THE SCHOOL ADMINISTRATOR'S GUIDE TO VIRTUALIZATION
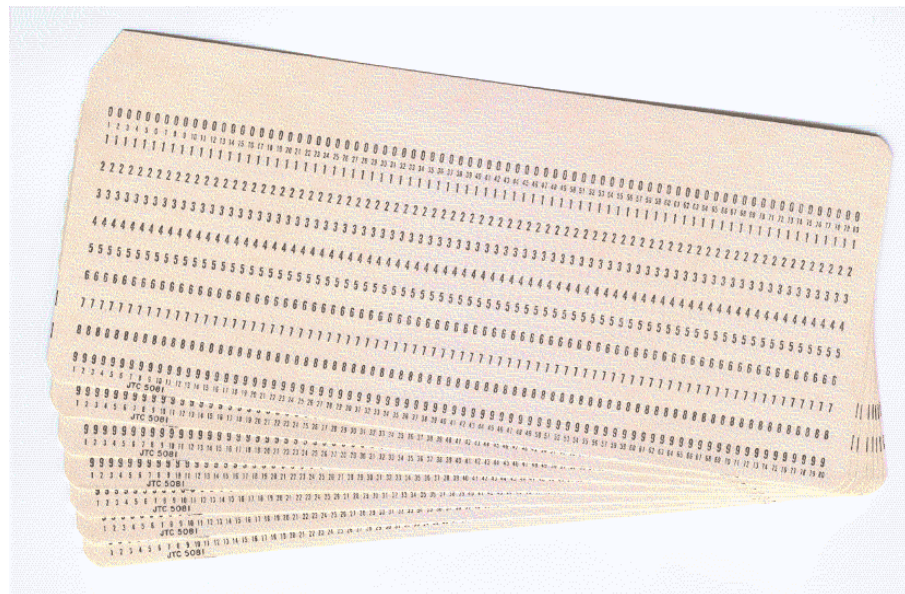
Tom Hollingsworth

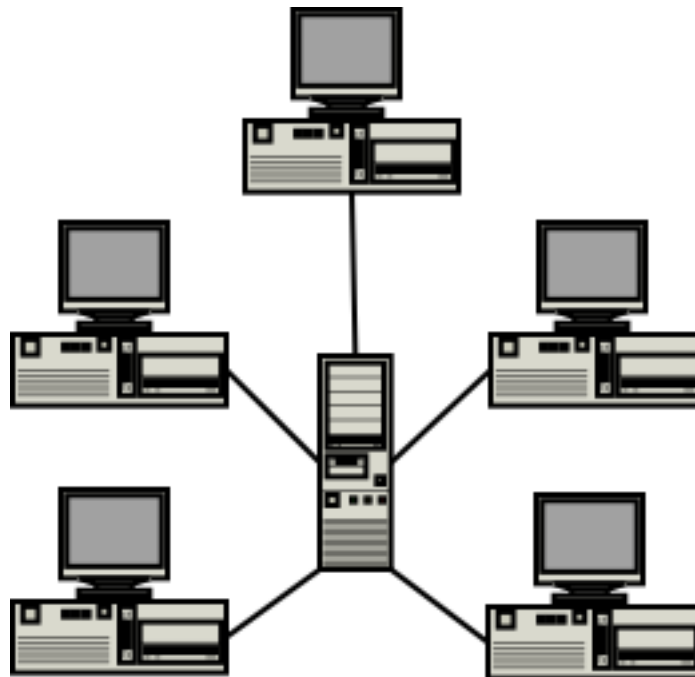Twitter: @networkingnerd

CCIE #29213

VMware vExpert 2012

In The Beginning…

- Mainframes
- Multiple users sharing vast computing resources
- Modern Mainframes have virtualization too!

Client, Are You Being Served?

- Application Specific Servers
- Distributed Environment
- Server Sprawl

More Power?

