zEnterprise and z/VSE solutions

zDG04

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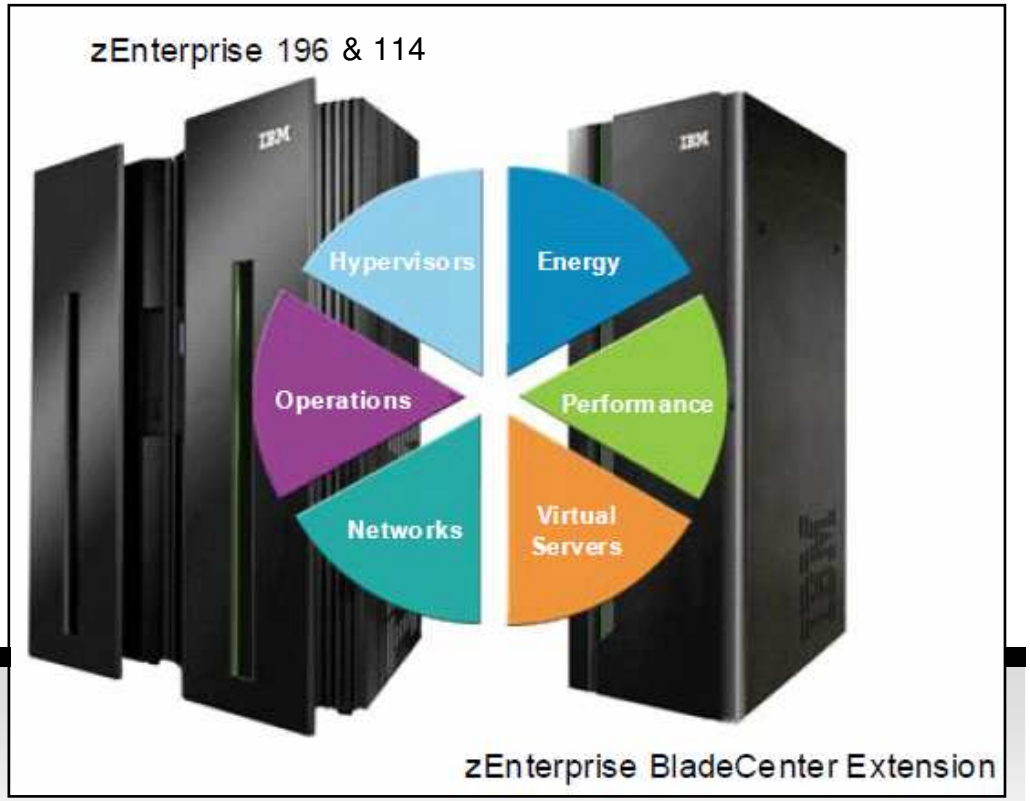
Agenda

- **zEnterprise and z/VSE Positioning**
- **z/VSE Modernization Options**
- **Wrap-up**

IBM zEnterprise System – one for everything !

Re-write the rulebook and set new standards for business-centric IT with IBM System z, to be the world's premier workload-optimized platform for enterprise applications.

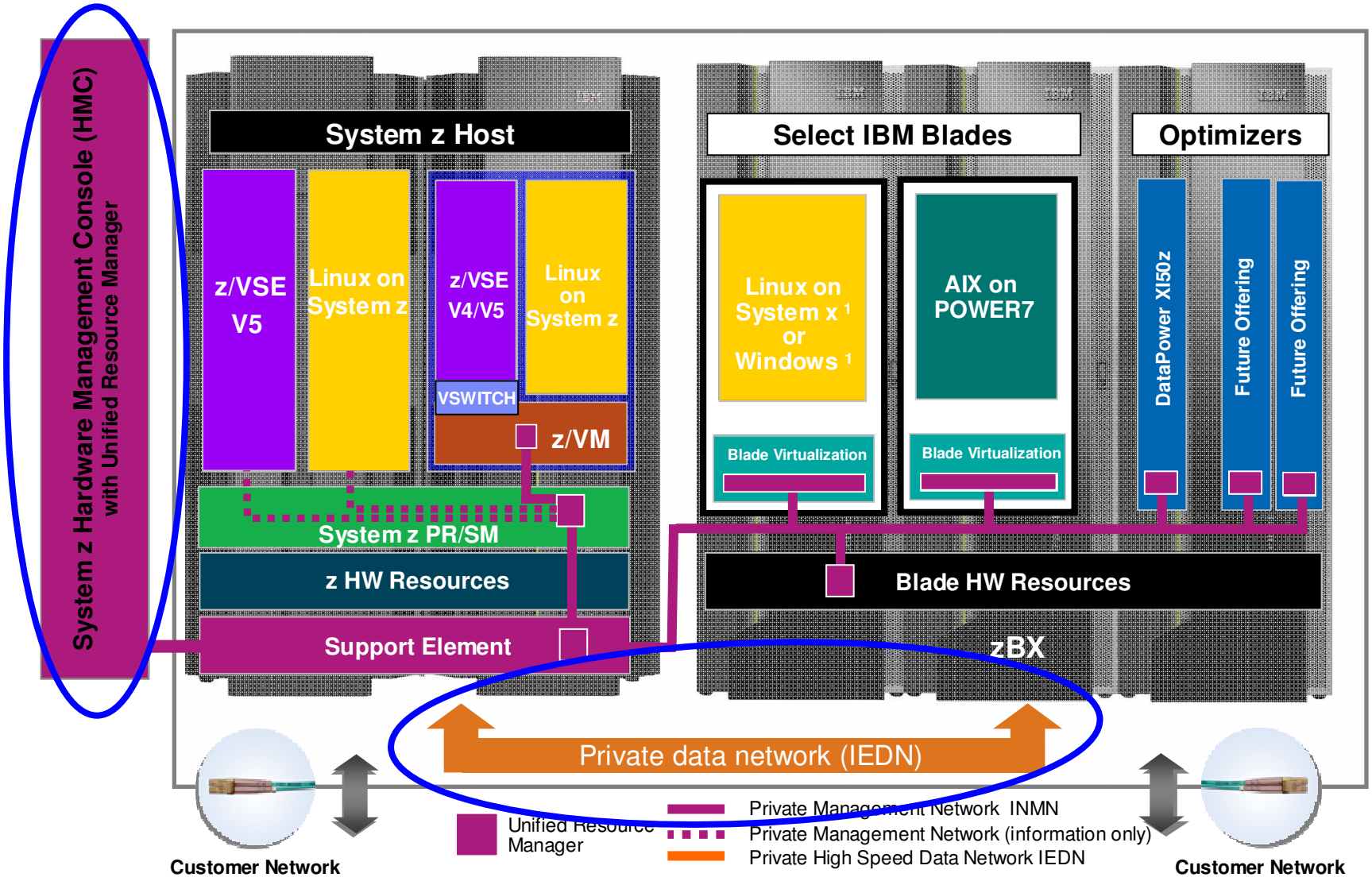


Our Vision:

An IT environment driven with one centralized System
- IBM zEnterprise System -

Deliver the best of all worlds - Mainframe, UNIX, x86 and single function processors - integrated in a single system for ultimate flexibility and simplicity to optimize service, risk, and cost across multiple heterogeneous workloads.

z/VSE Support for IBM zEnterprise - IEDN to zBX



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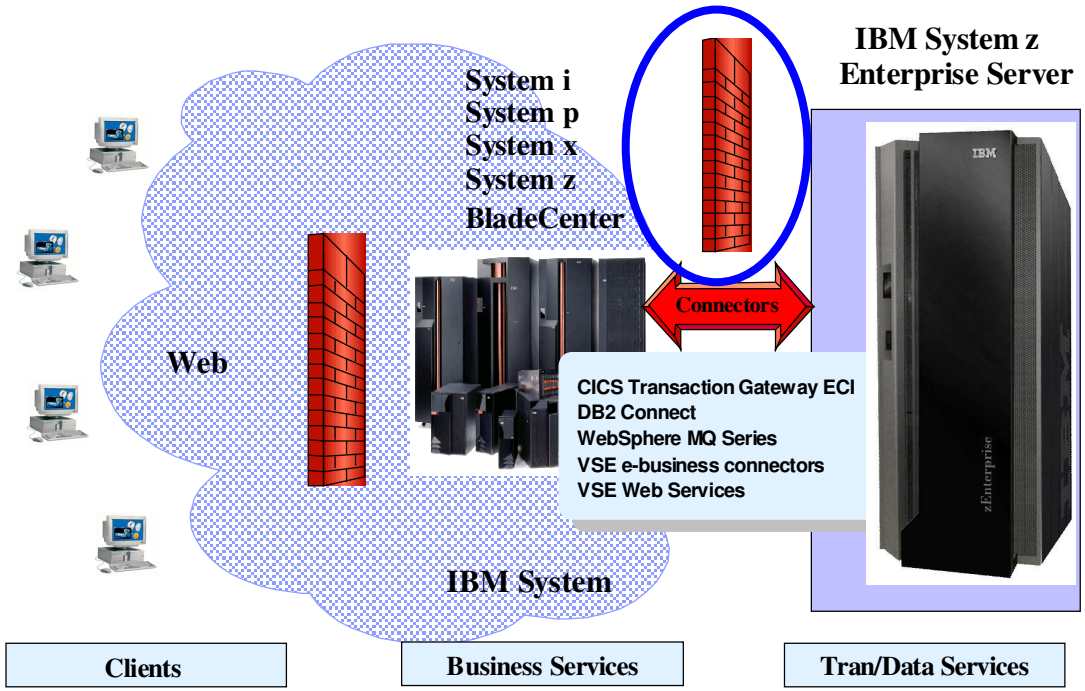
z/VSE Strategy - Set in Year 2000

alias

- 3-tier Strategy
- **Hybrid Strategy**
- Connector Strategy
- Migration Strategy
- Coexistence Strategy
- Linux Surround Strategy
- **PIE Strategy**



Protect existing VSE investments

Integrate using middleware and VSE connectors

Extend with another platform to access new applications & solutions

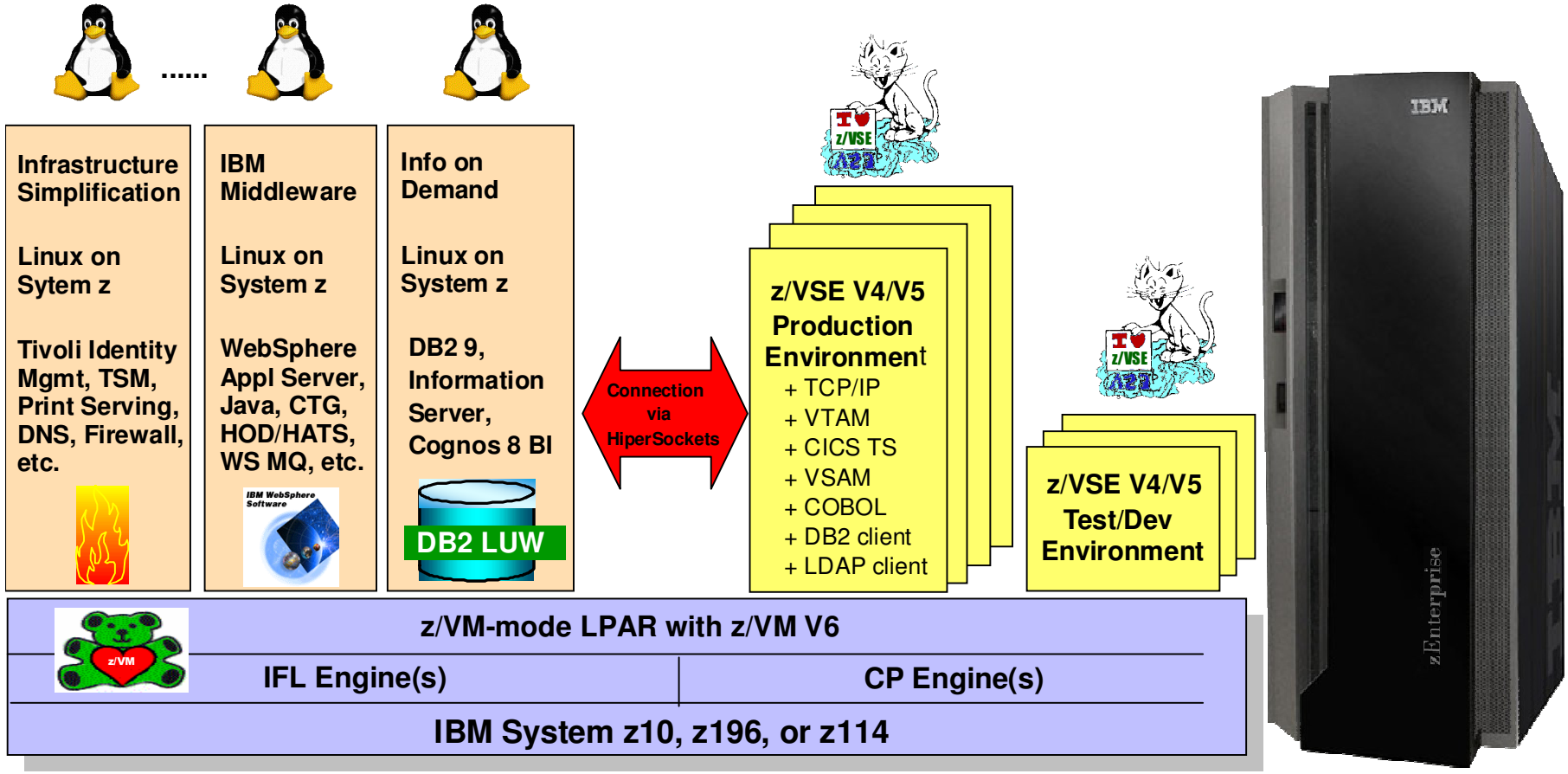
z/VSE Strategy w/ Linux on System z

Hybrid Environment leveraging z/VSE, z/VM, and Linux on System z

Protect existing VSE investments

Integrate using middleware and VSE connectors

Extend with Linux on IBM System z technology & solutions



z/VSE V5 Strategy with zEnterprise - More options, highly integrated

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- 3-tier Strategy
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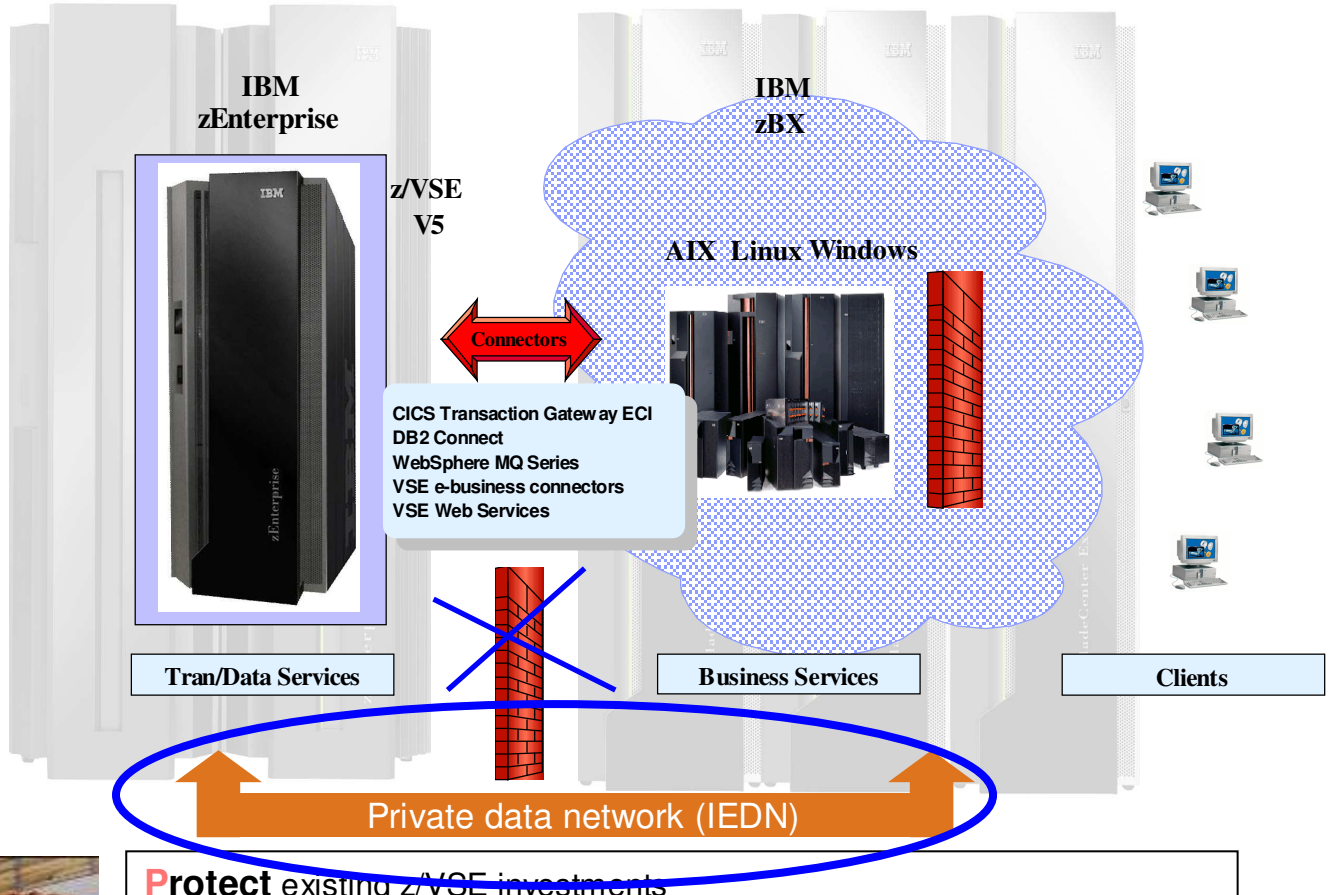


Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

Extend with zBX or with Linux on z to access new applications & solutions

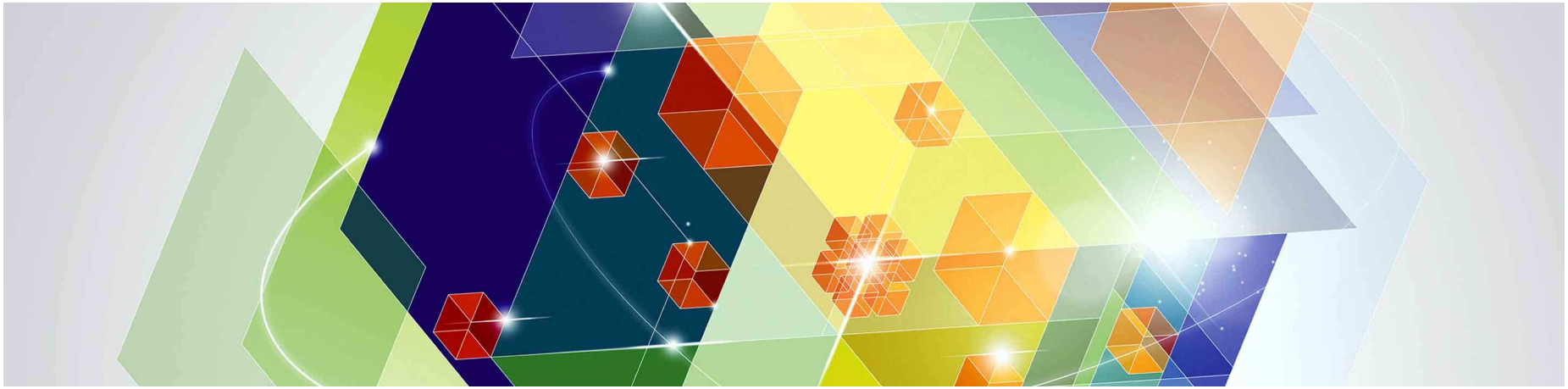
Agenda

- **zEnterprise and z/VSE Positioning**
- **z/VSE Modernization Options**
- **Wrap-up**

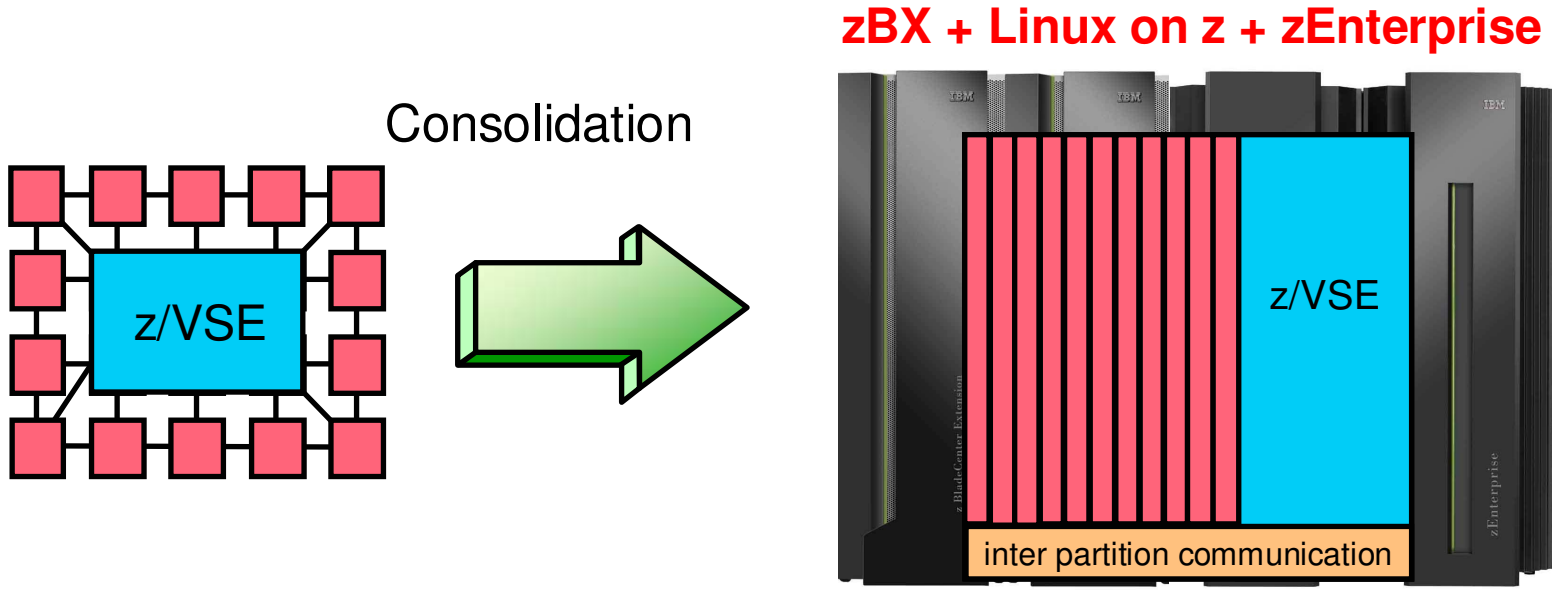
z/VSE SOA and Interoperability

Connector Functions	z/VSE V5.1	z/VSE V4.3	z/VSE V4.2	z/VSE V4.1
z/VSE Connectors (no additional charge)				
VSAM, POWER, Librarian, ICCF lib, console	Yes	Yes	Yes	Yes
VSAM Redirector	Yes	Yes	Yes	Yes
SOA Web Services, i.e. SOAP and XML	Yes	Yes	Yes	Yes
z/VSE Script and DL/1	Yes	Yes	Yes	Yes
DB2 Stored Procedures for VSAM and DL/1	Yes	Yes	Yes	Yes
VTAPE interface to IBM Tivoli Storage Manager (TSM)	Yes	Yes	Yes	Yes
LDAP client (LDAP server on another platform required)	Yes	Yes	Yes	
SNMP agent	Yes	Yes		
Linux Fast Path from z/VSE to Linux TCP/IP in z/VM-mode LPAR	Yes	Yes		
z/VSE z/VM IP Assist (VIA)	Yes			
GDPS client	Yes			
Linux Fast Path via zEnterprise HiperSockets Completion Queues	SoD			
IBM Middleware (priced)				
CICS Transaction Gateway ECI	Yes	Yes	Yes	Yes
Host on Demand / Host Application Transformation	Yes	Yes	Yes	Yes
DB2 Connect / DB2 UDB (DB2 Server for z/VSE V7.5 Client)	Yes	Yes	Yes	Yes
WebSphere MQ (z/VSE Client no charge)	Yes	Yes	Yes	Yes

Mixed workload consolidation with zEnterprise



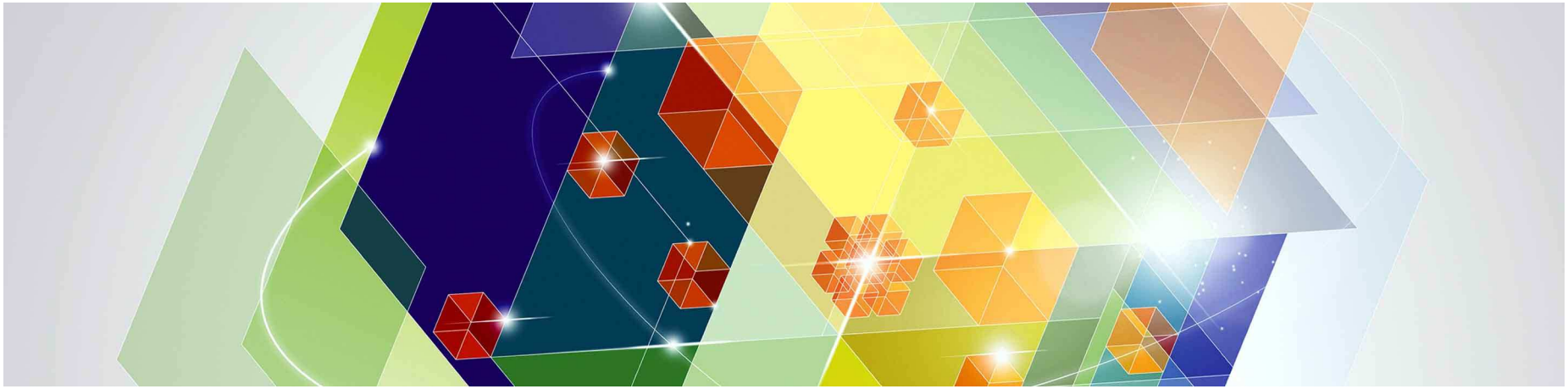
Mixed Workload consolidation on zEnterprise



