

Nothing Hotter Than VM and VSE



Open for VSe-business™

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VM and VSE - Dead Operating Systems?

- Quite a Nice Turn-Out for the Wake!
- But the important thing is...

Why should you (**personally**, not as an Enterprise) want to be there?

Operating System Choices

■ WINTEL? A tinker-toy system

Hordes of not very educated people who don't really know how their systems work.

Continually upgrading hardware boxes and system software.

Operating System Choices

- OS/390? Bureaucracy run wild.

Ranks of Borg-like Operators who only know how to follow orders.

Do you really want to spend your life as 2nd assistant CICS table maintainer?

Operating System Choices

■ VM/VSE?

Small enough so that one man can make a difference,

And large enough to handle the processing of your entire enterprise.

Operating System Choices

- VM/VSE offers the best mix of personal challenges and responsibility.
- Fortunately it is frequently the best choice for your Enterprise as well.
- So enjoy it, and don't let panic-mongers stampede you.

Operating System Choices

- VSE and VM offer plenty of capability and plenty of growth.
- And they work very well together.

So What's New?

What's New?

- The biggest though not the newest News:

Moore's Law Lives!

Priced an MP3000 or an IFrame Lately?

Hardware is Cheap!

What's New?

- Hardware options that may have been unaffordable before are suddenly practical.
- And, new software releases support exploiting that new hardware.

What's New

- Lots of new releases for both VM and VSE
- Significant new functions added to both systems.
- Active maintenance by both development groups.
- **VM and VSE are both very much alive**
- Let's take a look at the releases

What's New – VSE Releases

■ Release	Available	Out of Service
2.3	12/7/1997*	12/31/2001
2.4	6/25/1999*	6/30/2002
2.5	9/29/2000*	
2.6	12/14/2001	
2.7	Not yet announced	

* Withdrawn from marketing

What's New – VSE Releases

- Withdrawn from Marketing means you **can't** order it.
- Available means you **can** order it.
- Out of Service means you can no longer submit APARS.
- IBM will generally supply PTFs for known APARS even if a product is out of service.

What's New - VSE 2.3

- The last hold-over from Y2K
- Current Release 2.3.2 is Nice and Stable
- However it is no longer available and no longer in service.

What's New? VSE 2.4

- CICS Transaction Server - a port of the OS/390 version to VSE
- Better:**
- Online system changes
 - Better Storage Control
 - More Complete SP Interface
 - Some support for Web-Enabling

What's New - VSE 2.4

- CICS Transaction Server - The Dark Side
- No more Macro support - they warned us!
- No more BTAM terminal support.
- No more Internal Security

This is likely to be a BIG conversion

What's New - VSE 2.4

- Other topics:
- Turbo-dispatcher now the only choice
- New Version of Ditto
- New Version of DL/1
- CA Top-Secret Pre-Loaded
- New Maintenance Facility

What's New - VSE 2.5

- Connectors: Code fragments that allow accessing VSE resources from Java applications
What will they do and how will you use them?
- VSAM extensions for RVA exploitation
- FSU available from VSE 2.4

What's New – VSE 2.6

- SSL Support for TCP/IP
- CICS ECI over TCP/IP
- More connector enhancements including VSAM-redirector.
- FSU Available from VSE 2.5

What's New - VSE 2.7

- Information is based on IBM preview of announcement February 19, 2002.
- Runs on MP3000, G5,G6 PES, Z800 and z900 (in 31-bit mode)
- Will **not** run on P/390 or MP2000
- Customers with older hardware are suggested to stabilize on VSE 2.6

What's New – VSE 2.7

- Advanced hardware support (under z/VM 4.2)
 - Hipersockets support – LAN in a box.
 - Hardware encryption support for SSL

What's New – VSE 2.7

- If you are ready to go to z-series hardware and want to connect your VSE into a network of VSE x/OS and Linux machines then VSE 2.7 is for you!
- If you have older hardware and no such networking requirements then stick with 2.6
- It will be interesting to see how long VSE 2.6 sticks around.

What's New – VM Releases

■ Release	Available	Out of Service
VM/ESA 2.4*	7/23/1999	6/2003
z/VM 3.1	2/23/2002	
z/VM 4.1*	7/20/2001	6/2003
z/VM 4.2	10/26/2001	12/2003

*Withdrawn from marketing

What's New - VM 2.4

- Significant Improvements in VM TCP/IP
- Lots of New Hardware Support
- Sysplex Guests
- VM available on CD-ROM - great for Integrated Server. MP3000 too?

