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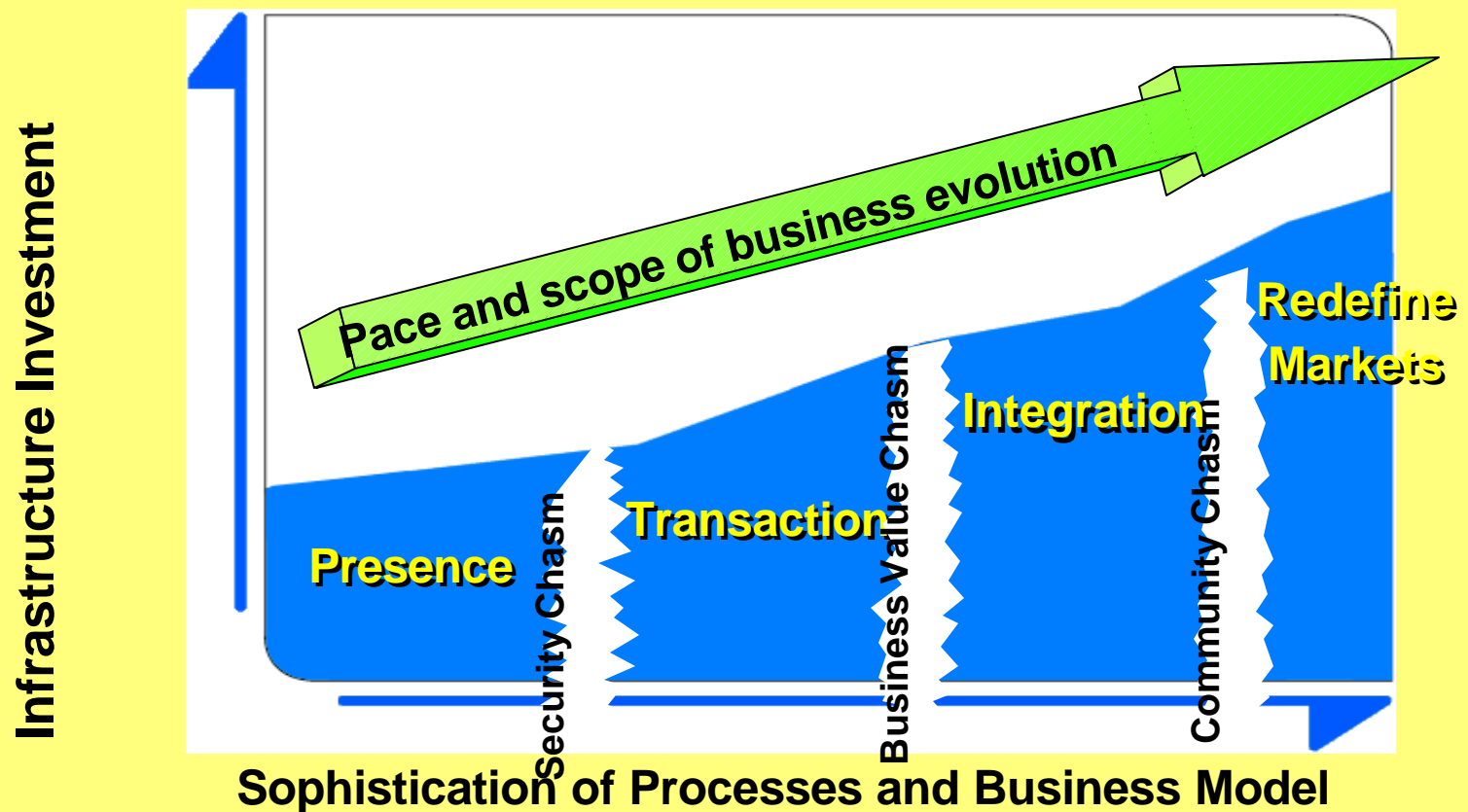
IMS Technical Conference

Miami Beach, FL

October 22-25, 2001

e-Transaction Processing

When OLTP meets the Web,
when legacy integrates with e-commerce,
when business demands lead to unpredictability



...then complex infrastructures may make it difficult or even impossible to address ever changing business needs.

zSeries Technology Integration 2001

How do I manage the explosion of users/servers?