For z/VSE customers, zEnterprise opens new horizons:

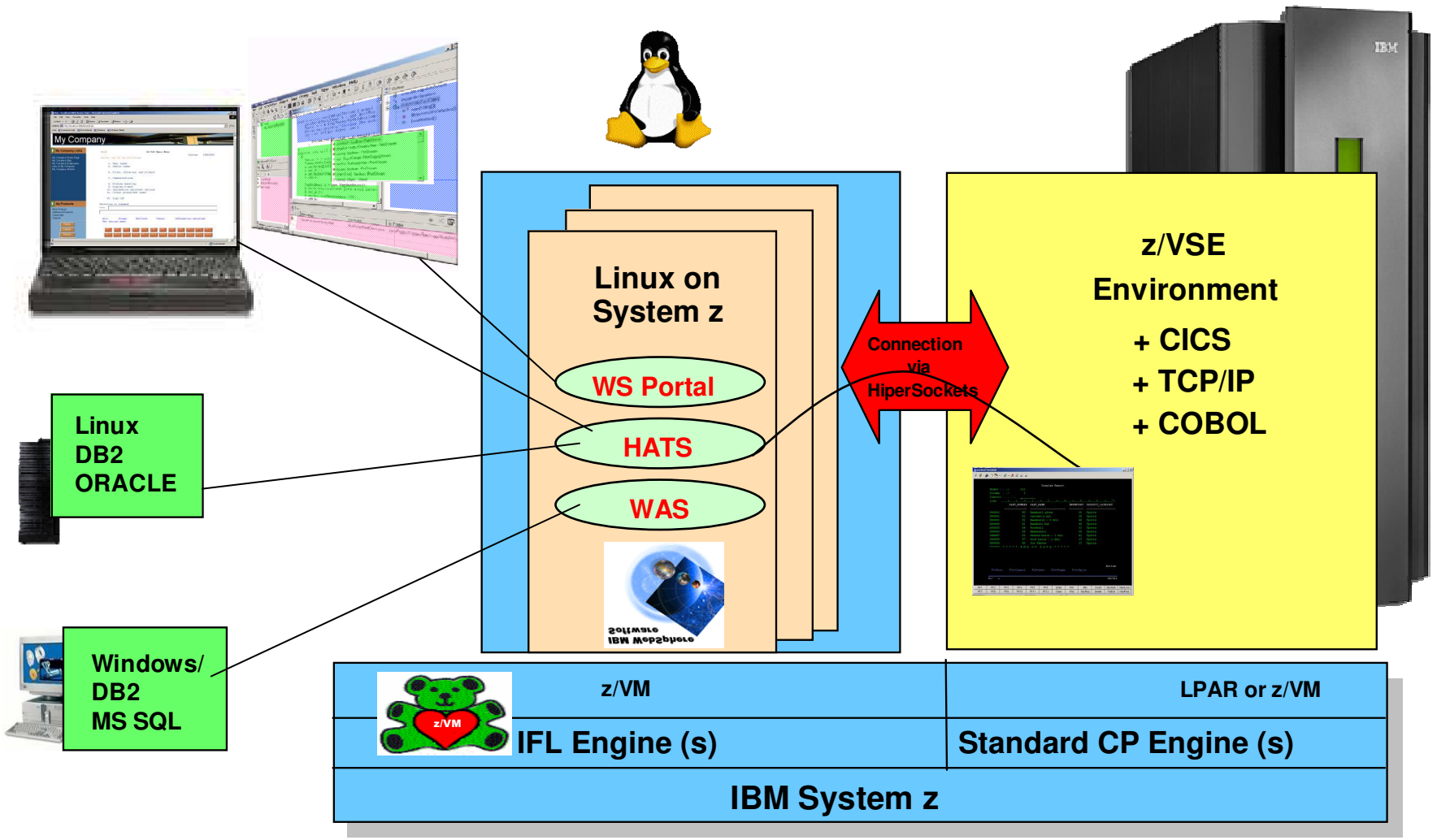
- Integration of multiple platforms of the Enterprise
- A big variety of standard applications
- The integration of existing applications and data using e-business Connectors
- Modern, scalable new solutions

Web integration with Linux and z/VSE

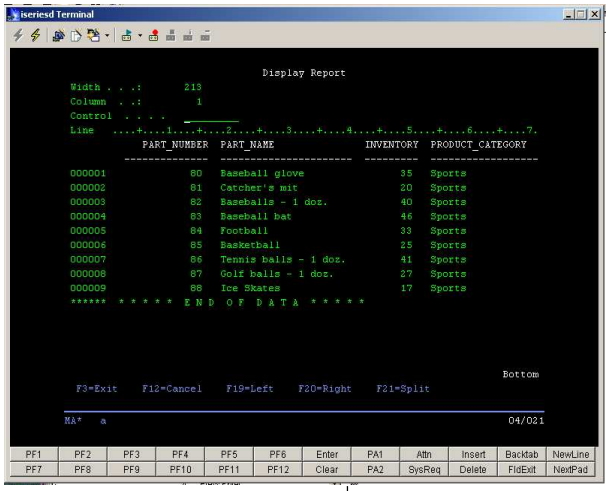


Linux on System z as Central Access Point

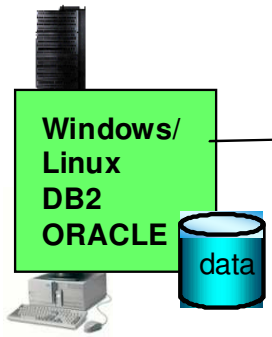
Web enable, improve interface, simplify, extend existing applications

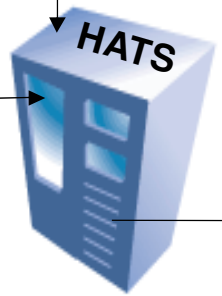


Application Integration with Host Access Transformation Services (HATS)



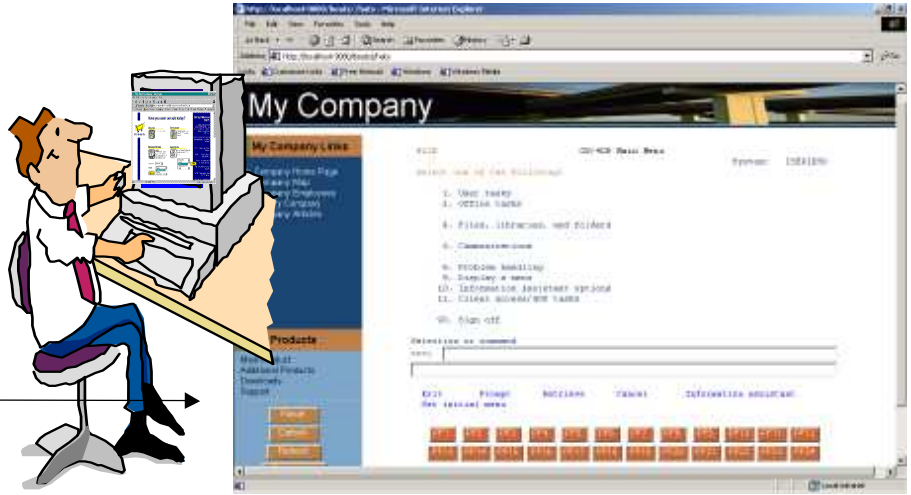
3270 or 5250
data stream





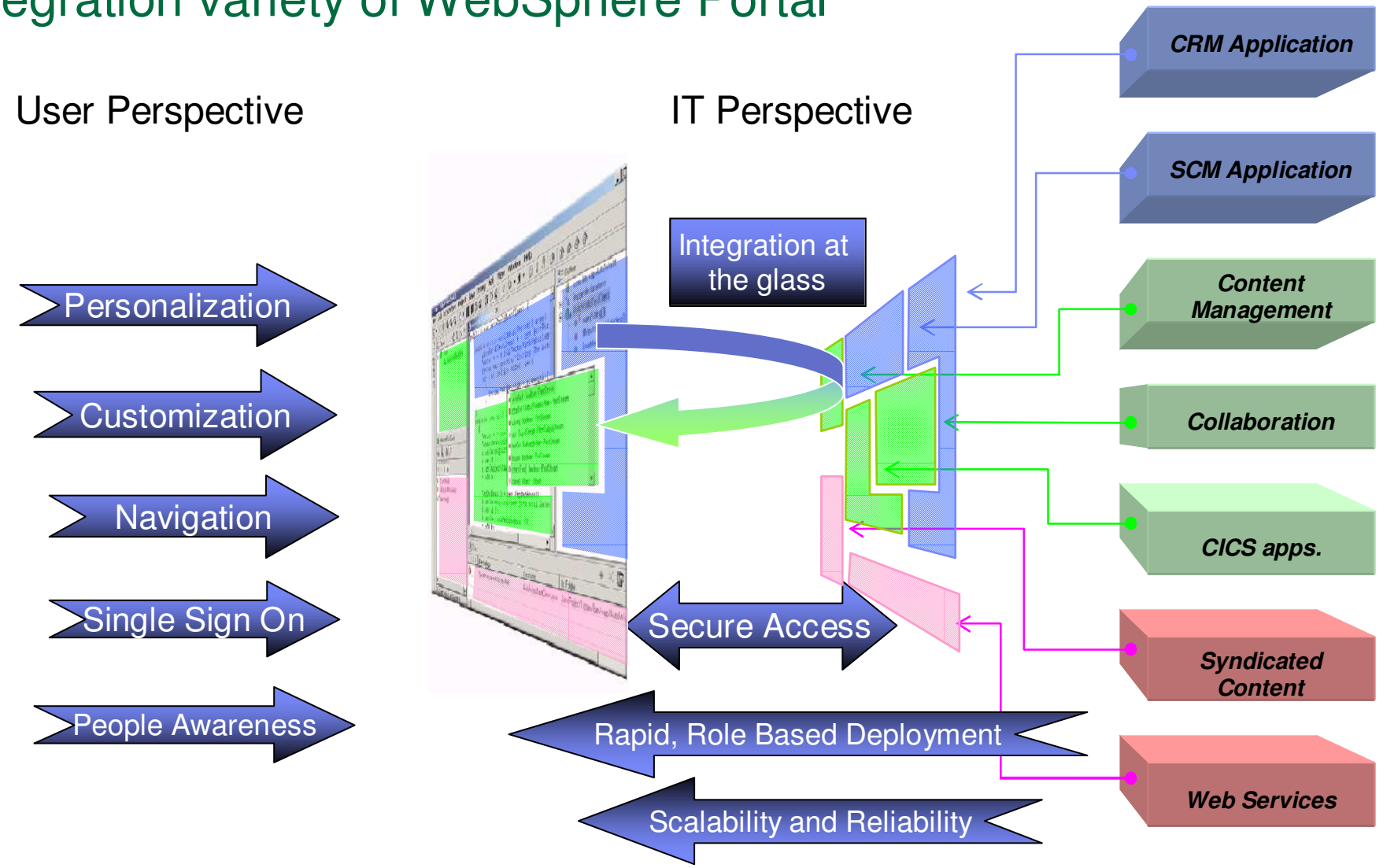
Screen transformation rules running on
WebSphere Application Server

- No software download to the client
- Converts green screens to GUI
- Integration with distributed applications
- improves ease of use of host applications
- Web Service on the fly



HTML in a Browser

Integration variety of WebSphere Portal



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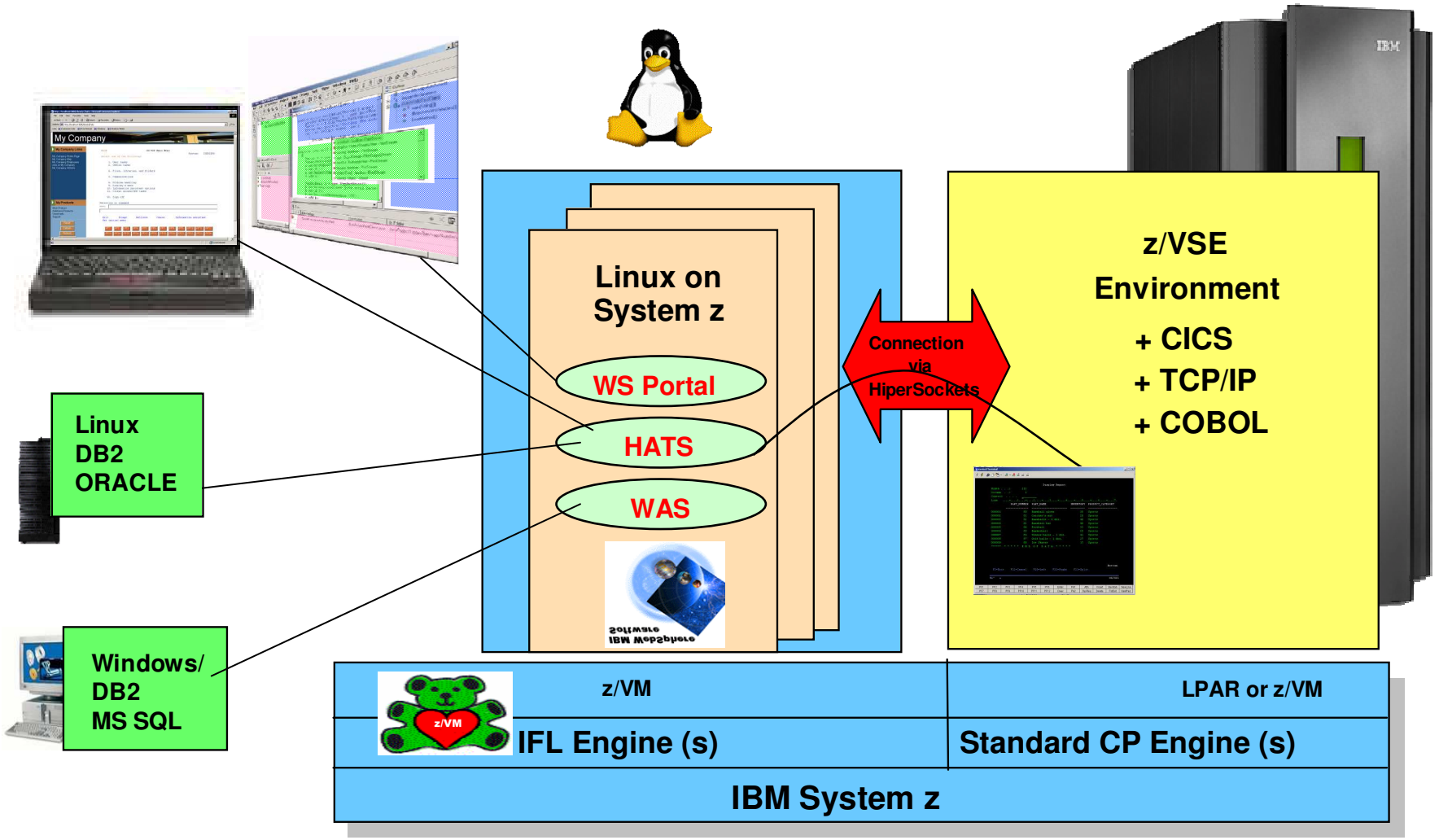
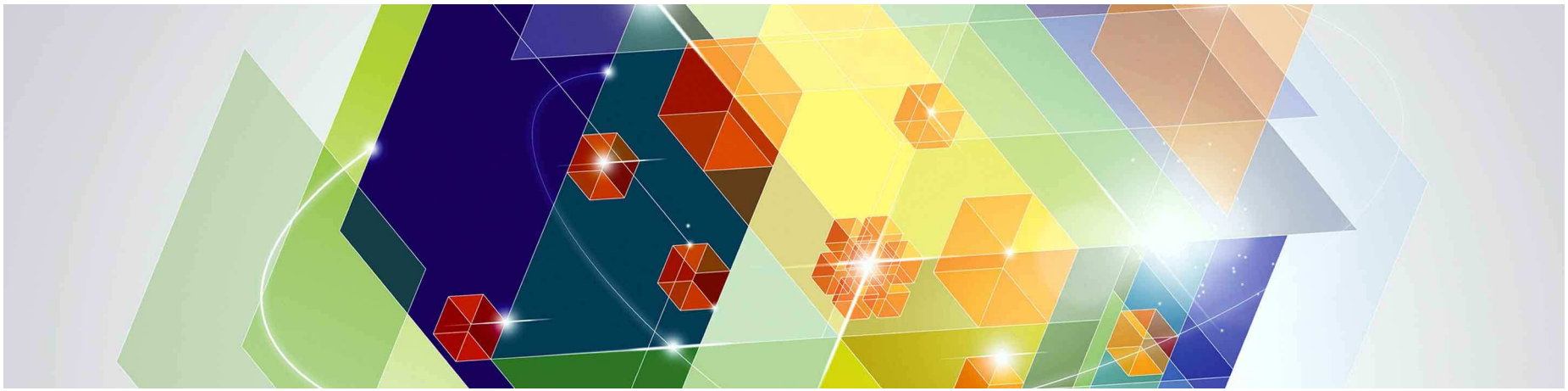
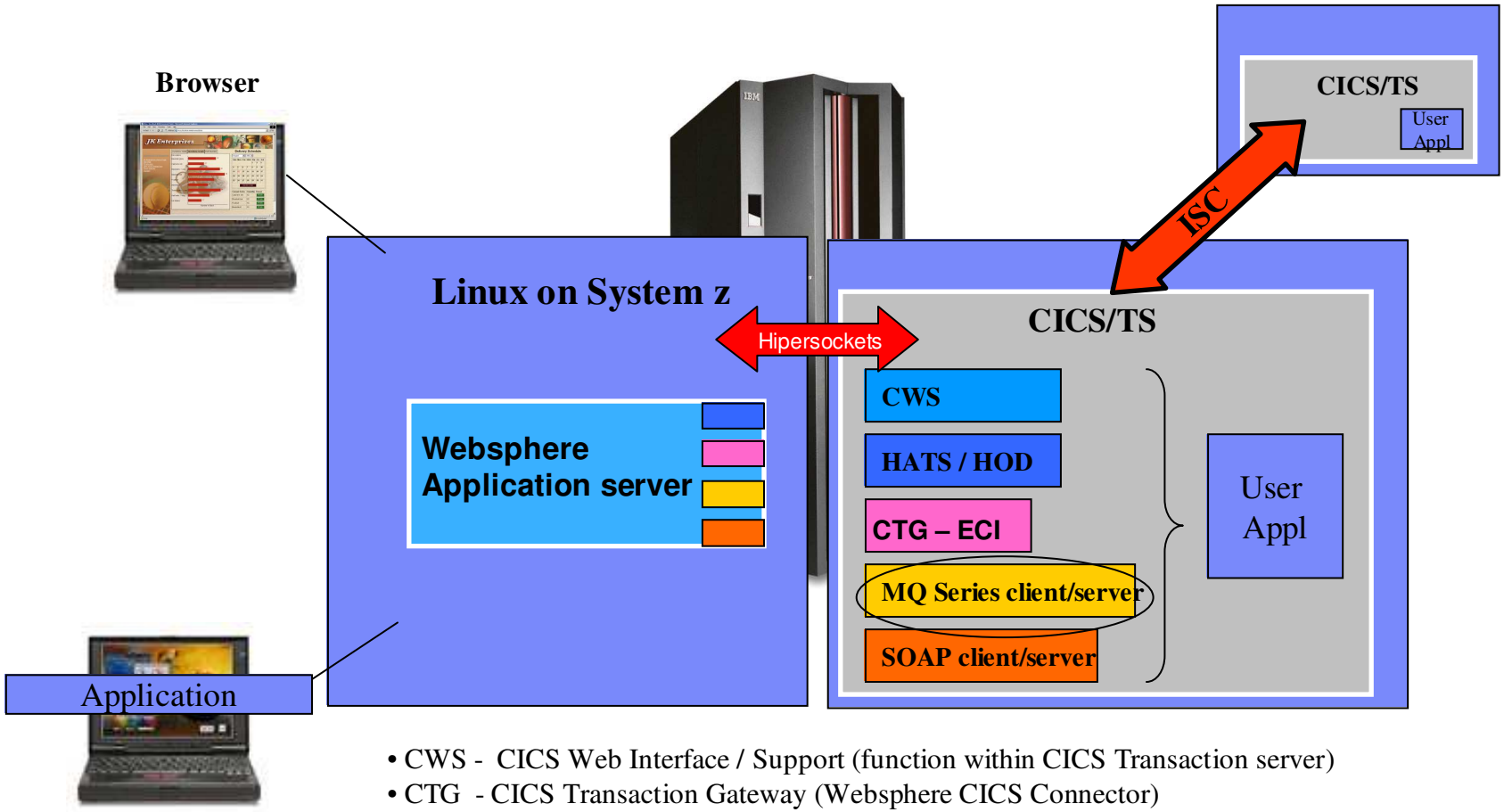


CICS workload integration with Linux on System z



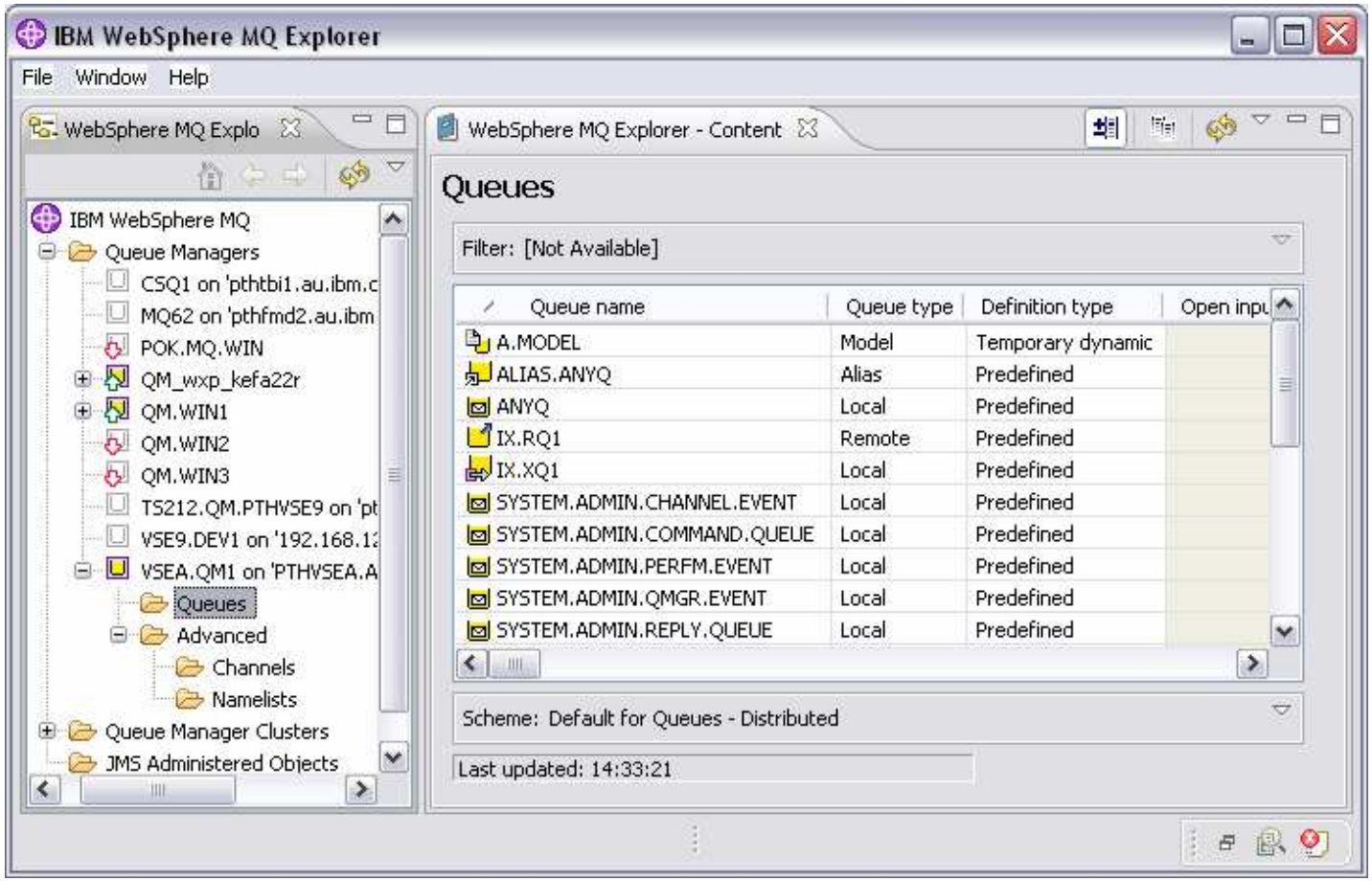
Web Integration with traditional CICS transactions



