



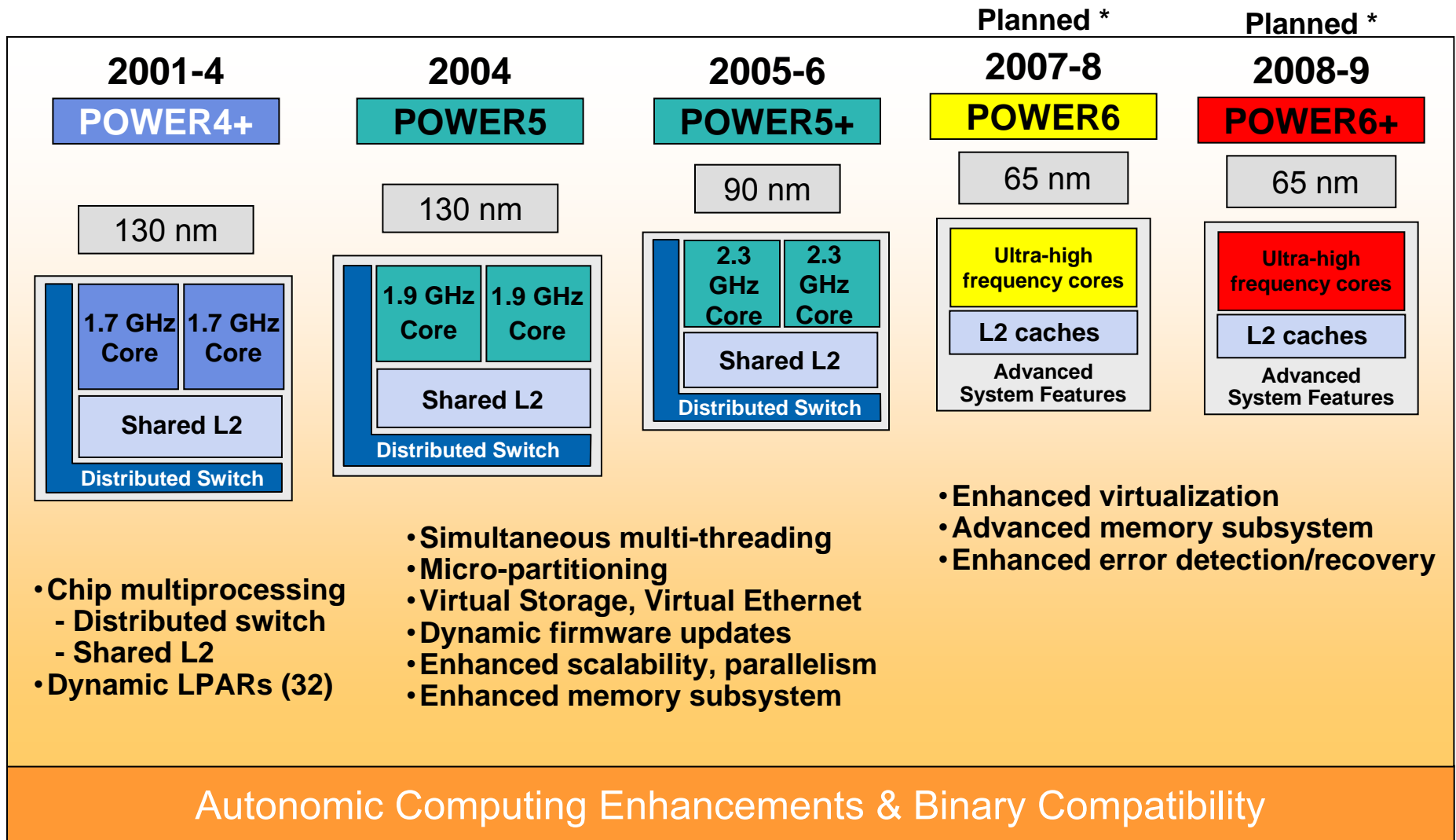
IBM System p

# *POWER5 Virtualization Technology*

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IBM Systems

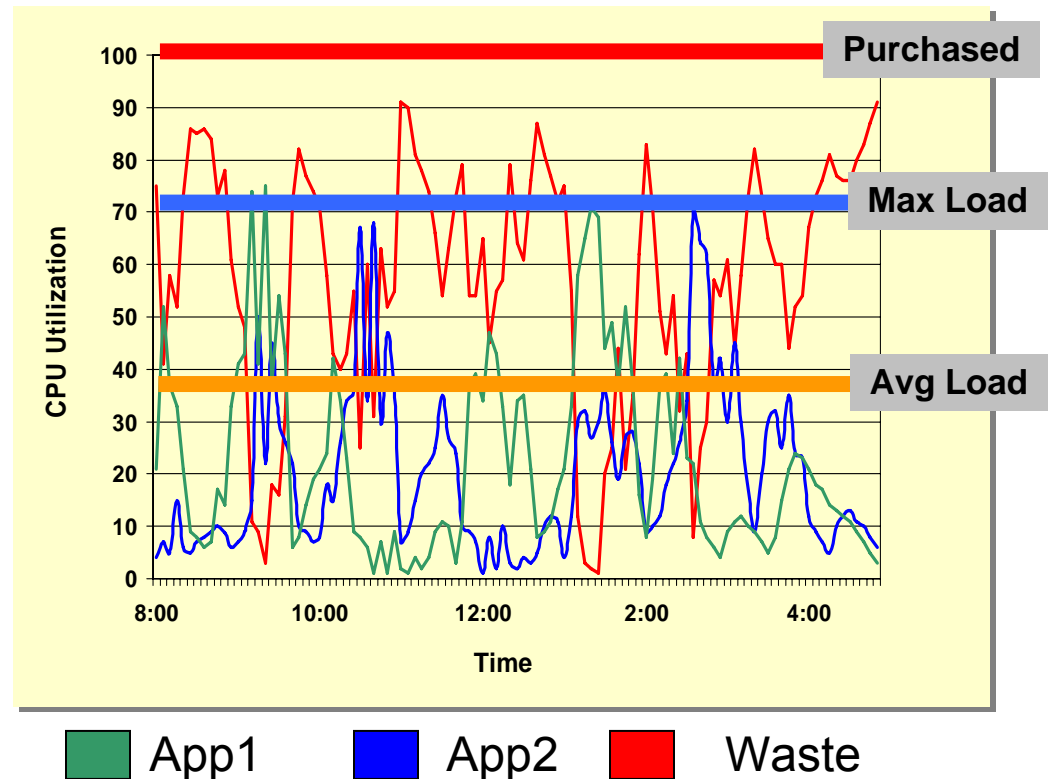
# IBM POWER technology roadmap for pSeries



\* All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

## The TCO Problem...

- Workloads fluctuate significantly over time
- Servers are often purchased to handle individual unknown peaks
- Unused resources cannot be used by other servers
- Non-production servers often have very low utilization rates
- Total unused capacity can exceed used capacity



“Tying specific pieces of server and storage hardware to applications was very limiting, because it locked us into buying new and larger pieces of equipment, driving up costs. Working with IBM, Colgate has already **improved IT asset utilization, efficiency and productivity**, with flexible IT services that meet customers’ needs and **reducing costs by 60 to 70%.**”



# IBM Partitions: a technology developer's solution

- Define the solution to provide
- Develop needed technology
- Design the system to provide solution

