



z/VSE Version 3 Release 1



– Does Life Begin at 40?

WAVV 2005 Colorado Springs, CO
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40 Years of VSE

5/16/2005

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New z/VSE Web Site



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What Doesn't Belong and Why?

- Helen of Troy leaves her husband
- Citizens of Pompeii watch volcano with casual interest
- Montezuma invites Cortez to his palace for dinner
- Ann Boleyn marries King Henry VIII
- President Lincoln attends the theater
- Elite travelers book maiden voyage of *Titanic*
- Thousands take out loans to buy stocks in 9/1929
- Ford introduces the Edsel
- Thousands worldwide depend on VSE for their IT needs

We'll get the answer later.....


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“The further backward you look, the further forward you can see.....”

.....*Sir Winston Churchill*

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In the beginning was the punched card.....

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The 1950's

..... OK - no VSE yet, but we have to start somewhere




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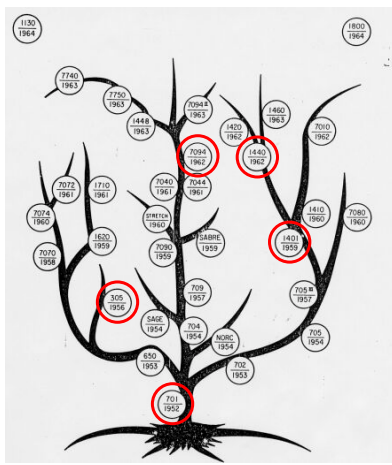
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The IBM family tree – 1952 to 1964

- Several mainframe families, each uniquely designed for different applications
- Each family had a different, incompatible architecture
- Even within families, moving from one generation to the next involved a migration
 - ▶ the advent of 'common' compilers (i.e. COBOL and FORTRAN) made migration a bit easier




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IBM 1401 – 1959 2nd generation

- The all-transistorized IBM 1401 Data Processing System offered features found in electronic data processing systems to *smaller businesses*, previously limited to the use of conventional punched card equipment.
- Features included: high speed card punching and reading, magnetic tape input and output, high speed printing, stored program, and arithmetic and logical ability



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The 1960's

.....a mainframe revolution begins with IBM System/360 and **IBM System/360 Disk Operating System (DOS/360)**

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IBM System/360 – 1964

3rd generation

- Customers were frustrated with the migration costs that came with each processor upgrade
- IBM developed a family of processors using the same durable architecture
 - ▶ published in the S/360 Principles of Operations
 - ▶ 24-bit addressing (32-bit architecture)
- Solid logic circuit cards
- Common peripheral devices
- One operating system - *initially*
 - ▶ Operating System/360 (OS/360)



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The System/360 Family



| Model | Announced | First Shipped | |
|-------|-------------------|----------------|-----------------------|
| 30 | April 7, 1964 | June, 1965 | |
| 40 | April 7, 1964 | April, 1965 | |
| 50 | April 7, 1964 | August, 1965 | |
| 20* | November 18, 1964 | April, 1966 | not a 'true' S/360 |
| 65 | April 22, 1965 | November, 1965 | |
| 75 | April 22, 1965 | January, 1966 | |
| 44 | August 16, 1965 | June, 1966 | focused on scientific |
| 67 | August 16, 1965 | May, 1966 | early Virtual Storage |
| 91 | January 18, 1966 | October, 1967 | |
| 25 | January 3, 1968 | October, 1968 | |
| 85 | January 30, 1968 | December, 1969 | |
| 195 | August 20, 1969 | March, 1971 | |
| 22 | April 7, 1971 | August, 1971 | based on Model 30 |

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Fortune Magazine called S/360 a '\$5 Billion Gamble'


