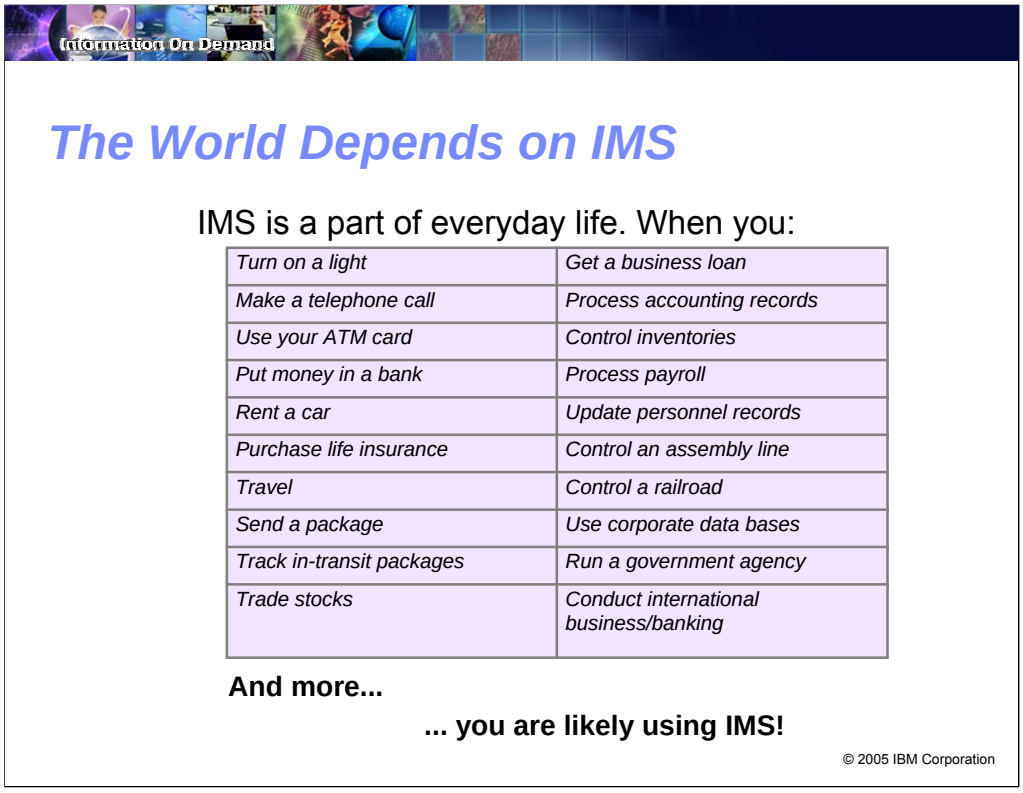
Here we are in the 21st century, and IMS is still leading the way. It's been over 37 years since the first IMS-ready message for the Apollo Space program appeared. And like the space program, IMS is now taken for granted. But the world of Information Technology around it has significantly changed to address the changing world of business. Yet at the heart the business stays the same. Industry forces continue to make their highest demands for performance and availability, along with interoperability, flexibility, and support for new, emerging technologies. This is something IMS people have been hearing for years and IMS has been helping you efficiently provide heterogeneous access across global networks. The strengths of the IMS product has been offering you help in addressing your company's changing needs. And IBM is providing integrated solutions with IMS for you. In this presentation, we cover what IMS is and the value it offers, its strategy and solutions, and how customers are using it.

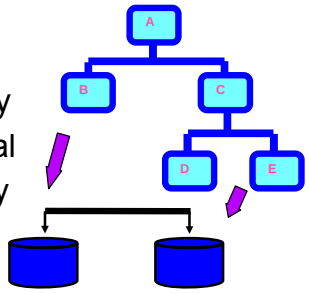


IMS, IBM's premier transaction and hierarchical database management system, is the product of choice for critical on-line operational applications and data where support for high availability, performance, capacity and integrity, and low cost are key factors. Chances are you are using IMS when you turn on a light, make a telephone call, get a business loan, process accounting records, use your ATM card, put money in a bank, rent a car, purchase insurance, travel, send a package, track in-transit packages, trade stocks, control inventories, process payroll, update personnel records, control an assembly line, control a railroad, use corporate databases, run a government agency, conduct international business/banking, and many more.

IMS is a Database Management System

- A Database is a collection of interrelated data items, stored once and organized in a form for easy retrieval.
- A Database Management System is a collection of programs for storing organizing, selecting, modifying, and extracting data from a database.

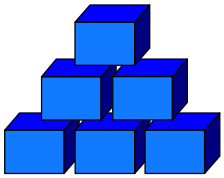
IMS DB is organized hierarchically
- –To optimize storage and retrieval
- –To ensure integrity and recovery



IMS is a database and transaction management system. A Database is a collection of interrelated data items, stored once and organized in a form for easy retrieval. A Database Management System is a collection of programs for storing organizing, selecting, modifying, and extracting data from a database. An IMS database is organized hierarchically with levels of data, each dependent on the higher level. an IMS Database Management system organizes the data in different structures to optimize storage and retrieval, and ensure integrity and recovery.

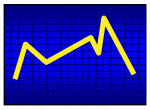
Data Characteristics

Operational Data



Application Oriented
Limited Integration
Constantly Updated
Current Values Only
Supports Daily Operations

Informational Data

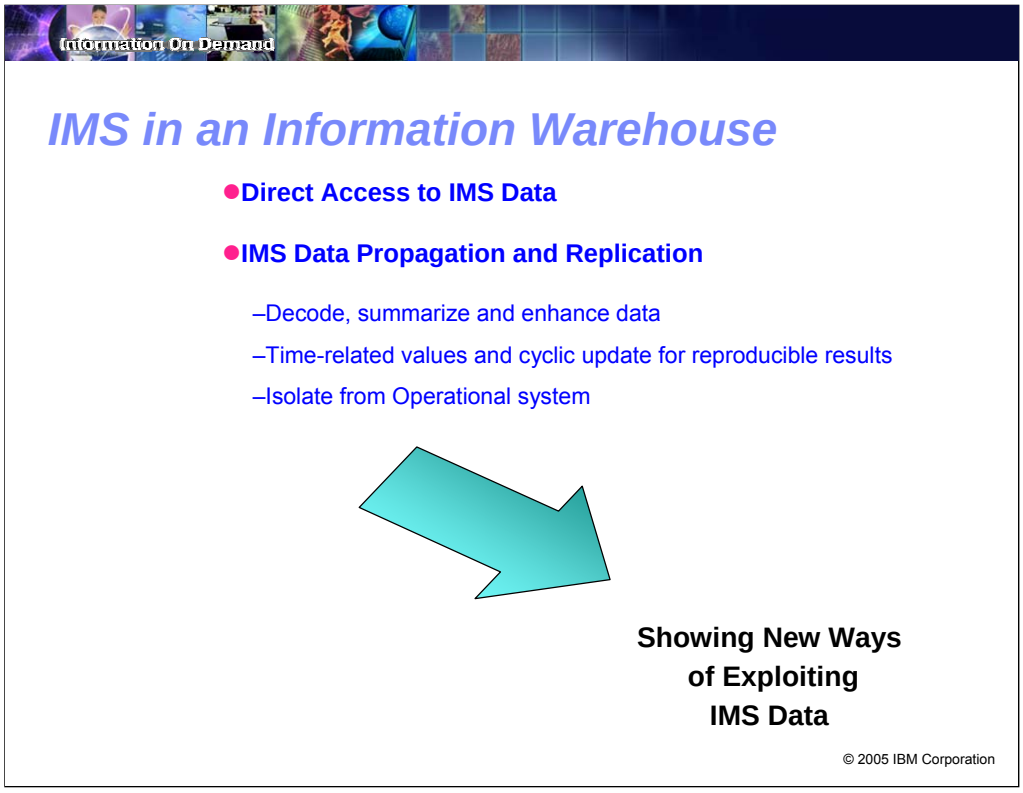


Subject Oriented
Integrated
Non-volatile
Values Over Time
Supports Decision Making

Operational and Informational Data Fundamentally Different

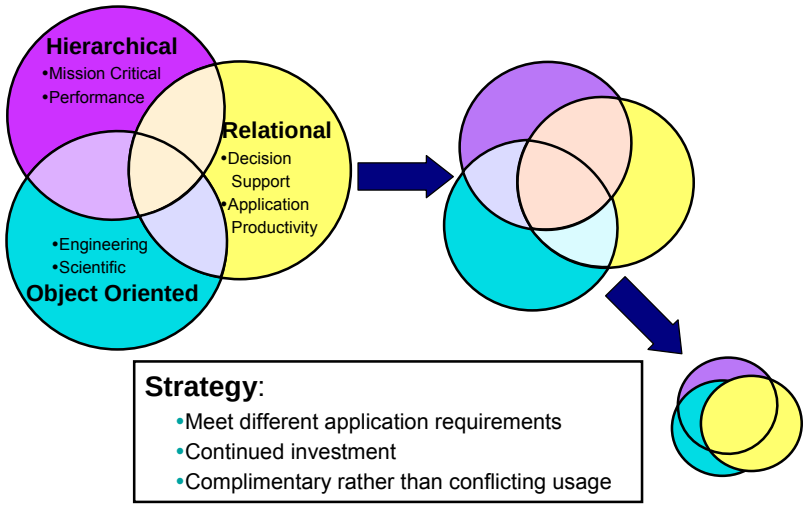
Operational and Informational data are fundamentally different. Operational data is more application oriented, is constantly updated and must support daily operations. Informational data is subject oriented, non-volatile, and supports decision making.

Hierarchical and relational data hence also have inherently different characteristics. Hierarchical characteristics make it more efficient in data access and storage but apply strict rules for access. Relational characteristics make it easier to access the data that has not been defined in advance. Thus they play different roles in the Enterprise. Each has a critical role to play in the enterprise

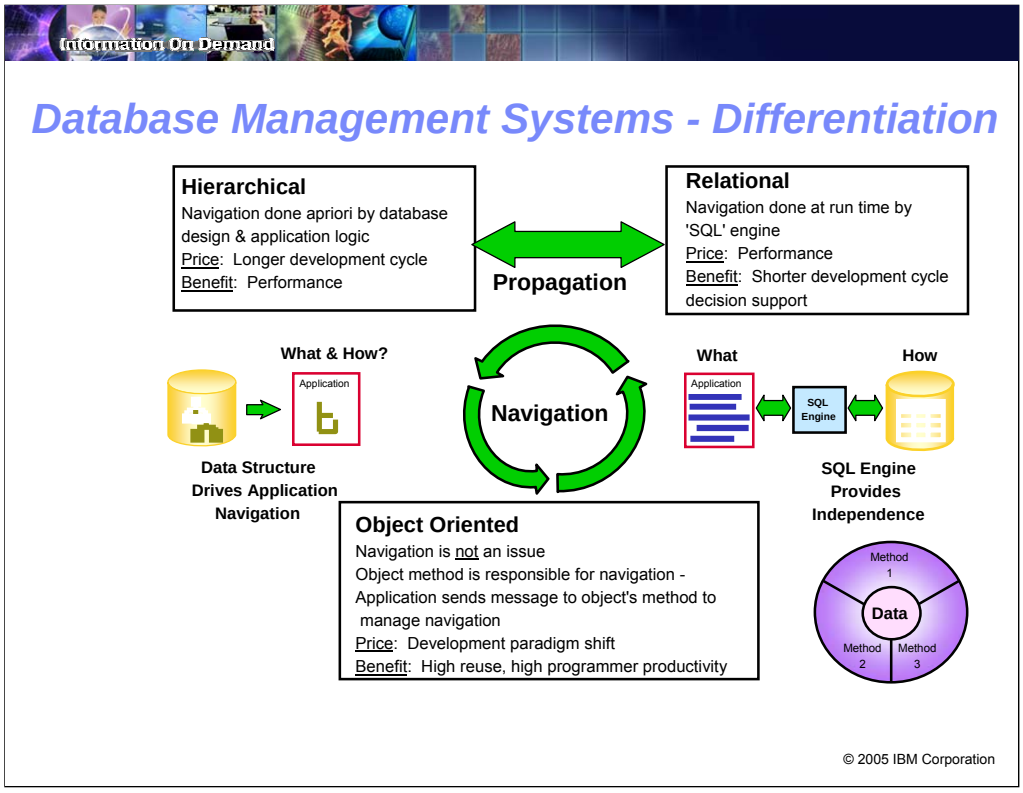


There has been growing interest in data mining and data warehousing. Data warehousing involves the collection of data from mainframe and workstation databases into massive centralized databases, often measured in terabytes. Because of the tremendous size of these databases, look for mainframes and 64-bit platforms to be the staple workhorses. An informational warehouse could be used to contain IMS data, derived from production data, for decision support. Users can be provided data in relational format, easily accessible with favorite decision support tools, with minimal impact on the production data. As the warehouse has become a sophisticated end-user tool, IMS remains an important source of data and tools for it. IMS data can be accessed directly or propagated/replicated in with that data being summarized, enhanced, and mined for use in new ways. This all makes it possible to use standard application interfaces for accessing IMS as well as other data.

Database Manager Positioning

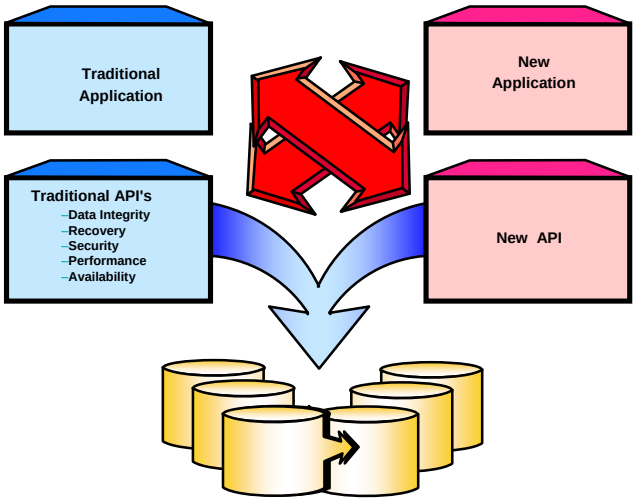


Hierarchical and relational databases have grown up with their characteristics and roles to play. In recent years object database managers have also been providing a role in this as well. Hierarchical is best used for mission-critical work and for that which requires the utmost in performance. Relational is best used for decision support and where application productivity is required. Object is best used for engineering and scientific work where large, unstructured data is required. Although hierarchical and object-oriented databases can offer a significant performance edge over relational databases when queries are known beforehand, query optimization for relational databases are better known, and have the edge in this area. Each type is the best at what they do. The products supporting these are being enhanced to address the different application requirements and are continuing to create more and more overlap in their capabilities. The type originally designed for that capability will however inherently be the best at that. IBM will continue to invest in providing complementary solutions for these.