- CWS - CICS Web Interface / Support (function within CICS Transaction server)
- CTG - CICS Transaction Gateway (Websphere CICS Connector)
- HATS – Host Access Transformation Server
- HOD - Host OnDemand (Websphere Host Integrator)
- SOAP - Simple Object Access Protocol (Web Services based with XML data)

New in WMQ for z/VSE V3R0

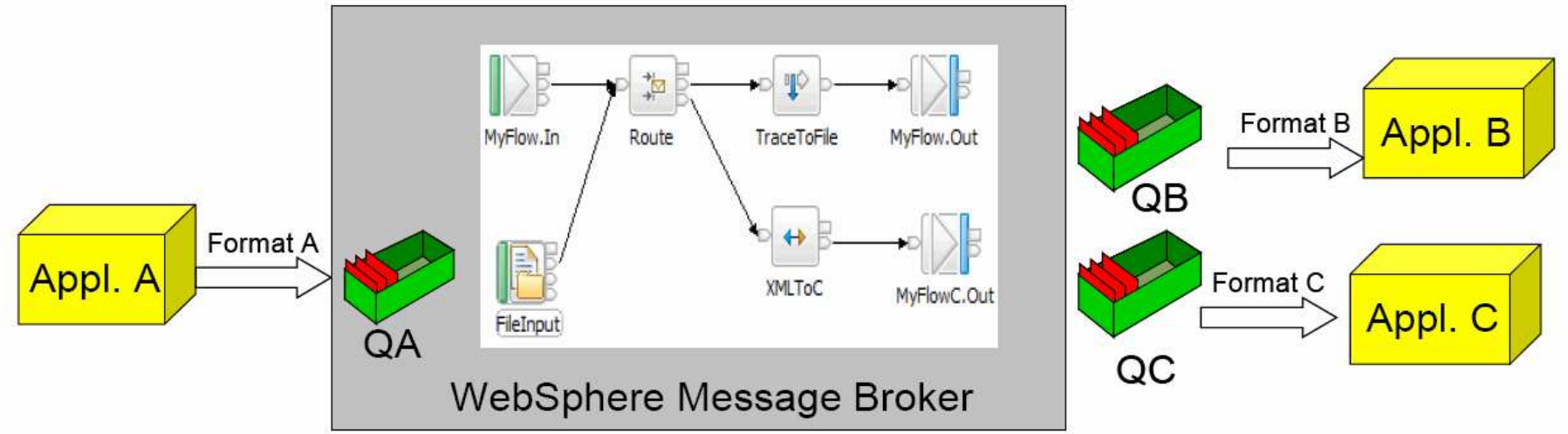
Graphical administration of WebSphere MQ for z/VSE Queues with WMQ Explorer



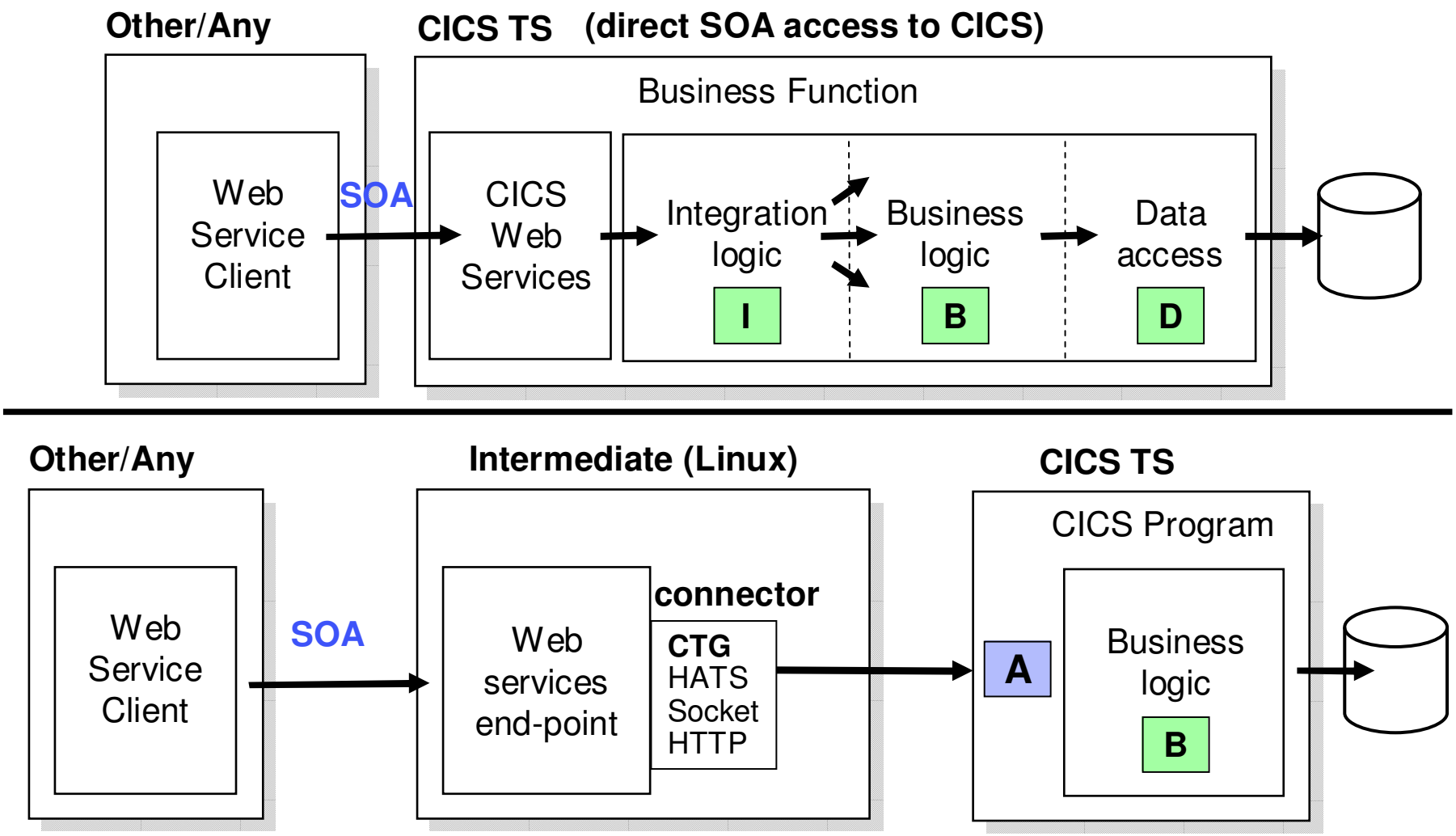
You can use Explorer to administer the z/VSE queue manager, its queues, channels and namelists, including create, delete, modify and display.

WMQ Message Broker - Workflow handling
MQ with Message Broker can be the ESB for SOA

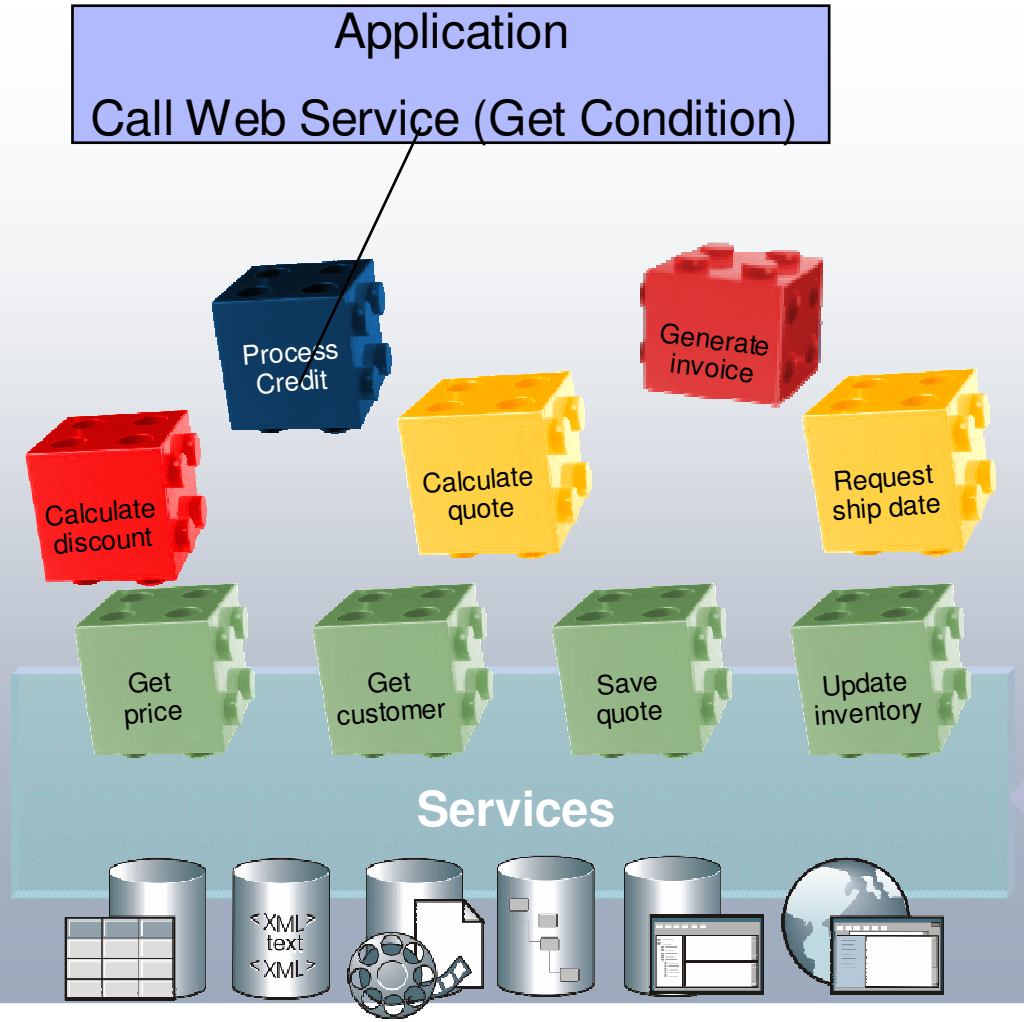
- Distributes information and data generated by business events in real time to applications, and devices throughout your enterprise and beyond.
- Using WebSphere Message Broker decouples the applications.
  - **Application A writes a message into a queue QA.**
  - **Application B reads its messages from the queue QB and application C reads its messages from the queue QC.**
  - **These applications do not have to be aware of each other and their used format. The message mediation, routing and transformation is done by the WebSphere Message**



The Two Models of SOA CICS Integration via Web Services



Integrating Logic in an SOA



Information as a service makes information more accessible, consistent, and flexible

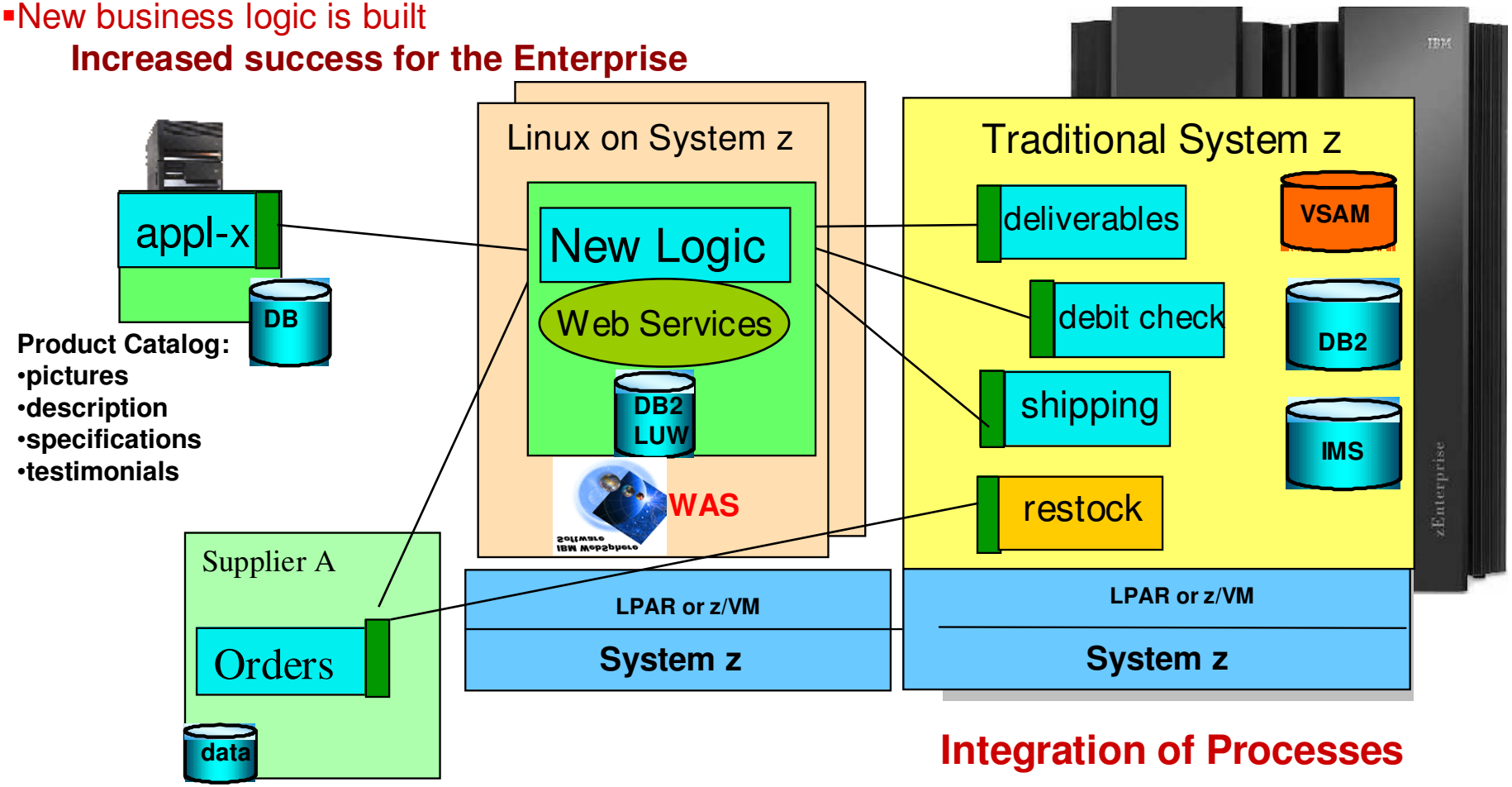
Publishing consistent, reusable services for information that make it easier for processes to get the information they need from across a heterogeneous landscape of application and data.

- Select data from sources
- Run Business logic
- Transform data to target

Service Oriented Architecture (SOA) – the way to new processes

- Applications look the same for all users
- Core applications can be enhanced with an interface
  (independent of their language, COBOL, ASM, PL/I, Java, C#)
- New business logic is built

Increased success for the Enterprise



Integration of Processes

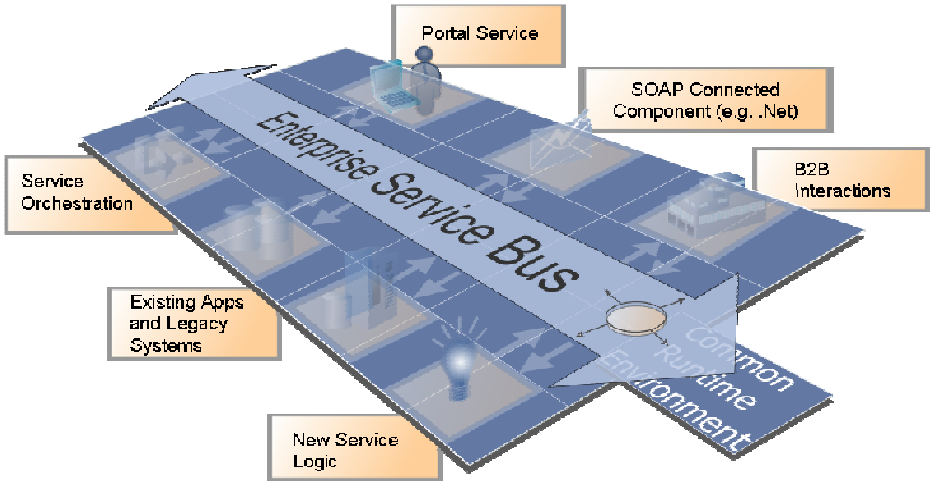
What is an Enterprise Service Bus?

An Enterprise Service Bus (ESB) is a flexible Infrastructure for services and application integration

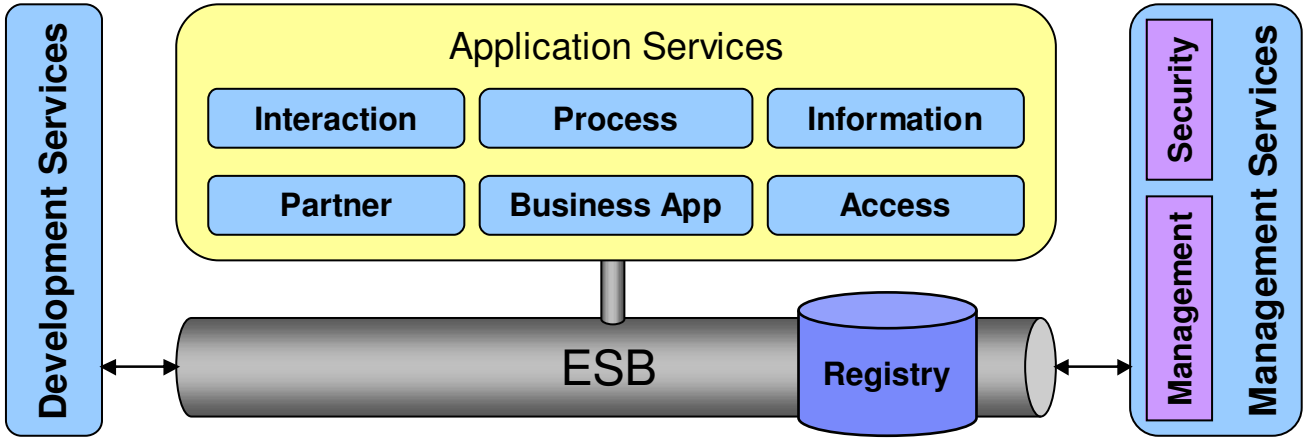
An ESB reduces the number, size and complexity of your interfaces in a SOA solution.

An ESB realizes following tasks between requestor und service

- **ROUTING of messages between Services**
- **CONVERTING the transport protocol between requestor and service**
- **TRANSFORMING message formats between requestor and service**
- **HANDLING of business events between different types of services**



An Enterprise Service Bus (ESB) -centric view of the Logical Model



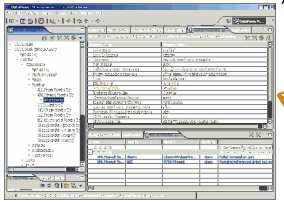
- **Outside ESB**
  - Business Logic (Application Services)
    - ESB ***does*** contain integration logic or connectivity logic
    - Criteria: semantics versus syntax; aspects
- **Loosely coupled to ESB**
  - Security and Management
    - Policy Decision Point outside the ESB
    - ESB can be Policy Enforcement Point
- **Tightly coupled to ESB**
  - Service Registry
    - Registry a Policy Decision Point for ESB
    - ESB a Policy Enforcement Point for Registry
    - But, Registry has a broader scope in SOA
- **Tooling required for ESB**
  - Development
  - Administration
  - Configures ESB via Service Registry

More details at: http://www.ibm.com/developerworks/library/ar-esbpat1/

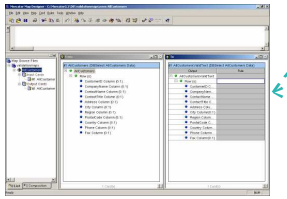
Integrated SOA Tooling Across ESB Runtime

All 3 ESBs integrate with Eclipse, WTX, ITCAM for SOA and WSRR

Legacy Mapping Tool:
WebSphere TX
(Transformation Extender)

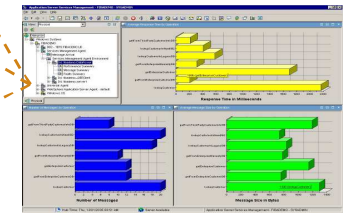


Development Tools:
Eclipse/RAD/RDz



SOA Registry:
WSRR

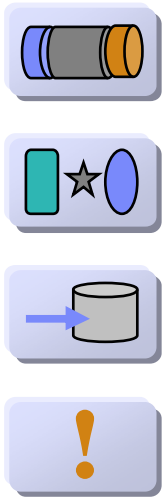
SOA Management:
ITCAM for SOA



Integration Appliance XI50

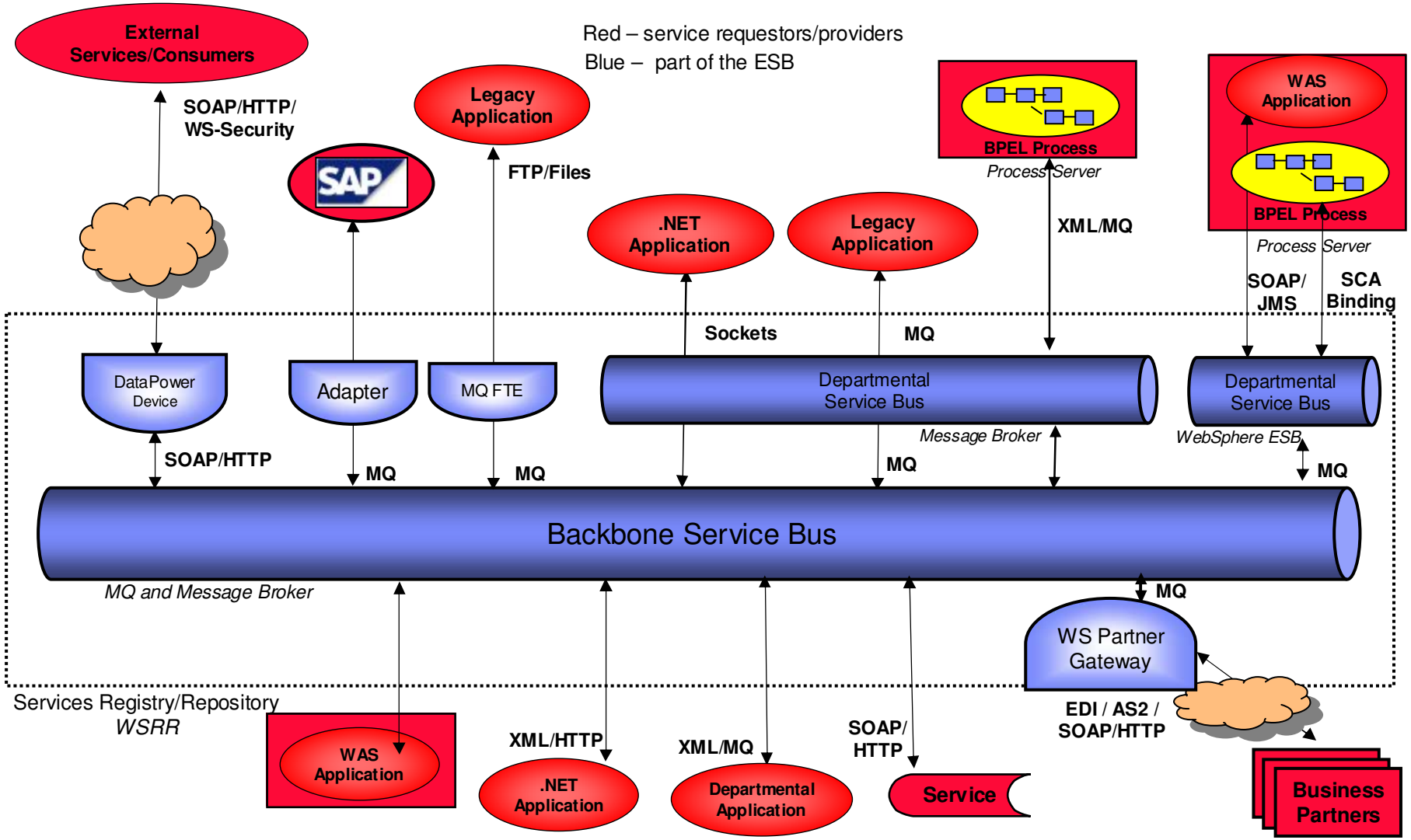
Purpose-built hardware for Enterprise Service Bus functionality

- SOA Integration / ESB Message Enrichment / Web Service virtualization for legacy applications
- Enforce high levels of security independent of protocol or payload format
- Integrate with enterprise monitoring systems
- Service level management options to shape traffic

