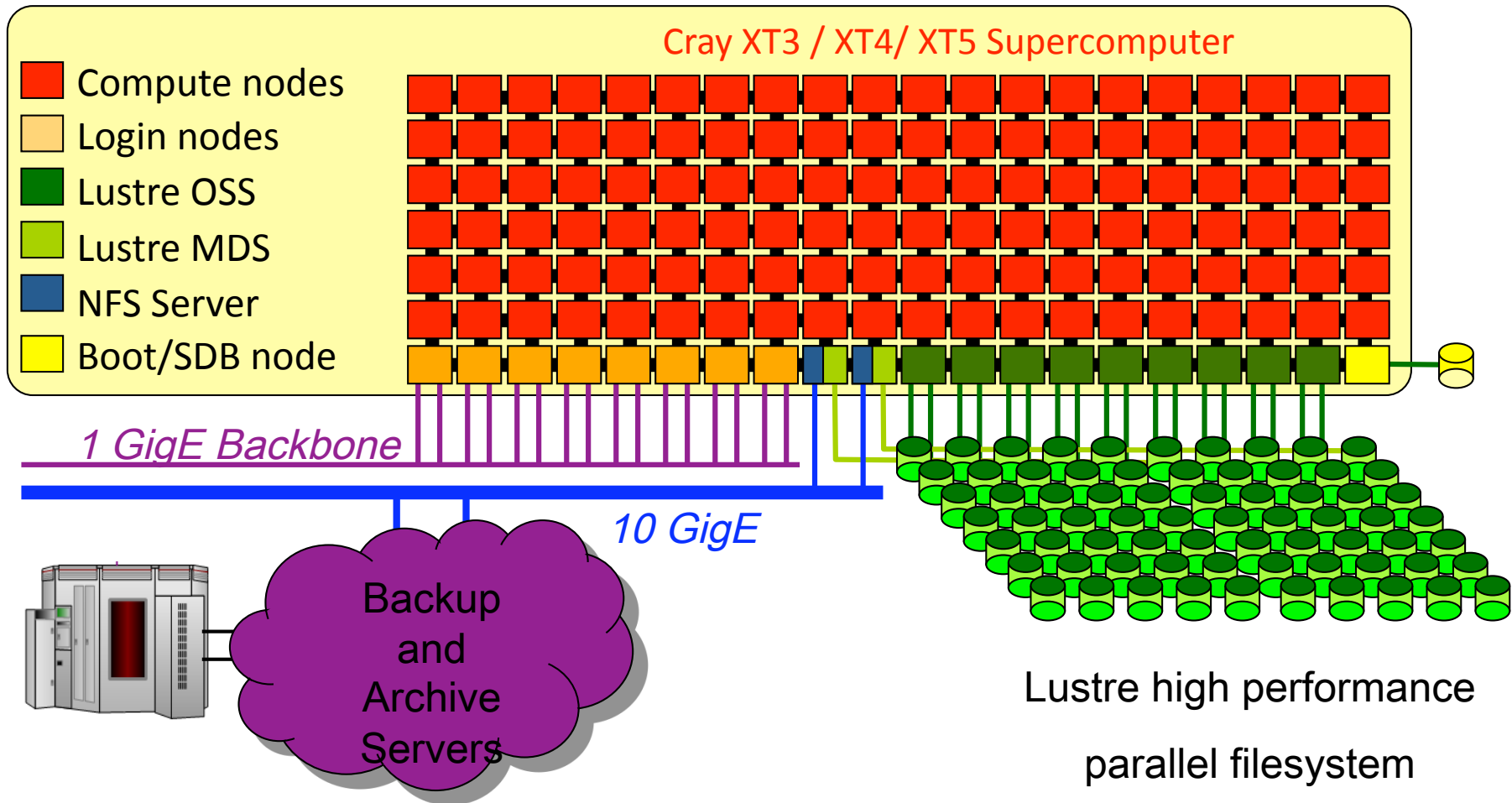


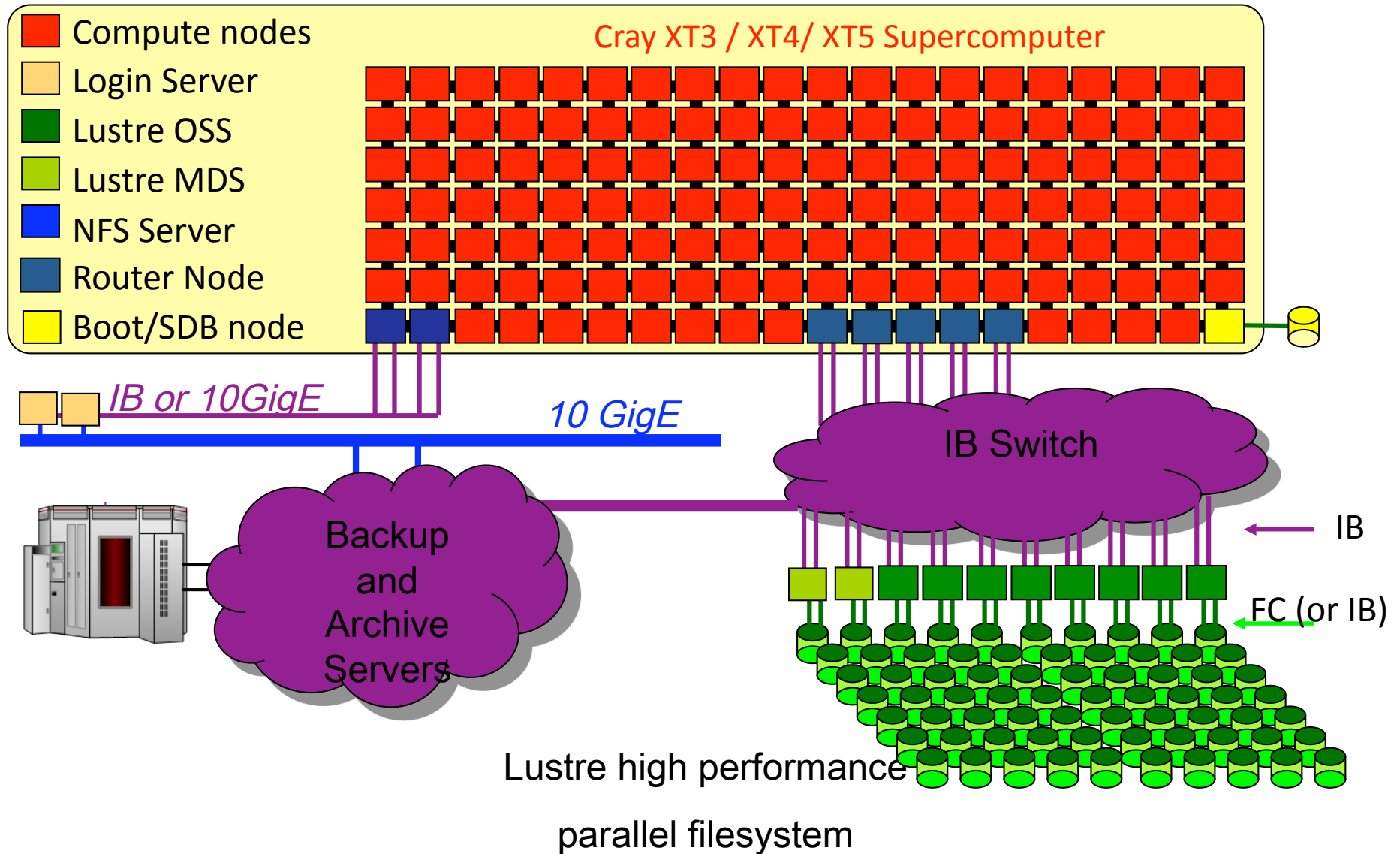
# Scalable I/O



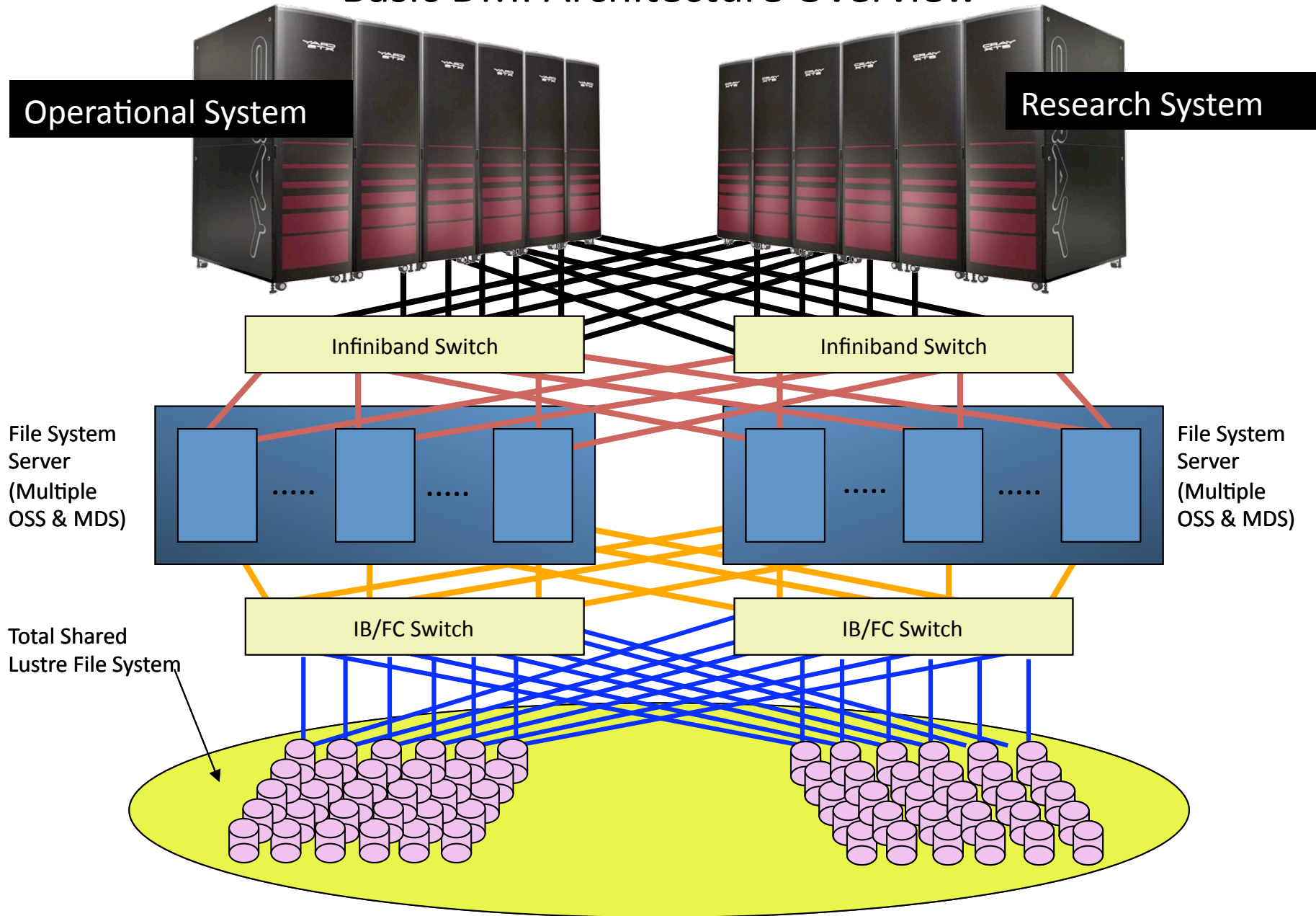
# Cray XT I/O Today: *Direct Attached*