Not that much else, and maybe that's good

What's New – z/VM 3.1

- 64-bit Guest Support (not CMS).
- FICON Channel Support.
- ESS Native support
- TCP/IP improvements including SSL
- Open Edition Shell & Utilities included

What's New – z/VM 4.1

- Similar to z/VM 3.1 **plus**
- New engine-based pricing structure – cheaper
- Support for IFL processors
- Improved performance for Linux guests
- TCP/IP and CUF Features Included
- Requires PES, z-Series, or MP3000

What's New – z/VM 4.2

- z/VM 4.1 Plus
- Cryptographic processor support for SSL
- Hipersockets support for “LAN in a box”
- 100 mb Token-Ring
- FICON CTCA Support
- SAF Support for Linux newbies
- Observer support for console viewing.

What's New – z/VM V3 and V4

- z/VM V3 is the last VM to support all the older processors.
- But it does support 64-bit processors as well.
- Terms and conditions are similar to VM/ESA.
- z/VM V4 runs **only** on the new z-Series processors.
- Terms and conditions are OTC + annual maintenance.

What's New – z/VM V3 and V4

- Further hardware function will generally appear in z/VM V4.
- If you are planning to keep VM for a few years, and are ready to go to z-Series servers, z/VM V4 offers significant savings over z/VM V3.
- But if you are not, z/VM V3 offers a good platform to stabilize on.

What's Not So New?



What's Not So New?

- In the old days, VM could be justified for VSE simply by additional features. Those days are gone now, and good riddance.
- The cost is not only in \$ but in the learning curve of an additional system.
- But given that, there are very real benefits to running VSE under VM

Benefits to Running VSE under VM

- Much more flexible system test facilities.
- Simpler and Powerful Workload isolation.
- Improved online system.
- UNIX compatibility
- E-Commerce
- Database Strengths
- Simplified Migration to OS/390

Benefits: System Testing

- We are all used to thinking about the requirements (Y2K).
- You can run multiple VSEs in LPARs,
- **But** it is much easier to create and run test systems under VM.
- An example, a 2nd-level VM install and upgrade from 1000 miles away.

Benefits: Workload Isolation

- You can run as many jobs as you want in a native VSE system.
- But do you really want your production CICS to coexist with a heavy batch load?
- VM allows separation by Virtual Machine for tuning purposes.
- And, of course, test environments can be kept totally separate.

Benefits: Online Flexibility.

- Unlike VSE, VM was developed as an online system.
- CICS is great for online production, but is less friendly in a development environment. One mistake can bring the entire system down.
- Under VM, a programming error generally only crashes yourself.

Benefits: Online Flexibility

- Most CICS development is done with traditional HLLs (COBOL, PL/1).
- VM supports these, but also includes rapid-development tools:
 - XEDIT
 - REXX
 - DMS/CMS
 - PIPES

Benefits: Online Flexibility

- “Native” VSE shops must suffer with ICCF and the IUI system - both obsolescent.
- Either that or they must invest in 3d party tools,
- VM’s built in features are superior
- Most VM shops generally move program development and library management right to CMS. Use VSE for Production!

Benefits: Online Flexibility

- Of course, if you are going to all PCs or SAP maybe you don't need a development environment.
- This is a common belief among executives but less so among practitioners.
- Get the best toolkit with VM/CMS and make development less painful.

Benefits: UNIX Compatibility

- This is really two questions:
- Do you want to run Unix apps on your mainframe?
- Do you want to interchange data with Unix or Microsoft systems?

Benefits: Running UNIX Apps

- VM POSIX system allows you to compile and run Unix applications directly.
- VM even includes a UNIX-style byte file system.
- VSE isn't there yet, but under VM it doesn't need to be.

Benefits: Running UNIX Apps

- And now, LINUX is also an option.
- Linux is a true Unix version that runs on a 390. It is easily implemented under VM.
- Hundreds of packages are already ported to Linux and more are coming.
- For VM users, THE and Regina Rexx offer a familiar environment.

Benefits: Unix Data Interchange

- Transfer Files between Mainframe and Client
- Transfer printouts to LAN printers (or mainframe printer)
- Easy 3270 connectivity

Benefits: UNIX Data Interchange

- **TCP/IP** is the answer
- **FTP** and **NFS** for file interchange
- **LPR/LPD** for printouts
- **TN3270** for Connectivity

Benefits: UNIX Data Interchange

- Two Choices: TCP/IP for VM from IBM and TCP/IP for VSE from CSI or BSI.
- TCP/IP for VM is more feature-rich
- TCP/IP for VSE is easier to install
- The choice depends on your requirements - which environment do you need to get-to.
- For some, the right choice is both.

Benefits: Migration Environments

- From 2000 feet it may seem easy to simply replace everything.
- Developing a practical migration plan though implies coexistence.
- TCP/IP provides the “glue” to make a practical migration plan possible.