As we look closer, you can see differences of these. Hierarchical provides navigation by database design and application logic. The price for the more structured hierarchical is longer development cycles, but the benefit is better performance, thus useful for repetitive operational work. Relational provides navigation at run time by the SQL engine. The price is thus performance, but the benefit is a shorter development cycle, thus useful for ad-hoc decision support. With object oriented navigation is controlled by the method as requested by the application and requires a development paradigm shift. The result is a high reuse and future productivity. Tools for access and replication can assist in moving the data between the data base types.

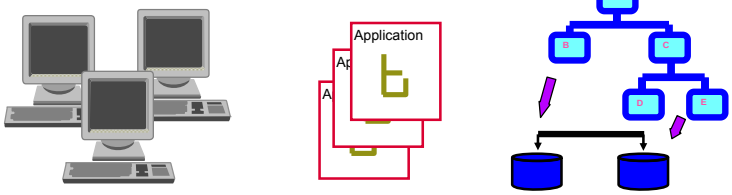
Data Access - Favorite Tool on Favorite Platform



Data is growing in all the database types and coexistence becomes critical through propagation, common application interfaces and access gateways. An application written in one context must run with another. Both new and existing applications must be able to run with existing and new data. Data Access is being provided with transparency and consistency for this. Data provided in a particular database, accessible by a particular application type through a given interface can be propagated to another database, or accessed by a different application, using a different interface, and vice versa. This allows for new and traditional heterogeneous data and application types to work together side by side.

IMS is a Transaction Management System

- A Transaction is the request and execution of a set of programs, performing administrative functions and accessing a shared database on behalf of a user
- A Transaction Management System creates, executes, and manages Transaction Processing Applications for scalability to high transaction loads



IMS TM continues providing leadership

– To efficiently manage network, message, application, and data processing

– To ensure high performance, availability, security, and recovery

Transaction processing is the software technology that makes distributed computing reliable. Large enterprises in transportation, finance, telecommunications, manufacturing, government and the military are utterly dependent on transaction processing applications for electronic reservations, funds transfer, telephone switching, inventory control, social services, and command and control.

Rapid expansion on the internet will expand the demands on high end transaction processing even further. Transaction Systems contribute to the performance, security, scalability, availability, manageability and ease of use.

The IMS Transaction Management system provides technological leadership to communicate with the network; manage input/output processing and security; provide message queuing, formatting, logging and recovery; to ensure scheduling, execution, and checkpoint/restart of online and batch message and data processing programs.

Why not just Data Systems

2-tiered (client and database mgmt) architectures are ideal for applications with

- <100 clients
- 1 source of data
- LAN-based network connectivity
- Low security requirements

Enterprise-class systems require

- Production quality factors - high availability, performance, scalability, security, manageability
- Supporting factors -- support/consulting, tools/applications, training, service

Departmental systems are becoming increasingly business-critical, outgrowing their technology, and requiring more interaction and growth. Enterprise computing requires many application components, multiple heterogeneous data sources, support for high-volume, update intensive workload, requiring significant inter-application communication, must work over wide area networks and the internet, have long expected lifetimes, involve multiple groups with a company. Beyond 100-150 clients, the cost per client can rise dramatically in a 2-tiered data environment. Upgrading hardware doesn't solve the problems. 3-tiered architectures can have higher initial cost but are far more scalable in the long run.

Why Transaction Management

2-tiered Stored-Procedural Data Systems offer

- **Management of data resources**
- **Efficient processing of large queries**
- **Integrity of one resource**
- **Limited application scope**
- **Proprietary language**
- **Data-oriented decision support**

Transaction Management Systems offer

- **Access to multiple data resources**
- **Efficient processing of small units**
- **Integrity across heterogeneous resources**
- **General application scope**
- **Standard languages**
- **Process-oriented, Mission-critical**

Both offer Online access to Data

The 2-tiered data system and the 3-tiered transaction management system each have their role to play in providing online access to data. But for Enterprise-level computing, Transaction Management Systems become a necessity. They focus on clients requesting application services, instead of data, and running in an increasingly heterogeneous environment, and separating the client, application programmer, and operator from the uniqueness of the differences

Why Transaction Management

J2EE or .Net Enterprise Application Servers or Application Platform Suites offer

- Integration/interoperability focus through support of newer devices, standard interfaces and protocols
- Portal capabilities
- Advanced Technology
- Tools to help assemble services through composition of existing and/or packaged applications

Transaction Management Systems offer

- Efficient processing of small units
- Integrity across heterogeneous resources
- General application scope
- Standard languages
- Process-oriented, Mission-critical
- Enterprise level QOS (manageability, availability, performance, security)
- Proven track record of support for large business-critical OLTP applications

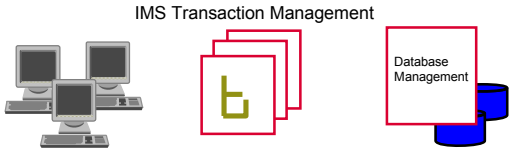
Both offer Online access to Data

Alternative enterprise application servers and platforms focus on integration and interoperation, supporting mobile devices, portals and standard interfaces. They also provide tools to help assemble services through composition of existing and/or packaged applications.
Transaction Management systems focus on ensuring efficient processing of small units, integrity across heterogeneous environments, general applications scope with standard languages, and support for Mission-critical applications with enterprise level qualities of service and a proven track record of support for large business-critical OLTP applications.

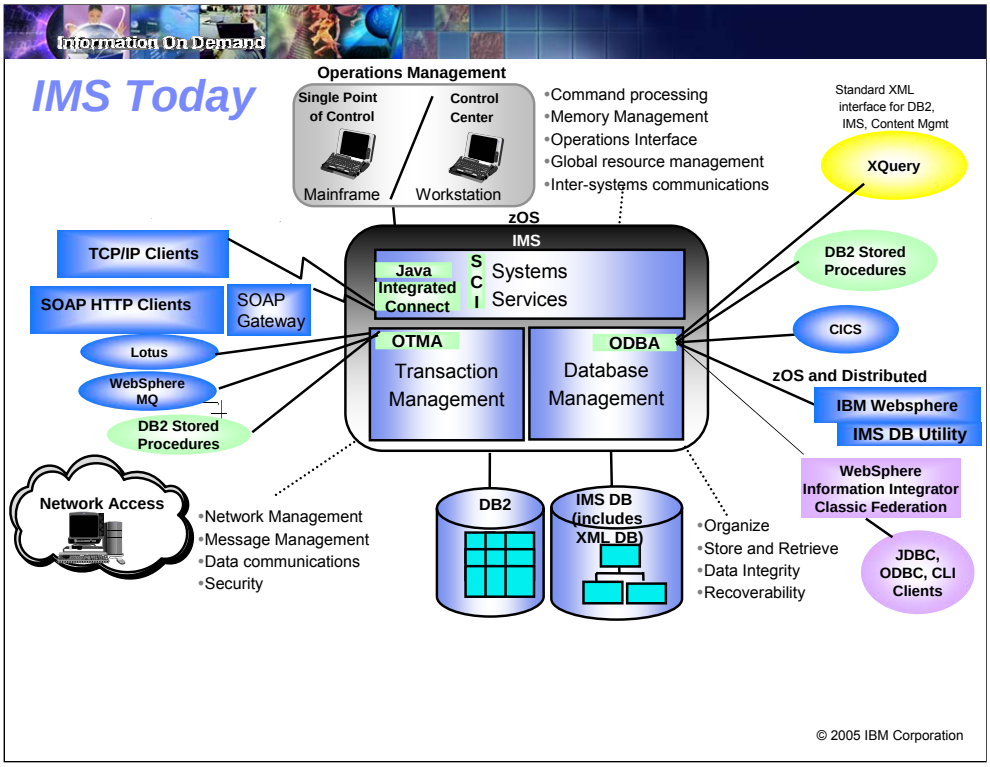
Why IMS Transaction Management

IMS Transaction Management Systems

- Integrate key servers. such as database, message queuing, communications, and Internet access
- Provide Enterprise-class technology that is robust, secure, high performance, scalable, and manageable
- Offers choice and flexibility in networks, programming styles and languages
- Integrates well with existing investments in hardware, software, applications, and skills
- Interoperability and provides portability with other platforms



IMS offers the highest in transaction management availability, performance and integrity at the least cost per transaction. It supports the heterogeneous environments that our customers have. It provides transparency to application programmers. And it builds on your existing skills, applications, and data.



IMS is a powerful database and transaction management system, which also includes significant systems services that are built on and exploit the z series processors and its operating system.

The IMS Database Manager can be used with applications running under the IMS Transaction Manager, CICS Transaction Server, or running as DB2 stored procedures, WebSphere ejbs, etc.

The IMS Transaction Manager can be used with IMS DB or DB2 data.

Along with the IMS Transaction and Database Managers are IMS Systems Services, consisting of facilities to optimize/ease systems operations and management. These services help with command processing, memory management, operations interfaces, global resource management, and inter-systems communications. These services also include support for industry standard, Java application support for IMS transactions, Java data base connectivity to IMS and DB2 databases, and interoperability with existing IMS applications and data. These services also included integrated connect function, which provides open connectivity support to IMS applications and operations.

For application and information integration, and for operational integration, IMS is exploiting the latest programming technologies for the Internet and Java. With the industry standard, open interfaces of Java, users can transparently download and seamlessly run applications. It is becoming widely used and is platform independent. IMS applications and data can use and be accessible using the latest in standard architectures and interfaces, include the J2EE Connector Architecture (JCA) and standard application programming interfaces, for example, Java Database Connectivity (JDBC) interface, across platforms.

In conjunction with WebSphere studio tools and WebSphere servers, the IMS V9 Integrated Connect/Connector for Java function can be used for new J2EE application development/enablement to access IMS applications. IMS provides Web services for IMS applications using the WebSphere Application Server, IMS Connector for Java, and IMS Connect.

You can transform existing IMS transactions into Web services by using WebSphere Studio tools to create service definitions for IMS transactions. You then deploy these service definitions to WebSphere Application Server (WAS) to make the IMS services available as Enterprise Java Bean (EJB) services or Simple Object Access Protocol (SOAP) services. In this way, customers can enable IMS applications as Web Services to support IMS COBOL, C and MFS-based applications**.** This Web services support integrates IMS into the Services Oriented Architecture (SOA). SOA is key to interoperability and flexibility for on demand business. SOA supports end-to-end integration across the enterprise and among business partners. This provides a flexible business process model that allows customers to respond quickly to new customer requirements, new business opportunities, and competitive threats.

IMS Java support provides for the development/enablement of Java applications running under the IMS Transaction Manager and also for accessing IMS Databases with JDBC from applications running under other environments, such as WebSphere, CICS, and DB2 Stored procedures, as well. The IMS V9 Java DB utility can help distributed as well as z/OS WebSphere environments access IMS data. Interoperability is also being provided between Java, Cobol and PL/I applications, and between DB2 and IMS databases.

IMS V9 also provides for the storage/retrieval of decomposed or intact XML data in IMS DB databases.

And new support for DB2 Stored procedures can access IMS TM applications as well as IMS DB data.

IBM is also providing JDBC access to IMS Databases with the DB2 Information Integrator Classic Federation product.

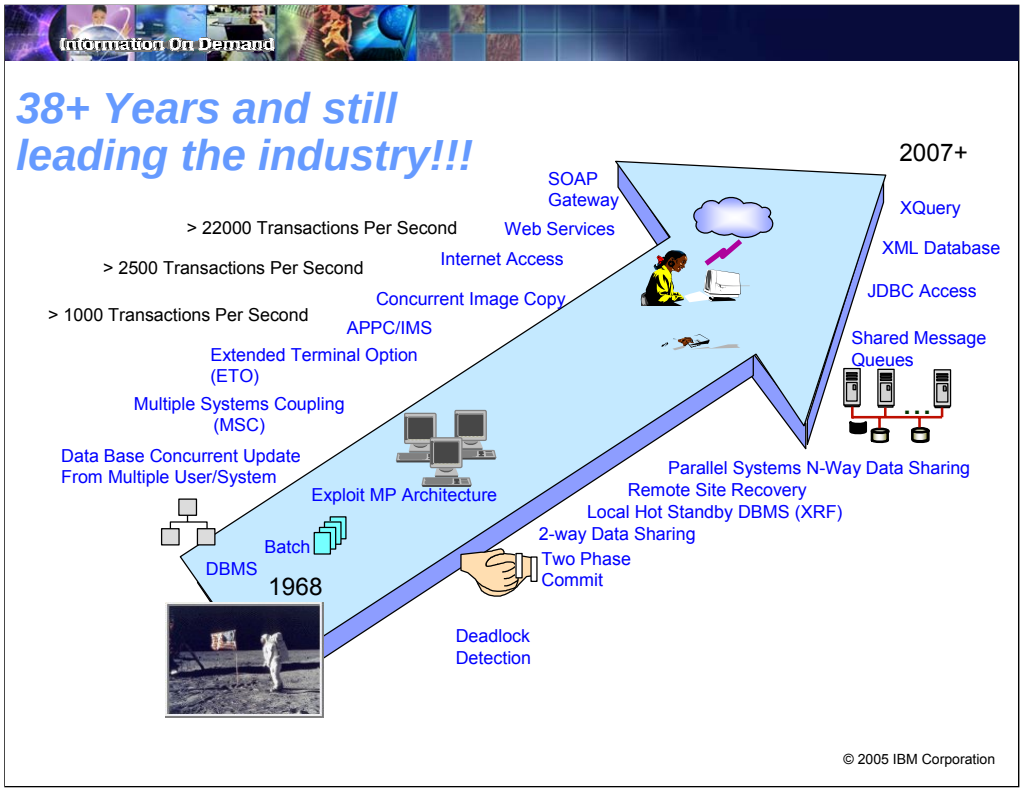
IBM is also planning to provide support for IMS Databases with XQuery , the new standard XML interface.