# Cray XT5 I/O Alternative: *Externally Attached*

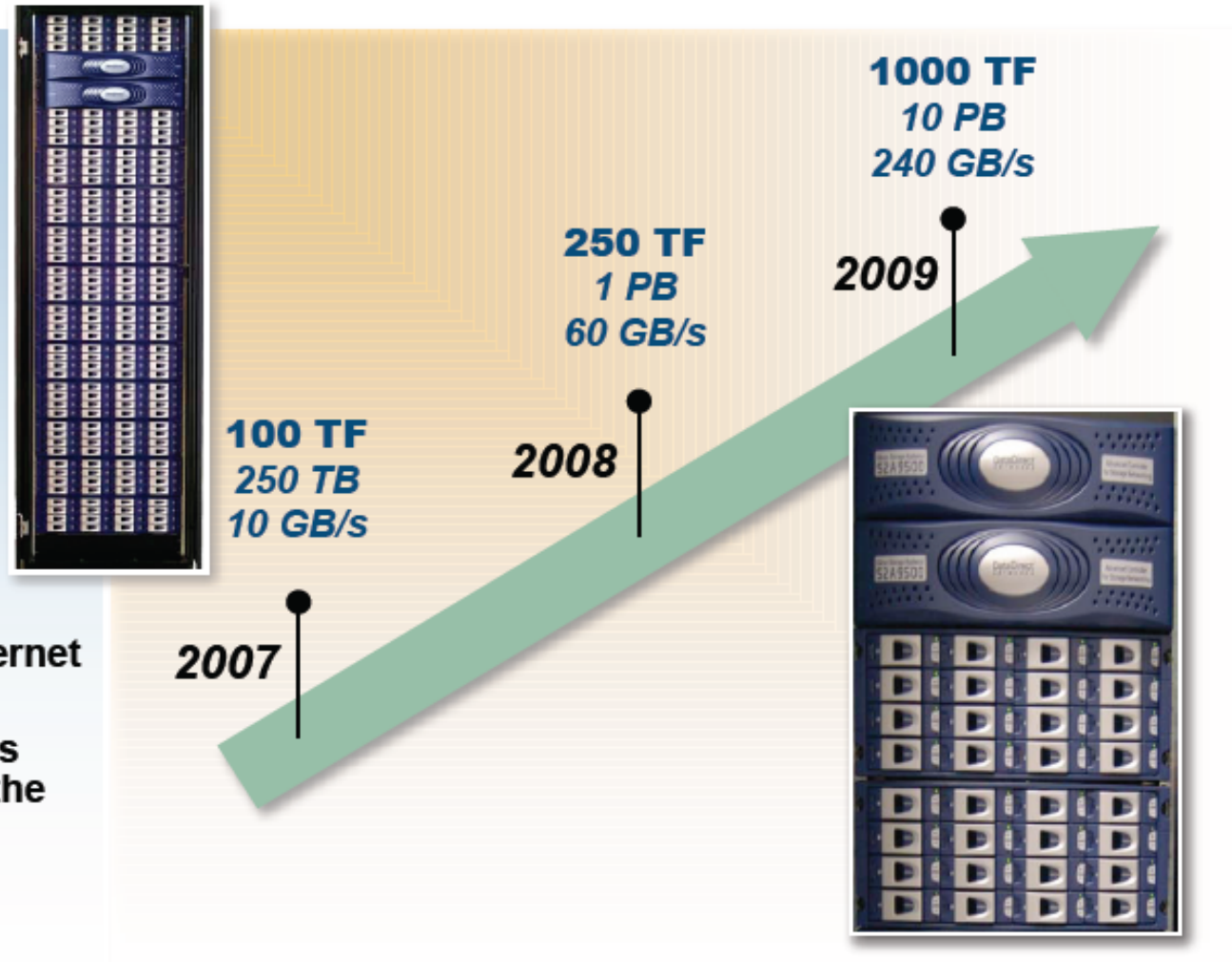


# Basic DMI Architecture Overview

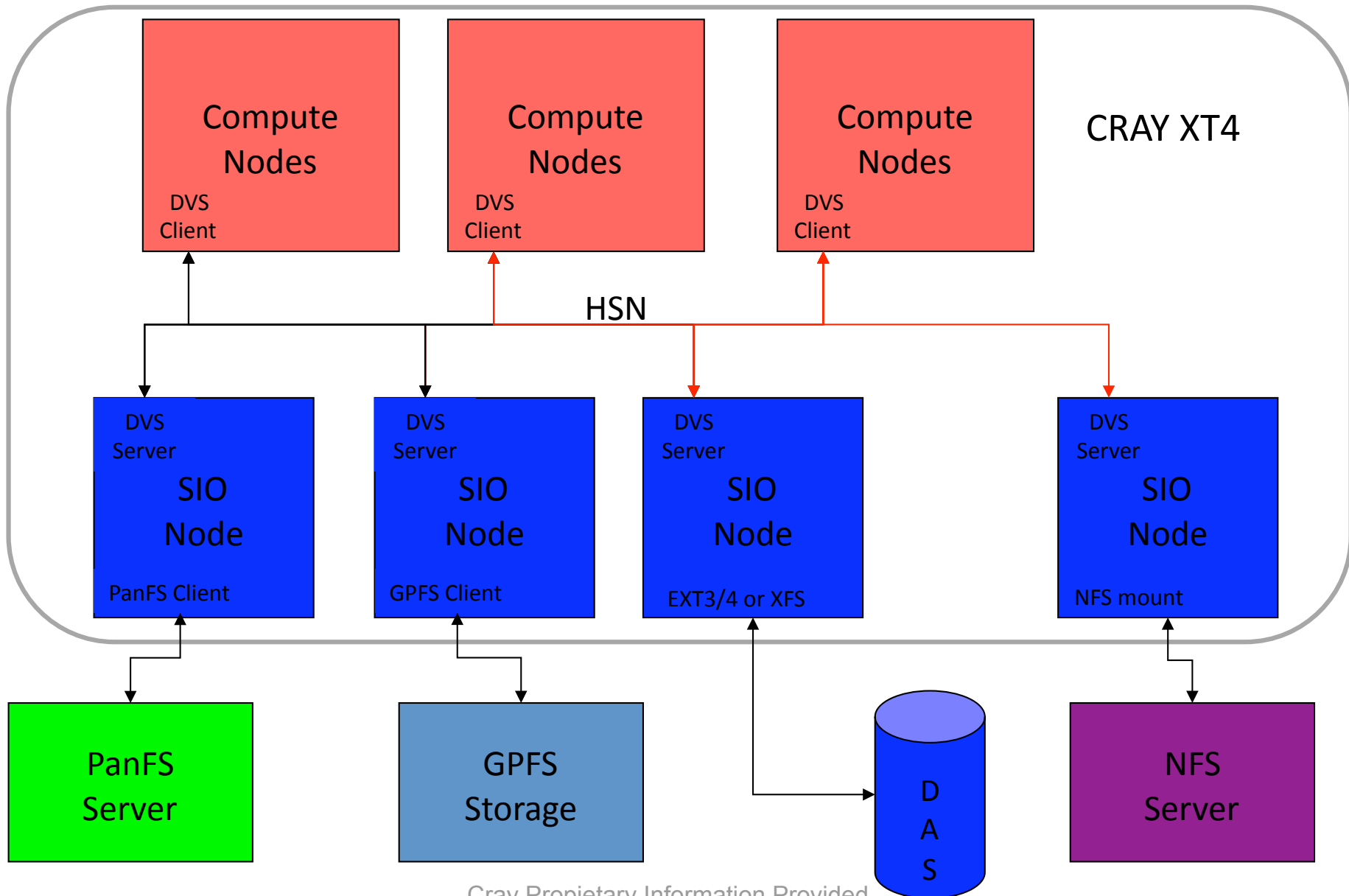