- Multi-core Processors (dual, quad, hexa, octo) plus Hyperthreading
- 768 GB of RAM in a single server
- 8 10-Gig Ethernet ports
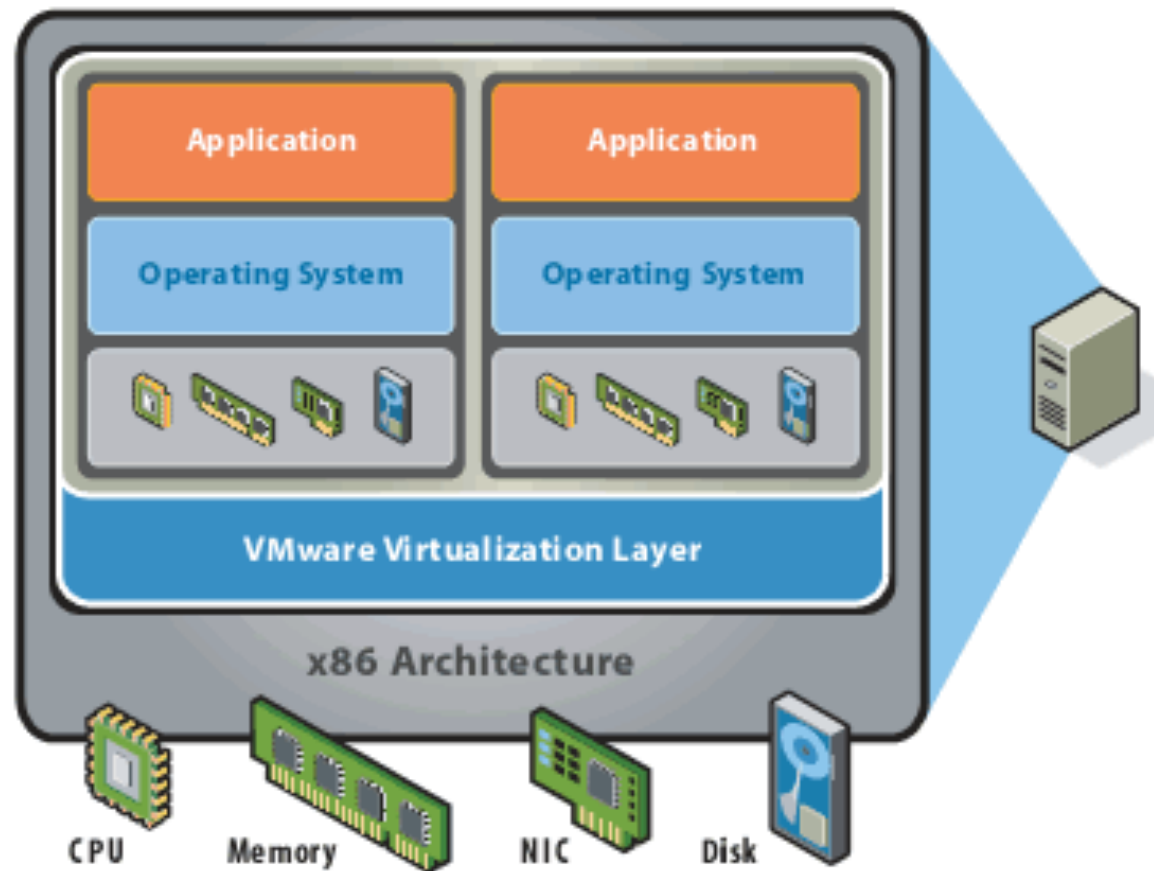- Average server utilization is around 2-3%

Virtualize!