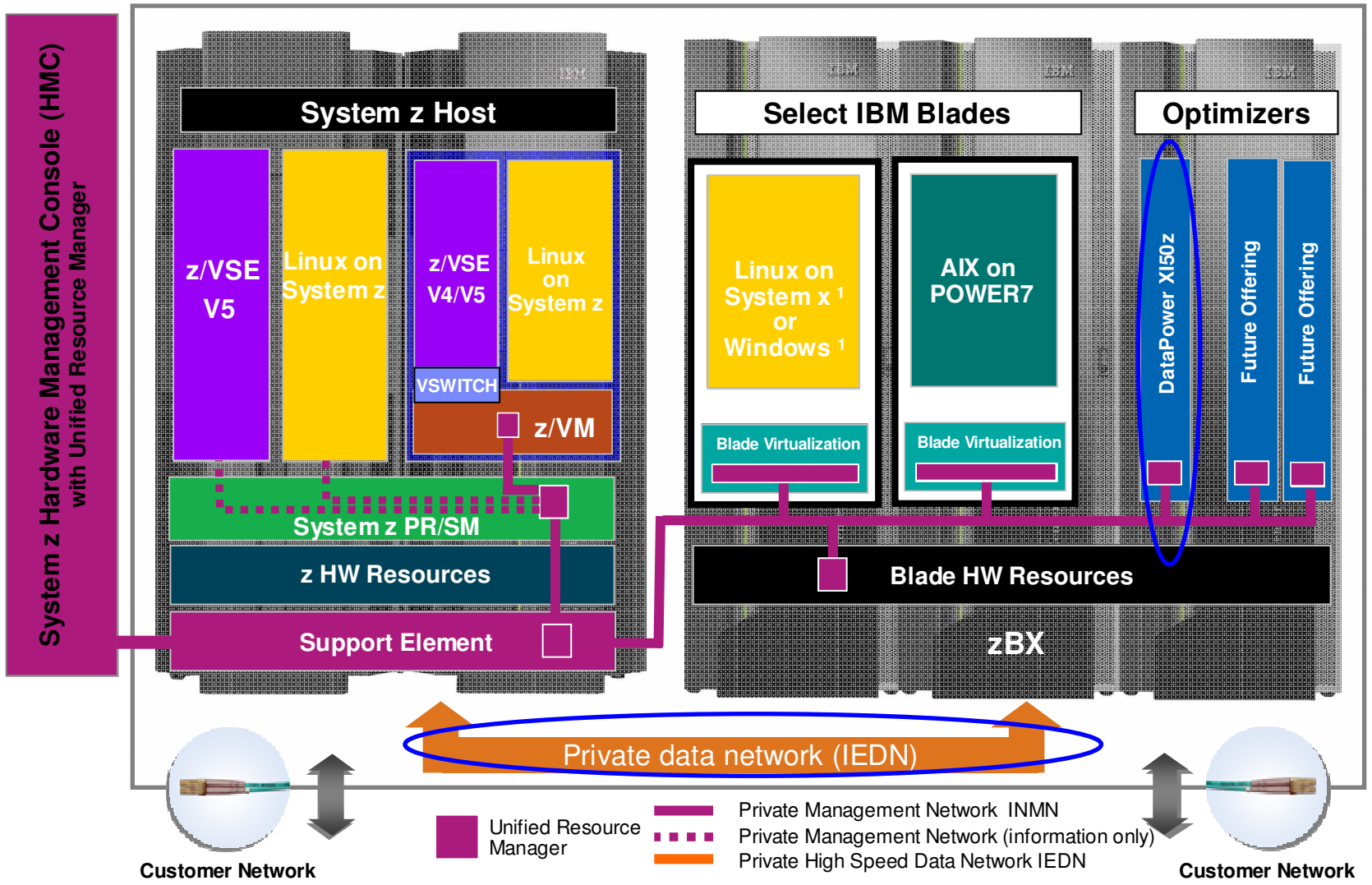


- Advanced protocol-bridging seamlessly supports a wide array of transports, including HTTP, WebSphere MQ, WebSphere JMS, Tibco EMS, FTP, NFS, et al.
- Any-to-any “DataGlue” engine supports XML and Non-XML (Binary) payloads, promoting asset reuse and enabling integration without coding
- Direct database access enables message-enrichment and data-as-a-service messaging patterns (DB2, Oracle, MS-SQL, Sybase)
- High performance architecture creates low-cost, easily-scalable ESB solution for Smart SOA needs

Example of Federated ESB



The SOA ESB with Datapower in zEnterprise connecting via IEDN to z/VSE



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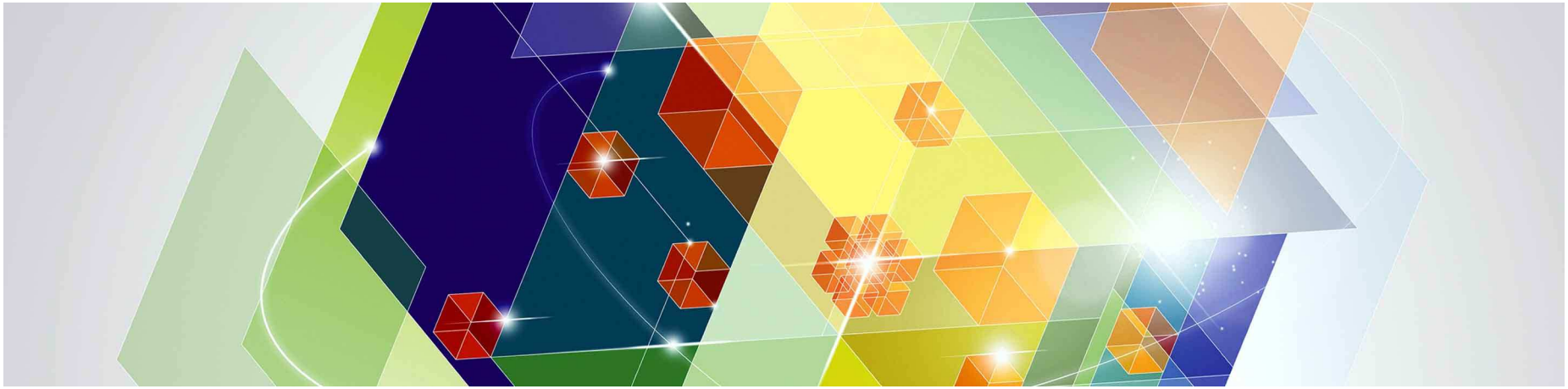
Security and Network balance with zEnterprise



z/VSE V5 Strategy with zEnterprise - More options, highly integrated

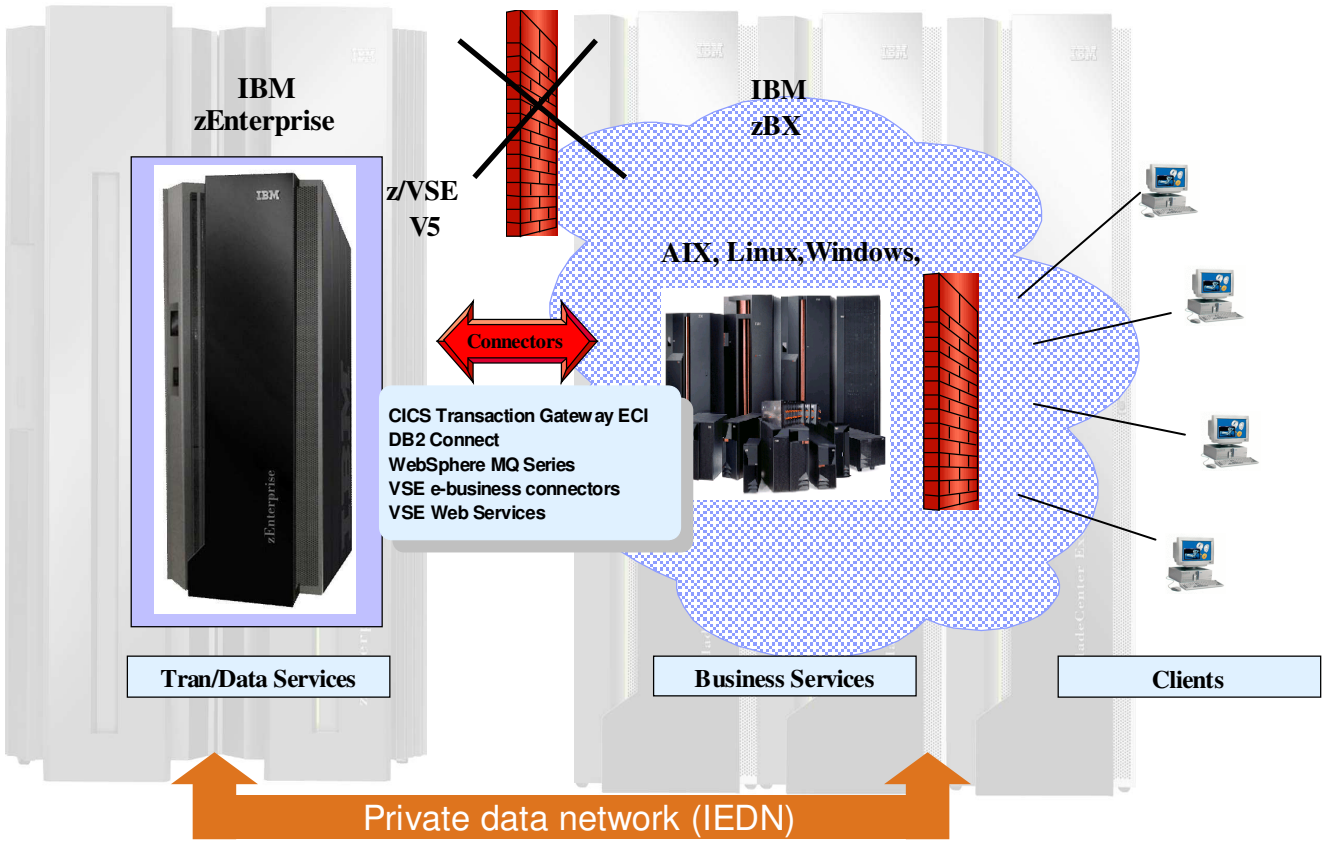
Accelerators with zBX

- DNS Server
- Network filtering
- Work balancer
- Edge Server
- z/VSE LDAP security integration

➢Uses the internal IEDN network.

➢No need for additional security to z/VSE

➢use standard Intel based software

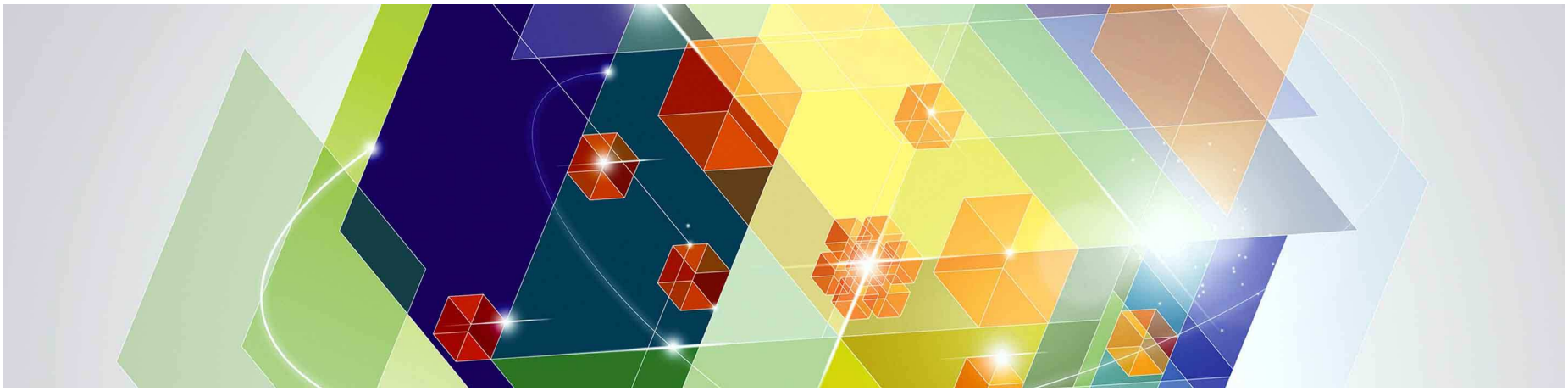


Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

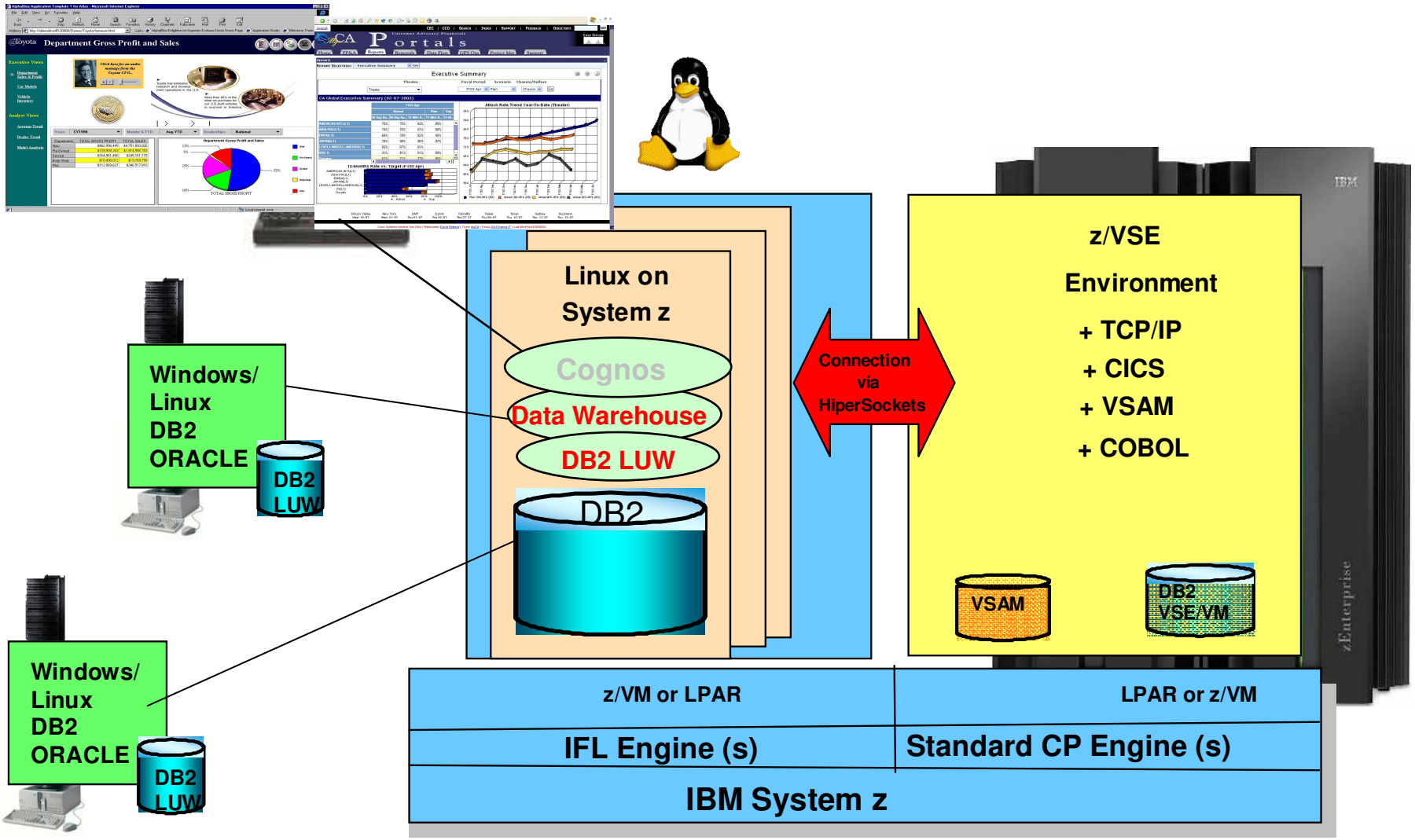
Extend with zBX or with Linux on z to access new applications & solutions

Data Warehouse and BI Solutions with Linux on System z



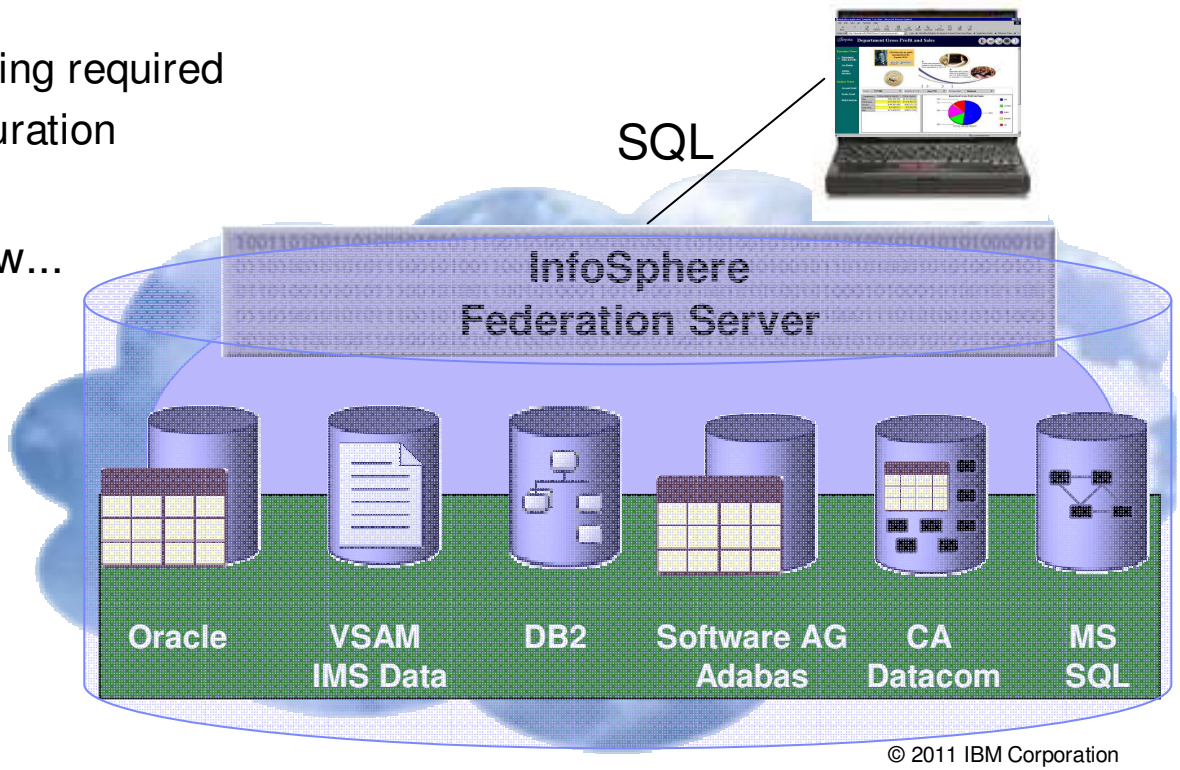
Data Warehouse and BI with Linux on System z

Consolidate, Integrate, Evaluate, Decide, Base for Business Intelligence (BI)

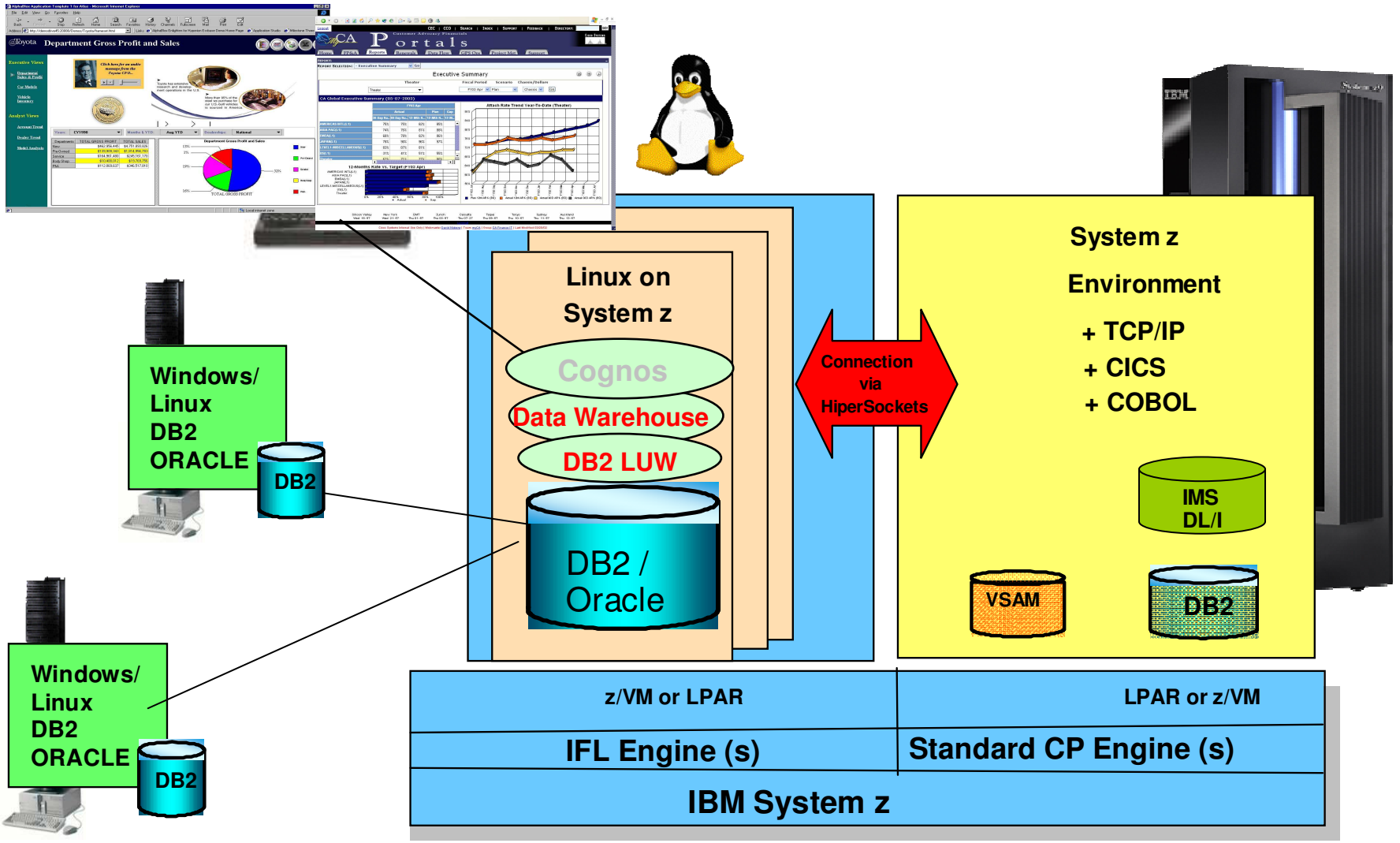


InfoSphere Federation Server on Linux on System z

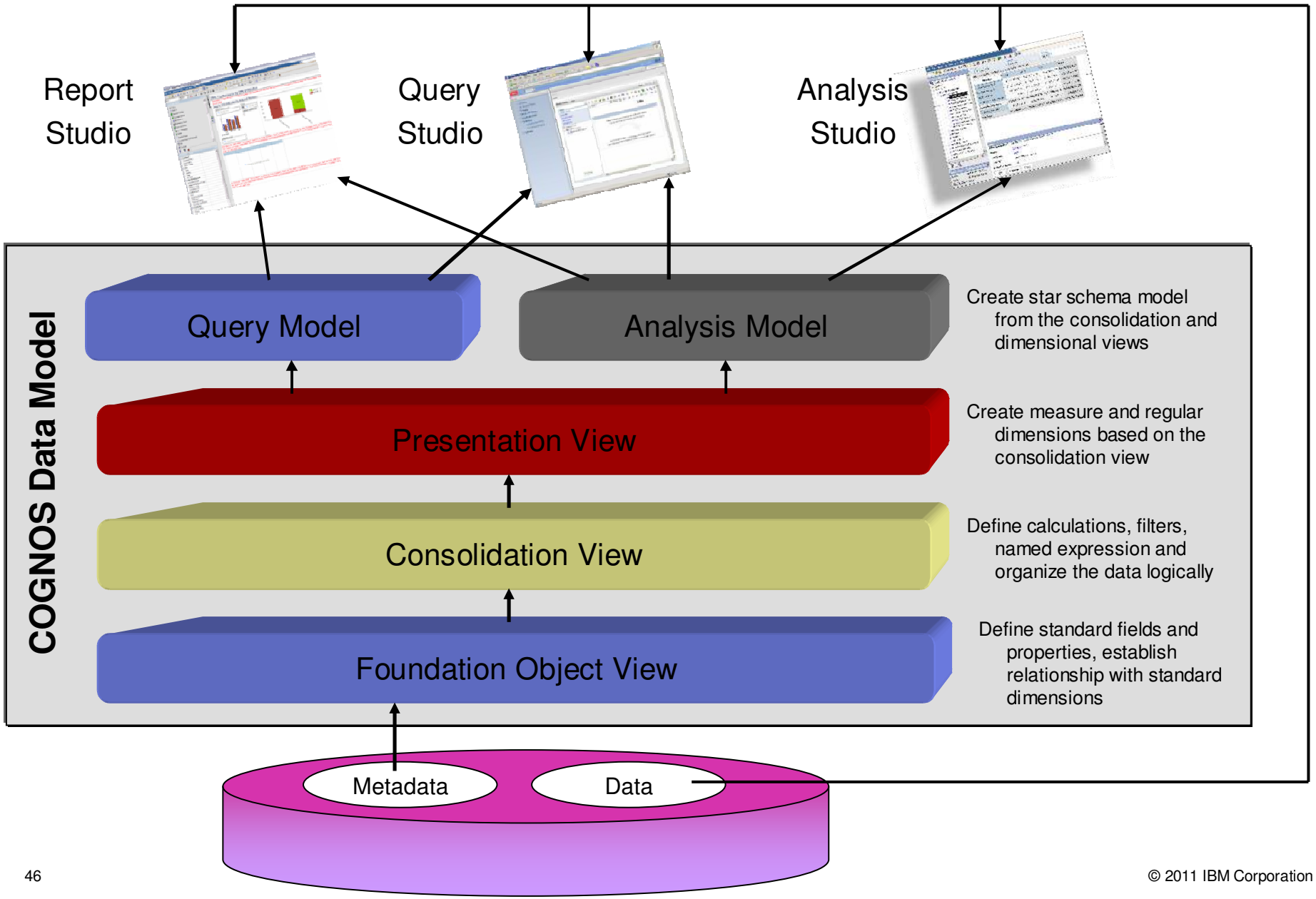
- **Integrating at the data layer – Federation of data**
  - Read from and write to federated mainframe data sources using SQL
  - Standards-based access via JDBC, ODBC, or Call Level Interface
    - Including for mainframe VSAM data and flat files
  - Multithreaded with native drivers for scalable performance
  - Metadata-driven means...
    - No mainframe programming required
    - Fast installation & configuration
    - Ease of maintenance
  - Works with existing and new...
    - Mainframe infrastructure
    - Application infrastructure
    - Toolsets