# Center-Wide File System (Spider)

- Increase scientific productivity by providing single repository for simulation data
- Connect to all major LCF Resources
- Connected to both InfiniBand and Ethernet networks
- Potentially becomes *the* file system for the 1000 TF System



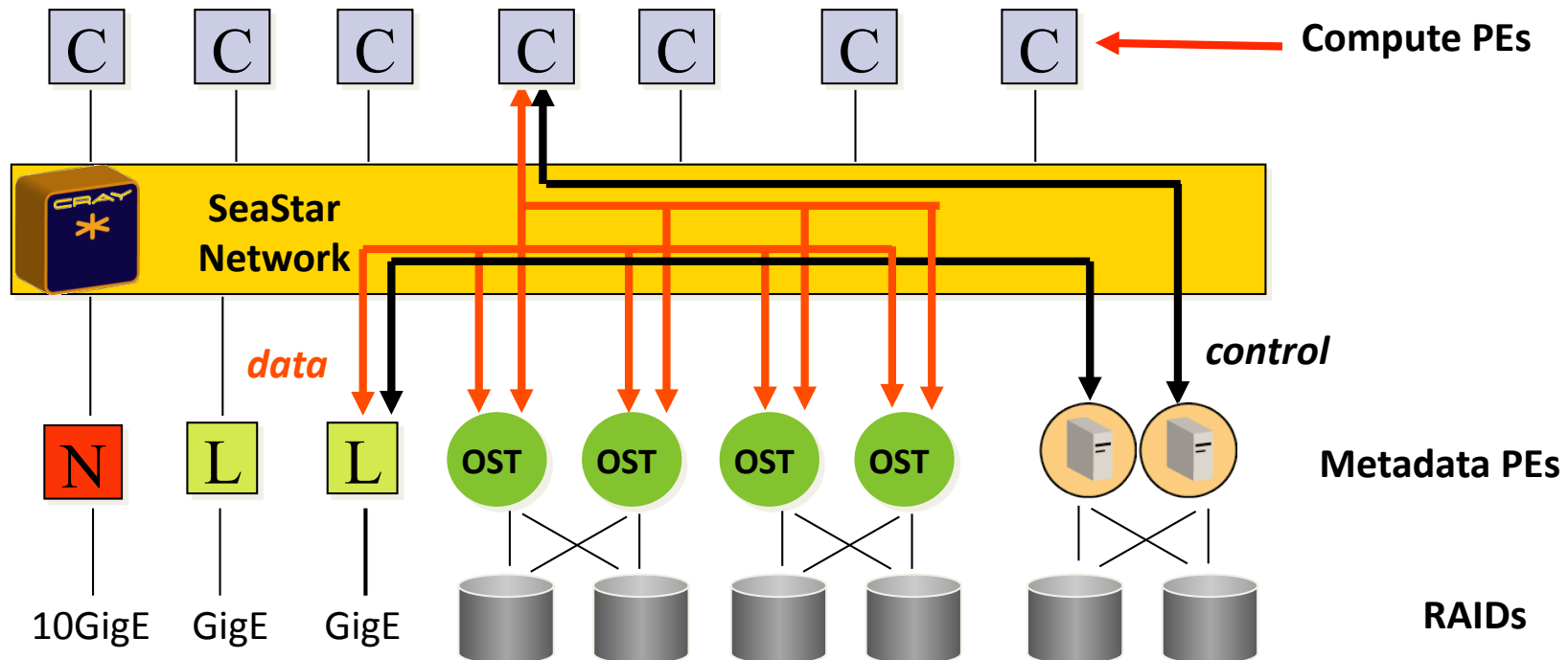
# Concept - DVS in a Cray XT4 Environment