IMS is also using the WebSphere XML Adapter for COBOL and SOAP support with its IMS SOAP gateway code, a sample/demo of which is currently available at www.ibm.com/ims.
The IMS SOAP Gateway is an XML based connectivity solution that enables existing or new IMS applications to communicate outside of the IMS environment using SOAP to provide and request services independently of platform, environment, application language, or programming model.

The IMS SOAP Gateway enables the seamless exposure of IMS application assets as Web Services. The IMS SOAP Gateway, providing a relatively simple but extensible option, will provide the ability for non-WebSphere customers to re-use existing and to create new IMS-based business logic. One typical usage scenario of providing Web services with the IMS SOAP Gateway is to enable Microsoft .NET client applications or intermediary servers that submit SOAP requests into IMS to drive business logic transactions.

The SOAP for IMS function can assist organizations with Enterprise modernization, Application development, Business integration, and Web Services implementation.

Generated IMS service definitions (that is, Web Services Description Language (WSDL) files) can be published or exposed to a Universal



Since its inception, IMS has been at the forefront of technology in Database and Transaction Management

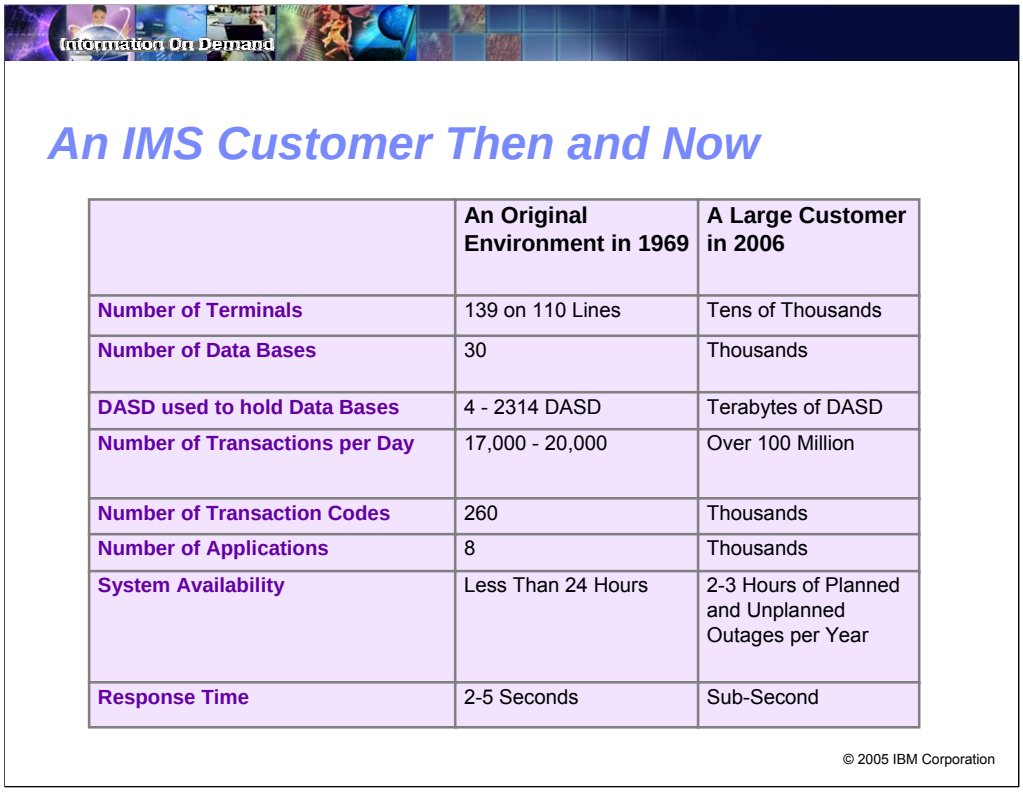
IMS has been the first at delivering IBM solutions

Some examples are:
Multiple Systems Coupling Facility - IMS has been distributing workload across multiple systems for a long time,

Datasharing -- IMS has been the first to provide 2-way and then N-way data sharing, and extended that to Message sharing and network sharing as well.

eXtended Recovery Facility provides a hot standby capability for IMS customers. IMS is the only DB/TM system to provide this level of high availability takeover support; the same is true for Remote site Recovery

IMS Fast Path continues to support the highest transaction per second database access solution
As we move further into the new era of computing, IMS is still leading the way. More than 30 years since the first IMS-ready message for the Apollo Space program, IMS and the zSeries are breaking technology barriers, but sometimes taken for granted. But we continue to lead the industry in performance, availability and ebusiness enablement.



Today, IMS manages the world's mission-critical data and has been at the forefront of the swing back to mainframe usage. Companies worldwide depend on IMS. Only with IMS can help customers obtain their growth objectives. For example, banks are assured the integrity of their high volume financial processing. With IMS, they have managed to continually grow their workload, and as they merge with other banks, they are able to continue to handle the capacity that results.

Providing Information On Demand Business Solutions Powered by IMS

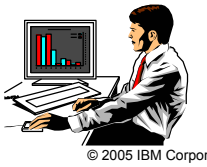
Easing Integration with New Technology for a Service Oriented Architecture

- Open Access for Integration and Analysis
- Leveraging Java for Application Development

Simplifying Installation and Management

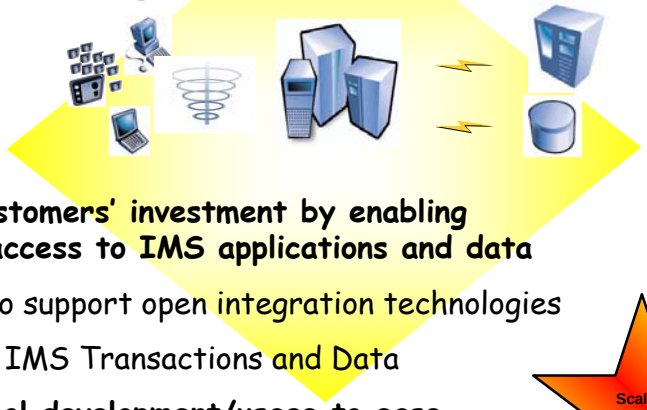
- Sysplex Network, Message, & Data Sharing for ultra high performance/availability at lowest cost of computing
- Continually Improving Tools for Systems Management and Application Development

Providing high performance, scalable, available, reliable and secure solutions



The IMS Transaction and Database Server is evolving to further strengthen its support for Enterprise and Network Computing environments. IMS has been providing increased capacity and incremental horizontal growth and offering improved availability with network, message and data sharing, utilizing the coupling facilities of the zSeries and the latest technological advancements for security and integrity of z/OS. IMS has provided open/integrated access with Java and XML. and IMS has also been providing improved systems management in automated operations, workload balancing, dynamic routing, dump analysis and packaging enhancements. Building on a tradition of success, IBM has been offering additional product and tools for IMS which enhance enterprise computing systems management, availability, and capacity, IBM is also offering additional product and tools enhancements to simplify access to both legacy and new IMS applications and data.

IMS Integration Strategy to Ease Application Development/Enablement



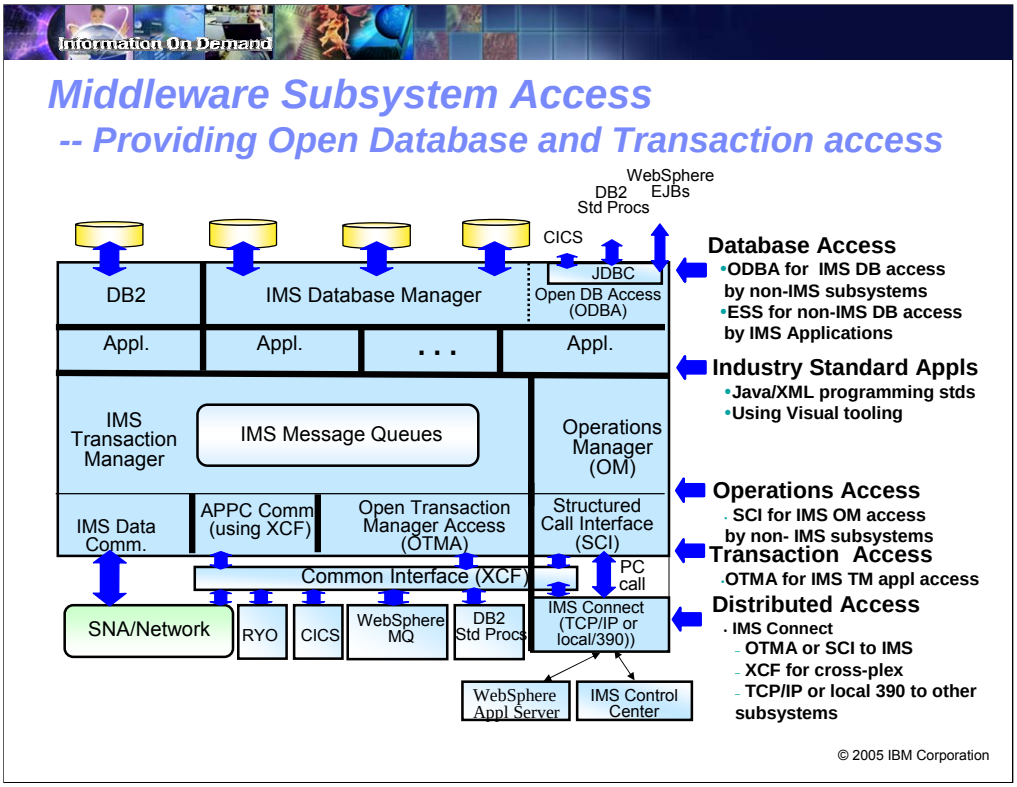
- **Protect customers' investment by enabling integrated access to IMS applications and data**
  - Designed to support open integration technologies
  - Modernize IMS Transactions and Data
- **Enabling tool development/usage to ease application development/enablement**
- **Encourage new application development by supporting standards – XML, SOAP, JAVA**

The IMS Integration Strategy is to ease application and enablement of applications in IMS by:

•Protecting customers' investment by enabling integrated access to IMS applications and data. These efforts are designed to support open integration technologies and modernize IMS Transactions and Data

•Enabling tool development/usage to ease applications development/enablement

•Encouraging new application development by supporting standards – XML, SOAP, and JAVA



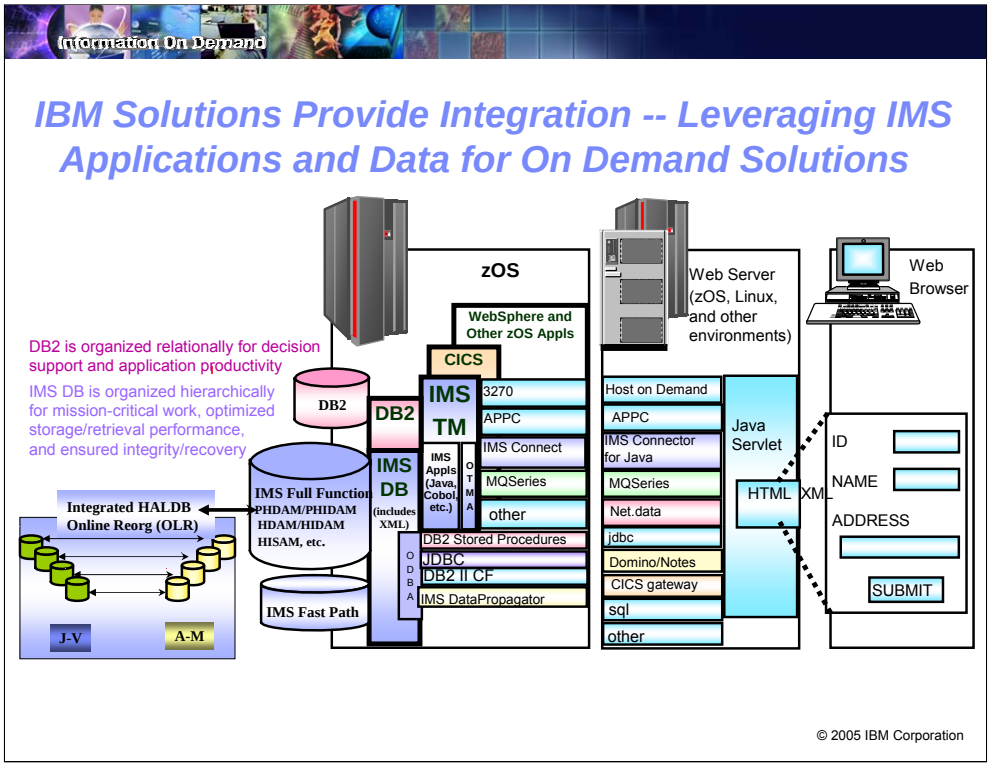
Key Message: IMS Architecture is evolving to provide open interfaces, and support latest standards

IMS provides a number of solutions for open database, transaction and operations access The IMS Open Database Access facility (ODBA), provides easier database access. Built on the DRA facility for CICS access to IMS DB, ODBA now provides a callable interface for easier database access from other subsystems. This facility is being used by DB2 Stored procedures, in addition to other environments, to provide access to IMS DB data, and through this, distributed access can be provided to IMS DB data from the web. JDBC access has been built on this ODBA facility for IMS DB access from WebSphere ejbs, as well as CICS and DB2. With IMS V9, IMS Database access for distributed Websphere environments was also provided. And IMS plans to extend this to more distributed environments as well.

IMS also provides open, industry standard applications by supporting Java and XML programming standards, and utilizing Visual Tooling for developing applications that run as IMS transactions or for developing other environment applications accessing IMS data.

Traditionally messages came into IMS through its SNA data communication protocol from VTAM. With APPC/IMS support, IMS took advantage of the new Cross Coupling facility (XCF) to communicate with APPC/MVS. This was a software facility that allowed MVS subsystems to communicate more efficiently. With the IMS Open Transaction Management Access (OTMA) facility, IMS extended its use of XCF for use by other IBM subsystems, such as TCP/IP and MQSeries, providing them more efficient and richer capabilities in accessing IMS. OTMA allows access to existing, unchanged IMS applications on any IMS TM system on any MVS system of an MVS Sysplex as well. For TCP/IP, IMS Connect was provided, and now IMS provides the integrated Connect function.