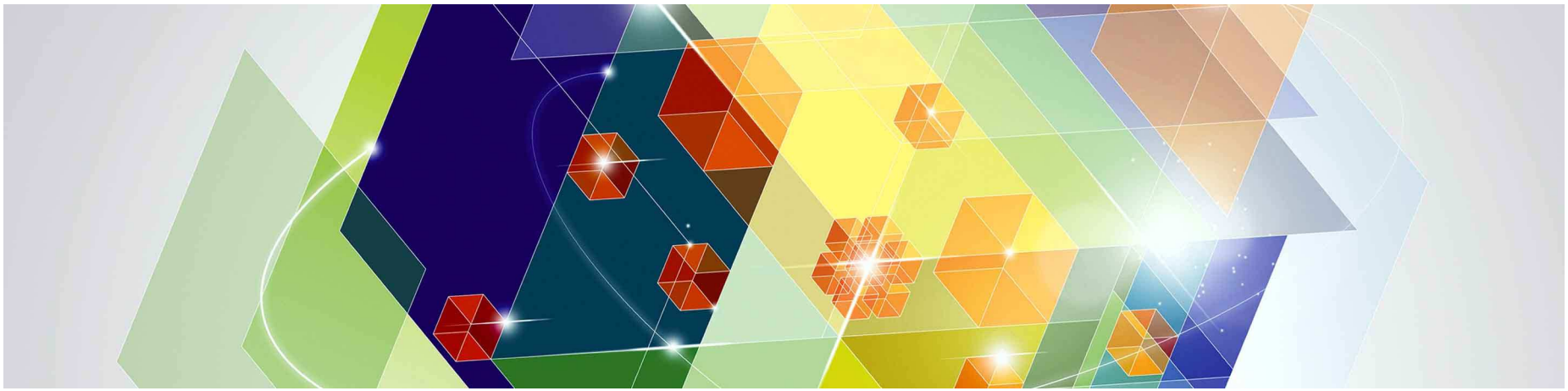
Integrate, Consolidate, Evaluate, Decide,
Explore Business Intelligence (BI)



COGNOS Model Elements



Collaboration and phone integration with Linux on System z



Lotus Domino – more than just Mail server

Choose your Client: Lotus Notes (Windows, Linux und Mac), Domino Web Access, POP3/IMAP, Mobile Devices, MS Outlook

Mail Server

Web Server

Directory Server

Collaboration Server

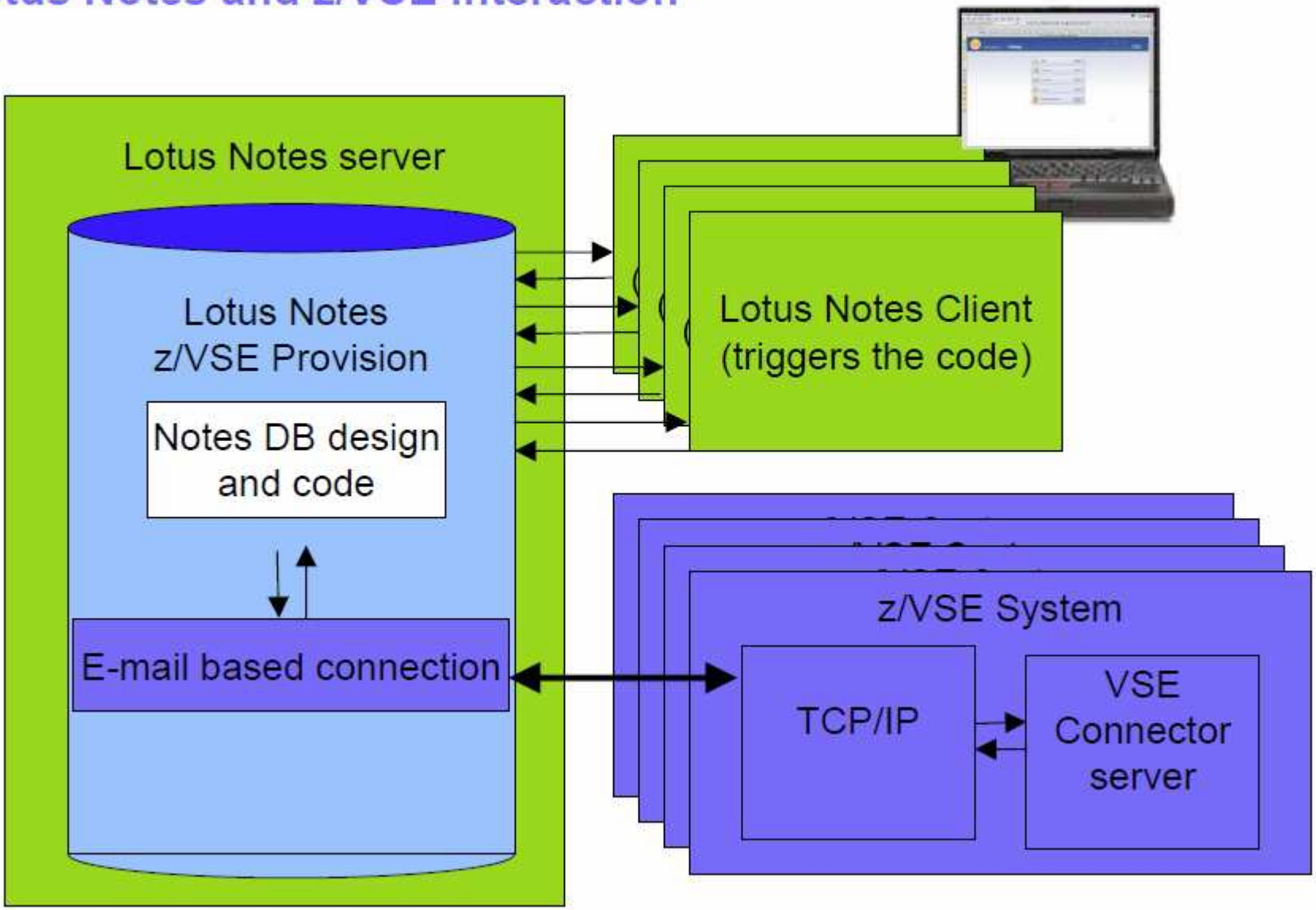
Application Server

Development Tools

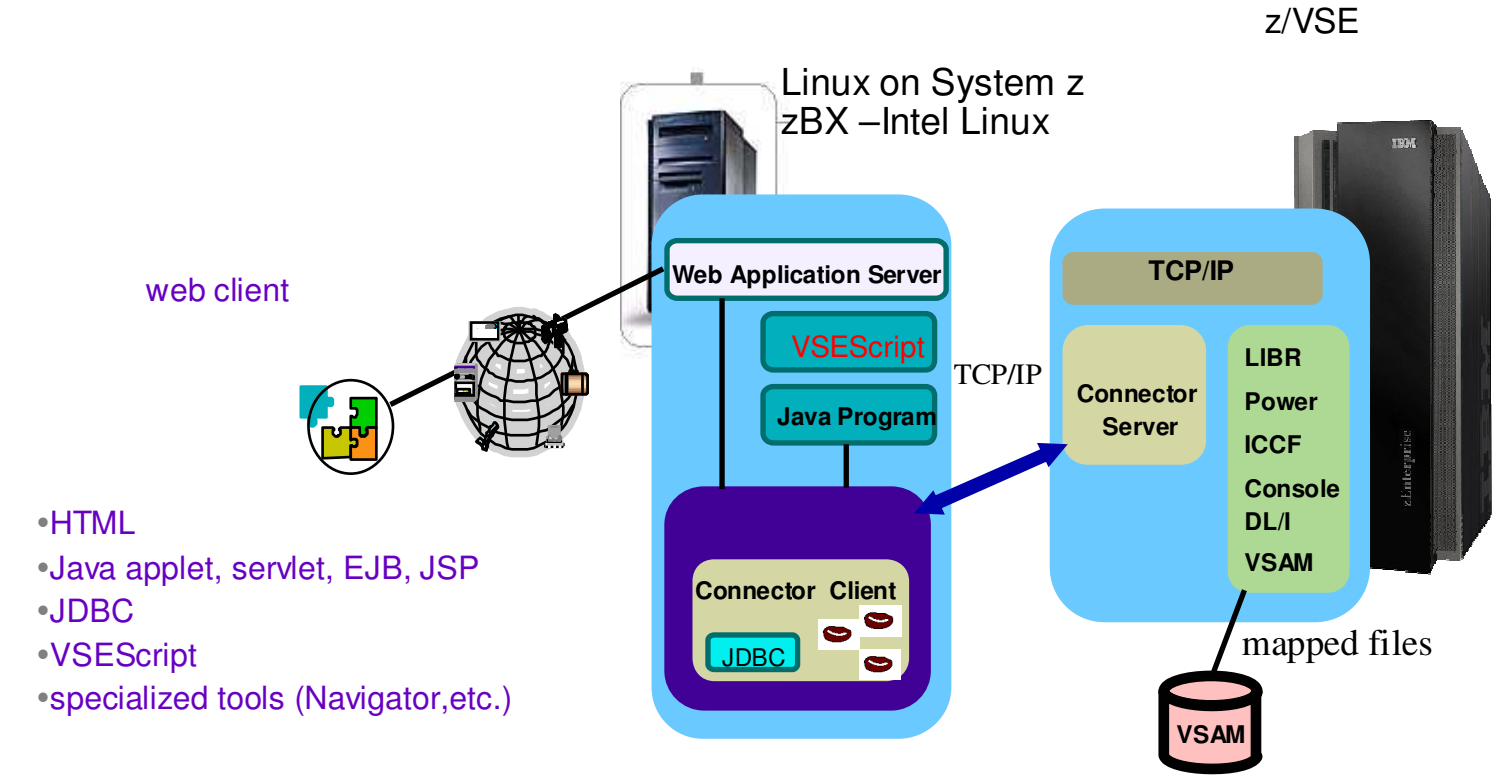
Integrated Administration, Statistics and Events, Monitoring

Running on different platforms:
IBM AIX, IBM OS400, IBM zOS, Linux, Microsoft Windows, Sun Solaris

Lotus Notes and z/VSE interaction

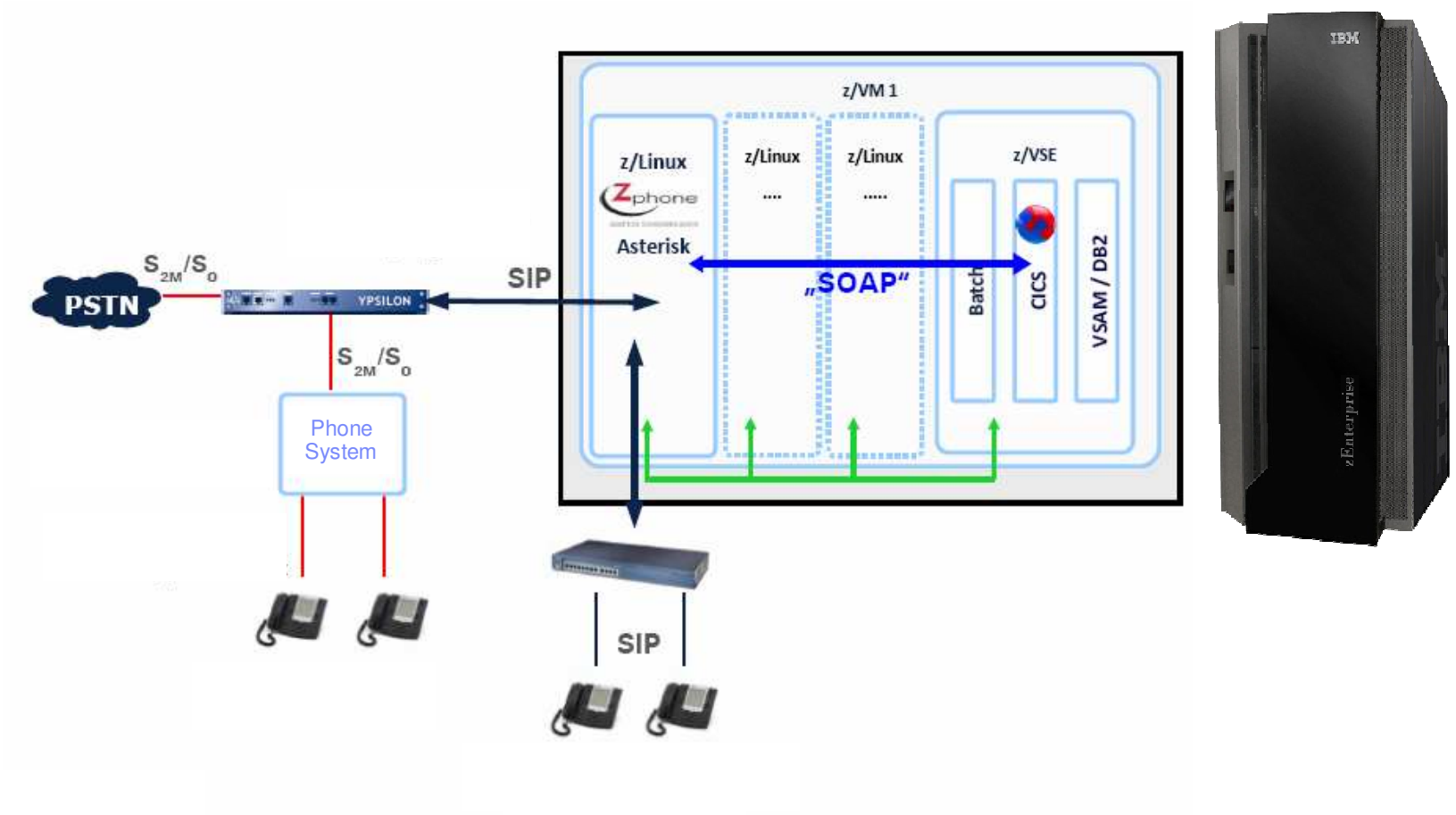


Real time access to VSE resources using the Java–Based Connector (feature included in z/VSE)



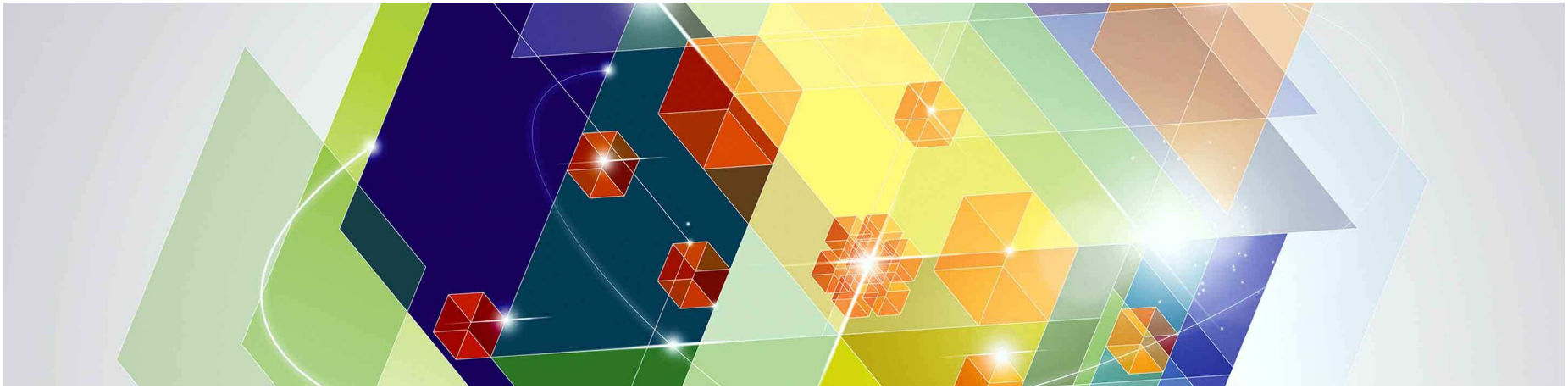
- real time access to VSE resources from remote systems
- new possibilities for leveraging the VSE investment

IBM System z – the next generation **voice** Hub!
– more than a simple Phone Server
„Asterisk® is the world's leading open source telephony engine and tool kit"



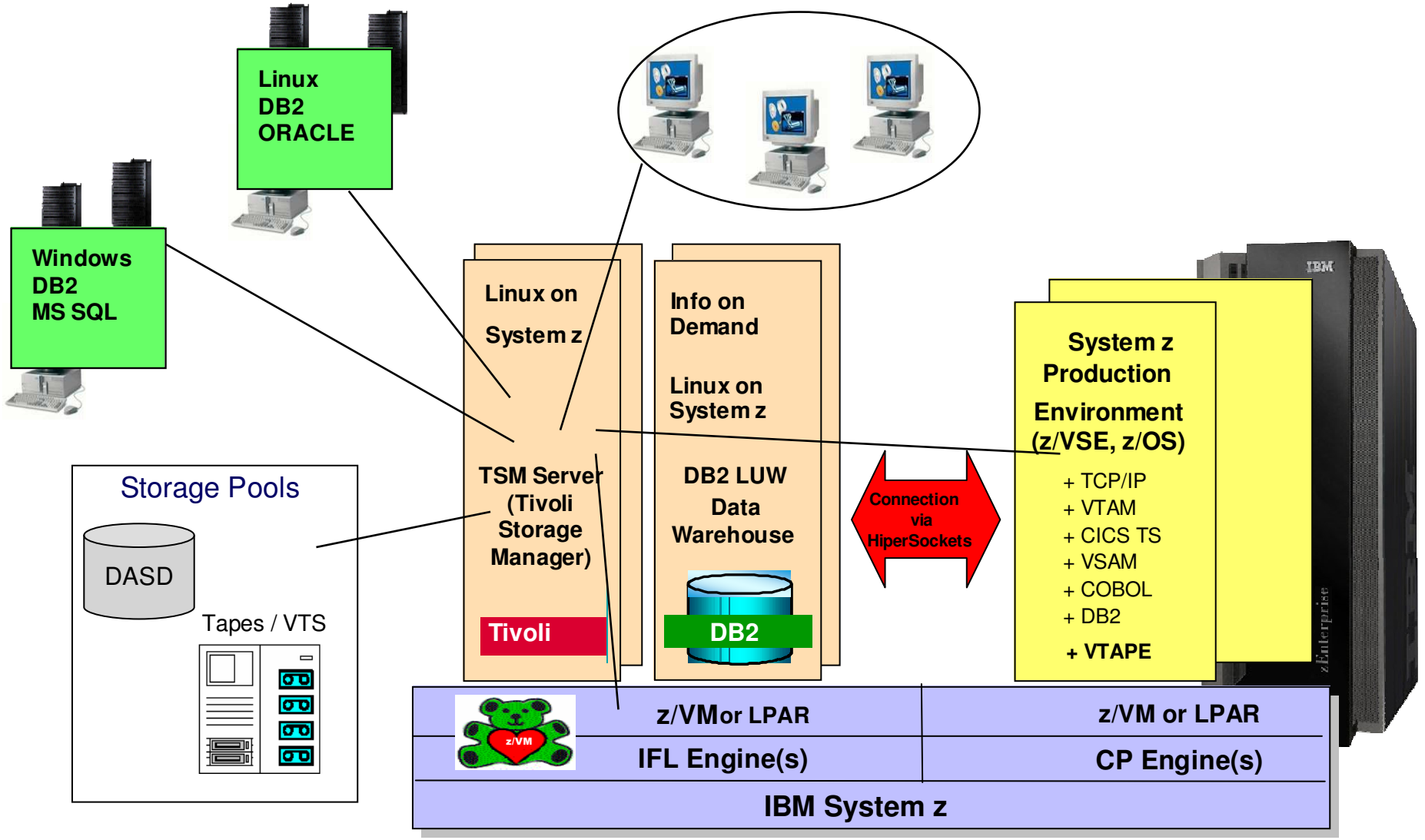
(http://www.asterisk.org/support/about)

Enterprise Backup
and z/VSE Virtual Tape support



Enterprise Backup with Linux on System z

Implement TSM on Linux on System z as central Backup Hub



z/VSE 5.1 – System Storage Support – D/R

Virtual Tape Library TS7700

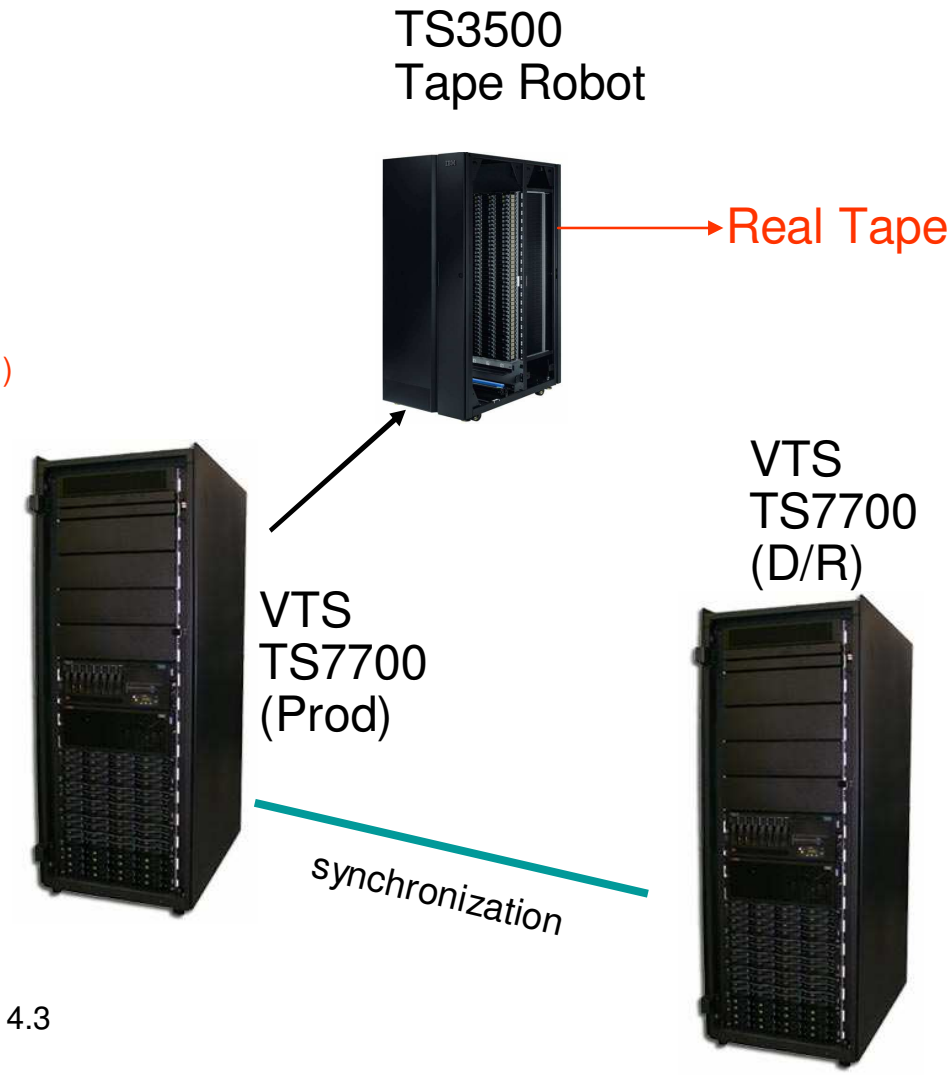
Tape Library : logical

TS7700 Virtualization Engine

Standalone System support only in z/VSE (GRID in z/VSE 5.1)

TS7740 Virtualization Engine (TS3500 can be attached)

- Maximum of 256 virtual drives (3490E) and 1,000,000 virtual volumes
- Web-based management tools
- up to 6 TB native tape volume cache
- Supports TS1120 / TS1130 tape drive-based encryption
- Supports logical WORM (write once read many) , in z/VSE 4.3
- New: z/VSE 5.1 Copy Export support – for Real Tape archiving)

