



Federating CRON with OnTimeMeasure

Status Report

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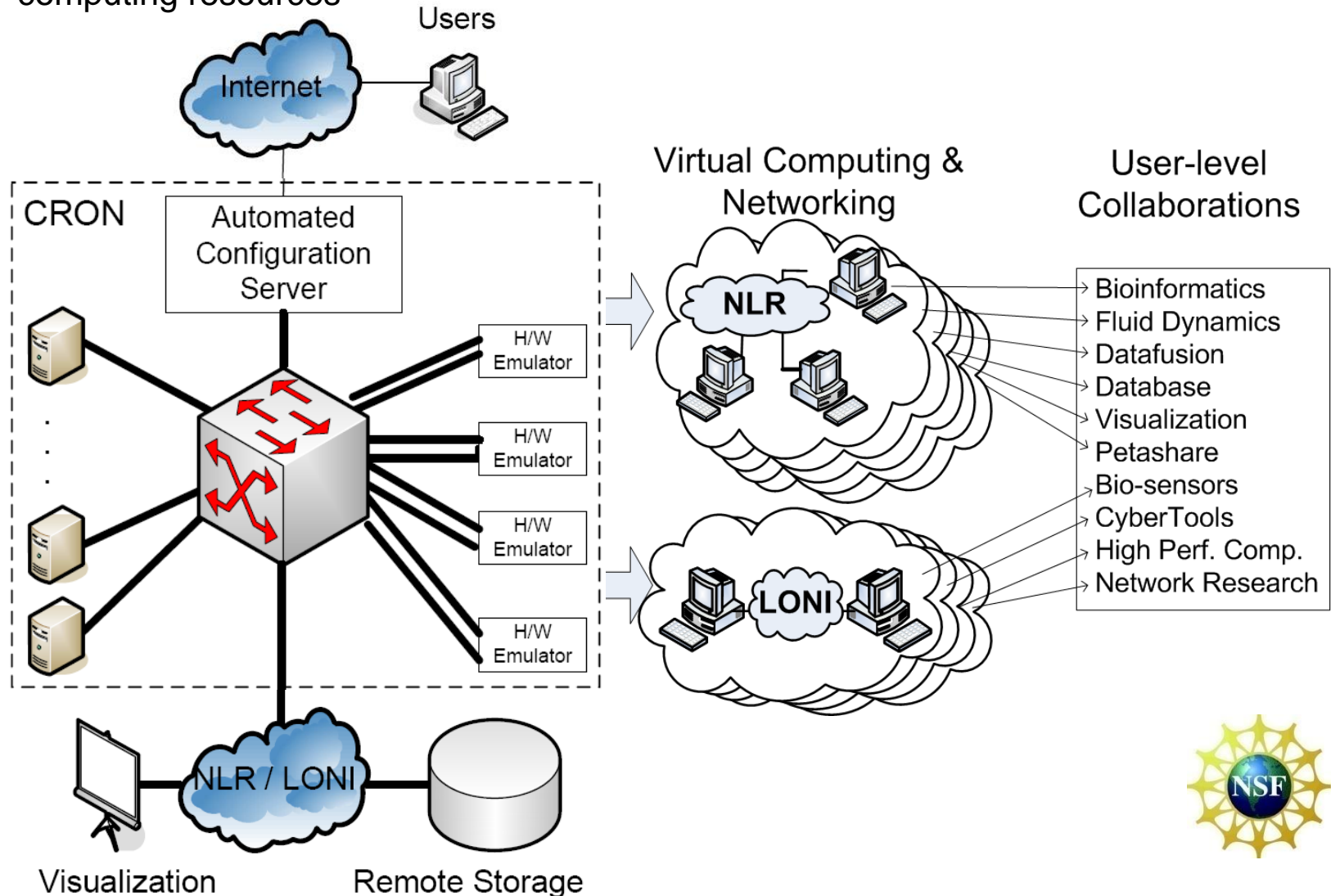
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CRON

Cyber-infrastructure for Reconfigurable Optical Networks

- ❑ Objectives :Developing virtually shared 10Gbps networking and high-end computing resources