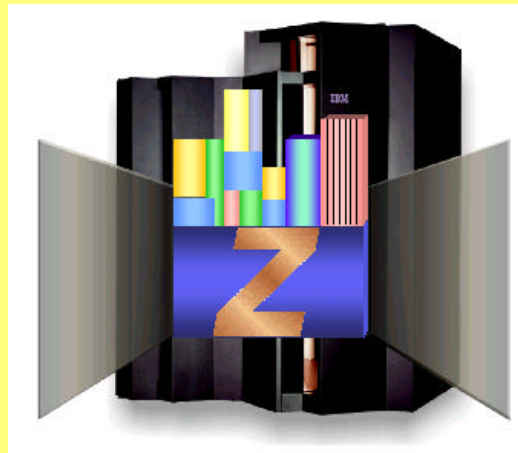
- **z900 Upgrades**
- **Model 100 CF**
- **msys for Setup**
- **msys for Operations**
- **Cloning / Symbolics**
- **Single System Image**

How do I manage the LPARs?

- **LPAR CPU Mgmt**
 - **Linux CPU Mgmt**
- **Dynamic CHPID Mgmt**
- **Channel Subsystem Priority Queuing**

How can I obtain consistent response time?

- **WLM Goal Mode**
- **IRD**
- **Dynamic Workload Balancing**



What about the cost?

- **Workload License Charge**
- **Parallel Sysplex License Charge**

How do I ensure continuous service?

- **CF Duplexing**
- **Sysplex Distributor**
- **VIPA Takeback**

How do I manage the network?

- **DNS/WLM**
- **Interactive Network Dispatcher**
- **MNLB**
- **Dynamic XCF Addressing**
- **VIPA Takeback**
- **Sysplex Sockets**
- **VTAM G/R**
- **Multi-Node Persistent Sessions**

IBM zSeries - One year later



More than 1000 shipped !!!

55% of 2001 mips supports
new workloads

>50% YTY growth in Mips
shipped

Third straight quarter of
Double Digit Revenue Growth

Gartner: z900 is the ultimate
platform for e-business server
consolidation

Xephon: Mainframe still
cheapest platform

CEGY: zSeries: Changing the
COO Paradigm for Enterprise
computing

"By moving our existing IBM
mainframe to the Web, we were
able to provide our network of
dealers with all the benefits of
Web-based ordering, while
realizing substantial savings
when compared to the time and
training costs of moving to a
UNIX or NT based system"