- x86 virtualization allows for large systems to be more efficiently allocated
- Hardware becomes a software interface, providing predictability and stability
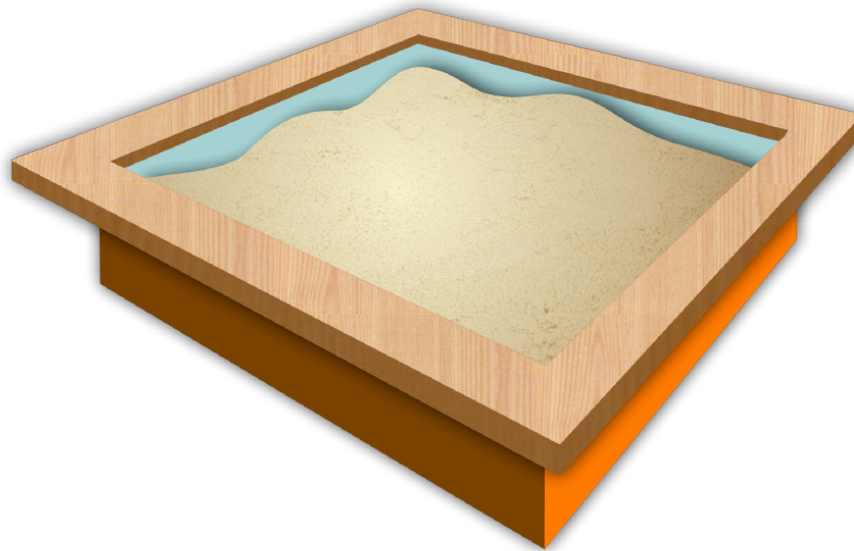- Resources can be shared, restricted, or guaranteed
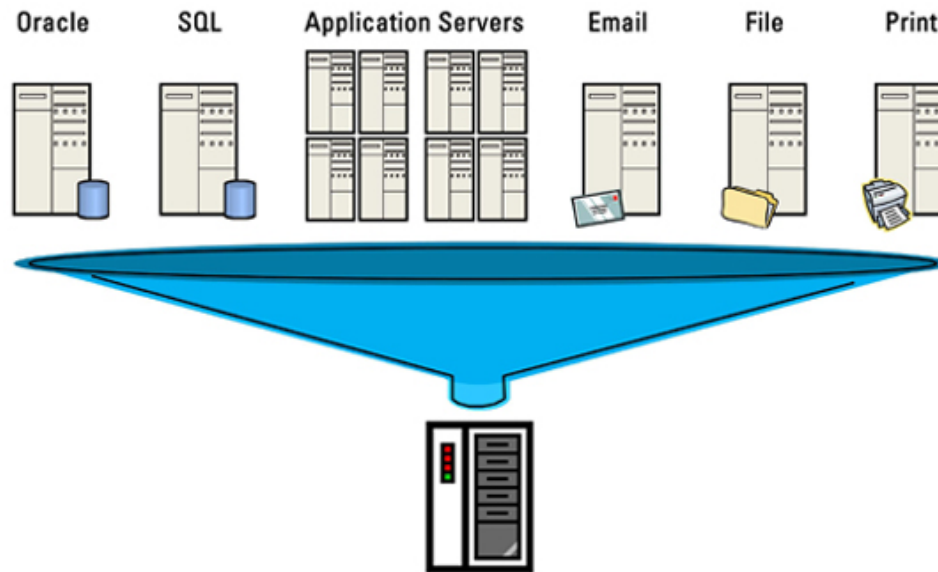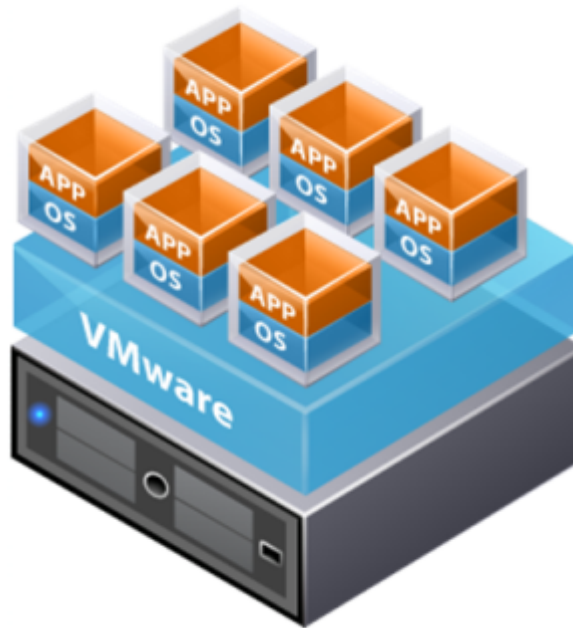
Virtualization At A Glance