# Scalable I/O



- Open Source
- Vendor Neutral
- Scalable to over 50GB/sec
- Object Storage Target (OST) Software Failover, Dual Path controllers for reliability
- Cray has both a development *and* a support relationship with CFS





## External Service Functions – es\*



esCompute

esLogin

esDVS

esFS

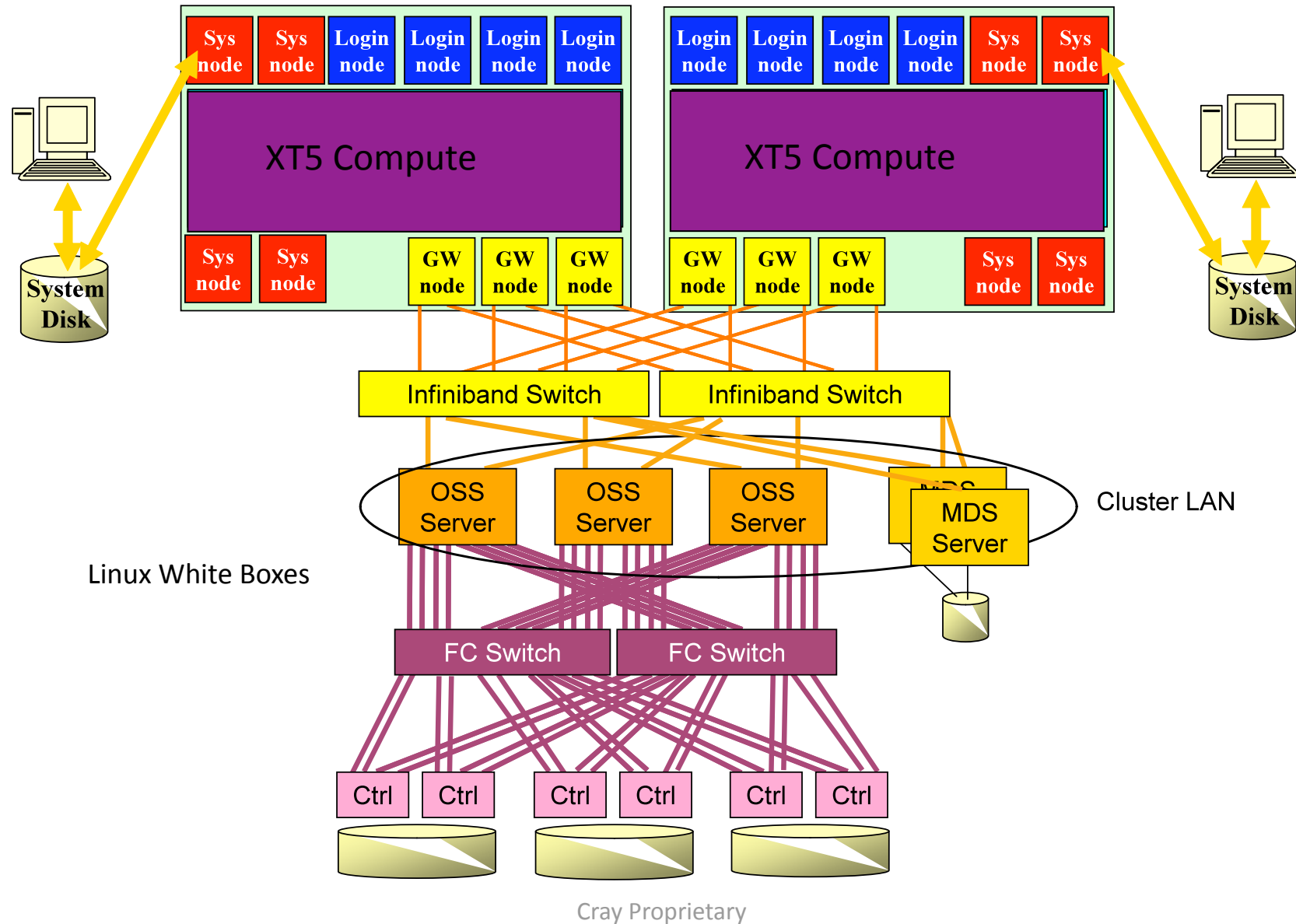
esDM

### External Service Management

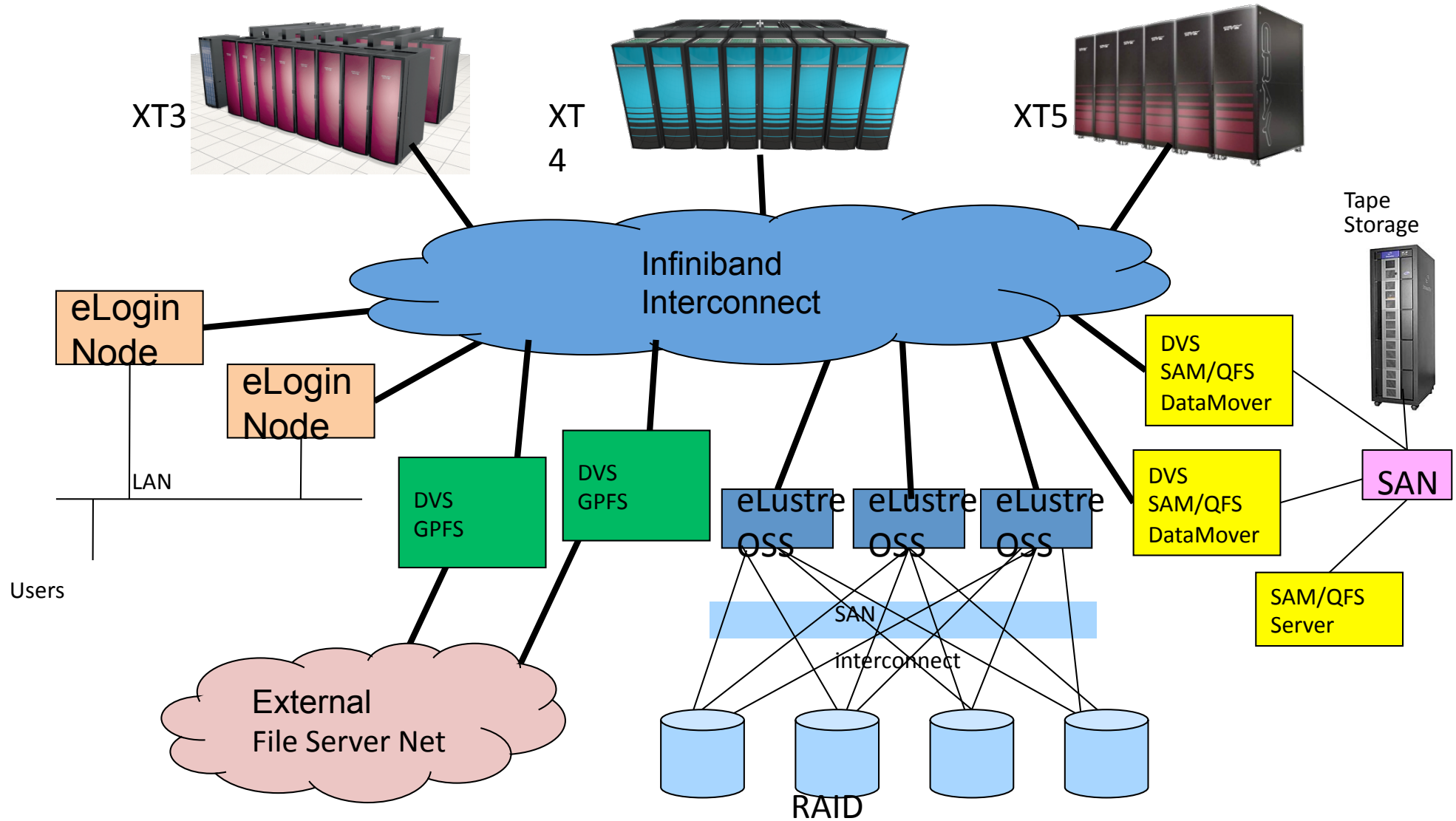
- Each Service can be scaled, configured, and used independently, or mixed and matched - depending on site requirements
