z/VSE Solutions with zEnterprise

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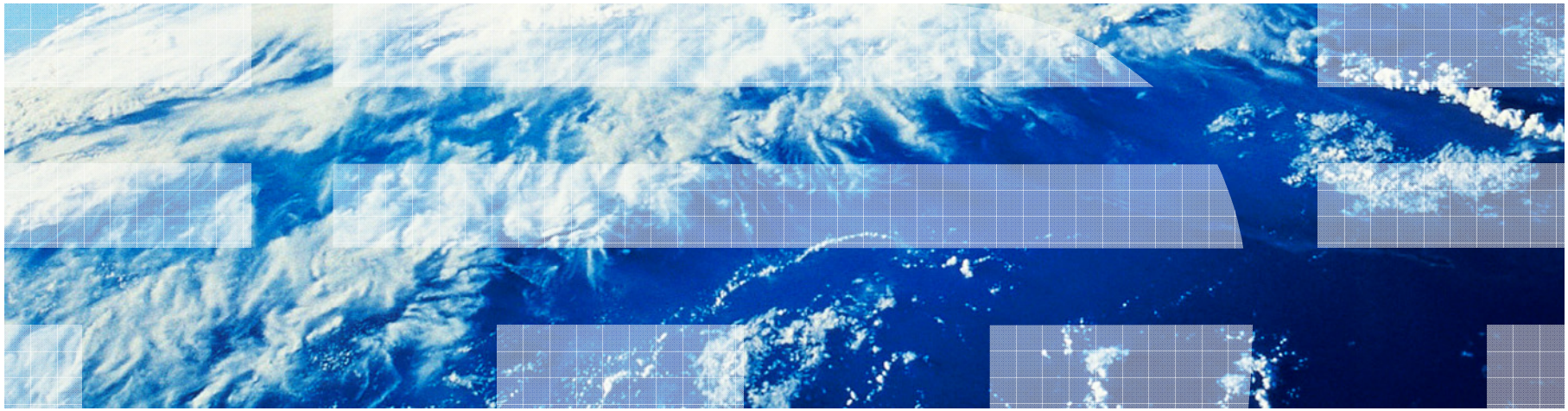

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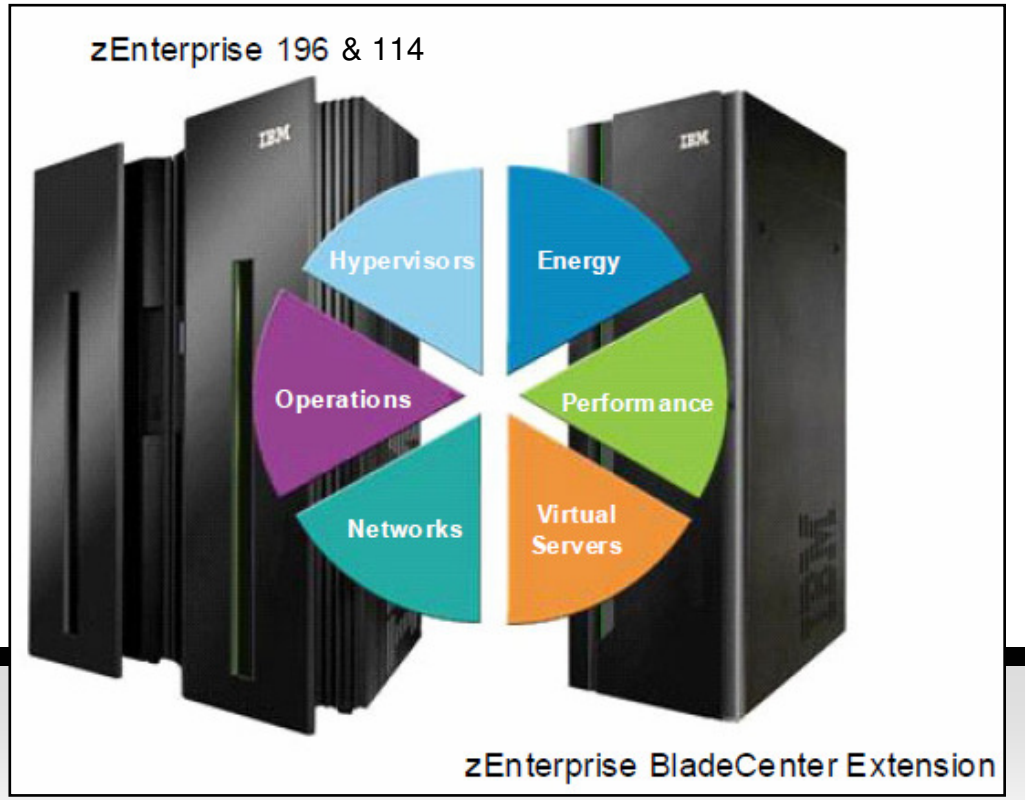
Agenda

- **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.

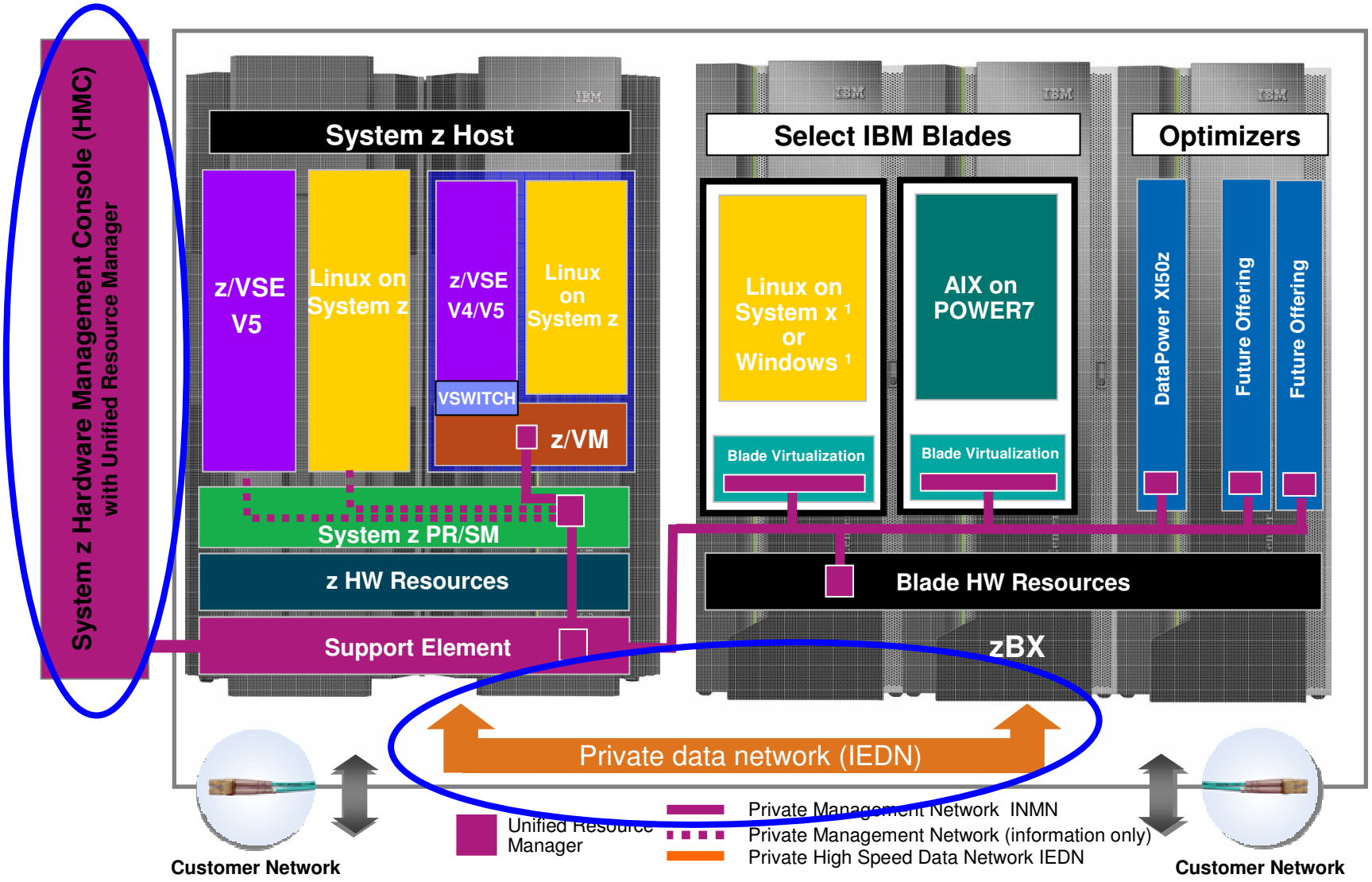


Our Vision:

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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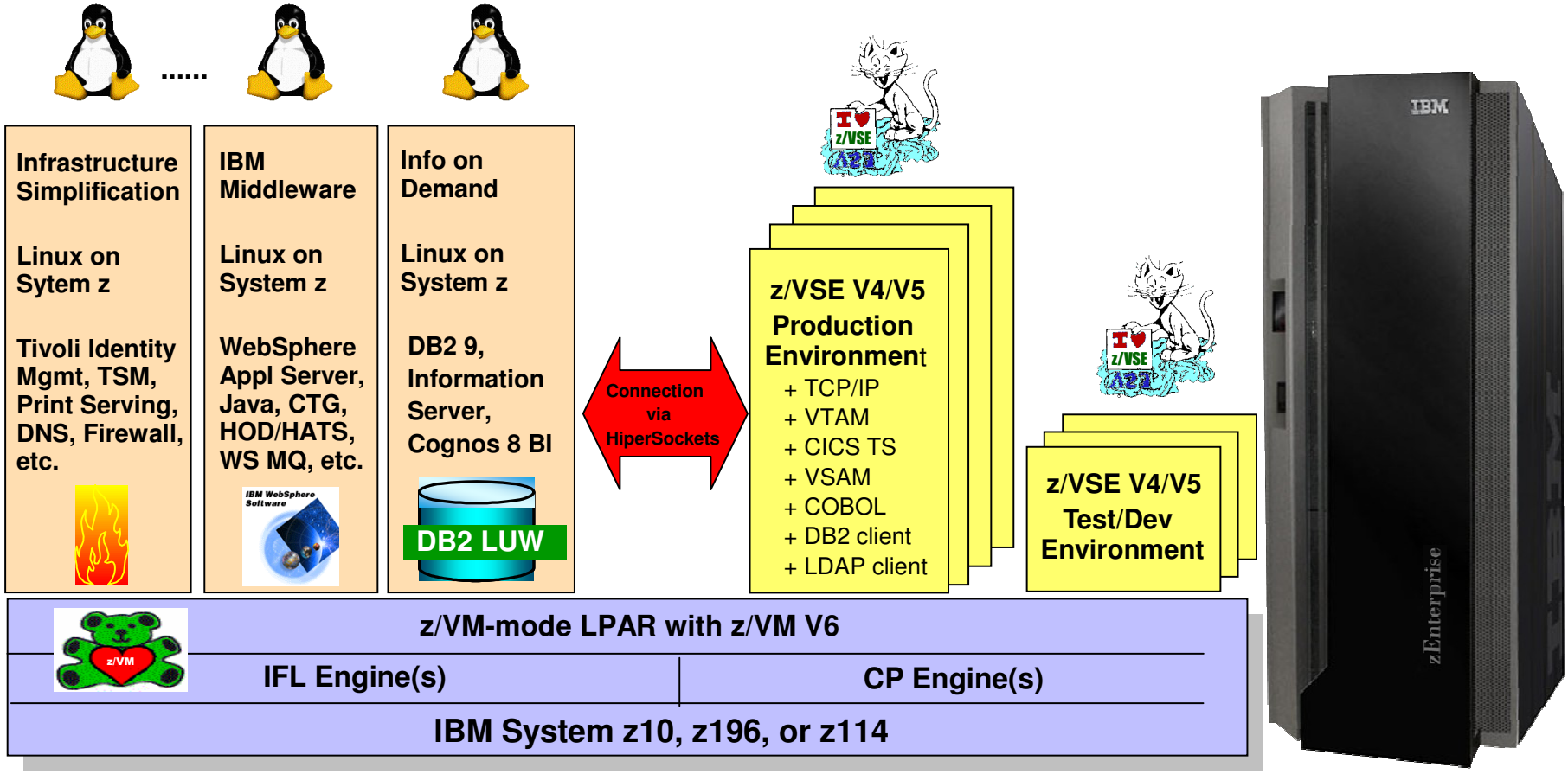
z/VSE Strategy w/ Linux on System z

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

Protect existing VSE investments

Integrate using middleware and VSE connectors

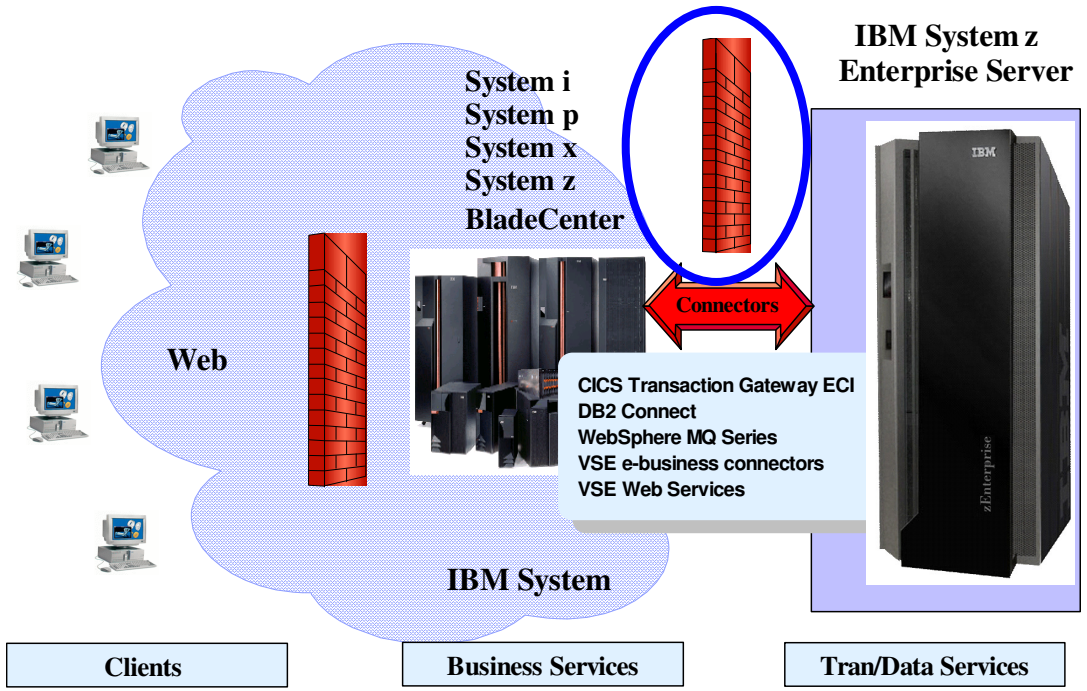
Extend with Linux on IBM System z technology & solutions



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

alias

- 3-tier Strategy
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- Linux Surround Strategy
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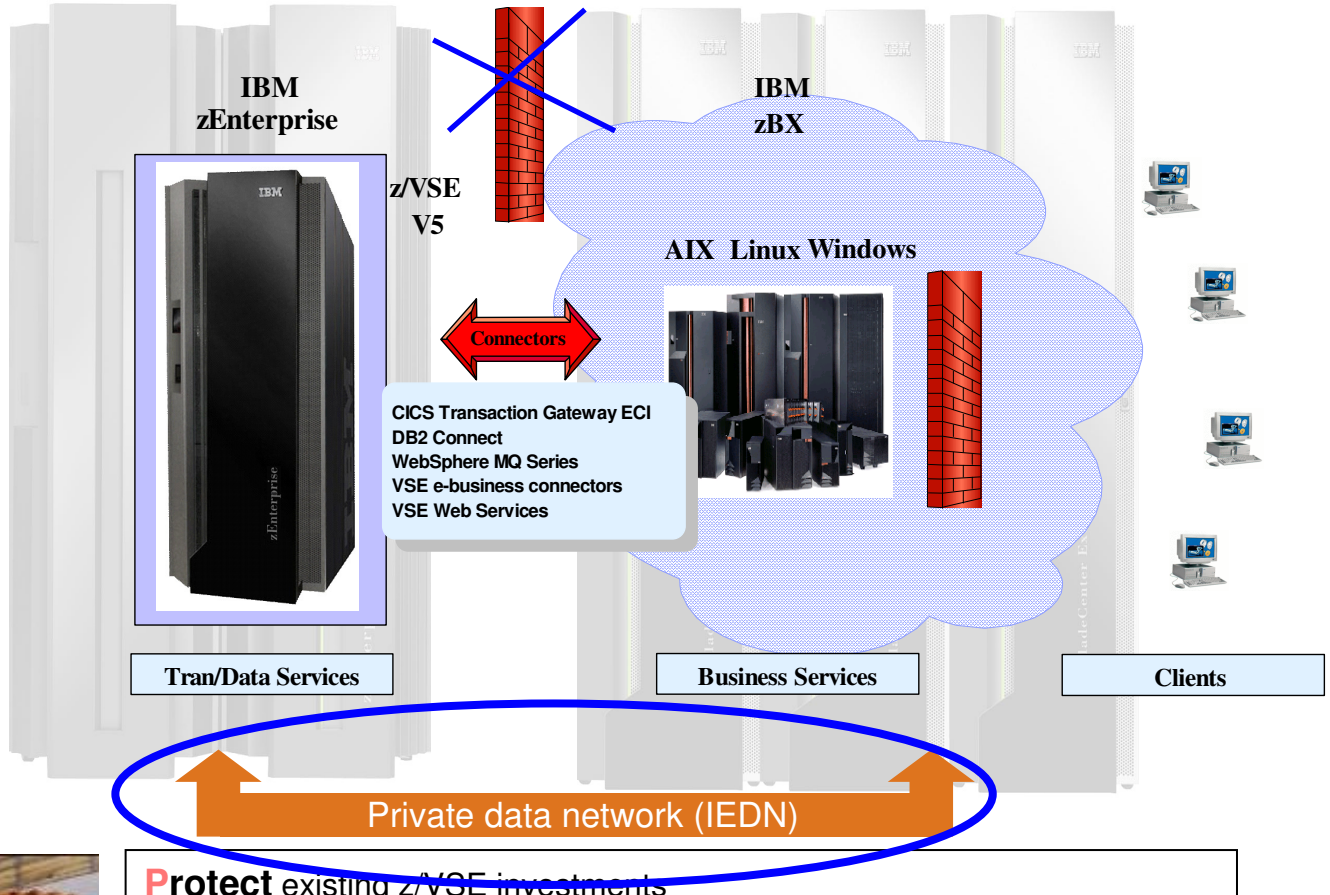


Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

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

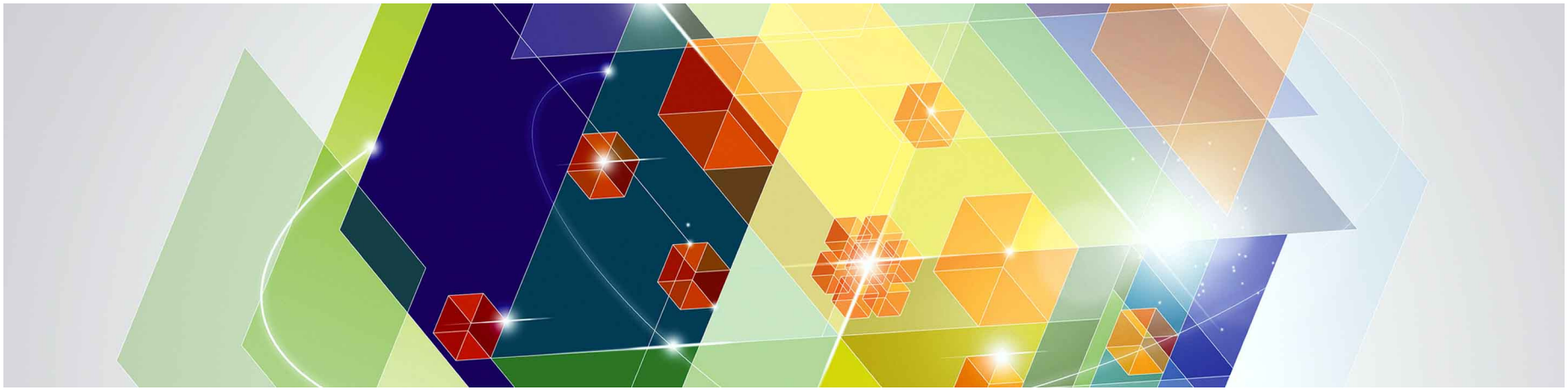
Agenda

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

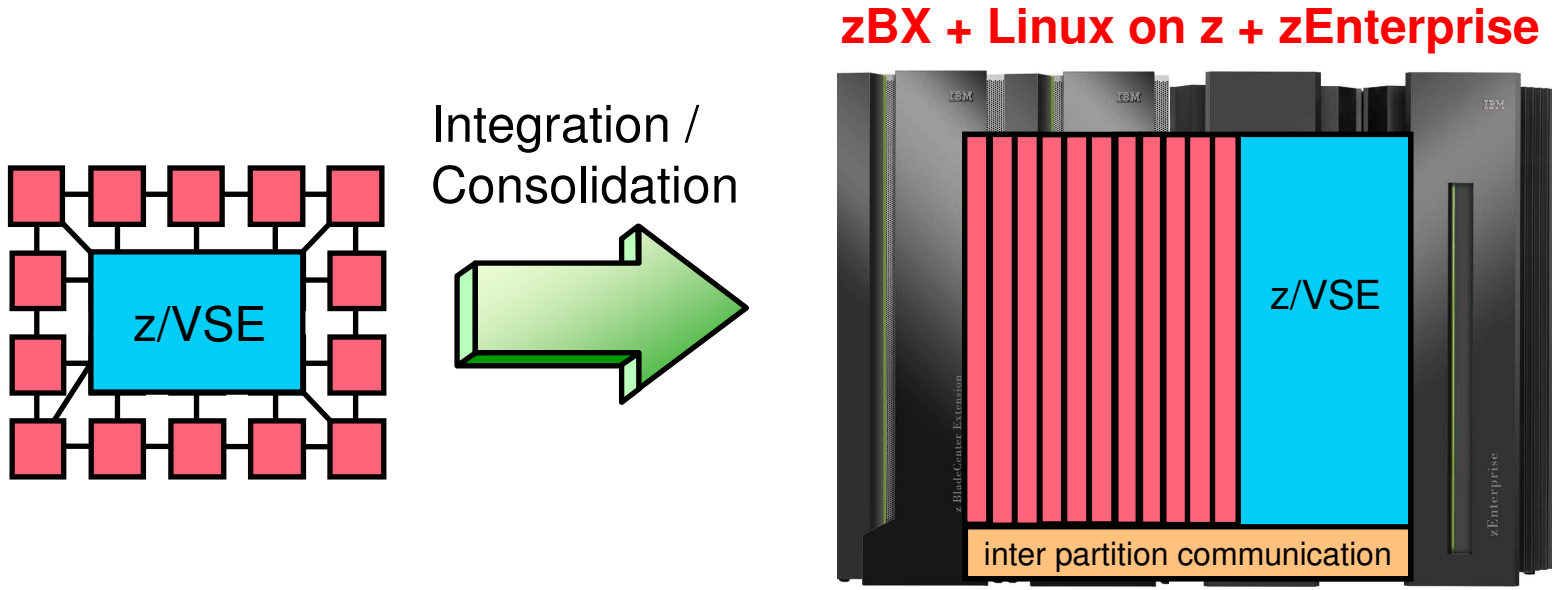
z/VSE SOA and Interoperability

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

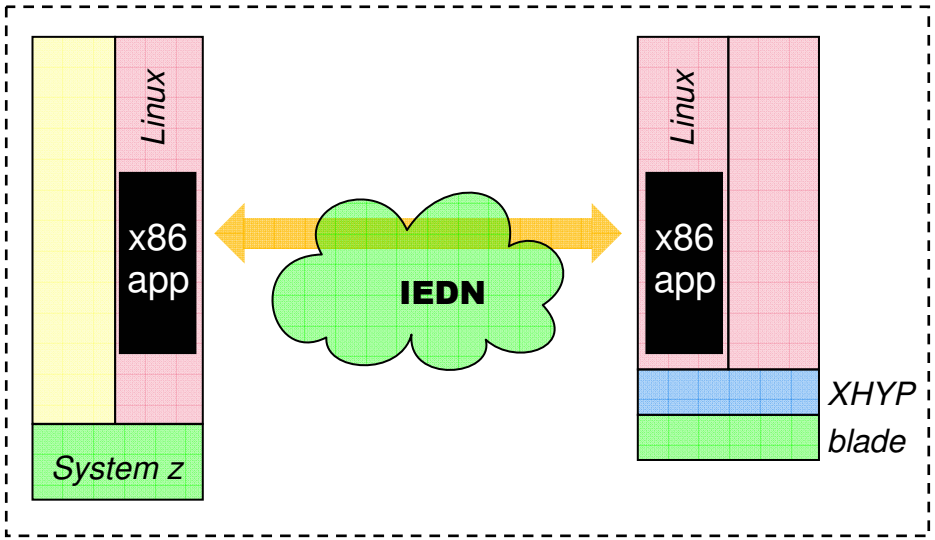


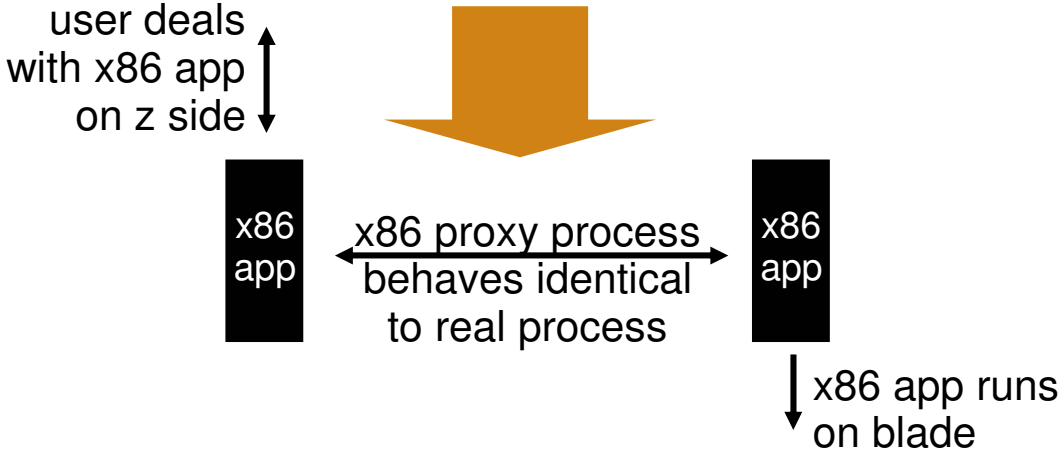
For z/VSE customers, zEnterprise opens new horizons:

- 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

Linux Application Integration: Technoloogy study from 11/2011

- **Run x86 Linux applications from Linux on System z**
  - lifecycle of x86 applications and resources are entirely managed from Linux on System z
  - x86 applications and resources are represented through proxy entities on Linux on System z
    - proxy processes on System z don't use cycles or memory
    - proxy resources allow for managing x86 system resources
  - retains certified x86 distribution environments (no kernel changes required)

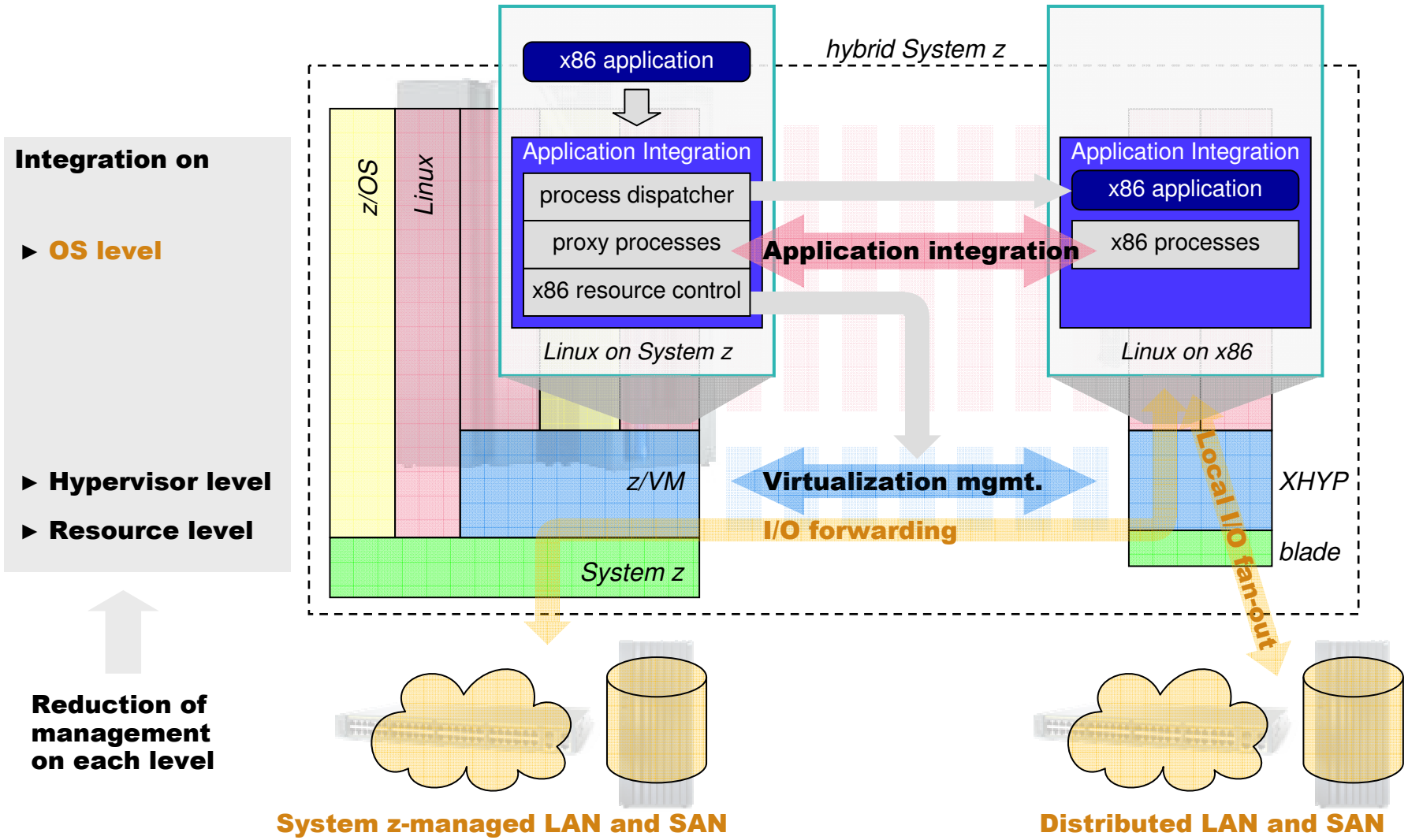




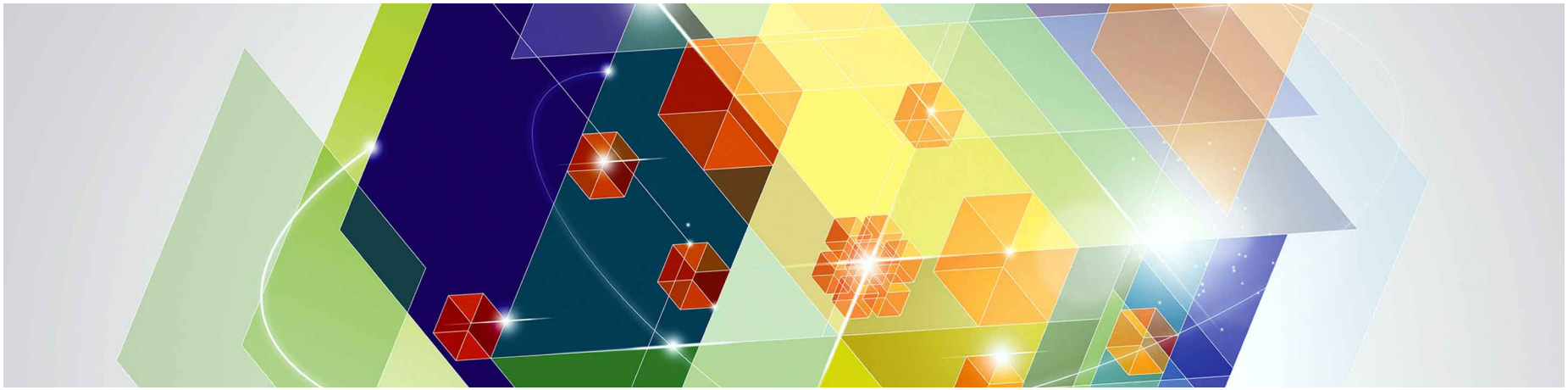
Application Integration: Aspects Covered

- **Execution of x86 Binaries**
- **Process Management**
- **Userids, Authorization, Authentication**
- **File System Integration**
- **Network Integration**
- **Time Synchronization**
- **Logging**
- **Software Package Management (online and offline)**
- **x86 Blade Virtual Server Attachment**

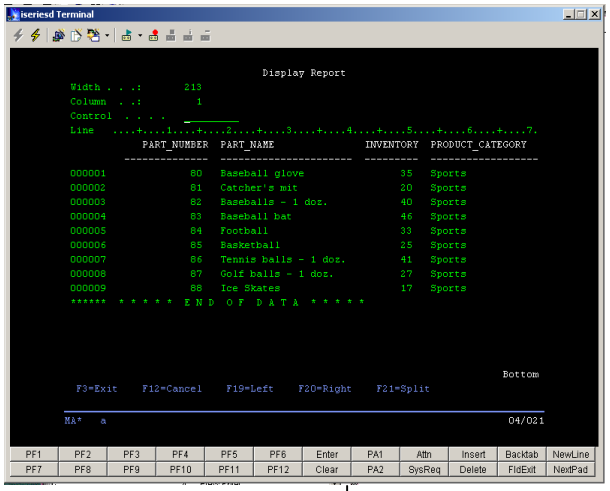
Application Integration



Web integration with Linux and z/VSE

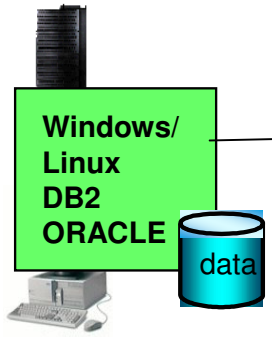


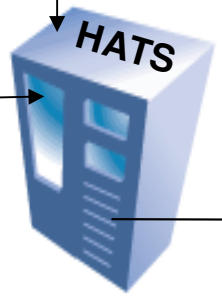
Application Integration with Host Access Transformation Services (HATS)