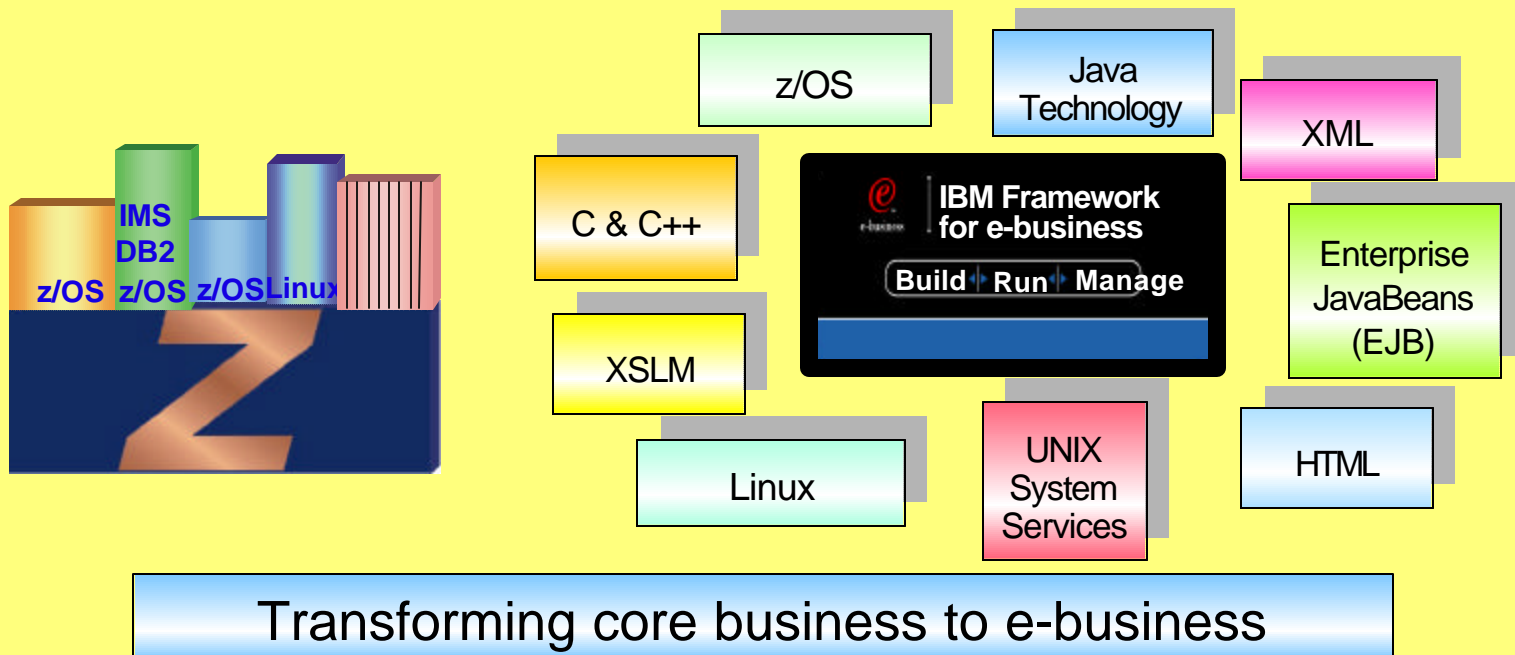
Christophe Vystrecil, Michelin.

"We are confident that by
working with IBM's mainframe
running Linux, we will not only
save money, but we will
drastically improve the
performance of our systems."

Yong-Seung Hwang, CIO of Korean Air.

IBM zSeries Providing Compelling Value

- Mean-Time Between Failures in decades vs months
- Times more secure transactions >3500 vs <200 SSL/sec
- 1/4 Network equipment costs
- 1/20 floor space: 400 Sq Ft vs. 10,000 Sq Ft
- 1/25 energy requirement: \$32/day vs. \$600/day
- Best price for volume Linux Servers: <\$500
- 1/5 the administration costs: <5 people vs >25 people
- Highest average resource utilization: >70% vs <15%



IBM Data Management team

• Research & Development	>2,500
• Marketing & Sales	>1,000...2,000
• Business Partners	>10,500

- Menlo Park & Oakland**
- IDS
 - XPS
 - JDBC
 - Visionary
 - Cloudscape
 - Datablades
 - Object Connect & Translator
 - Content Management

- Portland**
- XPS & DB2

- Rochester**
- DB2 UDB for AS/400

- Toronto**
- DB2 UDB for UNIX, Windows, & OS/2

- Boeblingen**
- DB2 Text Extenders
 - SAP/R3 Enablement
 - Intelligent Miner for Data
 - Intelligent Miner for Text

- Yamato**
- High Speed Inverted Index Search
 - Business Intelligence
 - Content Management

- Almaden**
- Advanced Technology

- Hawthorne**
- Advanced Technology

- SVL & Los Gatos**
- IMS
 - DB2 UDB for z/OS & OS/390
 - Business Intelligence
 - Content Management
 - DB2 Everyplace
 - Red Brick
 - DM Tools