Isolation

- Every Virtual Machine runs in its own memory space
- Guest security breaches do not impact the hypervisor
- Incompatible software updates don't impact multiple system applications (DLL Hell, Java Hell)
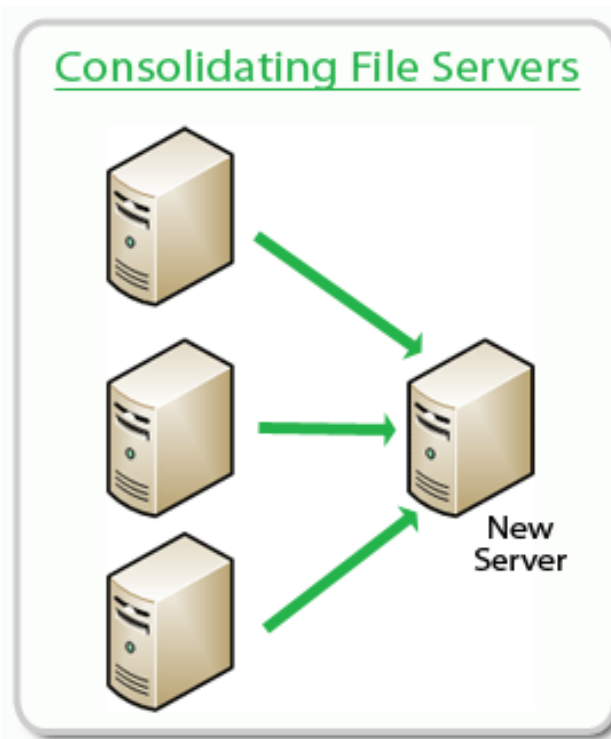
Encapsulation

- All necessary hardware is packaged with the machine as software
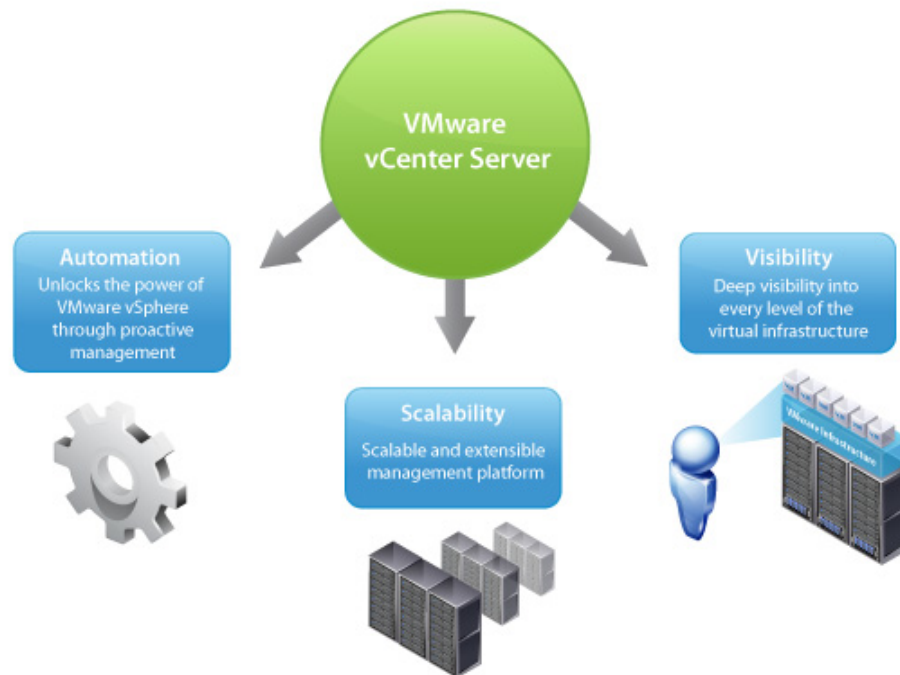- Portability
- Disaster Recovery and Backup