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1965

- **S/360 - Model 30 System**
 - ▶ Approx. 30-35 KIPS (.03 MIPS)
 - ▶ Solid Logic Technology
 - ▶ 16 to 64 KB main storage
 - ferrite core memory technology
 - ▶ 2311 Disk Storage Drive
 - 7.25 MB/removable pack
 - 75 ms average access time
 - ▶ 2401 Magnetic Tape Unit
 - 9 track, 1600 bpi
 - Up to 180,000 bps
 - ▶ 2540 Card Read/Punch
 - 1000 cpm read
 - 300 cpm punch
 - ▶ 1403-N1 Line Printer
 - up to 1100 lpm
- **Disk Operating System/360**
 - ▶ Releases 1 => 27
 - designed to run in 16 KB systems
 - disk used for program libraries, transient supervisor functions, etc.
 - ▶ 1 partition
 - up to 3 beginning in Release 3
 - batch multiprogramming in R16
 - ▶ BTAM for telecommunications
 - added in Release 3
 - ▶ User programming in Macro Assembler, COBOL, Fortran, PL/1, and RPG




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What were things like in 1965?

- **US President:** Lyndon Johnson
- **Value (in 2004\$) of \$1 = \$6.01**
- **Average income = \$7,704**
- **Average price of a car = \$2,350**
- **Average price of a house = \$21,500**
- **Dow Jones Industrial Average = 969**
- **Some Top Songs**
 - ▶ Beatles 'Help'
 - ▶ Sonny & Cher 'I Got You Babe'
 - ▶ Rolling Stones 'Satisfaction'
- **Some Top TV Shows**
 - ▶ I Dream of Jennie
 - ▶ Batman
 - ▶ Daniel Boone
- **Best Picture**
 - ▶ The Sound of Music



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The 1970's

.....introduction of System/370 and DOS/VS




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 **The System/370 Family**



| Model | Announced | First Shipped |
|-------|--------------------|----------------|
| 155 | June 30, 1970 | January, 1971 |
| 165 | June 30, 1970 | April, 1971 |
| 195 | June 30, 1970 | August, 1973 |
| 145 | September 23, 1970 | June, 1971 |
| 135 | March 8, 1971 | April, 1972 |
| 158 | August 2, 1972 | April, 1973 |
| 168 | August 2, 1972 | May, 1973 |
| 125 | October 4, 1972 | April, 1973 |
| 115 | March 13, 1973 | March, 1974 |
| 138 | June 30, 1976 | November, 1976 |
| 148 | June 30, 1976 | January, 1977 |


Virtual storage capable models

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 **VSE Moved from Endicott to Boeblingen**

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1972

- **S/370 - Model 135 System**
 - ▶ Compatible upgrade from S/360
 - ▶ Integrated Circuit technology
 - ▶ 96 to 256 KB Processor Storage
 - 'monolithic' storage technology
 - virtual storage
 - ▶ 3330 Direct Access Storage
 - 100 MB/removable pack
 - ▶ 3420 Magnetic Tape Subsystem
 - 9 track, 1600 bpi
 - up to 320,000 bps
 - ▶ 3505 Card Reader/3525 Card Punch
 - 1200 cpm read
 - 300 cpm punch
 - ▶ 3211 Printer up to 2000 lpm
- **DOS/VS**
 - ▶ Releases 28 => 34
 - ▶ up to 16 MB virtual storage
 - ▶ 5 partitions (up to 7 in R34)
 - ▶ Linkage Editor, Relocating Loader
 - ▶ VSAM
 - balanced sequential/random
 - ▶ POWER (first a Type III in 1968)
 - short for "P**ri**ority **O**utput **W**riters, **E**xception Processors, and **I**nput **R**eaders"
 - ▶ 'DBDC' => CICS and DL/I

Starting to look like something that's recognizable as VSE



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What were things like in 1972?

- **US President: Richard Nixon**
- **Value (in 2004\$) of \$1 = \$4.53**
- **Average income = \$12,625**
- **Average price of a car = \$3,879**
- **Average price of a house = \$30,500**
- **Dow Jones Industrial Average = 1020**
- **Some Top Songs**
 - ▶ Don McLean 'American Pie'
 - ▶ Sammy Davis, Jr. 'The Candy Man'
 - ▶ Johnny Nash 'I Can See Clearly Now'
- **Some Top TV Shows**
 - ▶ Bob Newhart Show
 - ▶ The Waltons
 - ▶ Monday Night Football
- **Best Picture**
 - ▶ The Godfather



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The 1980's


.....decade began with the successful 4300 and DOS/VSE
later, the pace picked up with the 9370 and VSE/SP