- Somers**

- Boca Raton & Miami**
- EMMS
 - LA Informix Support

- Austin**
- GBIS

- India**
- DB2 UDB Service

- Lenexa**
- IDS
 - Datablades

- Boulder & Denver**
- Content Management
 - U2

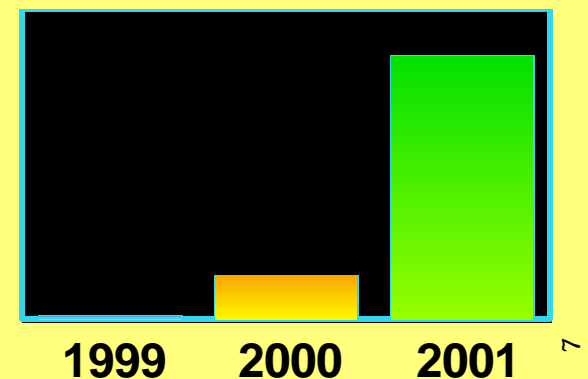
Teamwork across locations and platforms

IMS: The World Depends on it



- 2 yr IMS Mips Growth +27%
- IMS Family Revenue puts it in the Top 10 software companies
- 2001 Revenue Growing
- IMS V7 install rate is 25% faster than earlier versions

IMS V7 License Growth



IMS Runs the World...



- **Most Corporate Data is Managed by IMS**
 - Over 95% of Fortune 1000 Companies use IMS
 - IMS Manages over 15 Billion GBs of Production Data
 - \$2.5 Trillion/day transferred thru IMS by one customer
- **Over 50 Billion Transactions a Day run through IMS**
 - IMS Serves Close to 200 Million Users a Day
 - Over 79 Million IMS Trans/Day Handled by One Customer on Single Production Sysplex, 30M Trans/Day on single CEC
 - 120M IMS Trans/day, 7M per hour handled by one customer
 - 6000 Trans/sec across TCP/IP to single IMS
 - 11,200 Trans/sec (nearly 1 Billion/day) with IMS Data/Queued sharing on a 2-CEC Sysplex

■ **Gartner Group:** "A large and loyal IMS installed base. Rock-solid reputation of a transactional workhorse for very large workloads. Successfully proven in large, Web-based applications. IMS is still a viable, even unmatched, platform to implement very large OLTP systems, and, in combination with Web Application Server technology, it can be a foundation for a new generation of Web-based,

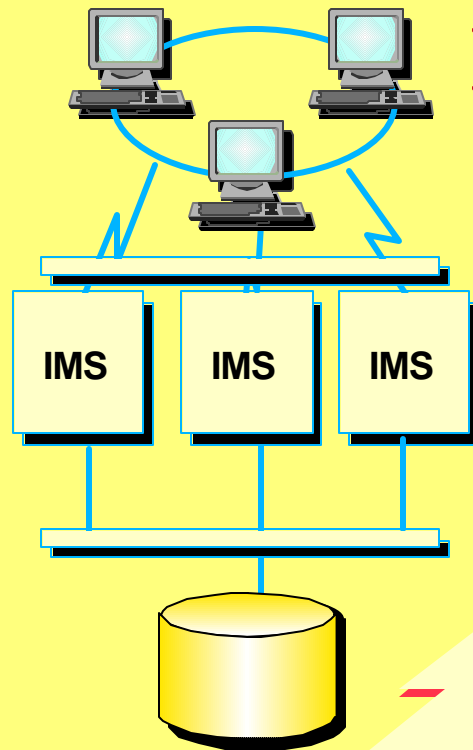
IMS - Version 7

ANNIVERSARY CELEBRATION



Ideal for e-business

- ✓ Continuous Availability
- ✓ Systems Management
- ✓ Performance/Capacity
- ✓ Application Development/Connectivity



