TR/CPS: National Commodity Peering Kansas City, MO

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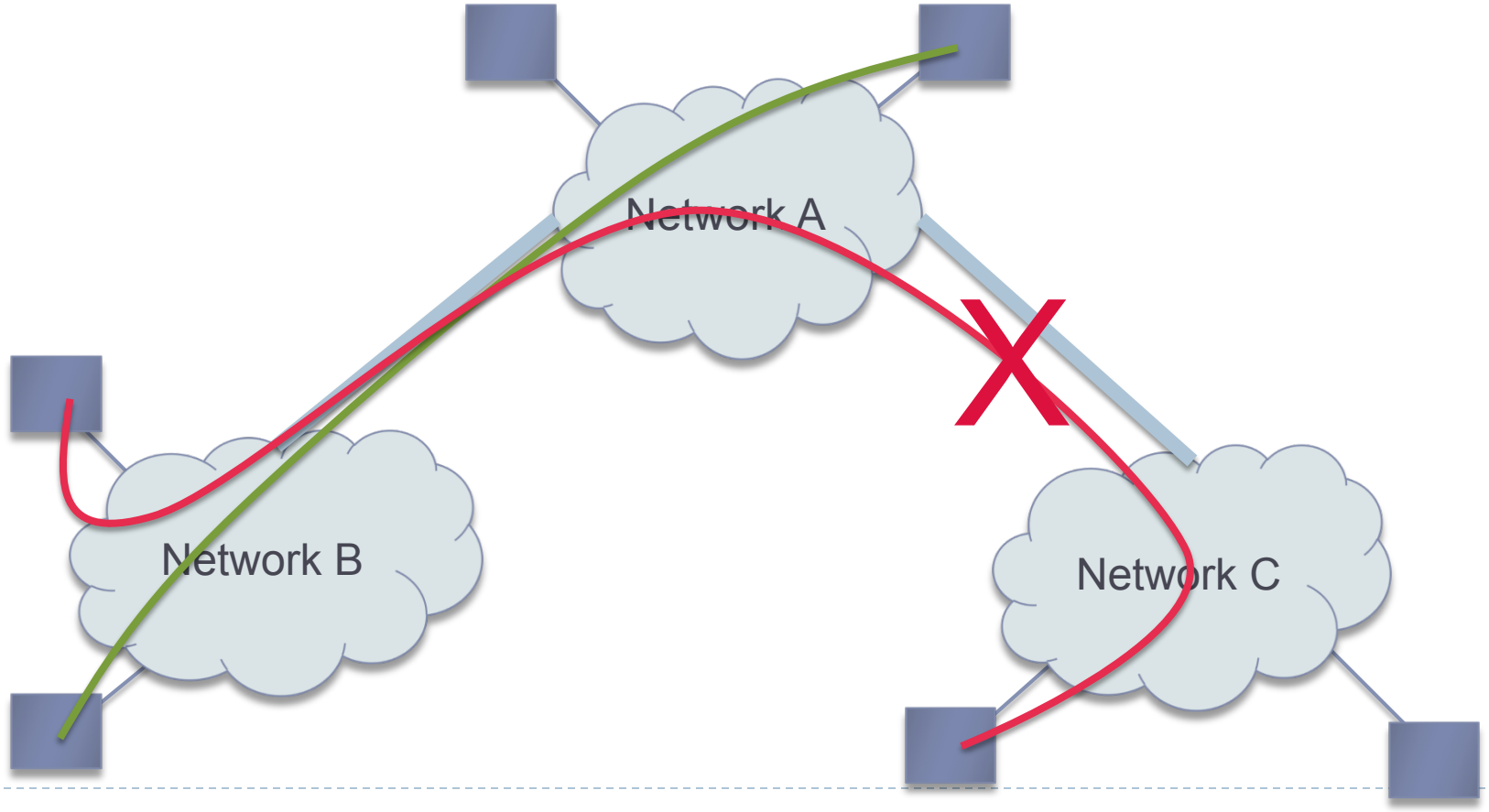
What is "peering"?

- Peering is the exchange of customer traffic between neighboring networks



TransitRail/Commodity Peering Service Is...