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1979

- **IBM 4331 System**
 - ▶ Large Scale Integration (LSI) technology
 - ▶ 512 and 1024 KB Processor Storage
 - 64K bit memory chip technology
 - Integrated I/O adapters
 - optional ECPS ('e' mode)
 - ▶ 3310 Direct Access Storage
 - Fixed Block Architecture (FBA)
 - 64.5 MB/fixed (non-removable) media
 - ▶ 8809 Magnetic Tape Subsystem
 - 9 track, 1600 bpi
 - up to 160,000 bps
 - ▶ 3505 Card Reader/3525 Card Punch
 - 1200 cpm read
 - 300 cpm punch
 - ▶ 3262 Printer
 - up to 650 lpm
- **DOS/VSE**
 - ▶ 7 partitions
 - up to 12 in Release 2
 - ▶ Fixed Block Architecture (FBA)
 - ▶ Misc. Enhancements
 - ASI procedures, channel switching, DASD sharing, add statements, missing interrupt handler, etc.
 - ▶ MSHP
 - ▶ ICCF (based on ETSS Type III)
 - ▶ ACF/VTAM
 - ▶ Priced Components



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What were things like in 1979?

- **US President: Jimmy Carter**
- **Value (in 2004\$) of \$1 = \$2.61**
- **Average income = \$22,316**
- **Average price of a car = \$6,847**
- **Average price of a house = \$71,800**
- **Dow Jones Industrial Average = 839**
- **Some Top Songs**
 - ▶ Rupert Holmes 'Escape' (Pina Colada song)
 - ▶ Donna Summer 'Hot Stuff'
 - ▶ Rod Stewart 'Do Ya Think I'm Sexy'
- **Some Top TV Shows**
 - ▶ Dallas
 - ▶ All in the Family (Archie Bunker)
 - ▶ Knot's Landing
- **Best Picture**
 - ▶ Kramer vs. Kramer




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1987

- **IBM 9375 – Model 60 System**
 - ▶ Modular, 19" rack-mounted
 - ▶ 8 or 16 MB Processor Storage
 - Integrated I/O adapters
 - office environment
 - ▶ 9332 Direct Access Storage
 - Fixed Block Architecture (FBA)
 - 400 MB/2 actuator fixed media
 - ▶ 9347 Magnetic Tape Subsystem
 - 9 track, 1600 bpi
 - up to 160,000 bps
- **VSE/SP V3**
 - ▶ 12 partitions
 - ▶ Virtual Address Extensions (VAE)
 - up to 9 address spaces
 - ▶ New Librarian
 - ▶ Interactive User Interface (IUI)
 - ▶ Conditional JCL
 - ▶ Packaging
 - base and optional products
 - base was designed, developed, tested, shipped, and serviced as if were a single integrated system
 - ▶ Capacity-based Pricing




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What were things like in 1987?

- **US President: Ronald Reagan**
- **Value (in 2004\$) of \$1 = \$1.67**
- **Average income = \$36,884**
- **Average price of a car = \$13,386**
- **Average price of a house = \$127,200**
- **Dow Jones Industrial Average = 1939**
- **Some Top Songs**
 - ▶ Los Lobos 'La Bamba'
 - ▶ Starship 'Nothing's Gonna Stop Us Now'
 - ▶ U2 'With or Without You'
- **Some Top TV Shows**
 - ▶ ALF
 - ▶ The Wonder Years
 - ▶ In the Heat of the Night
- **Best Picture**
 - ▶ The Last Emperor



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The 1990's –

.... many industry 'experts' ridiculed the mainframe. They said PCs and 'client/server' alone represent the future of IT.

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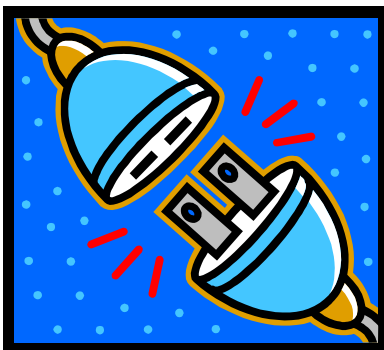
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One well known example....

