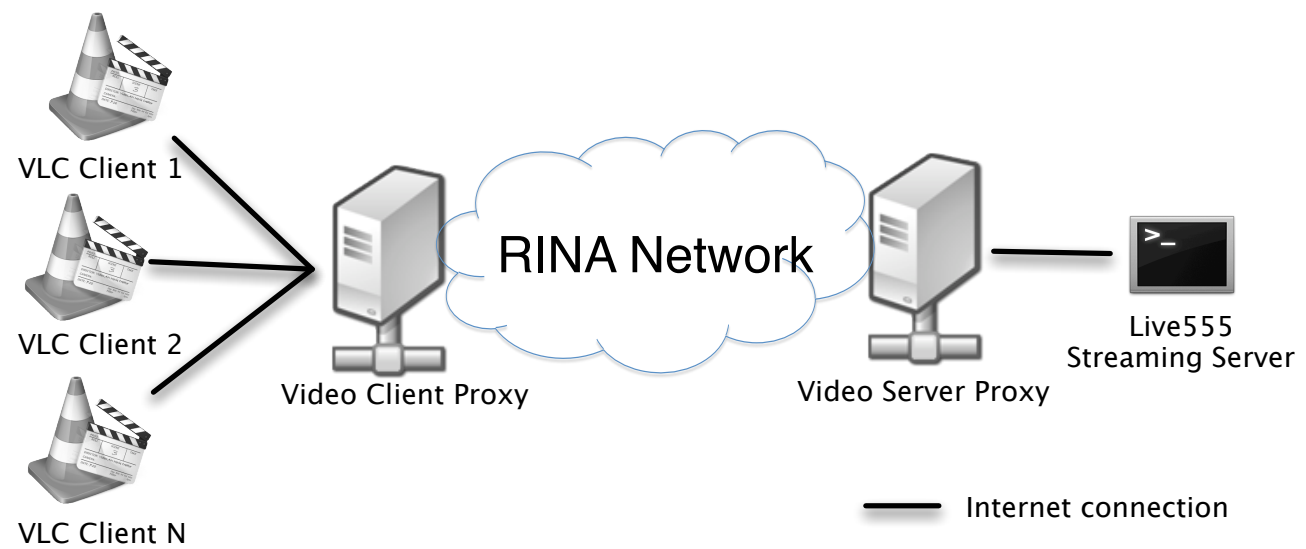




Video Streaming over ProtoRINA

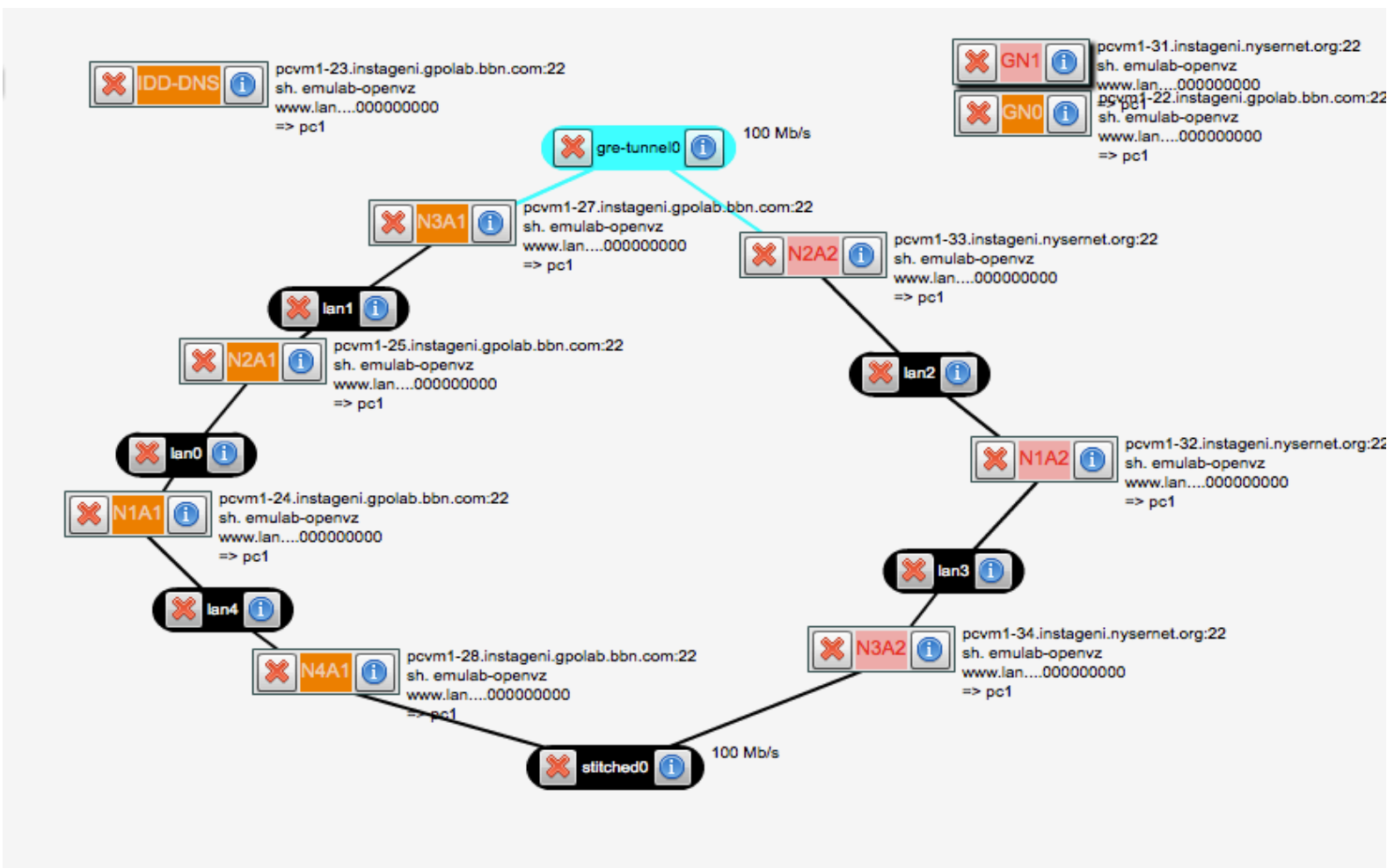
Nabeel Akhtar Yuefeng Wang
Ibrahim Matta