## 2001: POWER4

Hide internal structure  
Small allocation units

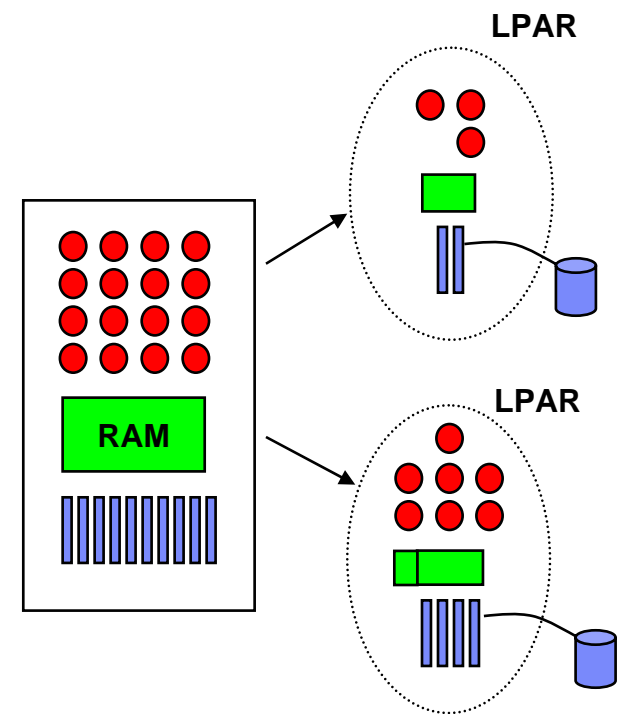
- 1 CPU
- 256 MB
- 1 slot PCI-X

Dynamic reconfiguration

## 2004: POWER5

### Virtualization

- MicroPartitioning
- Virtual Ethernet
- Virtual SCSI



# Micro-Partitioning

## Entitled capacity

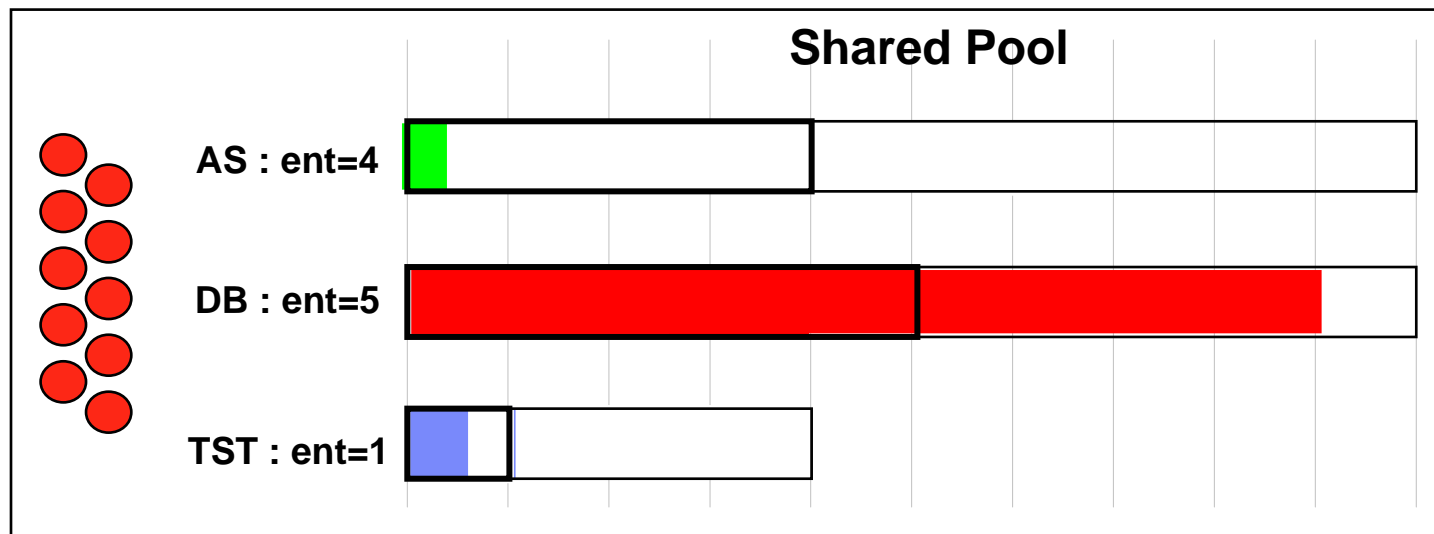
- In units of 1/100 of a CPU
- Minimum 1/10 of a CPU

