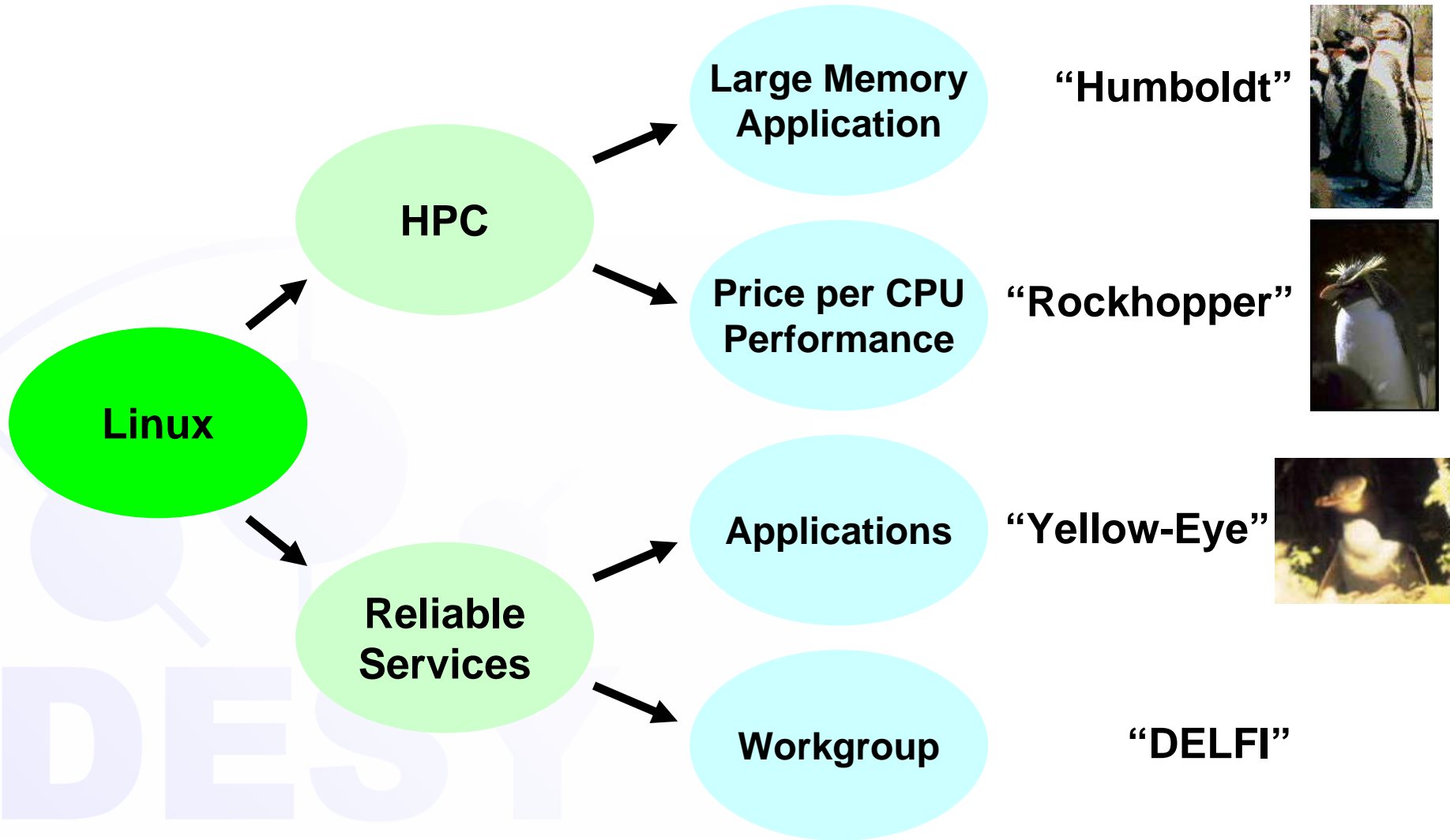


Server and Storage Hardware

Server Classes and Models

Intel vs. AMD Server CPUs

Linux Server Classes



Rockhopper Class



- High compute power, low redundancy
- Two CPU chips, 1-2 cores each
 - Dual Opteron or dual Xeon
- Moderate amount of memory
 - 1-2 GB per core
- Single SATA system disk
 - optional single data disk
- Gigabit network
- Non-redundant power
- SL3/SL4 with 32 or 64 bit
- e.g. SM6015V-T, Tyan GX28, Tyan GT24, DELL PE1950, ...