Components

❑ Switches

- Data plane: Cisco Nexus 5020 switch consisting 50 X 10GE ports
- Control plane: Cisco 3560 switch

❑ Emulators

- Hardware Emulators: 4 X Anue 10GE emulators for upto 10Gbps bandwidth
- Software Emulators: modified Dummynet & NistNet for less than 5Gbps bandwidth

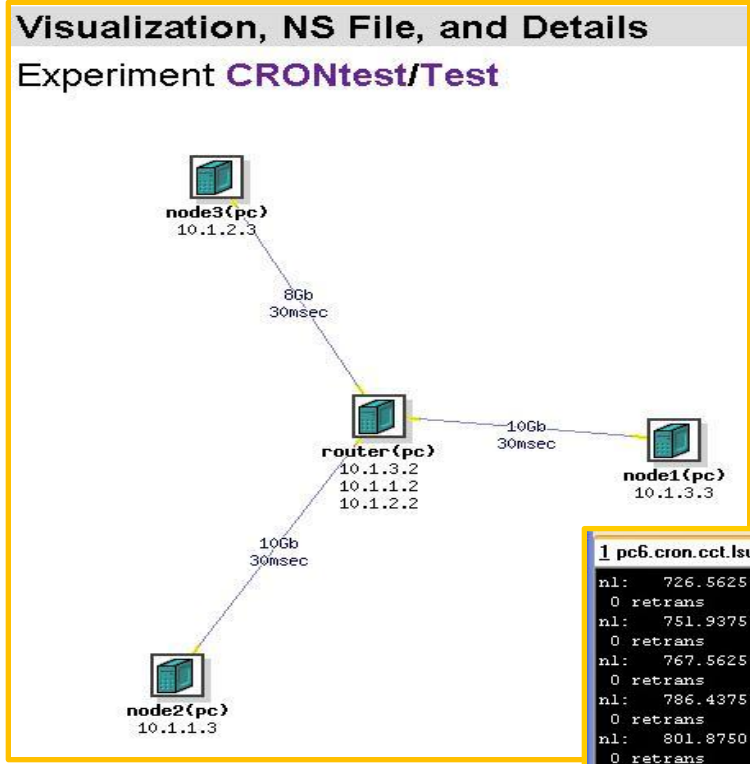
❑ Workstations

- 20 X Sun X4250 servers (two quad-core CPUs with 10GE)





CRON Experiment



- ❑ Emulab GUI and interface
 - WWW.CRON.CCT.LSU.EDU
- ❑ Resource Allocation to GENI
 - Up to 20 Servers
 - Quad-cores with 10GE NIC
 - 64bit Ubuntu and 64bit FreeBSD
- ❑ Measurement services available
 - OnTimeMeasure

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0 retrans
nl: 751.9375 MB / 1.00 sec = 6307.6900 Mbps
0 retrans
nl: 767.5625 MB / 1.00 sec = 6438.8002 Mbps
0 retrans
nl: 786.4375 MB / 1.00 sec = 6597.0038 Mbps
0 retrans
nl: 801.8750 MB / 1.00 sec = 6726.7428 Mbps
0 retrans
nl: 809.8750 MB / 1.00 sec = 6793.6356 Mbps
0 retrans
nl: 822.9375 MB / 1.00 sec = 6903.2794 Mbps
0 retrans
nl: 829.7500 MB / 1.00 sec = 6960.5449 Mbps
0 retrans
nl: 836.0625 MB / 1.00 sec = 7013.2323 Mbps
0 retrans
nl: 842.6875 MB / 1.00 sec = 7069.1518 Mbps
0 retrans
nl: 845.8750 MB / 1.00 sec = 7095.6428 Mbps
0 retrans
nl: 852.2500 MB / 1.00 sec = 7149.2698 Mbps
0 retrans
nl: 853.3750 MB / 1.00 sec = 7158.6284 Mbps
0 retrans

