SC1124_UEC

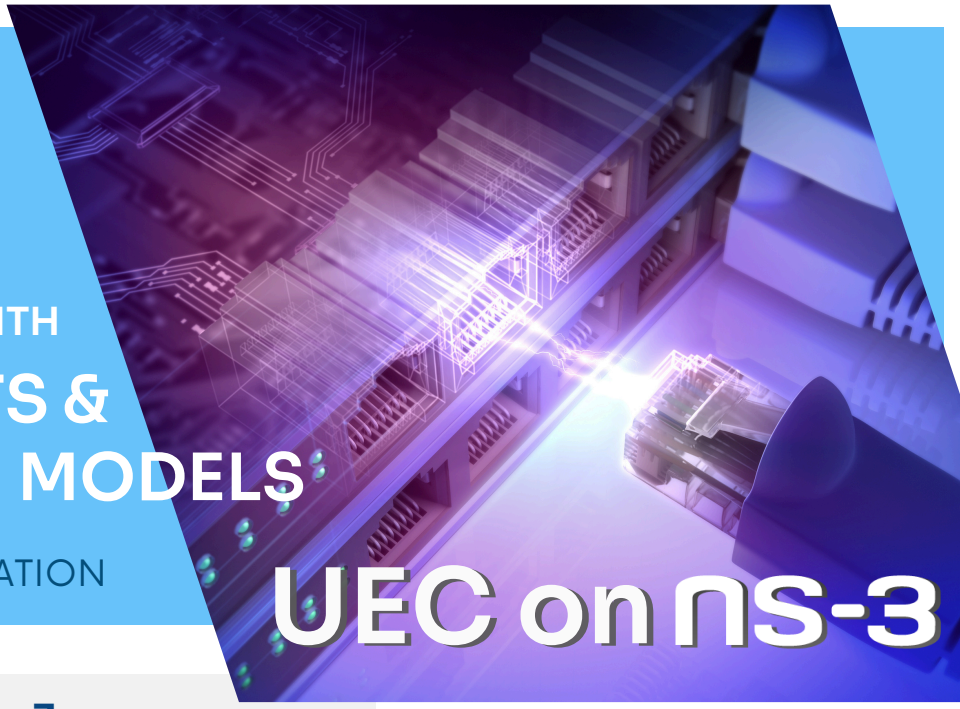
SCALA COMPUTING

www.scalacomputing.com

A PROUD MEMBER OF THE Ultra Ethernet Consortium

NETWORK SIMULATION, SCALING UP TO 64K NODES, WITH UEC TRANSPORTS & OEM HARDWARE MODELS

WE SIMPLIFY NETWORK SIMULATION



UEC NIC model for ns-3

- Designed to the latest UEC transport specifications
- UEC-0.75 support includes;
  - Selective Ack
  - Packet Sprays
  - PDS RUD and PDS ROD
  - NSCC Congestion Control
  - Receiver Congestion Control
  - Static Re-transmit timer
  - Dynamic Retransmit timer with Exponential Back-off

Scala's UEC NIC allows for running traffic over a lossy network to properly simulate the fault-tolerant features of the protocols, including automatic failover, link redundancy, and network recovery mechanisms

Scala Compute Platform (SCP) for ns-3 Advantages

- Flexible and easy-to-use pre-processing and data analytics engines wrapped around ns-3
- Multi-process enabled using MPI and optimized to be significantly faster and more robust
- Platform for managing users, usage, models and results with tailored environments for developing new models and advanced analytics

ns-3 NETWORK SIMULATOR

Simulate UEC Protocols

- The new UEC protocols bring significant improvements in performance, scalability, and reliability over traditional Ethernet
- Simulation to understand UEC is essential for modern data-intensive applications like AI, cloud computing, and high-performance data centers



Advantages of Scala Computing with UEC

- We are optimized for massive parallelization, enabling accurate simulations of large AI GPU clusters (up to 64k) with LLM workloads.
- Our consortium of industry leaders lets you simulate UEC protocols on hybrid networks with OEM models developed and validated by the vendors themselves.
- Our automated deployment infrastructure enables easy elastic access to vast multi-instance cloud resources to simulate at data center scale, on demand with no queues.
- UEC SelectiveAck protocols provide a more deterministic performance, reducing the variation from run to run that happens with high tail latency and improving the performance of your machine learning workloads.
- We provide the power and flexibility to simulate the wide range of network sizes and data speeds that the UEC protocols were designed to support, including support for 800Gbps and higher speeds.
- Our Advanced post processing lets you drill down to the individual NICs or plot the minimized transmission delays (ultra low latency) and improved real time performance provided by the UEC protocols.
- You will be able to Compare UEC performance with alternative settings, NICs, and transports, including RoCE transports or our modified RoCE, enhanced with features such as packet sprays, a reorder buffer and SelectiveAck protocols.

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Additional Advantages

- We continue to develop new transport protocols
- Support for Chakra Workloads, including real-world traces and synthetic Chakras
- These, in conjunction with our flexible coordinators, industry leading models, significant simulation speed for large GPU clusters and various industry leading transports, allow Scala to run simulations where testing in large lab deployments are cost prohibitive for AI testing

ns-3