# GEC9 Demo : GENI ShadowNet: Internet In a Slice

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URL: http://groups.geni.net/geni/wiki/Shadow

The objectives of the GENI ShadowNet project are to deploy virtualizable commercial routers into the ProtoGENI backbone, develop software to enable per-slice monitoring and measurement, and develop tools and interfaces to control and access the measurement infrastructure.

This demo sets up an experiment of a wide-area network that consists of multiple ASes running realistic intra- and inter-domain routing protocols. We demonstrate how the GENI ShadowNet Juniper routers can be used to create a set of networks (ASes) that have the essential components and commercial protocols that make up the Internet. Specifically, we set up a network topology consisting of three ASes. AS1 uses MPLS and OSPF in the core and supports both IPv4 and IPv6. It consists of two core routers (ISP1_P_1 and ISP1_P_2) and two edge routers (ISP1_PE_1 and ISP1_PE_2). AS2 supports IPv4, runs OSPF and is routed (i.e., needs BGP in the core). It has one core router and two edge routers. AS3 supports IPv4, runs ISIS and is routed. In addition, four customer PCs are connected to the networks with two of them through customer edge routers (Cust_A and Cust_B). This demo will show how the traffic between these PCs is affected by the configurations and status of the routers in the network and how measurement data can be collected from the routers.
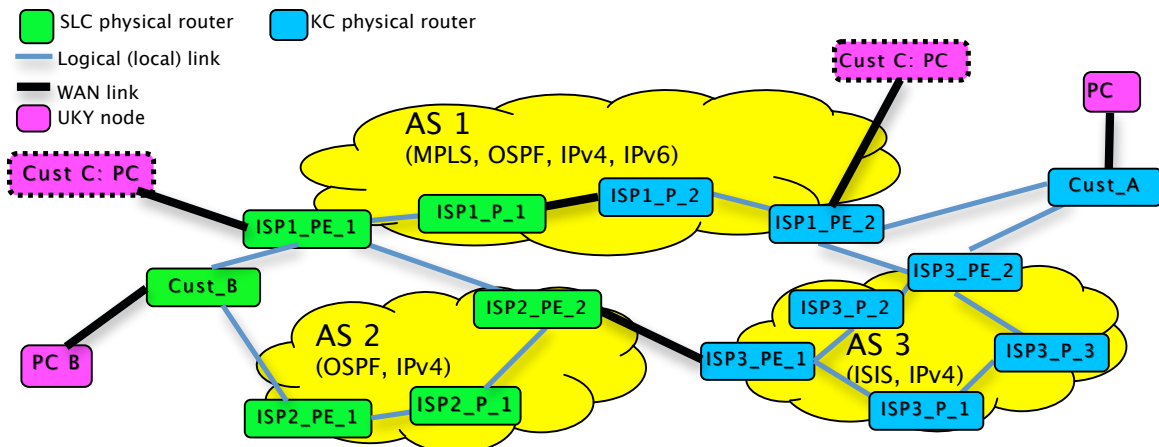
All of these routers are logical routers implemented by two Juniper physical routers installed at Internet2 sites: Salt Lake City and Kansas City. Each logical router behaves essentially like a physical router, can be configured separately via its own console, has its own set of routing protocols and associated forwarding information base (FIB), and has its own set of interfaces, etc. Further, since it is a commercial platform, each logical router has extensive monitoring and reporting capabilities that can be leveraged by the ProtoGENI INSTOOLS to obtain slice specific instrumentation information. The demo shows the graphs generated by INSTOOLS based on the measurement data collected from logical routers.