- NATIONAL
  - Colocated within the commercial exchanges;
  - Robust and reliable architecture;
  - Connected to multiple public exchange locations around the US;
  - Private connections up to 10Gbps;
  - Focused on needs of Research & Education community;
- PEERING
  - Direct network-to-network bilateral IP Packet exchange;
  - Typically a ‘handshake’ agreement, no contracts
  - Selected peers for optimum benefit
    - Content providers
    - Home service providers

TR/CPS is NOT:

- Research & Education Network Peering
- Replacement for regional/local peering
- Replacement for 100% of your commodity transit needs
- Replacement for a National Research & Education backbone

Premise behind peering

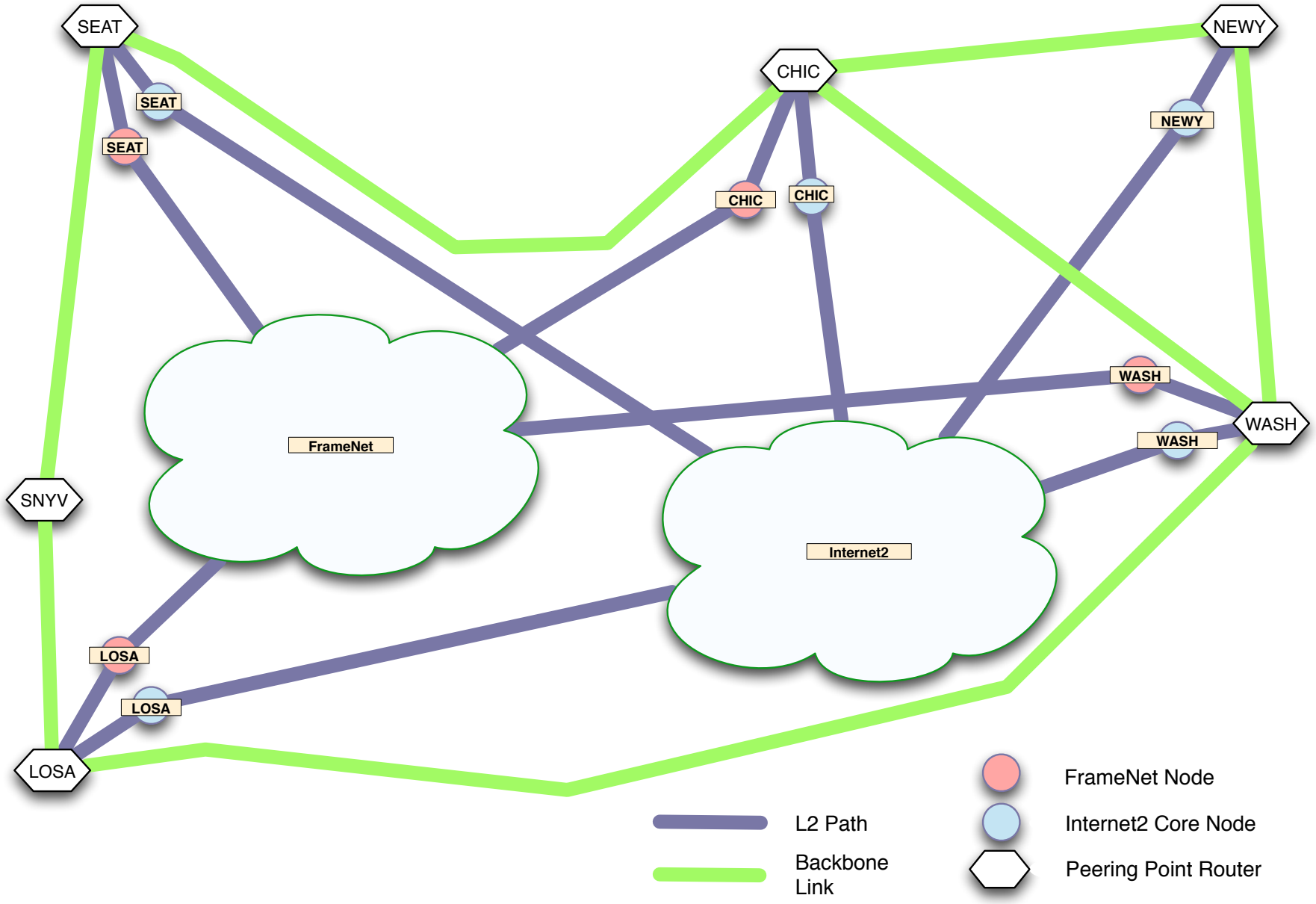
- Successful large-scale commodity peering can...
  - Decrease commodity costs and result in overall savings
  - Reduce reliance on commercial vendors
  - Increase routing efficiency and flexibility
  - Improve performance to your customers

About TR/CPS

- TR/CPS is a joint project of CENIC and Internet2
- Finances, Governance under Internet2
- Operations under Internet2 NOC (GRNOC)
- Engineering, Peering Coordination under CENIC
- Architecture sponsored by Internet2, NLR, CENIC and PNWGP

