

# GEC7 Intra-cluster-D demo

## Participating projects

ORCA-BEN, ViSE and/or DOME, iGENI

## Purpose

Demonstrate an intra-cluster, multi-site experiment involving heterogeneous resources, national network fabric, experiment tools. Demonstrate the use of NDL+ substrate description for purposes of path computation and stitching.

## Overview

This demo will connect a ViSE or DOME experiment to the demo floor at GEC7 using a private dynamically established network consisting of a mix of dynamic and static VLAN segments from different providers (multi-layered BEN, NLR, NOX). VLAN segment mapping between dynamic and static segments will be performed under ORCA control.

Figure 1: GEC7 Demo Connectivity

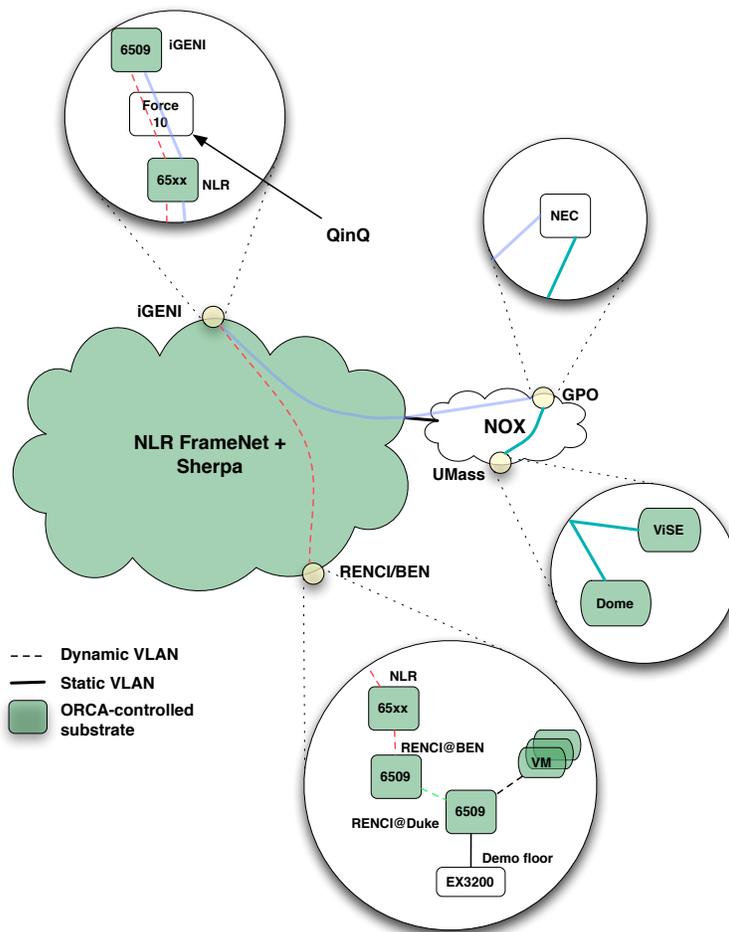


Figure 1 shows the connectivity diagram for the demo. Static and dynamic VLAN segments are distinguished pictorially. Segments using different VLAN tags are depicted using different colors.

During the demo we will

- a. dynamically provision the connections between RENCi and iGENI (across NLR) as well as across BEN
- b. provision VMs at one or more of BEN sites
- c. provision experiments at ViSE and/or DOME
- d. dynamically stitch all segments together in the proper order
- e. allow user access to demo portal via a statically provisioned switch at the demo floor on the private network that we created

ORCA will present its traditional provisioning portal with a Google Maps GUI that will process individual site NDLS to enable it to graphically show available substrate at different sites and selected the desired substrate configuration using point/click. The GUI will produce a slice request in NDL form to be processed by the new controller.

#### Infrastructure Assumptions

1. Force 10 at iGENI provides QinQ service so all NLR VLAN tags are visible on the 6509 10G interface to allow for dynamic mapping
2. NOX is assumed to be able to provide a static VLAN between BBN and NLR Framenet (QinQ is also acceptable but not necessary).
3. A static VLAN segment is provisioned in FrameNet between NOX and iGENI
4. The NOX VLAN segment is statically mapped onto the existing UMass VLAN at BBN.

#### ORCA Controller

The controller will be based on the existing BEN controller with the following modifications:

- a. Google Maps GUI instead of forms producing NDL-formatted slice request
- b. Dynamic inter-domain path computation based on NDL
- c. Dynamic stitching dependency computation based on inter-domain path (proper order of redeems)

#### Questions

1. How does the controller interface with ViSE/DOME (other than placing a redeem for the whole of ViSE or the whole of DOME)
2. What is the experiment control portal that users will see once the slice is provisioned? How do the users find it and what do they do on it?