

IBM Xen Summit Presentation

Getting Xen Ready for IBM Customers

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Agenda

- Some history
- A typical IBM customer
- Current customer applications of virtualization
- Future applications of virtualization
- What does Xen need to meet IBM customer's requirements?
- What is IBM doing to help?



Abstract from a 1967 era paper

EXTENDED ARCHITECTURE AND HYPERVISOR PERFORMANCE

Carl J. Young

IBM VM/370 Development Group

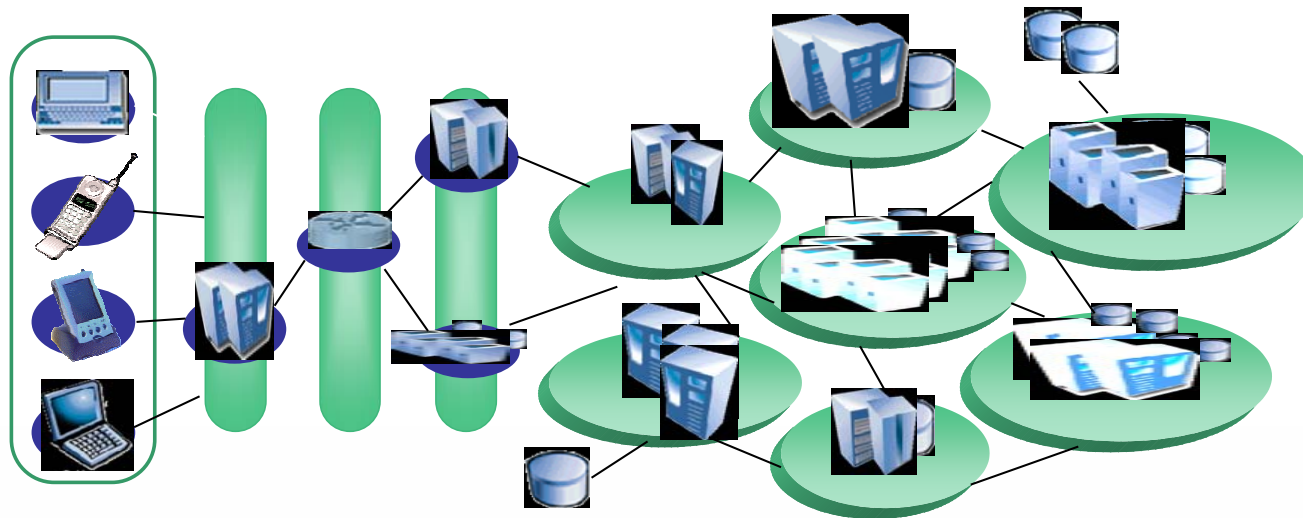
This paper is a brief summary of the impact that architecture extensions to hardware and software have upon the design and performance of software Hypervisors that are intended to provide the extended function in a virtual machine environment.

Xen has the potential to make traditional mainframe technology available everywhere Linux runs