CPS/TR Proposed Architecture

22-Sept-2009



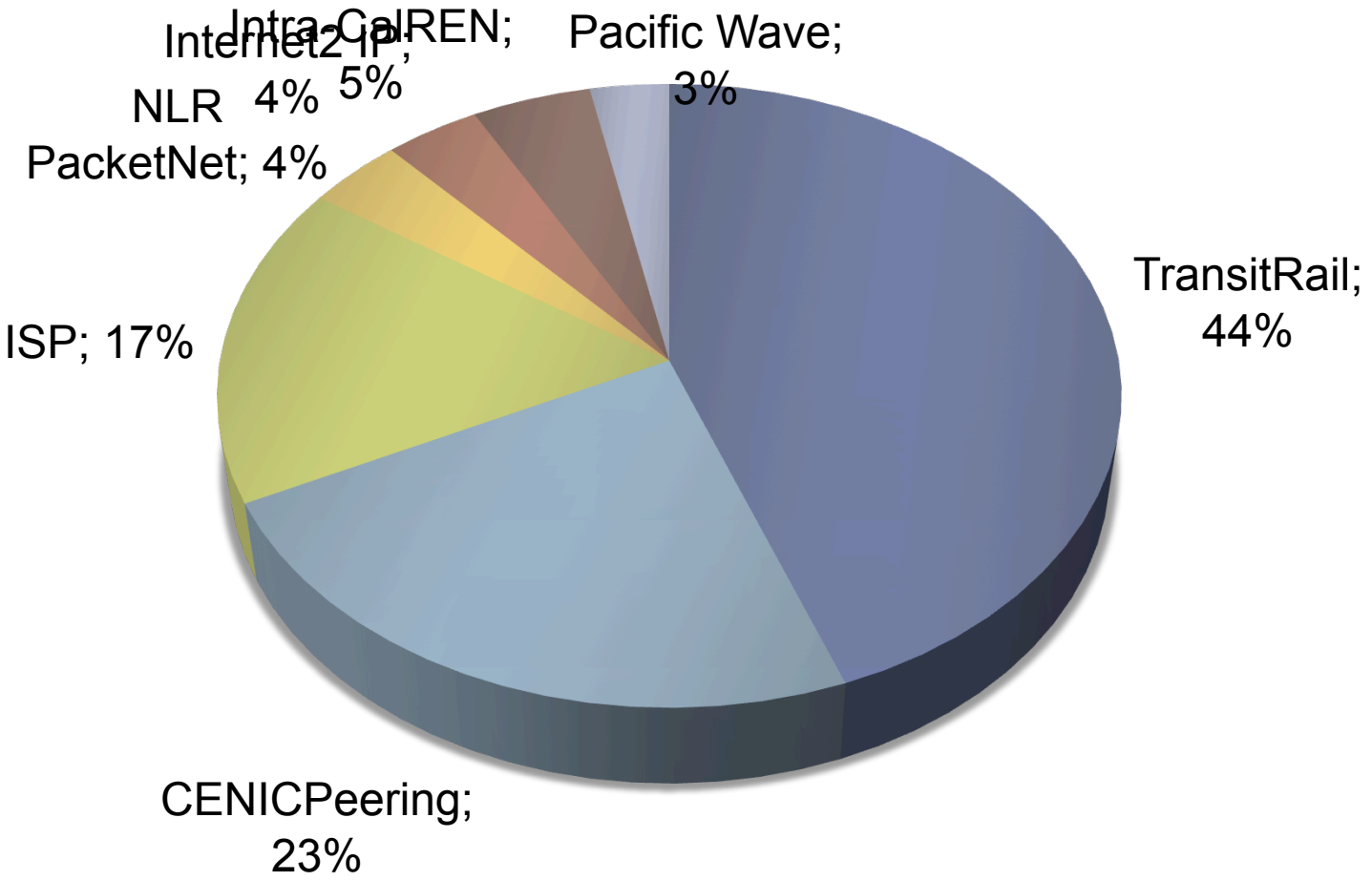
TR/CPS Architecture

- Internet2:
  - Use of IP network for MPLS VLANs from connectors to TR/CPS routers
  - TR/CPS backbone circuits SEA-CHI, CHI-NY, NY-WDC
- NLR (via CENIC):
  - Use of FrameNet for VLANs from members to TR/CPS routers
  - TR/CPS backbone circuits CHI-WDC, WDC-LA (southern route)
  - Use of five TR routers through May 2011
- CENIC/PNWGP:
  - TR/CPS backbone circuits LA-SVL, SVL-SEA

What to Expect

- TR/CPS participants are likely to experience anywhere from a 50% to 75%+ reduction in the overall traffic that normally goes over their commodity ISP circuits