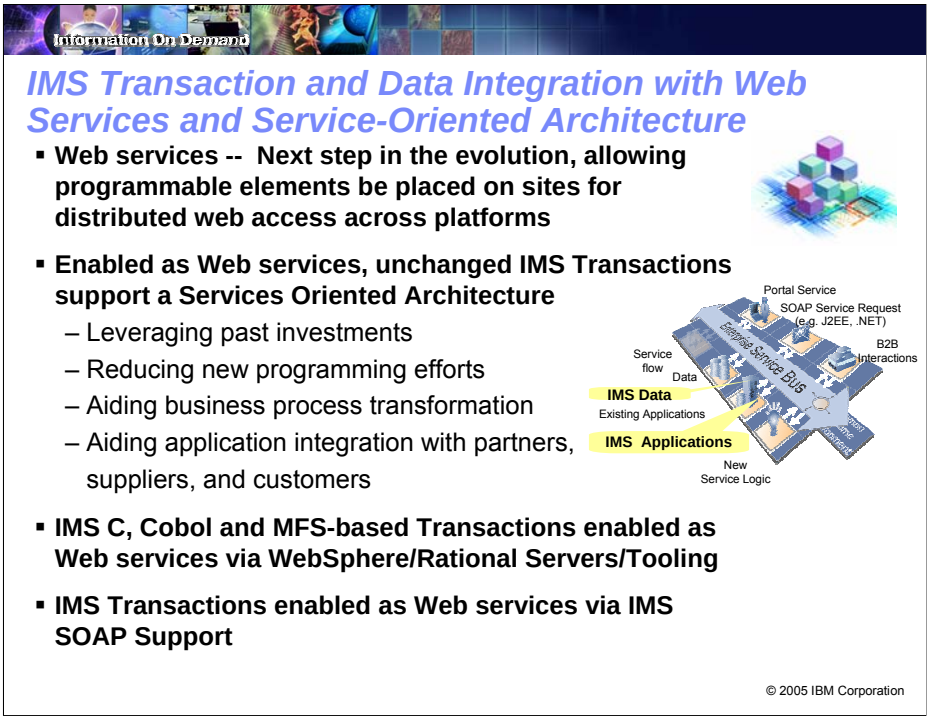
IMS also provides distributed operations access through the Structured Call interface to the IMS Operations manager



IBM has been providing a variety of connectivity and integration solutions with IMS, consistent with other database and transaction servers.

Connectivity and Integration has always been a priority with IMS. IMS has provided solutions that can use workstations or servers to access IMS data. Information can be retrieved from the server system in a two-tier environment or in a three-tier environment. Our strategy here is to support standard connectivity solutions, as well as those tailored to the IMS environment. IMS tooling shipped with WebSphere can provide connectivity with IMS applications and data as well as to other environments regardless of the tools used or what they want to connect with. Consistent integrated data access is provided for relational DB2 databases and hierarchical IMS Databases, both its IMS Fast Path and IMS Full Function databases. IMS is now also adding XML Database Support for these databases. And IMS is enhancing its full function database capability with its integrated High Availability Large Database (HALDB) Online Reorganization (OLR) support, offering ultra-high availability to its virtually unlimited size databases.

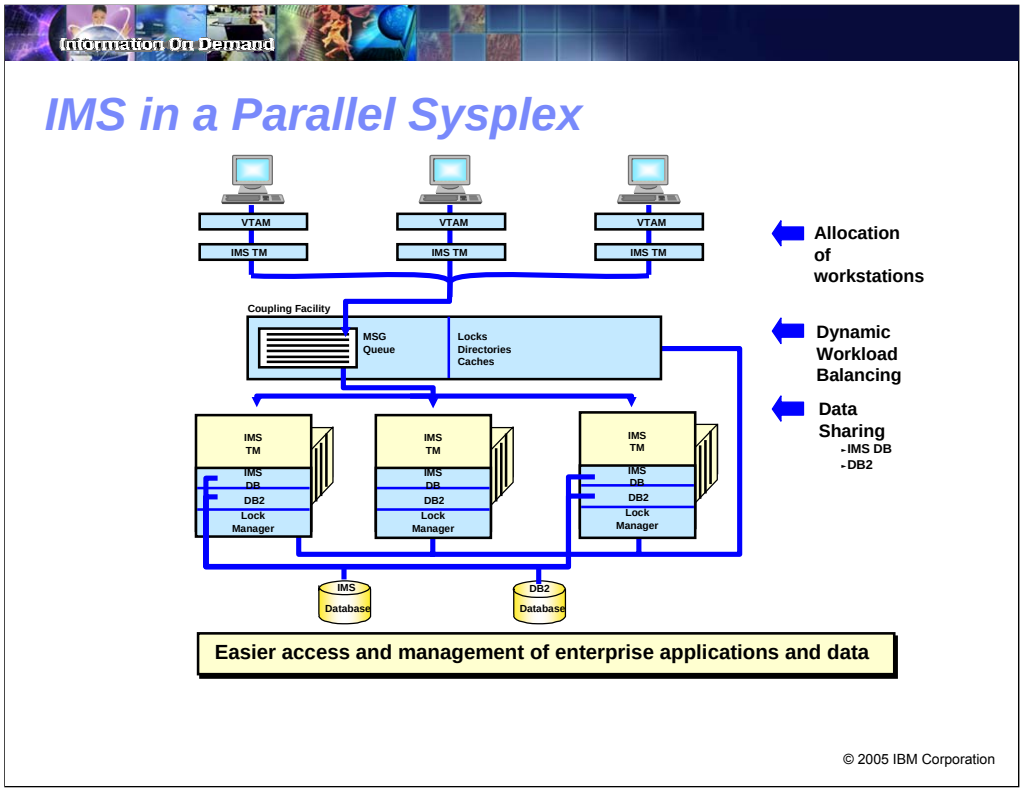
IMS views integration as a continuing journey and continues to support and enhance new technology for connectivity and on demand business enablement into the foreseeable future.



Key Message: IMS is supporting Web services and the Service Oriented Architecture.

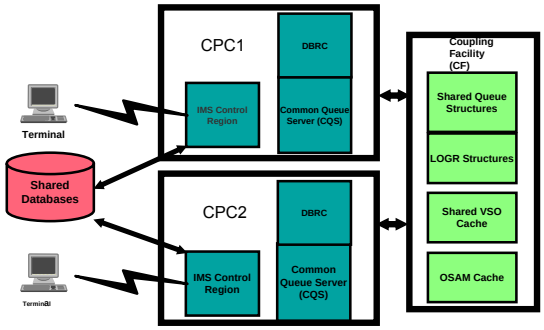
Today IMS Transactions and Data can be enabled as Web services, and be supported in a Service Oriented Architecture (SOA). support. This provides for the leveraging of past investments in application development. This can also eliminate or greatly reduce new programming effort, reduce end-to-end business process transformation, and facilitate integration with partners, suppliers, and customers.

IMS COBOL, C, and MFS-based applications can be enabled as Web services using WebSphere and Rational tooling. IMS transactions are also being enabled as Web services via the IMS SOAP support.



IMS continues to strengthen its support of the Enterprise by providing the highest in performance, availability, security, integrity, at the least cost per transaction. In doing this it has been exploiting the hardware/software environments that it has grown up along side of. IMS fully exploits for customer advantage the new technology and power of z/OS and the Parallel Sysplex. Existing IMS data sharing capability was initially enhanced to take advantage of the coupling facility for storing lock information and for easy availability of that information by all systems in the Sysplex environment. The lock manager in each system could access the locks as they needed to. In addition to data sharing, IMS provided necessary information to the MVS workload manager to assist with workload balancing of resources across the Sysplex. IMS also enhanced message routing between systems to take advantage of workload balancing information, and IBM provided the IMS Workload Router to use these facilities to push the work to the available system. Significant enhancements were also added to complement the Parallel Sysplex hardware and operating systems facilities. IMS has since improved its initial Data Sharing and Workload manager enhancements with additional data sharing (storing changes and unaltered data on the coupling facility for Sysplex access, and providing additional Fast Path sharing), message sharing (providing message queues and fast path messages on the coupling facility for Sysplex access), and message routing enhancements (utilizing VTAM Generic resource support). As customer workload grows, the power that distributing data and applications across the Sysplex provides is needed. End users want to be able to access applications and data transparently, regardless where the work is processing. This enhanced support provides improved end user interaction, improved IMS availability, improved workload balancing, and offers increased capacity and growth in moving into Parallel Sysplex environments.

IMS Sysplex ***Manageability Strategy***



SYSTEMS MANAGEMENT

- **PRESENT A SINGLE SYSTEM IMAGE AND PROVIDE EASE OF USE THROUGH A SINGLE POINT OF CONTROL ACROSS THE SYSPLEX**
- **ENABLE USERS TO RESUME STATUS ON ANOTHER IMS IN IMSPLEX**
- **COORDINATE/MANAGE ONLINE CHANGE ACROSS THE IMSPLEX**
- **ADDITIONAL REQUIREMENTS**

IMS continues to enhance the manageability of IMS. In the Sysplex area we are helping our customers ease systems management by:

•Presenting a single system image and providing ease of use through a single point of control.

•Enabling users to resume status on another IMS in the IMS Sysplex

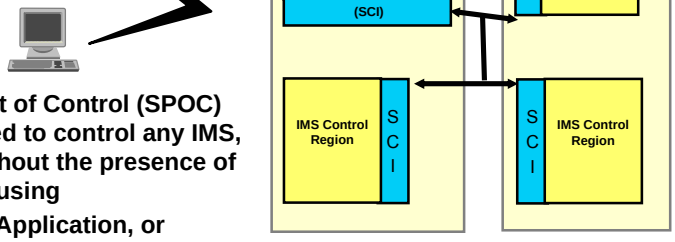
•Coordinating and managing Online Change across the IMS Sysplex

•And a number of additional requirements

IMS Easing Operations Manageability

Operations Manager

- **Routes Commands**
- **Provides an API**
- **Provides Single Point of Control and supporting code for entering commands**



Single Point of Control (SPOC) can be used to control any IMS, with or without the presence of a Sysplex using

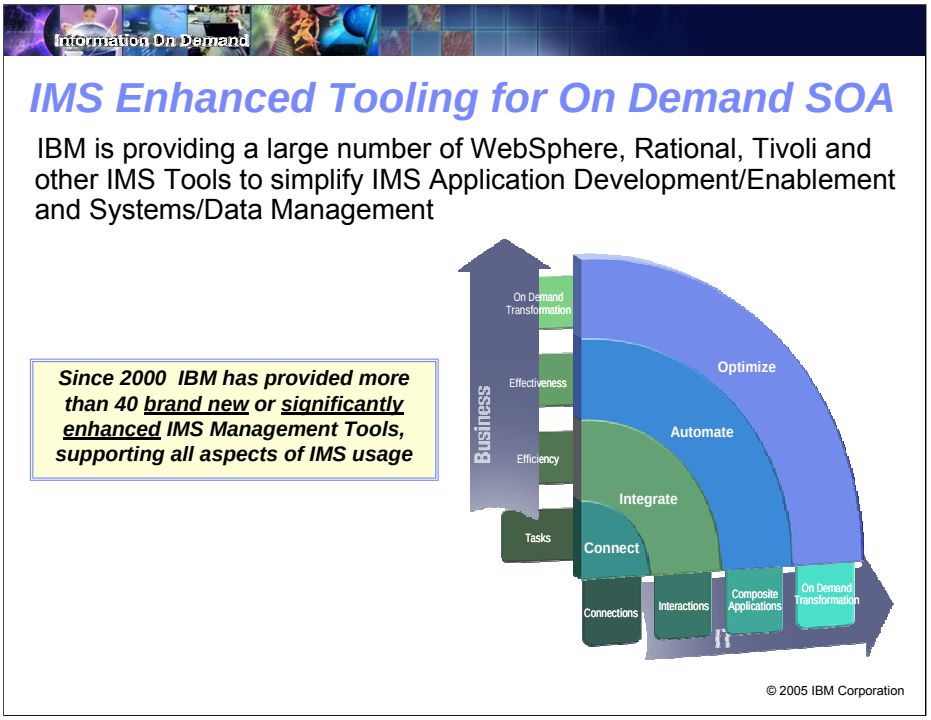
- **TSO/ISPF Application, or**
- **DB2 V8 Control Center through IMS Connect to IMS**

For this, IMS provided a new Operations Manager (OM), structured call interface (SCI), and Single point of Control (SPOC), which:

•Provide an IMS Address space that routes IMS Commands to interested IMSs across the IMS Sysplex and consolidates IMS command responses.

•Provide an Application Programming Interface to allow a user or vendor to write tools to automate IMS operations.

•Support a Single Point of operations control to present a single system image for the IMS Sysplex by allowing the user to enter commands to all IMSs in the IMS Sysplex from a single console. Although designed with Sysplex in mind to optimize operations across a Sysplex, the new SPOC can also be used to improve systems management of commands in general, and the SPOC can be used to control any IMS, without the presence of a Sysplex. This support can provide operations management for IMS DB and/or IMS TM environments from a TSO/ISPF Application running on S/390 or z/OS or from a distributed DB2 with its IMS Control Center code.



Key Message: IMS has also been extending/enhancing their IMS Tools for the On Demand Service Oriented Architecture, helping our customers with automation and optimization of this environment.

In addition to IMS, IBM provides a broad array of Application Development tools designed to support existing enterprises in their transition to "On-demand" applications. This is true particularly in the areas of discovery, development and deployment. These tools range from compilers designed to support XML, tools to assist in the identification of impacts due to program modifications, debug and performance aids as well as support to aid error correction and file manipulation. IBM's Application Development thrust is towards helping customers provide innovative "SOA" (Services Oriented Architecture) based IT solutions , while leveraging their existing asset base.

In particular, IBM provides a suite of problem determination tools. New versions of File Manager for z/OS, Fault Analyzer for z/OS, Debug Tool for z/OS and Debug Tool Utilities and Advanced Functions were all announced with features that continue the integration of the products with each other, and the other Problem Determination Tools (Application Performance Analyzer and Workload Simulator). In addition to adding functions requested by customers, we also enhanced the mixed workload support of these tools.

