

An aerial photograph of a city and surrounding landscape. The foreground shows brown, dry fields with some utility poles and wires. In the middle ground, a city with various buildings and structures is visible. The background features a range of blue mountains under a clear blue sky with some light clouds.

2009 Data Services Training Conference

Linux / Pick VM

(Costs in this presentation are current and subject to change)

Current Systems

IBM RS6000

- AIX Operating System
- Pick D3 Multi Value Database
- Fully Integrated Software System

Linux Server

- Generate Fax and E-mail Statements
- Fax and E-Mail Purchase Orders
- Archive Electronic Statement Copies
- E-mail and Fax PDF Invoices
- EOD Faxing and E-mailing of Invoices
- MSDS Sheets
- Signature Capture
- Credit Card Processing
- Paperless Reporting

System Costs

- IBM RS/6000 Model 8203 E4A – Tower \$19,500
 - 2 - Core 4.2 GHZ Power 6 Processor
 - 2 GB RAM Memory
 - Dual 950 W Power Supply
 - 36/72 GB DAT 72 4mm Tape Drive
 - DVD Drive
 - 10/100/1000 TX Ethernet Adapters
 - Two 146 GB 15K RPM SAS Disk Drives
 - IBM System Preparation (In house testing of hardware and setup of AIX and Pick Software)
 - Remote installation of RS/6000 and transfer of data from the old to the new RS/6000.
 - Hardware Main. 24 x 7 (Price for upgrading the warranty to 3yr onsite service)

System Costs

- IBM RS/6000 Model p520 – Tower \$11,200
 - 1Way 2.1 GHz Power 5 Processor
 - 1 GB RAM Memory
 - 36/72 GB DAT 72 4mm Tape Drive
 - CDROM Drive
 - 10/100/1000 TX Ethernet Adapters
 - Two 73 GB 10K RPM U320 SCSI Disk Drives
 - IBM System Preparation (In house testing of hardware and setup of AIX and Pick Software)
 - Remote installation of RS/6000 and transfer of data from the old to the new RS/6000.
 - Hardware Main. 24 x 7 (Price for upgrading the warranty to 3yr onsite service)

System Costs

- ❑ IBM Linux Server, xSeries 3400, Tower \$7,000
 - 2.66 GHZ Quad Core Xeon Processor
 - 2 GB RAM Memory
 - Dual 146 GB, Ultra 320 SCSI, Hot Swap HDD
 - 4mm DAT Tape Drive
 - Integrated Ethernet Adapter
 - 3.5" Floppy Disc Drive
 - CD ROM Drive
 - MultiModemm ISI 56K, 14.4 Fax Card
 - Acer 17" Monitor
 - 3 Year Warrantny Uplift to 24x7

System Costs

IBM RS/6000

\$11,200 - \$19,500

Linux Server

\$7,000

Total Cost For Both Servers

\$19,200 - \$26,500

Linux / Pick Server

- ENTERPRISE LEVEL SERVER

- ESXi Sever (Corp uses ESX Servers)

- PERFORMANCE

- Processing at P5 Speed in a VM
- Solid State Drive Performance / Reliability
- (SLC Drives / MTBF > 1.5 Million Hours (Standard HD is < 300K Hours))

- Reduncancy / Disaster Recovery

- Optional Offsite (Remote Server / Online)
- VM Coverage Strategy with Backup Hardware (No Tapes)
- Quick Recovery

- REMOTE SUPPORT

- Watch Boot
- Snapshots (EX. Pick Patches)
- Network Troubleshooting

- SIMPLIFY

- Printers in One Place

- MODULAR DESIGN

Linux / Pick VM Server Costs

❑ Dell Power Edge 2900 (Tower) \$8,065

- Quad Core Xeon E5405 Processor 2x6MB Cache, 2.0GHz, 1333MHz FSB, PE29502 GB RAM Memory
- (2) 250GB 7.2K RPM Serial ATA 3Gbps 3.5-in HotPlug Hard
- 8GB 667MHz (4x2GB), Dual Ranked Fully Buffered DIMMs 3.5"
- 8X DVD-ROM for PowerEdge
- USB Keyboard / Mouse
- 3 yr basic support: 5x10 HW-Only, 5x10 NBD Onsite
- 64 GB Solid State Hard Drive (No Heat, No Moving Parts)
- Acer 17" LCD Monitor
- Digi 5 Port Ethernet Hub
- (22) 8GB USB Flash Drives
- External USB Hard Drive
- MultiTech Modem 2DX v.92 Data/Fax External Modem
- StarTech 2 Port RS232 Serial to (NETRS 232-2)
- Pick License Transfer Fee (Required by Tiger Logic (formerly Raining Data))
 - \$75 per license. (System Cost figured for 15 users)