## Capped Partition

## Uncapped Partition

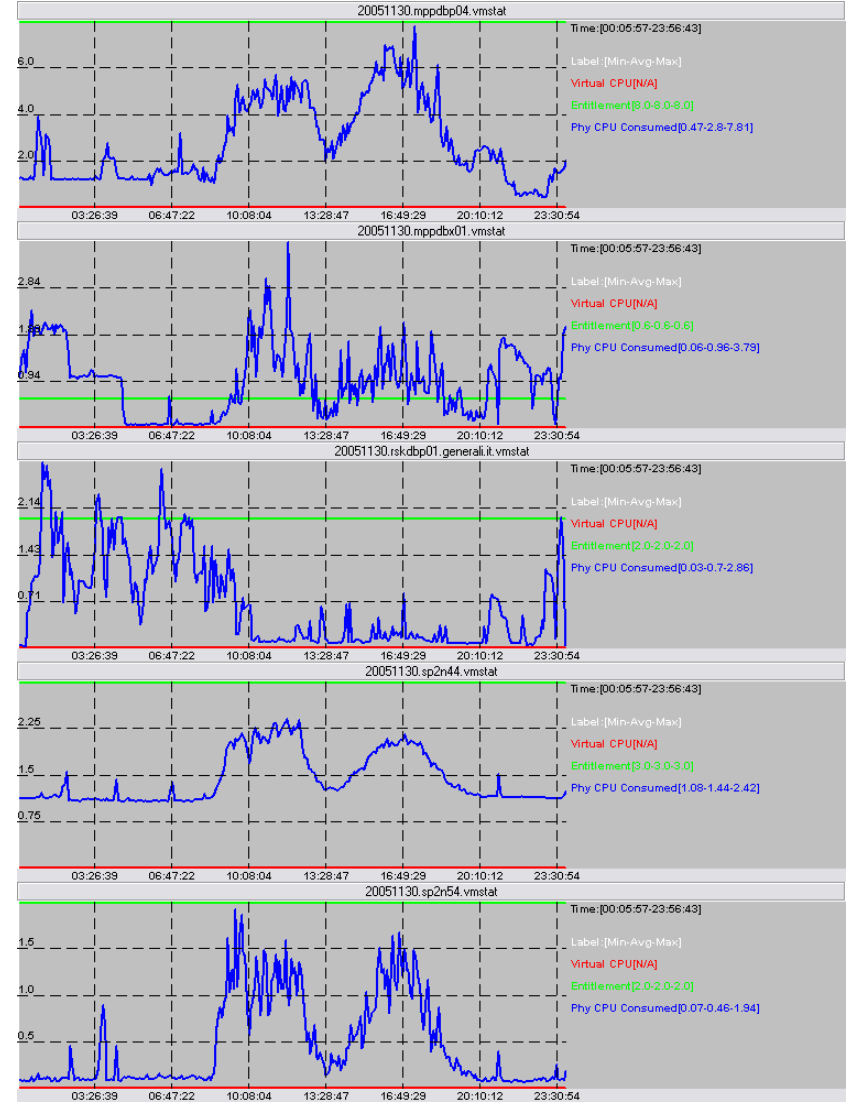
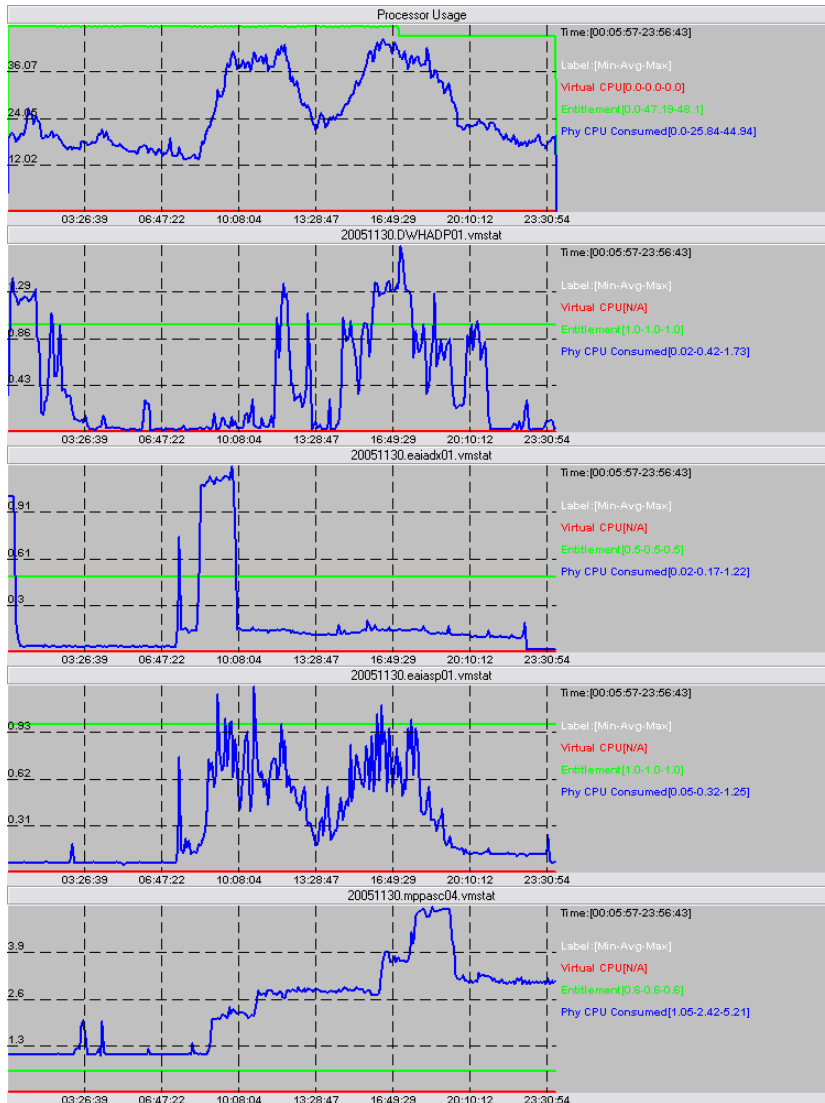
- Variable weight
- % share (priority) of surplus capacity