Consolidation

- Consolidation Ratios typically run between 5-to-1 and 15-to-1
- Reduced power and cooling costs

Consolidating File Servers

New Server

Management

- vCenter and System Center 2012
- Analytics and trending
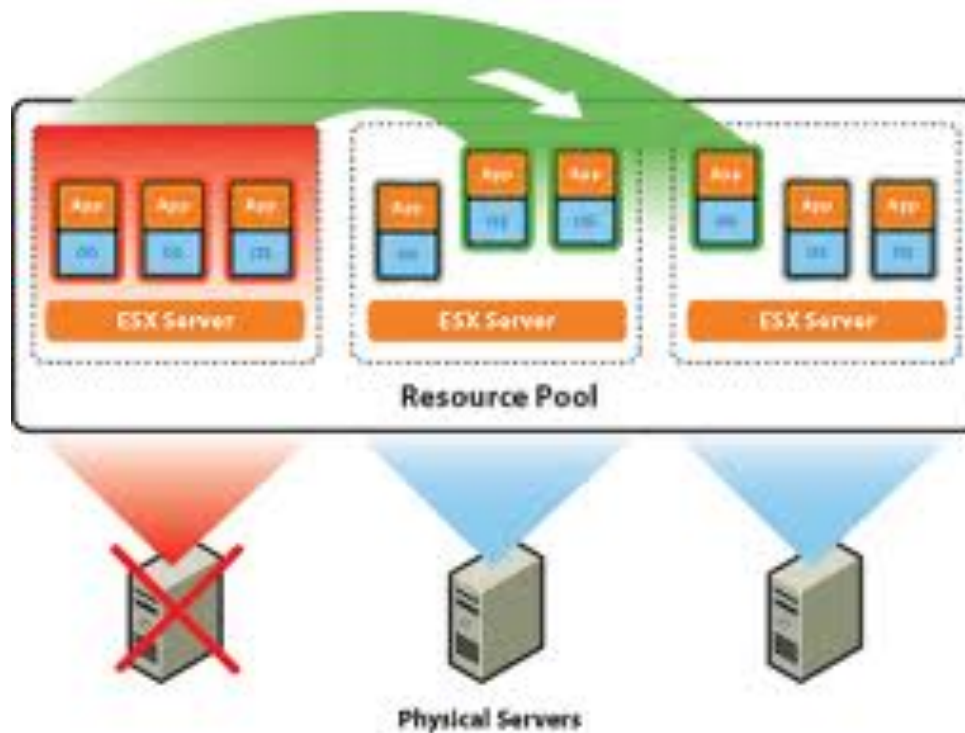- Single-pane-of-glass for an entire enterprise

Rapid Deployment

- Templates allow for easy deployment
- Spin up time for a typical server = ~10 minutes
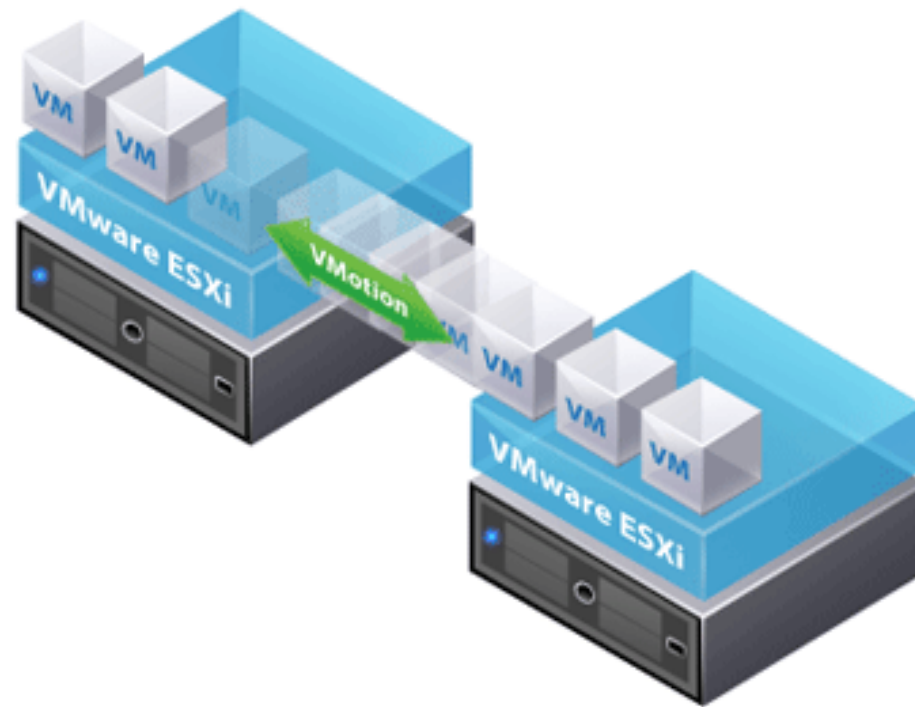- Ease of standardization

