



Information On Demand

IMS: Delivering On Demand Value To Meet Tomorrow's Needs



IMS Product
IBM Silicon Valley Laboratory
San Jose, California

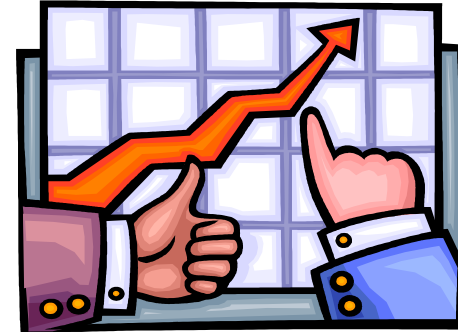
ON DEMAND BUSINESS™

Securing your investment in IMS

Keeping IMS

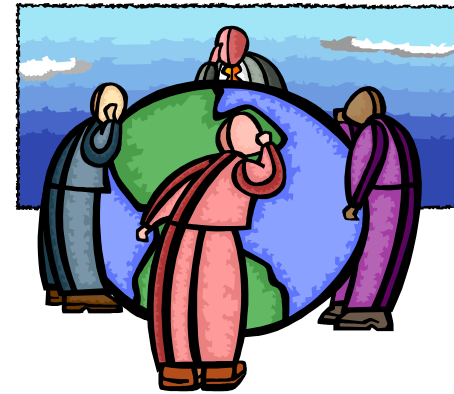
THRIVING

- Your Success is Our Success
- Being Responsive



VITAL

- Listening/Addressing Your Needs
- Ensuring Quality



RELEVANT

- Leveraging Latest Technologies
- Planned Evolutionary Rollout



... Well Into the Future

IMS is CORE to our Client's businesses

- Usage statistics continue to rise
 - Clients have exceeded 100 million trans/day
 - Clients process almost \$3 trillion/day in customer transaction
 - Multiple Clients have gone > 8 years without an unplanned outage
 - Asian bank has exceeded 250,000,000 savings accounts on-line

- Client investment in IMS
 - Applications continue to expand
 - Databases growing in both size and number
 - Transaction volumes continually rise
 - New applications integrating IMS data across the business

Challenges

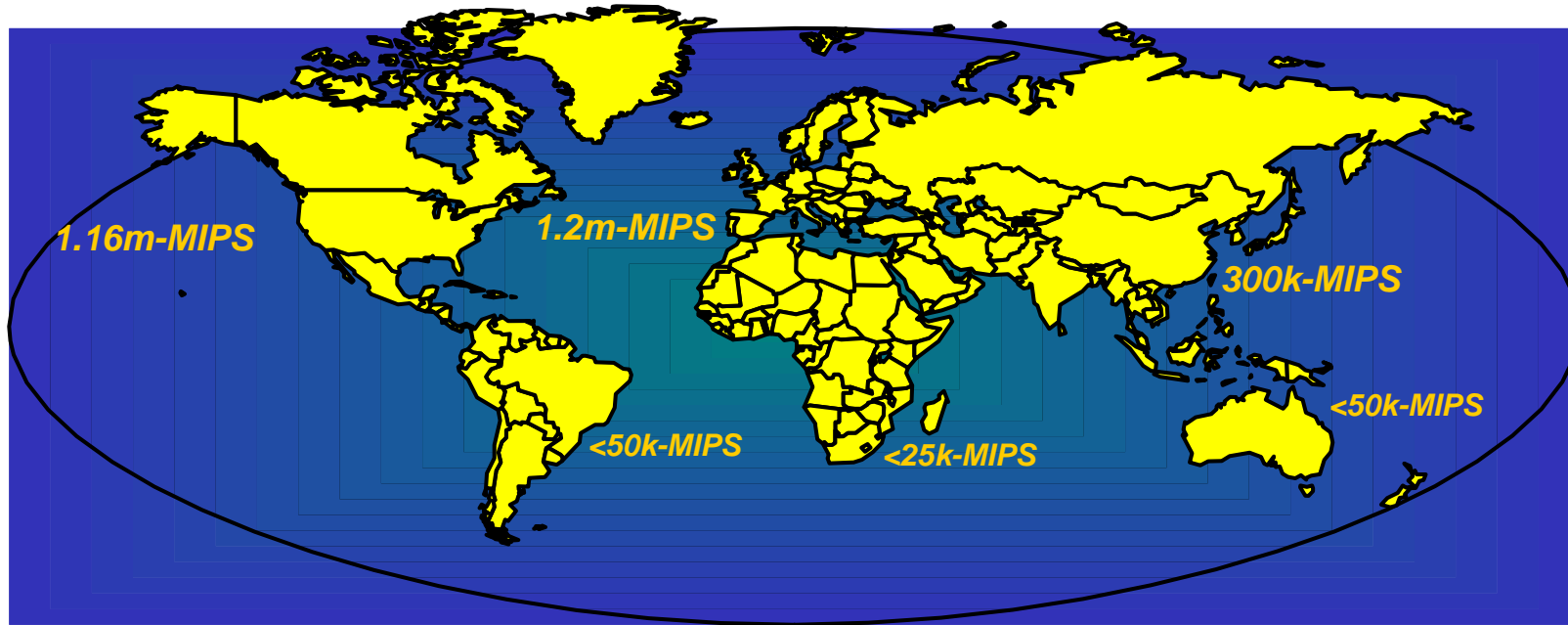
- ▶ **Data center consolidation**
 - from mostly non-IBM environment
 - from distributed environment
- ▶ **Thousands of stations (sessions)**
- ▶ **250+ million accounts**
- ▶ **Production throughout 2003/2004/2005**
 - Drastic increases in amount of data
 - Exponential increases in transaction volume
- ▶ **"High availability essential"**

Solution

- ▶ **IBM Parallel Sysplex**
 - 2 way initial data sharing implementation going to 4 way soon
- ▶ **IMS Data Base**
 - HALDB for large DB's requiring multiple secondary indexes
 - Fast Path DEDB's for both large DB and efficiency
 - Fast Data Base Recovery function for high availability
- ▶ **PPRC/GDPS planned for remote site backup**
- ▶ **Automatic Restart Manager (ARM) used for quick image restart**
- ▶ **IBM Tivoli System Automation tool used for subsystem startup/shutdown/etc.**



IMS: The World depends on it !!!



37 Years of Proven Quality, Performance and Commitment

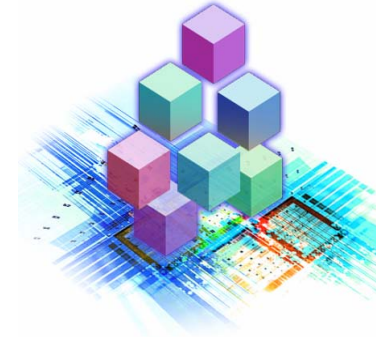
**Over 2.6 million MIPS
running IMS !!!**

