Cray SV2 I/O Software Strategy & Status

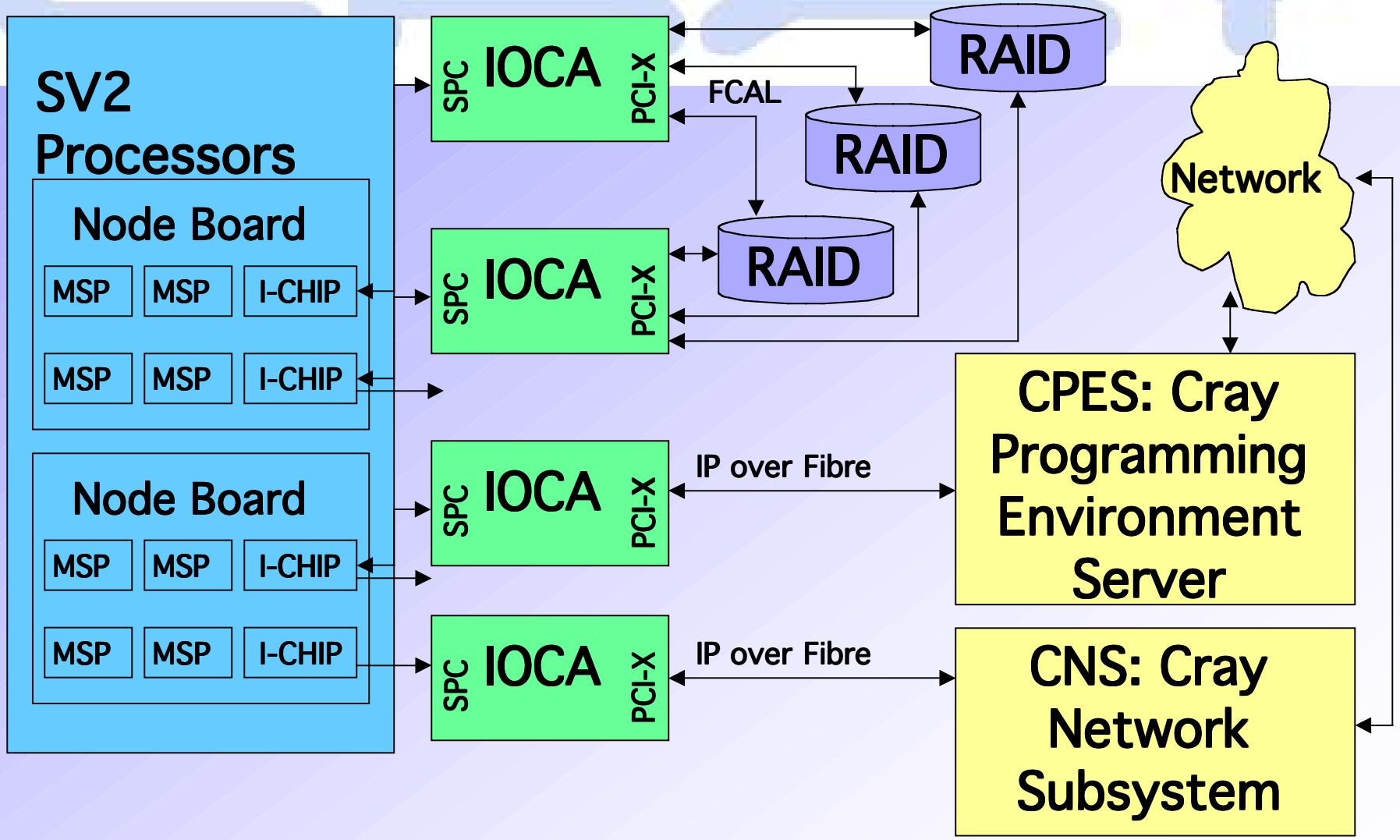
Topics: I/O Configurations

I/O Progress

