

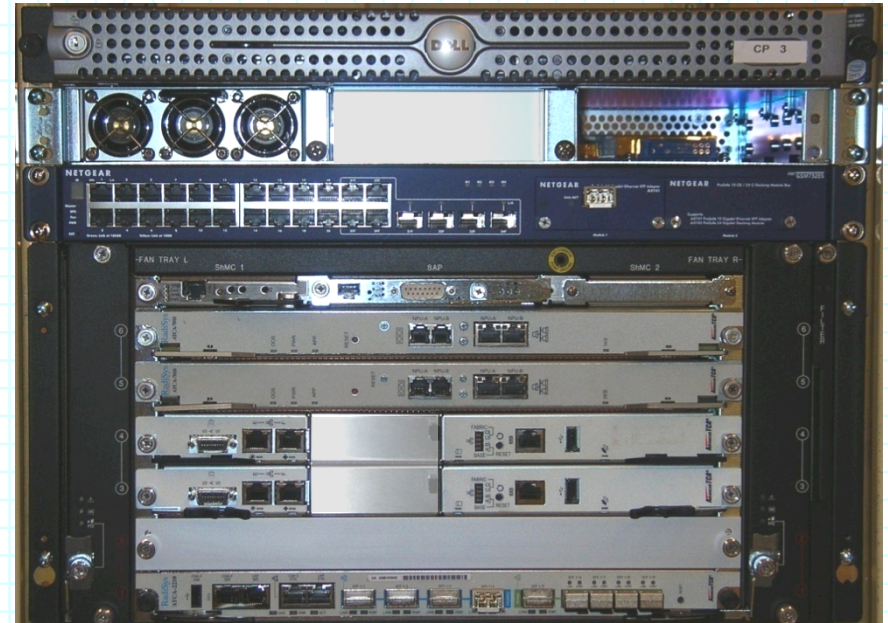
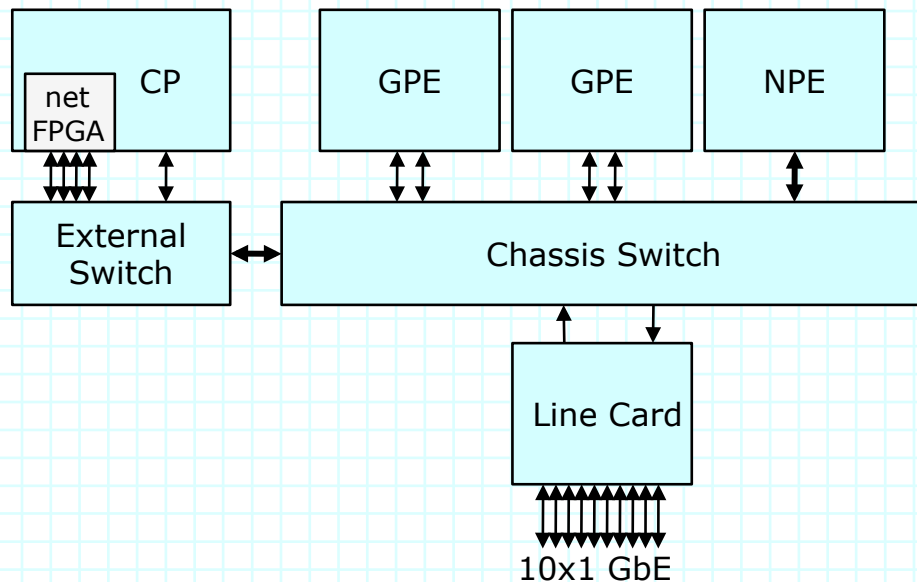
Prototype Deployment of Internet Scale Overlay Hosting *Demonstration - 11/2009*