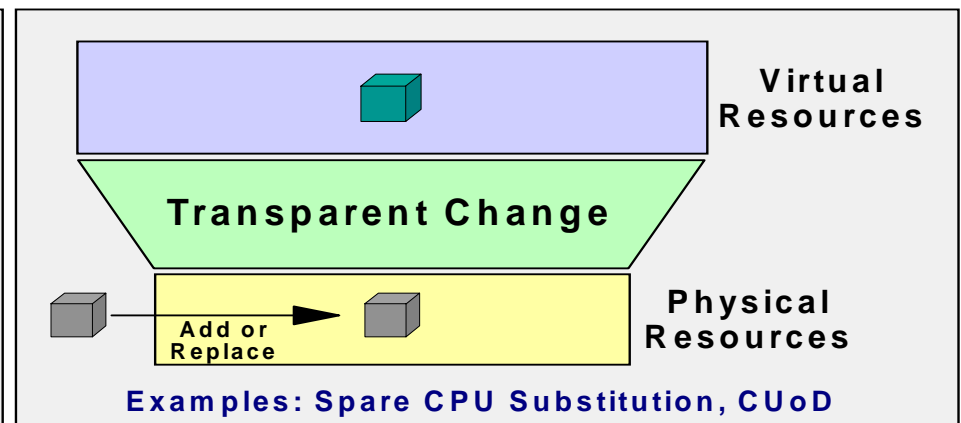
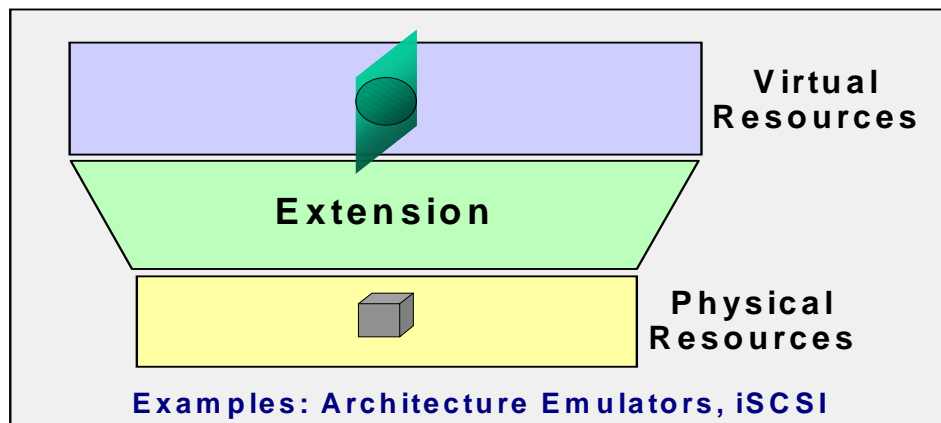
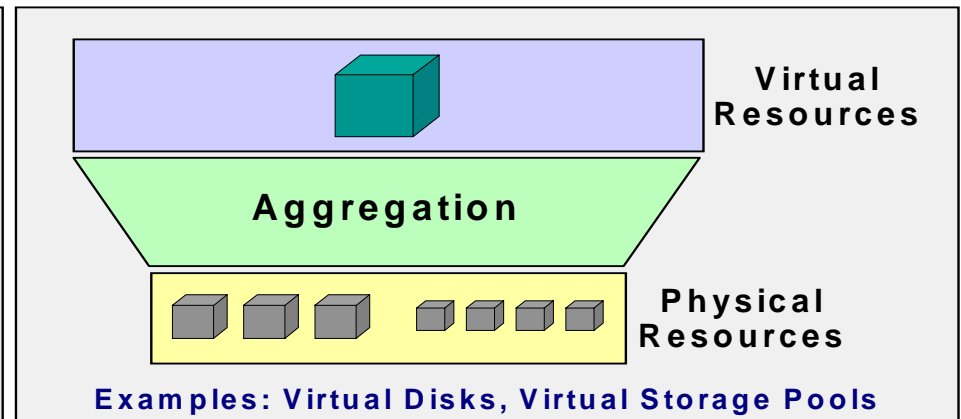
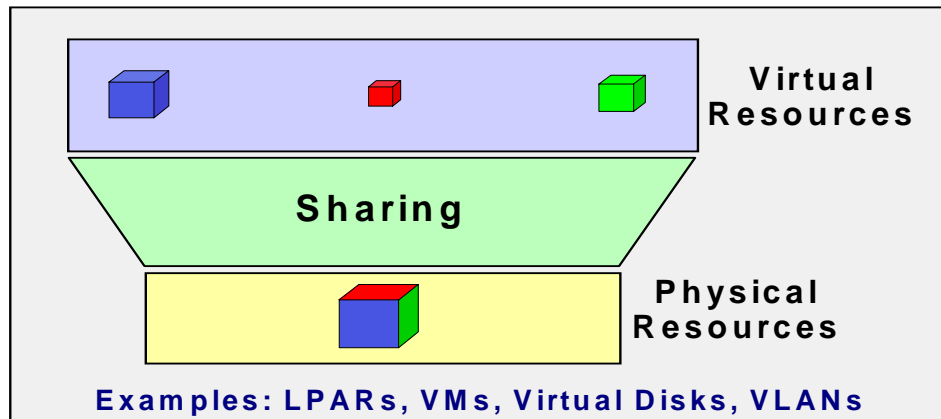