In addition to the WebSphere, Rational, and Tivoli tooling, new and recently enhanced IMS Tools are being provided that help our customers in their evolution toward On Demand Service Oriented Architecture. Their particular focus is on automation and optimization. IBM provides a wide range of price/performance, competitive Systems Management tools for IMS. These tools provide support for speeding up and reporting on performance, extend the functions of and assist with testing of IMS, and provide system tools for querying, validating, managing, and tuning the IMS Database, These include for example tools necessary to maintain and repair databases. Many tools serve multiple purposes. IBM offers tool functionality like IMS Control Suite that is not available from any other vendor. IBM offers high performance tools that are competitive within the industry at an affordable price. In fact when taken together "price/performance and functionality", IBMs IMS tool can be considered the best in the industry.

We have over 40 products to support all aspects of IMS usage.

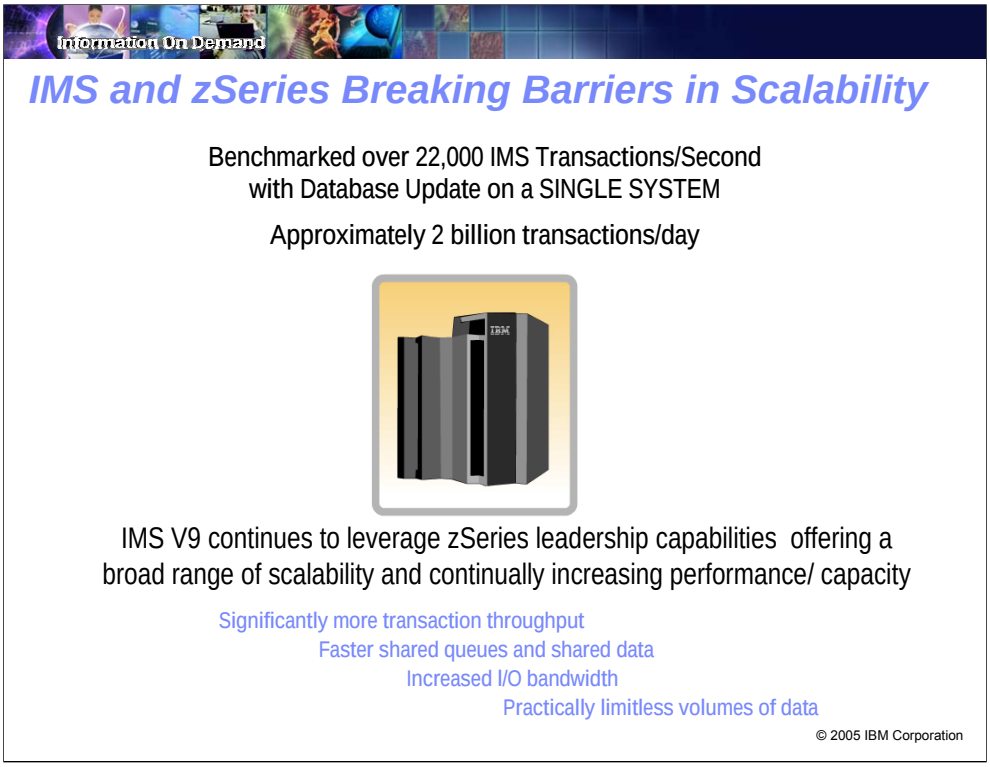
Utilities for full function and fast path database provide a high performance solution that improves IMS availability.

Administrative tools make managing large and small IMS systems easier and faster.

Performance management tools help you tune IMS systems and avoid outages.

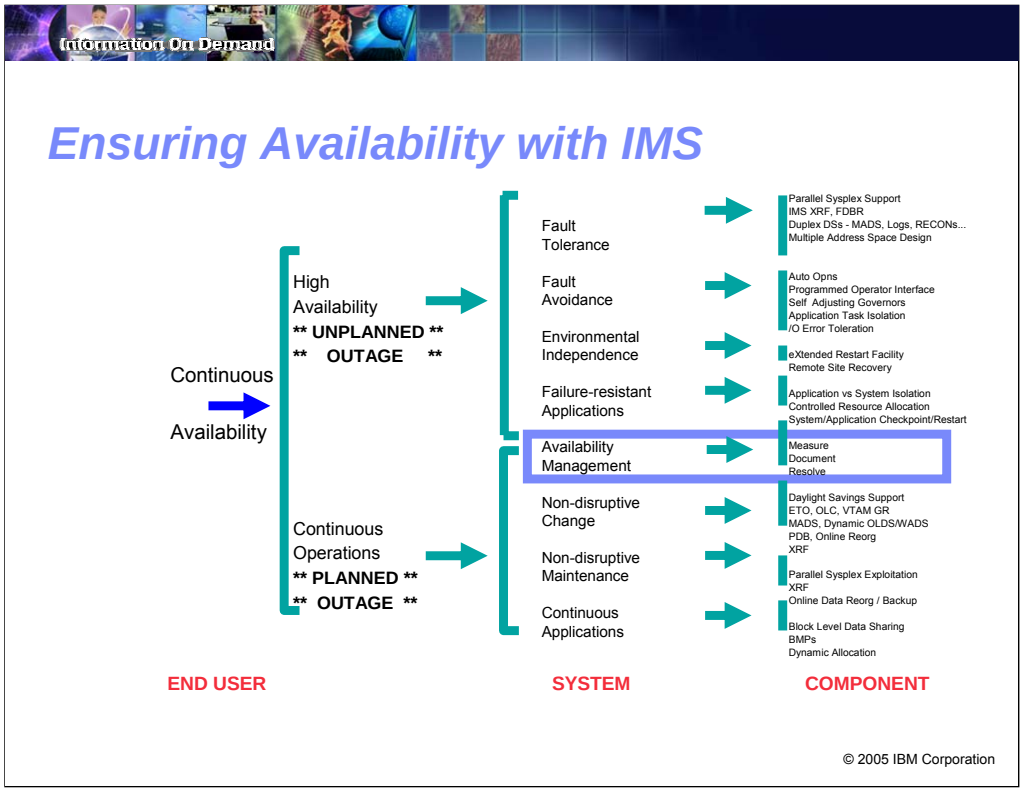
Recovery and replication tools enable fast and effective transfer of data from transactional to informational systems.

And application management tools make application runtime environments more effective



IMS is designed, built and tuned to exploit the IBM Mainframe, leveraging the scalability, stability and technology advances on this platform. The zArchitecture will continue to provide growth and protect your enterprise computing investment well into the future.

What other platform provides the ability to demonstrate over 22,000 IMS transactions per second with database update on a single system? The latest versions of IMS and IBM System z9 hardware provide even higher levels of throughput and performance – managing even larger amounts of data and transactions

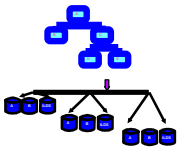


IMS has also been providing solutions to help ensure availability of their customers' applications and data. These are provided with the many availability elements of IMS. In addition to the availability provided with the IMS Sysplex support for data, network and message sharing, IMS provides Extended Recovery Facility (XRF) for hot system standby; Remote Site Recovery and Extended Recovery Control for disaster recovery; Automated operations; Online Change and Extended Terminal Option for dynamic, non-disruptive change; Fast Path capabilities for 24X7 data availability, and many others.

IMS Remote Site Recovery allows backing up an IMS system with another at a different location. A database at another system is maintained to match the primary database and/or a log is maintained that can dynamically and quickly update that remote data base to allow takeover in the event of failure.

IMS Fast Path capabilities continue to be enhanced to provide not only high availability but also to provide the fastest access through the system, continuing to lead database products. Against industry standard benchmarks it continues to show as the best price performance at the lowest cost, confirming that nothing in the transaction market matched the speed and power of the IBM zSeries with IMS.

Integrated IMS High Availability Large Database (HALDB) Online Reorganization for IMPROVED DATA AVAILABILITY

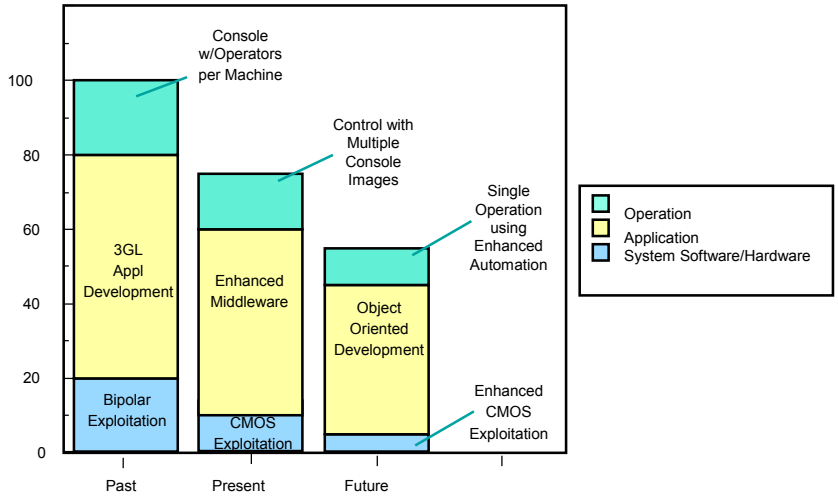


- IMS High Availability Large Database (HALDB)
  - ✓Extends IMS Full Function database size
  - ✓Up to 1001 Partitions x 10 data set groups x 4G = 40 Terabytes
  - ✓Provides data availability through partition independence
  - ✓Provides easier manageability with smaller partitions of the database
- IMS HALDB Integrated Online Reorganization (OLR)
  - ✓Provides reorganization by partition of HALDBs with concurrent online update and availability
  - ✓Provides recovery from system, IMS, media failure
  - ✓Provides no outage - HALDB partition remains online and available during Reorganization
  - ✓Users can adjust pace of OLR

IMS has been continuing to enhance its 24X7 Data Availability and capacity for its full function databases as well. IMS High Availability Large Data Base (HALDB) Support allows for 1001 partitions to a max capacity of 40 gigabyte each. This means you can have over 40 Terabytes OSAM and VSAM databases. That would be 20,000 3390 devices. This works out to 6600 bytes for each person on earth. This compares to V5/6 when we just expanded to allow 8 gigabyte databases. This support also allows for a partition to be taken offline, have something done to it and be independently brought back online. This means each partition could be individually unloaded and reloaded and while offline a batch reorg could be done to on it. Or the entire database could be taken offline and each partition could be reorged in parallel, greatly speeding up the offline reorg process.

With the IMS HALDB Integrated Online Reorganization (OLR) capability, IMS provides fully integrated online reorganization by partition of HALDBs with concurrent online update and availability. This is the latest phase of the original HALDB functions. OLR provides recovery from system, IMS, media failures. There is no outage. Users can adjust pace of OLR. There is also a throttle parameter that enables you to manage resources used. (e.g.. 10% of pace or 90% of pace)

Cost of Computing Evolution



IMS has significantly helped contribute to bringing down the Cost of Computing. IMS operational and other systems management improvements have continued to bring down the costs of operations. Enhanced IMS solutions and Object Oriented Programming has helped lower the application costs. And by exploiting the CMOS technology and other advances in technology in the hardware and operating systems, IMS has helped lower the systems software/hardware costs.

Total Cost of Ownership

Performance/Scalability

Availability

Tools & Utilities

Systems Management

Education and Skills

The total cost of ownership is much more than software and hardware costs. We continue to work on a wide range of items where you have concerns.

The ability to scale as far as you need and using the processing capability efficiently continues to be a key concern.

The cost of an outage can be tens of thousands of dollars per minute, so extending our traditional strength is crucial.

Many customers pay more for tools and utilities than for the base products. We are helping to provide better value for the money.

Systems management is key. Enhancements are being designed/delivered to ease IMS systems management and move toward Autonomic Computing.

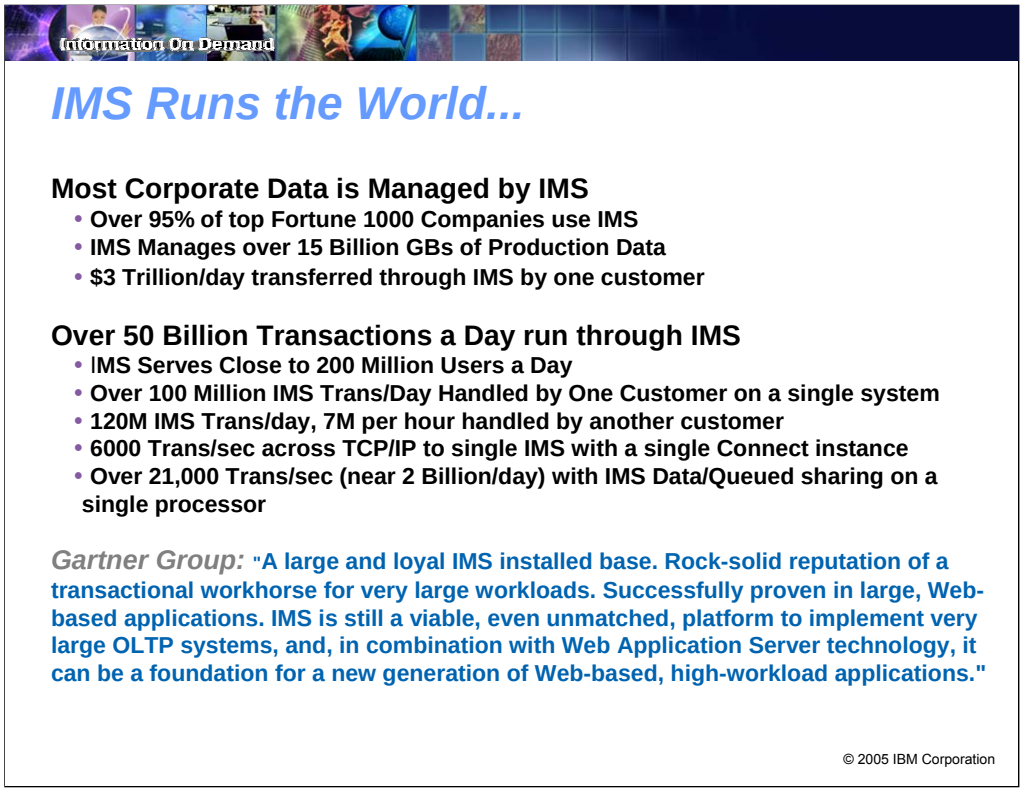
Finding people with S/390 and z/OS education and skills has become more and more difficult. We not only are trying to ease use and management of the system to bring down the skill level requirements, but to also provide certification programs, training and working with universities to continue building up our skill base.