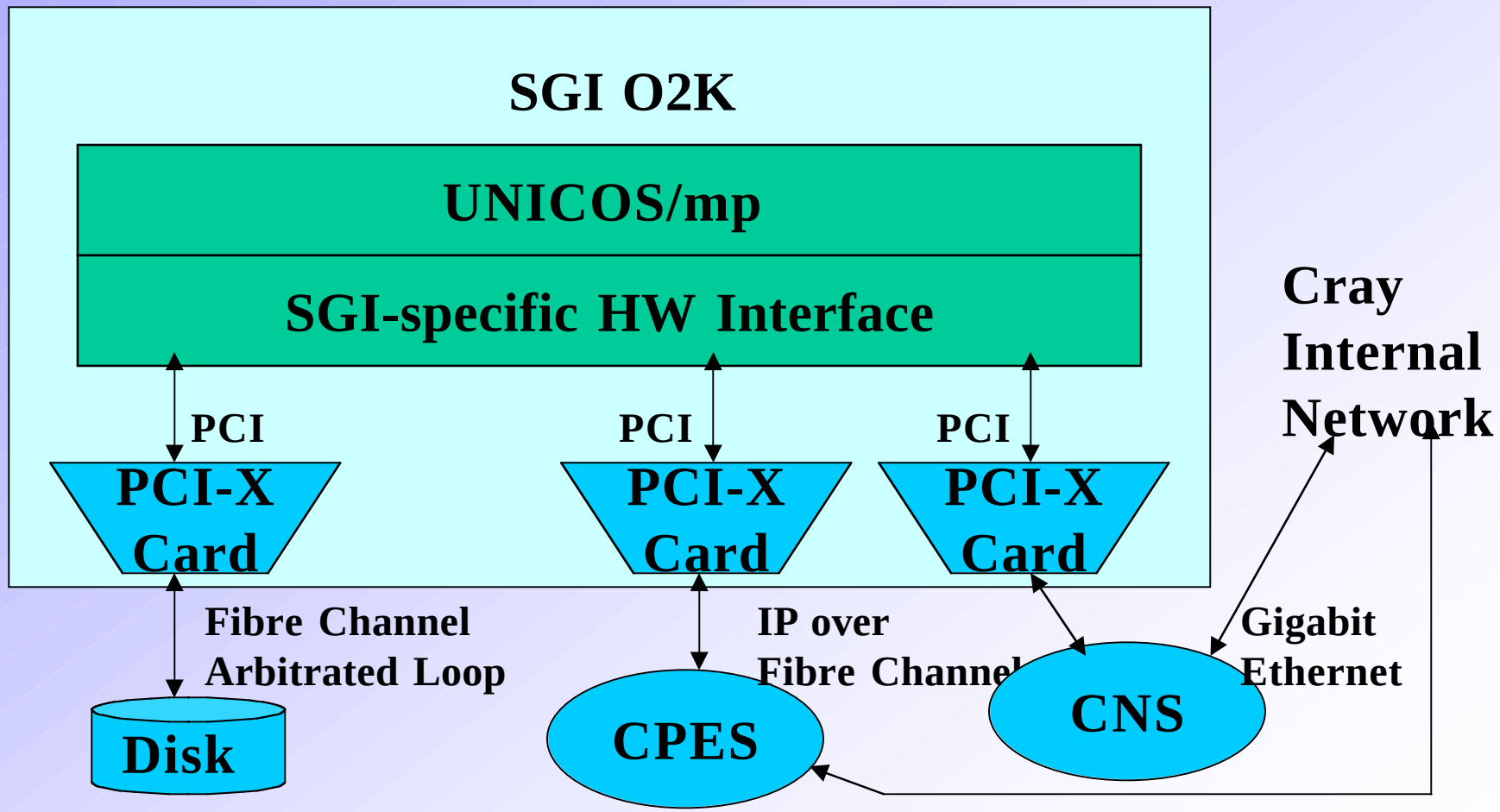
I/O Plans

Paul Krueger

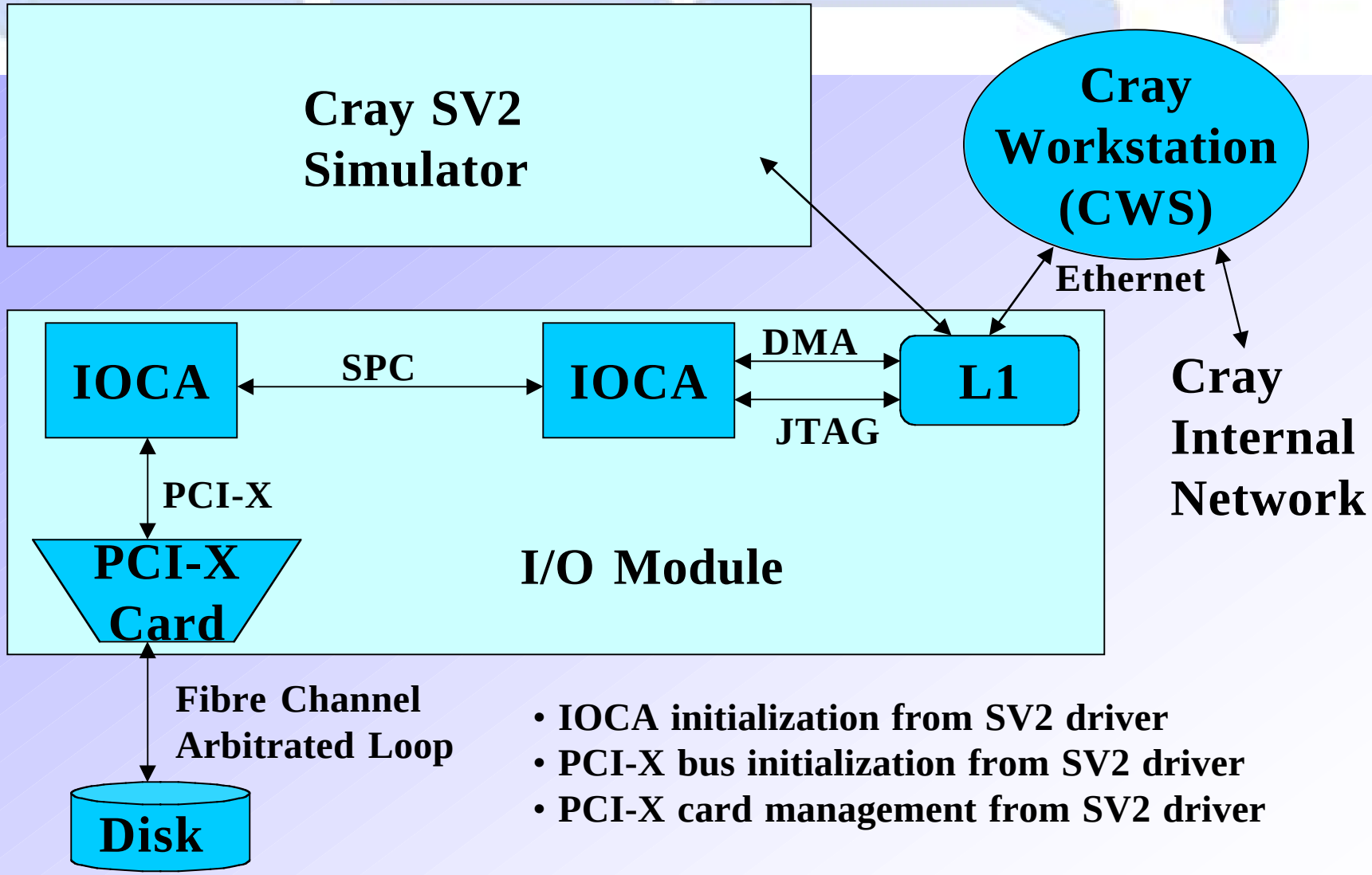
Cray SV2 I/O Conceptual Diagram