Enhancements

- Extended Large DB support
- Enhanced DB recovery
- Faster Restart with Multinode Persistent Sessions
- Enhanced Systems Mgmt Tools
- Enhanced Connectivity
- IMS Java & XML

Benefits

- ✓ Enable Customer Growth
- ✓ Enhance Workload Balancing
- ✓ Increase Availability; Ease of Use
- ✓ Preserve Current Application Investment
- ✓ Enable New Applications

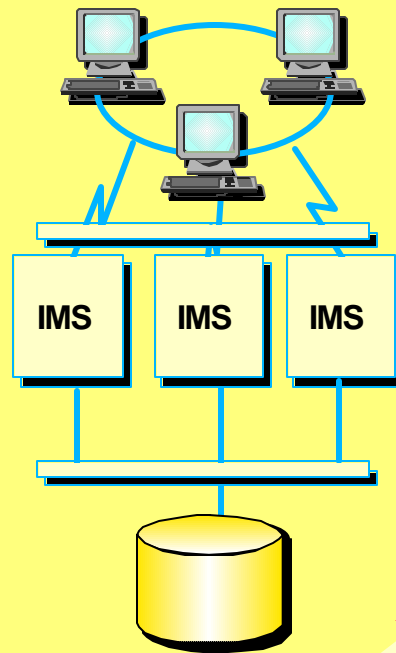
Strategic Open Access
S/390 and z/OS
Enterprise Server

Announcing IMS Version 8



Ideal for e-business

- ✓ Continuous Availability
- ✓ Systems Management
- ✓ Performance/Capacity
- ✓ Application Development/Connectivity



Enhancements

- Coordinated IMS/DB2 Recovery
- Coordinate Online Change
- Sysplex Terminal Management
- Sysplex-wide Resource Mgmt
- Sysplex-wide Operations with Single Point of Control
- Enhanced DB Recovery Ctrl
- Simplified Installation Process
- Enh Systems/Data Mgmt Tools
- Enhanced Java and XML

Benefits

- ✓ Enable Customer Growth
- ✓ Enhance Workload Balancing
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- ✓ Enable New Applications

Strategic Open Access
S/390 and z/OS
Enterprise Server

IMS Directions



Continuous Improvement

IBM delivers at web speed...

IMS V8 Enhancements

- Extend DB Connectivity
- Enhance Sysplex Operations
- Enhance Availability/Recovery
- Increase Capacity
- Simplify Install Process
- Enhance Management Tools

IMS Today

- High Availability Large DB
- Rapid Restart
- Enhanced DB Recovery
- Enhanced Connectivity
- IMS Java Applications

IMS Goals

- Unlimited Growth
- 100% Accessible
- 100% Available
- GEN-Less System
- Dynamic Install
- Latest Technology



Leading the industry...

***Leveraging All Forms
of Information...***

***The Partner of
Choice.***

***Best Cost of
Ownership.***

***"...All the planets aligned with
IBM..."***

***Jean-Luc Chatelain, CTO, Zantaz
Competitive Win vs. Oracle, MS...***

***Fastest growing
Data Management
Company.***

***Highest
Customer
Satisfaction.***

***Technology
Leaders.***

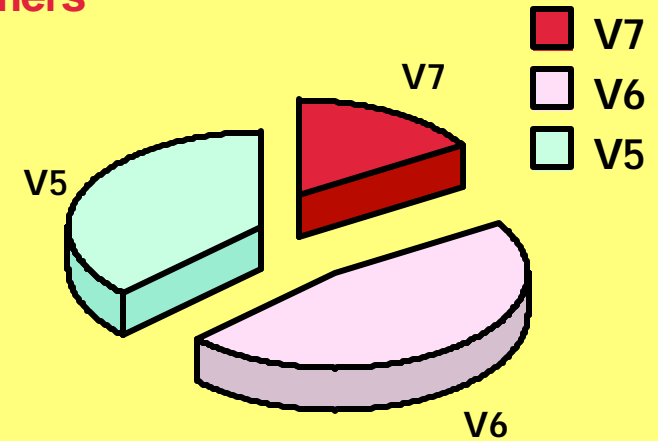
***Benchmark
Leaders.***

1600+Customers
North America
(NA)