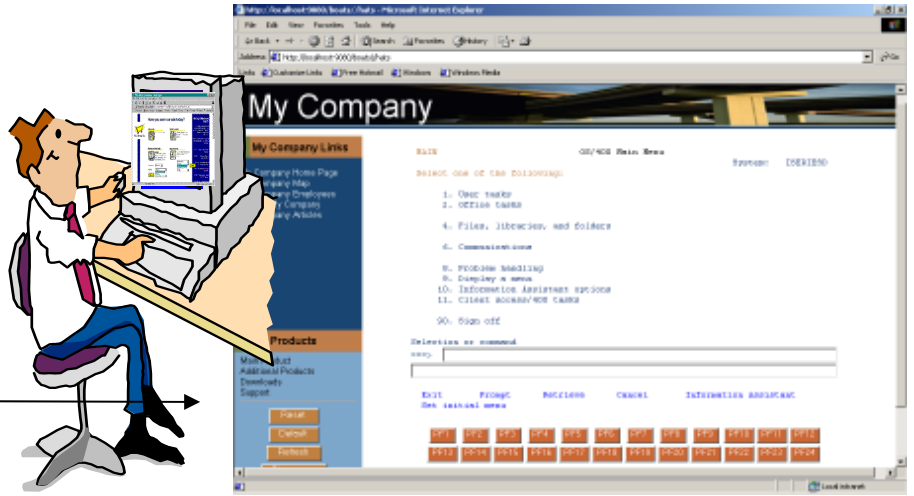


3270 or 5250
data stream

- 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



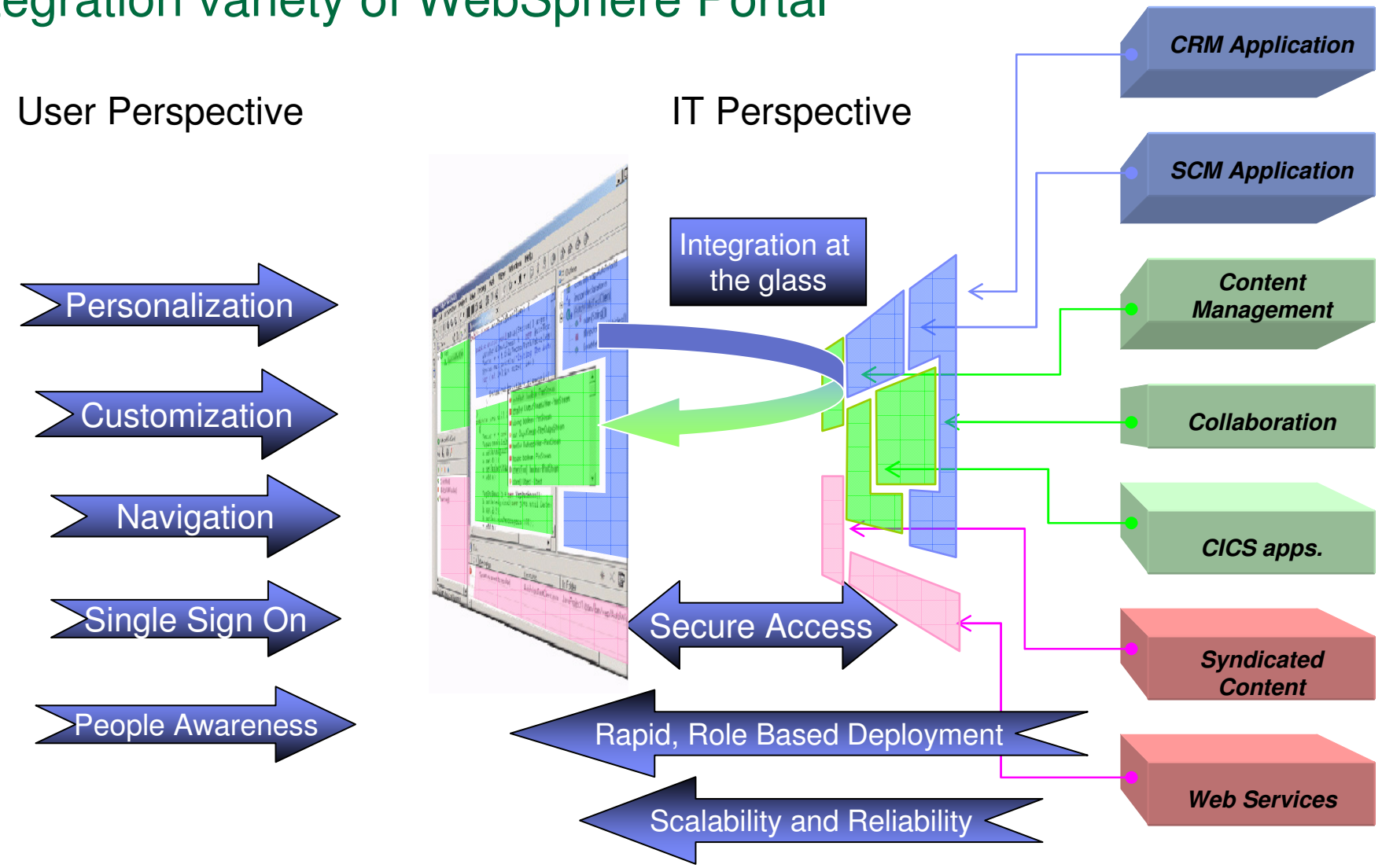




Screen transformation rules running on
WebSphere Application Server

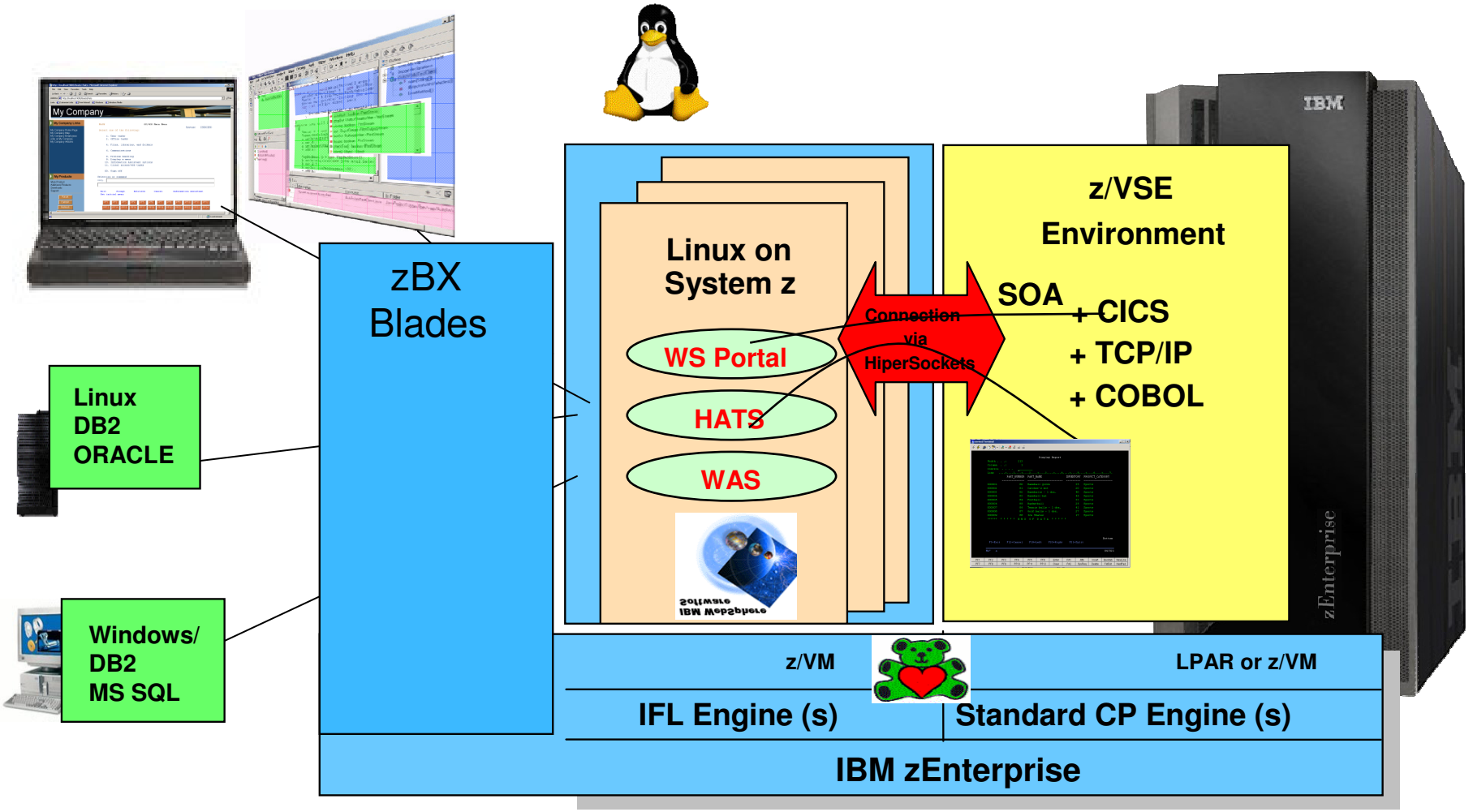
HTML in a Browser

Integration variety of WebSphere Portal

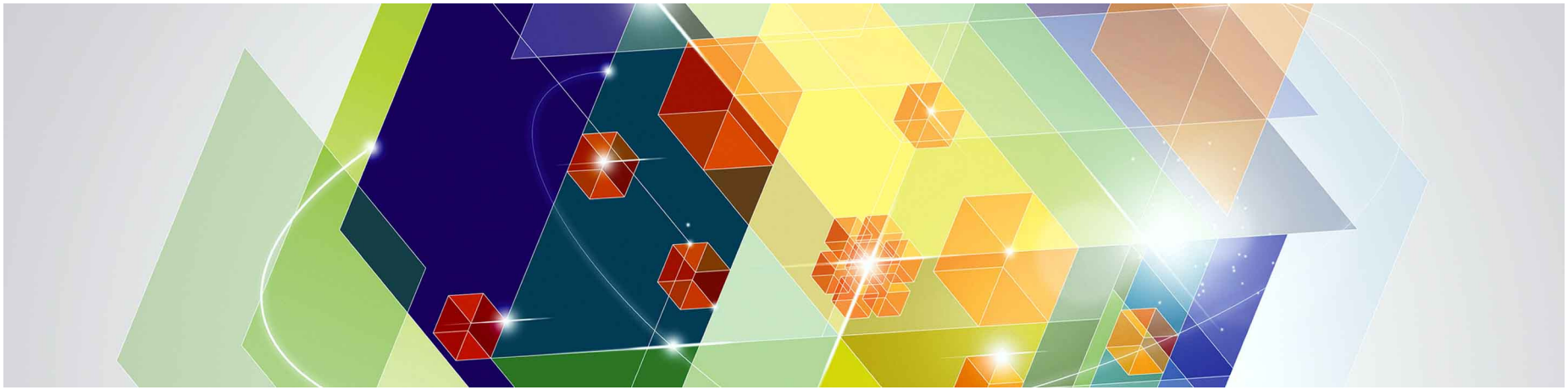


Linux on System z as Central Access Point

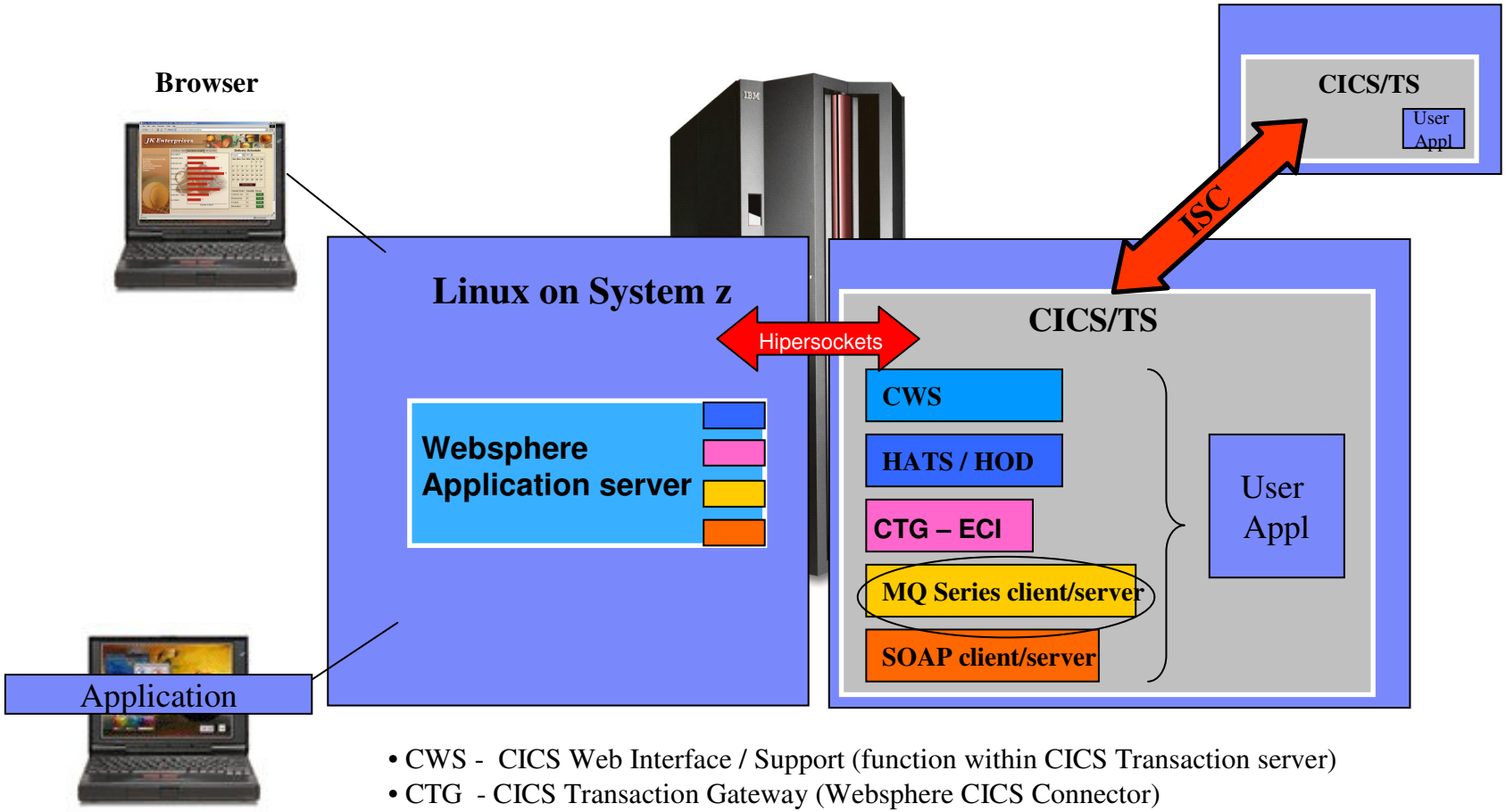
Web enable, improve interface, simplify, extend existing applications



CICS workload integration with Linux on System z



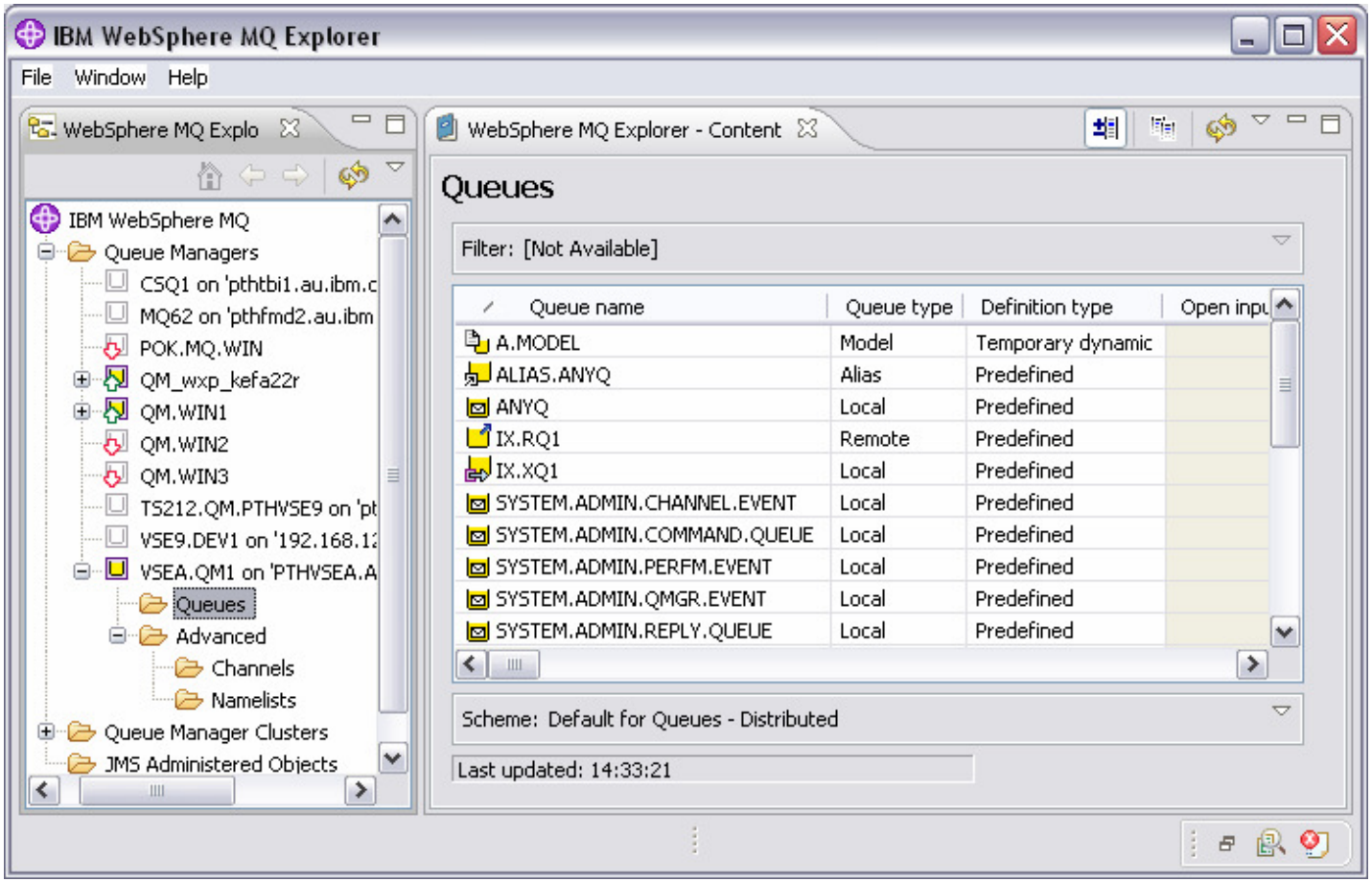
Web Integration with traditional CICS transactions



- 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

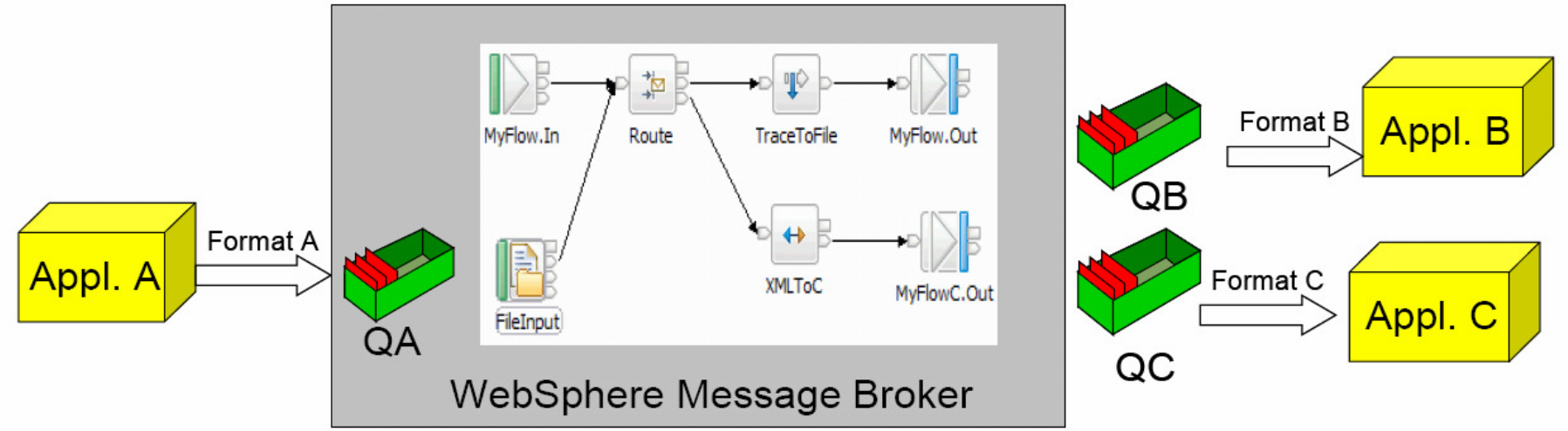
Graphical administration of WebSphere MQ for z/VSE Queues with WMQ Explorer



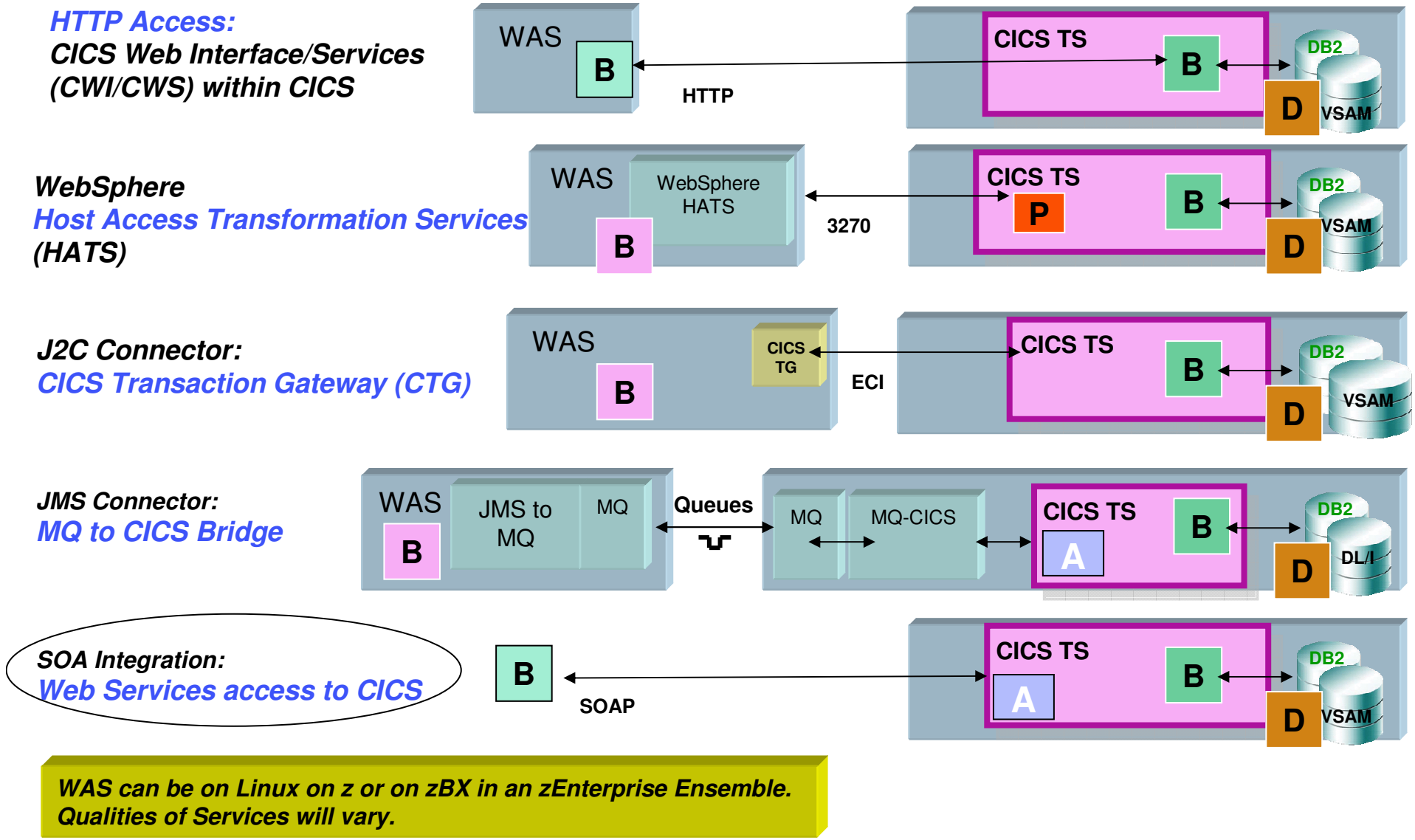
You can use Explorer to administer the z/VSE queue manager, its queues, channels and namelists, including create, delete, modify and display.