- **“I predict that the last mainframe will be unplugged on March 15, 1996.”**
 - ▶ Stewart Alsop, March 1991



Source: IBM Annual Report 2001

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The 1990's – revitalization of VSE!

.....the decade began with ES/9000 and VSE/ESA V1
.....followed by IBM's CMOS Transition and VSE/ESA V2

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VSE/ESA in the 1990s

Capacity
Quality
z/OS Affinity

VSE/ESA V2.4 1999

- CICS Transaction Server for VSE/ESA
- e-business

VSE/ESA V2.3 1997



- TCP/IP

VSE/ESA Version 2 1994

- N-way S/390 Servers
- Investment Protection - Year 2000



VSE/ESA Version 1 1990

- Constraint Relief
- ESA exploitation


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1993

- **ES/9221 – Model 150 System**
 - ▶ 16 to 256 MB Processor Storage
 - Modular, 19" rack-mounted
 - Integrated I/O adapters
 - PR/SM
 - Parallel and ESCON Channels
 - ▶ 9336 Direct Access Storage
 - Fixed Block Architecture (FBA)
 - 857 MB/fixed media
 - ▶ 3490 Magnetic Tape Subsystem
 - 200MB cartridges
 - up to 4.5M bps
- **VSE/ESA V1.3**
 - ▶ 31-bit real and virtual addressing
 - ▶ Dynamic partitions
 - number limited only by tasks
 - 1 partition per address space
 - ▶ Access Registers
 - ▶ Data Spaces
 - ▶ Virtual Disk
 - ▶ Virtual Storage Constraint Relief
 - ▶ Dynamic (XA) Channel Subsystem
 - ▶ ESCON Channels




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What were things like in 1993?

- **US President: William Jefferson Clinton**
- **Value (in 2004\$) of \$1 = \$1.31**
- **Average income = \$47,221**
- **Average price of a car = \$17,698**
- **Average price of a house = \$147,700**
- **Dow Jones Industrial Average = 3754**
- **Some Top Songs**
 - ▶ Meat Loaf 'I'd Do Anything for Love'
 - ▶ Janet Jackson 'That's the Way Love Goes'
 - ▶ Mariah Carey 'Hero'
- **Some Top TV Shows**
 - ▶ Frasier
 - ▶ Homicide: Life on the Streets
 - ▶ N.Y.P.D. Blues
- **Best Picture**
 - ▶ Schindler's List




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1998

- **Multiprise 2000 System**
 - ▶ based on G3 CMOS technology
 - ▶ 1 to 5-way Processing Units
 - ▶ 128 MB to 4 GB Processor Storage
 - ▶ Parallel and ESCON Channels
 - ▶ Integrated DASD
 - a portion of main memory for cache
 - emulate 3380/3390 ECKD
 - up to 288 GB capacity
 - ▶ and/or RAMAC External DASD
 - ▶ Open Systems Adapter (OSA)
 - ▶ 3490E Magnetic Tape Subsystem
 - 2.4 GB/cartridge with IDRC
- **VSE/ESA V2.3**
 - ▶ Year 2000 ready
 - ▶ optional Turbo dispatcher
 - support for n-way processors
 - ▶ VSAM KSDS > 4GB
 - ▶ set timezone/daylight savings time
 - ▶ TCP/IP for VSE/ESA (native)
 - offered under agreement with CSI
 - ▶ ACF/VTAM V4.2
 - ▶ LE and LE-based languages
 - COBOL for VSE/ESA
 - PL/1 for VSE/ESA
 - C for VSE/ESA
 - ▶ Improved console support



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What were things like in 1998?