Pseudo-SV2 I/O Test Environment

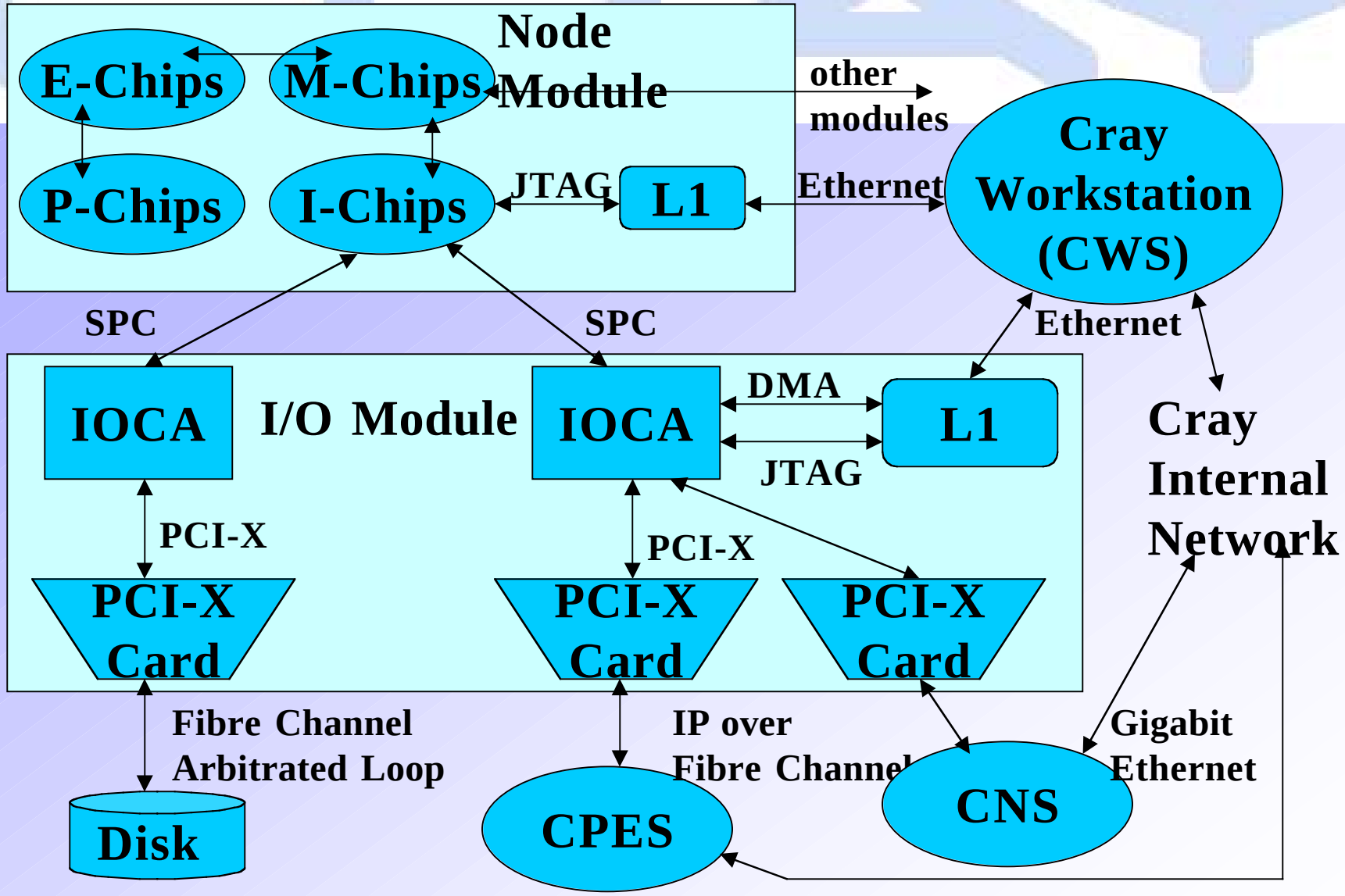


SV2 Simulator I/O Test Environment

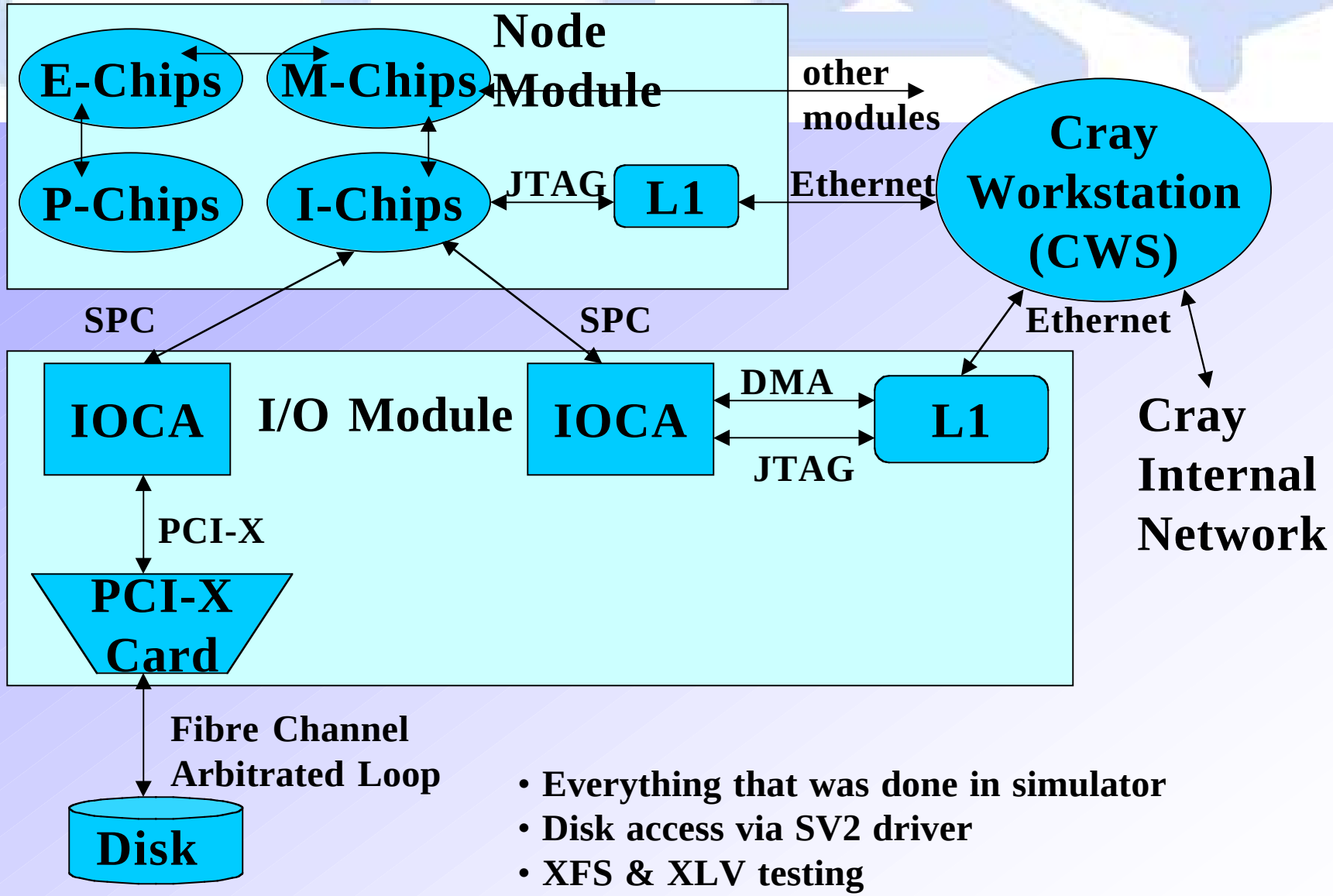


- IOCA initialization from SV2 driver
- PCI-X bus initialization from SV2 driver
- PCI-X card management from SV2 driver