**POWER5**

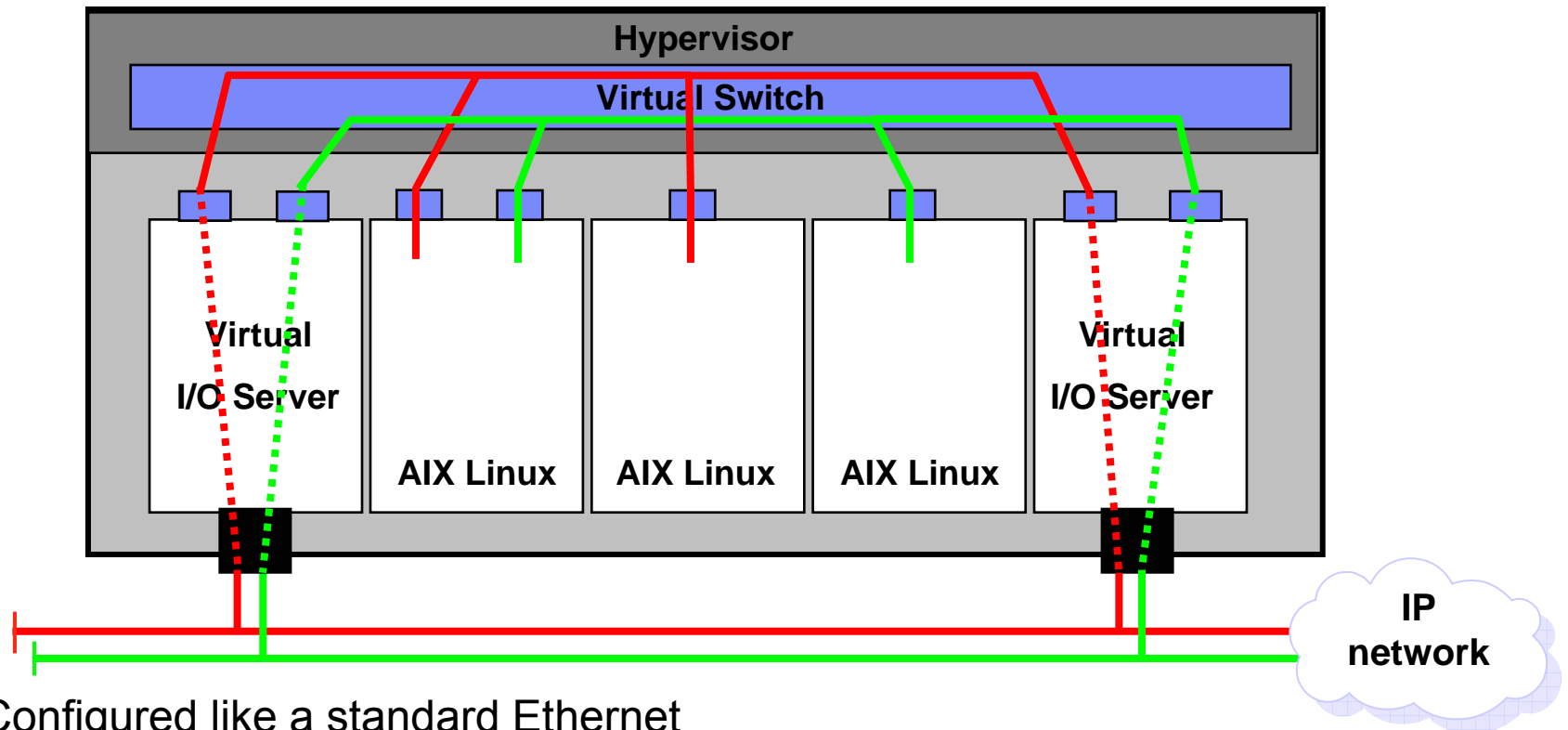




# Real production environment

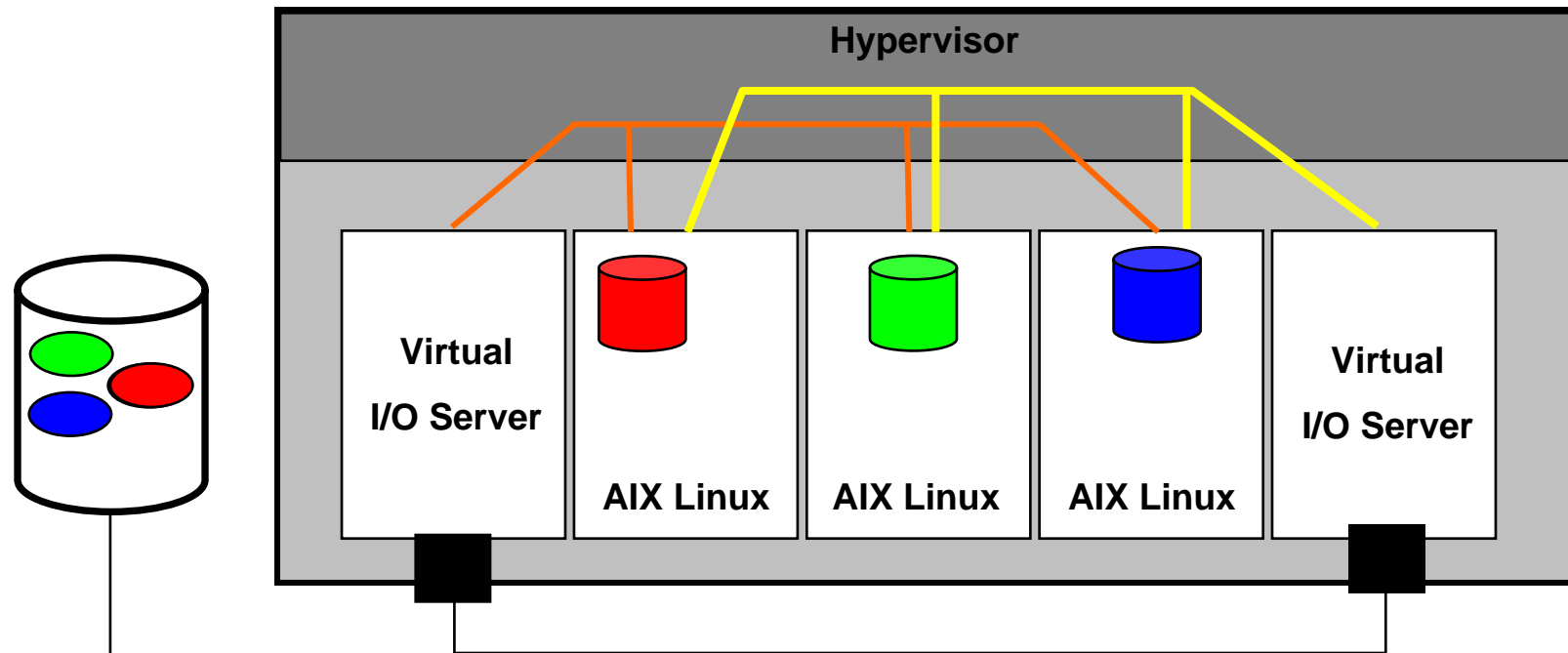


## Virtual Ethernet



- Configured like a standard Ethernet
- One partition may have multiple virtual ethernet
- A virtual ethernet supports up to 20 VLAN
- I/O server partition provides Layer 2 bridging using shared ethernet
- Each shared adapter can support 16 virtual Ethernet LANs

