



Verisk  
Analytics



## Z/Linux Journey

THE SCIENCE OF RISK<sup>SM</sup>

# Who is Tom Befi?

- Vice President Head of Infrastructure Verisk Analytics
  - Infrastructure
    - Data Center Operations
    - Systems Programming/Admin (Mainframe/Distributed)
    - Sec Ops
    - Network Engineering (voice/data telecom)
    - Desktop Computing Environment
    - Infrastructure Architecture
  - Technical Support
    - Internal Technical Help Desk
    - Service Desk

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# Who We Are and What We Do

- Verisk Analytics provides Data, Analytics and Decision support products across multiple vertical markets in and around risk mitigation
- ISO is a member company of Verisk Analytics that operates in the P&C Insurance vertical

# Our Brands



# ISO Environment

- Historically a Mainframe Shop
- 2 Mainframes (z9 and a z196)
- 300+ Suse Linux Servers on 11 IFL's
- 800 Distributed Servers
- 14 Million lines of Cobol
- CICS/DB2/MQ/Model204
- VB / Visual Studio / .net



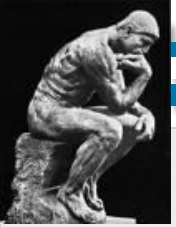
# Address the Issues

## Business Issues (Circa 2003)

- High Cost of Ownership on Servers Due to:
  - Short support half life
  - Complexity
    - Environmental (sprawl, DR)
    - Application
  - Little re-usability
- Security Concerns
  - Hackers/Virus Target
- Availability and Reliability

## Strategic Direction

- Technical realignment to Java
- Developing foundation architecture
- Build reusable Frameworks
- Shifting from point solutions to Enterprise-wide Development
- Consolidated Deployment on the mainframe



# The Whys?

## Why JAVA?

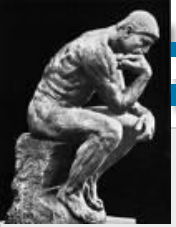
- Platform Longevity
- Merry-go-Round
- 99 Person Years every 3-4 years
- Portability
- Platform Independence
- Open Source (Where applicable)
- Cobol Resource Issue
- Boomers retiring

## Why Websphere?

- Best of Breed at the time & still is
- Supportable (IBM)
- Multi-Platform Support
- Leverage with IBM (Single Vendor)

## Why Mainframe?

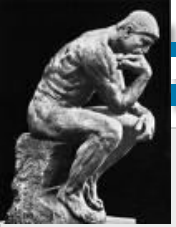
- Virus Attacks
- Security Vulnerabilities
- Availability, Reliability and Scalability
- Better Utilization of Hardware
- Simplify environment
  - Less tiers
  - Disaster Recovery
  - Better virtualization
- Economy of Scale
  - Less systems support staff required



# Expected Benefits

- Eliminate Technology Complexity
  - TIE (Tolerate/Integrate/Eliminate)
  - Java
  - DB/2 / Websphere / MQ
  
- Eliminate Software Development Fragmentation
  - Architecture
  - Alignment
  - Re-Use (Enterprise Frameworks)
  
- Eliminate Server Sprawl
  - Scalability/Reliability/Manage-ability
  - Better Security and protection (virus/hacker)
  - Less complexity (especially for DR)
  - More efficient utilization of hardware (Ex: Virtualization)





# Achieved Benefits

- Eliminate Technology Complexity
  - TIE (Tolerate/Integrate/Eliminate)
  - Java
  - DB/2 / Websphere / MQ
- Eliminate Software Development Fragmentation
  - Architecture
  - Alignment
  - Re-Use (Enterprise Frameworks)
- ~~Eliminate~~ Server Sprawl *Slowed Down*
  - Scalability/Reliability/Manage-ability
  - Better Security and protection (virus/hacker)
  - Less complexity (especially for DR)
  - More efficient utilization of hardware

Note:

Resource utilization increase on the mainframe commensurate with server consolidation



# z/OS Growth Curve Analysis



## Issues:

- Utilization growth above what was expected
- Corresponding expense growth especially non-relevant 3<sup>rd</sup> party software

## Actions:

- Worked with IBM
- Application Efficiency
- System Tuning
- Various platform alternatives reviewed
- Decision: Migrate to z/Linux



# Why z/Linux?

- Lower Cost
  - z/Linux software/hardware less expensive than z/OS
  - Put off z/OS upgrades (cost avoidance)
- Environmental Simplification
  - Simpler Allocation model
  - More flexible architecture
  - Easy/Quick to build additional environments
  - Simpler Disaster Recovery
- Better use of environment
  - Full use of H/W
  - Platform Independence
  - Unix Sys Admins instead of z/OS Sys Progs



# Today's Strategic Directions

- Websphere apps on z/Linux
  - Continue migrations from .net where appropriate
  - New Applications – Strategic platform
- Expansion into other facilities
  - Print Serving
  - File Serving
  - Database? UDB? Oracle?
  - Cognos for internal analytics
- z/OS Remains
  - Existing Applications (Cobol)
  - DB2 still strategic
  - Legacy customers – lu6.2 APPC

# Questions?





# Thank You

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## The Next Generation Workforce

# Gus Garcia

- Manager of Infrastructure Engineering and support at ISO
  - Operating Systems / Infrastructure
    - z/OS
    - z/VM
    - Linux on z
    - Linux on Intel ( REDHAT/VMware)
    - Solaris
  - Mainframe Security

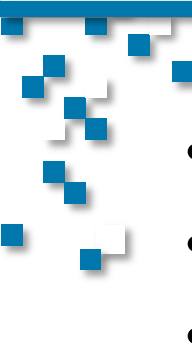
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# Agenda