IMS Growth

- IMS MIPS Growth (> 25%/year)
- V to V upgrades V7 V8 V9
- New license growth

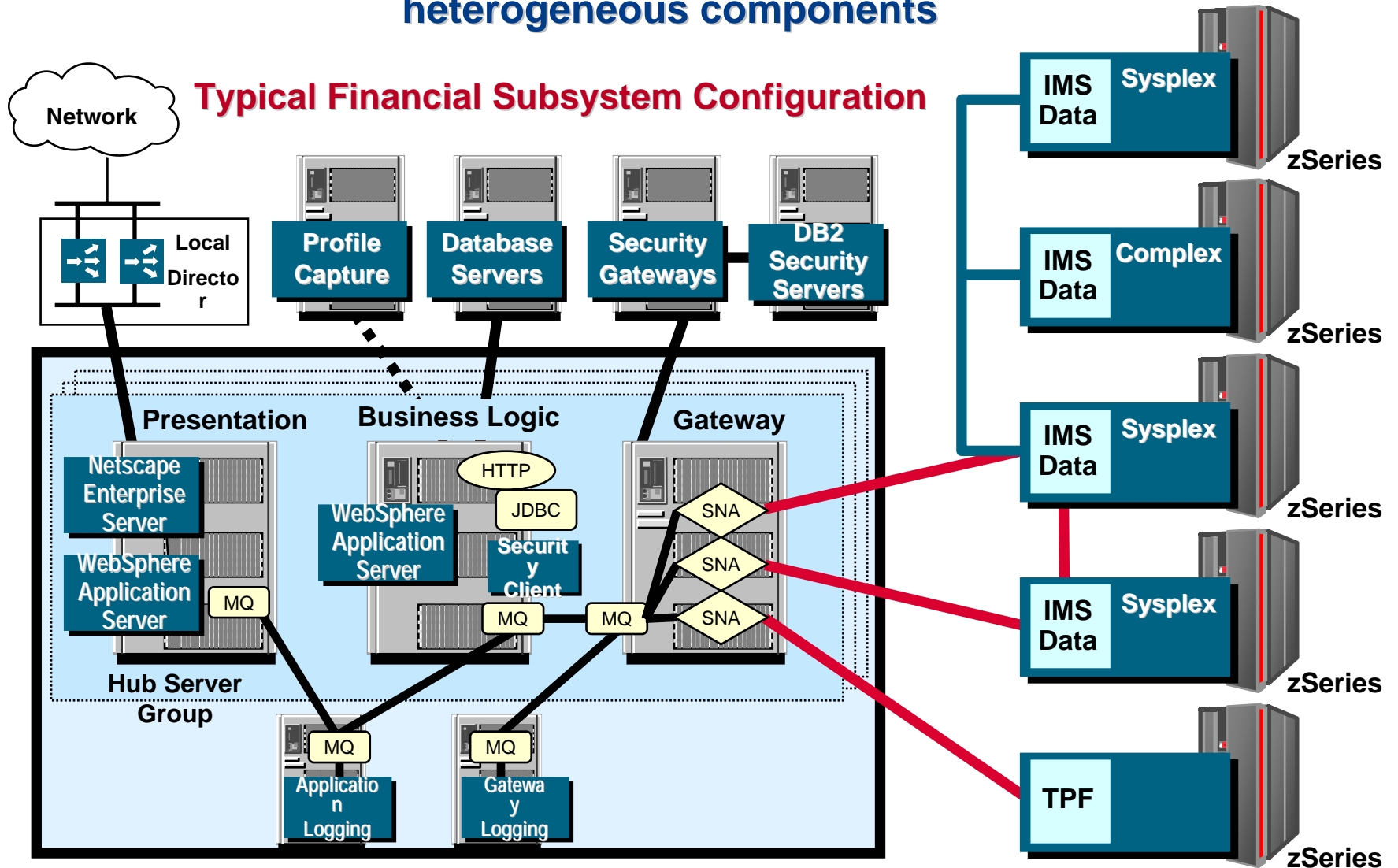
Service Oriented Architecture (SOA) Enables Integration and Collaboration

- **Leveraging your existing IT investment**
 - Standard interfaces for asset reuse
 - Evolutionary, not revolutionary
- **Business and IT coupled together**
 - Business understanding for competitive advantage
 - Industry-centric
- **SOA requires a flexible & robust infrastructure to model, assemble, deploy and manage**
 - Open, Standards based
 - End to End integration of people, process, information
 - Seamless lifecycle from model, assemble, deploy, and manage
- **Skill and experience are important for your customer's success**
 - Leverage our best practices and experience
 - Our partners take us to the next level
 - Free offerings to get started (SOA Jumpstart & SOA Project Definition)



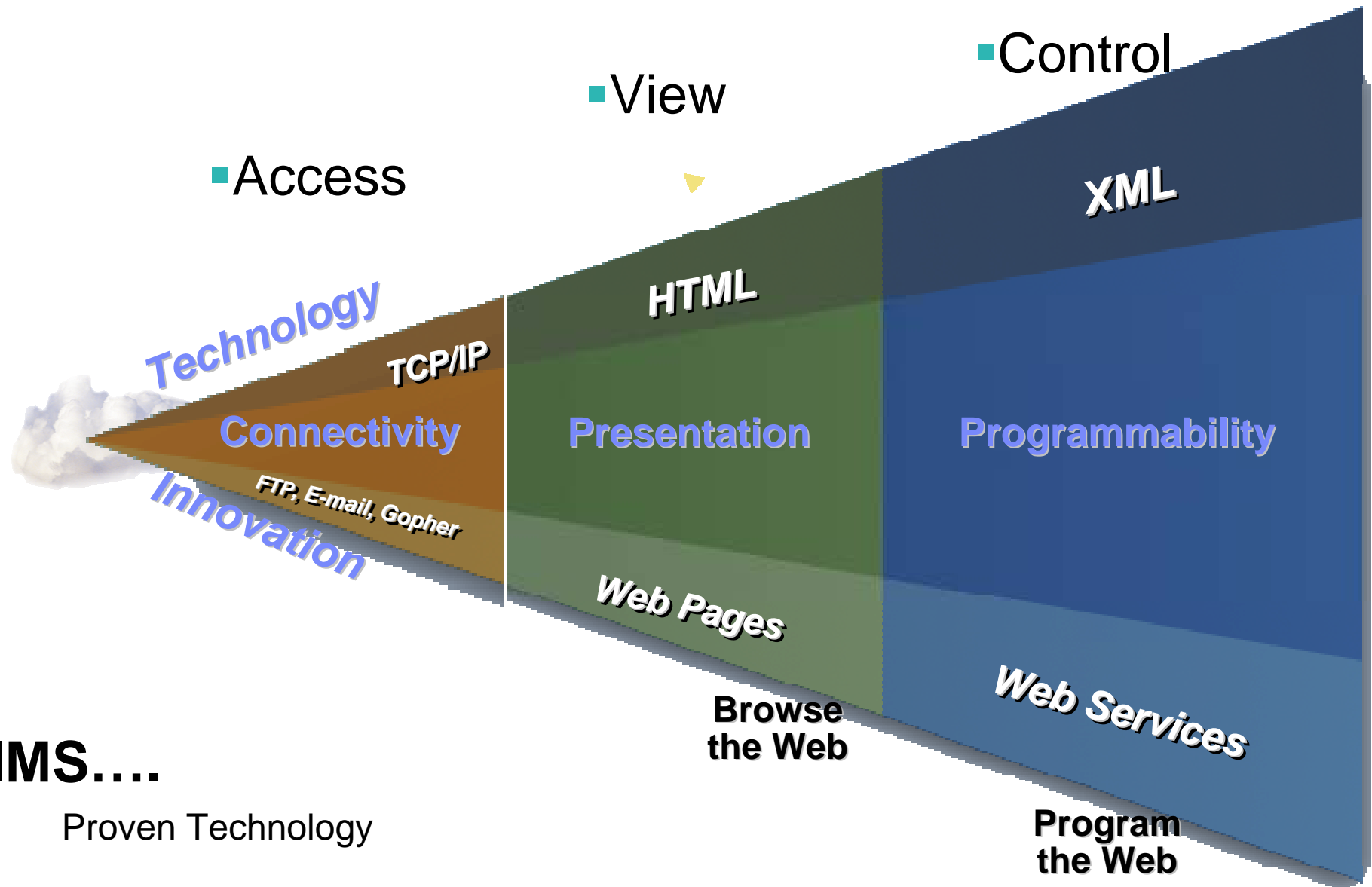
Infrastructure Trends: Complex System Topology