100+Customers
Latin America
(LA)

2200+ Customers
Europe, Middle East, Africa
(EMEA)

1500+Customers
Asia Pacific
(AP)



IMS V7 Customers World-Wide
"From ... 0 to 600 in a Year"



IMS Version 7 Status

- **General Availability 10/27/00 IMS V7**
 - **Fastest New Version Install Rate**
 - **New Enhancements provided since GA**
 - **Stable base for the Future**
- **Education and Services Available**
 - **New Redbooks Available**
 - **Online Information at ibm.com/ims**
- **Customer Support available through**
 - **e-Care web based support**



IMS V7 Quality Measurement

First Year After Availability



Reported Field Problems (PMR)	Improved
Code Defects (APAR)	Improved
Scalability	Improved
Serviceability	Improved
Functionality	Improved
Customer Satisfaction Survey	Improved

IMS V7 Functionality Expands



- Information **Integration** with New Application Development/Connectivity

- ✓ Ease/broaden user access
- ✓ Web, Java, XML and Linux access
- ✓ Ease application developer effort
- ✓ Auto-application-generation tools

- **Manageability**

- ✓ Ease installation and operations efforts
- ✓ High levels of security
- ✓ End-to-end transaction integrity
- ✓ Real time data currency
- ✓ Highest code quality

- **Scalability** in Performance/Capacity/Availability/Recovery

- ✓ Handling increasing workload
- ✓ Handling unpredictable volumes
- ✓ More hours for workload
- ✓ Continuous up time for applications and user access



IMS V7 Java for Integrated e-business Application Development/Connectivity



- ✓ **Application programmer productivity**
 - Write IMS applications in JAVA
 - JDBC to access IMS DB and DB2 data
 - Uses VisualAge tools for development
- ✓ **Enhancements since IMS V7 GA**
 - JDBC access to IMS DB from CICS, DB2 and Websphere on z/OS

XML and IMS

Integration of Information



■ Processing XML Documents in New IMS Applications Today

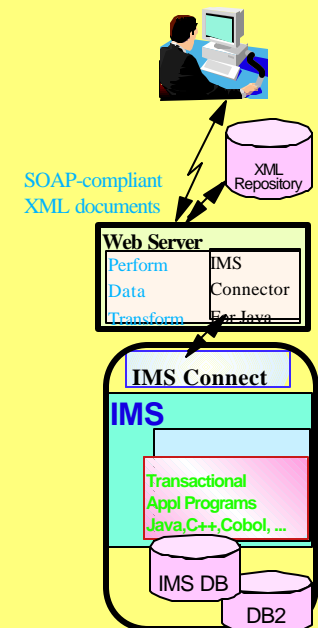
- **Customers can write IMS C++ or IMS Java applications using the XML Toolkit for OS/390**
 - applications send and receive XML data
 - Tran code still must be EBCDIC, rest of data can be XML
 - Java/C++ program invokes XML parser to convert data tagging

■ Bridging XML and Existing IMS Applications Today

- **Using MQSeries Integrator**
 - Execute existing trans using XML through MQ transformations
 - Dictionary support for messages
 - Routing and processing based on message content

■ XML and IMS Requirements

- **Processing XML Documents in new/changed IMS Cobol and PL/I applications using the XML Toolkit for OS/390**
- Supporting SOAP(Simple Object Access Protocol)-compliant XML documents for Industry tooling and evolution to Web Services
- Transforming XML for existing IMS applications using Web Server and/or IMS Connect