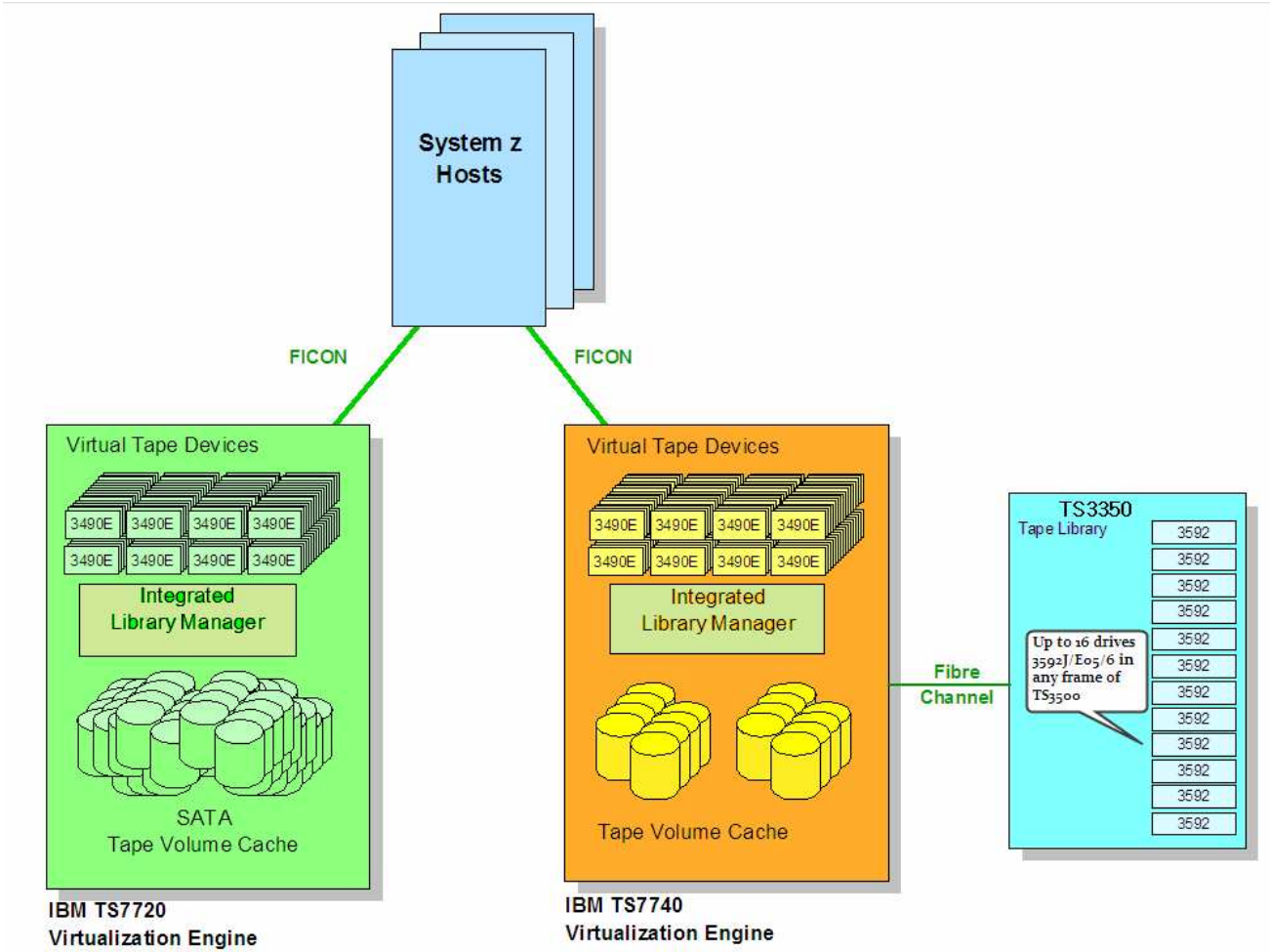


z/VSE – System Storage Support

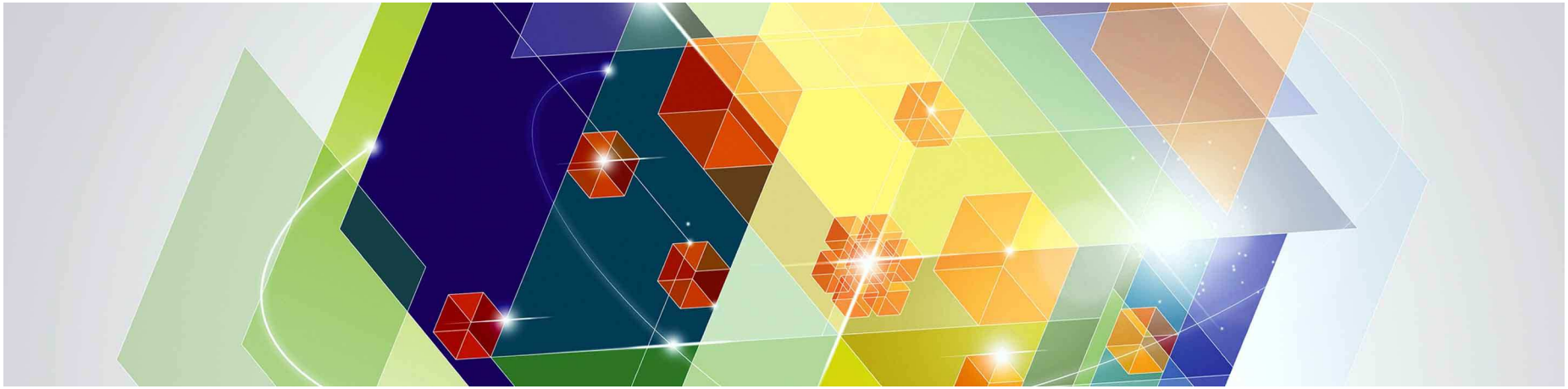
TAPE

Tape Library :

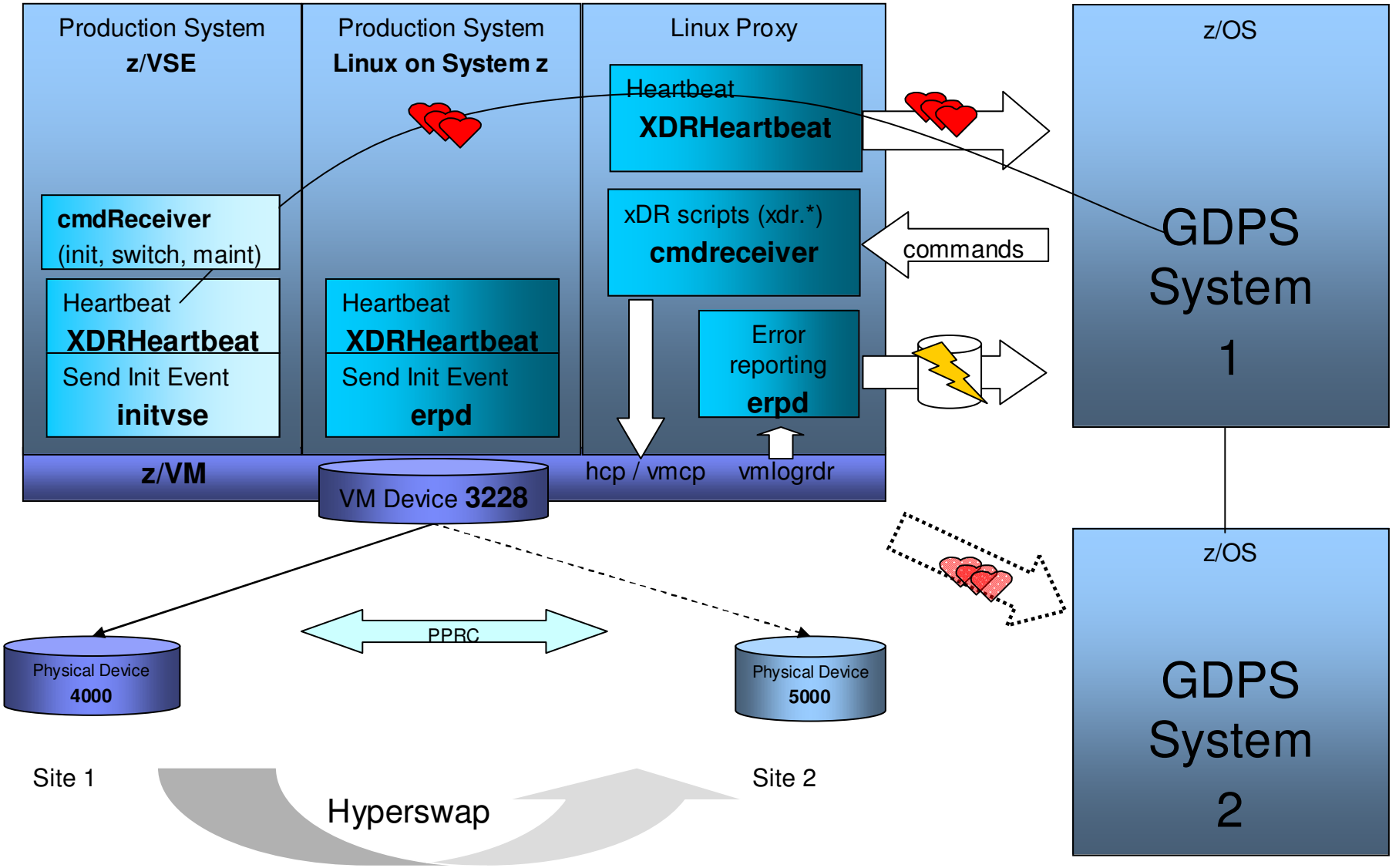
TS7700 Virtualization Engine



Extended Disaster Recovery (xDR) with z/VM and Linux on System z



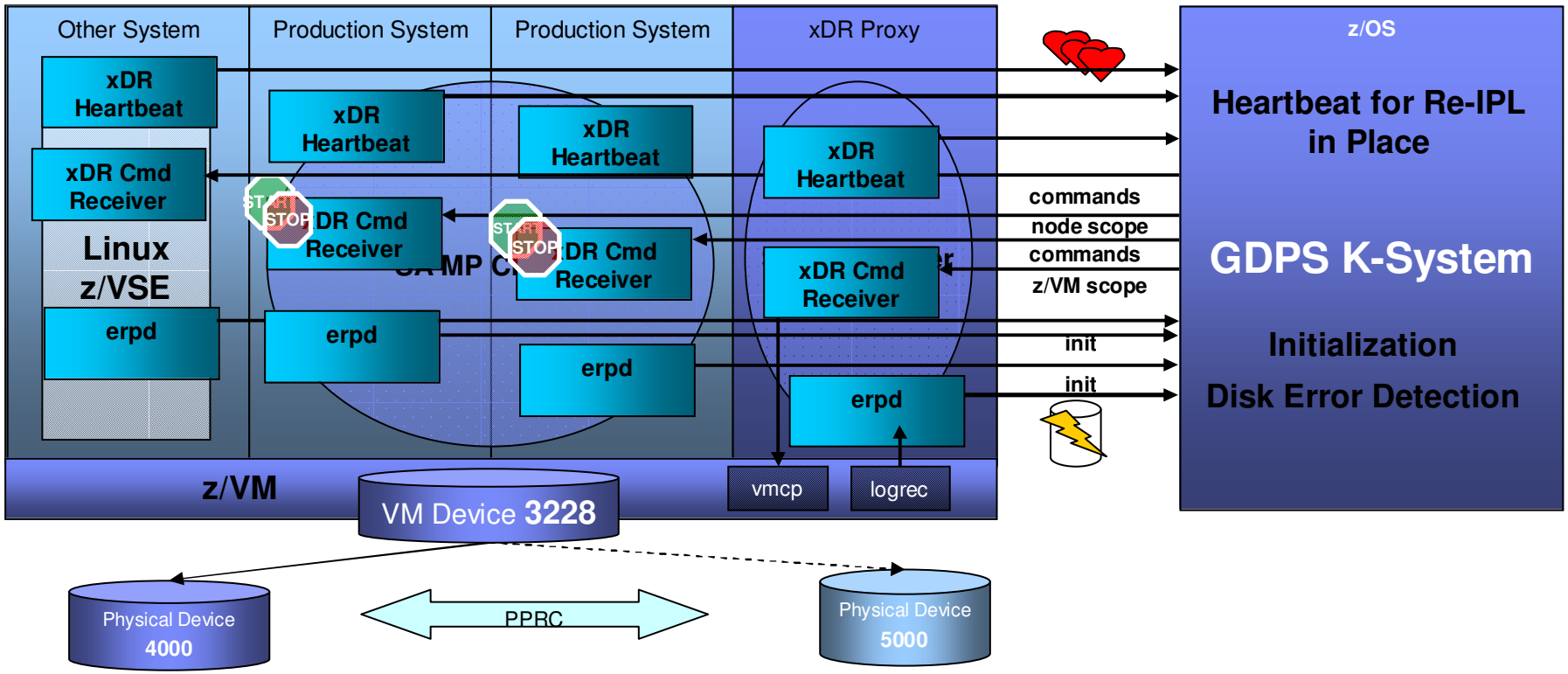
xDR Support for z/VSE as active guest under z/VM



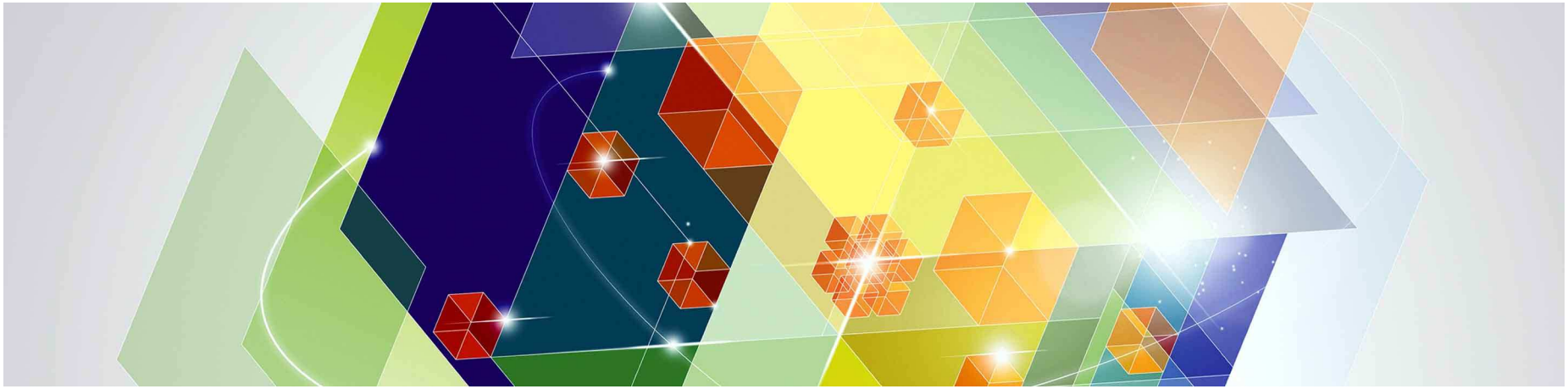
GDPS and xDR with z/VM guests – High availability

- Proxy
  - One linux system is configured as Proxy for GDPS which has special configuration
    - (Memory locked, Access rights to VM, One-Node-Cluster)
  - Is used for tasks that have z/VM scope
    - HyperSwap, shutdown z/VM, IPL z/VM guest

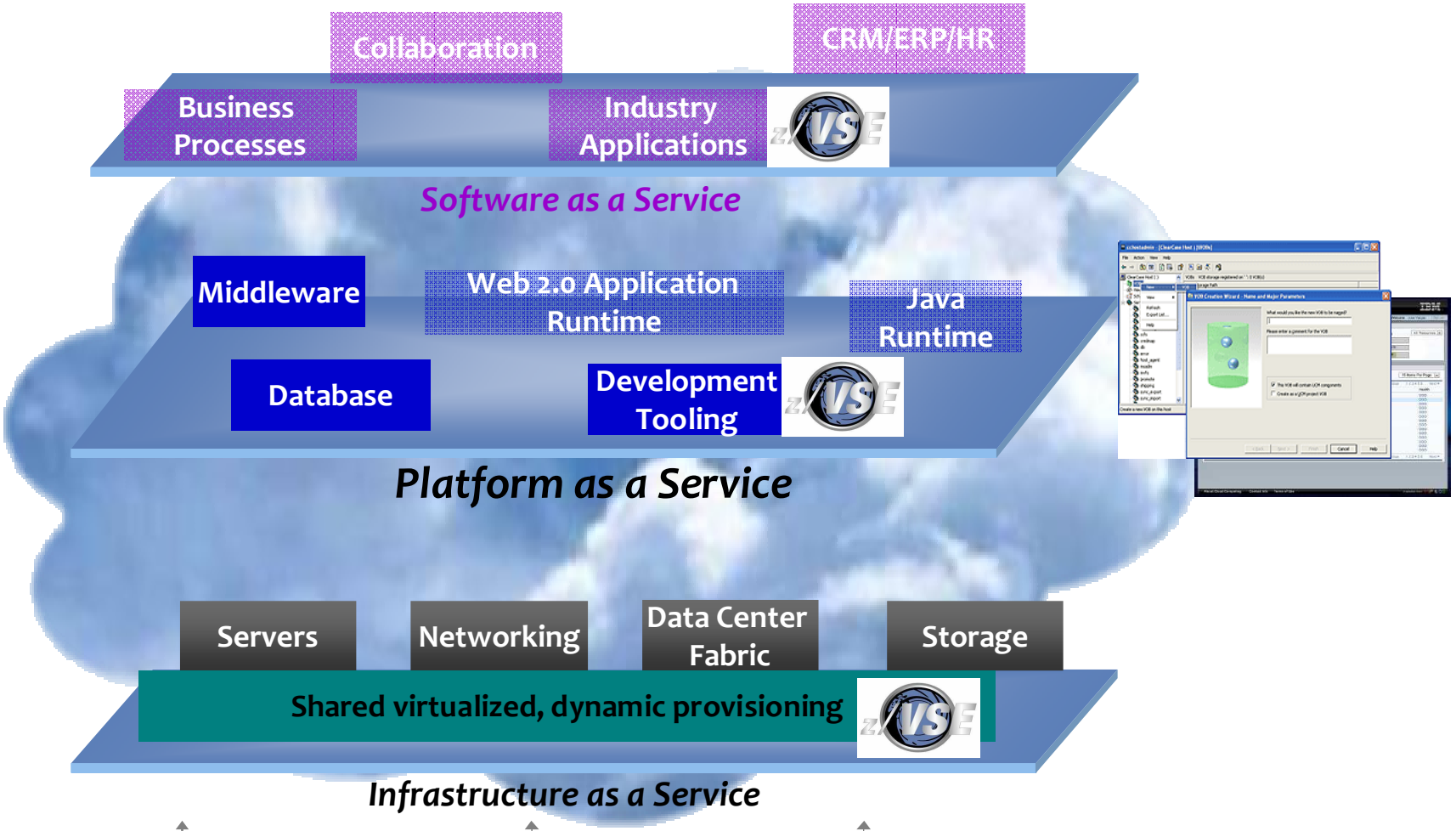
- Production Nodes
  - Run Linux Workload
  - Are used for local actions (Shut down node, Maintenance Mode)
- Other Systems
  - Enabled for HyperSwap via xDR Proxy (Linux, z/VSE)
  - No re-IPL in place, no start/stop via GDPS (init, reipl, maint)



Cloud Computing
concepts with zEnterprise and z/VSE

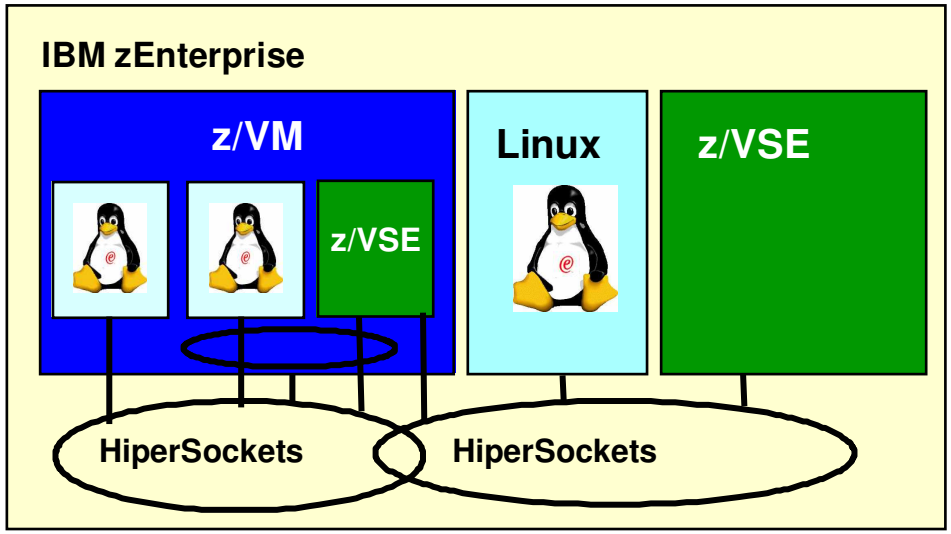


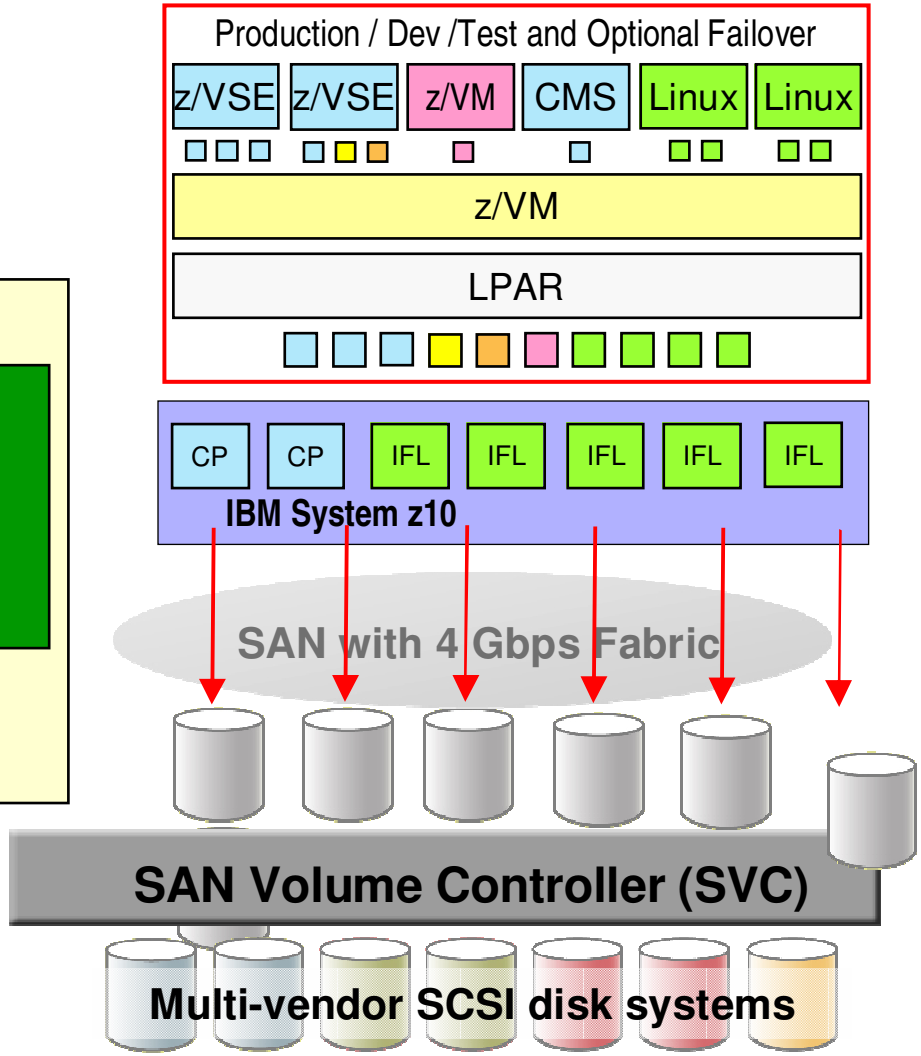
Cloud Computing environments with z/VSE –
Infrastructure, Platform or Software as a Service



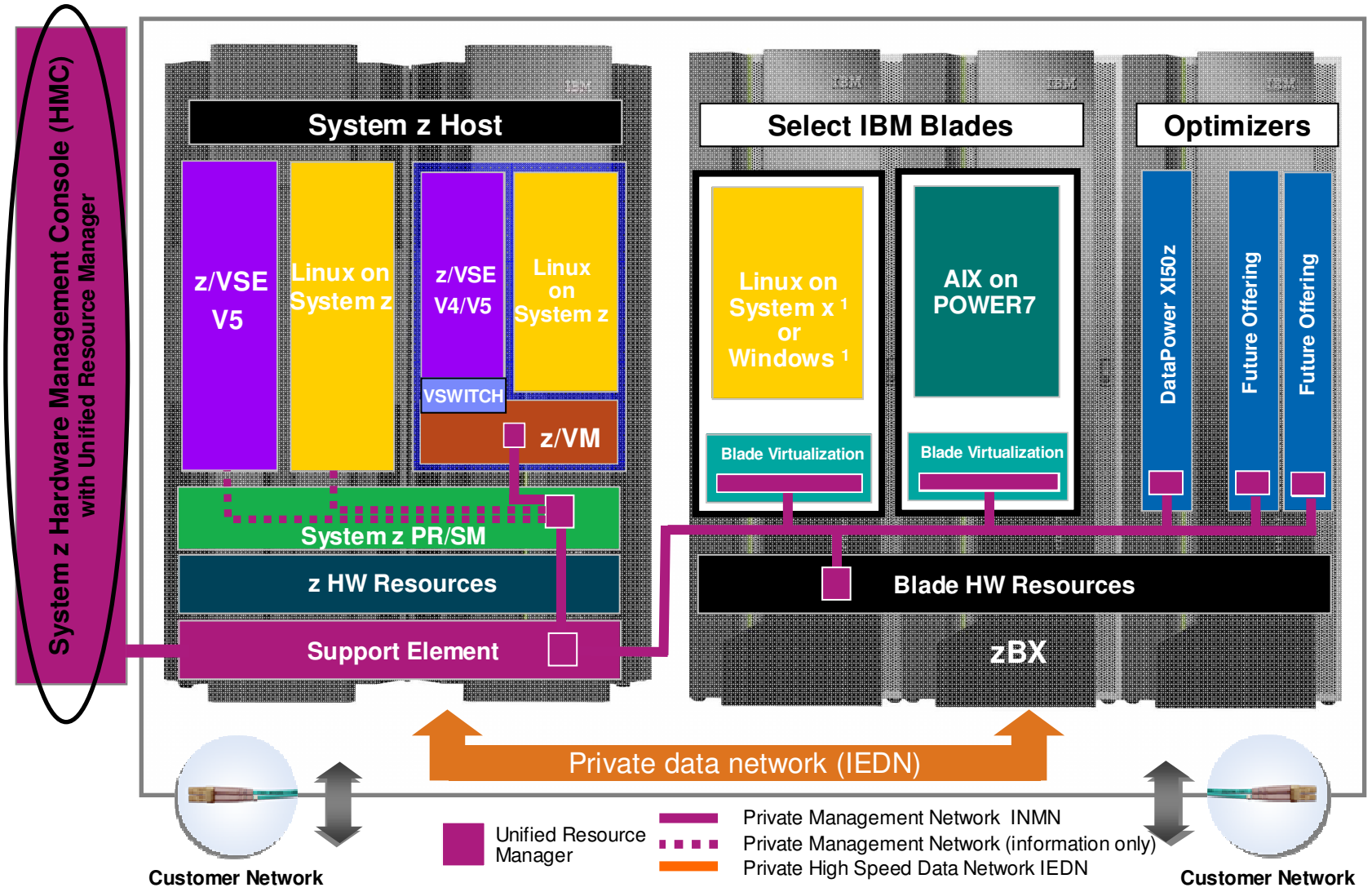
IT Infrastructure Virtualization and network