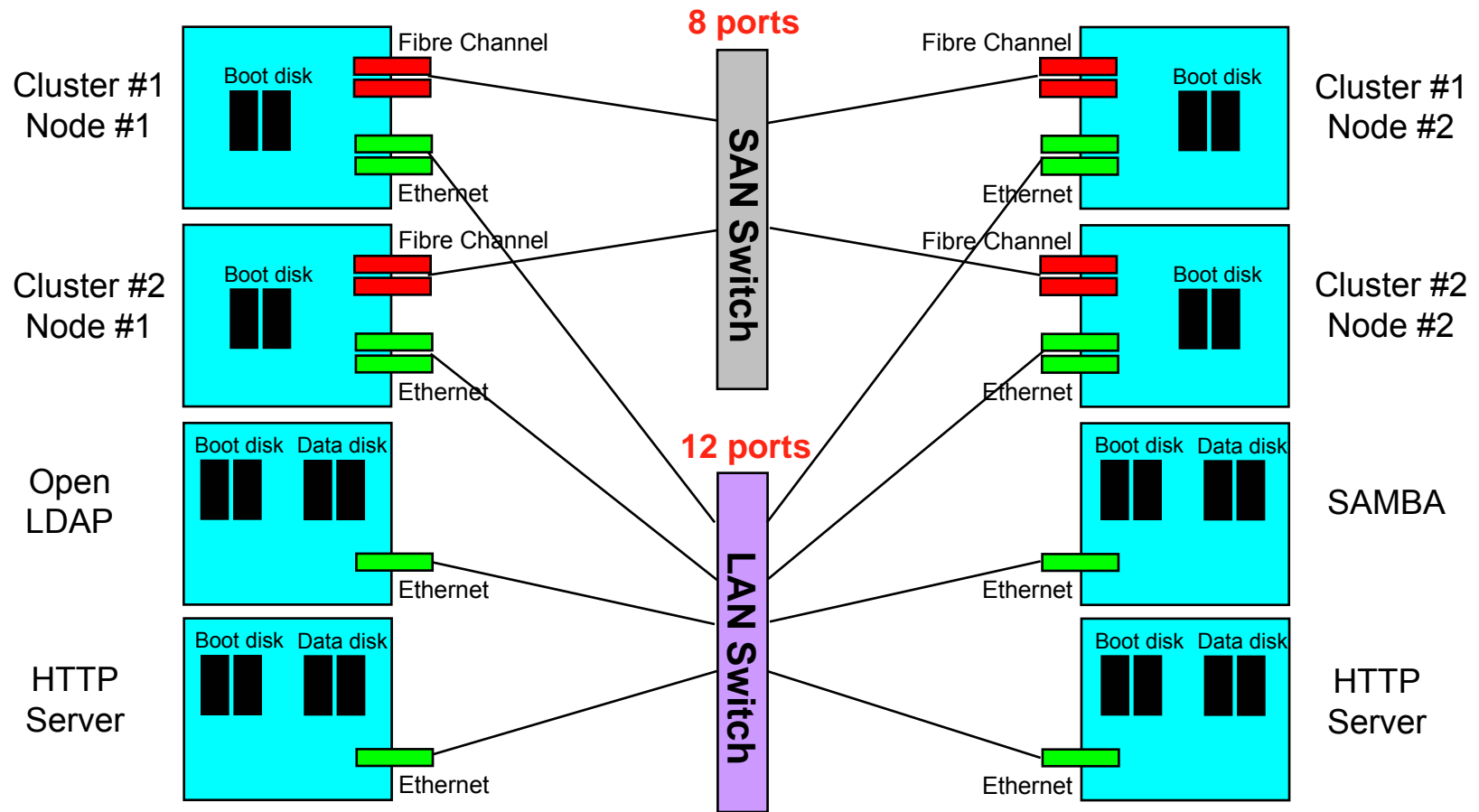
## Virtual SCSI



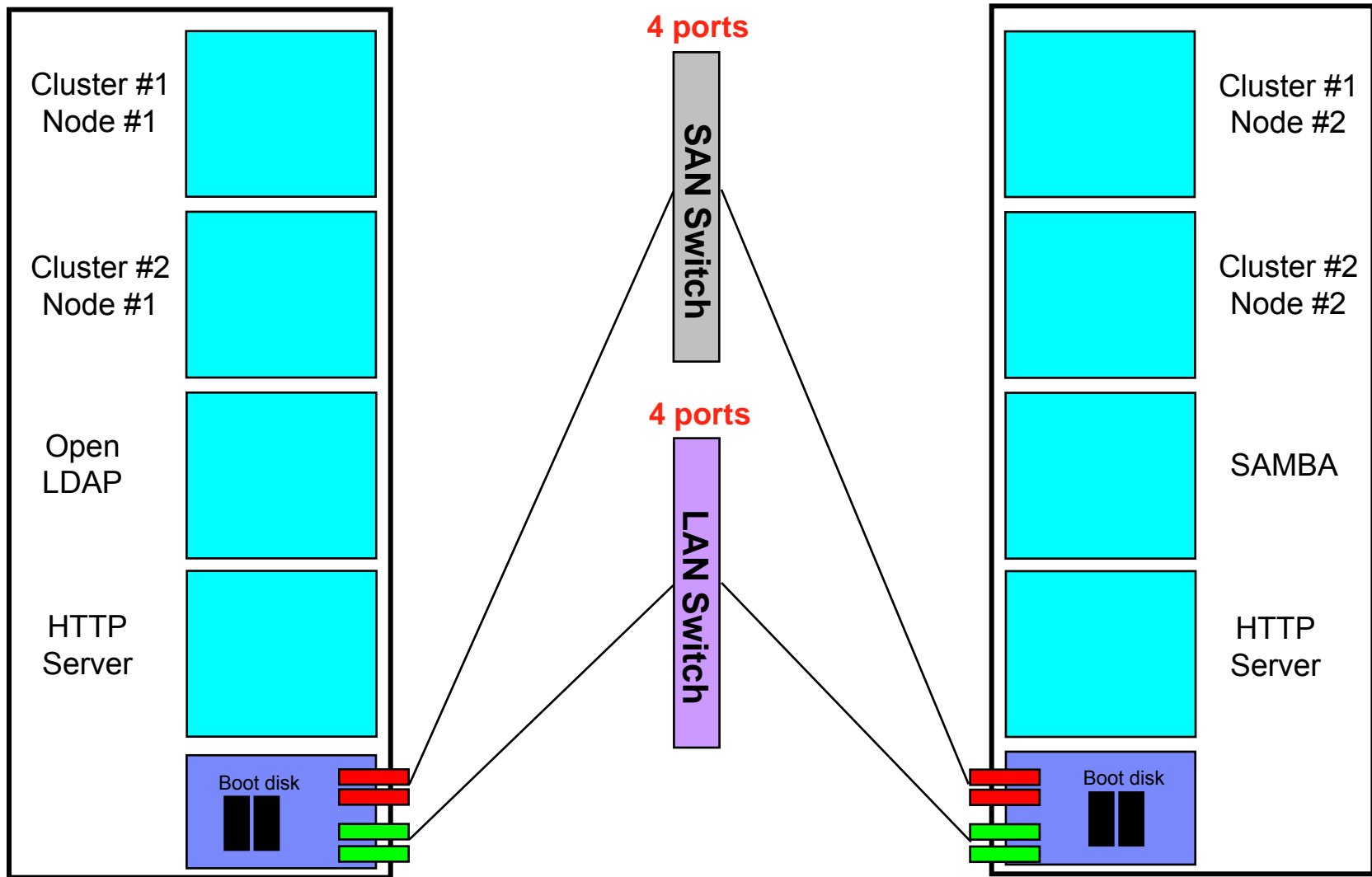
- One physical drive can appear to be multiple logical drives
  - LUNs appear as individual logical drives
- Minimizes the number of adapters
- Can have mixed configuration (virtual and real adapters)
- SCSI and Fibre supported
- Supports AIX 5L V5.3 and Linux partitions



