



Chris Robb

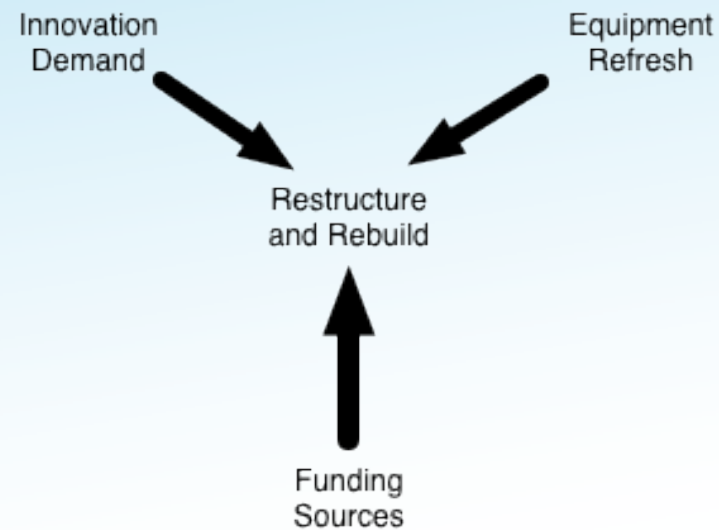
INTERNET2 INNOVATION PLATFORM: VISION TO REALITY

History of implementation

- Faster
 - 2002: One of the first 10G IP national backbones deployed on Juniper T640 platform
 - Mid-2009: Architectural Directions document cites need for 100G IP backbone
 - Mid-2010: \$96M Broadband Technologies Opportunities Program (BTOP) National Middle Mile Award
 - Late-2011: First national 100GigE circuit lit between New York and Sunnyvale
- Smarter
 - 2005: Hybrid Optical Packet Infrastructure (HOPI) network deployed in first national trial of reconfigurable network
 - 2007: Interoperable On-demand Network (ION) deployed at 21 locations around the US
 - 2011: DYNES campus deployment project begins pushing dynamic deployment to the edge
 - Mid-2011: Open Networking Foundation formed by a coalition of research and industry members
 - Late-2011: 5-node NDDI deployment and development of OSE software

Why now?

- Demand from Internet2 Members to Innovate
- Equipment Refresh Cycle
- Available Funding



Initial Discussions

- Very early in the conceptual stage
- Internet2 Board of Directors
- Regional One-on-One Discussions
- Member One-on-One Discussions
- Governance Councils
- Researchers

Stanford Clean Slate

CIC, CIO's Council

Indiana University

NSF

Level(3)