Video Streaming over RINA on GENI

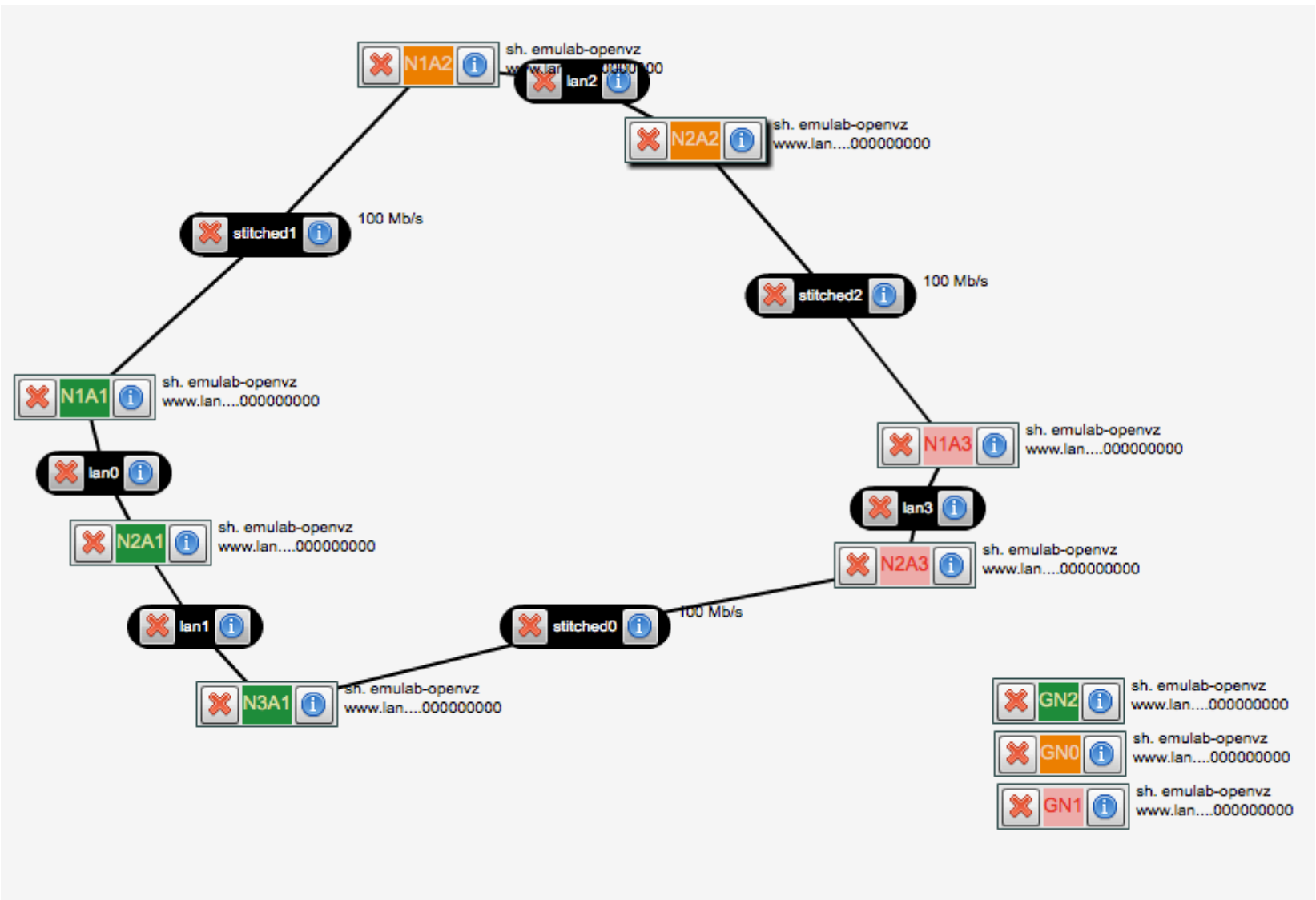


Video clients (VLC players) are connected to the video streaming server through RINA proxies which are connected over