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 Broker.**

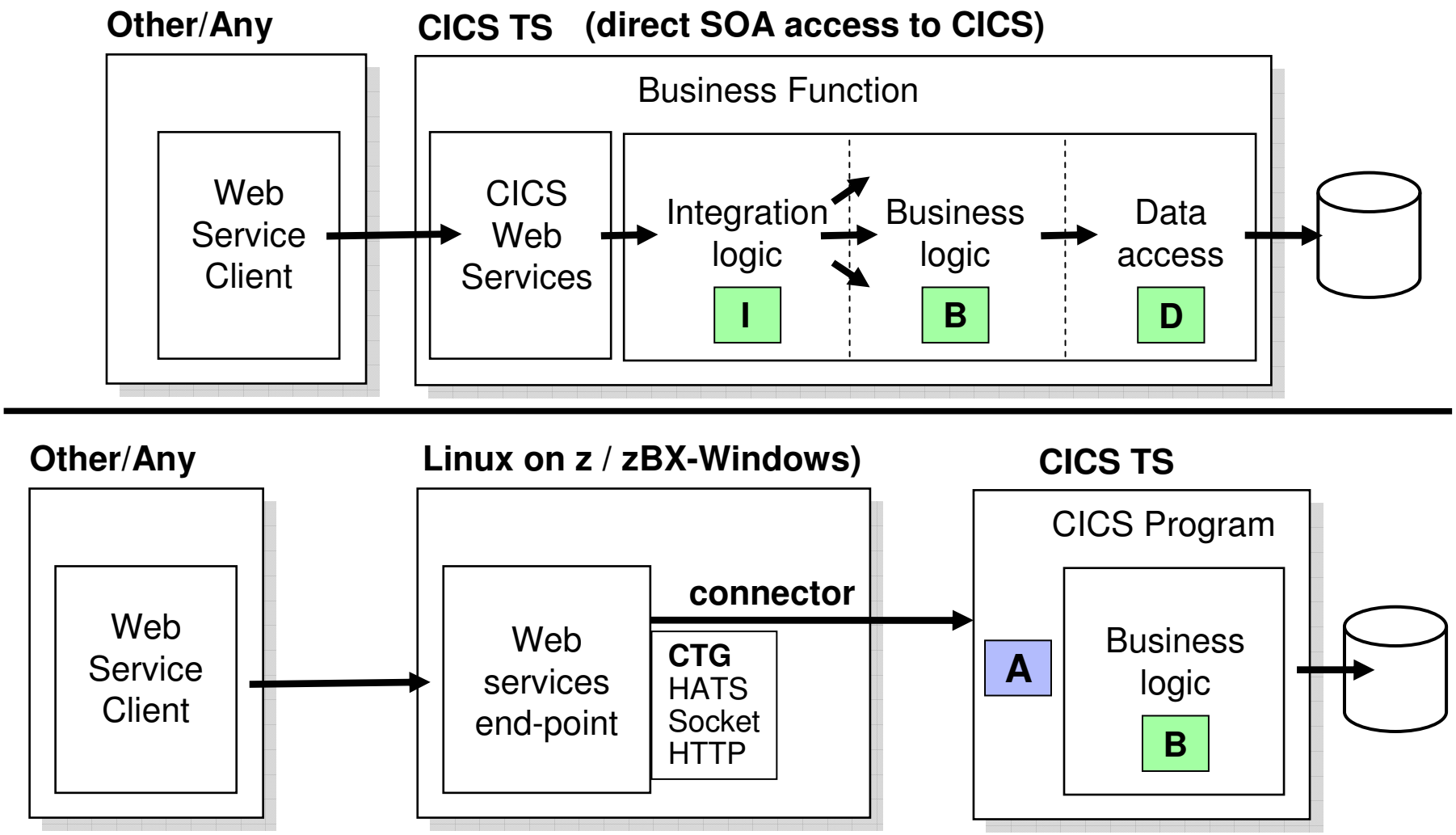


Connectivity to CICS transactions

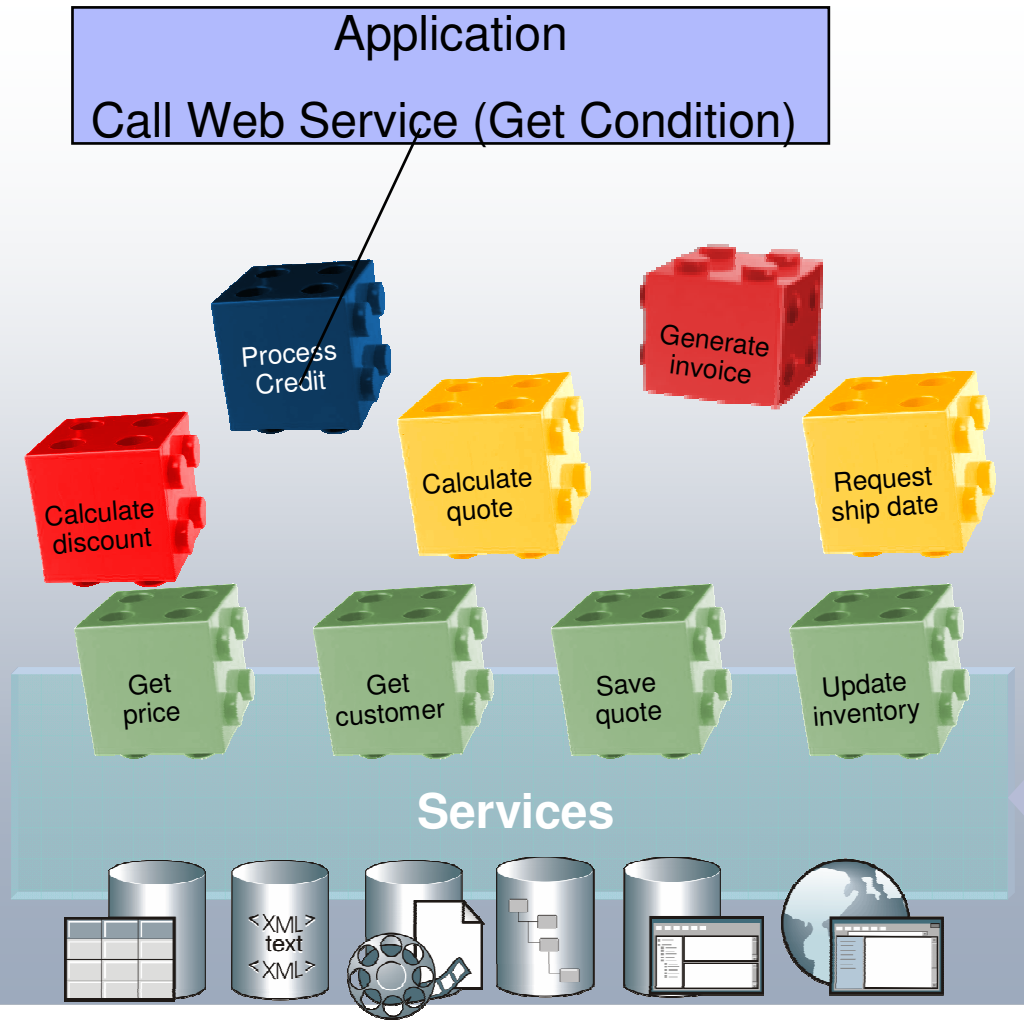


WAS can be on Linux on z or on zBX in an zEnterprise Ensemble. Qualities of Services will vary.

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

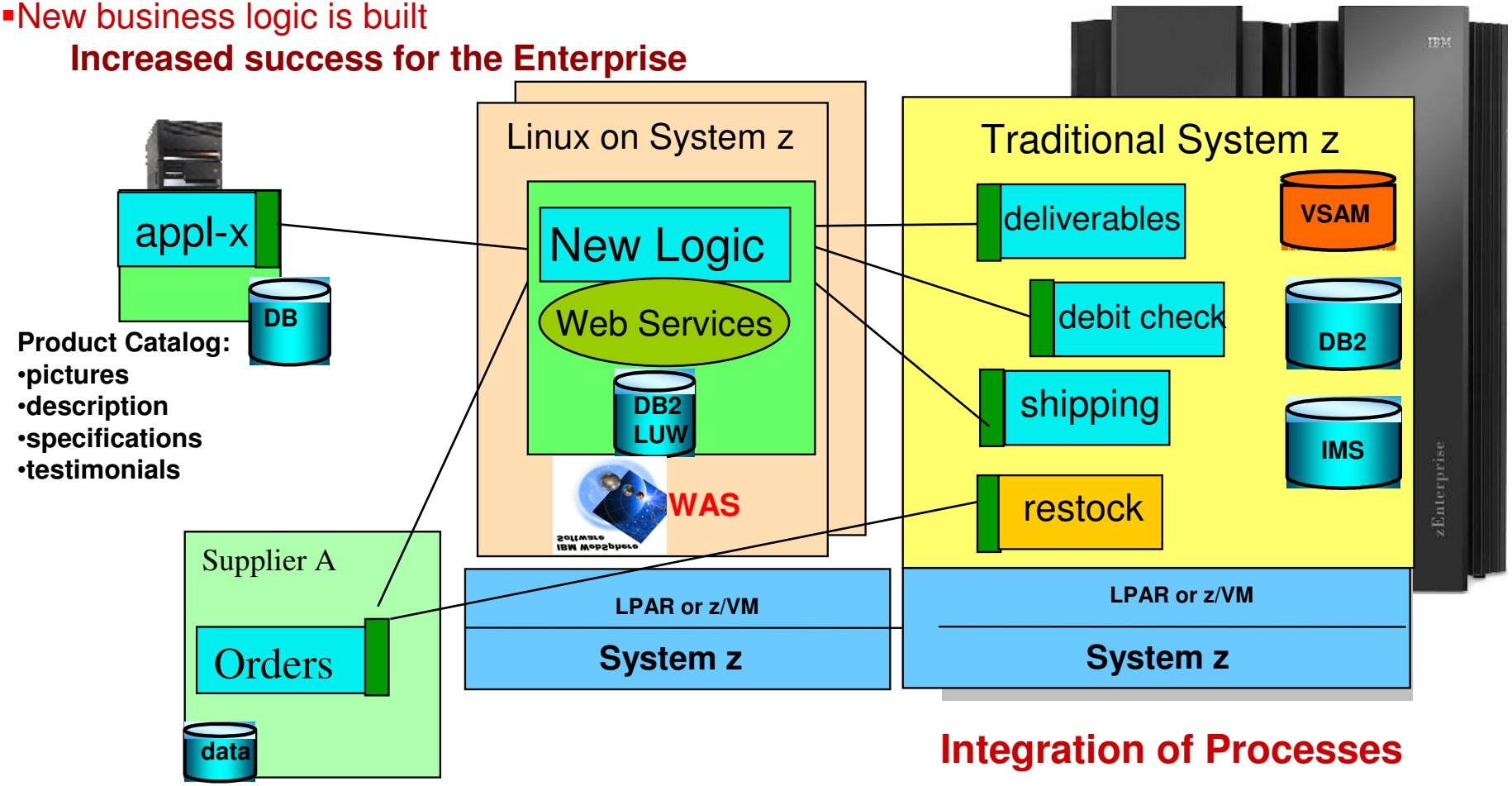
Publishing consistent, reusable services for information that make it easier for processes to get the information they need from across a heterogeneous landscape of application and data.

- 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

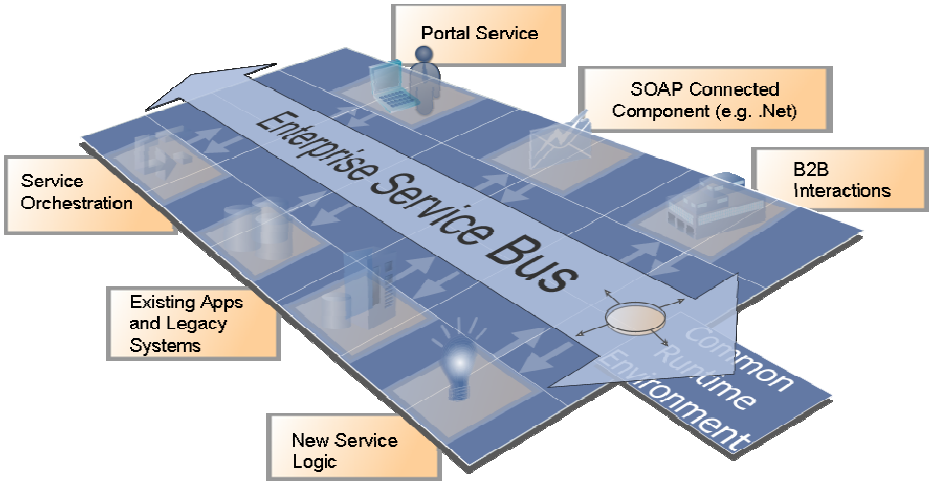
What is an Enterprise Service Bus?

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

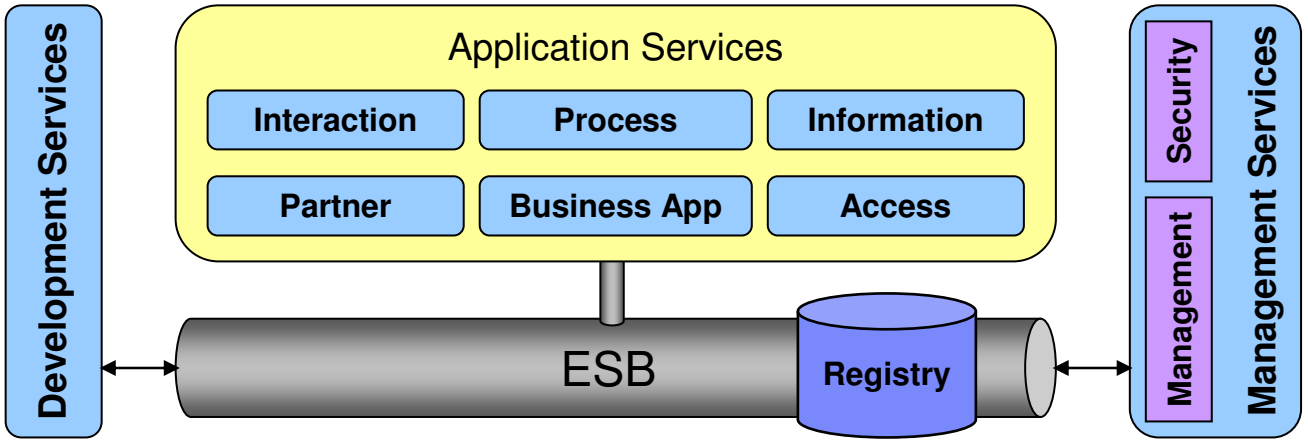
An ESB reduces the number, size and complexity of your interfaces in a SOA solution.

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



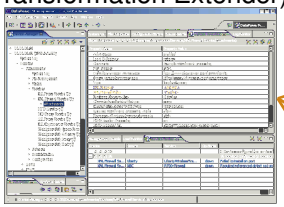
- **Outside ESB**
  - Business Logic (Application Services)
    - ESB ***does*** contain integration logic or connectivity logic
    - Criteria: semantics versus syntax; aspects
- **Loosely coupled to ESB**
  - Security and Management
    - Policy Decision Point outside the ESB
    - ESB can be Policy 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/

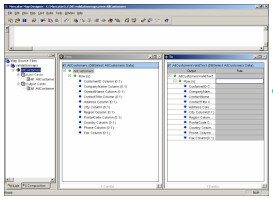
Integrated SOA Tooling Across ESB Runtim

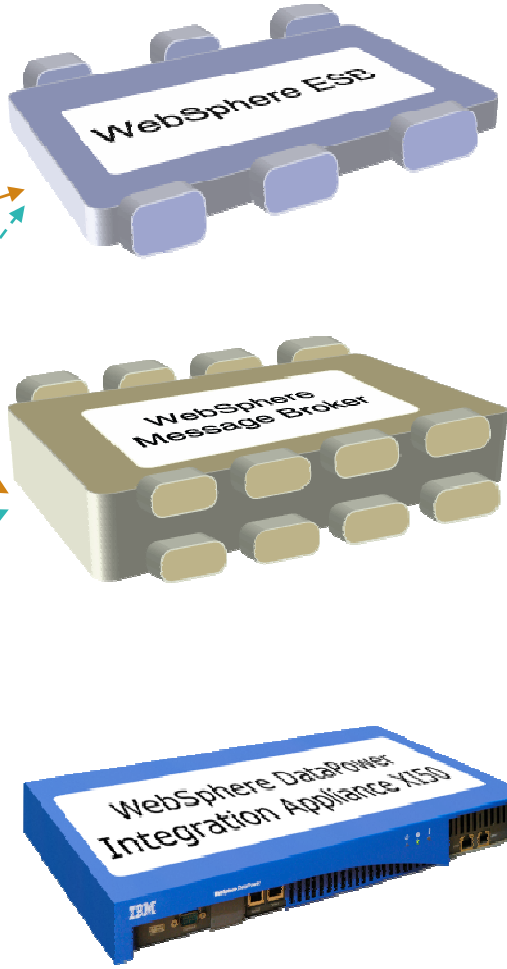
All 3 ESBs integrate with Eclipse, WTX, ITCAM for SOA and WSRR

Legacy Mapping Tool:
WebSphere TX
(Transformation Extender)

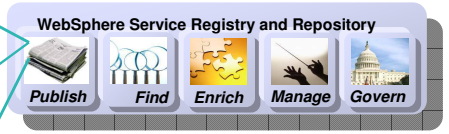


Development Tools:
Eclipse/RAD/RDz

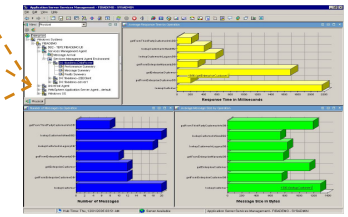




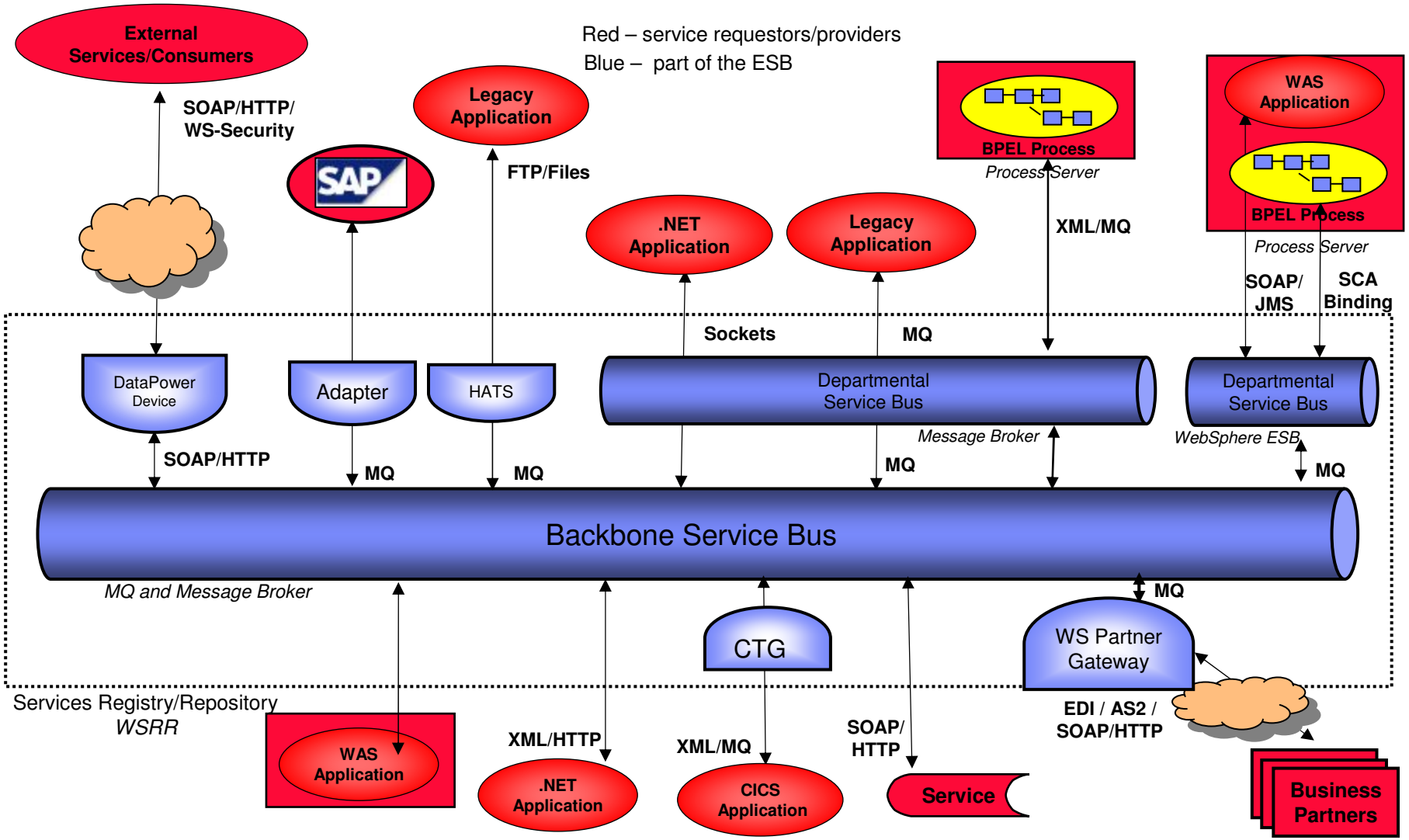
SOA Registry:
WSRR



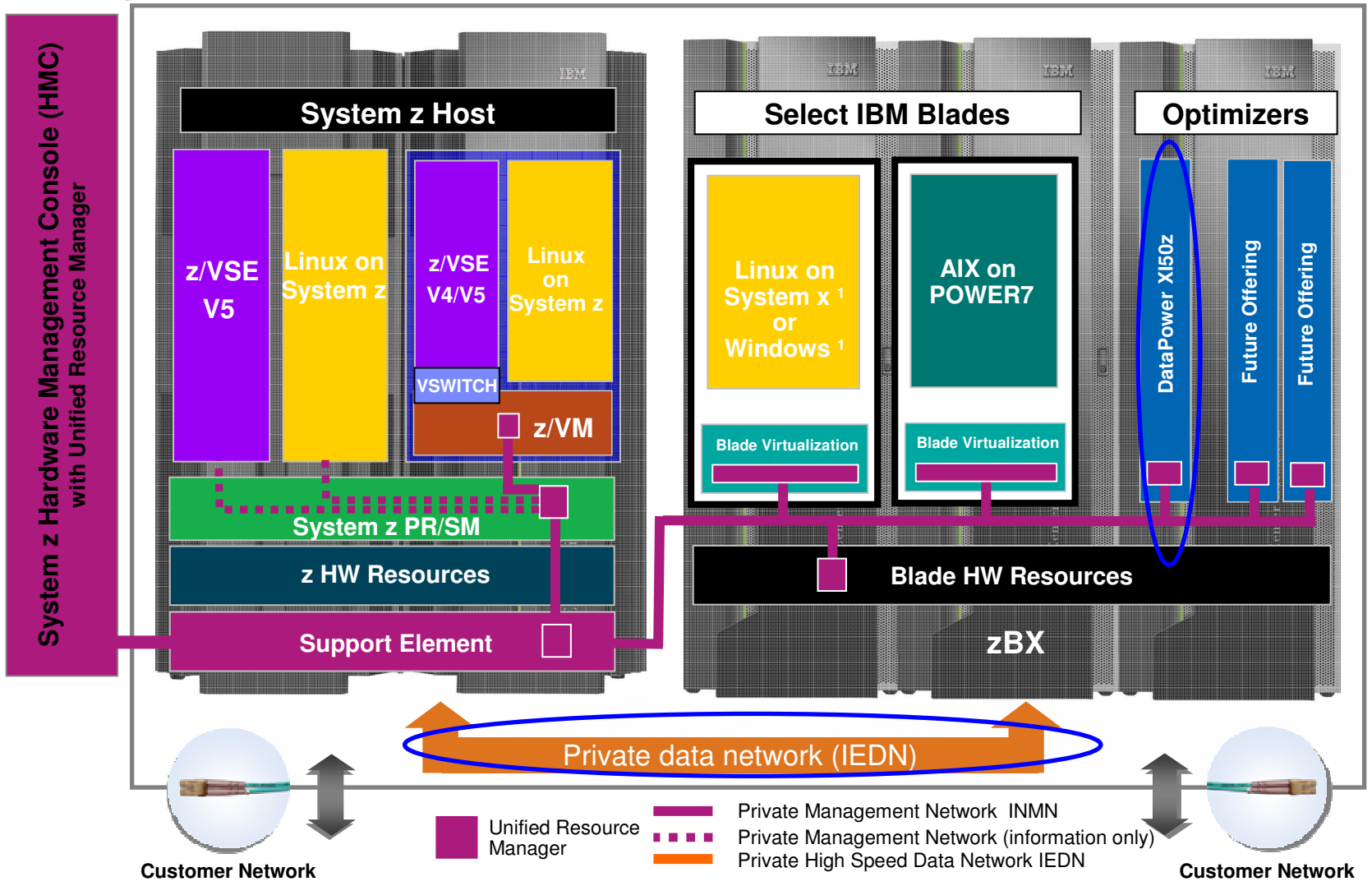
SOA Management:
ITCAM for SOA



Example of Federated ESB



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



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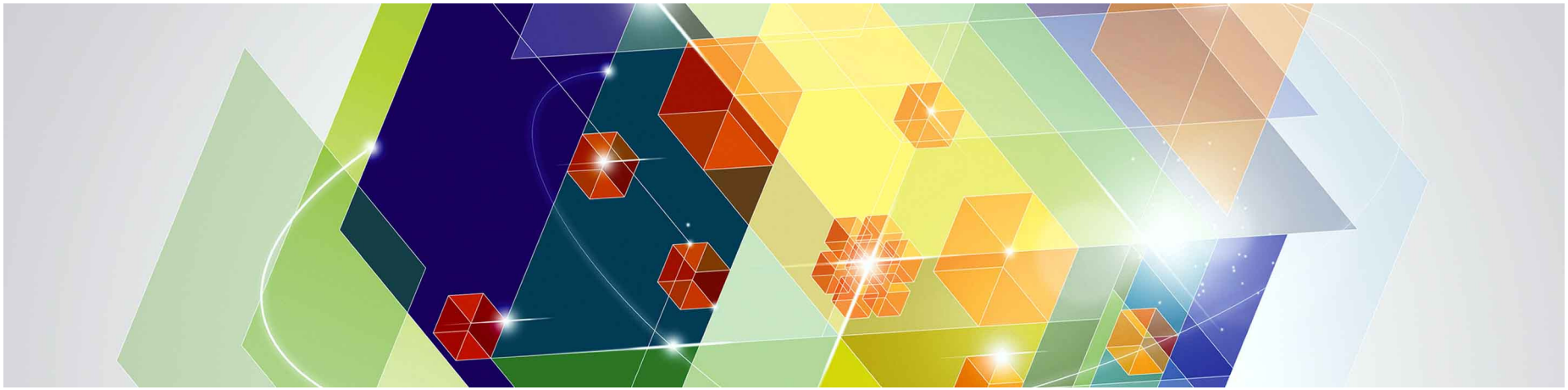
Security and Network balance with zEnterprise