- **US President: Bill Clinton**
- **Value (in 2004\$) of \$1 = \$1.16**
- **Average income = \$59,589**
- **Average price of a car = \$19,560**
- **Average price of a house = \$181,900**
- **Dow Jones Industrial Average = 9027**
- **Some Top Songs**
 - ▶ Shania Twain 'You're Still the One'
 - ▶ Destiny's Child 'No, No, No'
 - ▶ Third Eye Blind 'How's It Going to Be?'
- **Some Top TV Shows**
 - ▶ Ally McBeal
 - ▶ Everybody Loves Raymond
 - ▶ 60 Minutes II
- **Best Picture**
 - ▶ Shakespeare In Love



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The 2000's

...a new century begins with Multiprise 3000 and VSE/ESA V2
...looking to the future with IBM ^ zSeries and z/VSE V3

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Reports of the death of the mainframewere premature


- **“I predict that the last mainframe will be unplugged on March 15, 1996.”**
 - ▶ Stewart Alsop, March 1991
- **“It’s clear that corporate customers still like to have centrally controlled, very predictable, reliable computing systems—exactly the kind of systems that IBM specializes in.”**
 - ▶ Stewart Alsop, February 2002



Source: IBM Annual Report 2001


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2004

- **IBM ^ zSeries 890**
 - ▶ based on innovative z990 technology
 - ▶ 1 model, 28 capacity settings
 - 1 to 4 Processing Units (PUs)
 - ▶ 8 to 32 GB Processor Storage
 - ▶ up to 30 LPARs, up to 2 LCSSs
 - ▶ Hipersockets
 - ▶ ESCON, FICON Express, FCP Channels
 - ▶ PCICA encryption assist
 - ▶ OSA Express & OSA-ICC
 - ▶ Integrated Facility for Linux (IFL)
 - ▶ IBM Enterprise Storage Server (Shark)
 - high availability, high performance
 - Flashcopy and PPRC
 - 1 to 55.9 TB capacity
 - ▶ IBM 3592 TotalStorage Enterprise Tape
 - 900 GB/cartridge at 3:1 compression
 - up to 40 MB transfer rates
- **VSE/ESA V2.7**
 - ▶ Turbo dispatcher
 - support for n-way processors
 - ▶ CICS TS for VSE/ESA
 - availability and z/OS affinity
 - ▶ TCP/IP for VSE/ESA
 - offered under agreement with CSI
 - ▶ VSE e-business connectors
 - ▶ Web services
 - ▶ Hipersockets
 - ▶ PCICA encryption assist
 - ▶ Shark Flashcopy and PPRC





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 **Recent Announcements**

- 10/07/2004 - **z890** and **z990** enhancements
 - ▶ **OSA Express2** including 10 GbE and GbE
 - ▶ **Crypto Express2** with PCICA-equivalent function
- 10/12/2004 - TotalStorage DS Family
 - ▶ **DS8000** series with ESCON, FICON, and FCP zSeries attachment
 - ▶ **DS6000** series with FICON and FCP zSeries attachment (no ESCON)
- 11/19/2004 - **VSE/ESA V2.7.3** available
 - ▶ service integration
 - ▶ z890 and z990 items incl OSA Express2 and Crypto Express2
 - ▶ 3592 WORM
 - ▶ DB2 for VSE and VM V7.4 replaces V7.3 in base package
- 01/25/2005 - z890 and z990 enhancements
 - ▶ **FICON Express2**



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Announcing z/VSE V3.1
Built on a heritage of ongoing refinement and innovation that spans four decades




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Introducing z/VSE V3.1




- Announcement: February 1, 2005
- General Availability: **March 4, 2005**
- IBM eServer **zSeries 890 and 990**
 - ▶ **SCSI disks** (ESS) attached to zSeries FCP channels
 - ▶ **OSA Express2** and **FICON Express2** adapters
 - ▶ **Crypto Express2** (PCICA function) and **CPACF**
- up to 30 LPARS, up to 4 LCSS
- IBM TotalStorage **3494 Virtual Tape Server (VTS)**
- enhanced IBM **3494 Tape Library** support
- IBM TotalStorage **DS8000** and **DS6000** series disk

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Introducing z/VSE V3.1 (Part 2)



- enhanced **Advanced Copy** support
 - ▶ NOCOPY
 - ▶ Flashcopy V2 (Dataset Copy, Multiple Relationships, eliminate LSS restrictions)
- **Language Environment** for VSE/ESA is now a standard component of VSE Central Functions (like VSE/VSAM, POWER, etc.)
 - ▶ price of new VSE CF < sum of parts
- **CICS/VSE V2.3** ships with CICS TS for VSE/ESA as before at no addl charge
- Fast Service Upgrade (**FSU**) available from VSE/ESA V2.6 and V2.7
- Customer **requirements**, productivity items, servicability improvements
- **z/VM V4 or later** required (if running z/VSE under VM)
- **z/VSE can operate in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE is designed to support selected features of IBM zSeries hardware.**