e.g. SM 6015V-T

1u enclosure
max 2 disks
max 2CPU/4cores

Yellow Eye Class



- **Moderate compute power, max. redundancy**
- 1-2 CPU chips, 1-2 cores each
 - Xeon or Opteron
- Moderate amount of memory
 - 1-2 GB
- Mirrored SCSI system disk
 - optional mirrored data disk
- Gigabit network
- Redundant 2-phase power
- SL3/SL4 with 32 or 64 bit
- e.g. SM 6015P-8R, Sun Fire X4100, HP DL360, DELL PE 1950, ...



e.g. SM 6015P-8R

1u enclosure
max 4 disks
max 2CPU/4cores

Humboldt Class



- **Four or more CPU chips**
 - Currently 4-8 chips with 1-2 cores each
- Very large memory
 - typically 32 GB upward
- Redundant local disk space
 - system mirror, data mirror or data RAID
 - typically on 3ware controller
- Gigabit network
- Redundant Power
- SL3/SL4 64 bit



e.g. Tyan VX50

5u enclosure
max 10 disks
max 8CPU/16cores
max 64 GB

DELFI Class



- Low cost, high redundancy
- Two CPU chips, 1-2 cores each
- Moderate memory
 - 1-2 GB per core
- Redundant local disk space
 - system mirror, data RAID
 - built around 3ware controller
- Gigabit network
- 2-phase redundant power
- DL5; SL3/SL4 32 or 64 bit
- DESY IT design and specs
- Designs ranging from 1u/4disks to 4u/16disks



e.g. DELFI-1-12-DO

3u enclosure
max 12 disks
max 2CPU/4cores

The StorBox



- low cost, performant dCache Server
- 2 CPU chips, 1-2 cores each
- Moderate memory
 - 2-4 GB
- Redundant local disk space
 - system mirror, data RAID
 - built around Areca controller
- (multiple) Gigabit network
- 2-phase redundant power
- SL4
- DESY IT design and specs
- Not for general file server usage due to lack of standard drivers



StorBox 4

4u enclosure
2+16 SATA disks
5+ TB

About the DESY Server Designs



- Both DELFI and StorBox ...
 - ... have been and still are very economic
 - ... match operating and installation systems well
 - ... fit perfectly into our computer center environment
 - ... allow early adoption of next generation hardware
 - ... require careful selection of components
 - ... require careful matching of firmware and kernel versions
- I think their bell will toll soon because
 - ... increasing disk capacities reduce need for multi-controller
 - ... onboard SATA/SAS RAIDs start working with Linux (ZCR, CERC)
 - ... industry starts delivering competitive servers or disk boxes
 - like SUN E4500, DELL MD1000, ...
- We are actively evaluating alternatives

- Tyan recently had large delays in deliveries
 - combination of RoHS laws and company relocation
 - now recovering slowly, but still lacking motherboards and IPMI's
- DELL offers impressive range of new servers
 - Xeon Dual Core available now (PE1950, PE2950, PE6850)
 - Opteron 2xxx/8xxx by end of year
 - With very aggressive pricing
- SUN X4500 targets low cost storage
 - 48 SATA disks in 4u, 20TB net storage
 - Prices in DELFI/StorBox range



Opteron vs Xeon



- Xeon “Woodcrest” dual core systems available now
- Impressive benchmarks!
 - high memory bandwidth
 - best price/performance
 - low power consumption
 - beat all Opterons (incl. Socket F)
- run with SL 3.0.8 / SL 4.4
- have more potential yet
- Most vendors have both
 - Supermicro, Tyan, DELL, ...
 - except SUN: AMD only