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

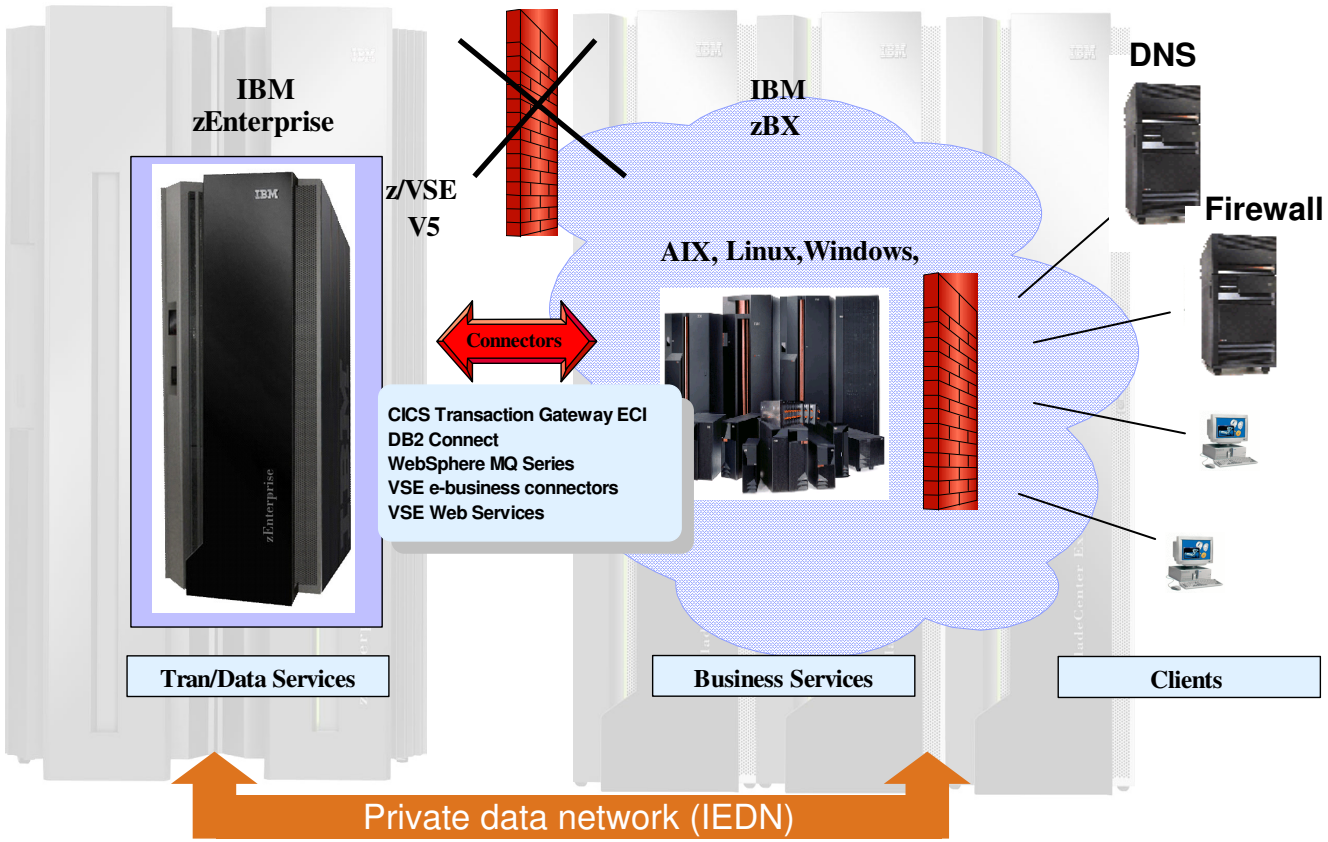
Accelerators with zBX

- 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

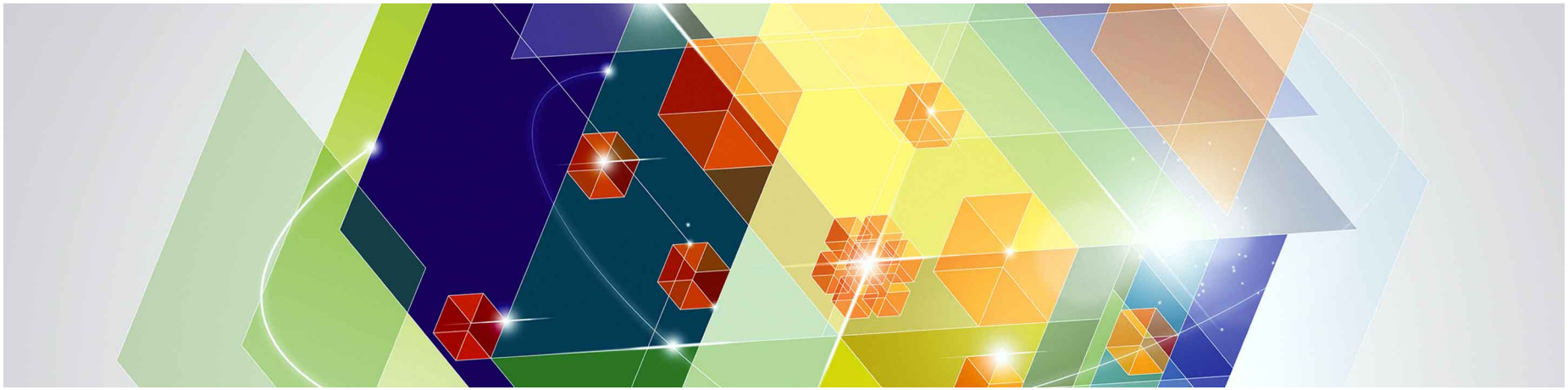


Protect existing z/VSE investments

Integrate using middleware and z/VSE connectors

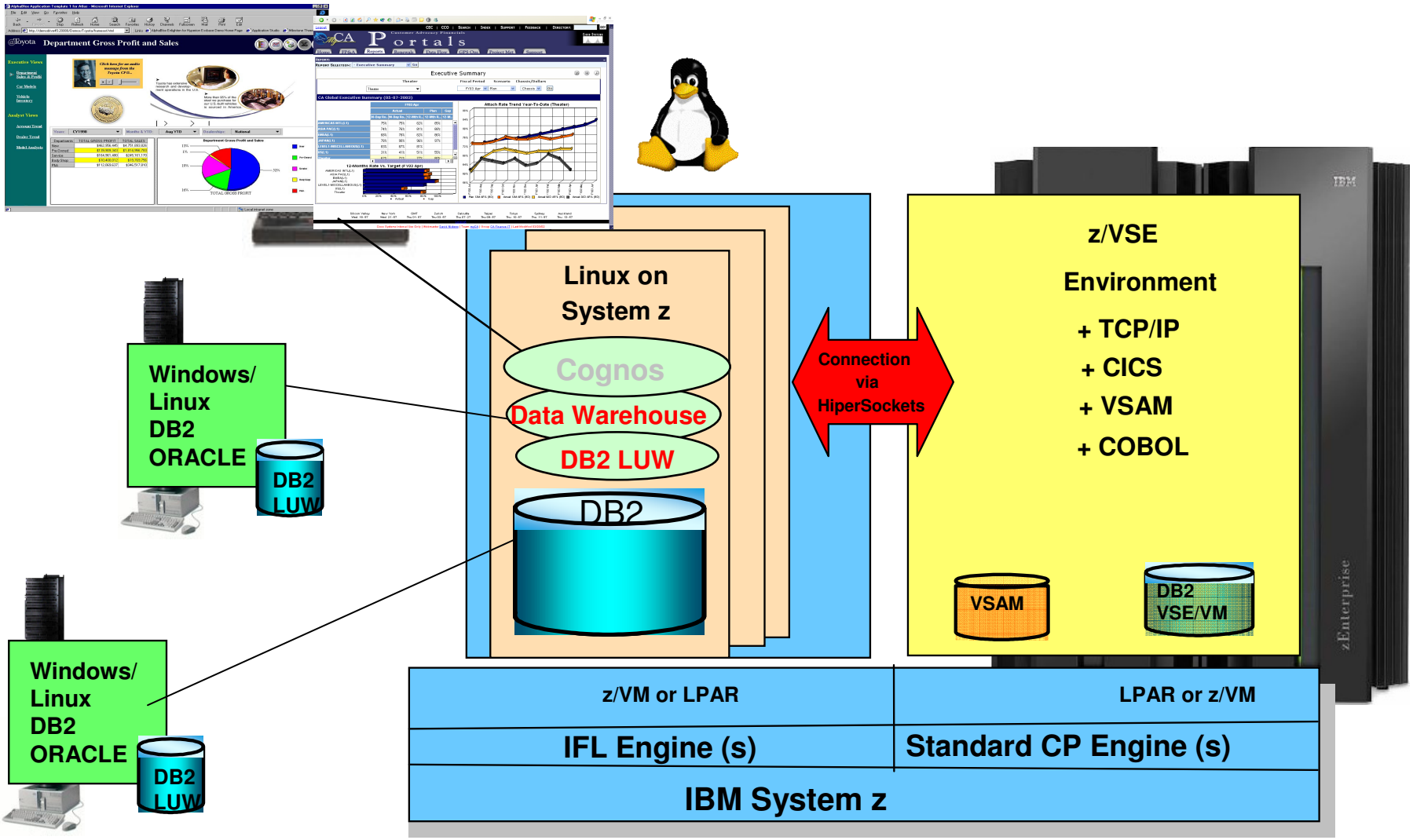
Extend with zBX or with Linux on z to access new applications & solutions

Data Warehouse and BI Solutions with Linux on System z



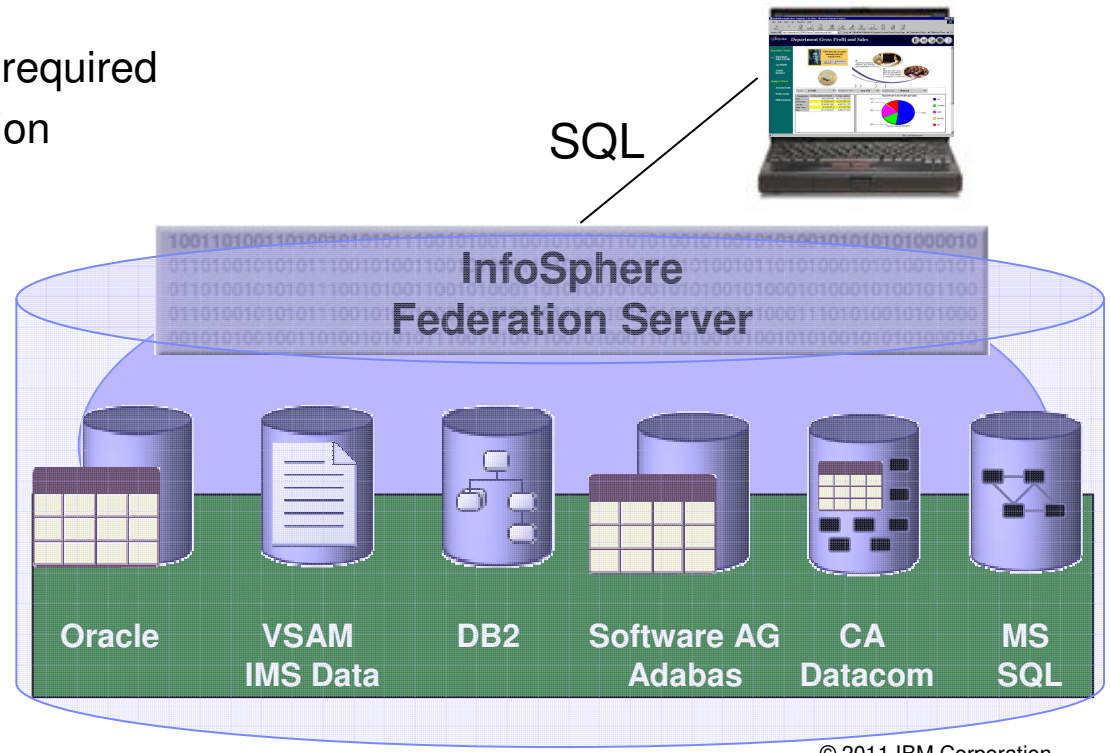
Data Warehouse and BI with Linux on System z

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

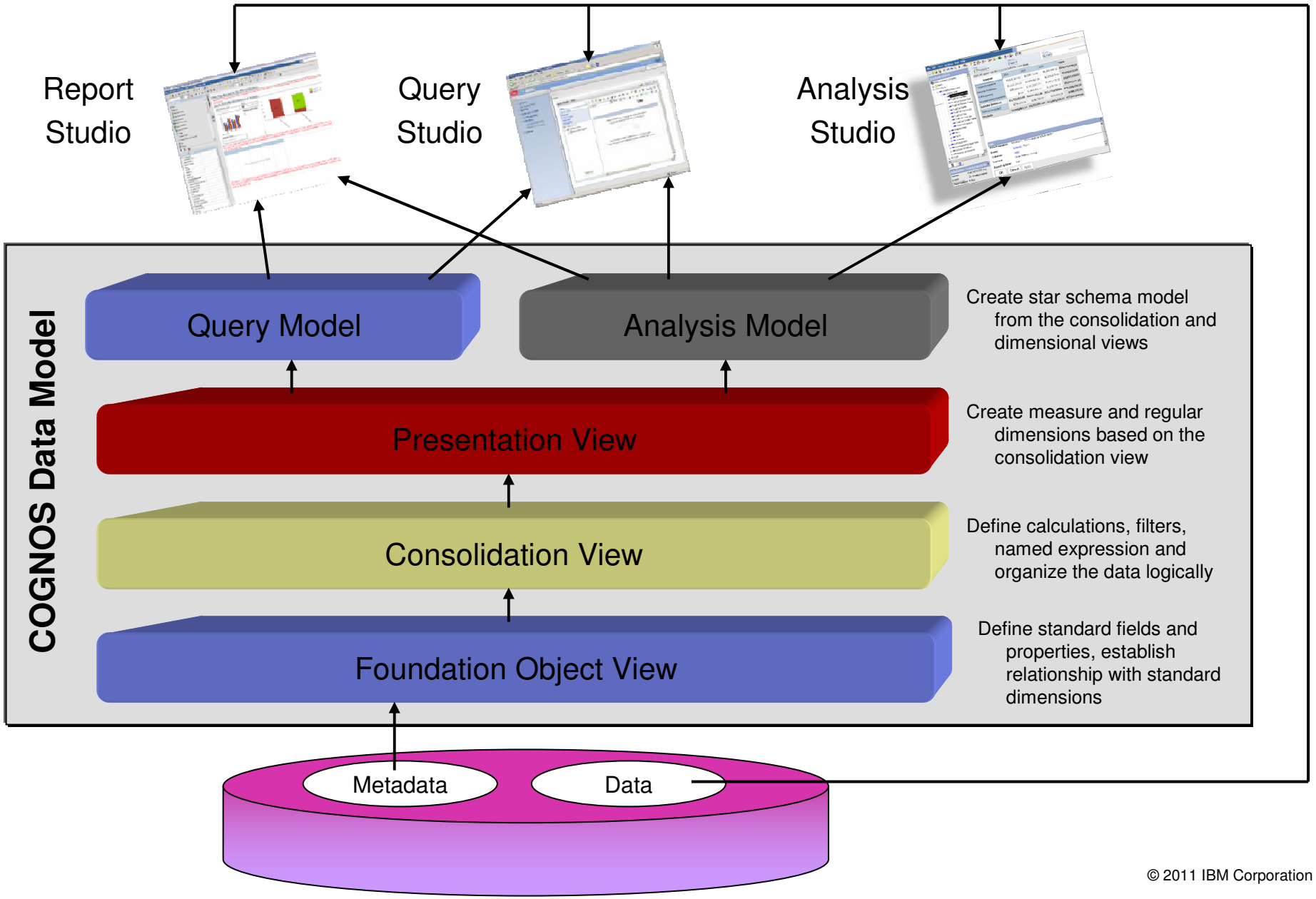


InfoSphere Federation Server on Linux on System z

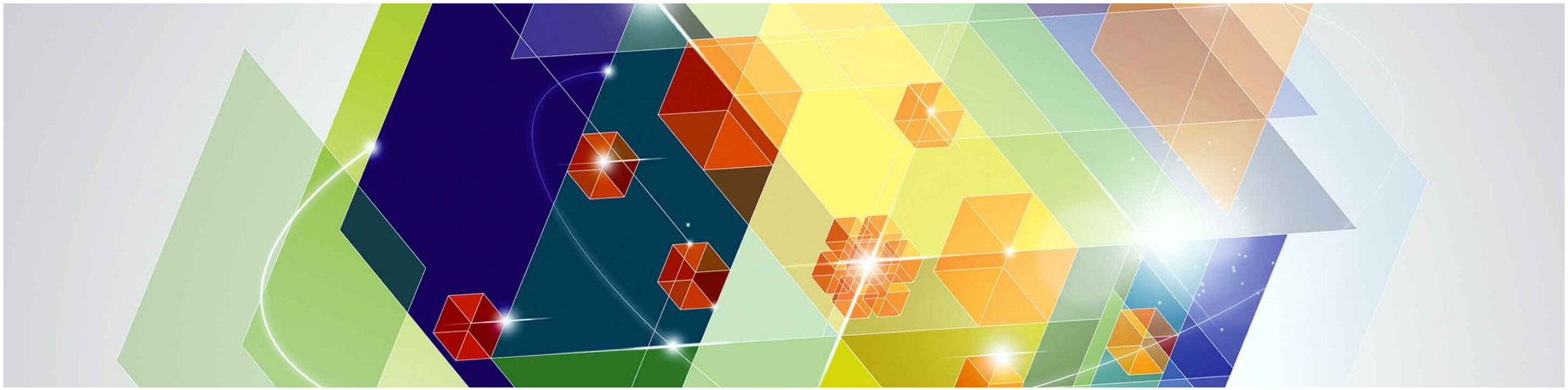
- **Integrating at the data layer – Federation of data**
  - Read from and write to federated mainframe data sources using SQL
  - Standards-based access via JDBC, ODBC, or Call Level Interface
    - Including for mainframe VSAM data and flat files
  - Multithreaded with native drivers for scalable performance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