SV2 I/O Test Environment

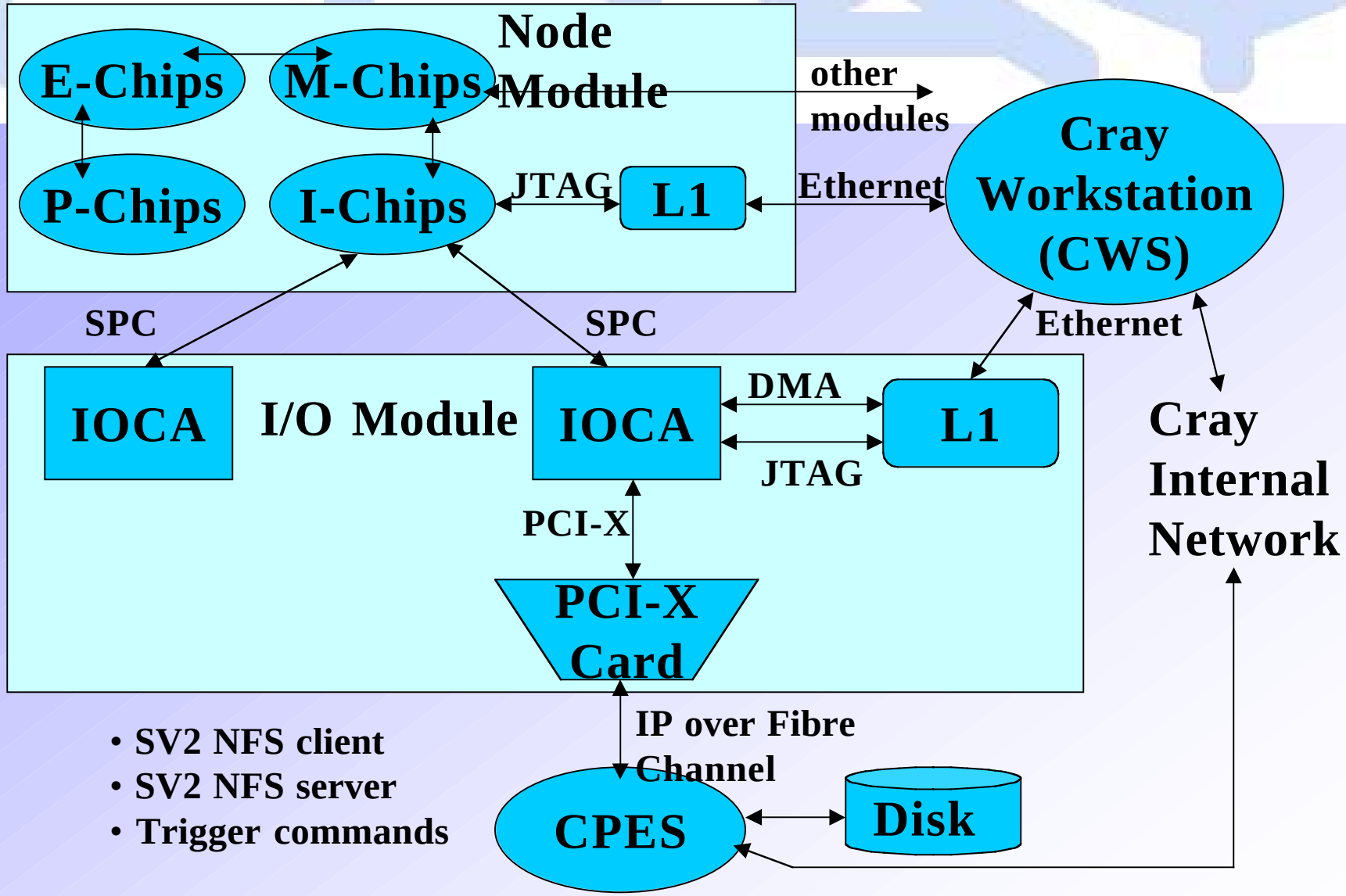


Disk I/O Test Plan



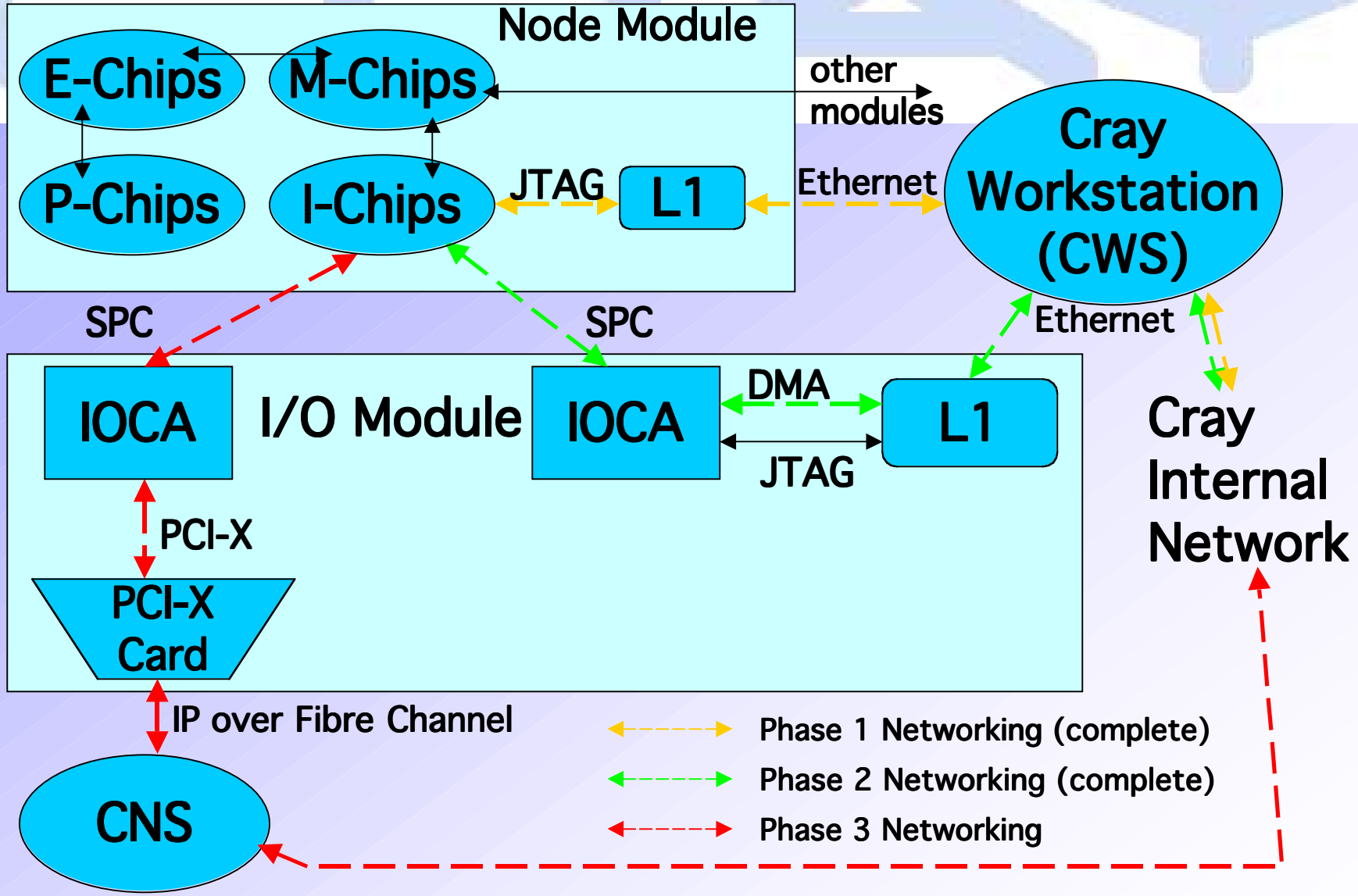
- Everything that was done in simulator
- Disk access via SV2 driver
- XFS & XLV testing

