

# HIGH-PERFORMANCE COMPUTING SYSTEM FOR HIGH ENERGY PHYSICS

RO-15-NIPNE  
IFIN-HH

Dumitru Laurentiu

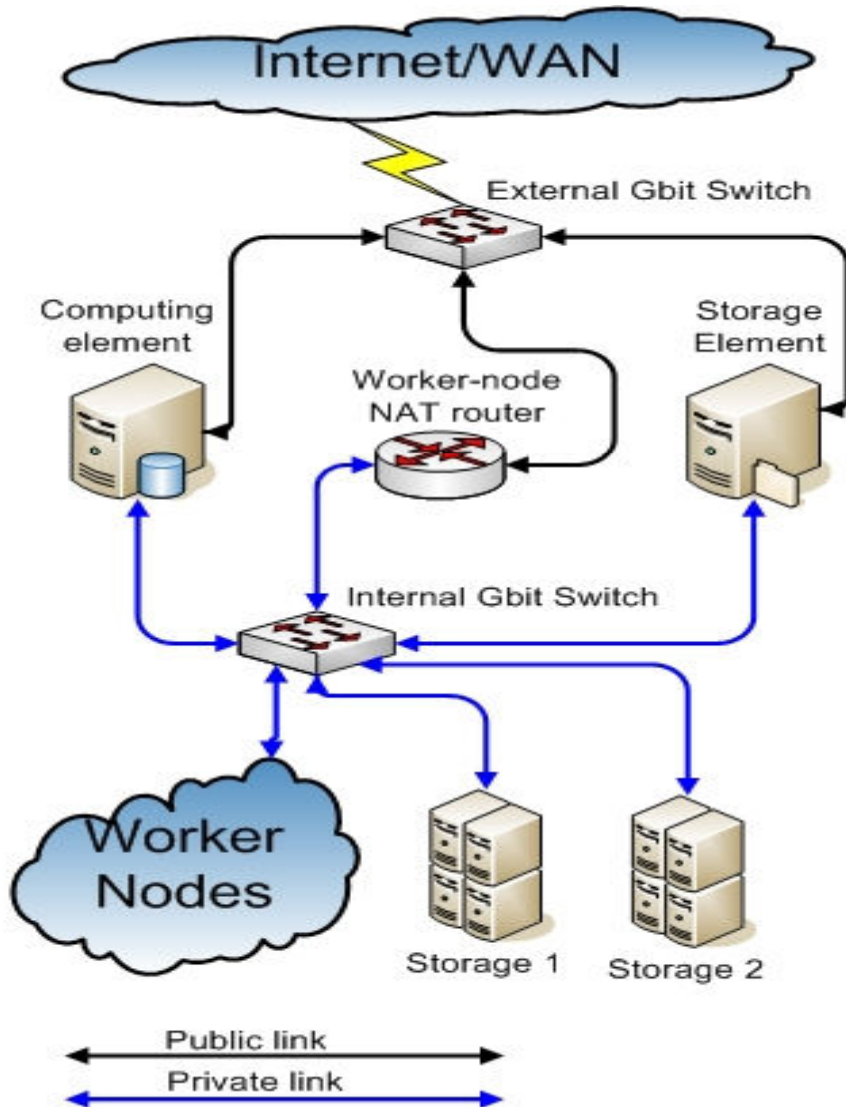
Presentation overview

Hardware resources

Software support

# Hardware resources of RO-15-NIPNE

## Network Topology



Computing system  
Full Gigabit links

Two segments for security reasons:

- *Private segment:*  
worker-nodes and storage
- *Public segment:*  
router, CE, SE

# Hardware resources of RO-15-NIPNE



- 2 x Rack 44 U
- 20 Systems - dual xeon  
3 GHz (single core), 4 Gb  
RAM, 300 Gb Hdd
- 5 Systems – dual xeon 2 GHz  
(quad core), 16 Gb RAM, 200  
Gb HDD
- 2 Storage systems dual xeon  
3 GHz, 4 Gb RAM, 12,8 Tb  
HDD
- 2 x Switch 24ports Gigabit
- Ups 2 x 5000 VA, 2000 VA
- Link Gigabit
- Cold system 36000 BTU