The increasing challenge of managing large systems is due to the inherent complexity of the solution and the sheer number of heterogeneous components



Front-end for Web presence for financial services

The Path to Web Services/On Demand Business

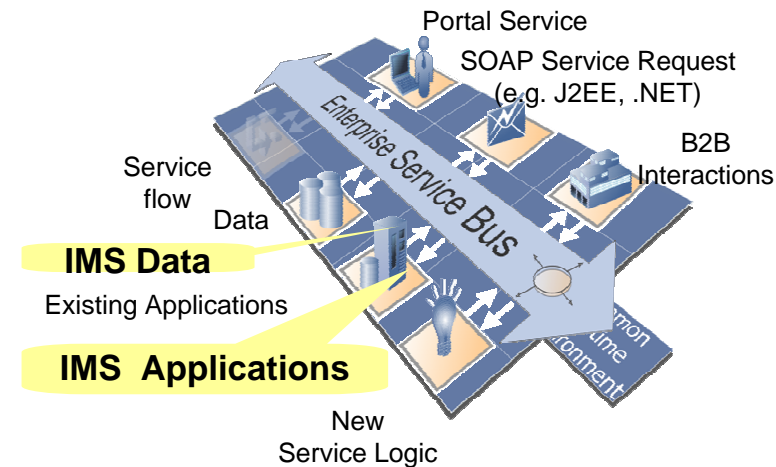


IMS....

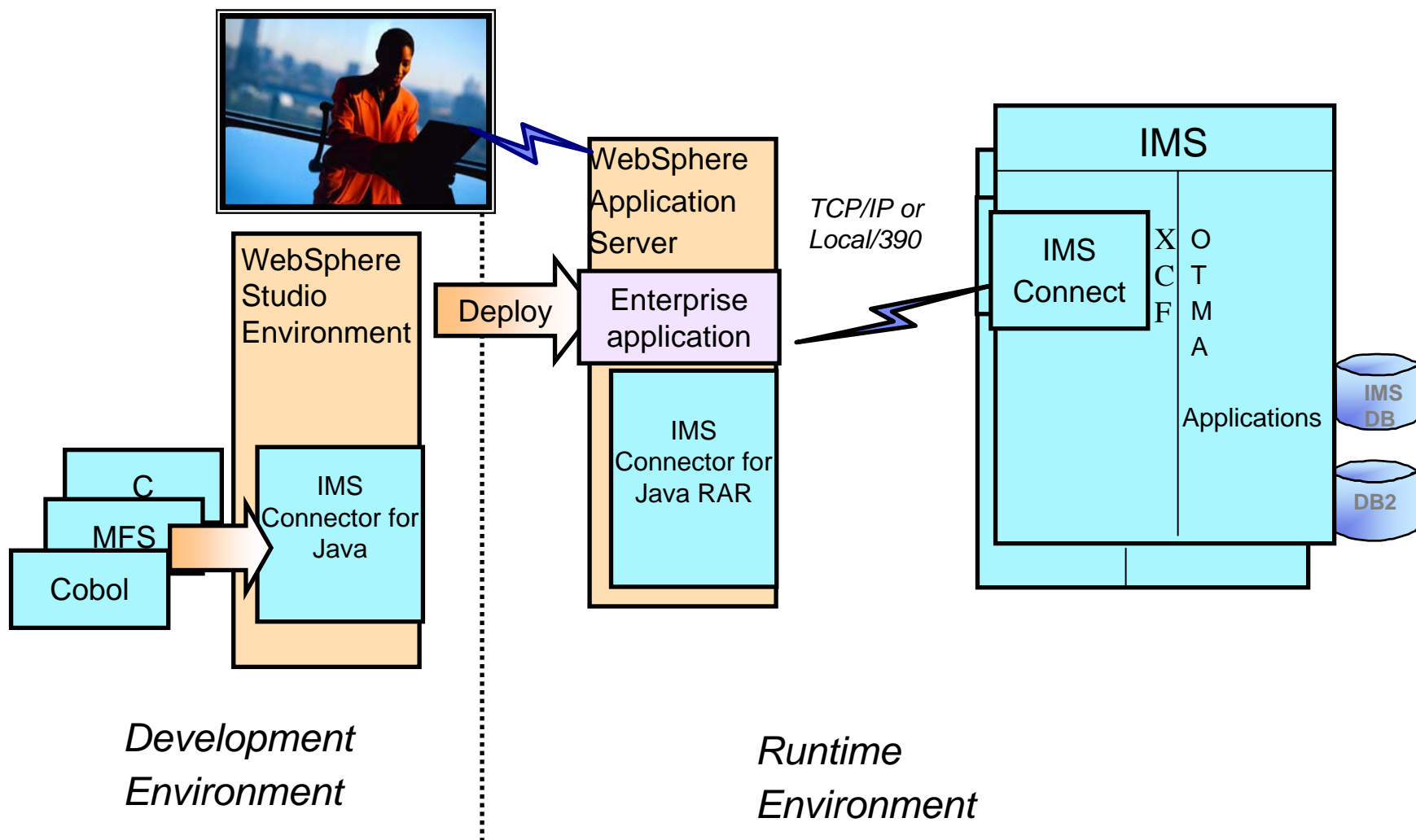
Proven Technology

IMS Transaction and Data Integration with Web Services and Service-Oriented Architecture

- **Web services -- Next step in the evolution, allowing programmable elements be placed on sites for distributed web access across platforms**
- **Enabled as Web services, unchanged IMS Transactions support a Services Oriented Architecture**
 - Leveraging past investments
 - Reducing new programming efforts
 - Aiding business process transformation
 - Aiding application integration with partners, suppliers, and customers
- **IMS C, Cobol and MFS-based Transactions enabled as Web services via WebSphere/Rational Servers/Tooling**
- **IMS Transactions enabled as Web services via IMS SOAP Support**



IMS On Demand Business Application Development and Connectivity Environment



Avnet

Challenges

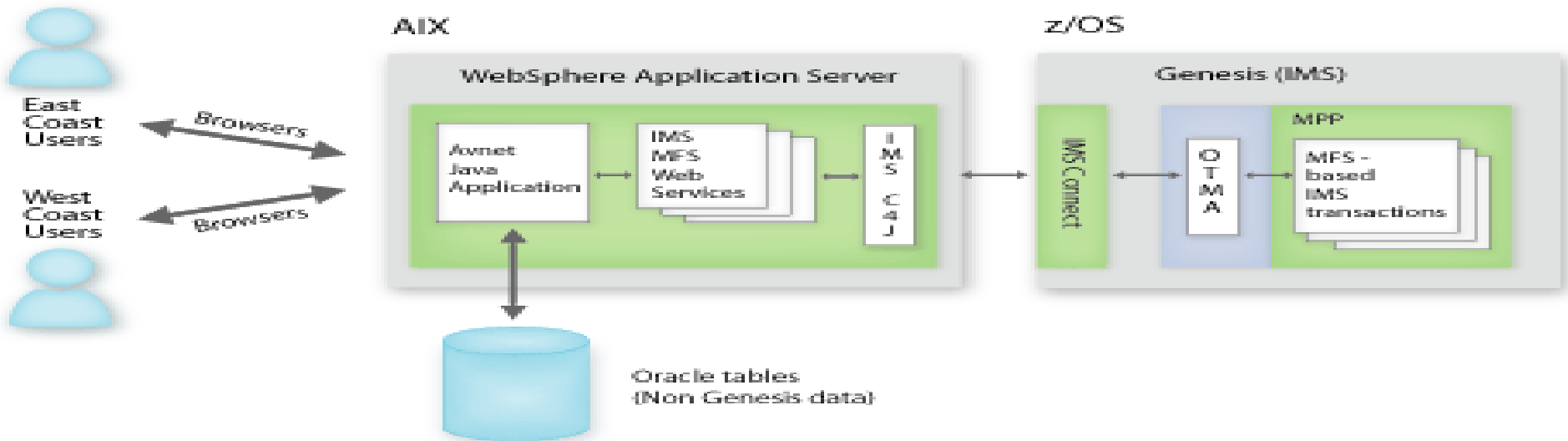
- Redevelop new Web services-based applications to access existing MFS-based IMS transactions in a B2B environment