A Typical IBM Customer

- A Fortune-500 company with:
 - An enormous & highly complex IT infrastructure
 - Thousands of servers & storage devices across a broad range of technologies
 - Tens of thousands of clients (PCs, PDAs, PoS, etc...)
 - Global 24x7 operations
 - Millions of customers
 - Huge investments in hardware, software and people
 - Already using virtualization technology



Virtualization Functions and Benefits



- Increased resource utilization
- Improved manageability
- Greater usage flexibility

- Better availability
- Enables interoperability
- Legacy compatibility

Linux

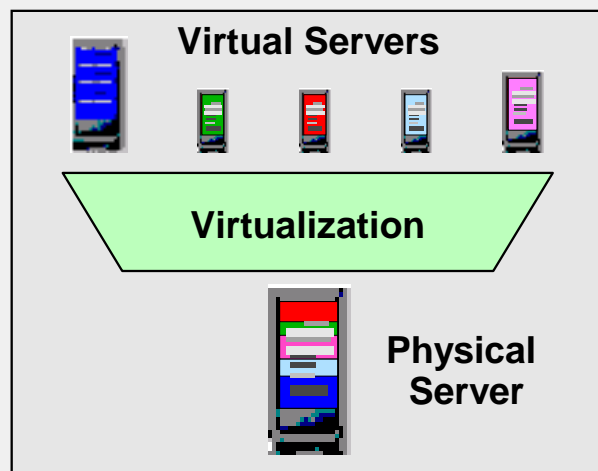


How Do IBM Customers Use Virtualization Now?

Server Virtualization Example

Roles:

- Consolidations
- Dynamic provisioning/hosting
- Workload management
- Workload isolation
- Software release migration
- Mixed production and test
- Mixed OS types/releases
- Reconfigurable clusters
- Low-cost backup servers



Benefits:

- Higher resource utilization
- Greater usage flexibility
- Improved workload QoS
- Higher availability / security
- Lower cost of availability
- Lower management costs
- Improved interoperability
- Legacy compatibility
- Investment protection

- Virtualization of servers, storage and networks is widely used today
- Customer benefits are of two basic kinds:
 - Reduced hardware cost:
 - Higher physical resource utilization
 - Smaller footprint (power, space, cooling, etc...)
 - Improved flexibility and responsiveness:
 - Resources can be adjusted dynamically
 - Enables *On Demand* operating environment

Linux



Future Applications of Virtualization

- Significant benefits for the industry can be realized if Xen's Virtualization technology becomes widely available, widely adopted and widely accepted
- Benefits extend into and beyond the corporate data center:
 - Security
 - On-demand
 - RAS
 - Client-server security
 - ISV testing and certification
 - OS development
 - Real time
 - Silicon IP
 - HPC
 - Next-gen game consoles
 - Checkpoint/restart
 - Migration
 - HW Upgrading/maintenance
 - Architecture evolution
 - OEM differentiation
 - Grid
- Virtualization provides a layer of abstraction that allows broad simplification, reduces development costs and increases freedom for differentiation
- Xen's acceptance as the open and widely supported virtualization model for Linux[®] will enable and catalyze new designs for both the software and hardware platforms



What do IBM Customers Need From Xen?

- Xen needs to:
 - Be absolutely rock solid, fully tested and supported
 - Be fully integrated into Linux
 - Be easy to install, easy to use & easy to manage
 - on one machine or across 10,000
 - Support a broad range of platforms & architectures
 - While presenting common interfaces & function to the user
 - Support non-Linux operating systems as guests
 - Support existing system management software apps & frameworks
 - Define, create, use and support open standards for key interfaces
- Xen needs to be as good as the solutions they already use today!
- Xen needs to integrate into the environment they already have!
 - Needs to support existing industry standards!



What is IBM Contributing to Xen?

- Our developers & researchers are contributing code to Xen now
 - To help move the Xen agenda forward
- Working with our Linux Distribution Partners (Novell & Red Hat) to support their releases of Xen
- We will join our partners in providing customer support for Xen
- Porting Xen to PPC for IBM, Apple, embedded & OEM platforms
- Contributing our Security hypervisor (sHype) into Xen
- Integrating Xen into our software architecture & management frameworks
- Working with the industry to create new open standards for:
 - System Management
 - I/O Virtualization



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