# Hardware resources of RO-15-NIPNE



- [Symmetra PX](#)  
**APC Symmetra PX  
160kW 400V w/  
Integrated Modular  
Distribution**
- A high-efficiency 3-phase UPS with integrated modular distribution that can be right-sized to your data center power requirements. With hot-scalable power, distribution and run-time this UPS scales with your data center up to 160kW/160kVA. Suitable for small to medium data centers or individual zones of large data centers

# Hardware resources of RO-15-NIPNE



- [NetShelter SX](#)  
**NetShelter SX 42U 600mm Wide x 1070mm Deep Enclosure**
- **Standard enclosure for low to medium density server and networking applications. Compact width to optimize data center space. 42U height to easily roll through doorways.**
- [InRow Chilled Water](#)  
**In Row RC Chilled Water, 200-240V 50/60 Hz, IEC 309-16**
- **Close-coupled, chilled water cooling for medium to large data centers**

# Hardware resources of RO-15-NIPNE



- [InfraStruXure Central](#)  
**InfraStruXure Central Basic**
- **InfraStruXure Central Basic v5.1** scales up to 525 devices and 15 surveillance cameras. It supports capacity management up to 20 racks and change management up to 1,000 IT assets.



- [NetBotz 200](#)  
**NetBotz Rack Monitor 200 (with 120/240V Power Supply)**
- Supports up to 12 external sensor pods and up to 78 Universal Sensors
- [NetBotz Sensors](#)  
**APC Temperature & Humidity Sensor**
- Universal sensor that monitors temperature and humidity in your Data Center or Network Closet