a RINA network. The RINA network is composed of DIFs, where routing policies (and other policies) can be easily configured for each DIF

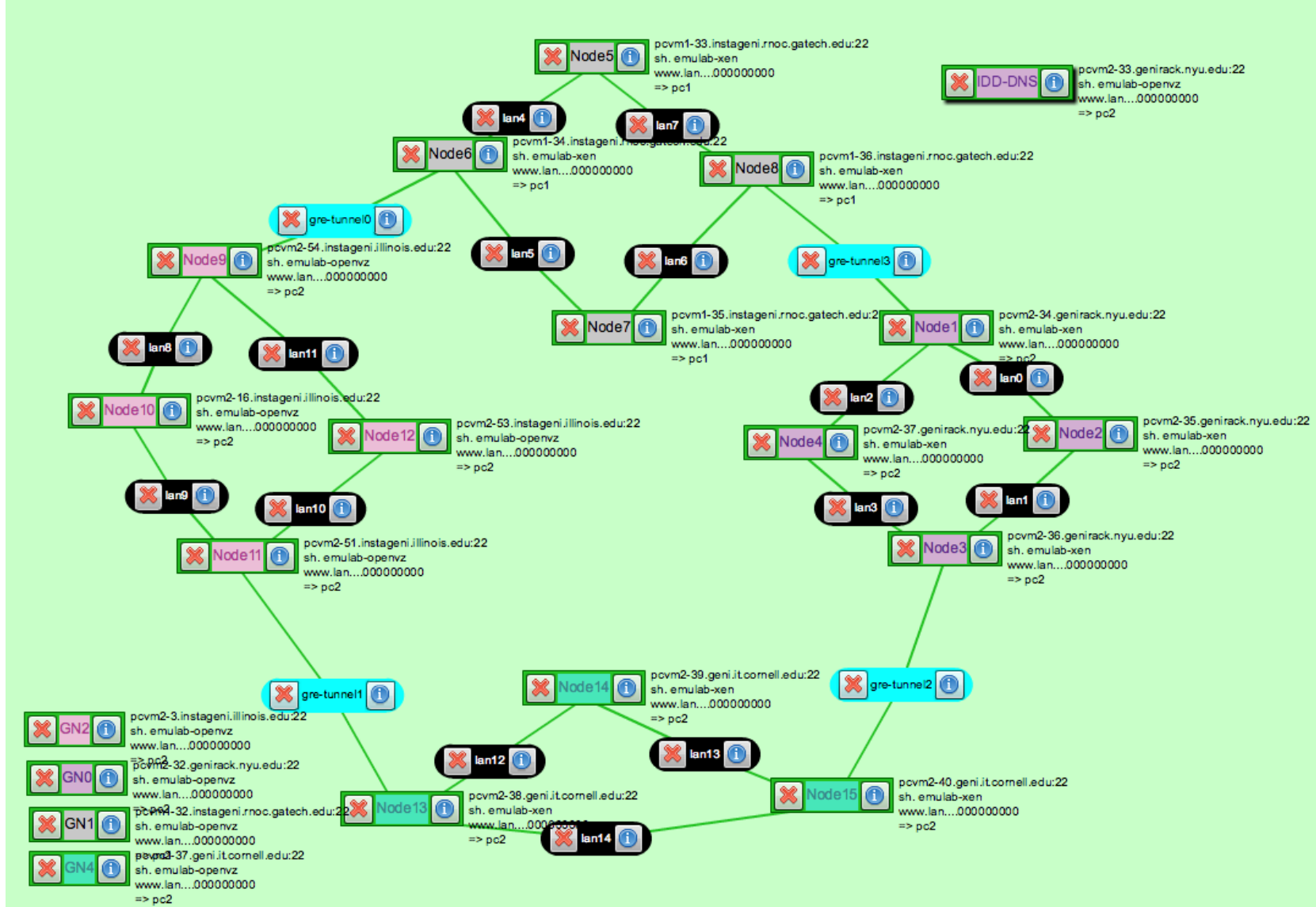
Topologies (1)