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and a cast of thousands

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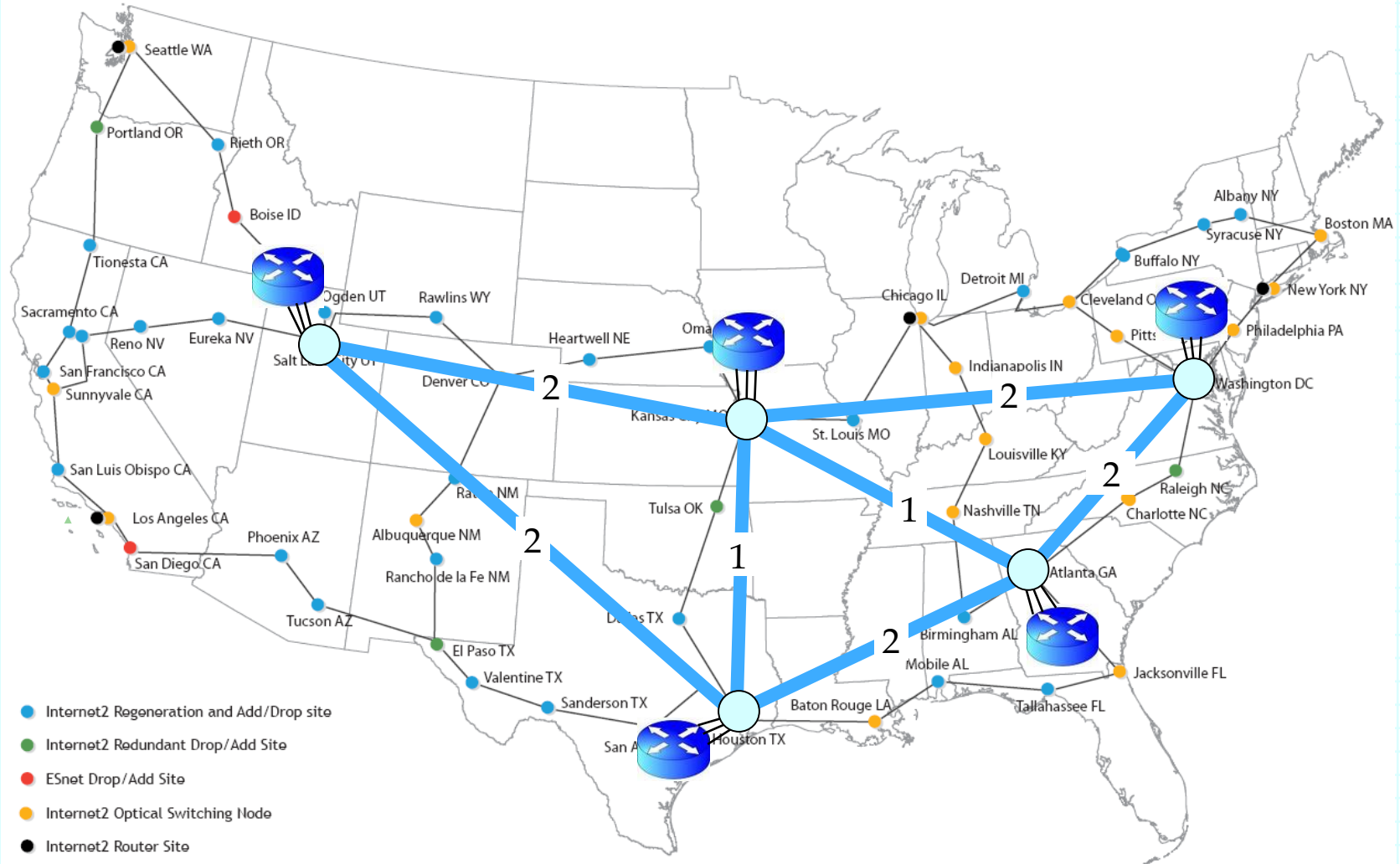
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SPP Nodes