Providing Guidance with IBM Solutions and Services

- Using all of IBM's "arms and legs"
  - Global Services, Education & Training and Systems Centers for delivery of solutions, services, classes and benchmarks
  - Offering services engagements from IBM laboratories directly
  - Design Center for on demand processing

IBM also offers guidance with solutions and services through support of IBM Global Services, Education and Training, and Systems Centers, as well as in offering services engagements from our laboratories directly. IMS specialists from the Dallas Systems Center and our own Santa Teresa Laboratory are available to help offer you the additional consultation and services you need.

We also have a design center, located in Poughkeepsie, NY, to work with customers to design and build integrated e-business solutions and end-to-end application prototyping. All IBM platforms and many non-IBM ones will participate in the center. IBM skills in Research, Software, Services, Networking will support customers worldwide.



Industries worldwide rely on IMS to run their businesses. IMS is part of everyday life. More than ninety-percent of the Fortune 1000 companies use IMS. IMS serves 200 million end users, managing over 15 billion Gigabytes of production data and processing over 50 billion transactions every day. IMS still owns the high-volume on-line transaction and database management environment. IMS customers have been driving their own growth and the world's business with IMS. One customer had transferred over $2.5 Trillion through IMS in a single day. Over 100 million transactions were handled by one customer in a single day on a single sysplex system.

7 million Transactions/ hour and 120 million transactions/day were handled by another customer. IMS in-house testing reached nearly 6000 transactions/sec across TCP/IP to a single IMS on a single machine. That equates to over 500 Million per day. And we reached over 21,000 trans/sec (near 2 Billion trans/day) with IMS Data/Queued Sharing on a single zSeries machine (limited only by the size of the processor used in testing). One large customer has also indicated they have reached over 3000 days without an outage and still going strong.

IMS, IBM's premier hierarchical transaction and database management system, is the product of choice for critical on-line operational applications and data where support for high availability, performance, capacity and integrity, and low cost are key factors. Today, IMS manages the world's mission-critical data and has been at the forefront of the swing back to mainframe usage.

A recent Gartner Group Vendor Catalog entry stated "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, high-workload applications."

IMS Continues to Grow

Illuminata, Inc. (see www.illuminata.com): **IMS: Scaling the Great Wall**

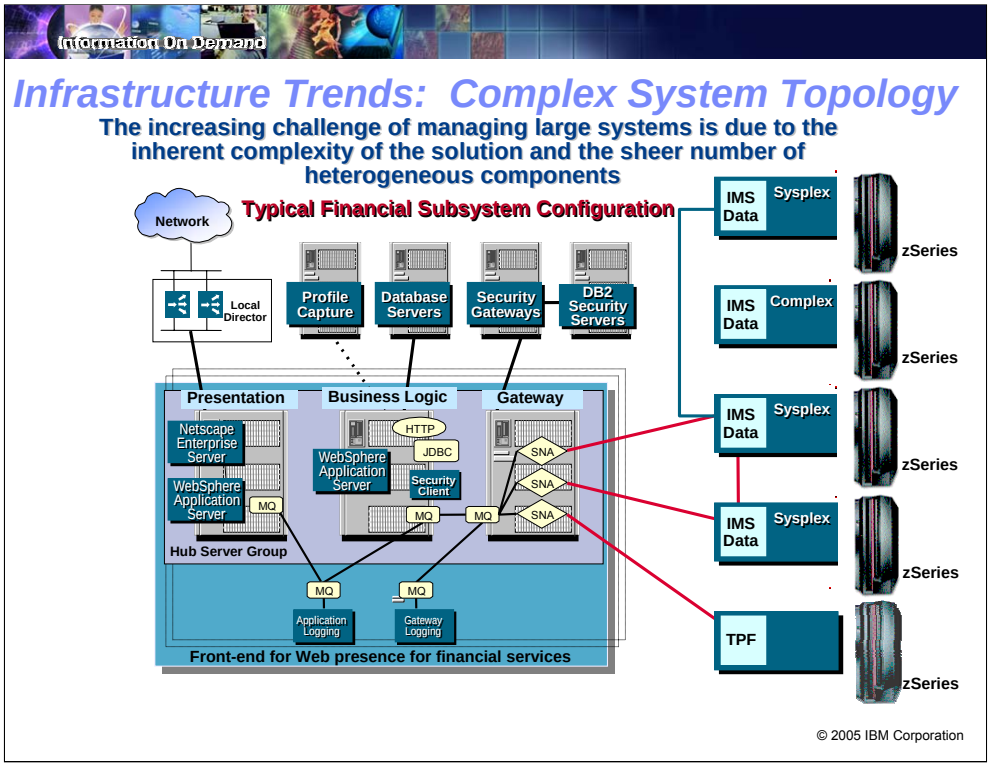
Abstract: A 35-year-old hierarchical database and transaction processing system is currently growing faster than the world's most popular relational database system. Pretty funny, huh?

Actually, IMS is not forging new ground with innovative marketing or customer-acquisition strategies. It's more the other way around -- it's keeping the same old customer base, but the base is growing, a lot. IMS and the mainframes it runs on underpin the vast majority of banks and banking transactions worldwide. And the banking world is growing. China alone may provide more growth in the next few years than the rest of world has in the last decade, and it is certainly not the only Pacific Rim country modernizing its banking system. Combine that kind of geographic growth with advances in online banking in the developed world and it's no wonder mainframes, especially IBM's newer zSeries machines, and IMS are growing. They're the only products capable of keeping up. The only question is, will that growth strain even IMS' capacity?

RedMonk (see www.redmonk.com): **Tooling Up for Mainframe Competition**

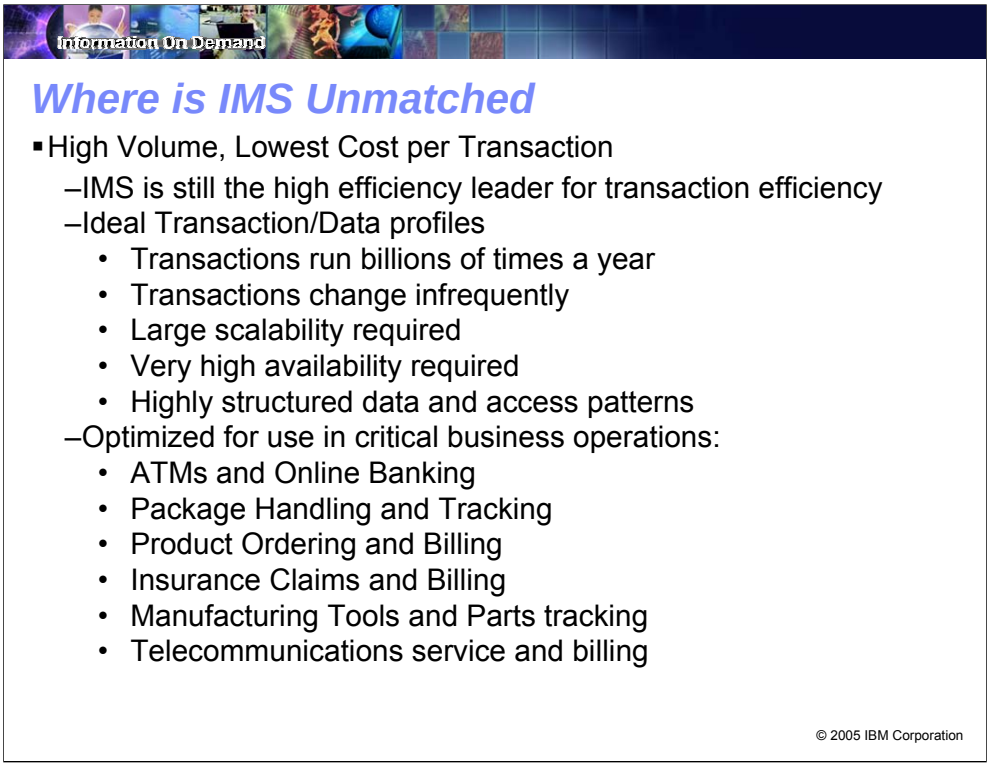
IBM's Venerable IMS transaction processing platform, for example, grew 8% in 2002. For the first time in many years the IBM mainframe is finding entirely new customers, rather then just increased workloads within the existing customer base. This growth is largely because the mainframe has proven itself as an e-business workhorse.

And on other web sites as well are articles about how IMS is still leading the way with new growth. Customers are building on their IMS base and enhancing their use of IMS.



This is a very large financial institution that uses IMS. It is also representative of many IMS customers. They use IMS on the zSeries processors for their primary operational data due to its high performance, capacity, availability, recovery, integrity and security. But they also have many other Database and Transaction Management software products so integration is important to them.

Information technology has significantly changed to address the changing world of business. Market forces have been changing the way we do business. Regulation, economics, have been changing as businesses become more global. Growth of the Internet, the global reach, the new commerce channels are changing the way everybody does business, like the upswing in mergers and acquisitions. Views into information are becoming as important as the information itself. Amalgamation and aggregation have become widespread in the industry. Businesses are exploiting new technologies to enable new customers with new information across the web, in a global day. Businesses are being challenged with balancing priorities and need new ways to gain and retain competitive edge to address increasing demands and sophistication of their customers. IMS customers are at the bleeding edge of this reality. Yet at its heart, business stays the same. Industry forces are making the highest demands for performance and availability, along with interoperability, flexibility, and support for new, emerging technologies. This is something IMS people have been hearing for years. And IMS continues to help efficiently provide heterogeneous access across global networks and in addressing companies' changing needs. IBM is providing integrated solutions with IMS to help our customers with on demand processing. And the increasing challenges of managing the complexity of the solution and the sheer number of heterogeneous components are being addressed by IMS and the environment/products with which it runs.



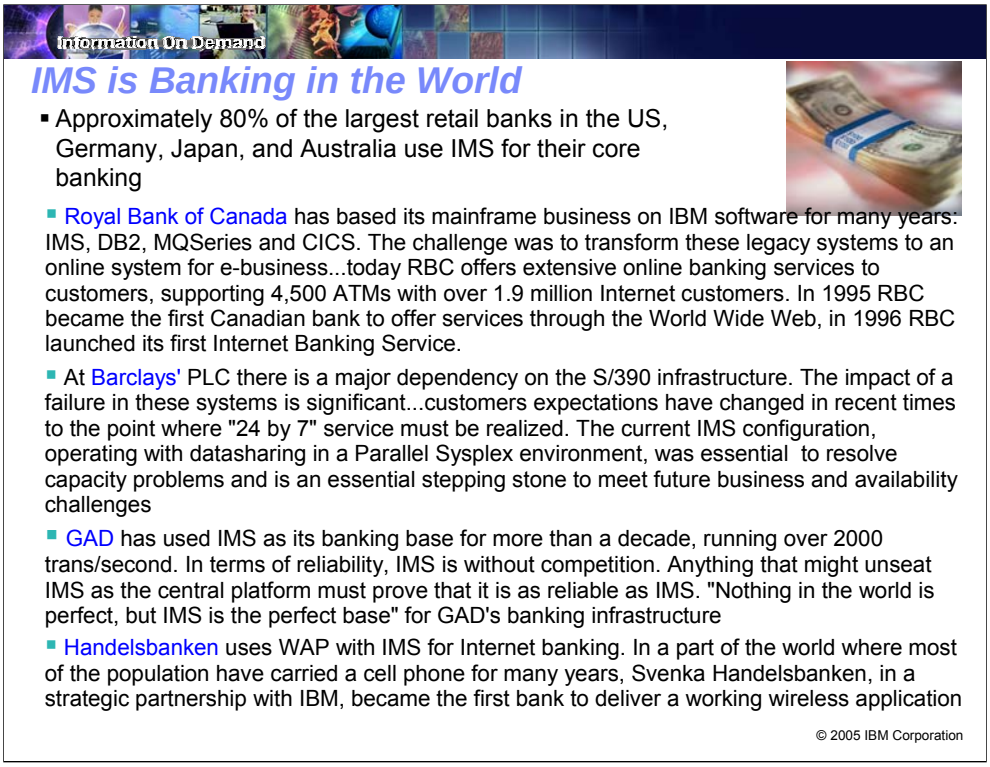
Key Message: IMS is still unmatched in High Volume at lowest cost per transaction.

IMS provides structured database and transaction work in the same historical relationship of IMS Fast Path being twice as fast as IMS Full Function and HALDB , which in turn is twice as fast at Relational. This efficiency means that IMS is ideal when runtime cost is more important than adhoc usage. And Java in distributed environments can make application programming easier and more economical, but centralized mainframe environments are naturally conservative and implementation cycles requiring relatively longer time to plan for and optimize their runtime environments make IMS best for applications that have lifetime transaction volumes in the billions or even trillions, for example ATMs, Orders, Claims, Assembly Lines all make use of this optimized environment.

IMS, IBM's premier transaction and hierarchical database management system, is the product of choice for critical on-line operational applications and data where support for high availability, performance, capacity and integrity, and low cost are key factors. Around most of the world, chances are you are using IMS when you turn on a light, make a telephone call, get a business loan, process accounting records, use your ATM card, put money in a bank, rent a car, purchase insurance, travel, send a package, track in-transit packages, trade stocks, control inventories, process payroll, update personnel records, control an assembly line, control a railroad, use corporate databases, run a government agency, conduct international business/banking, and many more.

Key Message: IMS is optimized for structured data, lean transactions, high volumes, and high efficiency

Most large corporations around the world use IMS for their primary day to day operations. These include core banking, package tracking, manufacturing parts inventory and ordering, insurance policy billing and claims, etc.