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retrans
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retrans
nl: 247.5625 MB / 1.00 sec = 2076.6508 Mbps 0
retrans
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retrans
nl: 248.2500 MB / 1.00 sec = 2082.4740 Mbps 0
retrans
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retrans
nl: 250.8125 MB / 1.00 sec = 2103.9741 Mbps 0
retrans
nl: 247.8750 MB / 1.00 sec = 2079.3179 Mbps 0
retrans
nl: 252.4375 MB / 1.00 sec = 2117.6098 Mbps 0
retrans
nl: 250.0000 MB / 1.00 sec = 2097.1520 Mbps 0
retrans
nl: 250.5000 MB / 1.00 sec = 2101.3463 Mbps 0
retrans
nl: 253.6875 MB / 1.00 sec = 2128.0871 Mbps 0
retrans
nl: 253.4375 MB / 1.00 sec = 2125.9878 Mbps 0
retrans

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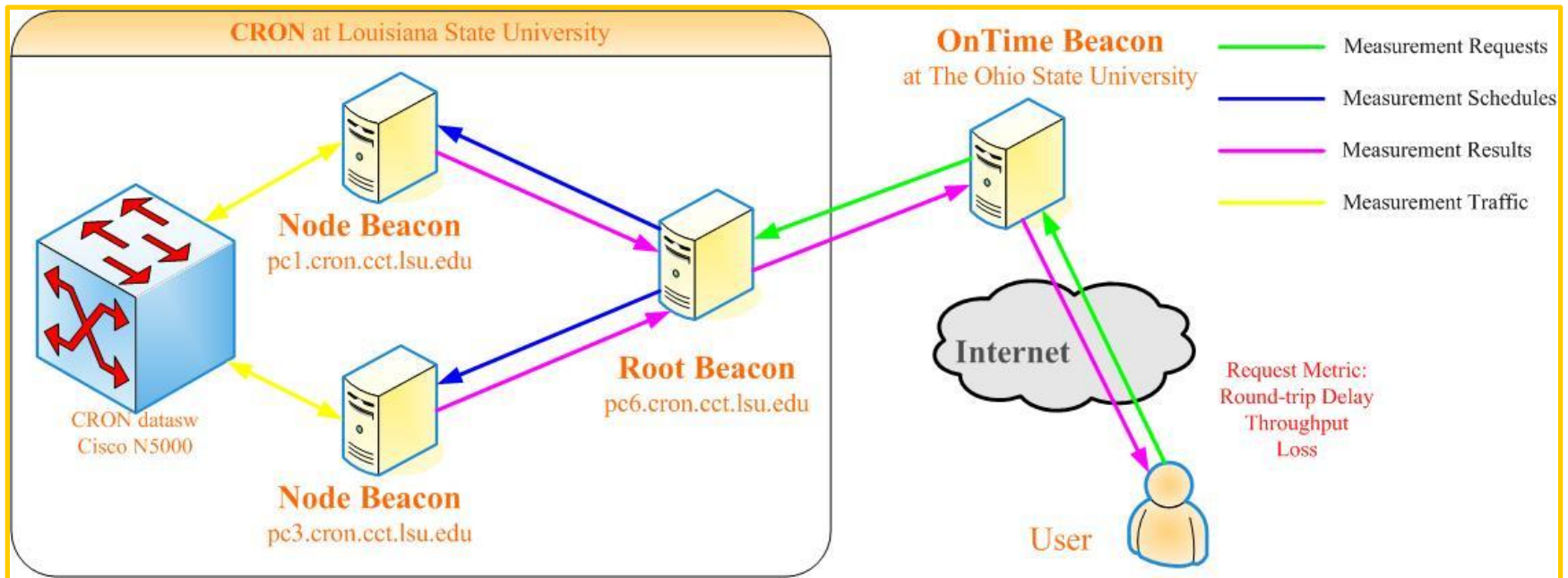


Aggregating OnTimeMeasure Service

□ Procedure

- Install Node/Root beacons at nodes after loading OS image
- Collect measurement data from each Node beacon and send to Root Beacon; OnTime Beacon at OSU controls collection

See details at - <http://groups.geni.net/geni/wiki/OTM-CRONInstall>





Aggregating OnTimeMeasure Service (Cont.)

- ❑ Measurement data
 - ❑ Throughput, delay, jitter, etc., from each link
 - ❑ CPU load from each node