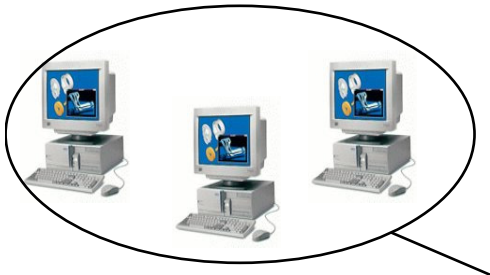
COGNOS Model Elements



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

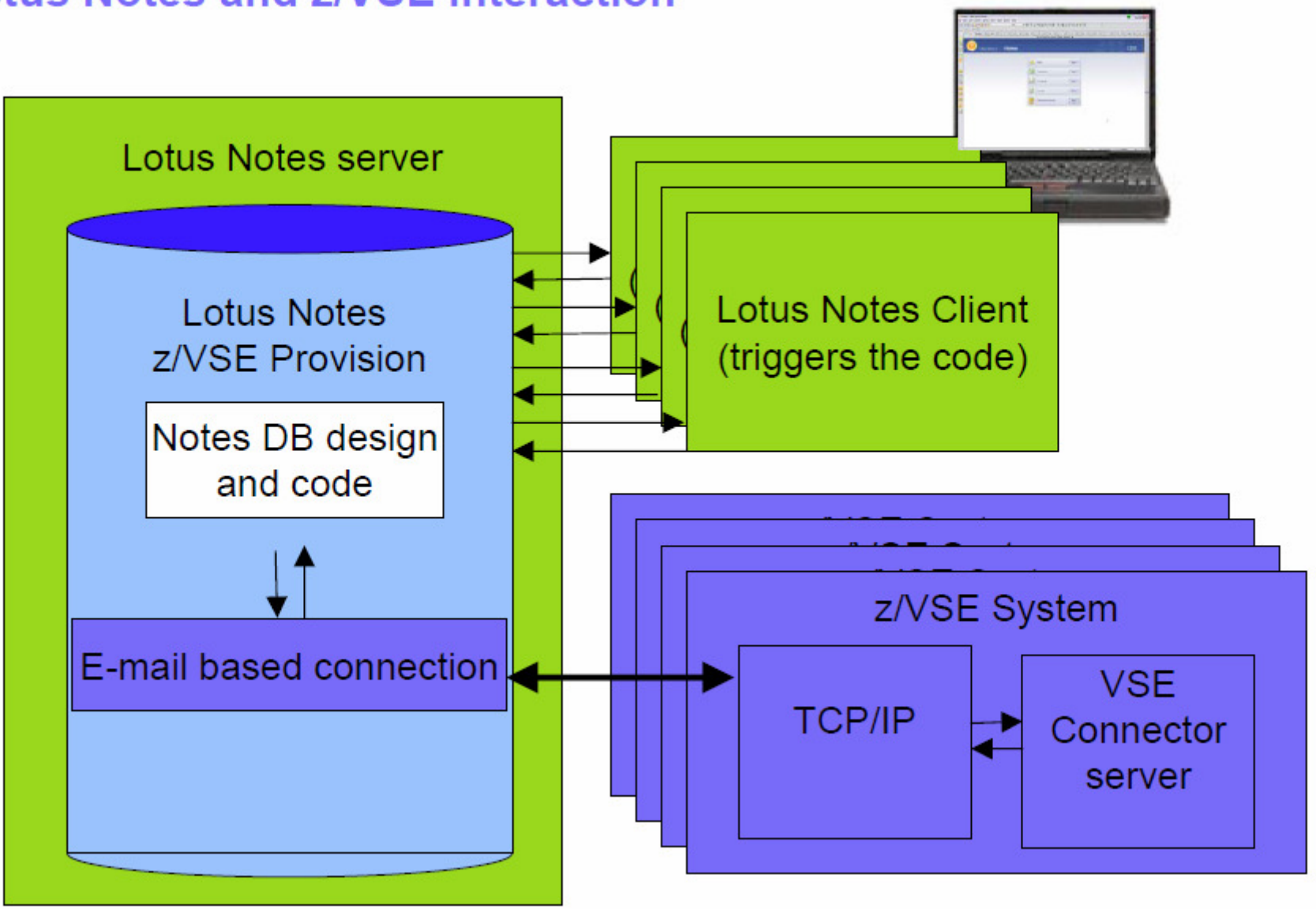
Application Server

Development Tools

Integrated Administration, Statistics and Events, Monitoring

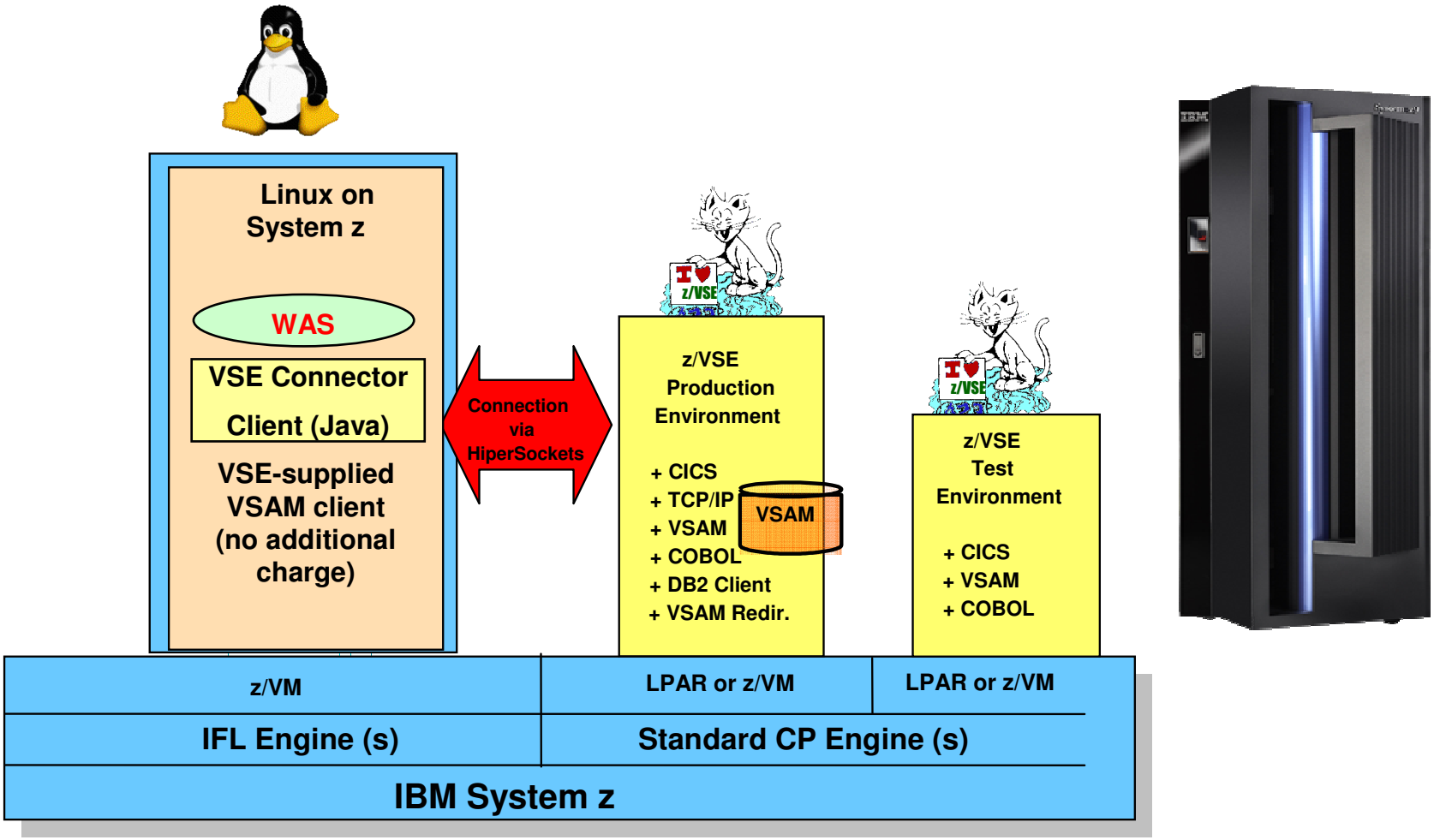
Running on different platforms:
IBM AIX, IBM OS400, IBM zOS, Linux, Microsoft Windows, Sun Solaris

Lotus Notes and z/VSE interaction

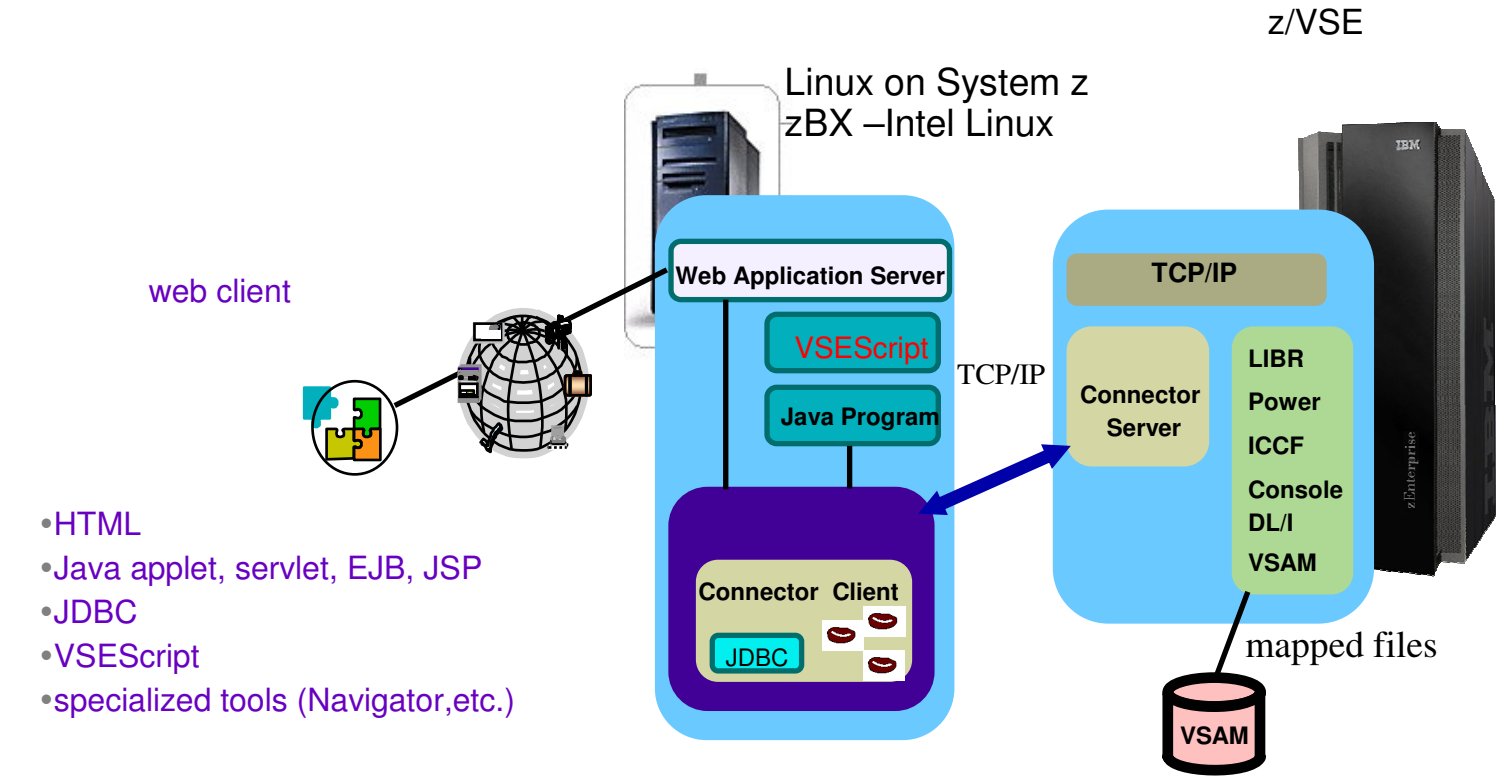


Leverage z/VSE data and resources from Java

Leverage VSE/VSAM data using VSAM Connectors on Linux on System z



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

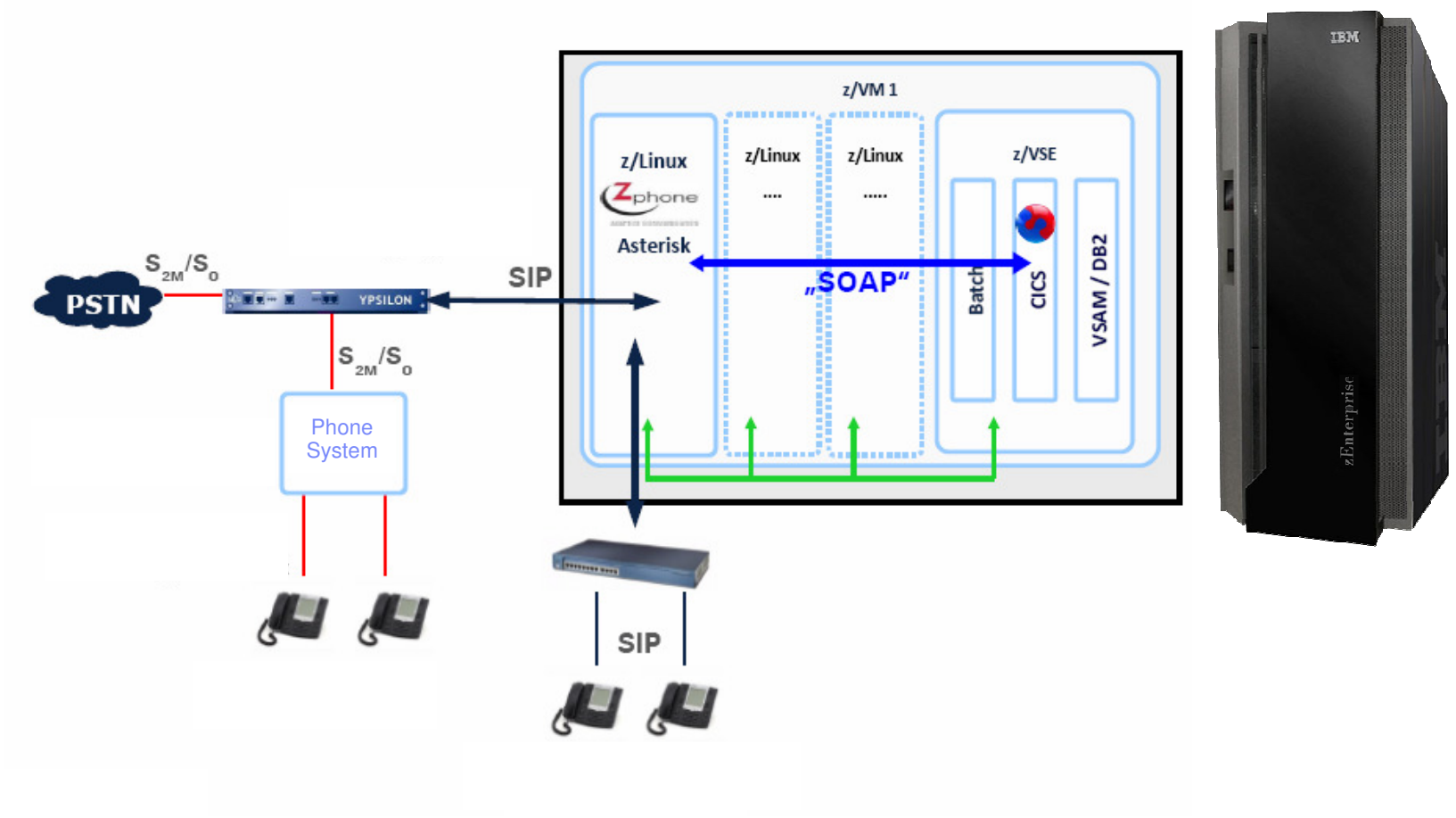


- real time access to VSE resources from remote systems
- new possibilities for leveraging the VSE investment

IBM System z – the next generation **voice** Hub!

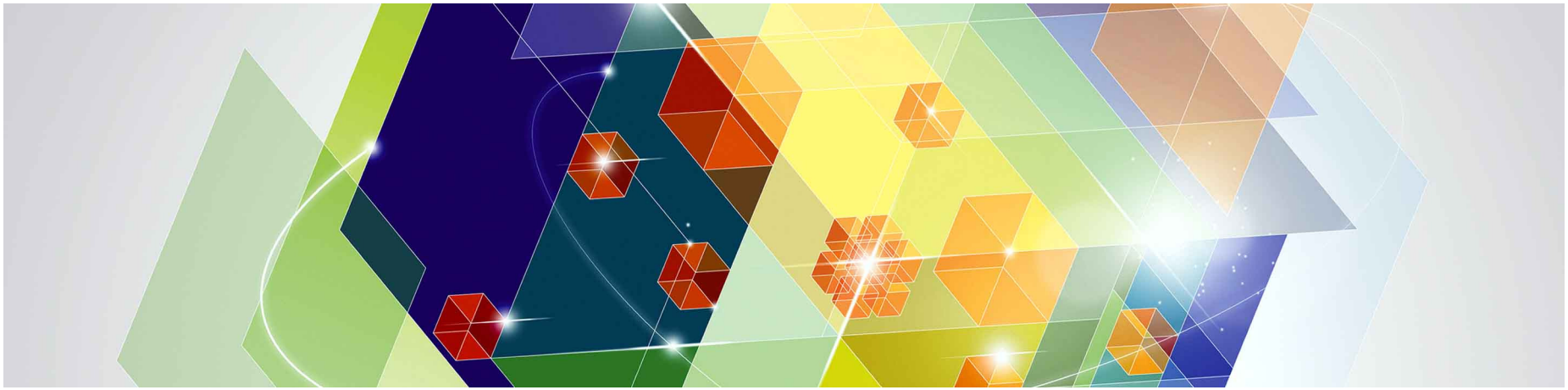
– more than a simple Phone Server

„Asterisk® is the world's leading open source telephony engine and tool kit"



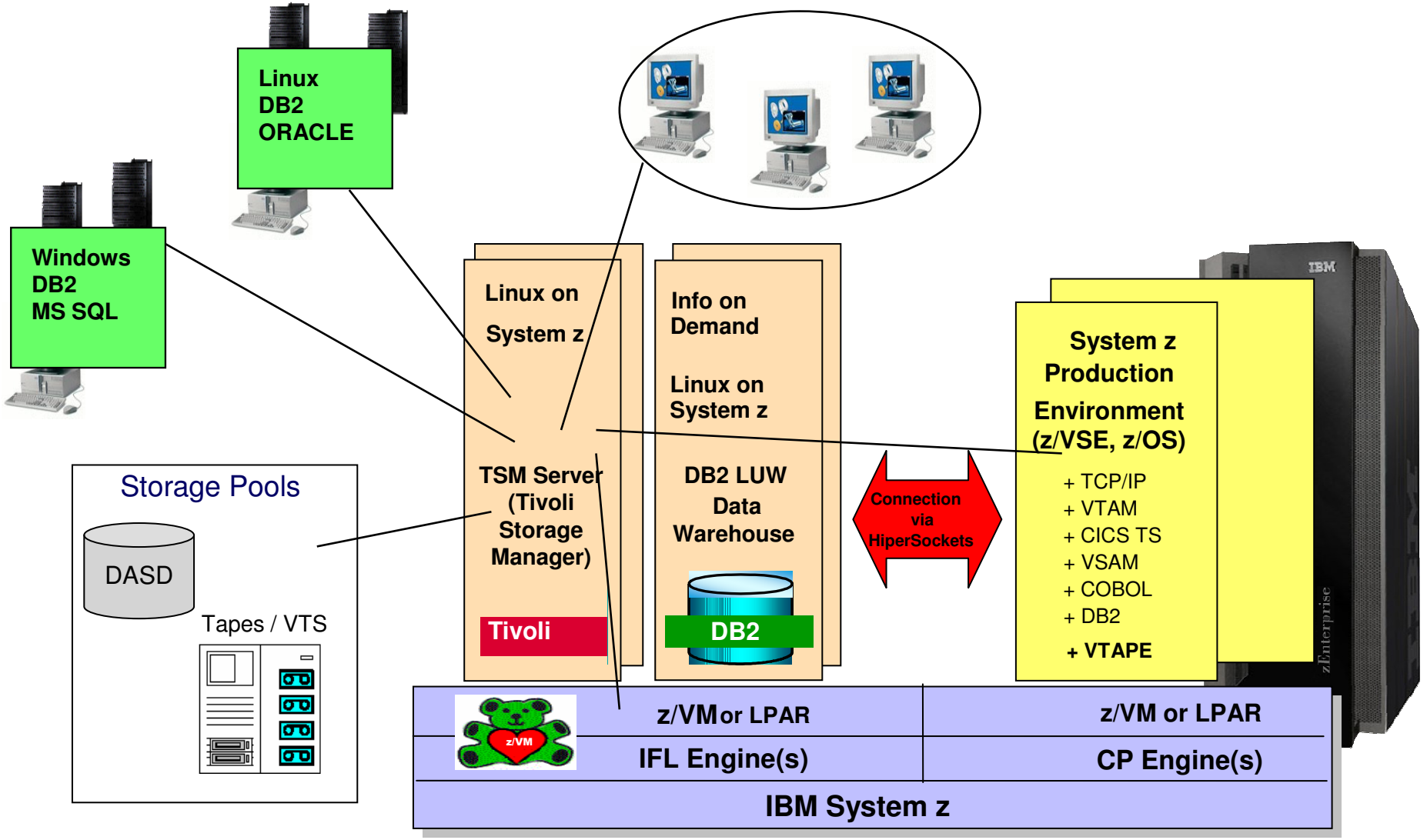
(http://www.asterisk.org/support/about)