IMS Connect for Broader e-business Connectivity

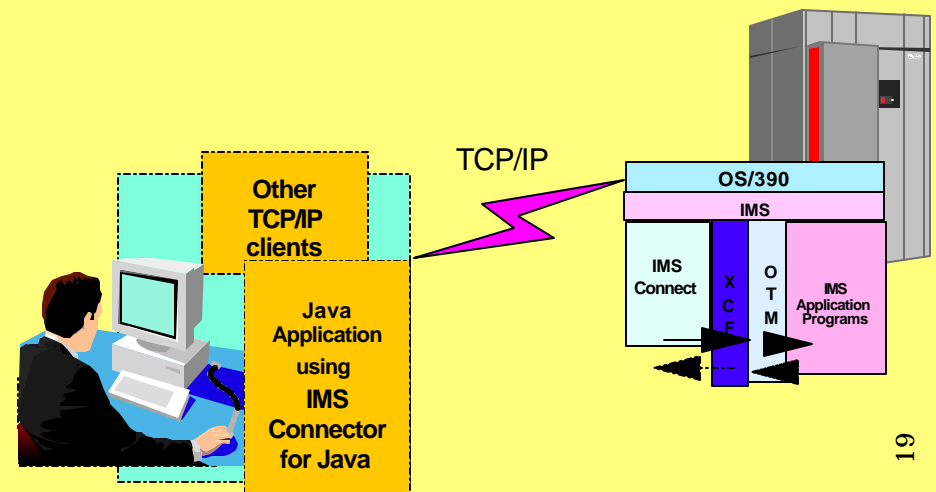


IMS Connect V1R1 Enhancements

- ✓ Local Support
- ✓ Unicode Support
- ✓ ACK/NAK required notification support
- ✓ Output message structure change

IMS Connect V1R2 Enhancements

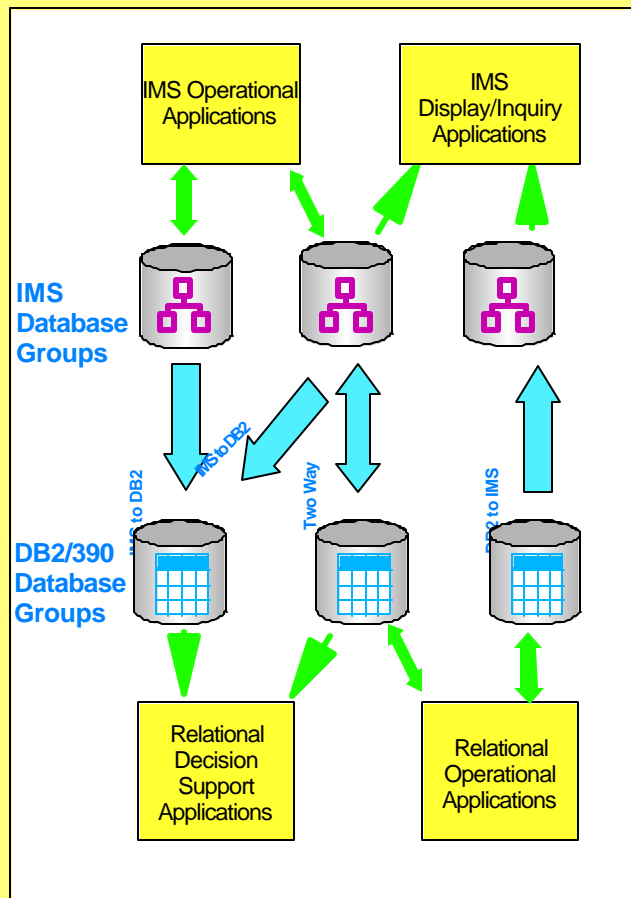
- ✓ Incorporation of the IMS Connector for Java J2EE Runtime support
- ✓ Used with VAJava's IMS Connector for Java J2EE Development support



