decomposition, bipartite model, etc. However, (i) new measurement techniques are required to better survey current Internet technologies; (ii) and sophisticated internet models are needed in order to include these technologies on Internet Topology. This research aims to improve the measurement techniques on topology discovery and to develop an enriched internet topology model by including information about new technologies which are essential to describing today's internet.

GOALS

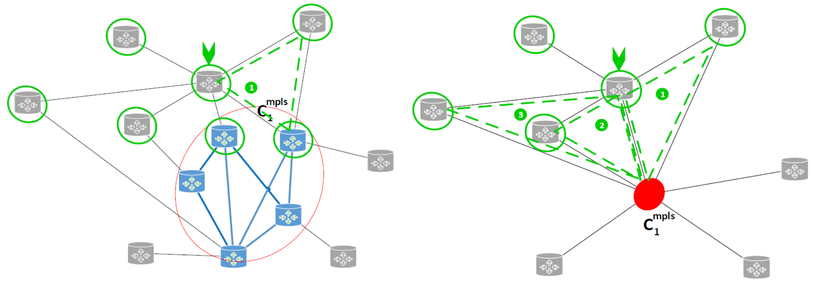
- Developing news methodologies, data collection techniques and measurement tools.
- Improving the current Internet modeling tools to reveal new networking technologies on Internet topology.
- Providing an improved Internet topology model.

GOALS



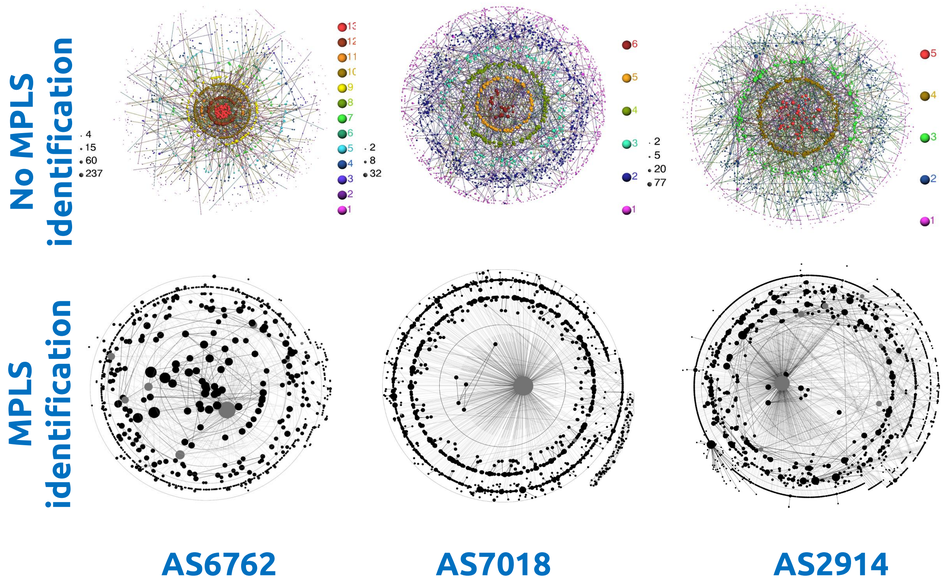
FIRST RESULTS

- Meassurements tools to discover MPLS capable routers
- MPLS abstraction level
- MPLS clusters identification
- MPLS clusters represented as single nodes on router level tolopoly

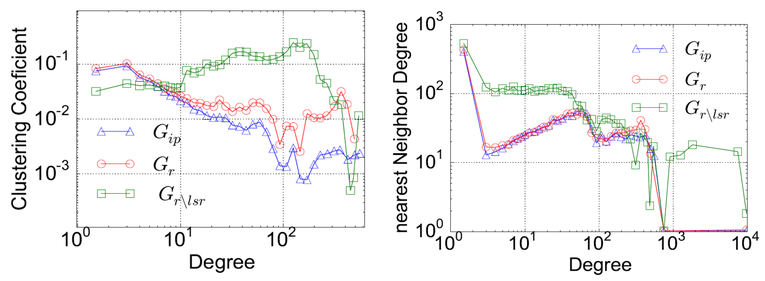


FIRST RESULTS

K-core visualization



Metrics



FUTURE DIRECTIONS AND DISCUSSIONS

- Layer-2, CDN identification
- How does traffic flow works on diferents Internet technologies behaviur?
- Measurement tools for large campains
- Features to develop a good Internet Model