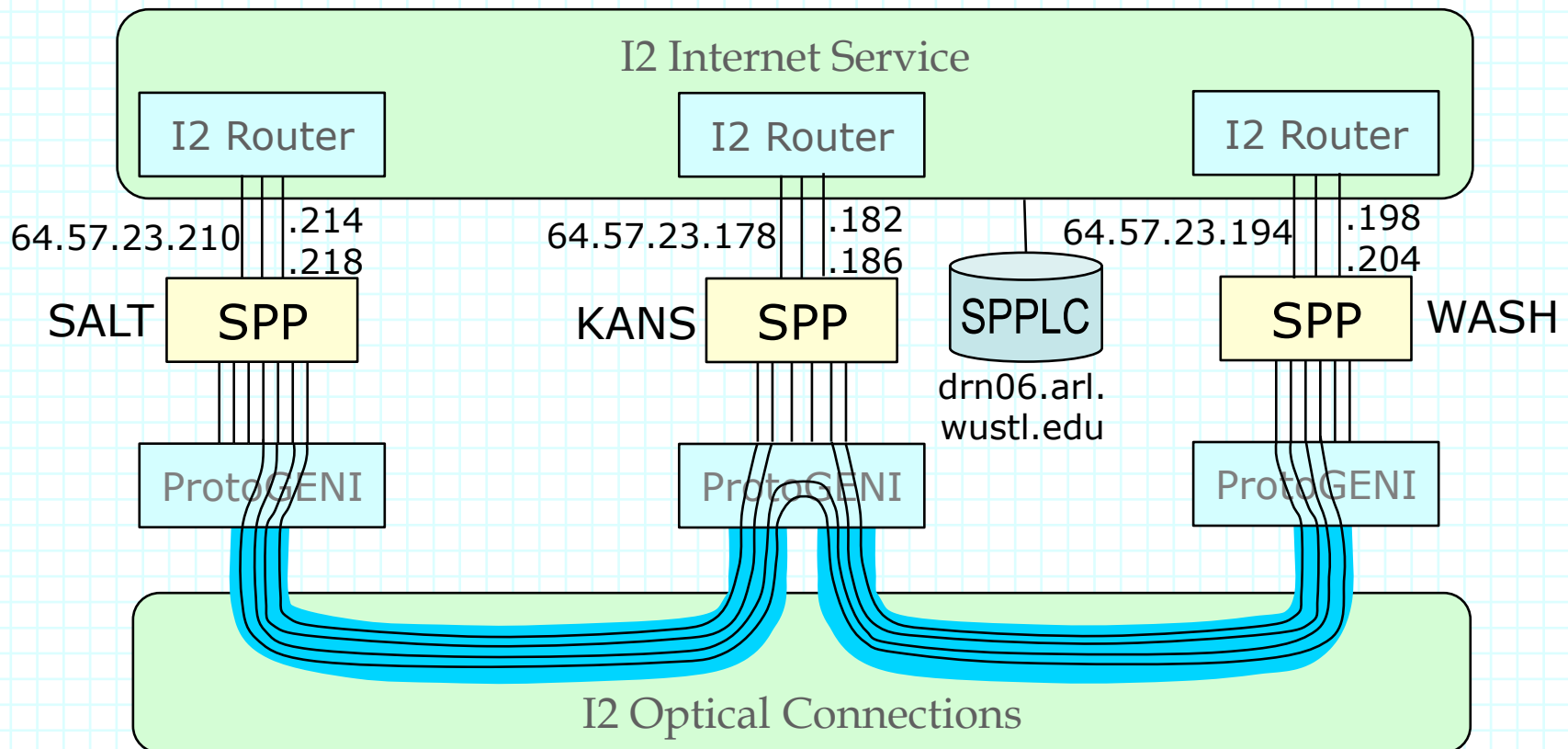


- Deploy five experimental *overlay hosting platforms*
 - » located at Internet 2 PoPs
 - » compatible with PlanetLab, moving to GENI control framework
 - » performance characteristics suitable for service deployment
 - integrated system architecture with multiple server blades
 - shared NP-based server blades for fast-path packet processing
- Demonstrate multiple applications