Solution

- IMS MFS Web Services

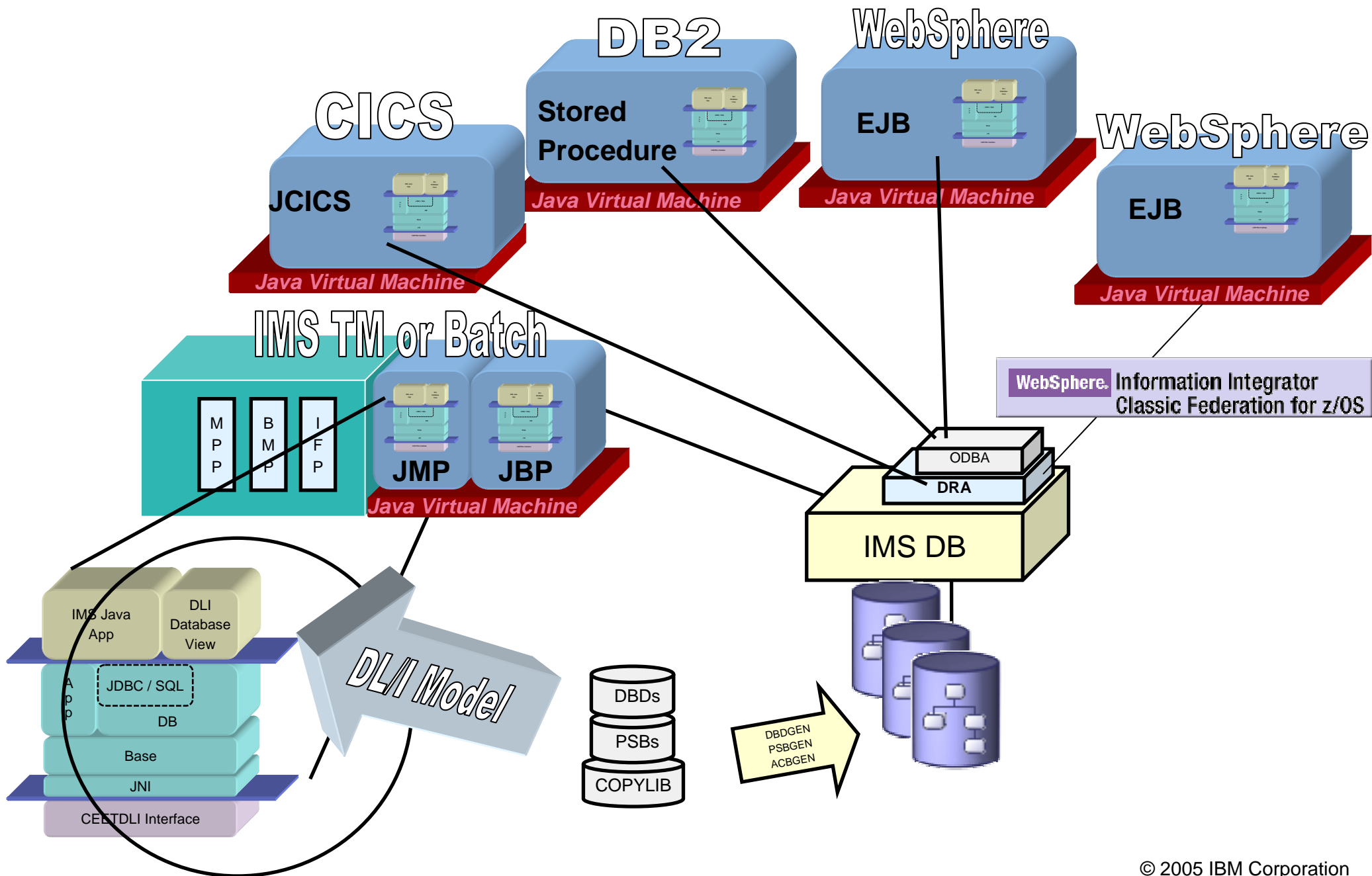
Benefits

- Flexibility, ease of integration, and reduced total cost of ownership



“a better application at a lower cost--and certainly more sustainable” Avnet

Accessing IMS DB



IMS Version 9

Enabling Information On Demand Business Transformation

Integrated Connect Function
for High Performance Access

XML Database support
for Universal Information
Interchange

Integrated HALDB
Online Reorganization
for Scalable/Available Data



State-of-the-Art Tooling to
Easily Develop/Deploy/Manage
Applications at Low Cost

Publish IMS Transactions
as Web Services for Better
Business Process Integration

Generally available since October 2004

IMS Version 9: Meeting Challenges for the On Demand Operating Environment

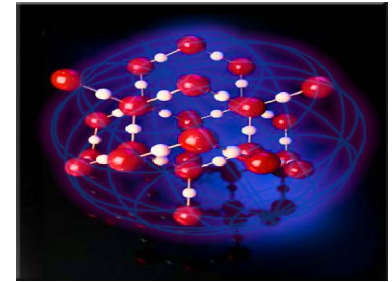
Rapid response across the web

Integrated IMS Connect function

Connecting Customers, Partners, Suppliers, Employees

Accessing IMS Applications, Operations, Data

Providing Security and Management with better resource utilization and reduced efforts



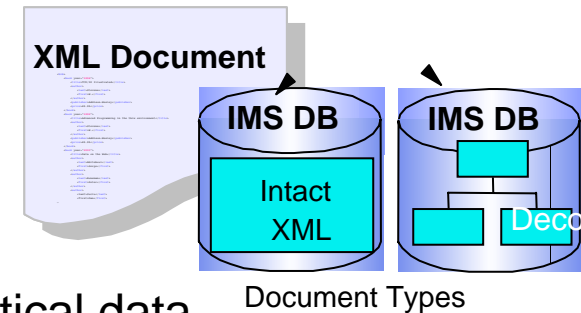
Universal interchange of information

Store and retrieve native XML data

Throughout the Enterprise with Partners and Customers

Hierarchical -- a natural fit with no overhead

Gaining Performance and Security of IMS for mission critical data



Continuous access with virtually unlimited capacity

IMS High Availability Large Database Online Reorganization

Handling unpredictable volumes

Non-disruptive, zero outage

Administrative updates at any time



Toronto Dominion Bank

Challenges

- High cost to transport IP messages from distributed platform to IMS
- Over 10 million IP transactions per day

Solution

- Implement IMS V9 Connect function for largest Web Banking application
- Bring in IMS Connect Extension product

Benefits

- IMS Connect wins as overall system workload gets busier
- Better workload distribution and failover build into system layer
- IMS Connect lowers CPU Consumption to 40% for transport of message to IMS