CPES Test Plan



- SV2 NFS client
- SV2 NFS server
- Trigger commands

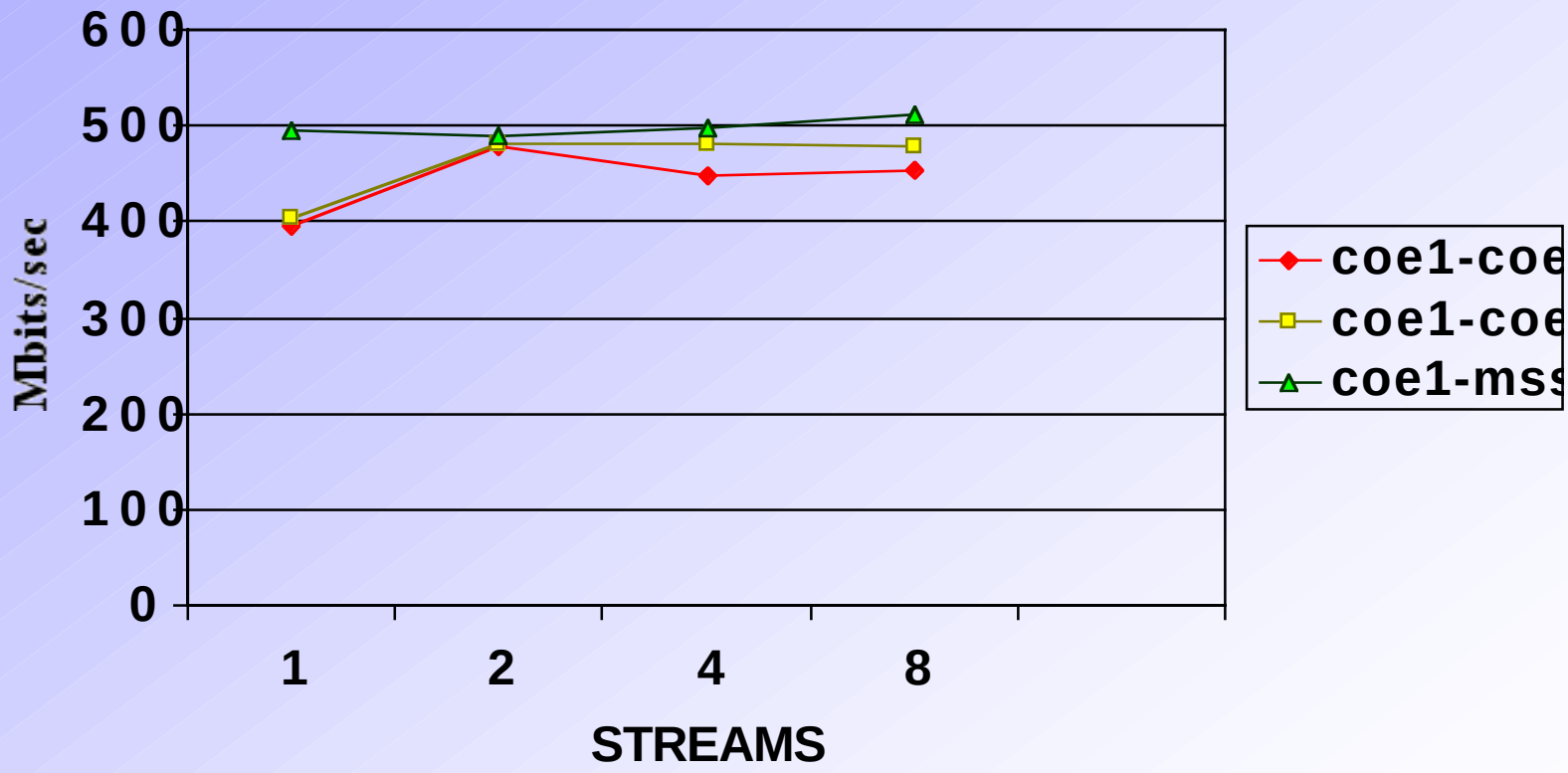
Network I/O Test Plan



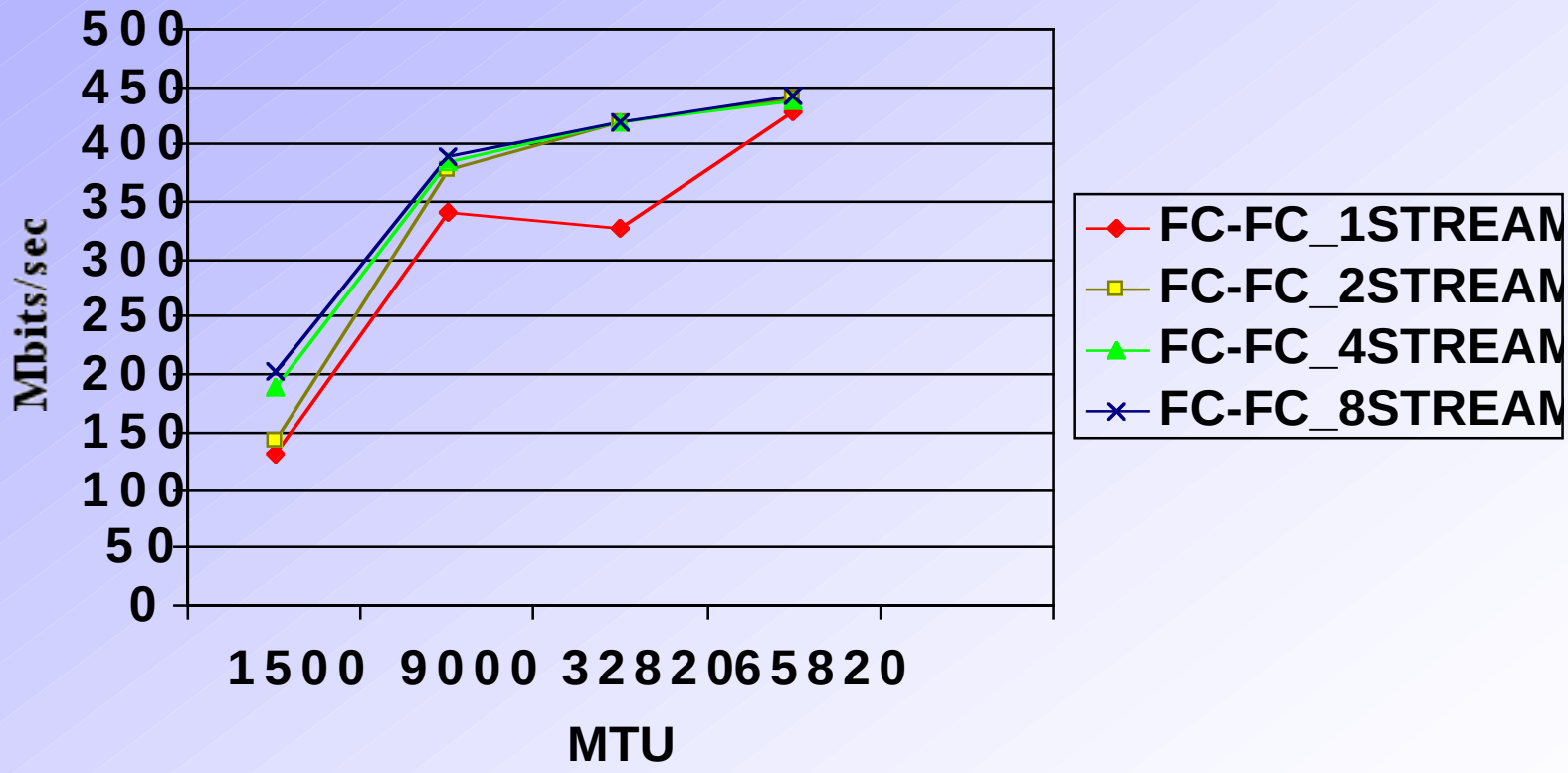
Configuration of Test Platform at OSC

- coe1: Sun 6800
  - 12 CPU 900 MHz, 12 GB Memory
- coe2b: Sun 6800
  - 4 CPU 900 MHZ, 4 GB Memory
- coe4: Sun 6800
  - 24 CPU 900 MHZ, 24 GB Memory
- mss: SGI O2000
  - 8 300 MHZ R12 MIPS, 4 GB Memory

