

“A TRAINING PLATFORM FOR NETWORK TOOLS AND PROTOCOLS”

NSF Campus Cyberinfrastructure (CI) and Cybersecurity for CI Innovation Workshop
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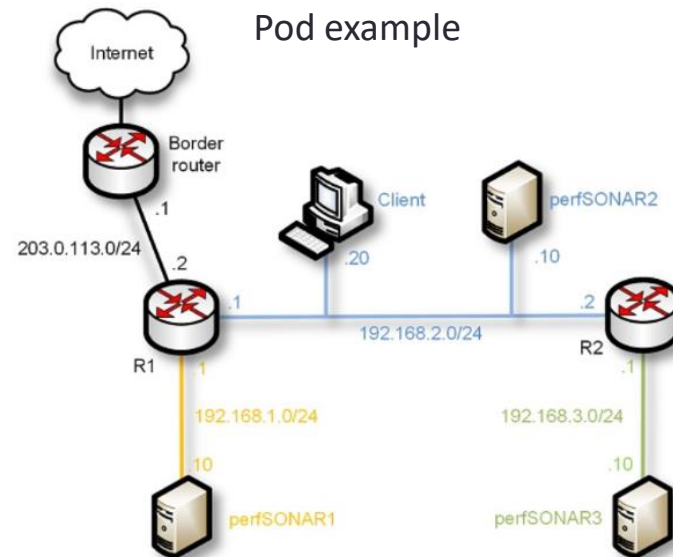
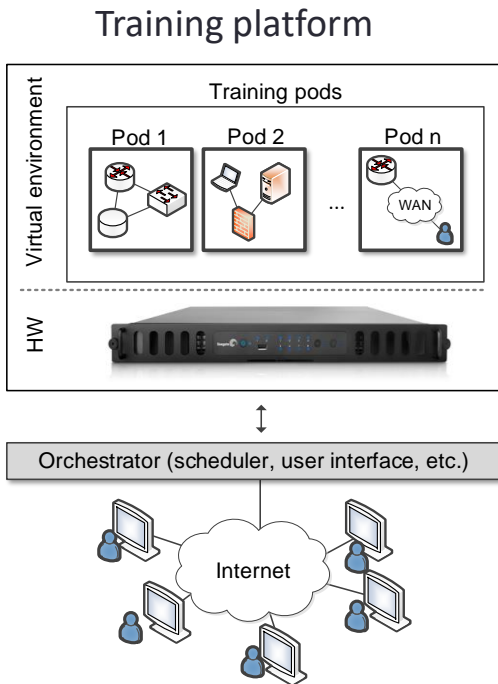


NSF 1829698

“CyberTraining CIP: Cyberinfrastructure Expertise on
High-throughput Networks for Big Science Data Transfers”

CI Training – Networks and Protocols

Goal: “Enhance hands-on training and education of CI professionals on high-throughput networks...”



Community Usage

ID	Name	Reservations Made	Labs Attended	Hours Reserved	Hours Attended
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Libraries

Network Tools and Protocols

- 1 Introduction to Mininet
- 2 Introduction to Iperf3
- 3 Emulating WAN w/ NETEM I: Latency, Jitter
- 4 Emulating WAN w/ NETEM II: Loss, Duplication, Reord.
- 5 Setting WAN Bandwidth with Token Bucket Filter (TBF)
- 6 Traditional TCP Congestion Control (HTCP, Cubic, Reno)
- 7 Rate-based TCP Congestion Control (BBR)
- 8 Bandwidth-delay Product and TCP Buffer Size
- 9 Enhancing TCP Throughput with Parallel Streams
- 10 Measuring TCP Fairness
- 11 Router's Buffer Size
- 12 TCP Rate Control with Pacing
- 13 Impact of MSS on Throughput
- 14 Router's Bufferbloat

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More labs being developed

perfSONAR

- 1 Configuring Admin Info Using perfSONAR Toolkit GUI
- 2 PerfSONAR Metrics and Tools
- 3 Configuring Regular Tests Using perfSONAR GUI
- 4 Configuring Regular Tests Using pScheduler CLI Part I
- 5 Configuring Regular Tests Using pScheduler CLI Part II
- 6 Bandwidth-delay Product and TCP Buffer Size
- 7 Configuring Regular Tests Using a pSConfig Template
- 8 perfSONAR Monitoring and Debugging Dashboard
- 9 pSConfig Web Administrator
- 10 Configuring pScheduler Limits

Zeek / Bro

- 1 Introduction to the Capabilities of Zeek
- 2 An Overview of Zeek Logs
- 3 Parsing, Reading and Organizing Zeek Files
- 4 Generating, Capturing and Analyzing Scanner Traffic
- 5 Generation, Capturing and Analyzing DoS and DDoS
- 6 Introduction to Zeek Scripting
- 7 Advanced Zeek Scripting for Anomaly Event Detection
- 8 Preprocessing of Zeek Output Logs for Machine Learning
- 9 Machine Learning Classifiers for Anomaly Classification
- 10 Profiling and Performance Metrics of Zeek

To access the platform and additional information:

<http://ce.sc.edu/cyberinfra/cybertraining.html>