- External Service Functions are based on current usage. Expect to see more and varied Services in the future
- Management of the Service nodes is supplied with all configurations and can scale with the size of the External Service configuration. The functions include Power/boot/dump/logging, image management, and RAS. The service node management interfaces can be connected to site management systems



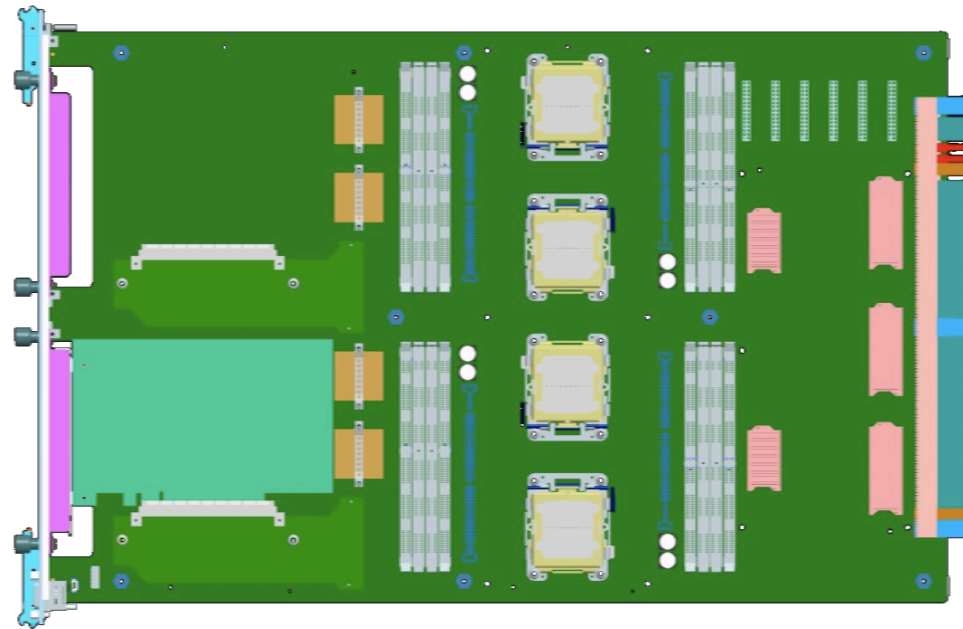
# DMI Configuration – Production Weather