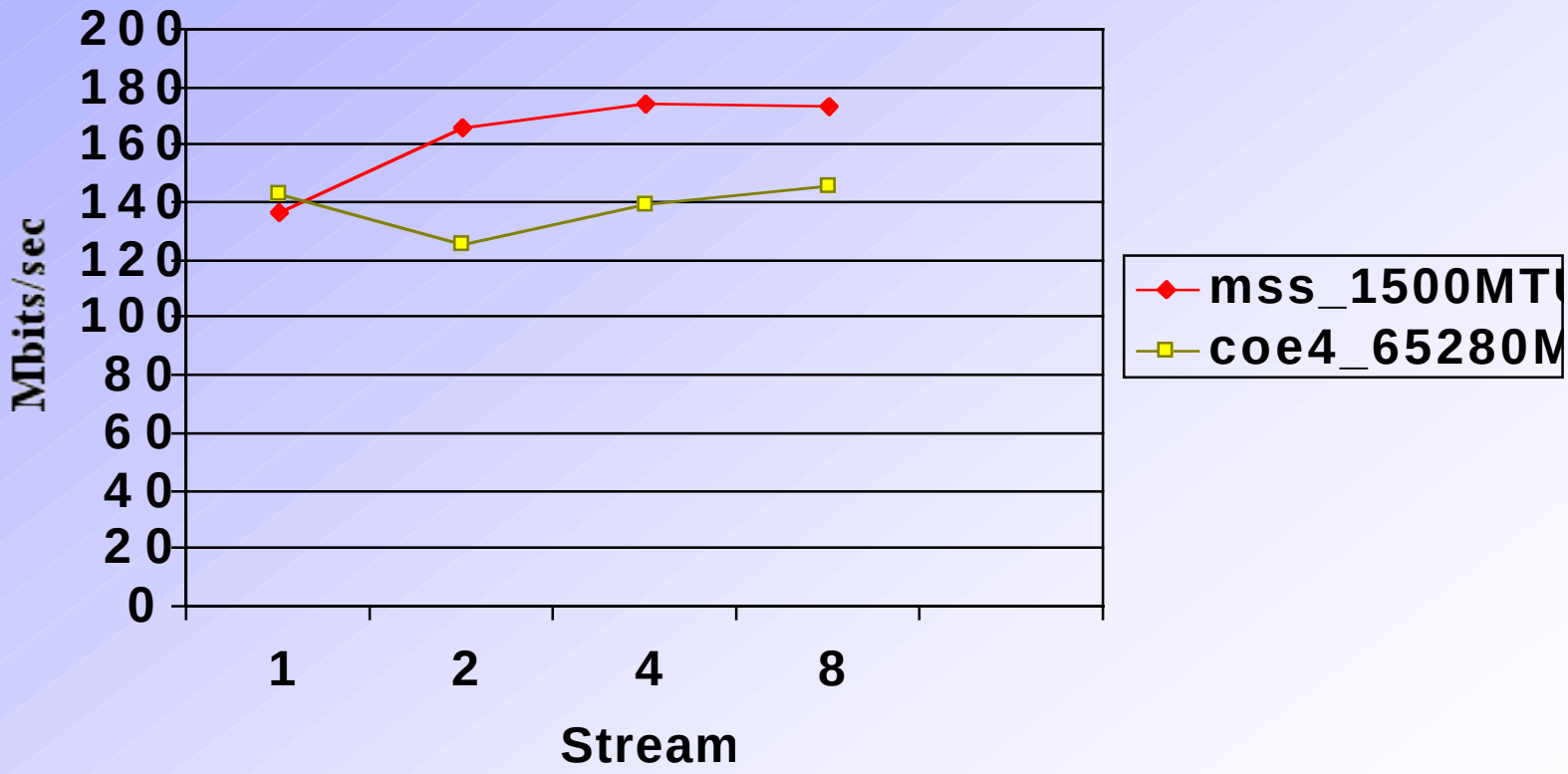
Gigabit Ethernet (Multi-stream)



Fibre Channel Point-Point (Multi-stream)



IP Forwarding FC<->GigE (Multi-stream)



CNS Definition

- **Prototype Platform:**
  - Based on L7R technology
  - Runs enhanced version of TCP proxy software
  - 1U, Rack Mountable
  - 2 P3 1.4 GHz CPUs
  - 2 GB of memory
  - 1 Intel Pro 1000 ethernet PCI card
  - Emulex Fibre Channel PCI card
  - Runs Linux
- **Intended Production Platform:**
  - 2U, Rack Mountable
  - Multiple PCI-X slots
  - Evaluation HW not available until late June or July

CNS Prototype Performance

- Direct gigabit ethernet performance 90 MB/sec to 107 MB/sec
- Fibre channel performance ~32 MB/sec
- 31 MB/sec routing TCP/IP from fibre channel to gigabit ethernet
- Opportunities for fibre channel improvement:
  - Fix Linux driver bugs
  - Improve driver memory management
  - Use point-to-point rather than arbitrated loop
  - Work with fibre channel card vendor to get improvements

Summary

- Diversified I/O testing
- Initial performance looks good
- Performance improvements already underway