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

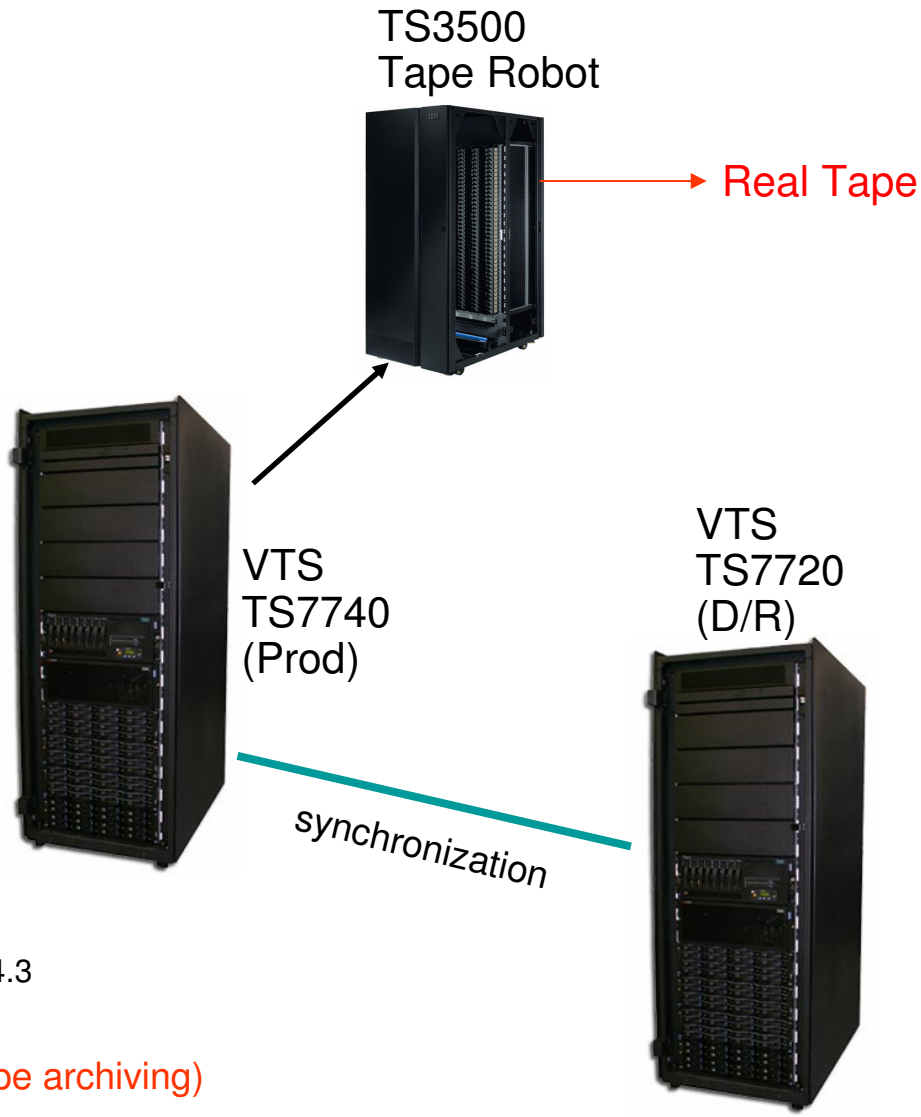
Tape Library : logical

TS7700 Virtualization Engine

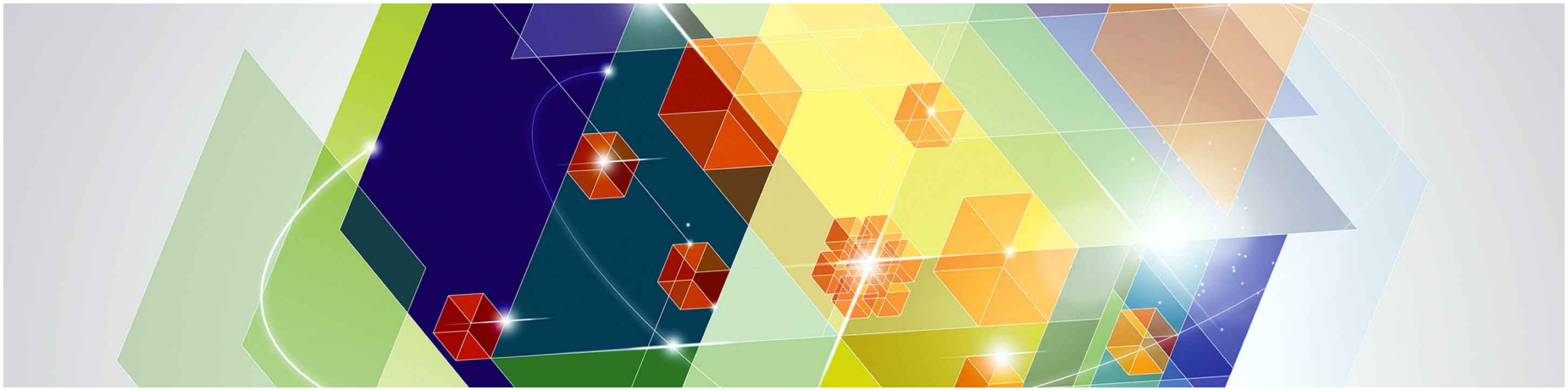
Standalone System support only in z/VSE (GRID in z/VSE 5.1)

TS7740 Virtualization Engine (TS3500 can be attached)

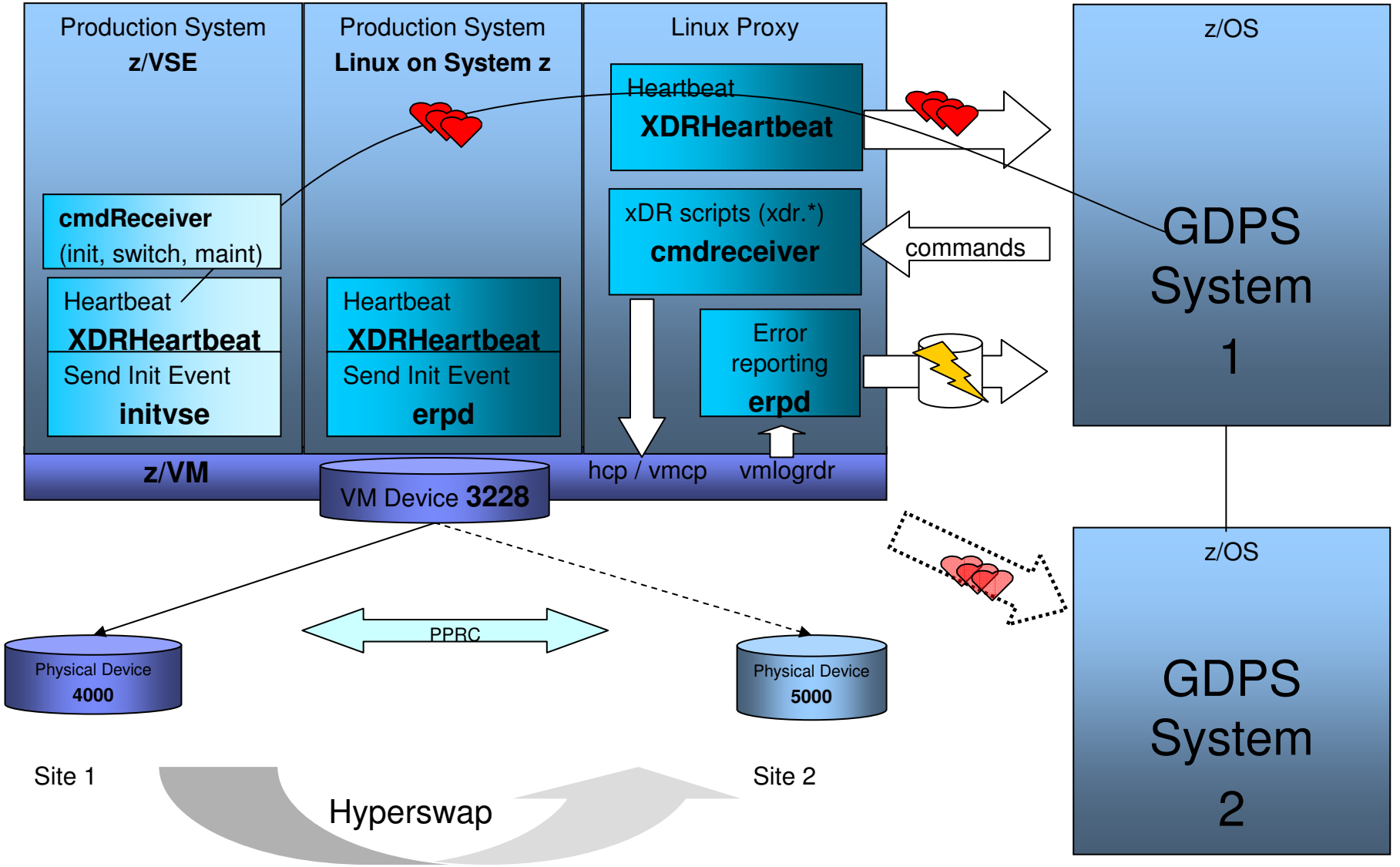
- Maximum of 256 virtual drives (3490E) and 1,000,000 virtual volumes
- Web-based management tools
- up to 6 TB native tape volume cache
- Supports TS1120 / TS1130 tape drive-based encryption
- Supports logical WORM (write once read many) , in z/VSE 4.3
- New: z/VSE 5.1 Copy Export support – for Real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



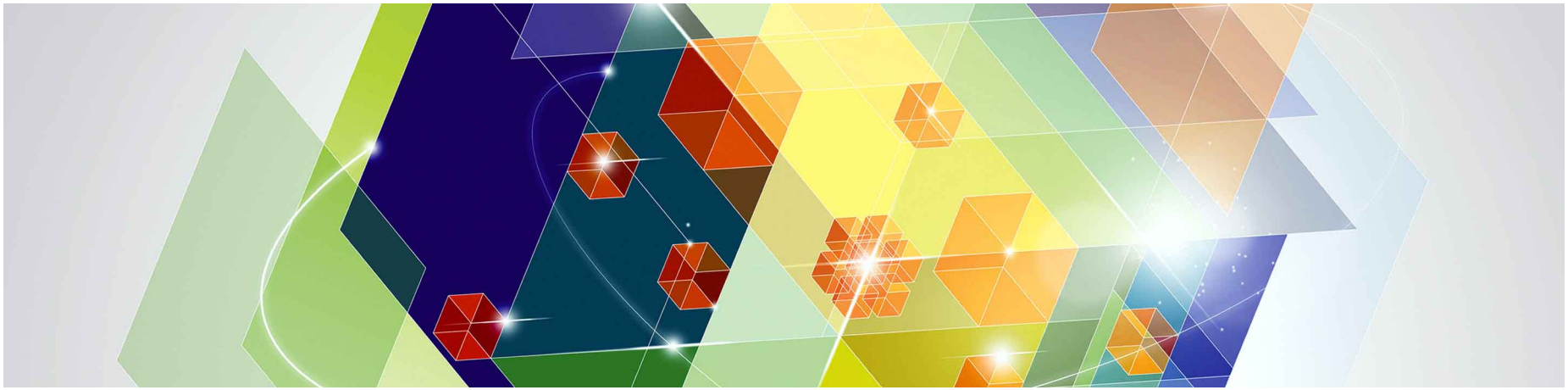
Extended Disaster Recovery (xDR) with z/VM and Linux on System z



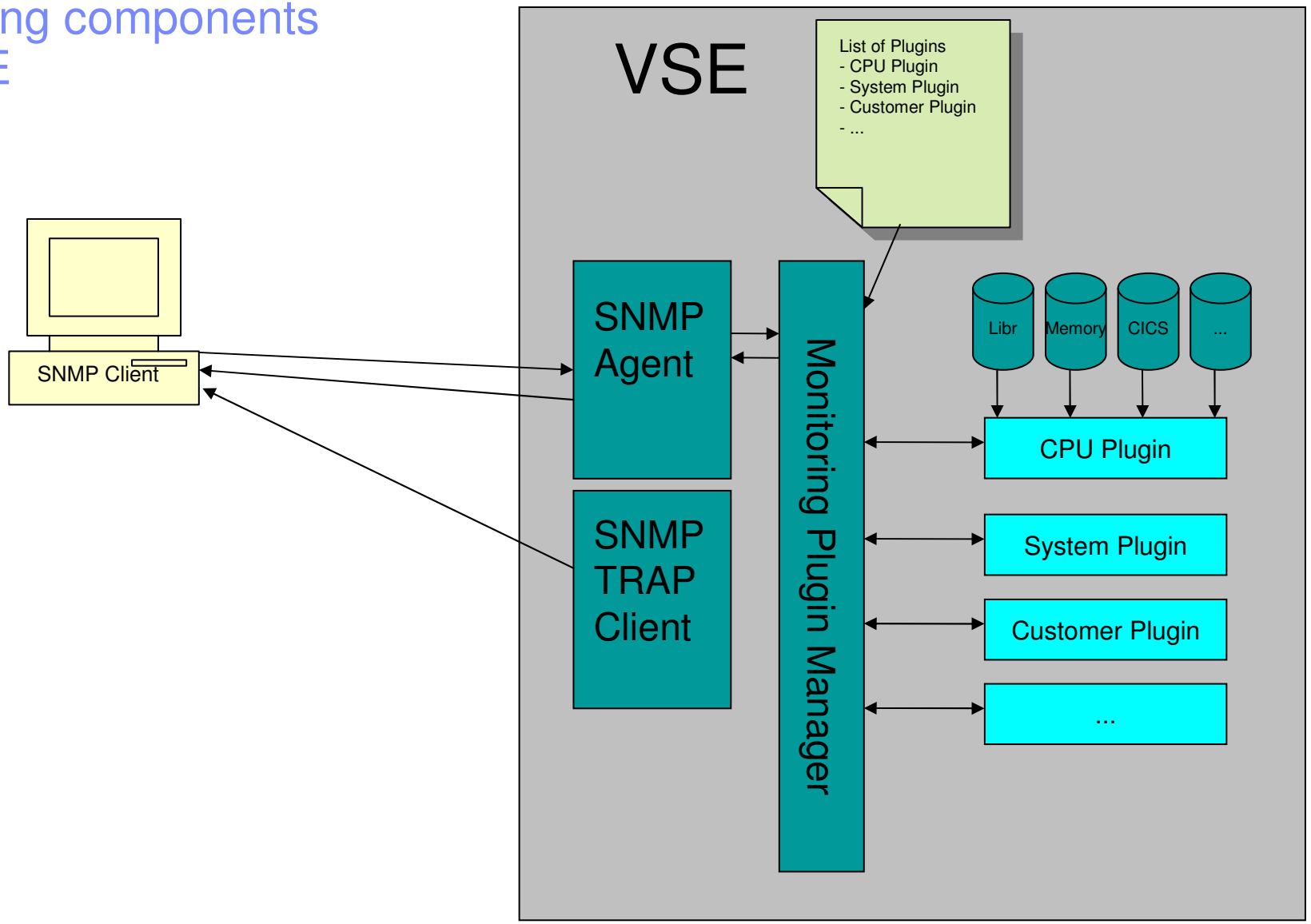
xDR Support for z/VSE as active guest under z/VM



Monitoring interface for z/VSE



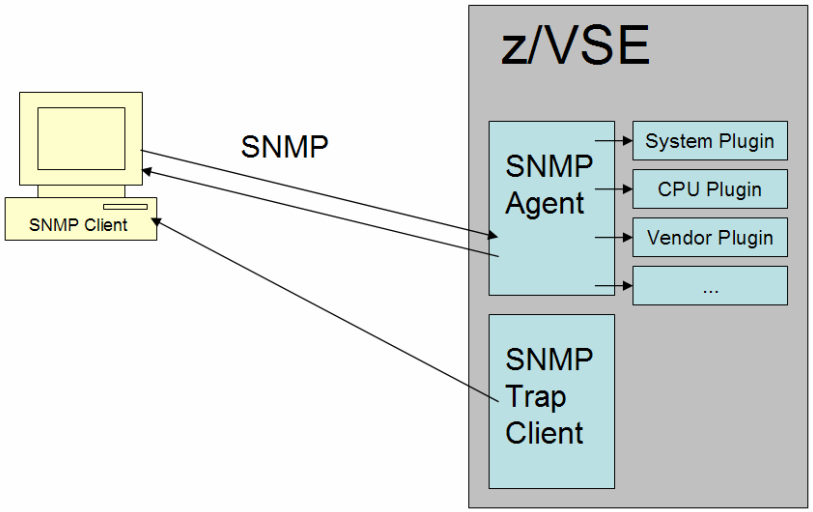
Monitoring components in z/VSE



z/VSE V4.3 – SNMP Monitoring Agent support

- **z/VSE Monitoring Agent enables customers to monitor z/VSE systems using standard monitoring interfaces (SNMP V1)**
  - It also includes an open interface, which enables customers or vendors to use own programs (plugins) to collect additional data

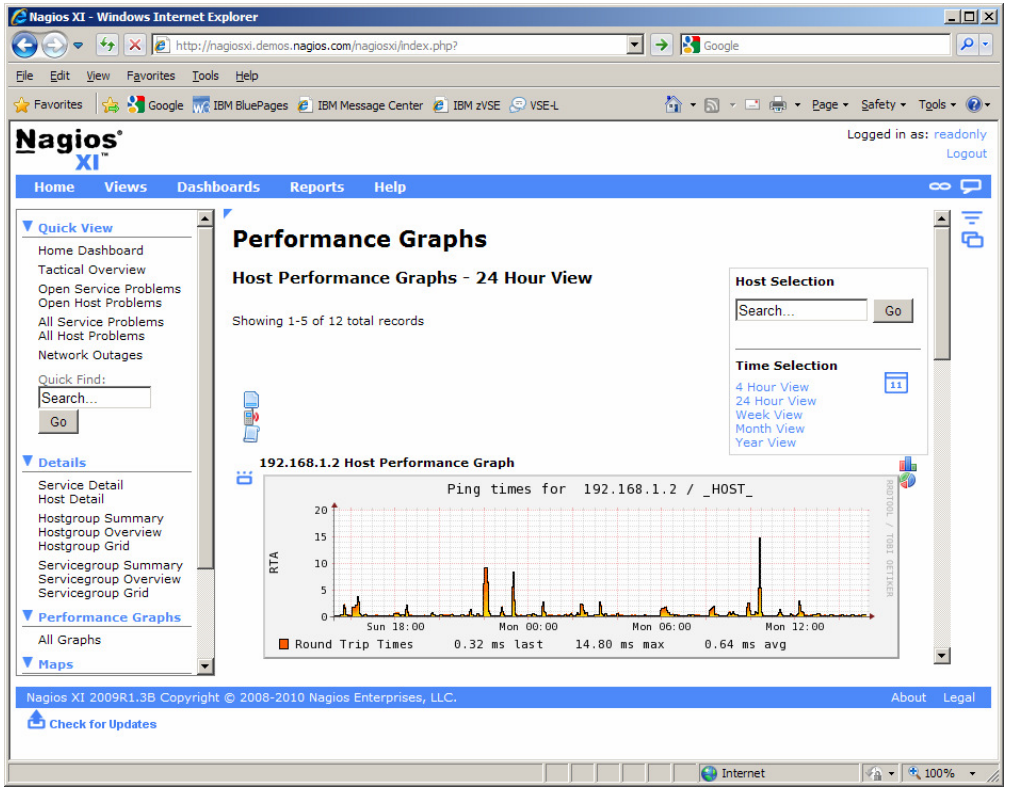
- **Data collected by the IBM provided plugins contains**
  - Information about the environment (e.g. Processor, LPAR and z/VM information)
  - Number of partitions (static, dynamic, total, maximum)
  - Partition priorities
  - Number of CPUs (active, stopped, quiced)
  - Paging (page ins, page outs)
  - Performance counters overall and per CPU
  - CPU address and status
  - CPU time, NP time, spin time, allbound time
  - Number of SVCs and dispatcher cycles