Why Peering? CENIC Experience



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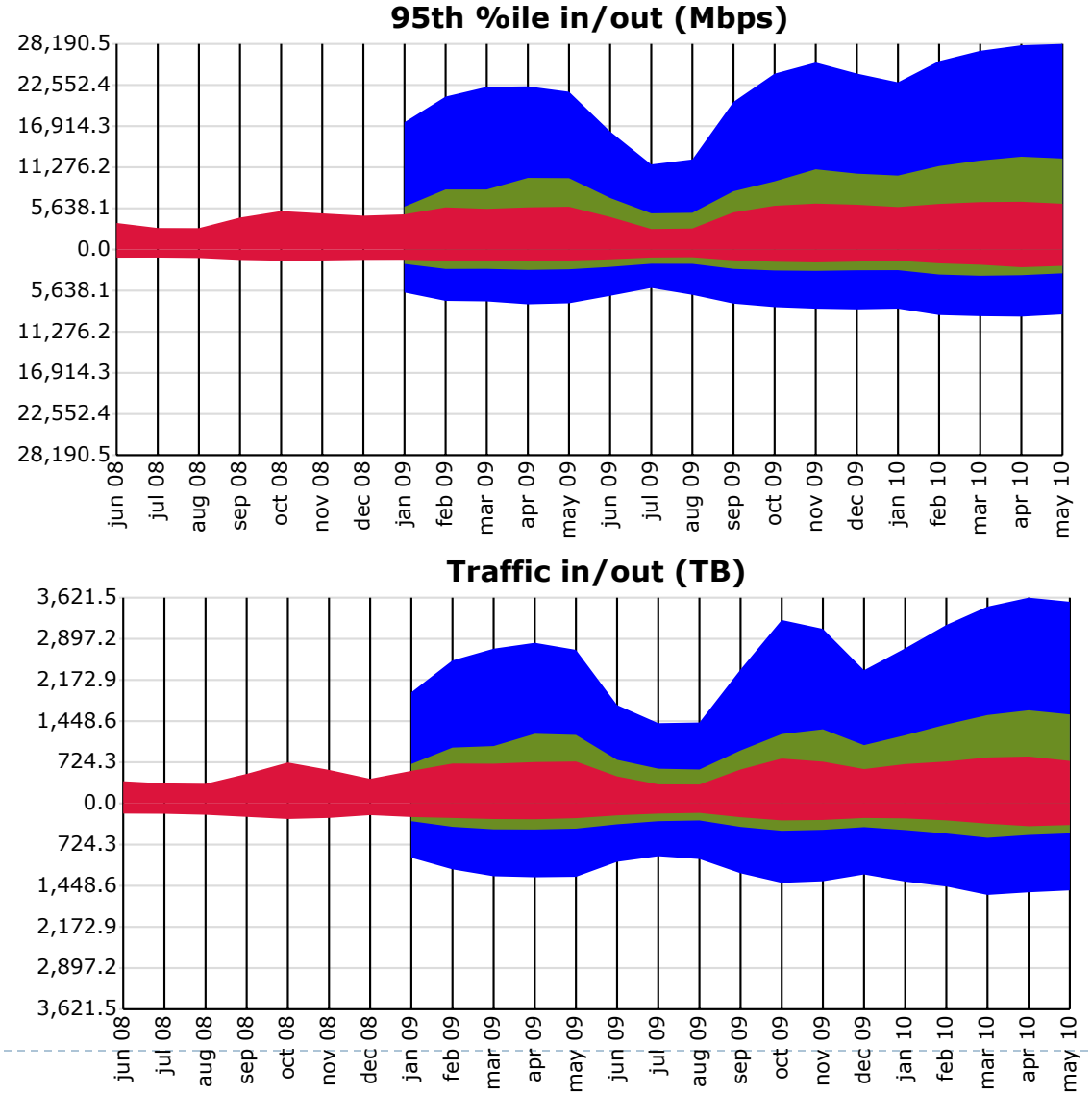

ISP

CENIC Peering

TR/CPS

Why Peering? CENIC Example

- Purchased Transit (Quilt rates, 5/2009-4/2010):
  - 52,002M $719,072
- Peered Volume over same period:
  - 206,526M
- At transit rates that would have cost:
  - ~$2,855,795
- Actual cost:
  - ~$600,000
- Savings of approximately $2.2M in one year

Lessons Learned

- Introducing 250,000+ routes into your network must be done carefully
- Tune network to manage traffic loads
- Effective use of peering requires monitoring and understanding traffic profiles
- Think about failure scenarios
  - Do you need backup connections?
  - Do you have sufficient headroom?

Questions?

Thank you!!