High Availability

- Clustered hypervisors prevent single-server failures
- HA agent can restart failed VMs quickly
- Business Continuity Applications

Live Migration (vMotion)

- Migrate running VMs to another hypervisor without impact
- Machine state or storage
- Zero-downtime maintenance windows

DRS

- Dynamic Resource Scheduler – Intelligent Live Migration
- Allows systems to receive peak performance
- Reroutes traffic away from resource-intensive applications
- Rebalances cluster after HA events.
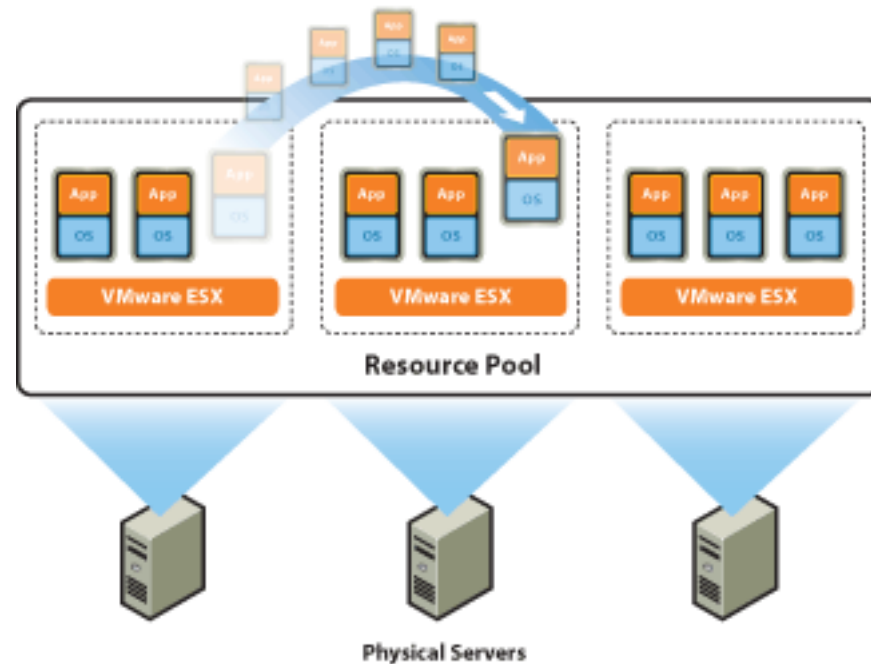
Try It Yourself

- Free Hypervisor – Note the limitations
  - http://www.vmware.com/products/datacenter-virtualization/vsphere/overview.html
- vSphere Essentials – vCenter + 3 Hypervisors
- Leverage experience

Let's Continue The Discussion

Download presentation materials, share ideas, and discuss concepts shared in this session by joining our Edmodo Group:

Admin Guide to Virtualization

Edmodo Group Code: **m3ba1n**

See the handout provided
at registration for instructions
on how to access Edmodo