# UAF UNIVERSITY OF ALASKA FAIRBANKS

# Virtual Machine Introspection and Development of a
# Model Federation Framework for GENI (VMI-FED)

The University of Alaska Fairbanks is helping to open the way for transformative research at the frontiers of network science and engineering by investigating the opportunities and challenges associated with two distinct tracks within the Global Environment for Network Innovation (GENI) Project.

## TRACK I - Virtual Machine Introspection (VMI)

**Motivation:** Monitoring is an essential component of the GENI infrastructure for several reasons. First, and maybe most importantly, it allows the collection of scientific data for the experiments that will run on GENI slices. It also provides a mechanism for system administrators to determine the current state of the GENI components, allowing them to tune the system, add capacity where necessary, and even detect and react to system compromises.

## TRACK 2 - Model Federation Framework (MFF)

**Motivation:** It is widely acknowledged that without the buy-in of existing infrastructure owners and operators who can contribute resources, the GENI Project will likely not succeed. It can also be predicted that there needs to be a framework for federation so that organizations who contribute their resources to GENI clearly understand what they are committing, the potential standards they must meet, the protections they will be afforded, and benefits they will accrue.

## Deliverables

Demonstration of initial VIX (VMI) functionality in lab environment at GEC6.
Finalize and post ASSERT Virtualization Resource Analysis Document for review by GENI researchers and personnel. Please feel free to review this and post your comments and questions to one of our contacts at http://assert.uaf.edu/geni/contact.html

**VMI-FED: S2.c GEC8 demo (Due 05/01/10)**
Demonstration of initial VMI library on cluster nodes at UA (Demo at GEC8)

**VMI-FED: S2.d resource doc (Due 07/15/10)**
Finalize and post initial UA resource analysis summary document for review by GENI researchers and personnel. (Promote at GEC8)

**VMI-FED: S2.e GENI VMI demo (Due 09/01/10)**
Demonstration of initial VMI functionality on GENI cluster nodes (cluster TBD).

**VMI-FED: S2.f scale up demo (Due 09/30/10)**
Delivery of initial VMI functionality on cluster nodes at cluster scale. (Demo at GEC9)

**VMI-FED: S2.g analysis doc (Due 09/30/10)**
Finalize and post initial Federation Framework Analysis document for feedback from GENI researchers, personnel and selected potential federation partners. (Promote at GEC9)

## UAF Project Team Contact Information

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**http://assert.uaf.edu/geni/**　　　　　　　　　　**http://groups.geni.net/geni/wiki/VMI-FED**