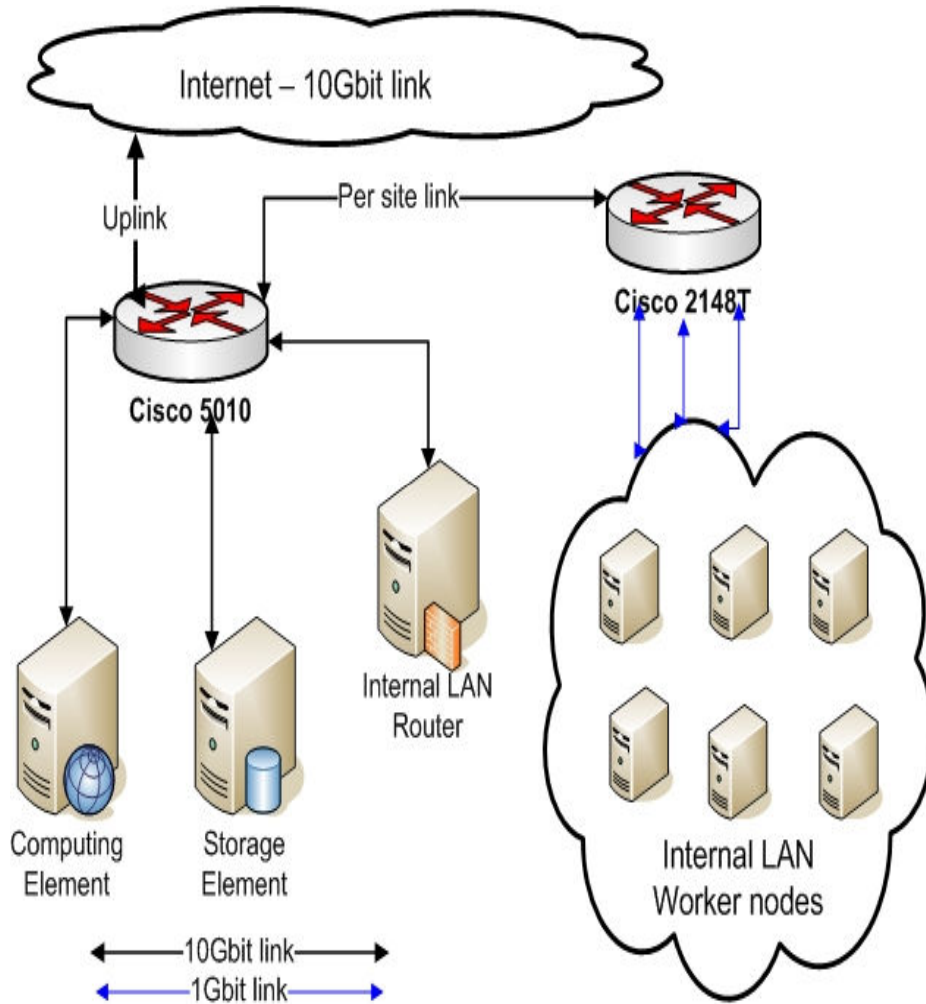
# Hardware resources of RO-15-NIPNE





# Future upgrades of RO-15-NIPNE

## Network Topology



New resources

10Gbit network link on  
CE, SE, Router and LAN

VLAN-aggregated structure  
on Cisco 5010

Worker nodes and storage  
pool on full Gbit network

# Future upgrades of RO-15-NIPNE

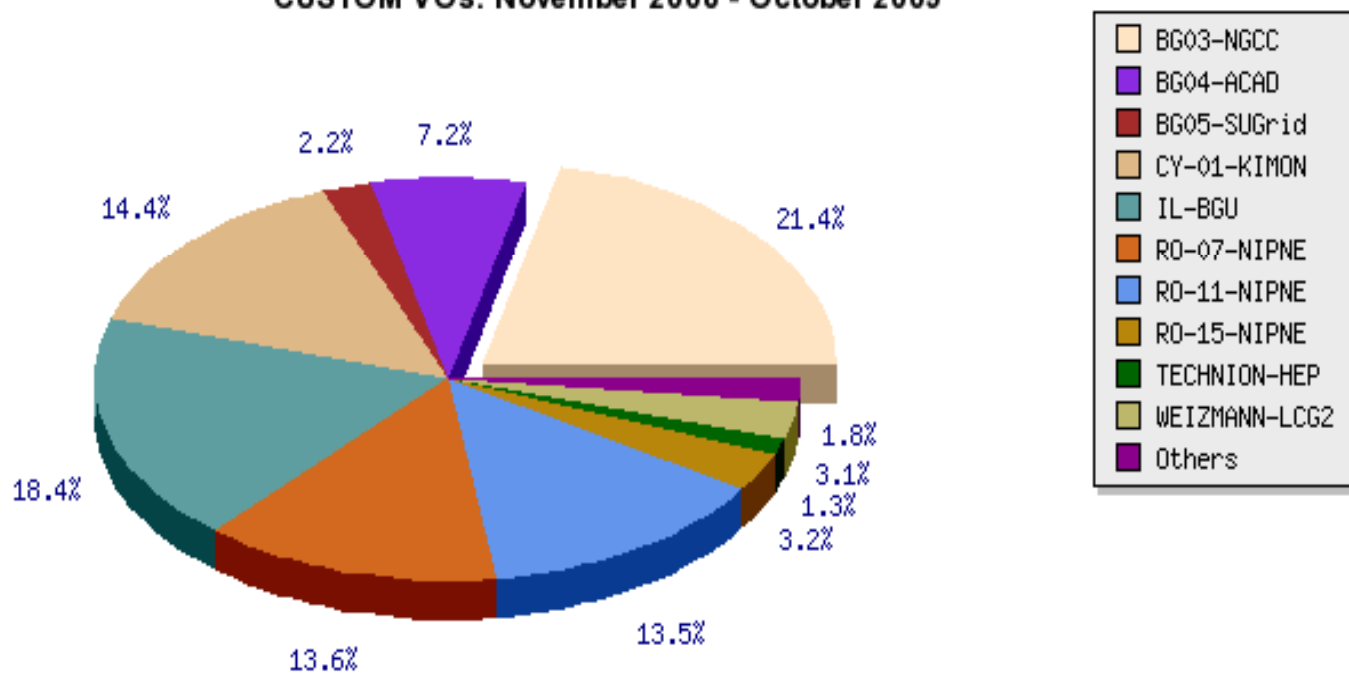
- 14 systems (8 core) in 2010
- Storage system will support an additional 6TB from 12.5 actual capacity
- Additional back-up batteries for the Symmetra system