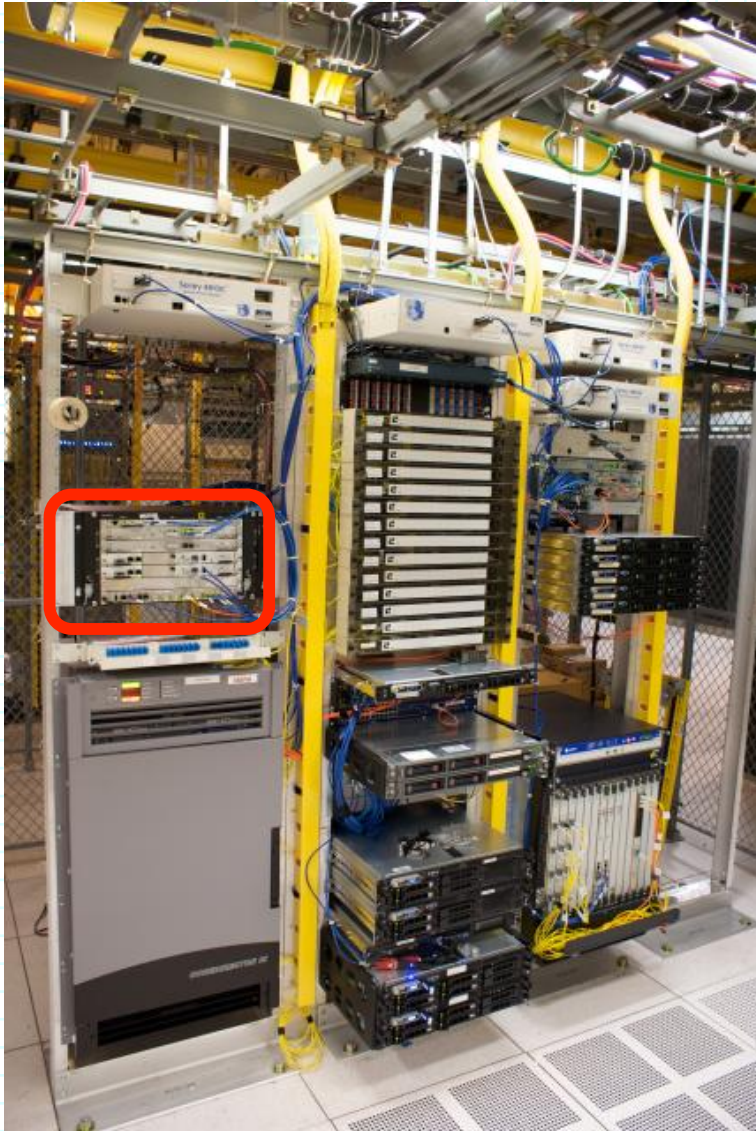
Target Internet 2 Deployment



Current Deployment



Washington DC Installation



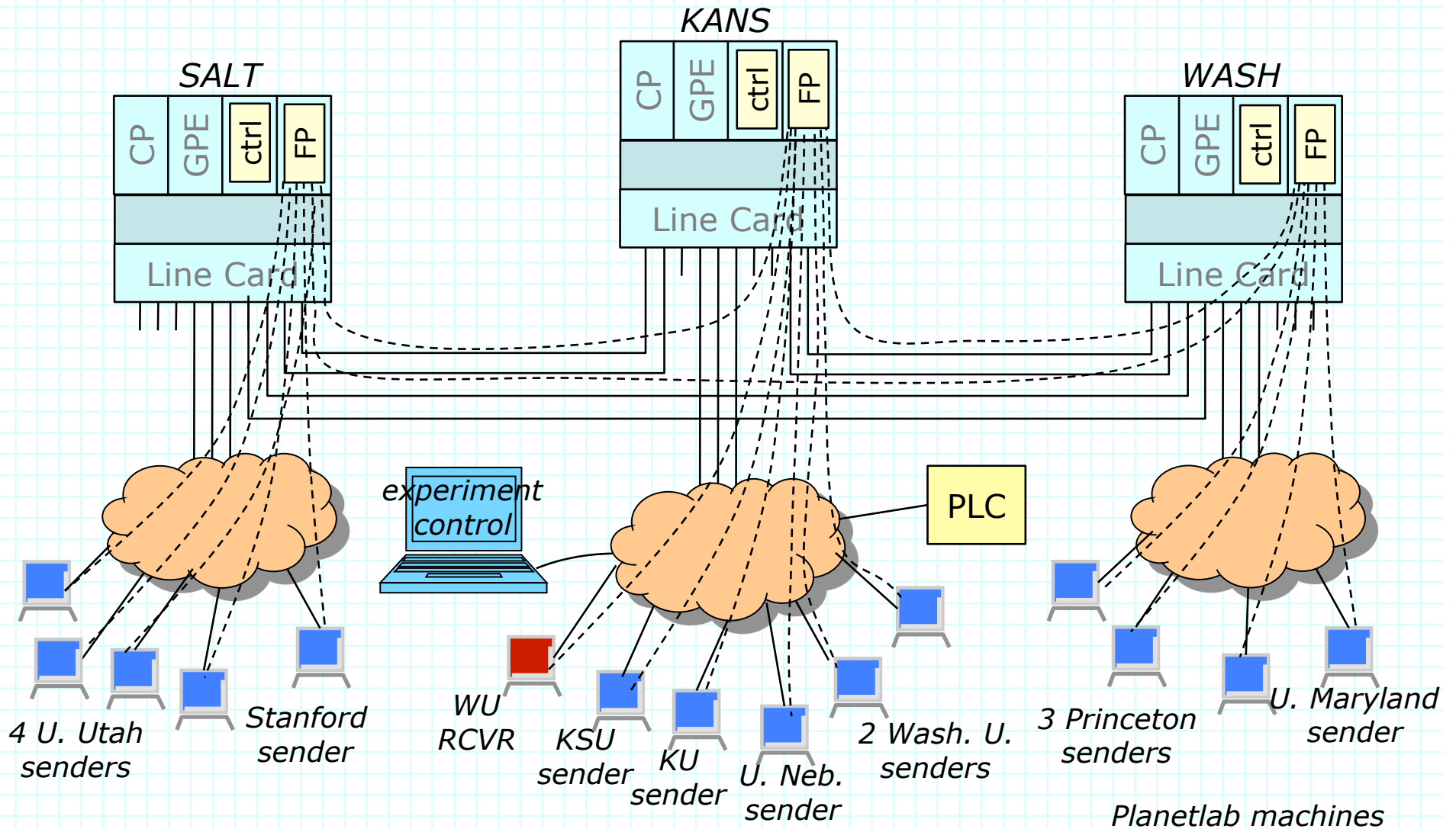
Demonstrations this Afternoon

- IPv4 network using NP-based fastpaths
 - » traffic generated from PlanetLab nodes
 - » demonstrates dynamic changes to installed filters
 - script in GPE slice issues control messages to modify filters
 - » handling of exception cases by GPE slice
 - » use of traffic monitoring
- Forest overlay network – GPE-only implementation
 - » multiple dynamic multicast groups over per-session, tree-structured communication channels
 - » traffic generated from PlanetLab nodes
 - » traffic monitoring using statistics data generated by GPE slice

