

E-GENI

GEC7 Update

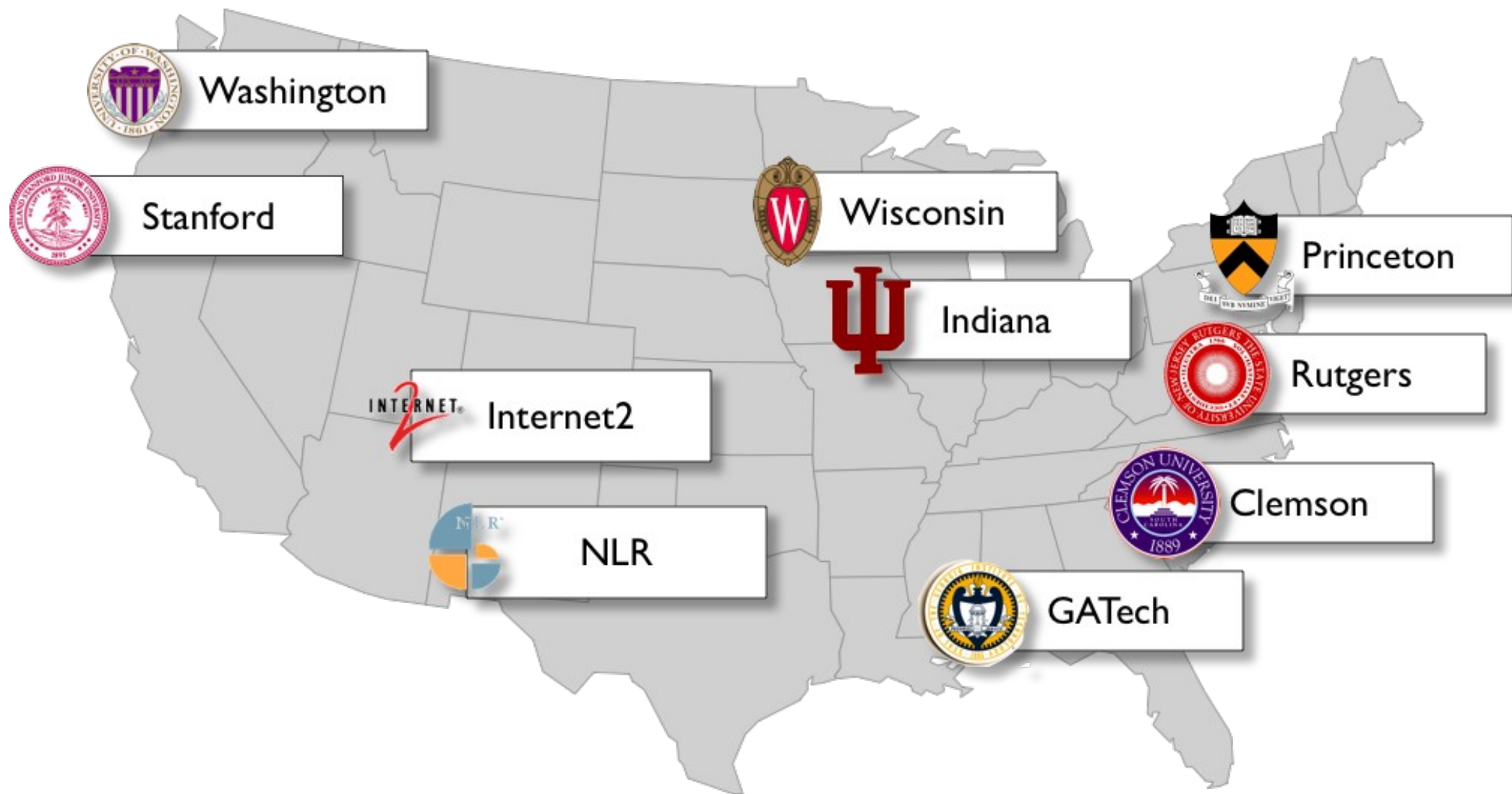
Stanford University

Outline

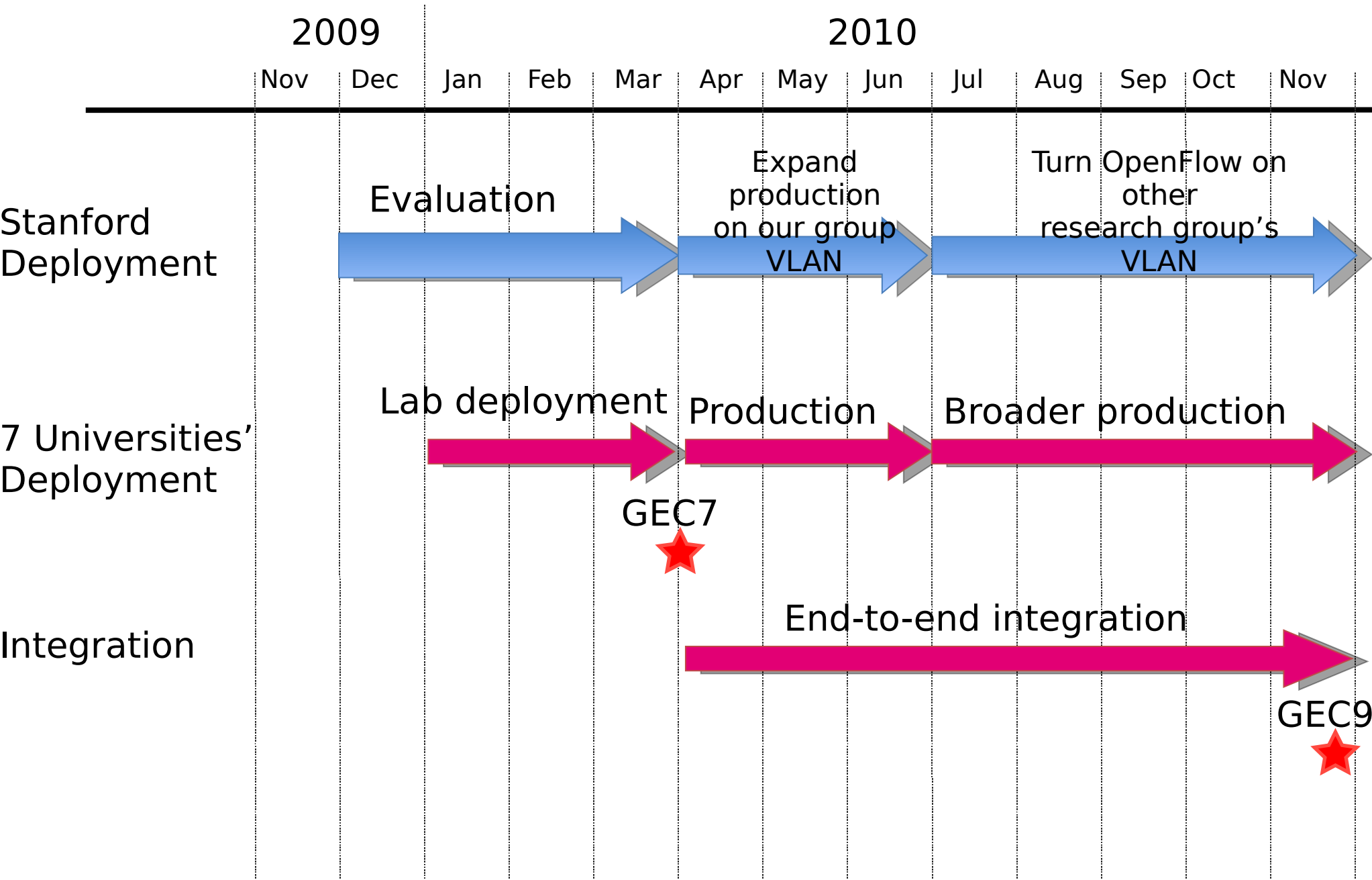
- E-GENI Campus trials under way
- PlanetLab + OpenVSwitch Integration
- FlowVisor rewrite
- Flow-Level Opt-In

OpenFlow as GENI Networking Substrate

Eight universities and two national research backbones



OpenFlow deployment roadmap



Integration Challenges

- How do we ensure that the network slice **inside** a compute node matches the slice **outside** a node ?
 - PlanetLab nodes effectively has an internal switch
- How do we determine a node's network point of attachment?
 - “Node *X* connects to switch *Y* on port *Z*”
- **OpenVSwitch** seems to be a good solution to both problems
 - Working with PL folks to evaluate

OpenVSwitch + PlanetLab

- OVS runs in its own slice
- VNET sockets are bound to OVS
- Individual slices then bind OVS virtual interfaces
- Not available for general use
 - Technical details are still being worked out

FlowVisor Rewrite Planned

- Current implementation was a proof-of-concept
- Lessons from current deployments
 - Slice configuration language error prone
 - Need better debugging/visualization support
- Thinking to use NOX for I/O routines

Outline

- E-GENI Campus trials under way (Srini)
- PlanetLab + OpenVSwitch Integration (Jad)
- FlowVisor rewrite (Rob)
- **Flow-Level Opt-In**

Flow-Level Opt-In

- Vision:
 - All traffic goes through E-GENI
 - “Production” slice is default
 - Users selectively opt traffic into experiments
- “Let Alice control my port 80 traffic, Bob control my VOIP traffic, and the admin control the rest”
- More flexible than pure VLAN-based solution