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z/VSE SCSI Overview

- **SCSI disks only (no SCSI tape, etc.)**
 - ▶ FCP channels available on zSeries only (**CHPID = FCP**)
 - switched network /multipath for failover
 - ▶ Systems **and** data disks (**SCSI-only system possible**)
 - New IPL and JCL commands to define and query SCSI disks
- **Implementation based on existing FBA support**
 - ▶ 512 byte block size
 - ▶ FBA to SCSI emulation done on low level by z/VSE
 - ▶ transparent to applications and subsystems, minimal impact on ISVs
- **SCSI volumes**
 - ▶ Up to **24GB** direct attached (up to 2GB if emulated FBA on z/VM V5)
 - ▶ VSAM limited to 16GB

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Server Support

| IBM zSeries & S/390 Servers | z/VSE V3.1 | VSE/ESA V2.7 | VSE/ESA V2.6 (1) | Hdwr Support |
|--|------------|--------------|------------------|--------------|
| zSeries 890, 990 (31-bit mode only) | Yes | Yes* | Yes* | Yes |
| zSeries 800, 900 (31-bit mode only) | Yes | Yes | Yes | Yes |
| S/390 Parallel Enterprise Server™ G5/G6 | Yes | Yes | Yes | Yes |
| S/390® Multiprise® 3000 | Yes | Yes | Yes | Yes |
| S/390 Parallel Enterprise Server™ G3/G4 | No | No | Yes | Yes |
| S/390® Multiprise® 2000 | No | No | Yes | Yes |
| S/390 Integrated Server | No | No | Yes | Yes |
| P/390 and R/390 | No | No | Yes | No |
| S/390 Parallel Enterprise Server™ G1/G2 | No | No | Yes | No |
| ES/9000® – 9221, 9121, 9021 | No | No | Yes | No |

Note 1: VSE/ESA V2.6 Service will end 3/2006


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zSeries Storage Options

New Standard in Pricing and Packaging




IBM TotalStorage DS6000

Foundation



ESS 750 / 800

New Standard in Functionality, Performance, TCO




IBM TotalStorage DS8000

| IBM TotalStorage | DS6000 | ESS 750 | ESS 800 & 800Turbo | DS8000 |
|------------------|----------------|------------|--------------------|----------------|
| ESCON | N/A | Yes | Yes | Yes |
| FICON | Yes | Yes | Yes | Yes |
| FCP/SCSI | Yes (1) | N/A | Yes | Yes (1) |

Note 1: z/VSE V3.1 DS8000 and DS6000 SCSI qualification date tbd

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Release Status

| VSE Version and Release | Marketed | Supported | End of Support |
|-------------------------|------------|------------|----------------|
| z/VSE V3.1 | Yes | Yes | tbd |
| VSE/ESA V2.7 | Yes (1) | Yes | tbd |
| VSE/ESA V2.6 | No | Yes | 03/2006 |
| VSE/ESA V2.5 | No | No | 12/2003 |