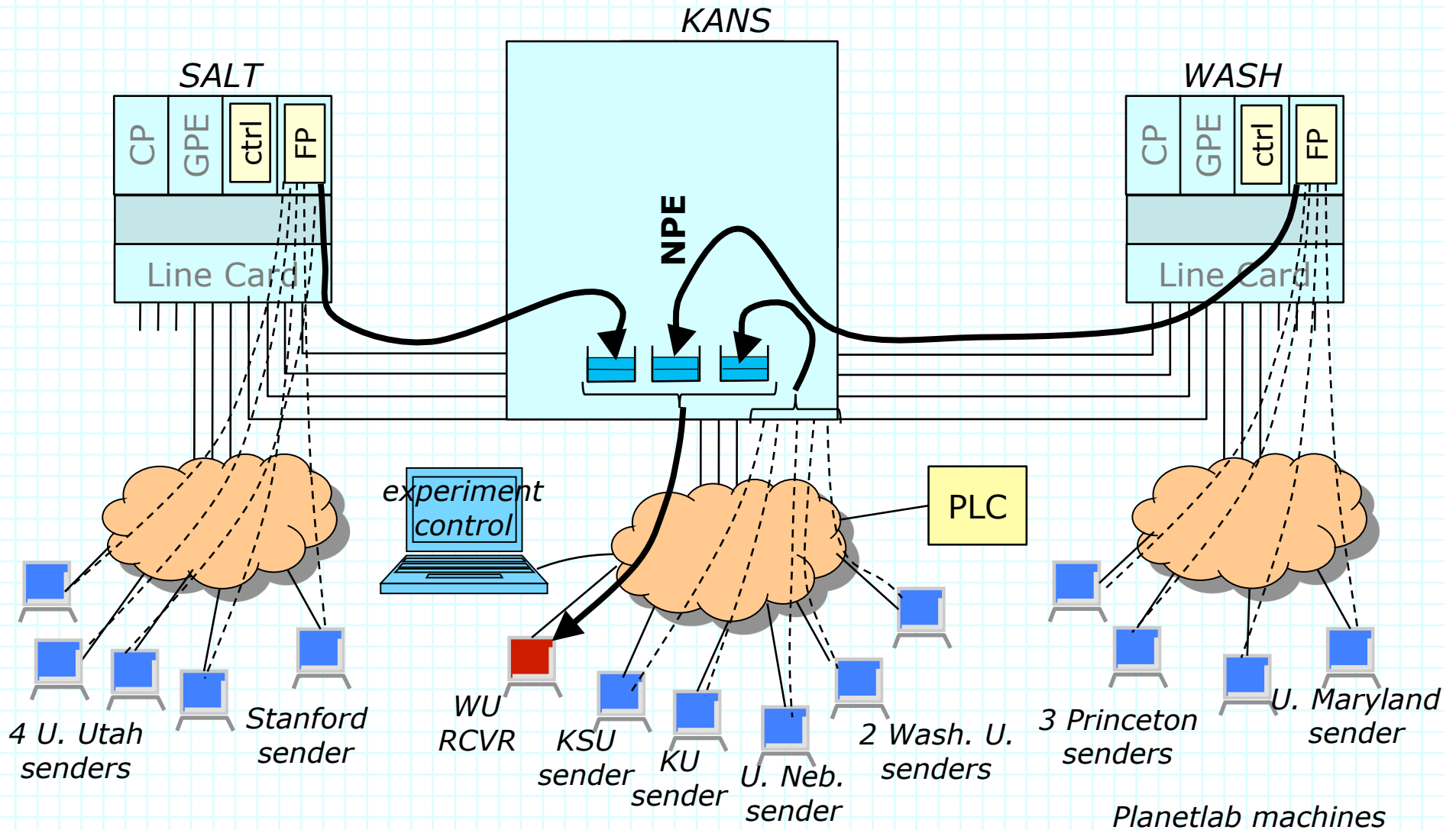
IPv4 FastPath Demonstration

- IPv4 Code Option running on installed SPP nodes
- 14 Planetlab client hosts
- GUSH to distribute executables to clients
- Real time data monitoring