Topologies (2)



Topologies (3)



Tools used

- Flack
- GRE Tunnels
- VLAN Stitching
- GENI Desktop

Flack

- Hard to manage large topologies
 - Browser becomes really slow
 - It would be nice to have a button on node to directly SSH into a node
- Renewing resources on stitched VLANs and GRE tunnels may fail
- Adding members to slice after reserving resources is not supported

GRE Tunnels

- Maximum Transmission Unit (MTU) problem
 - Extra header due to encapsulation may cause IP fragmentation
 - Iperf with TCP shows bad performance
 - Need to manually configure a smaller MTU to accommodate the extra IP header
- Parameterizing GRE tunnels with emulated delays, losses, *etc.* is not supported

VLAN Stitching

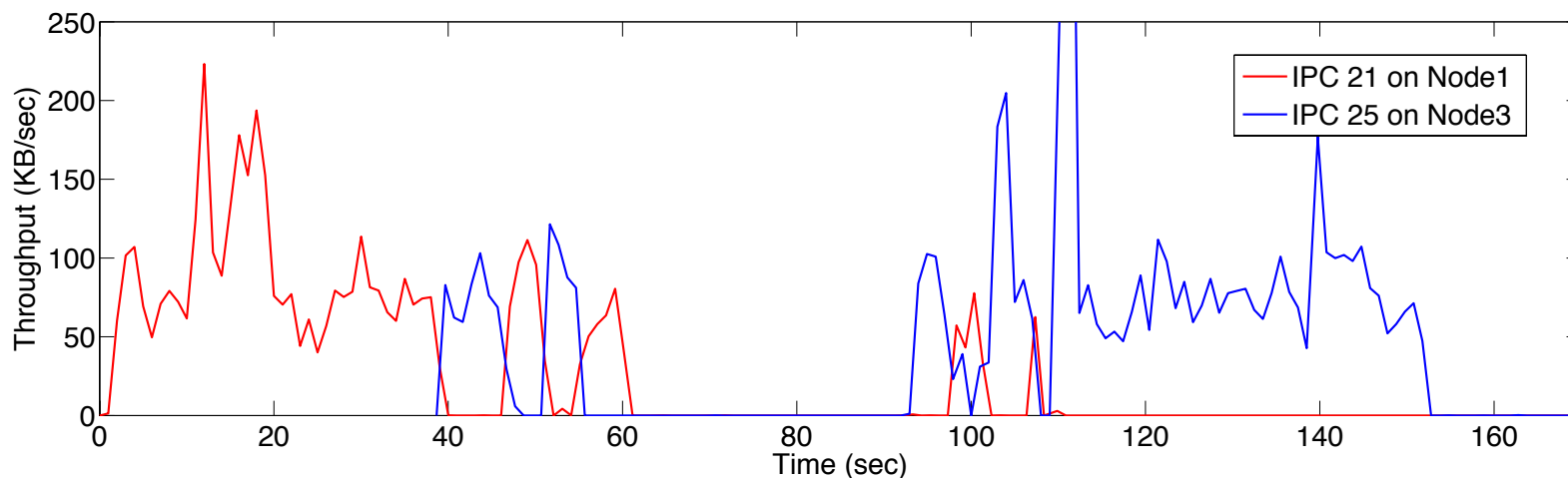
- New version of Omni (v2.6) is great!!!
 - Faster and more robust
 - But update came just a week before GEC 20
- Few aggregates on the West coast that support VLAN stitching
 - Stanford is one, but has few public IP addresses available
 - <http://groups.geni.net/geni/wiki/ExpGraphs>

GENI Desktop (1)

- Real-time graphs
 - Used NetLogger to generate log files
 - Used GEMINI to generate graphs
- Limitations:
 - Limited online documentation for NetLogger
 - Size limit on files that can be uploaded on VMs
 - Running the same command on multiple VMs may not work

GENI Desktop (2)

- Generating multiple data sets on the same graph is not supported
- Lags (minutes) to generate real-time graphs



Thank you

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