# Software

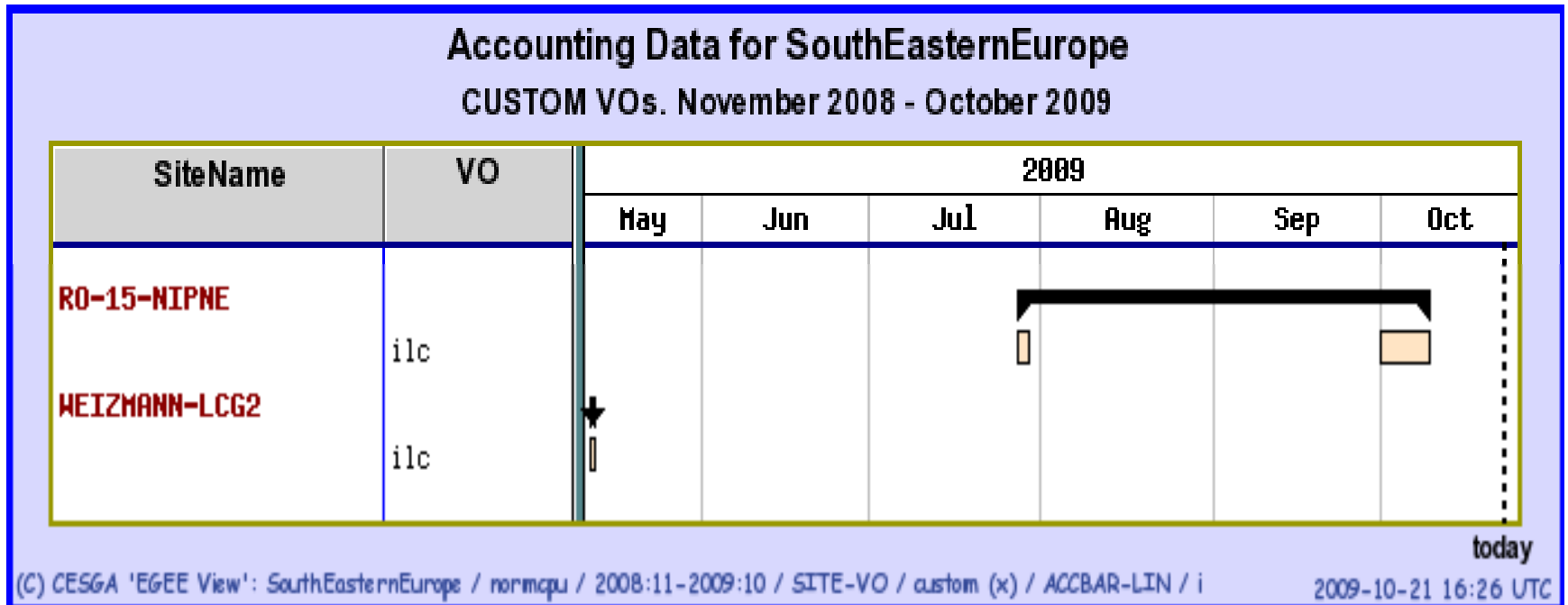
- Linux installed: SLC4 64bit version on each system, the gLite 3.1 package installed
- Storage backend uses Gentoo Linux
- Supported VOs: LHCb, ILC
- Grid installation of the LHCb platform: DaVinci, Gauss, Brunel, DIRAC
- Grid installation of the ILC platform:  
VO-ilc-ilcsoft-v01-06-sl4 , LCIO, Marlin, Mokka

# Ro-15-NIPNE contribution june – september 2009

SouthEasternEurope Normalised CPU time per SITE  
CUSTOM VOs. November 2008 - October 2009



# Ro-15-NIPNE contribution june – september 2009



# ILC support

Thank you

Andreas Gellrich

Jan Engels

# RO-15-NIPNE

Thank you,

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