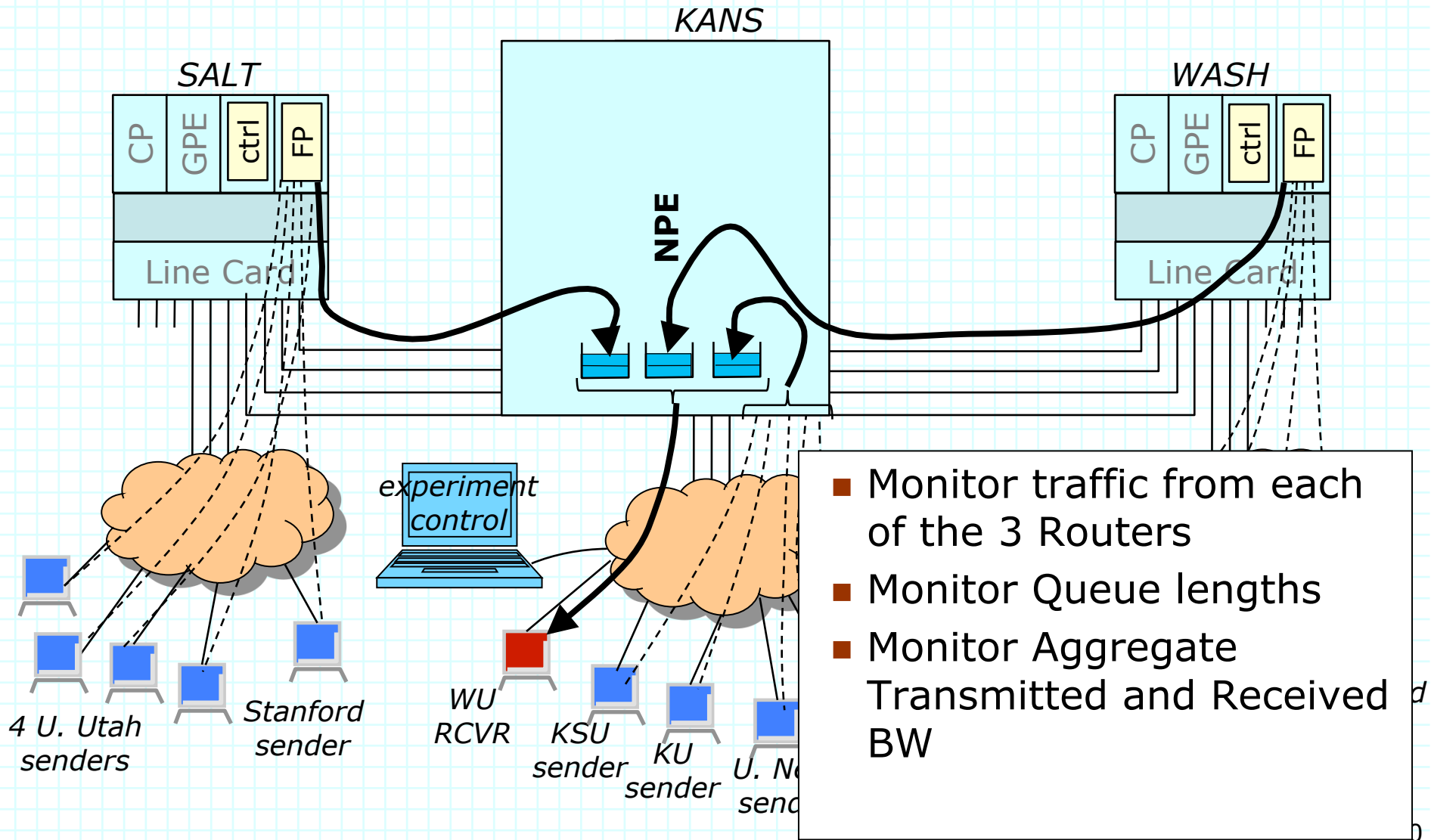
IPv4 FastPath Demo



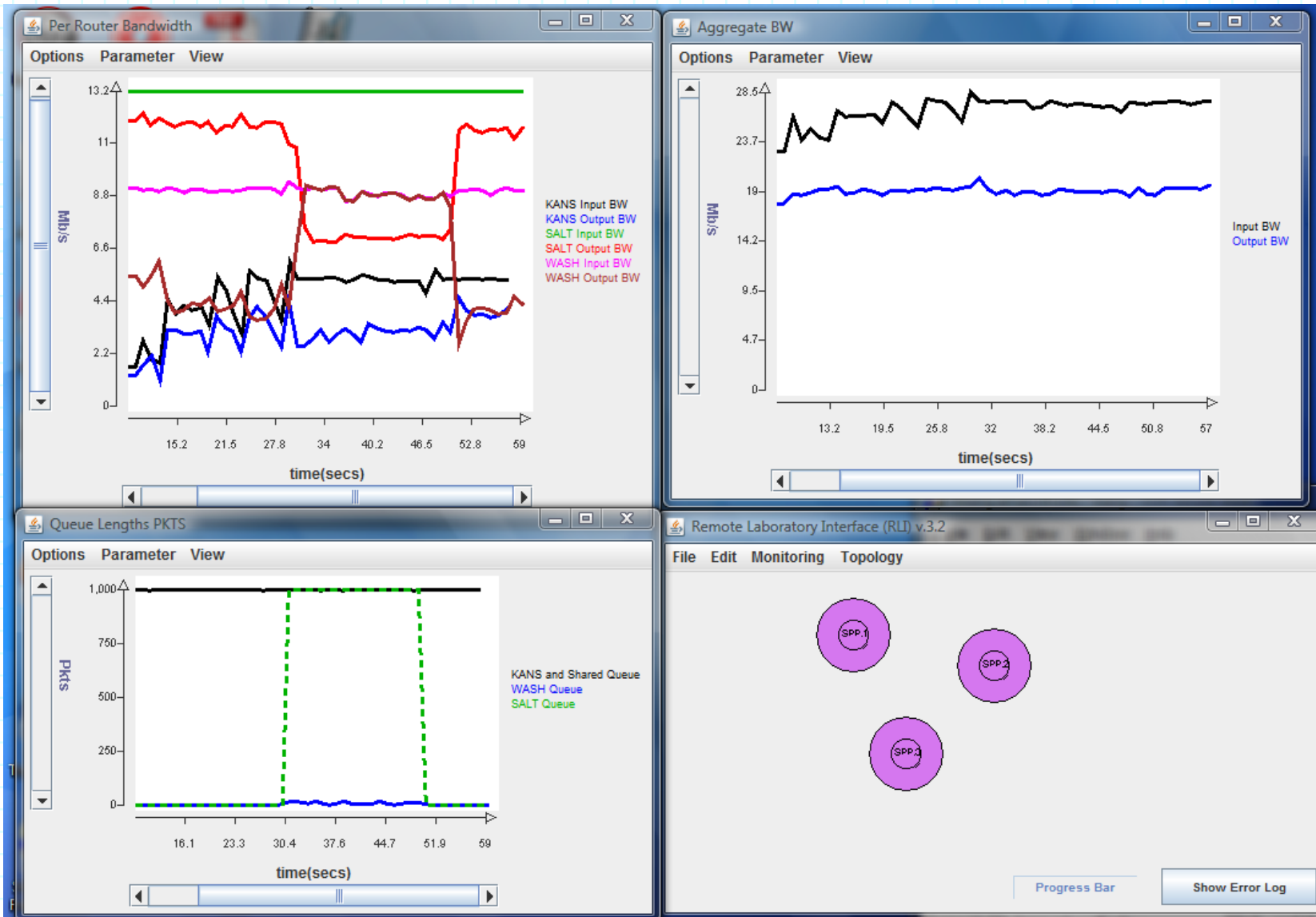
IPv4 FastPath Demo



IPv4 FastPath Demo

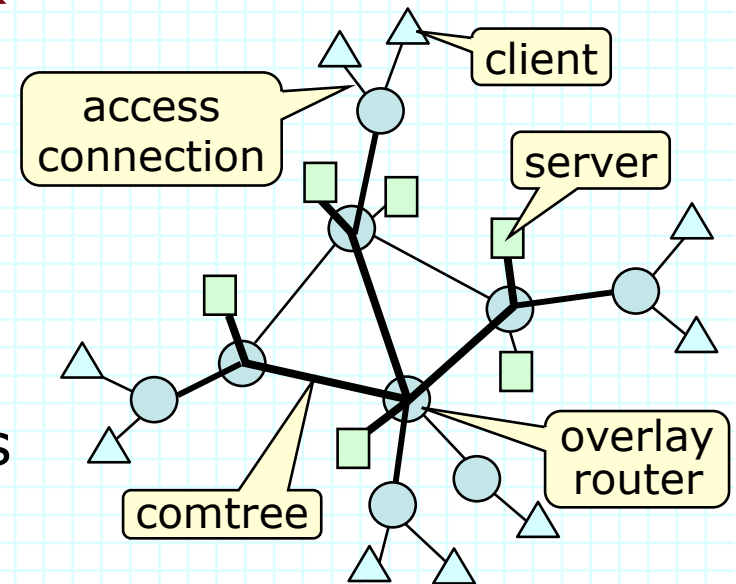


IPv4 FastPath Demo Screenshot



Forest Overlay Network

- Focus on real-time distributed applications
 - » large online virtual worlds
 - » distributed cyber-physical systems
- Large distributed sessions
 - » endpoints issue periodic status reports
 - » and subscribe to dynamically changing sets of reports
 - » requires real-time, non-stop data delivery, even as communication pattern changes
- Per-session communication channels (comtrees)
 - » unicast data delivery with route learning
 - » dynamic multicast subscriptions using multicast core



Forest Demo