Network Virtualization



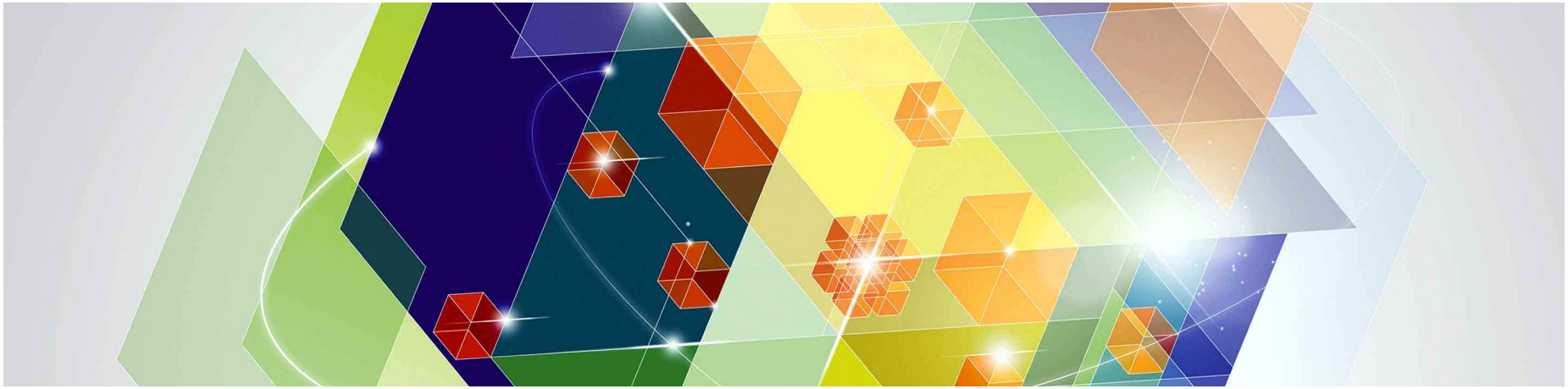


z/VSE Support for IBM zEnterprise - IEDN to zBX

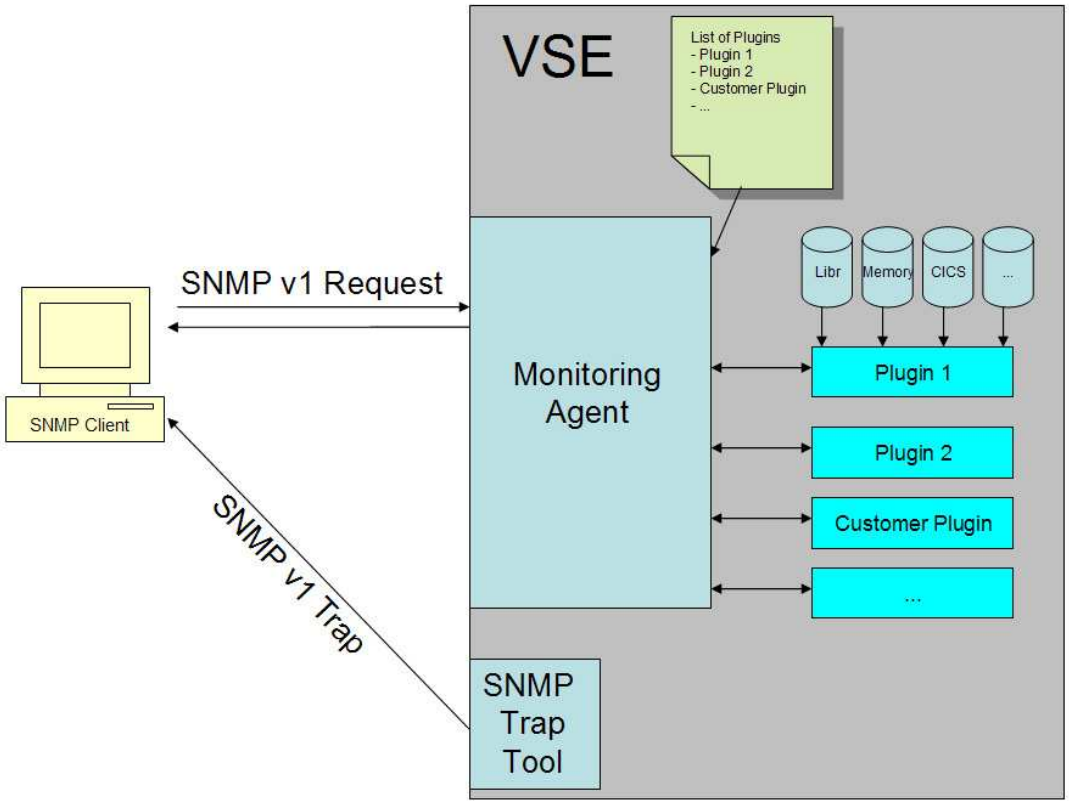


1 All statements regarding IBM future direction and intent are subject to change or withdrawal without notice, and represents goals and objectives only.

Monitoring interface for z/VSE

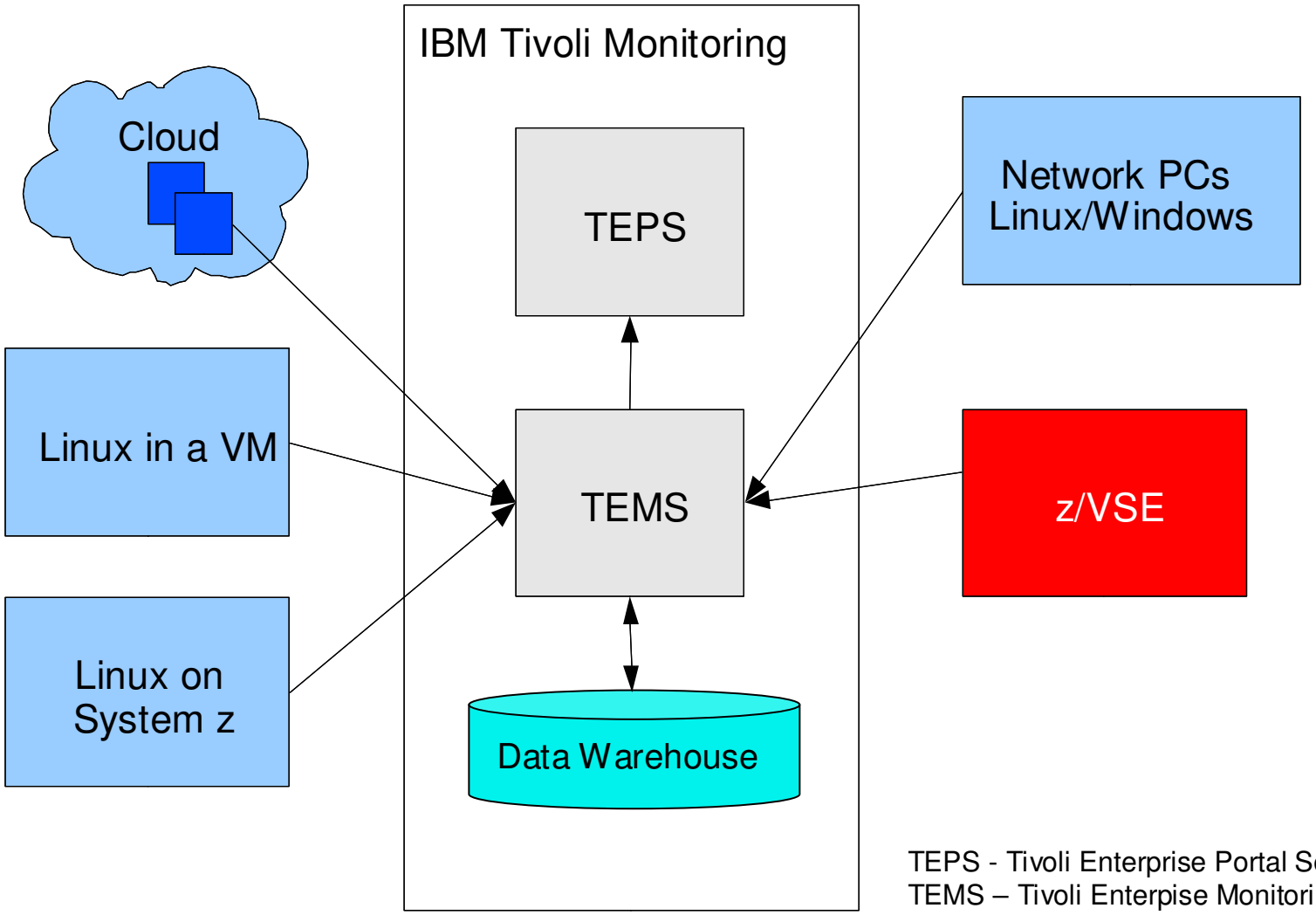


z/VSE Monitoring possibilities



- Monitoring Agent based on SNMP V1
  - Real time monitoring
    - retrieve z/VSE specific system and performance data
  - Event driven monitoring using SNMP Trap tool
    - Helps to automate processes in z/VSE with SNMP traps

Monitoring Facility (in z/VSE 4.3 / 5.1)

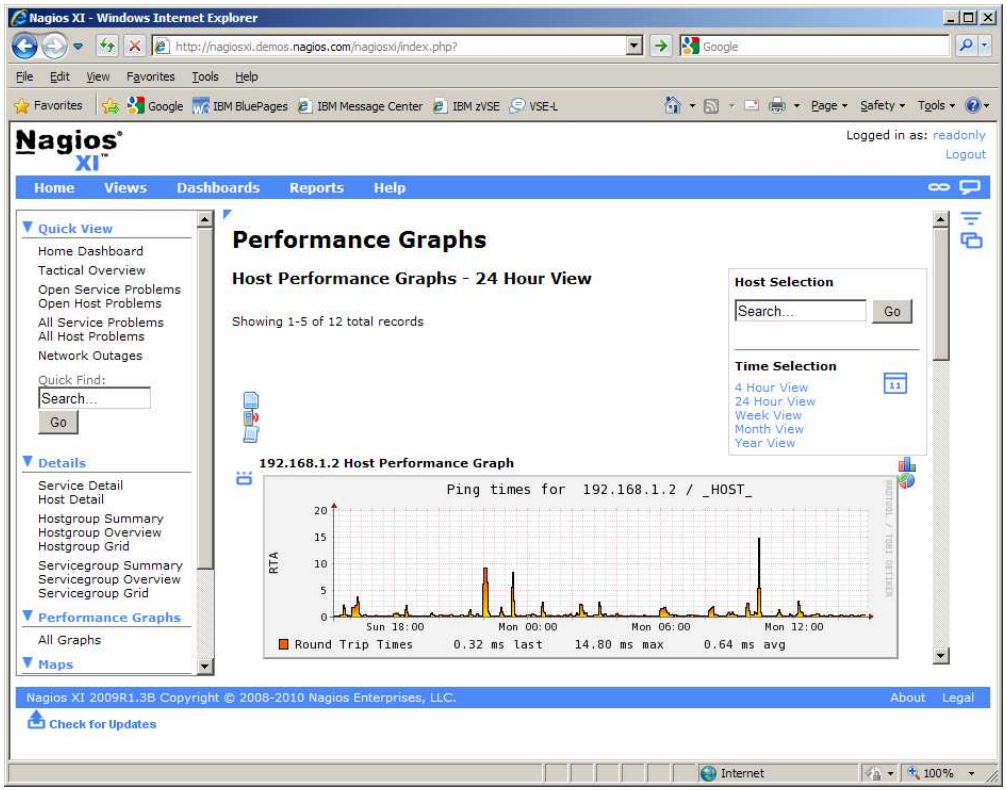


TEPS - Tivoli Enterprise Portal Server
TEMS – Tivoli Enterpise Monitoring Server

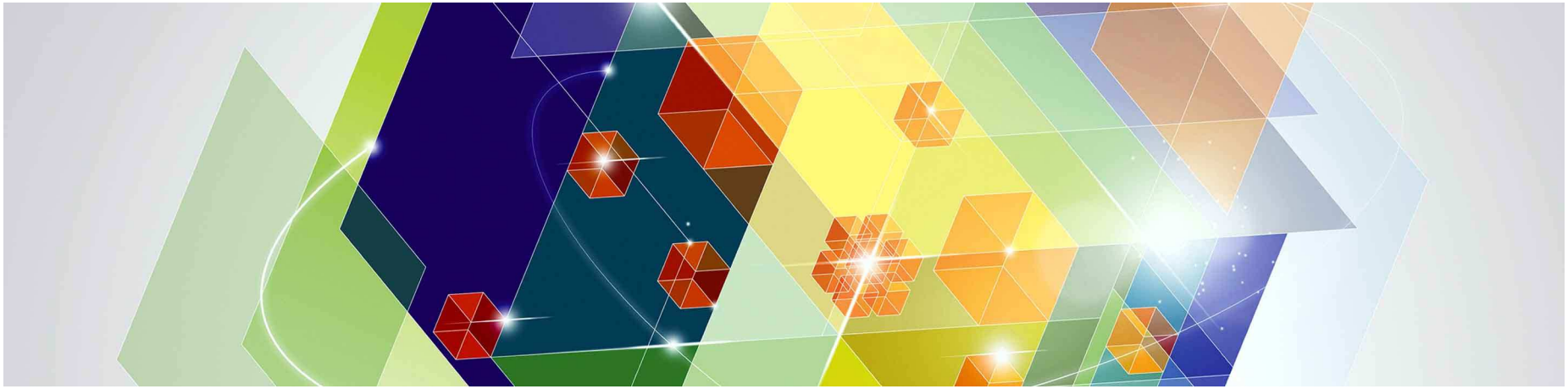
z/VSE 4.3 – SNMP Monitoring Agent support

- **Standard SNMP based monitoring tools can be used to collect, display and analyze z/VSE performance monitoring data**
  - e.g. ITM (IBM Tivoli Monitoring), Velocity monitoring, Nagios,…

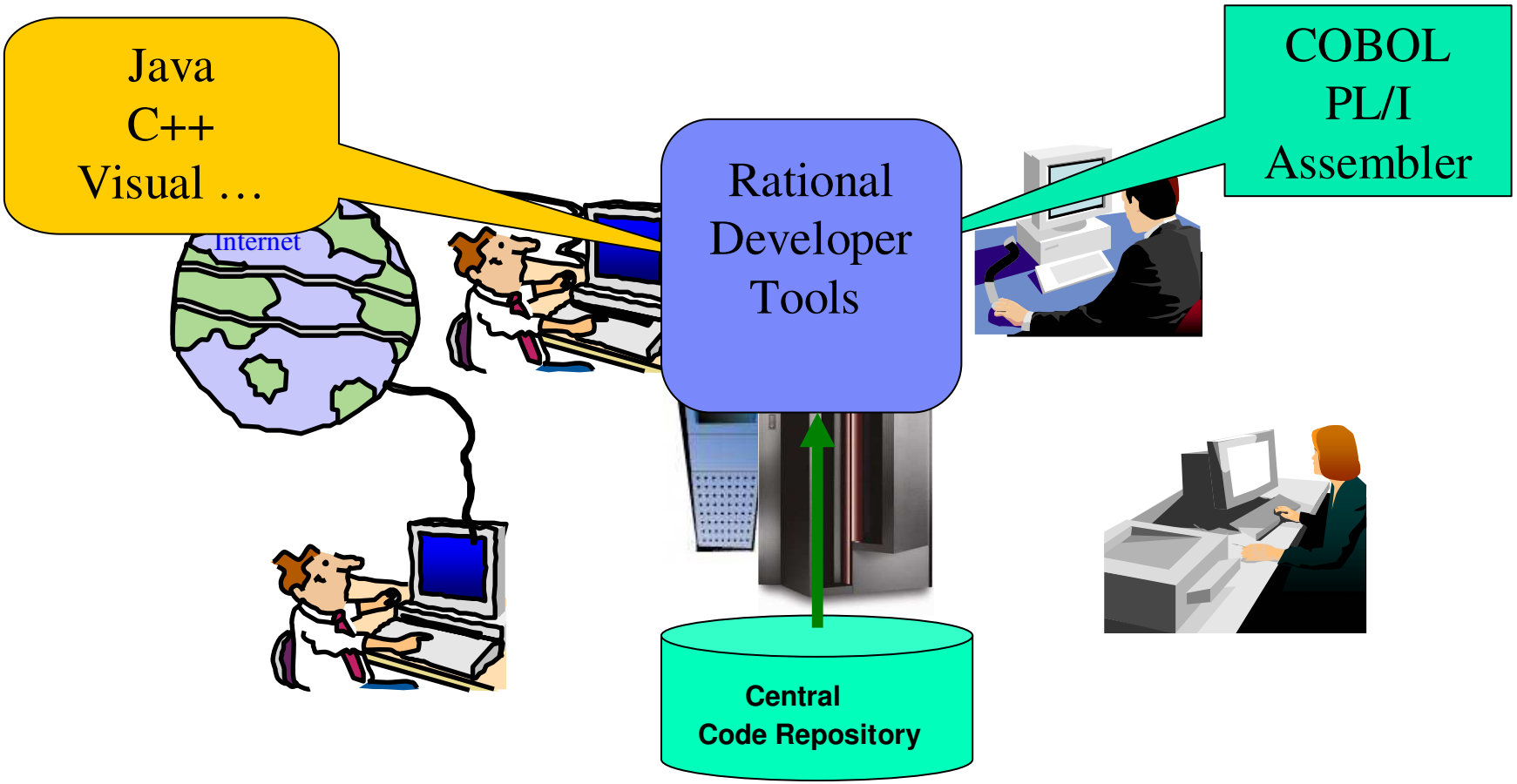
- **z/VSE SNMP Trap client**
  - Sends SNMP V1 traps to inform one or more monitoring stations or servers about important events
  - For example:
    - The end of a job stream is reached.
    - An error has occurred during a job stream
  - z/VSE 5.1 the Trap client was enhanced to be a callable phase/tool



Modern Development Environments for z/VSE



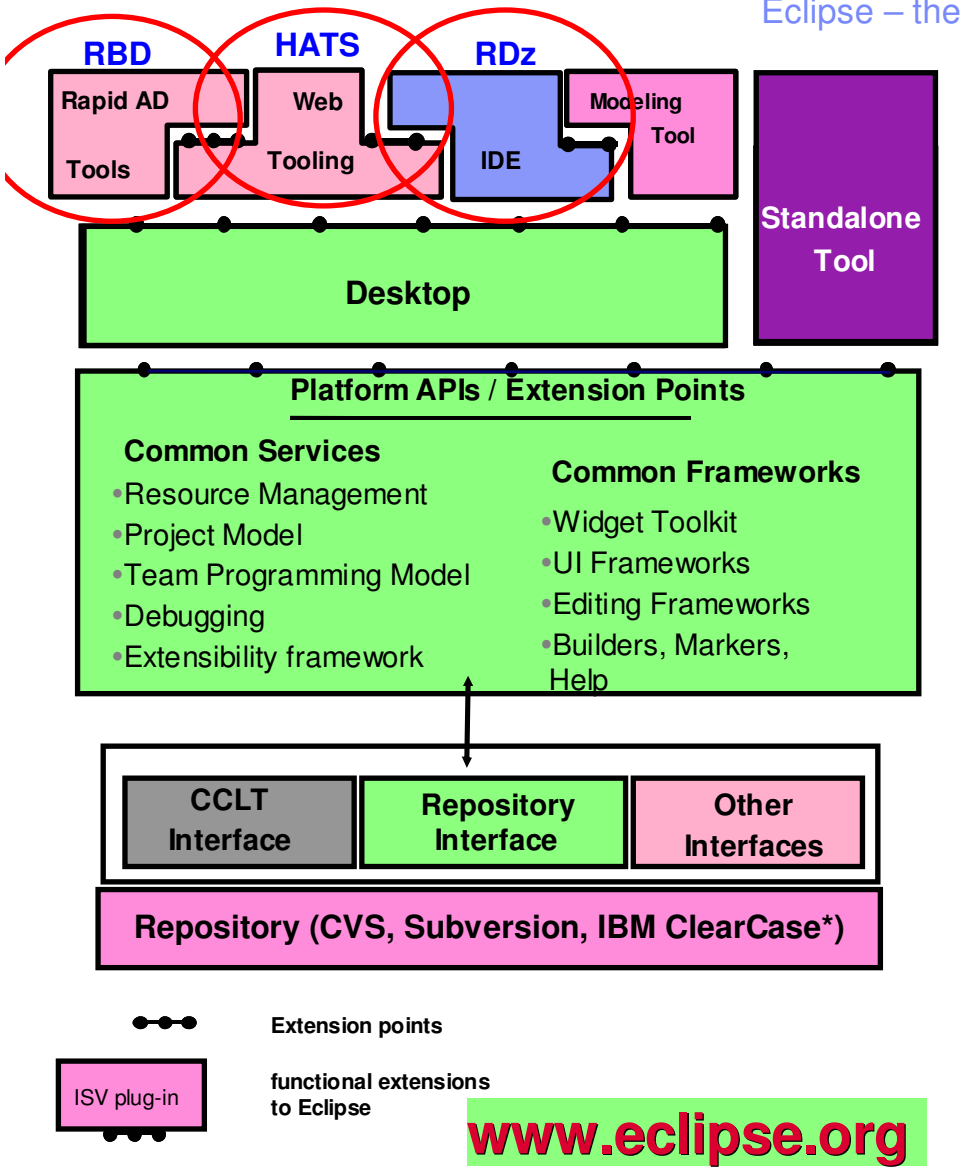
‘Common’ development Environment…



Eclipse helps !

Eclipse based Development Environments for z/VSE

Eclipse – the open Standard for application development



What is Eclipse about:

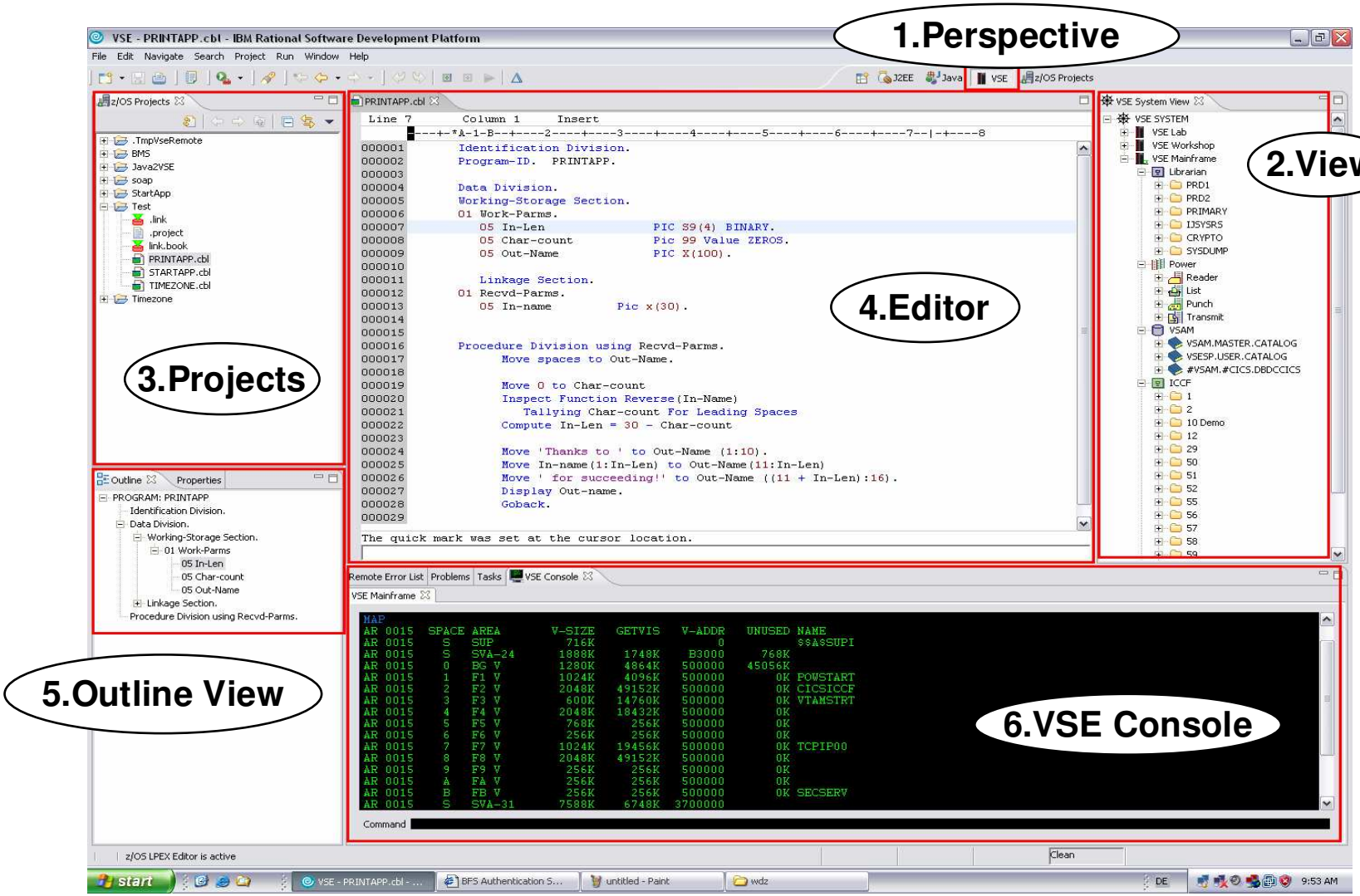
- Open source development framework
  - with modern Editors
  - syntax help & check
  - semantic check
- Centralized source code maintenance
  - entire source code in central Repository
  - cross platform project administration
- Versioning software interface
  - CVS, Subversion, or IBM ClearCase
  - automatic Workgroup-control
- Open for ISVs development Plug-Ins

  1) Integrated Development Environment (IDE)
  - Rational Developer for System z (RDz)
  - for Java, COBOL, PL/I, ASM,C

  2) IBM HATS Development Plug-In
  - develop new front-ends to 3270 applications

  3) IBM EGL development for z/VSE
  - Rational Business Developer (RBD)
  - EGL Plug-In for z/VSE
  - follow-on to Visual Age GeneratorIBM HATS

IBM Rational Developer for system z - the z/VSE Perspective



Summary

The demands placed on the data center have never been greater.