Volvo Group

*... driven by imagination and
Internet access to IMS data*

VOLVO

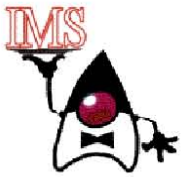
**Connect
Extended
Teams**

Challenge: Provide secure and easy access to technical drawings, technical data and financial information

Solution: Internet / intranet access to existing IMS data

Benefits: Maximize value of corporate data, maximize value of existing skills base and maximize value of existing investment to provide competitive advantage

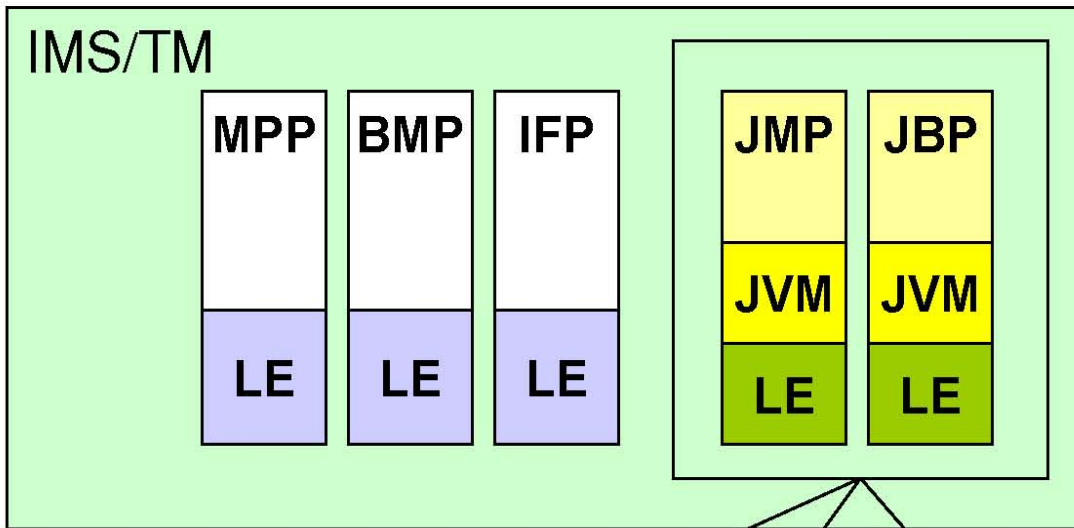
"IMS V9 enables Volvo to exploit Java applications in their development environment." - Volvo Information Technology



Next Generation IMS Systems

IMS Java Transaction Programs

LET'S MAKE SURE.



Royal Bank of Canada



Dave Cameron

Challenges

- Remove XRF while maintaining high IMS availability
- Improve Sysplex workload balancing

Solution

- Migrate to IMSplex with Block Level Data Sharing, Shared Queues, VTAM Generic Resources and OTMA spraying
- Merge and clone existing IMS systems

Benefits

- Allows everything everywhere processing
- Provides availability through redundancy
- Better LPAR capacity utilization



IMS V9 Enhancements

Integration/Openness in Application Development/Connectivity

- Integrated IMS Connect function
- Java/XML tooling enhancements, Distributed JDBC, and XML Database support
- OTMA/APPC security/serviceability enhancements
- RACF enhancements to replace SMU security
- VTAM Multi-node Persistent Sessions replace of Uservar/3745 for XRF
- >255 Trans Scheduling increased to 999 for enhanced usability

Manageability Ease for Autonomic Computing

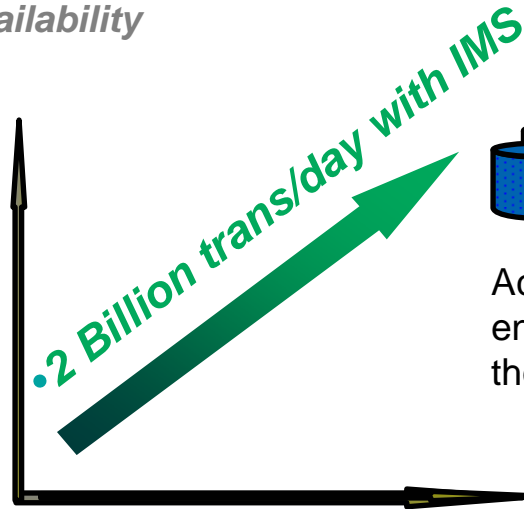
- IMS Sysplex Database Commands added to Single Point of Control
- Enhanced Command Environment
- Enhanced Serviceability with new /Diagnose Command and Knowledge Based Log Analysis (KBLA)
- IMS install/system generation reduced time/effort enhancements

Scalability in Performance/Capacity/Availability/Recovery

- Integrated IMS Online Reorganization (OLR) by partition of HALDBs w/concurrent online update/availability
- Additional HALDB usability enhancements
- DBRC Vendor Tools interface, enhanced capacity/usability/integrity
- Fast Path performance/serviceability/usability enhancements
- Enhanced Recoverability with DB2

IMS V9 Scalability in Performance/Capacity/Availability/Recovery

*Increase in
Bandwidth
Availability*



IMS tight integration with IBM processors and storage systems

Achieved thru enhancements across the IBM product line.

*Increase in Batch
Window Availability*

✓ Local systems:

- z/Architecture 64-bit mode
- FP Parallel Database Open
- Greater-than-255 transaction scheduling classes
- CSA reduction with OLC Mods removed from the nucleus

✓ Parallel Sysplex:

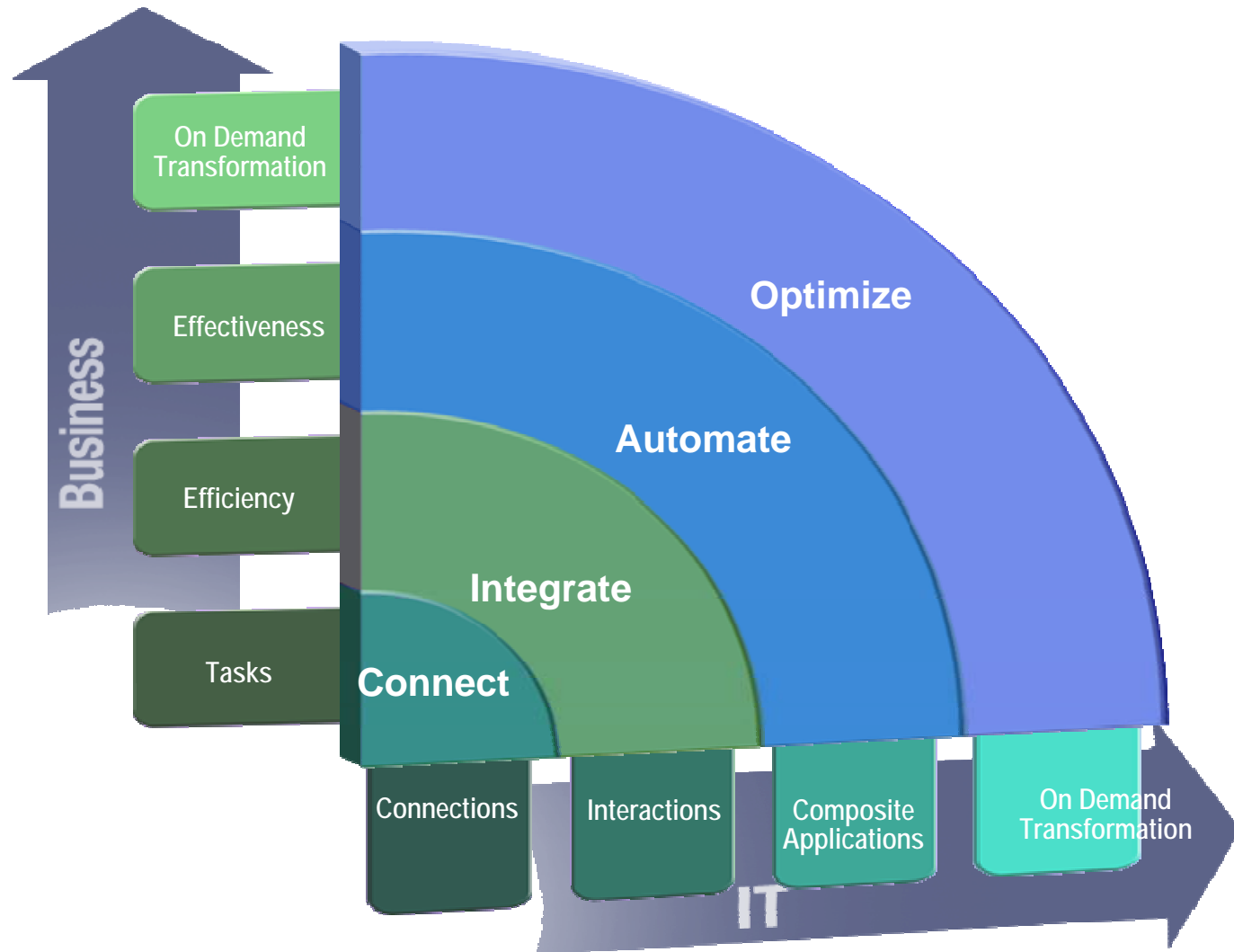
- IMSplex DB commands
- Shared VSO multi-area structure support