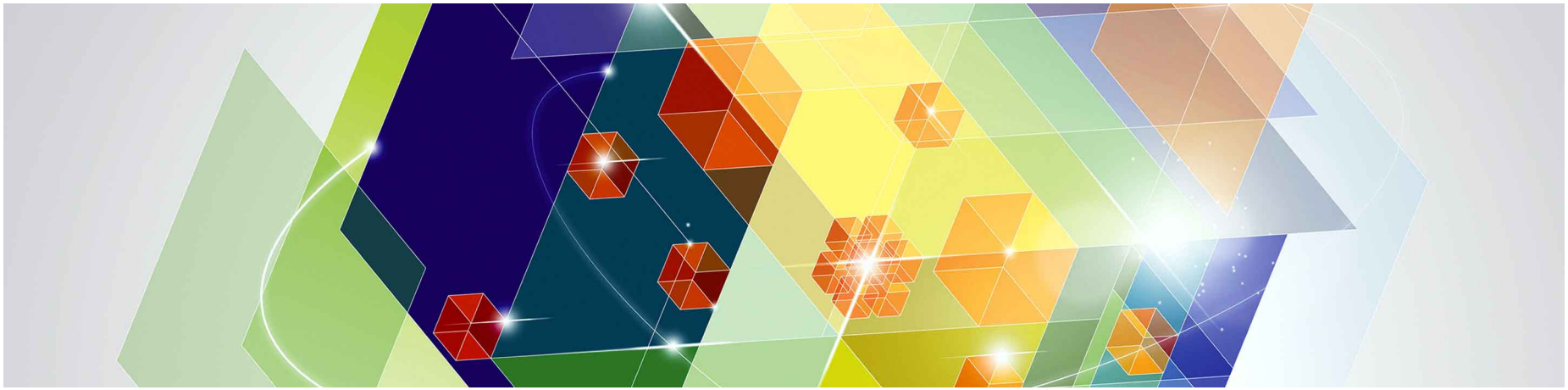
z/VSE V4.3 – SNMP Monitoring Agent support

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

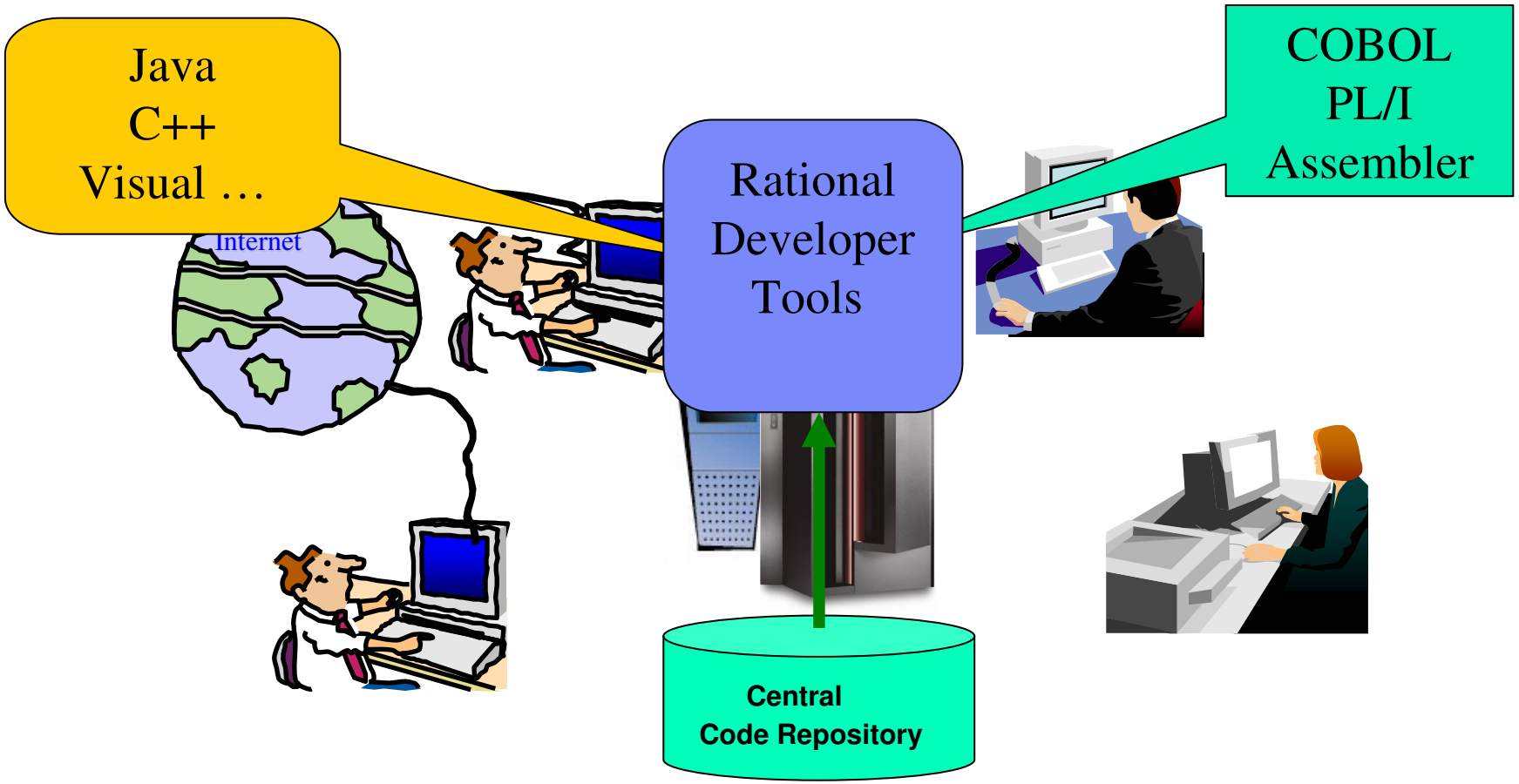
- **z/VSE SNMP Trap client**
  - Sends SNMP V1 traps to inform one or more monitoring stations or servers about important events
  - For example:
    - The end of a job stream is reached.
    - An error has occurred during a job stream
  - z/VSE 5.1 the Trap client was enhanced to be a callable phase/tool



Modern Development Environments for z/VSE



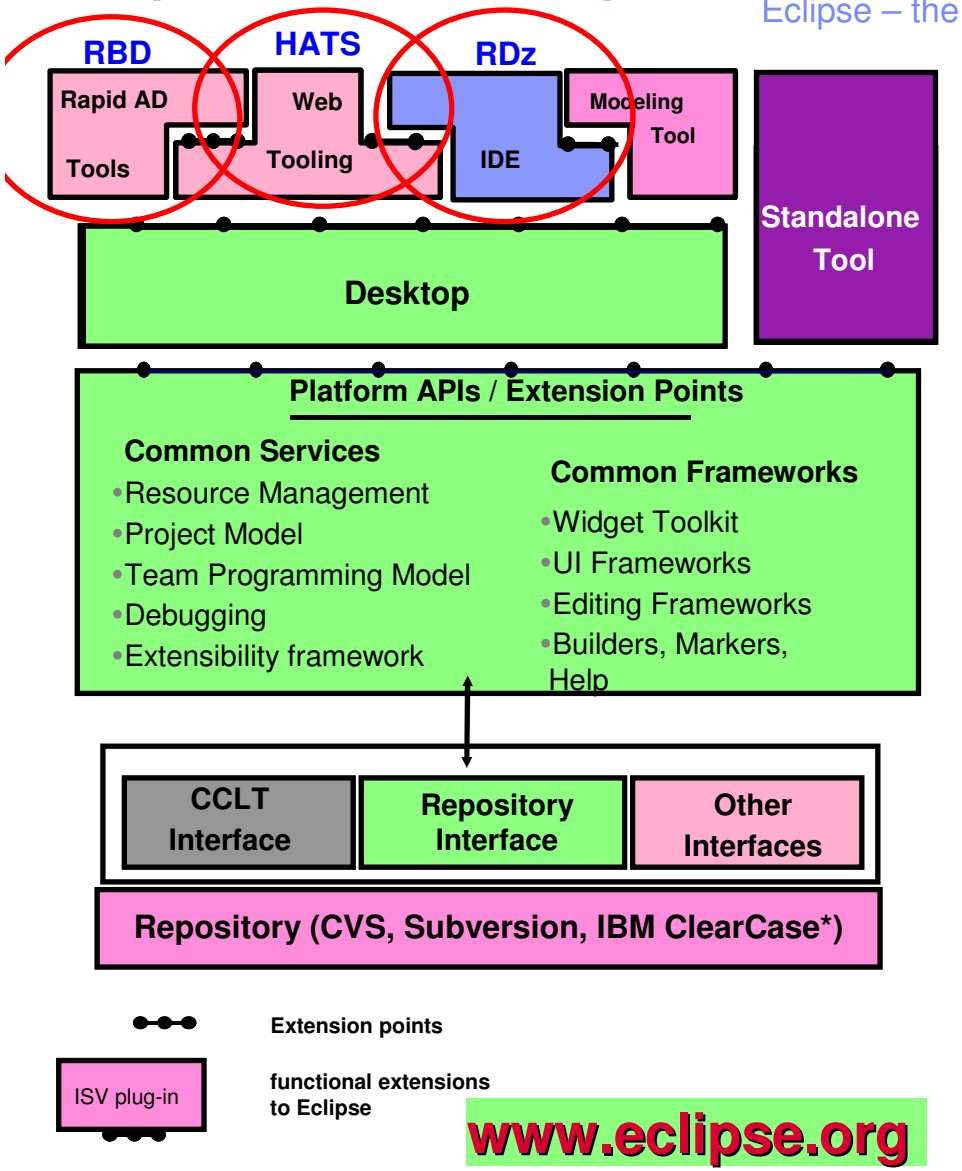
‘Common’ development Environment…



Eclipse helps !

Eclipse based Development Environments for z/VSE

Eclipse – the open Standard for application development



What is Eclipse about:

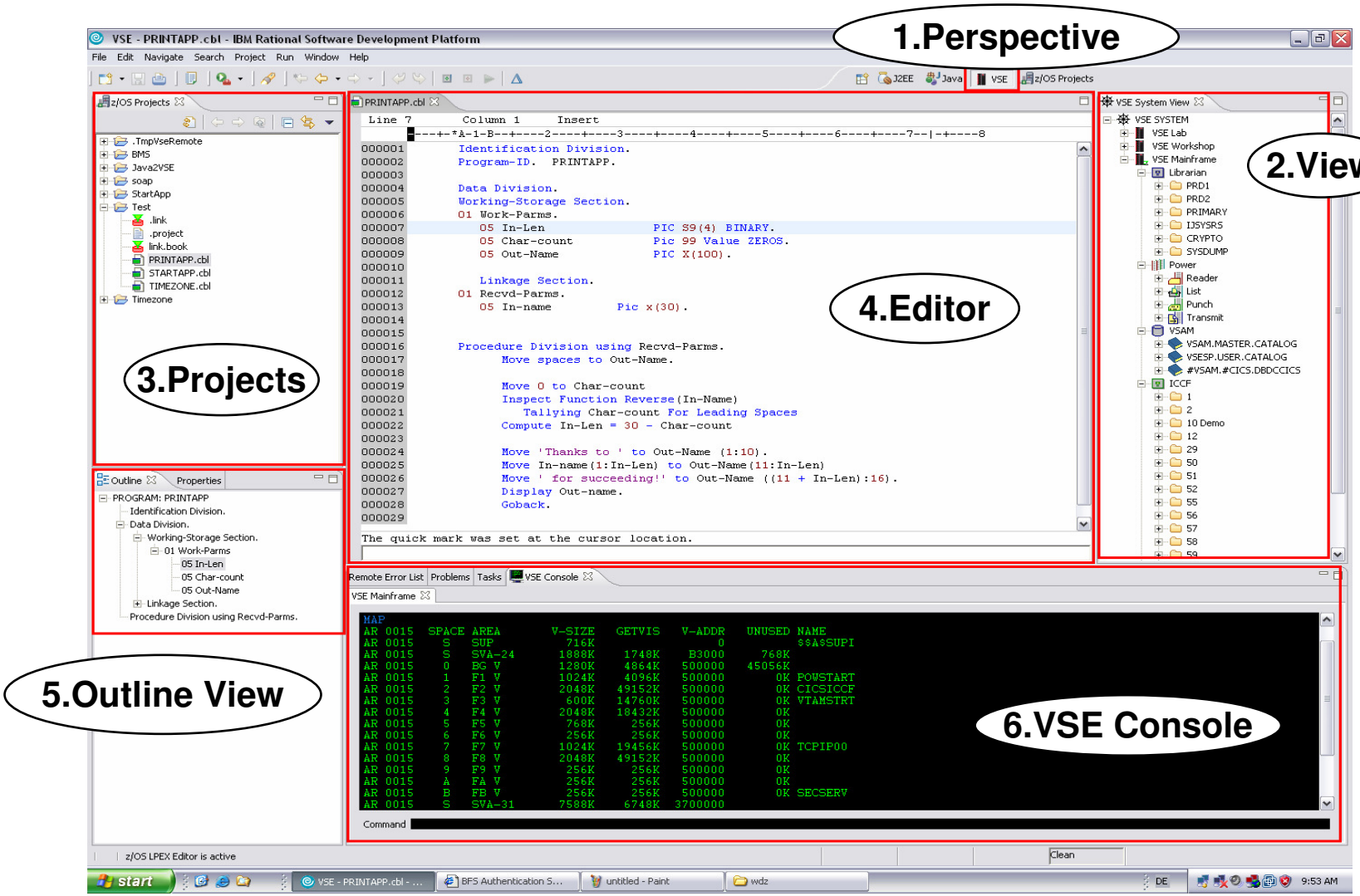
- Open source development framework
  - with modern Editors
  - syntax help & check
  - semantic check
- Centralized source code maintenance
  - entire source code in central Repository
  - cross platform project administration
- Versioning software interface
  - CVS, Subversion, or IBM ClearCase
  -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

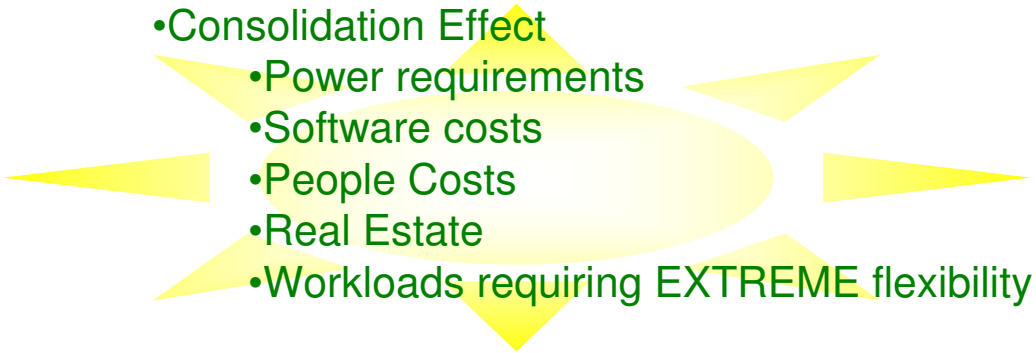
IBM System zEnterprise:

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**

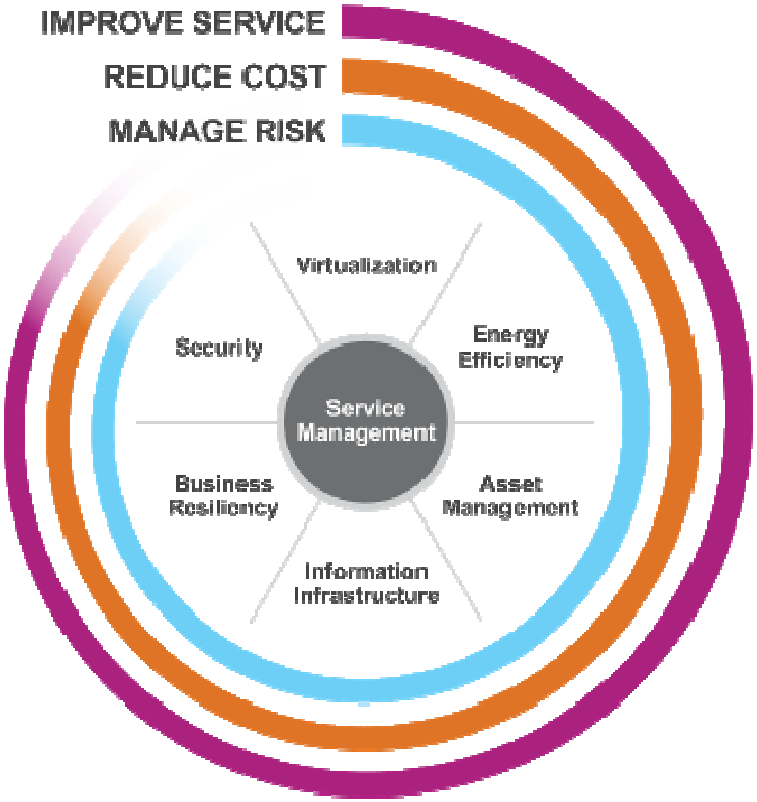
A strategic systems platform….
Helping to free up resources for critical projects and establish a base for the future

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



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.

zJournal: www.mainframezone.com
April/May 2011

The z/VSE Fast Path to Linux on System z

Print this article

TRANSLATE

by Ingo Franzki, Karsten Graul

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

TRANSLATE

by Wilhelm Mild

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

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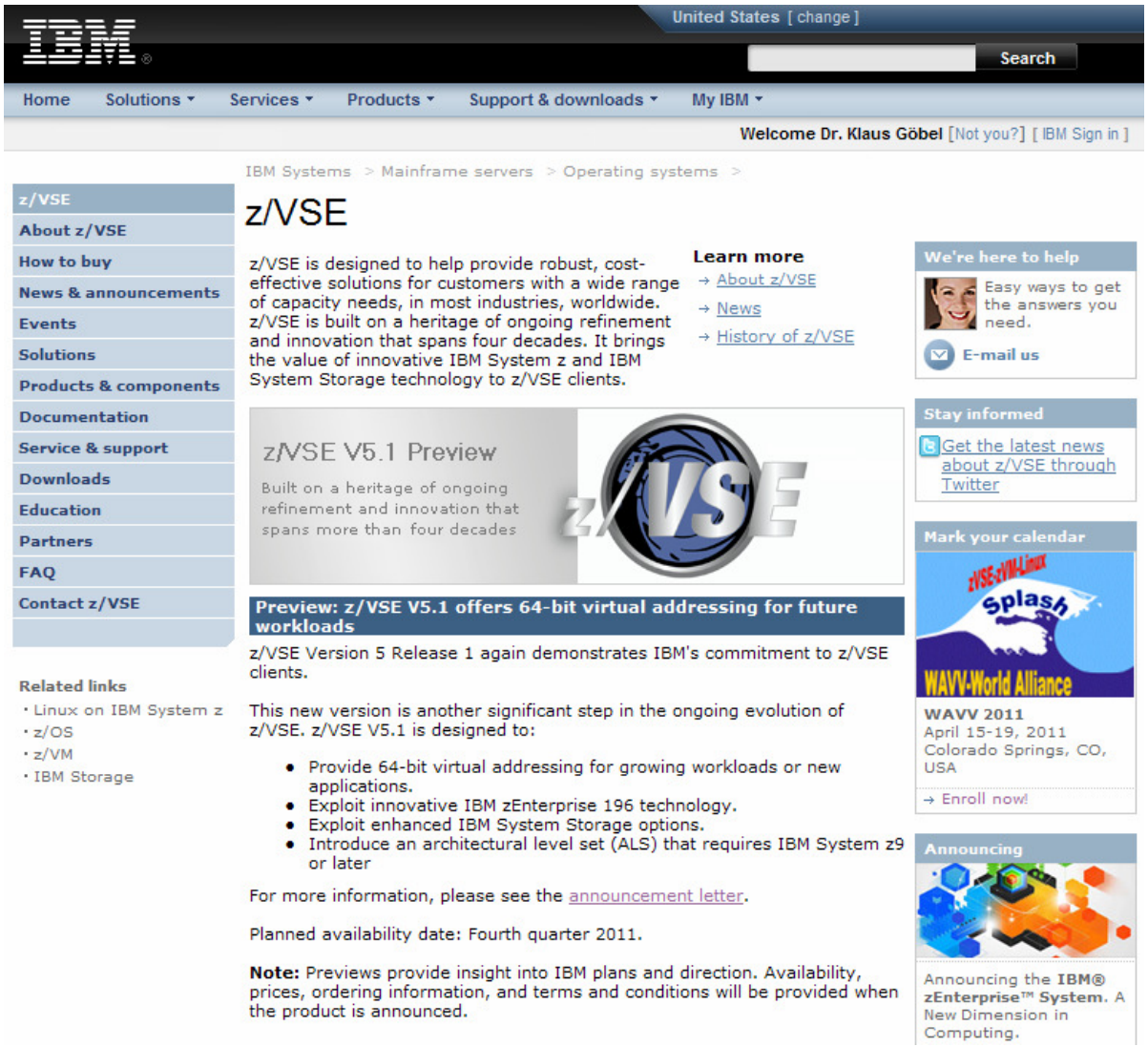
For more information, please see the z/VSE web site:

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



Questions?

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