Note 1: VSE/ESA V2.7 will be marketed in parallel with z/VSE V3.1 until 3Q2005

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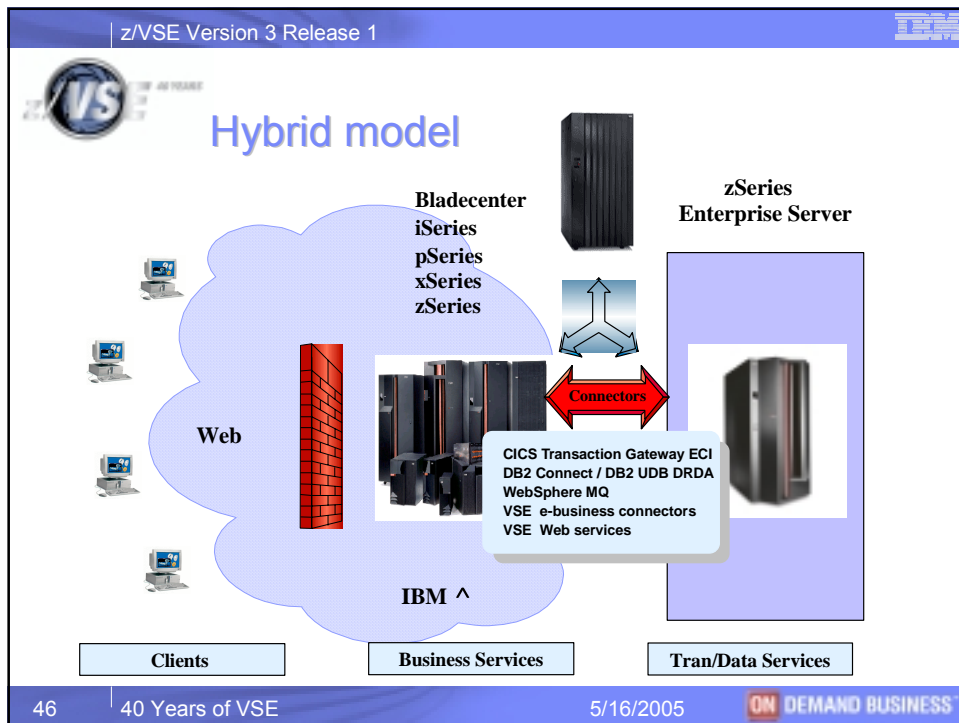
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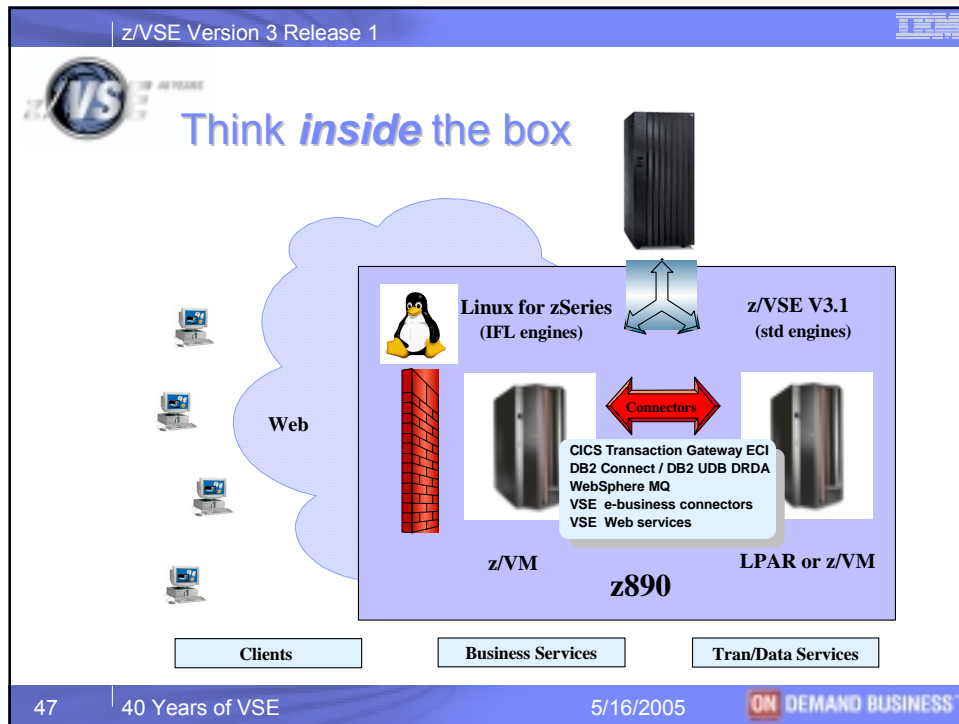


z/VSE Interoperability



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z/VSE Interoperability

| zSeries Functions | z/VSE V3.1 (1) | VSE/ESA V2.7 | VSE/ESA V2.6 |
|--|----------------|--------------|----------------|
| VSE Connectors (no additional charge) | | | |
| Web Services, i.e. SOAP and XML | Yes | Yes | Yes* / service |
| VSEScript and DL/1 | Yes | Yes | Yes* / service |
| VSAM Redirector | Yes | Yes | Yes |
| VSAM, POWER, Librarian, ICCF lib, console | Yes | Yes | Yes |
| DB2 Stored Procedures for VSAM and DL/1 | Yes | Yes | Yes |
| IBM Middleware (priced) | | | |
| CICS Transaction Gateway | Yes | Yes | Yes |
| DB2 Connect/DB2 UDB | Yes | Yes | Yes |
| WebSphere MQ | Yes | Yes | Yes |