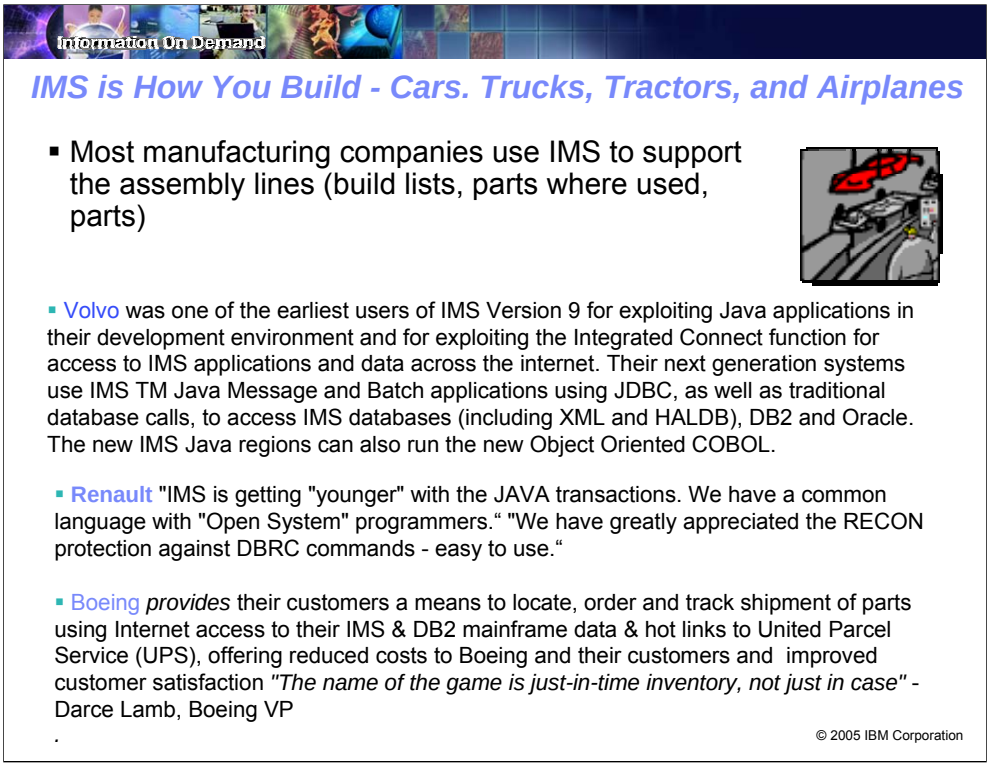
Key Message: The worlds banks makes use of the structured data, lean trans, high volumes, and high efficiency of IMS

Most of the largest banks around the world use IMS for their core banking for the reliability, security and integrity it offers, in addition to its high performance/capacity/availability/efficiency and easy access. These include among others most Japanese, Canadian, German, Australian, and US banks. These banks use IMS to address their requirements for millions of internet customers, ensuring 24X7 service availability, handling thousands of transactions per second, and support for the latest in advanced technology. These are but a few of those banks using the most current versions of IMS and what they have said about IMS.

For example, Royal Bank of Canada (RBC) is Canada's largest bank as measured by assets and market capitalization. IMS is their mission-critical platform in 3 production centres processing 50 million transactions a day, for their clients coast-to-coast in Canada through an extensive branch and ATM network, telephone banking, and internet banking. As such, IMS availability is critical to the bank, and XRF has been a dependable solution for them since 1989. They see the IMSPlex as the strategic infrastructure for availability, and through a number of IMS versions have implemented full data sharing and shared queues. They are is the final phases of completing the migration to VTAM generic resource and OTMA spraying. When completed, their new IMSPlex environment will help them maintain their high availability objectives without the cost of XRF, and provide more flexibility for workload balancing and LPAR utilization.

Key Message: Package tracking and moving companies make use of the structured data, lean trans, high volumes, and high efficiency of IMS

Most of the largest tracking and moving companies around the world use IMS for their core banking. They require economical, scalable, reliable, high volume, high availability, easy access of timely information to their shippers.



Key Message: Automotive and other manufacturers require structured data, lean trans, high volumes, and high efficiency of IMS

Automotive companies as well as other manufacturers around the world use IMS for their assembly lines. Volvo, and Renault are but a few.

For example, Volvo has been making a reality of the intranet and web browsers for legacy data. From Volvo's point of view, it maximizes the value of the corporate investment in zSeries technology, maximizes the value of their existing skills base, and, even more maximizes the value of the data, all delivering competitive advantages for the group. Taking the Parts business as example, the challenge is in delivering thousands of parts globally and at the same time providing various teams around the world with the proper information, including drawing, for example, for trucks, both old and new. The business driven process takes the traditional technical drawings on paper in filing cabinets to screens for business benefits. Using web browser technology, they are able to create a more integrated approach, delivering uniformity of presentation and ease of use, whether accessing financial data or technical drawing, while retaining complete security and control of the data at Volvo using the strengths of the zSeries processors. And they were pleasantly surprised by the ease of implementation (with high praise for the Open nature of the zSeries environment). Volvo was one of the earliest users of IMS Version 9 for exploiting Java applications in their development environment and for exploiting the Integrated Connect function for access to IMS applications and data across the internet. Their next generation systems use IMS TM Java Message and Batch applications using JDBC, as well as traditional database calls, to access IMS databases (including XML and HALDB), DB2 and Oracle. The new IMS Java regions can also run the new Object Oriented COBOL.

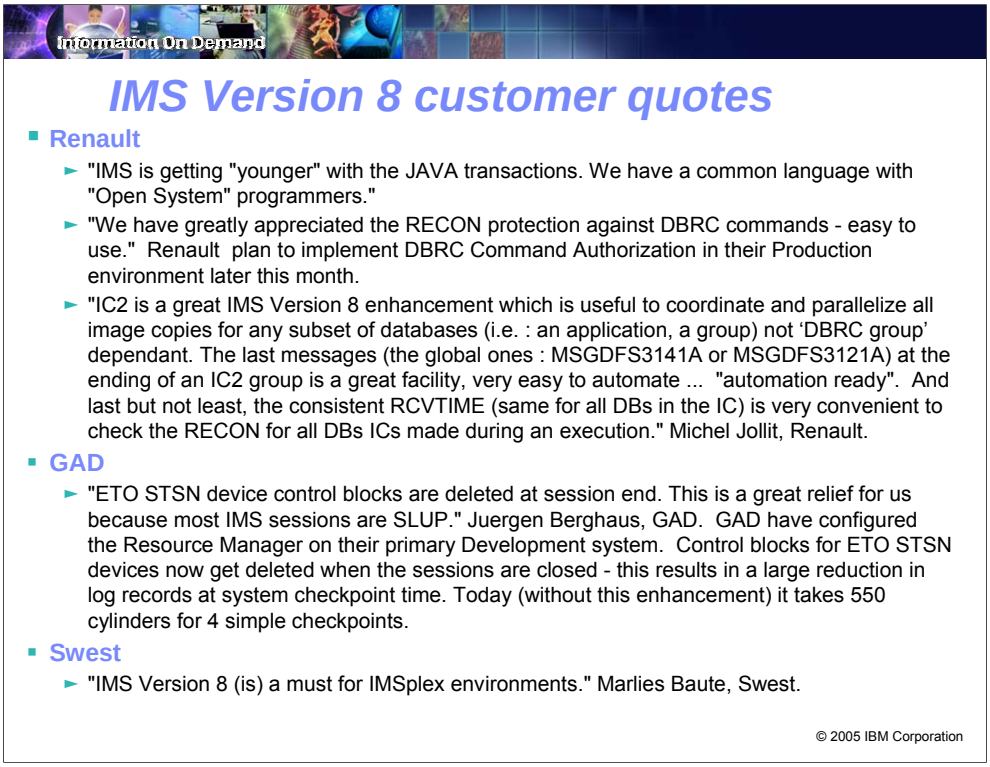
And Boeing has inaugurated a new on-line system that will enable the company's customers to quickly locate, order,

Key Message: Insurance companies use the structured data, lean trans, high volumes, and high efficiency of IMS

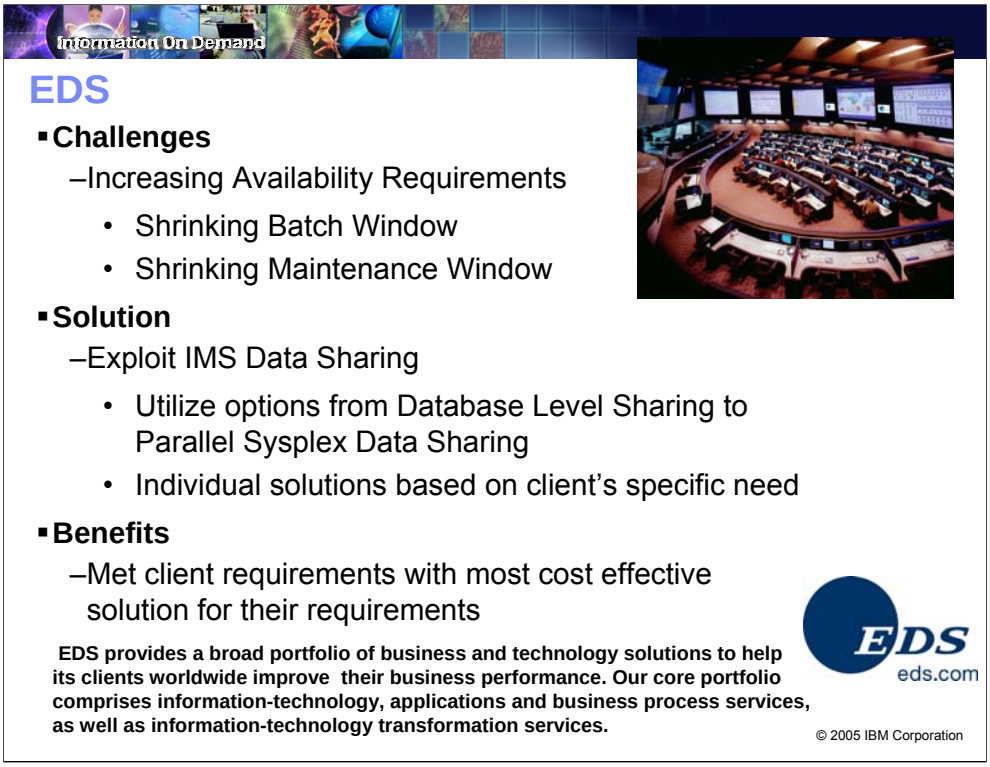
Most of the large insurance companies around the world use IMS for policy billing and claims for the high capacity, performance it offers. These customers process hundreds of thousand transactions per day on multiple terabyte databases, taking advantage of IMS's Sysplex support and IMS High Availability Large database (HALDB) support.

For example, The Generali Group consists of 500 companies directly or indirectly controlled by the Trieste-based Parent Company, Assicurazioni Generali, Italy's top insurance company. The Generali Group carries on insurance operations in some 50 markets over the five continents, through a network of more than 140 local units (branches and subsidiary companies) as well as through a number of specialized offices providing assistance to multinational clients the world over. In terms of written premiums, the Generali Group holds the third place in Europe and ranks among the 20 largest insurers at world level.

IMS customers have been making use of IMS latest versions for competitive edge. Some of their comments on IMS V9.



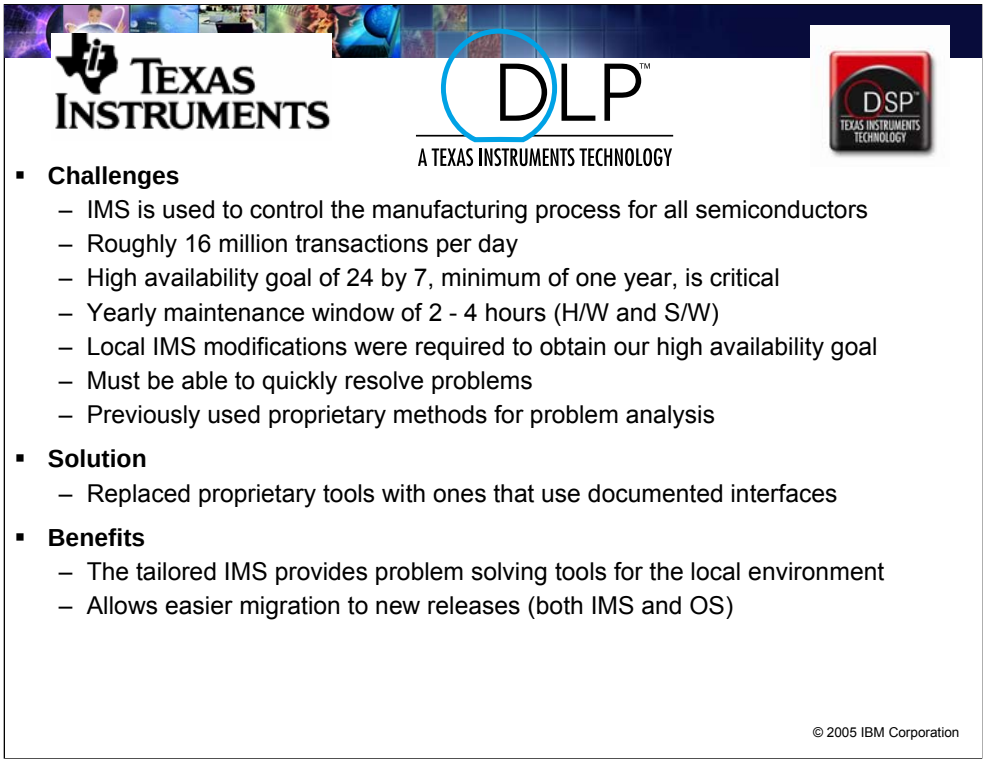
And also some customer quotes about the earlier IMS Version 8.



EDS is exploiting features of IMS to meet the needs of their diverse customer base. From a Manufacturing customer with a batch window concern – to the Airline industry with a need for 24x7 scheduled uptime – IMS offers a variety of Data Sharing options to choose from.

After analyzing the requirements, selecting the appropriate solution to meet the clients requirements in a cost effective manner.

In some cases, the simpler Database Level Sharing can suffice – but the extended capabilities of Parallel Sysplex Data Sharing can clearly meet the more demanding requirements for extended availability.