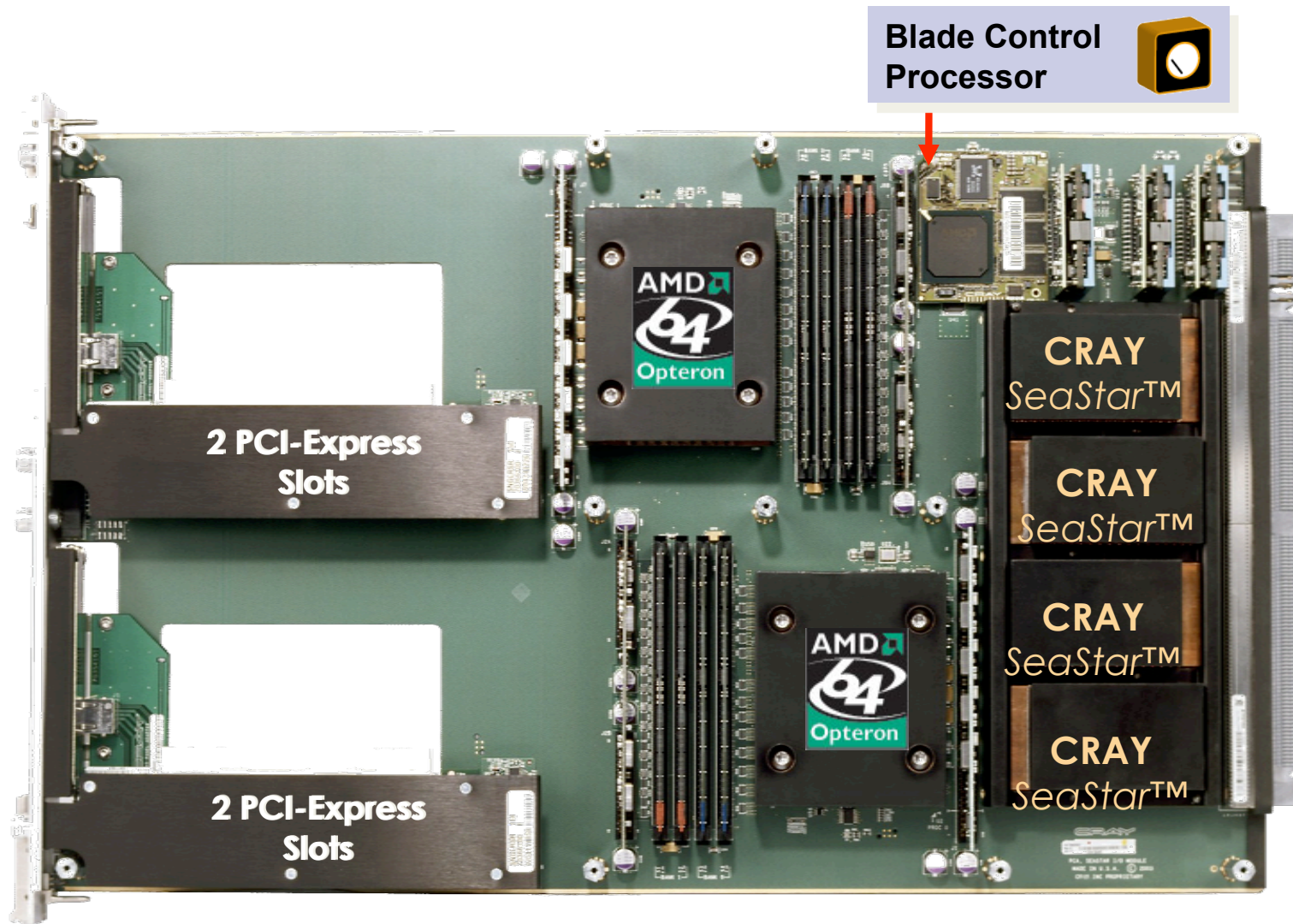
# eDVS + eLustre + eLogin



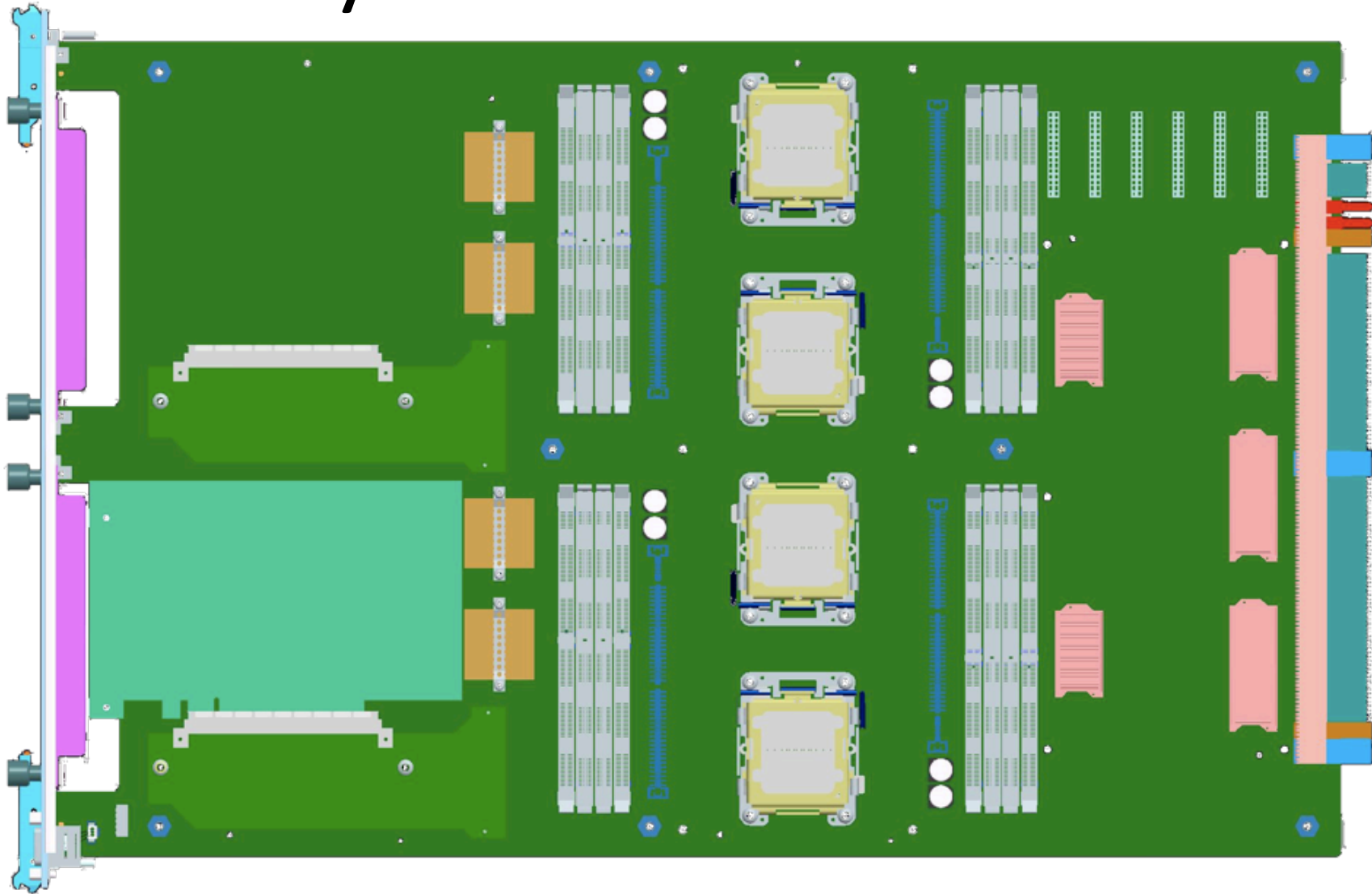
# Fiorano SIO Blade



# Current Service and I/O Blade



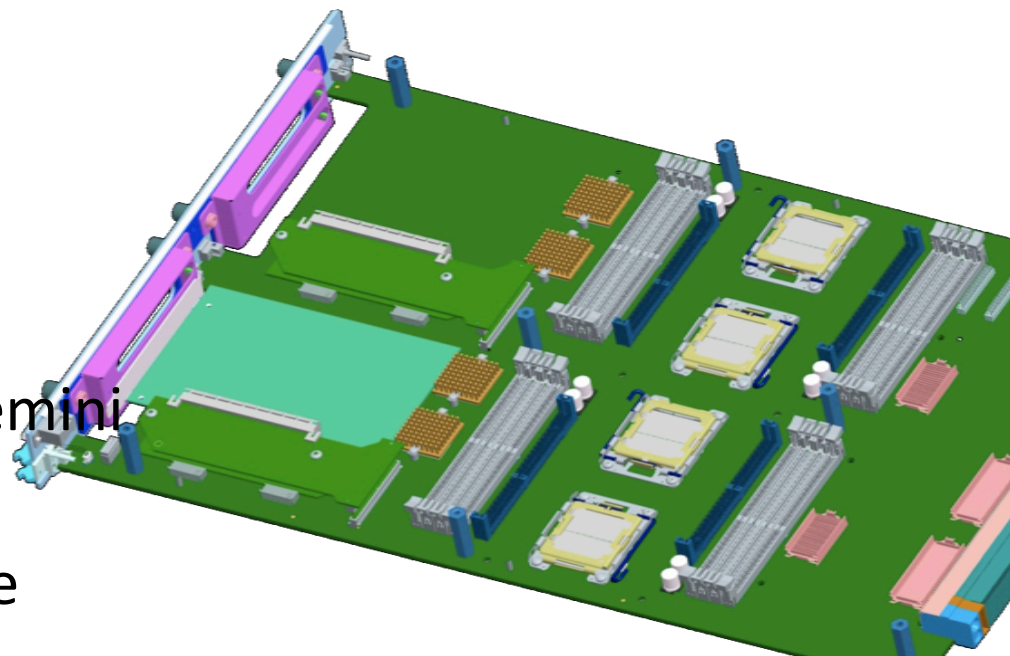
# Cray "Fiorano" SIO Blade





# Next Generation Fiorano SIO Blade

- 4 Socket F Processors
- 4 DDR2 DIMMs per Socket
  - 4GB or 8GB DIMMs supported
- 4 AMD SR5670 Bridge Chips
- Supports both SeaStar and Gemini networks
- PC Boards in fab, first prototype power-up expected late 1Q09



Blade Feature	Current SIO Blade	Fiorano SIO Blade	Fiorano Difference
# of cores	4	16-24	6x
Max. memory size	16GB	128GB	8x
Memory Bandwidth	12.8 GB/s	51.2 GB/s	4x
Sustained I/O Bandwidth	4GB/s	16GB/s	4x