IBM System zEnterprise:

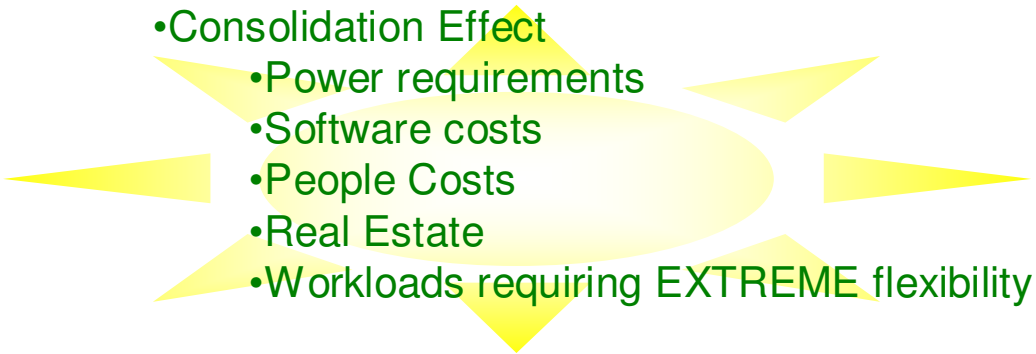
1. Enables **mixed workload Business Processes** to be deployed, and centrally managed

2. Allows **optimized integration** of data, applications, and web serving
3. Delivers **dynamically responsive IT** with **lower acquisition and operating costs**
4. **Meets the need** of **heterogeneous data centers**

A strategic systems platform….
Helping to free up resources for critical projects and establish a base for the future

What Makes Good Fit

- Evaluate server choices
  - Correct application availability,
  - Supporting applications,
  - Total Cost of Ownership (TCO)
  - Politics within the organization.
  - Porting issues
- Shortening end to end path length for applications
  - Collocation of applications
  - Consolidation of applications from distributed servers
  - Reduction in network traffic
  - Simplification of support model



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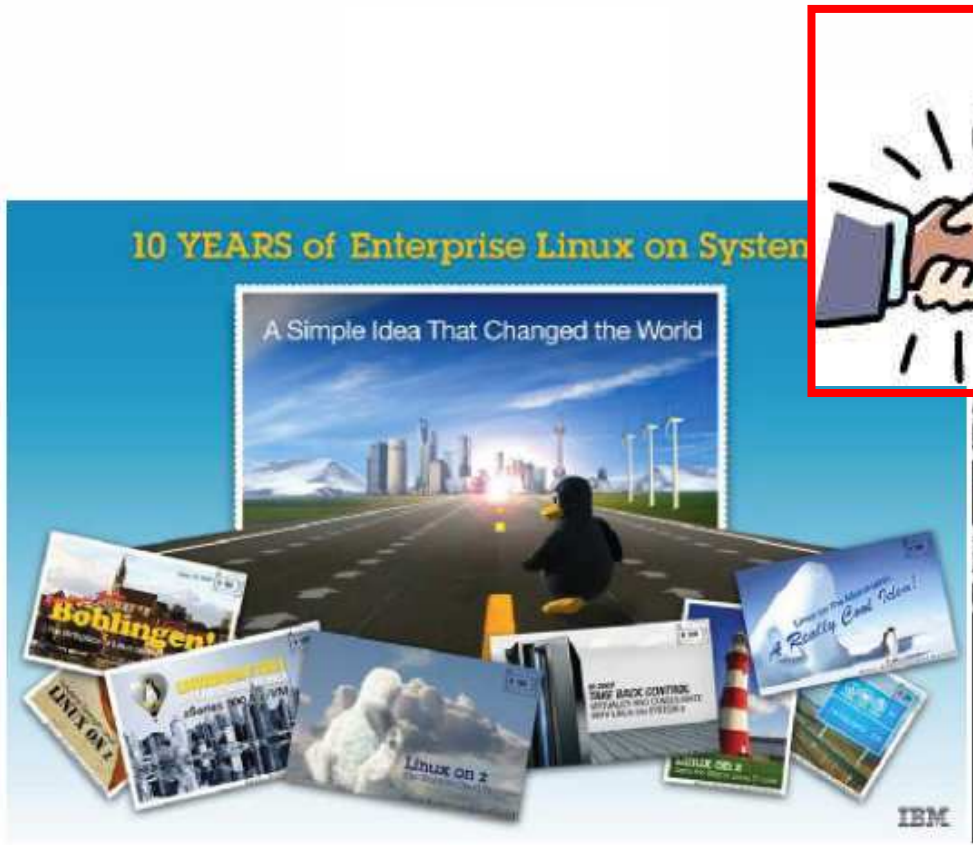
More than a decade

Linux on System z and z/VSE



z/VSE and z/VM-Linux Customer Conferences in 2011

- **WAVV in Colorado Springs (Colorado), April 15-19, 2011**

- **German GSE in Düsseldorf (Germany), May 2-5, 2011**

- **IBM System z Technical University in Vienna (Austria), May 2-7, 2011**

- **IBM System z Technical University in Miami (Florida), Oct 3-7, 2011**

- **GSE European Working Group in Berlin (Germany), Oct 24-26, 2011**

zJournal: www.mainframezone.com
April/May 2011

The z/VSE Fast Path to Linux on System z

Print this article

by Ingo Franzki, Karsten Graul

TRANSLATE

< Previous Page 1 2 3 4 Next Page >

April 6, 2011

Linux on System z has been an important part of z/VSE's Protect, Integrate and Extend (PIE) strategy for many years. It:

- Protects customers' enormous cumulative investment in their core z/VSE applications
- Integrates z/VSE systems and applications into a heterogeneous IT environment
- Extends z/VSE's capabilities with features and functions provided by Linux on System z or other platforms.

Linux on System z provides many useful functions that z/VSE doesn't provide. It offers WebSphere, Java, DB2 Universal Database, a rich set of development tools, and a growing selection of packaged applications. On the other hand, z/VSE provides excellent, cost-effective capabilities to run traditional workloads such as CICS transactions or batch jobs.

To allow easy integration of z/VSE with other systems and applications, z/VSE provides a huge set of so-called connectors that allow access to various types of z/VSE data and applications from remote applications

Modern Solutions With z/VSE & Linux on System z

Print this article

by Wilhelm Mild

TRANSLATE

< Previous Page 1 2 3 4 Next Page >

April 6, 2011

The future started more than a decade ago, when z/VSE defined in its strategy that Linux on System z is the natural extension for z/VSE on a System z. Modern solutions leverage the synergy of core applications and CICS transactions running in z/VSE and the new Java and Internet interfaces in Linux on System z.

Virtualization with z/VM reached new dimensions, making available virtual switch, guest LAN, and the ability to virtualize hundreds of different guest systems. z/VSE 4.3 now exploits the Linux Fast Path network topology, which effectively supports TCP/IP socket communications between z/VSE applications and Linux on System z. The communication occurs via z/VM and its internal communication layer, Inter User Communication Vehicle (IUCV), and is fully transparent for z/VSE applications. It reduces the complexity and path length in application communications.

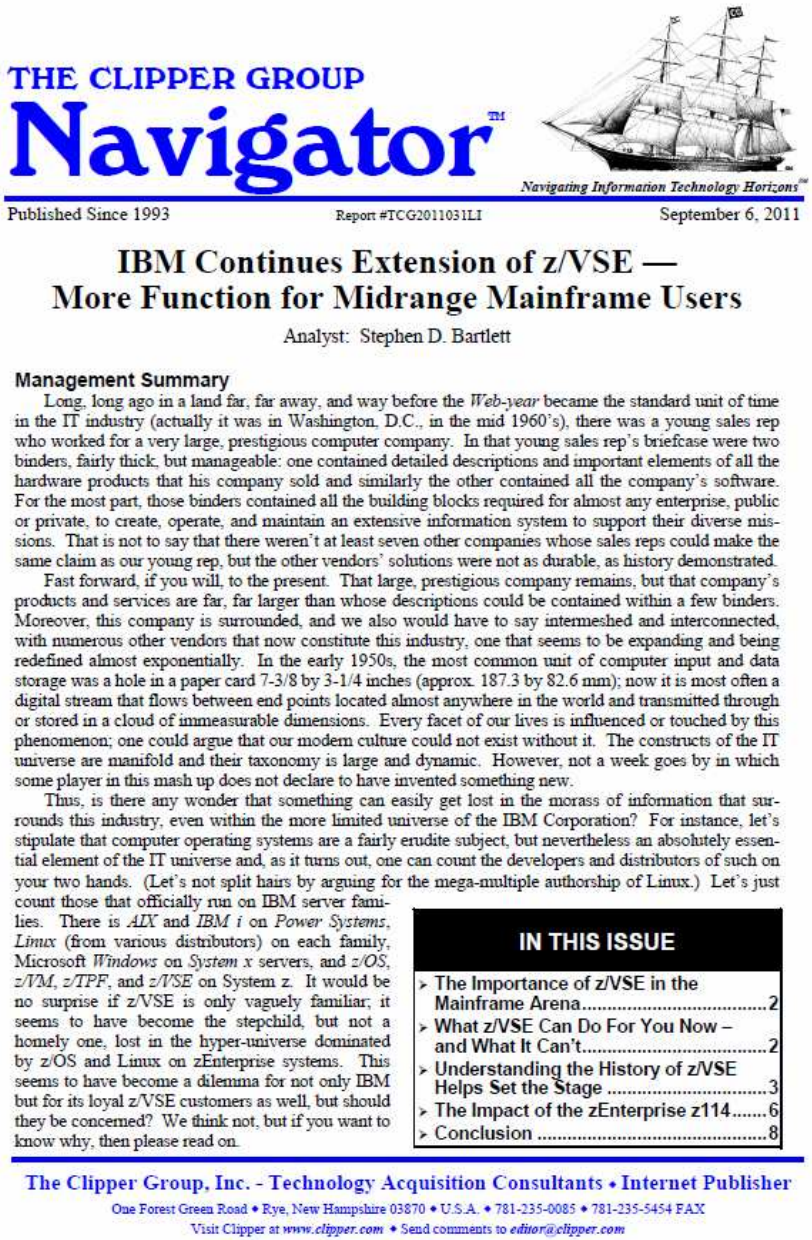
Along with the network and virtualization, the interoperability between z/VSE and Linux on System z focuses on customer needs for modern business solutions. The Internet technologies, Java applications, and electronic business through Linux can be implemented with low impact to existing processes in z/VSE.

The maturities of the highly scalable solutions built with z/VSE and Linux on System z empower the business, modernize interaction interfaces, and simplify the IT infrastructure. The

The Clipper Group
Sept 2011

Get the paper from:
www.clipper.com

or from the z/VSE homepage:
http://www-03.ibm.com/servers/eserver/zseries/zvse/



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Published Since 1993 | Report #TCG2011031LI | September 6, 2011

IBM Continues Extension of z/VSE — More Function for Midrange Mainframe Users

Analyst: Stephen D. Bartlett

Management Summary

Long, long ago in a land far, far away, and way before the *Web-year* became the standard unit of time in the IT industry (actually it was in Washington, D.C., in the mid 1960's), there was a young sales rep who worked for a very large, prestigious computer company. In that young sales rep's briefcase were two binders, fairly thick, but manageable: one contained detailed descriptions and important elements of all the hardware products that his company sold and similarly the other contained all the company's software. For the most part, those binders contained all the building blocks required for almost any enterprise, public or private, to create, operate, and maintain an extensive information system to support their diverse missions. That is not to say that there weren't at least seven other companies whose sales reps could make the same claim as our young rep, but the other vendors' solutions were not as durable, as history demonstrated.

Fast forward, if you will, to the present. That large, prestigious company remains, but that company's products and services are far, far larger than whose descriptions could be contained within a few binders. Moreover, this company is surrounded, and we also would have to say intermeshed and interconnected, with numerous other vendors that now constitute this industry, one that seems to be expanding and being redefined almost exponentially. In the early 1950s, the most common unit of computer input and data storage was a hole in a paper card 7-3/8 by 3-1/4 inches (approx. 187.3 by 82.6 mm); now it is most often a digital stream that flows between end points located almost anywhere in the world and transmitted through or stored in a cloud of immeasurable dimensions. Every facet of our lives is influenced or touched by this phenomenon; one could argue that our modern culture could not exist without it. The constructs of the IT universe are manifold and their taxonomy is large and dynamic. However, not a week goes by in which some player in this mash up does not declare to have invented something new.

Thus, is there any wonder that something can easily get lost in the morass of information that surrounds this industry, even within the more limited universe of the IBM Corporation? For instance, let's stipulate that computer operating systems are a fairly erudite subject, but nevertheless an absolutely essential element of the IT universe and, as it turns out, one can count the developers and distributors of such on your two hands. (Let's not split hairs by arguing for the mega-multiple authorship of Linux.) Let's just count those that officially run on IBM server families. There is *AIX* and *IBM i* on *Power Systems*, *Linux* (from various distributors) on each family, Microsoft *Windows* on *System x* servers, and *z/OS*, *z/VM*, *z/TPF*, and *z/VSE* on System z. It would be no surprise if z/VSE is only vaguely familiar; it seems to have become the stepchild, but not a homely one, lost in the hyper-universe dominated by z/OS and Linux on zEnterprise systems. This seems to have become a dilemma for not only IBM but for its loyal z/VSE customers as well, but should they be concerned? We think not, but if you want to know why, then please read on.

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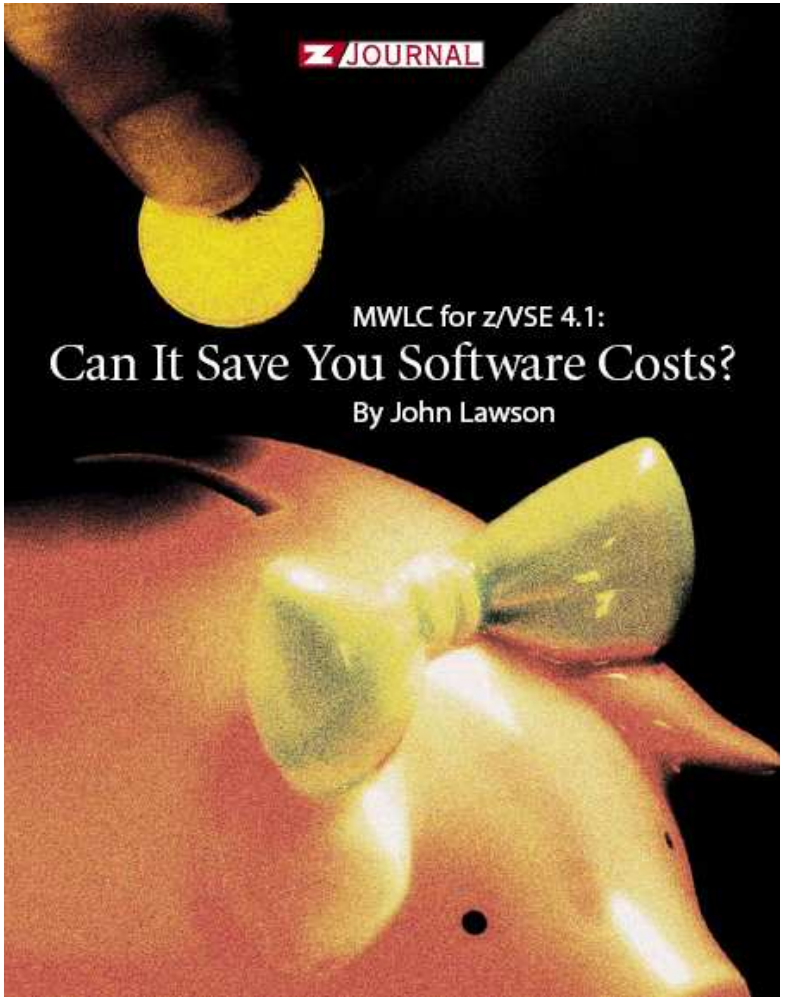
Press on z/VSE Cost Savings



Source: z/Journal, April / May 2007

VSE users receive an offer they can't refuse

Most of the activity in the IBM mainframe world not surprisingly focuses on the z/OS environment, but there is still a sizeable population of users running systems based on VSE, often in conjunction with the VM hypervisor.

Many of these sites are slow growers with limited in-house technical skills and a reluctance to upgrade their hardware or software even in exchange for significant cost savings. As a result their relationship with IBM (and with other ISVs supporting their applications) is a difficult one.

In its recent announcement of z/VSE 4.1, IBM has shown some of the 'carrot and stick' tactics that often characterize its product developments in this part of the market.

The latest version of the operating system offers many attractions for small mainframe users, including some important enhancements to SOA/web service support and tape encryption. Moreover the software is accompanied by a new pricing scheme (Midrange Workload License Charge), which can bring sub-capacity benefits and very significant savings to VSE users. But to get the savings they need to upgrade to a z9 BC or EC.

Even for VSE users, it is becoming increasingly difficult to make a cost case for avoiding an upgrade to the latest hardware, and the months ahead are likely to witness a steady stream of VSE-base upgrades to the z9 BC.

Source: The Arcati Mainframe Yearbook 2007 33

z/VSE: A Roadmap For Cost savings and Exploiting Technology

Prepared for:
IBM Corporation

By:
Sine Nomine Associates
43596 Blacksmith Square
Ashburn, VA 20147

IBM-2007-04569-E-01
August, 2007
SNA Proprietary – Confidential

z/VSE Roadmap
6 September 2007

Source: Sine Nomine Associates, August 2007

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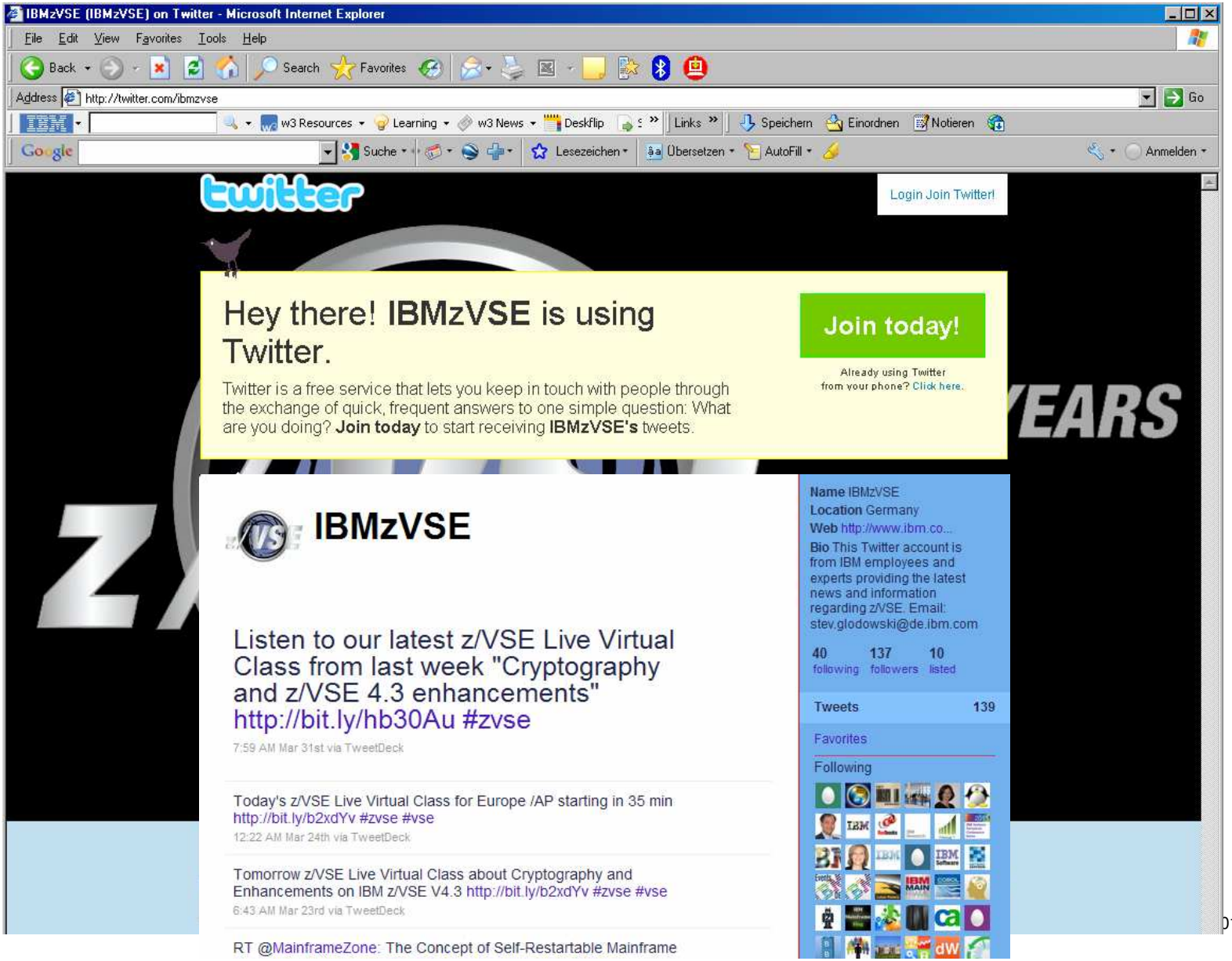
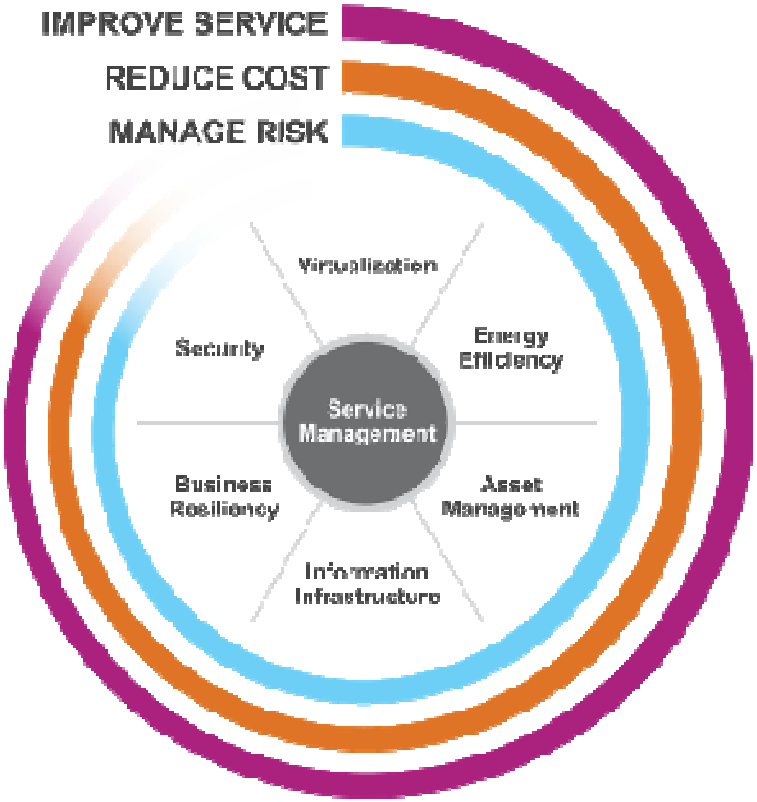


The Future runs on System z, the largest scalable server



… System z delivers extreme business value by helping you reduce cost, manage risk, and improve service.

For more information, please see the z/VSE web site:

http://www.ibm.com/zvse/

Thank You