Linux / Pick Support Upgrade Costs

- ❑ 3 yr. Pro Support for End Users 4HR 7x24 Onsite: Non Mission Critical
 - \$1,219.00
- ❑ 3 yr. Pro Support for End Users and Mission Critical 4HR 7x24 Onsite Pack
 - \$1,999.00
- ❑ 3 yr. Pro Support for End Users and Mission Critical 2HR 7x24 Onsite Pack: 6HR Repair
 - \$2,549.00

Cost Comparison

IBM RS/6000

\$11,200 - \$19,500

Linux Server

\$7,000

Total Cost For Both Servers

\$19,200 - \$26,500

Linux/Pick VM Server

\$8,065

Support Upgrade

\$1,219 - \$2,549

Total Cost for Linux/Pick VM

\$8,065 - 10,614

An aerial photograph of a city and surrounding fields. In the foreground, a utility pole with power lines is visible. The middle ground shows a dense urban area with many buildings. The background features rolling hills and mountains under a blue sky with scattered clouds. The text 'VM Coverage Strategy & Backup Hardware' is overlaid in a dark blue serif font.

VM Coverage Strategy & Backup Hardware

What is VM ?

Virtual Machine

- Virtualization lets you run multiple virtual machines on a single physical machine, sharing the resources of that single computer across multiple environments.
- Different virtual machines can run different operating systems and multiple applications on the same physical computer.
- Use software such as [VMware Infrastructure](#) and [VMware ESXi](#) (a free download) to transform or “virtualize” the hardware resources of an x86-based computer—including the CPU, RAM, hard disk and network controller—to create a fully functional [virtual machine](#) that can run its own operating system and applications just like a “real” computer.
- Allow you to build a rapid, reliable and cost-effective Disaster Recovery solution.

VM and Disaster Recovery

- ✓ Recover from disasters rapidly
 - Virtualization turns everything about a system—hardware configuration, firmware, operating system install, application install into data stored in just a few files on disk.
- ✓ Ensure reliable disaster recovery
 - Testing becomes simpler in a virtualized environment because virtualization makes it possible to execute non-disruptive tests using existing resources.
- ✓ Reduce the cost of disaster recovery
 - you can provide rapid and reliable recovery without requiring identical hardware.
 - Because of hardware independence, you can repurpose existing servers for disaster recovery rather than needing to buy duplicate servers for rapid recovery.
 - VMware virtualization also enables server consolidation so that organizations can slash the cost of server infrastructure needed both for production and disaster recovery.

Backup Hardware Summary

- Digi 5 Port Ethernet USB
- (22) 8GB USB Flash Drives
 - 10 Weekly and 12 Monthly rotation
- (2) 320 GB USB Hard Drives
 - Daily Rotation

(Similar in cost of a tape drive and media.)

This solution is designed to be a direct replacement for tapes, in that the manual process is still required and off-site locating of the media is crucial.

Advantages of New Hardware

- Available to Any Store
- More Reliable Medium
- Faster Saves / Restores
- Disaster Recovery (Data and/or System Image)
- More Convenient
- Size Only Limited By \$ (Which Will Get Less Expensive Over Time)

VM Backup/Recovery

Good Solution

- The “Good” solution covers disasters via data redundancy and offsite media. It includes one ESXi server with system image and data stored on different physical media including running drives, backup drives and offsite media.
- This is meant as a direct replacement for current system and processes.
- In the event of a hardware failure, the system VM will run on a local machine until the hardware is fixed/replaced.

VM Backup/Recovery

Better Solution

- The “Better” solution covers disasters via data redundancy and offsite media. It includes one ESXi server with system image and data stored on different physical media including running drives, backup drives and offsite media. (same as “Good” solution).
- In the event of a hardware failure, the system VM will run on a dedicated local server, purchased specifically for this purpose, until the hardware is fixed/replaced.
- The advantage is that this server is dedicated and designed to be faster than running on a local machine. It still may not be as fast as the core system, but faster than a local machine.

VM Backup/Recovery

Best Solution

- The “Better” solution covers disasters via data redundancy and offsite media. It includes one ESXi server with system image and data stored on different physical media including running drives, backup drives and offsite media.
- In the event of a hardware failure, the system VM will run on a duplicate backup server until the hardware is fixed/replaced.
- The advantage is that this server is an exact duplicate of the core server and system performance will be the same.

Planned Disaster Scenarios

- Hardware Failure
- Data Fault
- Theft
- Meteor

By eliminating the reliance on hardware, we free up the possibilities of media and redundancy. You may restore the files to virtually any computer anywhere and have your system back up and running.