✓ Increased performance with new IBM T-Rex Processors

- Over 21,000 trans/sec doing database update on a single Processor
- 28.5 MB/sec logging bandwidth on M800 .

Operate and Manage Complex Environments

- Provide new IMS Autonomic Computing Function and Tools



IMS V9: A competitive advantage

" IMS V9 enables Volvo to exploit Java applications in their development environment. "

- Volvo Information Technology

" IMS V9 continued in the tradition of recent IMS releases by proving to be reliable and robust from the outset. " Royal Bank of Canada

"Very good education and experience. Very good support. Fast migrations." - Sparkassen Informatik

"XML data in IMS - clearly important. A lot of what IMS has done or is doing, we are playing catch up. But nobody is doing it well. IMS is hierarchical and is a perfect match. We have a requirement to store XML documents. "

- a US Telecommunications company

"All business process run inside IMS, we need to access IMS transactions for Business Applications. IMS Connect is for all java/servlet Applications built by (our company) " - a French Insurance Company

"Reduce some planned outages. Simplifies many of our automated processes. Wanted this for a long time. " - a US Aircraft Manufacturer

"Great value. Something that's long overdue. It's what we have been waiting for for several years" - a North American Bank

"Great idea. We have been waiting for this a very long time - thank you."

- a German bank

And Wait...

There's a Lot More...

➤ **Enhancing IMS Integration and Transformation with New Technology in a Service Oriented Architecture**

- IMS MFS Web Enablement
- IMS SOAP Beta
- IMS XQuery Technology Preview
- IMS Application Tooling



➤ **Providing Continuing Enhancements for IMS V9**

- Increased Ease of Integration
- Improved Systems Management
- Scalability

➤ **Easing IMS Installation and Management**

- IMS V9 Service Upgrade
- IMS Management Tooling
- IMS V9 Installation Workshop

Utilizing Application Transformation Tooling for IMS

Transform User Experience

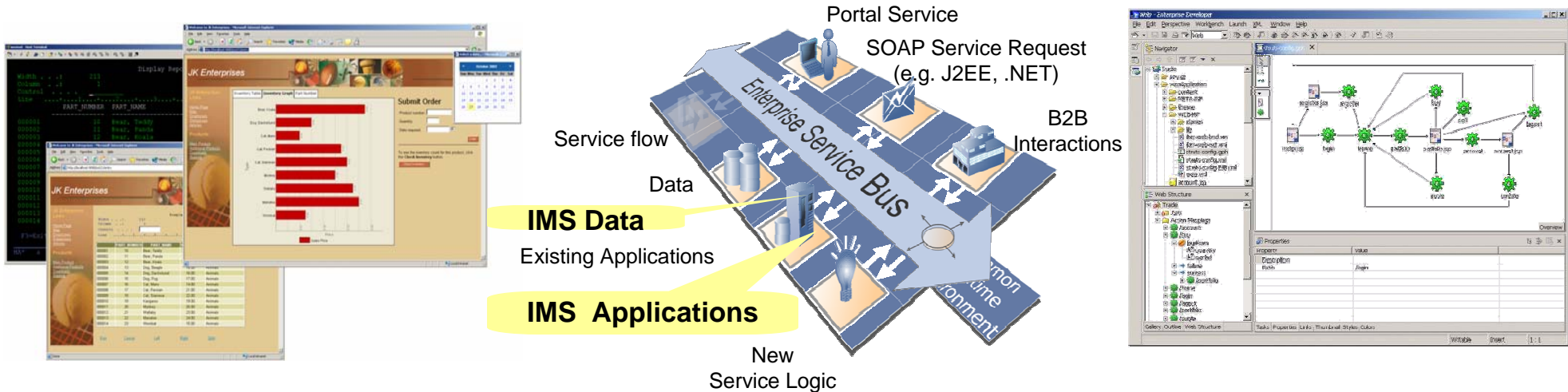
Enhance user interface and workflow for quick return on investment

Transform Application Connectivity

Improve business processes and develop customer, partner and supplier relationships using Web services and Java connectors

Transform Application Architecture

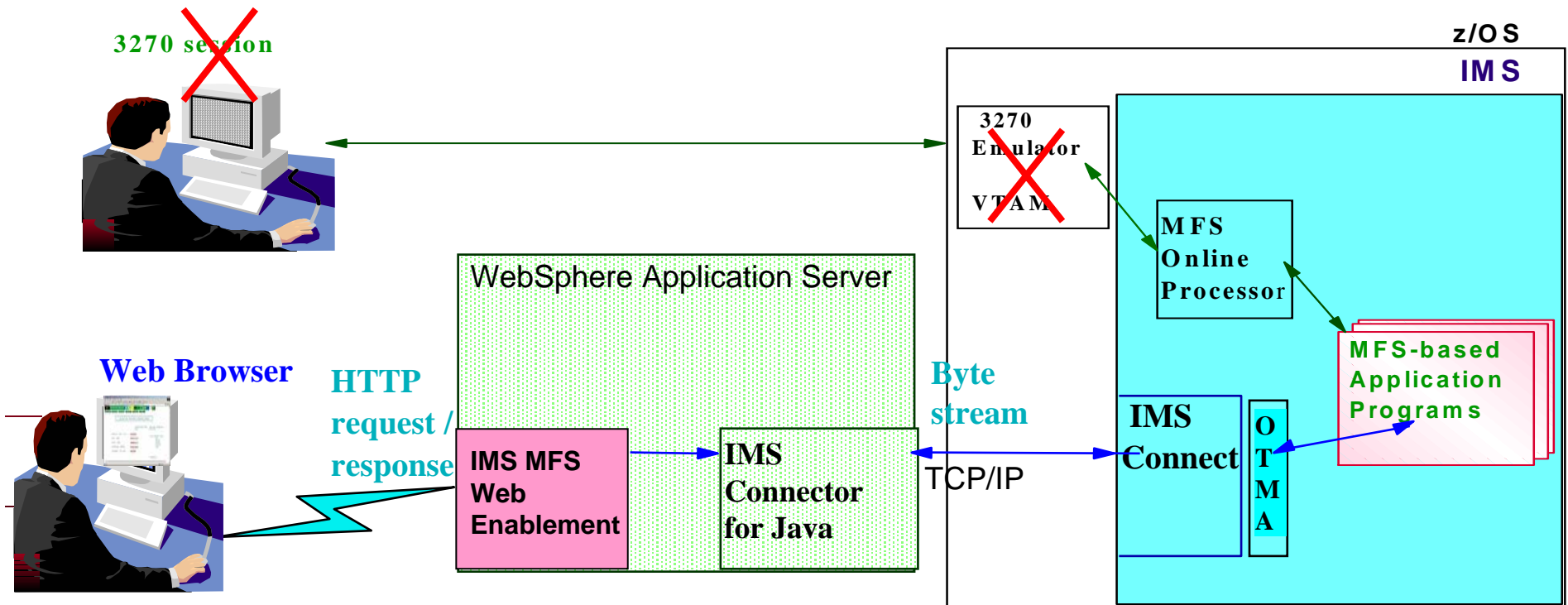
Update and extend mission-critical applications as services, leveraging their core value in new ways