Benefits: E-Commerce

- This would be easier to address if better defined.
- OS/390 support for E-Commerce carries over to some extent to Transaction Server
- Meanwhile, there are lots of partial solutions available out there for VM and VSE.

Benefits: E-Commerce

- An example – z/Web-Host VSE from Inteliware allows CICS transactions to be viewed from a browser (IE-5 or Netscape).
- There are lots of alternatives depending on what you want to do.
- Both VM and VSE have many of the necessary tools. How do you want to use them?

Benefits: Database

- DB/2 for VM and VSE offers a full-function solution that is compatible with DB/2 for OS/390.
- Guest-sharing offers a single database shared between two environments.
- Performance is enhanced by putting the actual database in VM and accessing it as required from VSE Batch or CICS

Benefits: Database

- If ODBC connectivity is critical, consider Datacom/DB from CA.
- This is a native VSE implementation, and connectivity to PCs is excellent.

Benefits: Database

- What about your old VSAM files?
- VSAM transparency is available for both DB/2 and Datacom DB.
- Consider Cross Access or Viaserv
- These are VSE packages.

Benefits: OS/390 Migration

- Well, if you must.
- VM permits OS/390 and VSE to coexist on the same system and (to some extent) share data.
- This lowers the complexity and risk of developing a successful migration plan.

What About Linux?

- Be prepared for interesting times!

Linux Benefits:

- Easy and cheap to set up under VM.
- Install vehicles available from marist.edu
SuSE, TurboLinux and Red Hat.
- Tons of downloadable application code
available at S390.LINUX.ORG.
- Informal support available from IBM and pay-
for support from distributors.
- Lots of IBM packages being ported to Linux.

Linux Concerns:

- Development in a general state of chaos.
- IBM development historically featured careful planning and standards.
- Linux development is done by semi-informal groups of brilliant amateurs.
- New releases are frequent, and frequently broken.
- This is a consequence of the Open Source philosophy and will not change.

Linux concerns:

- Linux is **very** different from what you grew up with.
- An example: “Where can I get the Codes and Messages Manual?”

IBM and Linux:

- IBM is highly interested, but not in control. They are fellow travelers.
- A large part of the Linux community consider Linux for S/390 to be interesting, but not particularly germane.

Linux Plusses and Minuses

- A chance to bring a great deal of additional function to your enterprise at relatively low cost.
- Do not expect turn-key installation and code stability.
- Dust off your System Programmer skills
- And Have Fun!

Practical Hints



Practical Hints

- Just a collection on practical hints from someone who has dealt with VM/VSE environments for many years.

Practical Hints: VM Maintenance

- SESS is not an ogre any more
- It still works by black magic, but now it works.
- And, it works for most VM products.
- The “trick” - don’t second-guess it.
- “Trust the Force, Luke.”

Practical Hints: VSE Maintenance

- Hate ICCF and the IUI, you're not alone!
- But it's the only practical way to install VSE.
- So once it's in - leave it installed
Disk is cheap!
- You may be able to do better than the IUI, but
do you really need to?

Practical Hints: Maintenance Schedule

- Try to convince management that your system needs a one-or twice a year maintenance schedule.
- It's just a cost of doing business in a mainframe world (PCs aren't that different).
- Point to Y2K as a prime example of the costs of deferred maintenance

Practical Hints: Minidisks

- The minidisk versus dedicated argument is as old as VM and VSE.
- But now, the cost of MIPS is low enough that it doesn't really matter.
- So use minidisks and get the flexibility.
- Keep dedicated volids like DOSRES on minidisks starting at cylinder 1.

Practical Hints: V-CTCA

- The cheapest and lowest-overhead way to connect multiple systems in a VM/VSE environment.
- (Unless you are running a z-Series and z/VM 4.2)

Practical Hints: TCP/IP

- If you run both VSE and VM TCP/IP...
- Among multiple images, who owns the LAN adapter hardware?
- Proxyarp allows VM TCP/IP to be the host.
- Alternatively, keep a separate VSE image as the TCP/IP host. Virtual machines are cheap!

Practical Hints: Test-Systems

- Always keep a test VSE system around.
- Why let programmers play in a production system?
- The extra cost is low

Practical Hints: Tuning

- Tune at the VM level - VSE tools may give misleading results under VM.
- Learn to use the VM tuning commands - and practice with them.
- Don't tune too heavily before checking results.
- Get a VM monitor (RTM, Explore or ESAMON) so you can see the results of what you do.

Synopsis:

- VM and VSE work well together - better than ever.
- And with Linux we now have a whole new dimension.
- The whole can be greater than the sum of the parts.
- Learn the strengths of all environments and use them to complement each other.

Questions? Discussion?