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- The Next Generation workforce
  - The Knowledge Gap assessment
  - Plan for success
  - Skills development / Prepare the team
  - Continue to adapt and add value
  - Measure Success

# The Next Generation Workforce

- Multi-platform orientation
- Ability to work with diverse infrastructure
- Must be capable of process mgmt
- Must understand customer
- Team player

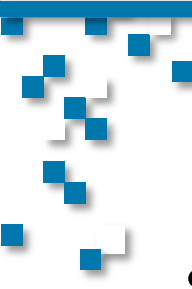
# Specialization Maze

- **Role Operating System Engineer Specialization**
- **Topics Description z/os system programmer**
- BCP TCP/IP RACF HMC DIAGNOSTICS SHOPZ **HARDWARE** Operating systems upgrade and maintenance technique DFSMS FTP LDAP HCD IPCS IBMLINK Z9 z/os component knowledge TSO/ISPF NSSD SSL IOGEN TERSE/UNTERSE RESOURCE LINK Z196 IBM program product expertise RACF TN3270 SSH IOCDs SAD STORAGE MGMT OEM program product knowledge JES2 NFS CRYPTO OSA SVC RECOVERY TECHNIQUE DS8100 Knowledge of communication Server components SDSF HOD CHPID MAP SLIP DS8300 Knowledge of security and cryptography services SESSION MGR RMF DS8800 Knowledge of operating system utilities MDS9513 operating system command expertise JCL SYSPLEX OSCMD SMPE OEM CA-1 NEARLINE Vendor support /mgmt UTILITIES CF CONSOLE MAINT FDR CA-7 IBM/VTs Diagnostic and problem determination techniques ICKDSF SMF UPSTREAM IBM/ATL Knowledge of hardware infrastructure TAPE MGMT ICF CATALOG CICS MIM FLASHCOPY knowledge of SAN architecture REXX /CLIST USS DB2 ENDEVOR SAN Knowledge of storage mgmt concepts ASSEMBLER JVM MQ SYNC SORT EKM Recovery techniques COBOL JZOS WEBSphere EXPORTER ETR Performance and capacity planning SAS OMEG PERFORMANCE CAPACITY CONCEPTS Programming and scripting knowledge ISO ADMIN (PEOPLESOFT/HR, SERVICE DESK, POLICY/PROCEDURES ) SOFTWARE / INSTALL STANDARD Operating systems upgrade and maintenance technique
- **z/vm system programmer**
- z/vm component knowledge CP NUCLEUS DIRMAINT DDR COMM/SER DIAGNOSTICS IBM program product expertise CP CMD LEVEL MAINT PROCESS TCP/IP VLAN PERF-TOOLKIT OEM program product knowledge CMS RECOVERY TECHNIQUE REXX VSWITCH DUMP SERVICES Knowledge of communication Server components VIRTUAL GUEST MGMT PIPES RACF Knowledge of security and cryptography services PERFORMANCE CAPACITY CONCEPTS CLONING SECURITY Knowledge of operating system utilities LINUX ON Z OEM INSTALL PROVISIONING operating system command expertise Vendor support /mgmt ISO ADMIN (PEOPLESOFT/HR, SERVICE DESK, POLICY/PROCEDURES ) SOFTWARE / INSTALL STANDARD Diagnostic and problem determination techniques Knowledge of hardware infrastructure knowledge of SAN architecture Knowledge of storage mgmt concepts Recovery techniques Performance and capacity planning Programming and scripting knowledge **HARDWARE**
- **Unix/Linux system programmer**
- SOLARIS TCP/IP LDAP SVM EMC LEGATO NETWORKER INTEL Operating systems upgrade and maintenance technique AIX SSH NFS RAID SUN SPARC Unix and Linux component knowledge REDHAT SSL DNS SAN CHECKPOINT FIREWALL POWER OS program product expertise SUSE SSL CERTS SNMO TRIPWIRE WEBSphere OEM program product knowledge UNIX MAIL SERVERS ROUTING PGP JBOSS Knowledge of communication Server components DMZ SFTP Knowledge of security and cryptography services LINUX / Z PERL SCRITING APACHE MYSQL Knowledge of operating system utilities SHELL SCRIPTING PHP HARDENING ORACLE operating system command expertise JOOMLA JENTLA SYBASE Vendor support /mgmt VIRTUAL CONTAINER TOMCAT INFORMIX Diagnostic and problem determination techniques LDOM CA-UNICENTER AGENTS LUW Knowledge of hardware infrastructure AUTOSYS knowledge of SAN architecture OS PATCHING TECHNIQUE SYMANTEC SCAN AGENTS RECOVERY TECHNIQUE Knowledge of storage mgmt concepts SAN CONNECTIVITY Recovery techniques PERFORMANCE CAPACITY CONCEPTS SECURITY Performance and capacity planning Programming and scripting knowledge ISO ADMIN (PEOPLESOFT/HR, SERVICE DESK, POLICY/PROCEDURES ) SOFTWARE / INSTALL STANDARD



# The Knowledge Gap

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- Staff analysis (individual)
  - Inventory Strength and weaknesses
  - Inventory Skill specialization




# Plan for success

- Build a strong Team
- Improve the process
- Deliver a quality product



# Skills development plan

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- Cross training session
  - Mentor session
  - Webex training
  - Lunch time discussion
  - Process orientation (with Manager)

# Continue to adapt and add value

- Team building strategy
- Continue to challenge staff
- Solicit team and individual feedback
- Align resources at the component level

# Measure success

- Monitor learning curve
- Accomplishment outside of core SME
- Project Quality
- Workload continuity
- Organizational metrics