OARnet

Discussions To Date

RAC

University of Michigan

University of Washington

LEARN, Board of Directors

AOAC

USLHCNet

NTAC

INTERNET



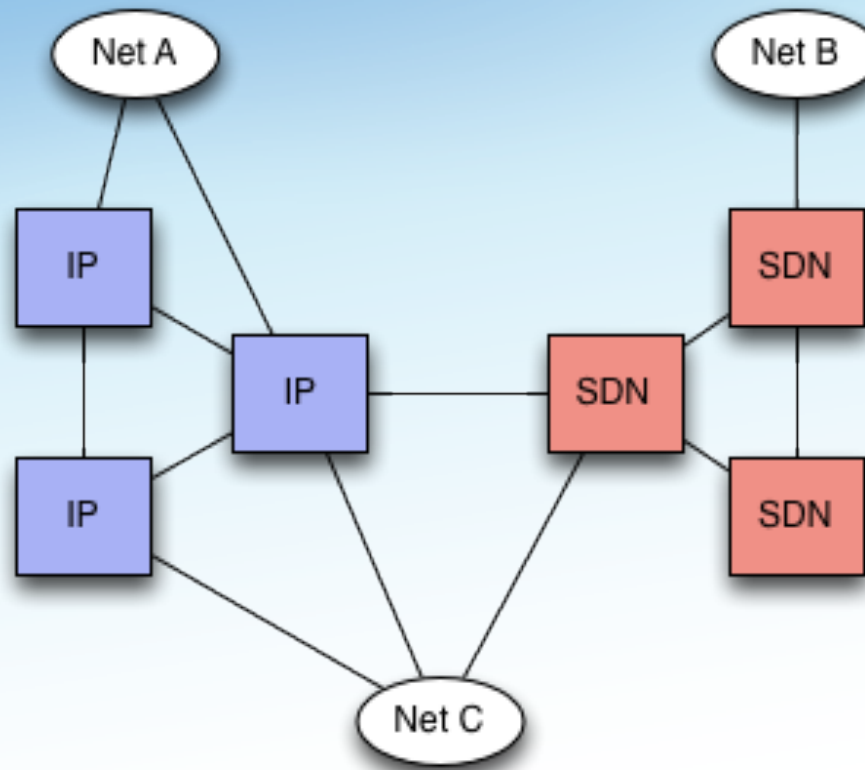
Engagement Plan

- This is a very high-level restructure of the Internet2 network, so it's important that stakeholders at all levels participate in the discussion
 - Researchers
 - Campuses
 - Regionals
 - International Peers
 - Funding Agencies
 - Governance Councils
 - Technical Bodies
- Internet2 will be aggressive in its deployment of its Innovation Platform in order to allow its members to capitalize on the groundswell of support for high-speed software defined networking

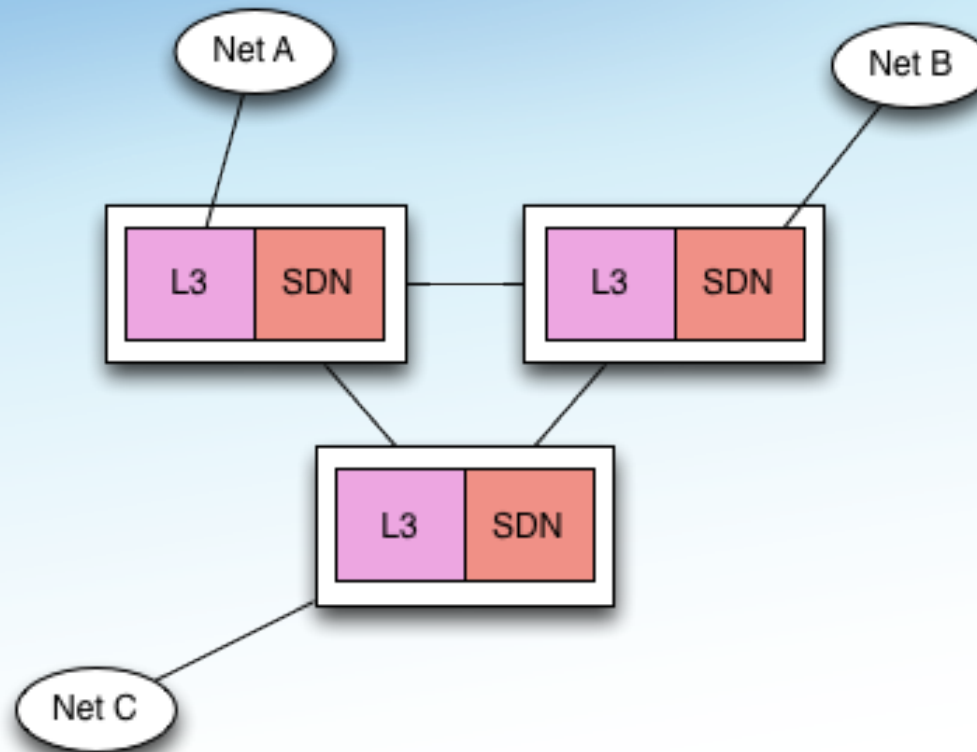
Implementation possibilities

- Goal: Integrate SDN functionality into the Internet2 Network
 - Preferred Goal: platform integration between two sets of services to provide initial network effect and migration path
- A few different models to consider
- Nothing is set in stone, but we do have to move aggressively

Separate Infrastructure: What we do today



Combined Infrastructure: What we might do tomorrow



Next Steps

- Internet2 NDDI RFP
- OESS code is now available for download
 - Deploy on physical switches
 - Test on virtual network (Mininet)
- Further community information sessions and discussion
- NDDI expansion on existing platform