Note 1: z/VSE can operate in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE is designed to support selected features of IBM zSeries hardware

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future?


“Never prophesy, especially about the future...”
.....*Sam Goldwyn*



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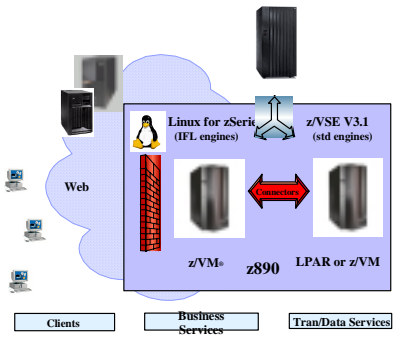
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z/VSE (1) Strategy

Why Not Think Inside the Box?

- Help **Protect** your existing investments in core VSE programs, data, equipment, IT skills, *plus* business processes, end user training, etc.
 - ▶ modernize, i.e. extend VSE resources to Web
 - ▶ exploit IBM servers, storage, and software
 - ▶ z/OS affinity
- Help **Integrate** VSE with the rest of your IT based on open and industry standards
 - ▶ IBM middleware
 - ▶ VSE connectors and web services
- Help **Extend** systems with Linux on zSeries
 - ▶ infrastructure simplification
 - ▶ new infrastructure and/or line-of-business applications



Note 1: z/VSE can operate in 31-bit mode only. It does not implement z/Architecture and specifically does not implement 64-bit mode capabilities. z/VSE is designed to support selected features of IBM zSeries hardware

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After 40 years providing robust, cost-effective solutions, VSE doesn't get older – **it gets better.....**

Protect
Integrate
Extend



Simple as Pie!

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VSE-related Events

- **2005 IBM zSeries EXPO** - featuring
 - ▶ z/OS, z/VM, z/VSE, and Linux on zSeries
 - ▶ September 19 – 23, 2005
 - ▶ San Francisco, CA
 - ▶ Hilton hotel
- **2006 WAVV** - featuring
 - ▶ z/VSE, z/VM, and Linux on zSeries
 - ▶ April 8 – 11, 2006
 - ▶ Chattanooga, TN
 - ▶ Marriott hotel and convention center



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Miscellaneous retrospectives...



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Do You Recall?

- Wing Tip shoes and 'Onward, Ever Onward'
- 'Think' signs and 'Think' writing pads
- 'Blue' Letters? ... how about 'Ivory' Letters
- BOS, TOS
- Future System (FS)
- April 11, 1980 at 8:00 GMT
 - ▶ don't forget September 17, 2042
- VM/BSEPP


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 **Do You Recall?**


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- VM/BSEPP
- IBM 1130, System 7, 8100 and DPPX, and Series 1
- Operations Research, Video Text, CASE
- Buildings heated by the heat of their mainframes
- Systems Application Architecture (SAA)
- Dr. Ed Altman and GUIDE
- Client/Server
- Year 2000

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 **What Doesn't Belong and Why?**

- Helen of Troy leaves her husband
- Citizens of Pompeii watch volcano with casual interest
- Montezuma invites Cortez to palace for dinner
- Ann Boleyn marries King Henry VIII
- President Lincoln attends theater
- Elite travelers book maiden voyage of *Titanic*
- Thousands take out loans to buy stocks in 9/1929
- Ford introduces the Edsel
- Thousands worldwide depend on VSE for their IT needs

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What Doesn't Belong and Why?


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...Because all the others lived to regret their actions

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Thanks for listening, and thanks for your business

Your friends, the VSE development team



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