Single integrated delivery vehicle across application transformation styles

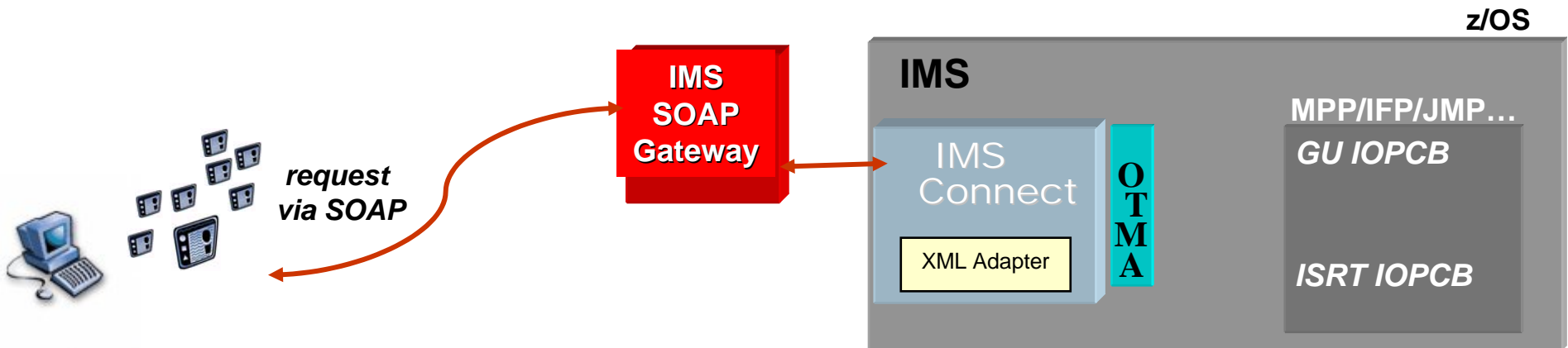
Enhanced IMS Application Integration with IMS MFS Web Enablement

- Web-enables MFS-based IMS transactions in B2C environment
- Dynamic generated Web pages with customizable look and feel
 - Downloadable at <http://www.ibm.com/ims>
 - Provided for use with IMS V9 at no additional charge



Broadened IMS Application Integration with IMS SOAP support

- **Enables Reuse of IMS Applications as Web Services**
 - Support WebService specifications
 - Leverages open standards and utilizes flexible tooling support
- **Provides IMS Transaction Interoperation with Client Applications**
 - Independent of location, programming language, and platform
 - SOAP Clients can be Microsoft .Net, SAP, Java, etc.



- **IMS SOAP Gateway GA December 30, 2005**
 - Downloadable at <http://www.ibm.com/ims>
- **XML Adapter Beta now in progress**

Follow-on

Enhanced IMS Data Access with XQuery

Providing a standard XML Query language

- **An SQL-like Query Language for Hierarchically-Structured Data**
- **Utilizes emerging W3C Standard**
 - Created by IBM, Oracle, Microsoft, and others
- **Technology Preview now available**
 - Downloadable through <http://www.ibm.com/ims> on alphaWorks -- an early adopter website for emerging IBM technologies in early stages of R&D.
 - Includes DBD, PSB, load job, sample applications and step by step instructions

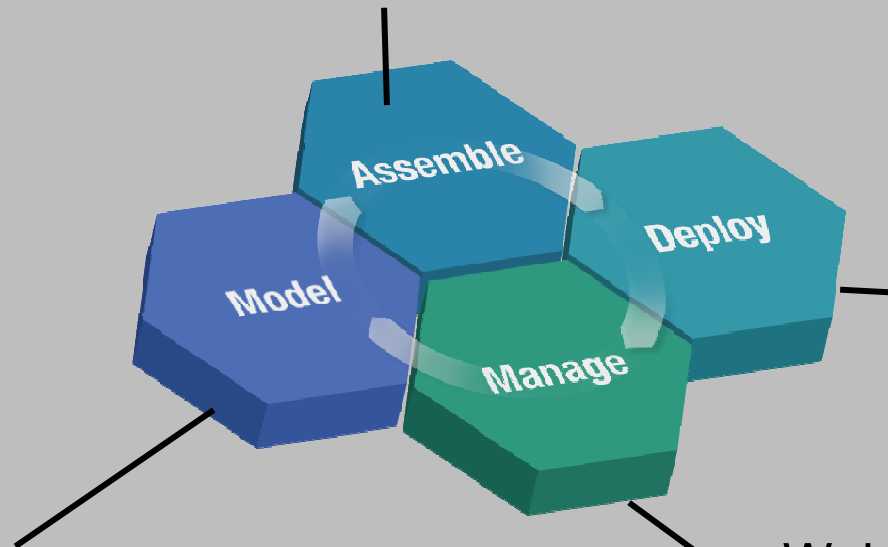


<http://www.alphaworks.ibm.com>

Enhanced Application Tooling Strengthens the SOA Foundation for Transformation and Integration of Existing Applications and Data

Rational Application Developer
WebSphere Developer for zSeries
WebSphere Integration Developer
Debug Tool and Debug Tool Utilities

WebSphere Application Server
WebSphere Process Server
WebSphere Message Broker
WebSphere MQ
WebSphere MQ Workflow
WebSphere Information Integrator (II)
WebSphere II Classic Federation
WebSphere II Event Publisher



WebSphere Business Modeler
Rational Software Architect

WebSphere Application Monitor
Tivoli Composite Application
File Manager
Fault Analyzer

Continuing Enhancements for IMS V9

Increased ease of integration

- **IMS Connectivity enhancements**
 - Sysplex Distributor - reroute persistent socket messages
 - RAS enhancements
 - RACF Key ring support
 - JCA 1.5., WAS V6, WID/WBI V6
- **ESAF/DB2SAF simultaneous access to same DB2**
- **IMS Java enhancements**
 - JDBC Deferred Program Switch support
 - GSAM database support in JBP regions
 - SQL enhancements – adds use of non-DBD-defined fields in WHERE clause
 - Serviceability enhancements

Improved system management

- **Sysplex Unresolved CQSPUT during CQS Resynch new message**
- **Operations Manager enhanced to pass FID for AOI conversion**
- **Log Edit User Exit to allow editing of trans msg record in the IMS log data for additional security**