IMS DataPropagator for Broader Application Integration

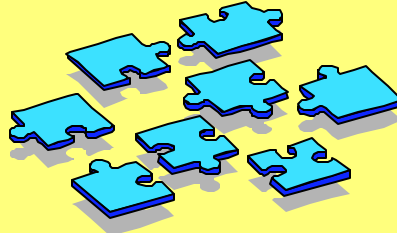


- **Decision Support - Data Warehouse**
 - ▶ Selectively Propagate data
 - ▶ Exploit relational query tools
- **Application co-existence**
 - ▶ Multiple Applications
 - ▶ Synchronized Data
- **IMS DPROP V3 enhancements**
 - ▶ Simplified Operations
 - ▶ Simplified Administration
 - ▶ Asynchronous near real-time propagation improves performance



No Change to Existing Applications

IMS Data Management Tools



Administration

- ▶ IMS High Performance Load
- ▶ IMS High Performance Unload
- ▶ IMS Index Builder
- ▶ **IMS Fast Path Basic Tools**
- ▶ **IMS Fast Path Online Tools**
- ▶ **IMS ETO Support**
- ▶ IMS Library Management
- ▶ IMS Advanced ACB Generator
- ▶ IMS DB Repair Facility
- ▶ IMS HD Compression -Extended
- ▶ IMS Sequential Randomizer Generator
- ▶ IMS High Performance Prefix Resolution
- ▶ **IMS High Performance Pointer Checker**
- ▶ **IMS High Performance Sysgen**
- ▶ **IMS Command Control Facility**
- ▶ **IMS Message Format Services**
- ▶ **IMS Database Control Suite**
- ▶ **IMS High Performance Change Accum**
- ▶ **IMS Network Compression Facility**
- ▶ **IMS Parallel Reorg**

Database Recovery/Replication Mgmt

- ▶ IMS DEDB Fast Recover
- ▶ **IMS Image Copy Extensions**
- ▶ IMS Recovery Saver
- ▶ IMS Database Recovery Control Facility
- ▶ **IMS Online Recovery Service**
- ▶ **IMS DataPropagator**

Database Performance Management

- ▶ IMS Performance Analyzer
- ▶ IMS Queue Control Facility

Application Management

- ▶ IMS Program Restart Facility
- ▶ **IMS Connect**

*Manage
Automate
Monitor
Tune...*

IMS V7 High Availability Database HALDB for Management and Scalability



- ✓ Extend IMS Full Function database size to **40+ terabytes**
- ✓ Provides data availability through partition independence
- ✓ Provides easier manageability with smaller partitions of the database

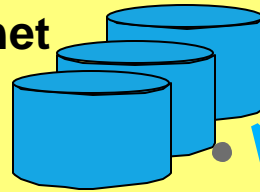


IMS Scaling with SHARK

Performance/CapacityAvailability/Recovery/

*Increase in
Bandwidth
Availability*

**IMS Serving Mission-critical Applications
and Data Access across the Enterprise
and over the Internet**



*Nearly 1 Billion trans/day
with IMS*

Achieved thru
enhancements across
the IBM product line.

*Increase in Batch
Window Availability*



IMS V8 - QPP Begins

03/01/2002



- Information **Integration** with New Application Development/Connectivity

- ✓ Support of Persistent Reuseable JVM for improved tooling
- ✓ Support for latest JAVA and SQL Standards
- ✓ Integration with Websphere
- ✓ Enhanced XML Support of Messages

- **Manageability**

- ✓ Management View across Sysplex
 - Single Point Of Control (SPOC)
 - DB2 Control Center Integration
- ✓ Enhanced Recovery
- ✓ Sysplex Terminal Options



- **Scalability** in Performance/Capacity/Availability/Recovery

- ✓ Increasing FastPath Area from 240 to 2048
- ✓ Handling unpredictable volumes
- ✓ Continuous up time for applications and user access

IMS Strategy



Provide Continuous Improvement

IMS Goals

100% Accessable

Unlimited Growth

100% Available

GEN-Less System

Dynamic Install

Latest Technology