# Before virtualization



# With virtualization

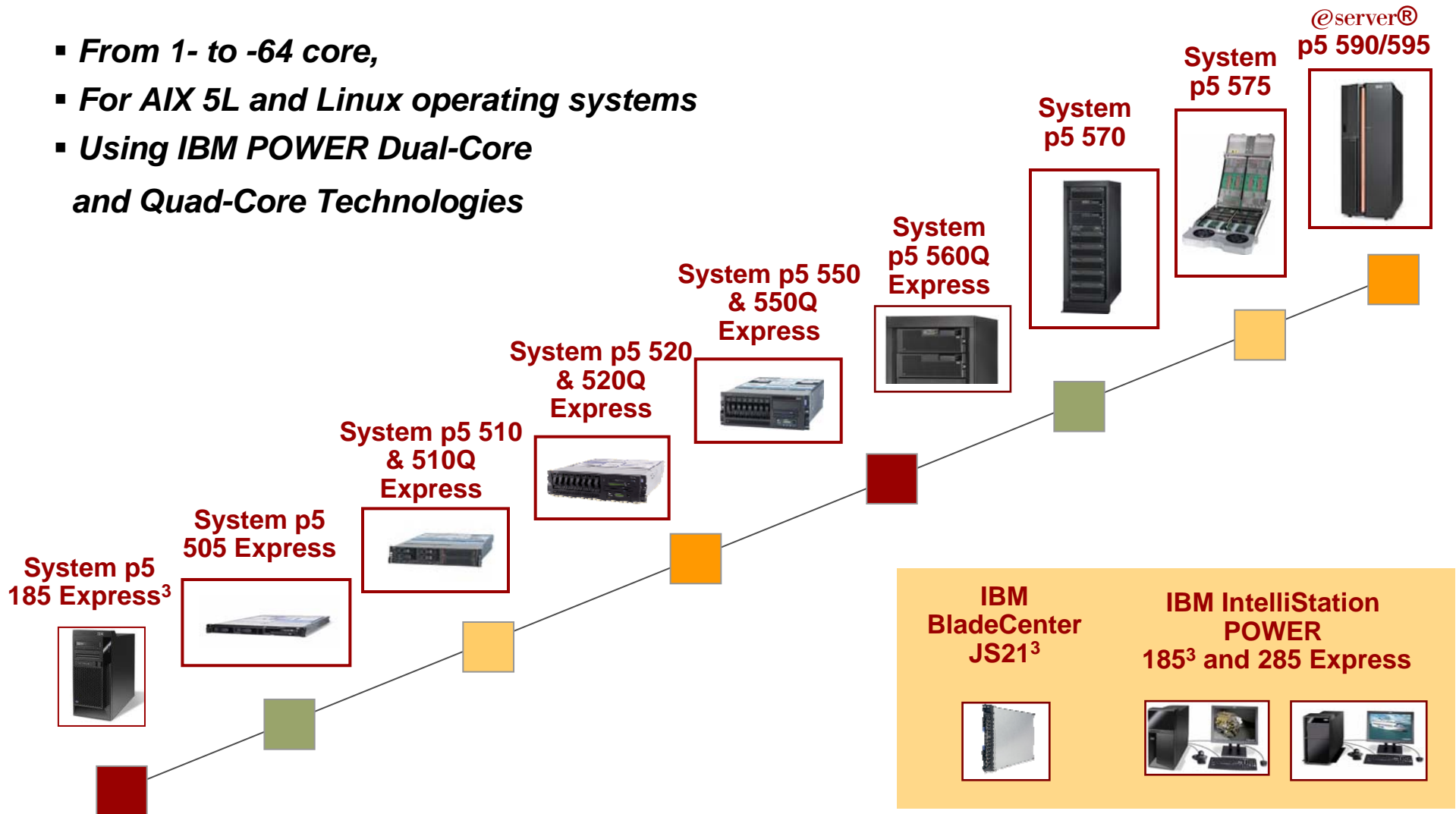




Scale up. Scale out. Scale within.

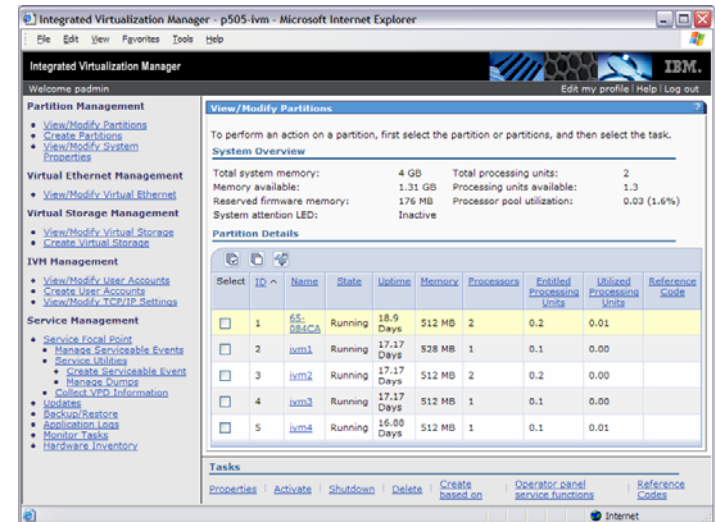
*With more than 70 leadership performance benchmarks!*

- From 1- to -64 core,
- For AIX 5L and Linux operating systems
- Using IBM POWER Dual-Core and Quad-Core Technologies



## Simplified Management: **I**ntegrated **V**irtualization **M**anager

- **Very simple and quick LPAR management**
  - ▶ Few clicks to create/modify an LPAR
  - ▶ Limited skills required
  - ▶ Remote access to LPAR management
- **Available for all Express systems**
- **Wizard-driven, browser-based interface**
- **Included in System p “Advanced POWER Virtualization”**



**It is so easy that we can try it now!**