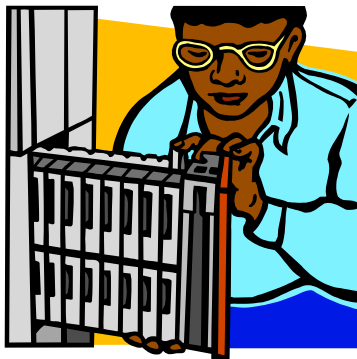
Scalability

- **Fast Path Shared VSO Dual Structure diagnostic log records**
- **DBRC Retain position high key**
- **Syncplex Option helps synchronize failed Sysplex IMSs restart**
- **HALDB Release Call**

Easing IMS V9 Installation

IMS V9 Service Upgrade (SUP) 4Q05 Availability

- Rebuild of IMS V9 base, incorporating all service into base
- Additional testing to ensure higher quality prior to availability
- New IMS V9 installs need not use SMP/E process --
Service already in base FMIDs
- Existing users not required to re-install –
Service provided in maintenance stream



Enhanced IMS Management Tooling for Infrastructure Simplification

Delivered in 2005

- IMS Problem Investigator V1R2
- IMS High Performance Sysgen Tools V2R1
- IMS High Performance Image Copy V4R1
- IMS Connect Extensions V1R2
- IMS Database Control Suite V3R2
- IMS High Performance Fast Path Utilities V2R1
- IBM Tivoli OMEGAMON XE for IMS on z/OS V3R1
- IMS Sysplex Manager V1R1
- IBM Data Encryption for IMS and DB2 Databases V1R1



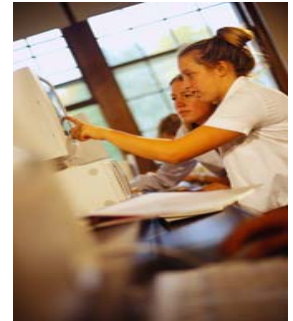
Delivered in 2006

- DB Recovery Facility V3R1
- HP Change Accumulation V1R3

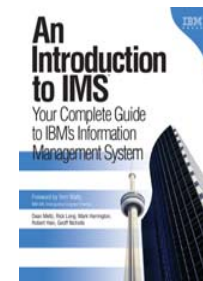
Easing IMS V9 Installation and Management

IMS V9 Installation Workshop (U3759)

- Perform actual installation and run IMS IVP in environment of choice
- Hints and tips for successful IMS system implementation and maintenance
- 3 day lecture lab
 - April 4, 2006 in Mainz, Germany
 - October 10, 2006 IBM Silicon Valley Laboratory



New “Introduction to IMS” book available



Additional IMS Education also being made available through classes, seminars, webcasts, teleconferences at <http://www.ibm.com/ims>



Migration and skills transfer and customized offerings available at ibmdds@us.ibm.com

And Still More to come ...

Enhancing Skills for IBM Mainframes

▪ Today

- Training your "in-house" skills
- Road shows and workshops
- Skills Vitality and certifications



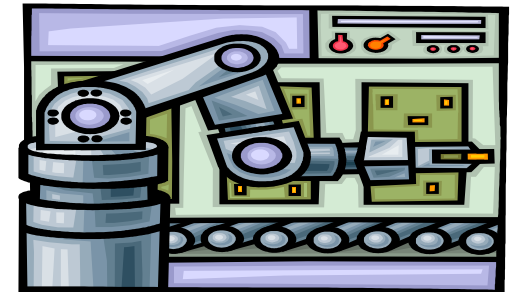
▪ Building 20,000 Skilled Mainframe Professionals by 2010

- IBM Academic Initiative for zSeries
- Educating university/college students worldwide
- New and updated courses



▪ Simplifying Software Management for Next Generation

- Basics Information
- Easy to Use/Learn Portal
- Automated Tasks
- Integrated Software



IMS: The Continuing Journey ...

Providing High Performance, Scalable, Available, Reliable and Secure Solutions

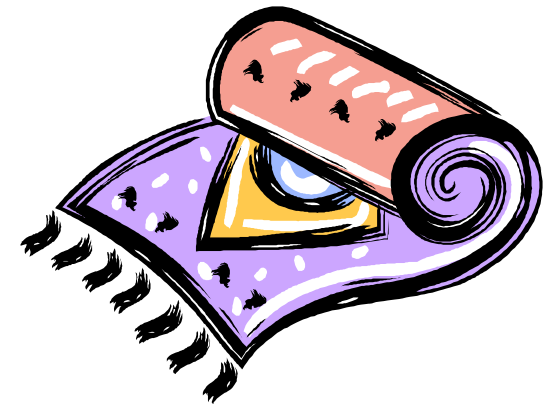
- Providing More Parallelism in DB Recovery Control
- Widening Bandwidth for Multiple Systems Coupling
- Enhancing Security

Easing Integration with New Technology for a Service Oriented Architecture

- Enhancing IMS XML and Web Services Connectivity
- Integrating Operations across Subsystems/Platforms

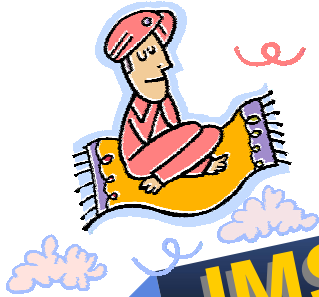
Simplifying Installation and Management

- Defining Resources Dynamically
- Easing Operations Management
- Easing Systems Management



IMS: Providing Information On Demand

- ✓ Providing high performance, scalable, available, reliable and secure solutions
- ✓ Easing Integration with New Technology for a Service Oriented Architecture
- ✓ Simplifying Installation and Management



IMS: Continuing to Deliver the Best ...

IMS V7

- Large DB
- High Avail. DB
- IMS Java
- Rapid Restart

- IMS Connect V1
- New IMS Tools

IMS V8

- Extend DB Connectivity
- Enhance Sysplex Operations
- Simplify Install Process

- IMS Connect V2
- Enhance IMS Tools

IMS V9

- On-Line Reorg
- Enh Commands
- Reduced Sysgen Efforts
- Fast Path Enh
- DBRC Enh
- XML DB
- Integ IMS Connect

- Enh IMS Tools

IMS X

- Systems Enh
- Operations Enh
- DBRC Parallelism
- MSC Bandwidth
- Incremental Application Dynamic Resource Definition
- Enh Connectivity
- XQUERY
- Enh IMS SOAP

IMS Y

- Sysplex Enh
- Config Mgmt
- Enhanced Dynamic Resource Definition
- HALDB/OLR extensions
- Fast Path extensions
- XML DB enh
- Enh Connectivity

IMS Z

- Sysplex Availability Enhancements
- Autonomic Management Enhancements
- Enhanced Dynamic Resource Definition
- Config Mgmt Enh
- Enh Connectivity

Database

Systems

Database

Systems

Database

Systems

Also delivering Service and Enhancements, with periodic Service Update (SUP) refreshed deliverables, and New/Enhanced Tooling.

Additional IMS Information at <http://www.ibm.com/ims>

- Presentations/Papers, Newsletters, Fact Sheets, Announce Letters, additional documentation
- Redbooks/Redpieces
 - Release Guides, Sysplex Guides, Connectivity Guides, Java Guides, etc.
- Technical Support Info (search on IMS)
- Information Center enables search across DB2/IMS/Tools documentation and offers an integrated LookAT functions for quick search of messages and codes.
- Information Roadmap
 - Provides links to a wide variety of useful information resources
- Training and Certification
- WW IMS Technical Conferences/Symposiums
- Seminars/Roadshows coming to a city near you

IMS Consulting Services for Migration, Skills Transfer, and customized offerings at [ibmdds @us.ibm.com](mailto:ibmdds@us.ibm.com)

“An Introduction to IMS” book now available

IMS: For Your Information On Demand Business Transformation