O TI uses IMS to control the manufacturing process of chips/semiconductors, its core business

O Roughly 16 million transactions per day, spread across three systems

O Systems run 24 by 7, for a minimum of one year (sometimes two years)

O Only down is a yearly (sometimes 2 years) maintenance window of 2 to 4 hours, for installation of both hardware and software changes

O IMS modifications were required to obtain our high availability requirement/goal

O Needed customized troubleshooting/problem analysis tools beyond those provided by IMS

Barclays Bank - IBM Fast Path Tools

Challenges

- We had Fast Path tools from two vendors
  - Result of a commercial deal
- Save money by displacing other vendor
- Getting the IBM tools fit for market

Solution

- Work with IBM to prove and enhance IBM's FP Tools
- Implement IBM's FP tools

Benefits

- Competitor's FP tools displaced
- Now using IBM's HPFPU tools

IMS V9

Key Message: Barclays Bank have displaced a competitor's FastPath tools by converting to the IBM High Performance FastPath Utilities

Toronto Dominion Bank

Challenges

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

Solution

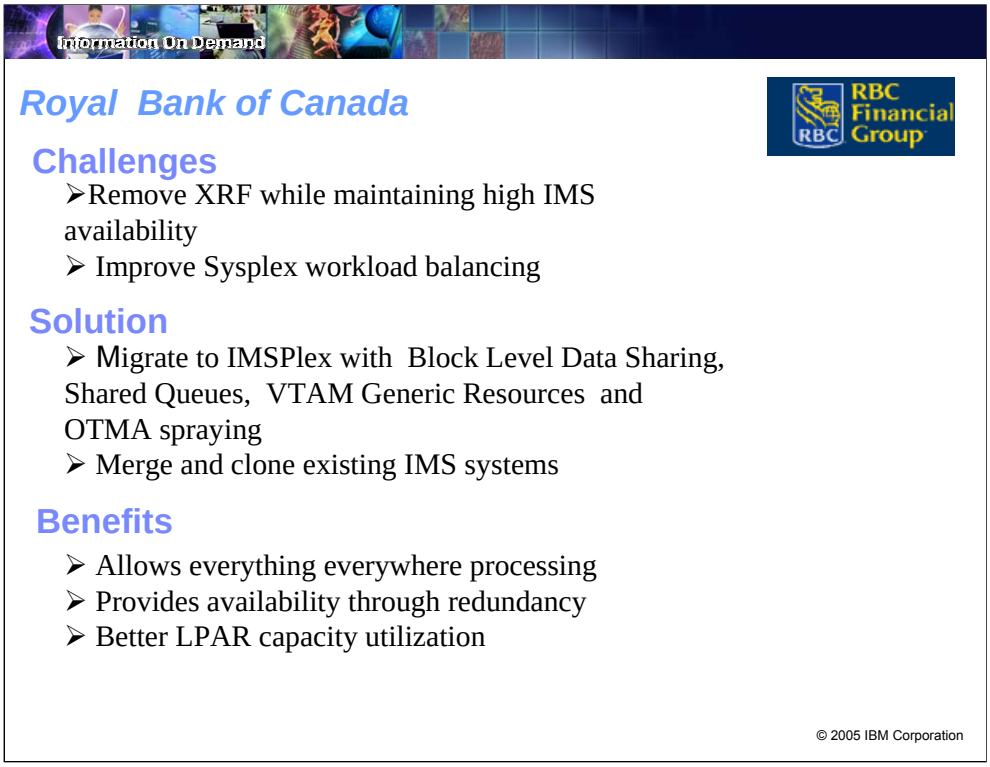
- Implement IMS V9 Connect function for largest Web Banking application
- Bring in IMS Connect Extension product

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

Key Message: Toronto Dominion is utilizing IMS V9 function for their largest applications

Toronto Dominion Bank implemented IMS V9 Connect function for their largest web banking application. It offers them better workload distribution and failover and lowers their cpu consumption for message transport to IMS.



Key Message: Royal Bank is also utilizing IMS V9 and Sysplex function for improved availability and capacity utilization.

Royal Bank of Canada (RBC) is Canada's largest bank as measured by assets and market capitalization. IMS is their mission-critical platform in 3 production centres processing 50 million transactions a day, for their clients coast-to-coast in Canada through an extensive branch and ATM network, telephone banking, and internet banking. As such, IMS availability is critical to the bank, and XRF has been a dependable solution for them since 1989. They see the IMSPlex as the strategic infrastructure for availability, and through a number of IMS versions have implemented full data sharing and shared queues. They are is the final phases of completing the migration to VTAM generic resource and OTMA spraying. When completed, their new IMSPlex environment will help them maintain their high availability objectives without the cost of XRF, and provide more flexibility for workload balancing and LPAR utilization.

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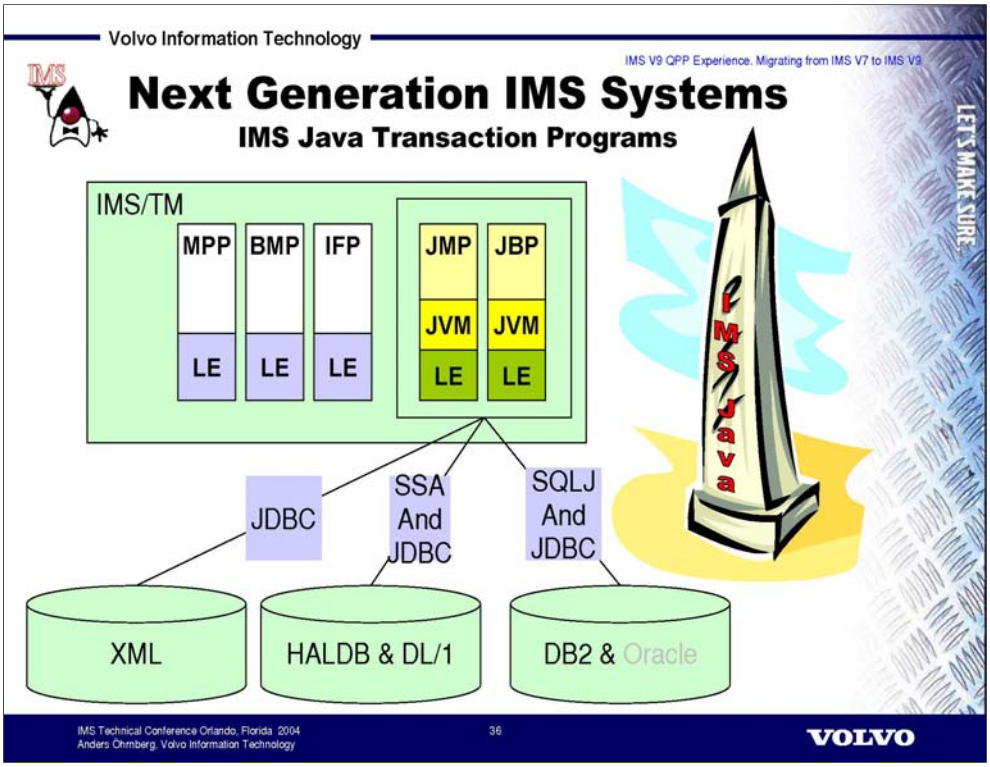
Volvo was one of the earliest users of IMS Version 9 for exploiting Java applications in their development environment and for exploiting the Integrated Connect function for access to IMS applications and data across the internet.

Their next generation systems use IMS TM Java Message and Batch applications using JDBC, as well as traditional database calls, to access IMS databases (including XML and HALDB), DB2 and Oracle. The new IMS Java regions can also run the new Object Oriented COBOL.



Key Message: Volvo is implementing IMS V9 for their next generation systems.
Volvo was one of the earliest users of IMS Version 9 for exploiting Java applications in their development environment and for exploiting the Integrated Connect function for access to IMS applications and data across the internet.
Their next generation systems use IMS TM Java Message and Batch applications using JDBC, as well as traditional database calls, to access IMS databases (including XML and HALDB), DB2 and Oracle. The new IMS Java regions can also run the new Object Oriented COBOL.

Volvo IT has provided an environment for their next generation of IMS Systems, enabling IMS V9 Java application development, JDBC access to IMS database, and IMS XML Databases

Key Message: New customers are embracing key IMS function for growth and manageability.

China Construction Bank is consolidating multiple branches from different platforms into two data centers in an IBM Sysplex. They have and extremely large customer base requiring extremely large database support

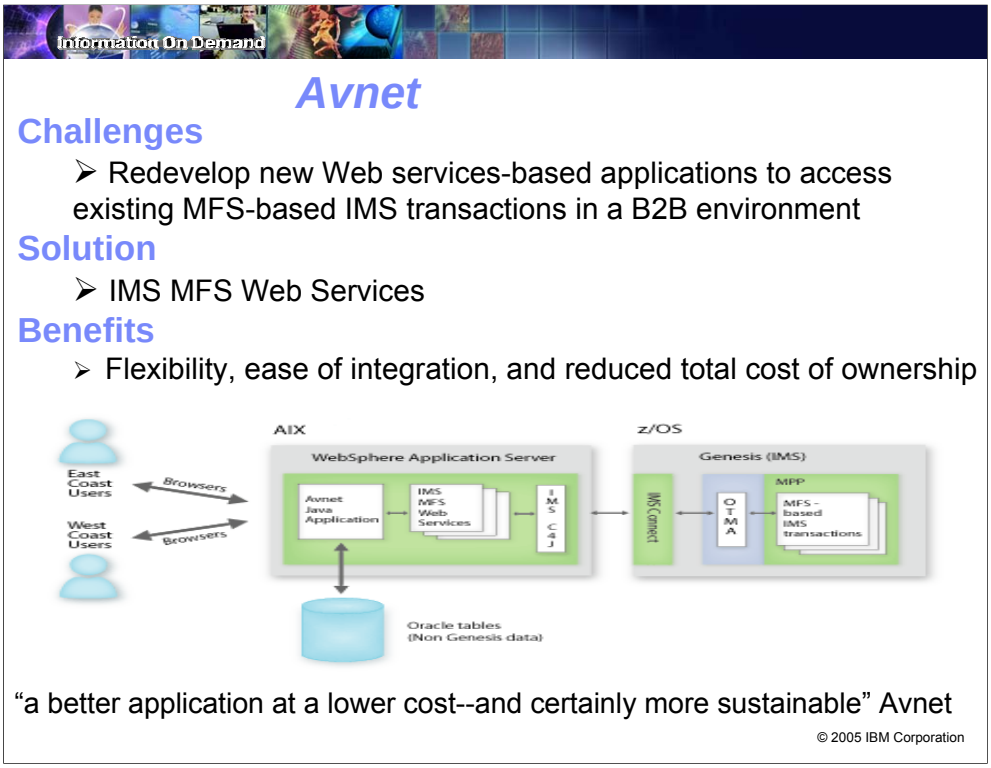
As different branches are added into the database there is a substantial increase in the amount of data stored and in the transaction volume each time. Because of the instantaneous jump in processing each time a branch is added the need for planning and up front performance analysis is critical.

Parallel Sysplex was implemented to accommodate the substantial capacity growth needs and for high availability.

IMS V8 DB, the IMS High Availability Large Database (HALDB) support, and the Fast Path Data Entry Database (DEDB) support, and particularly the IMS V8 >240 area support, was chosen for efficiency in processing very large data base capacity. In addition, the IMS Fast Data Base Recovery (FDBR) function, could be used for the quick restoration of availability for all databases in the event of a system failure.

In addition, to provide for automatic restoration of service in the event of a site disaster, planning is underway for using IBM’s Peer-to-Peer Peer to Peer Remote Copy (PPRC) and Geographically Dispersed Parallel Sysplex (GDPS)

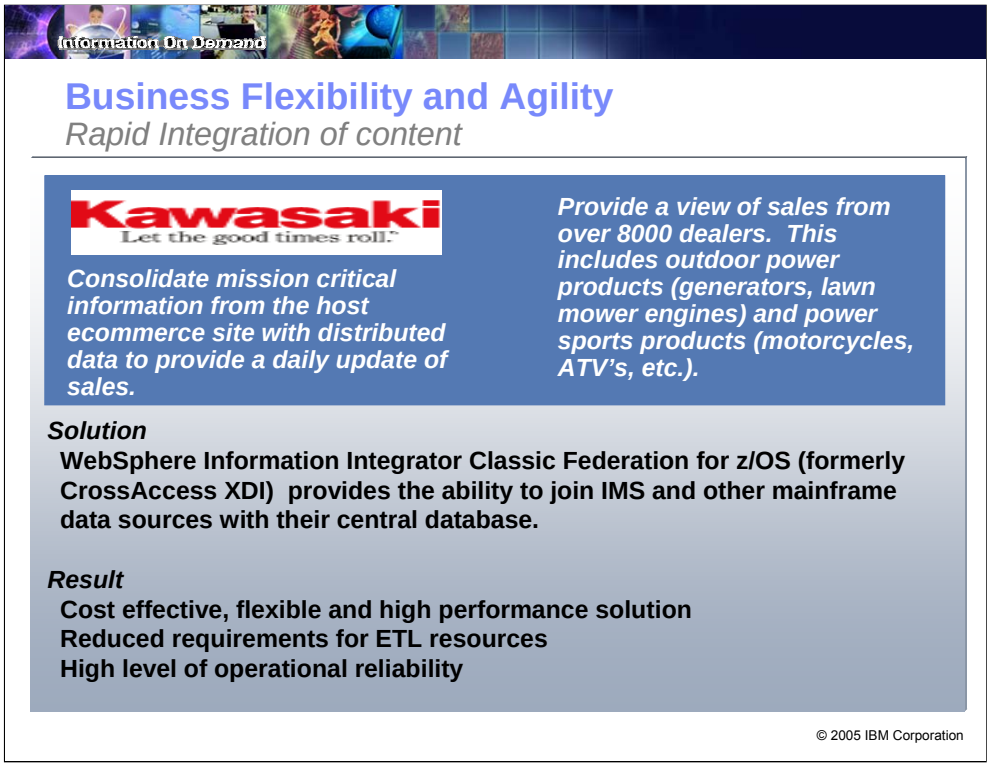
Additionally, IBM’s Automatic Restart Manager (ARM) facilities and the IBM System automation Tools are being used to automate quick image restart and subsystem startup/shutdown/etc.



Key message: Avnet and other IMS customers are implementing IMS SOA solutions

Avnet Inc. is one of the largest B2B electronics distributors, serving customers in 68 countries, ranked #217 on the Fortune 500 list. In order to improve the speed and efficiency to serve customers, Avnet has implemented the IMS MFS Web Services solution for the flexibility, reuse of existing business logic, open architecture, and ease of integration into other applications. Avnet's Vice President of Business Applications, Bob Pischke, describes IMS MFS Web Services as "…a better application at a lower cost--and certainly more sustainable.

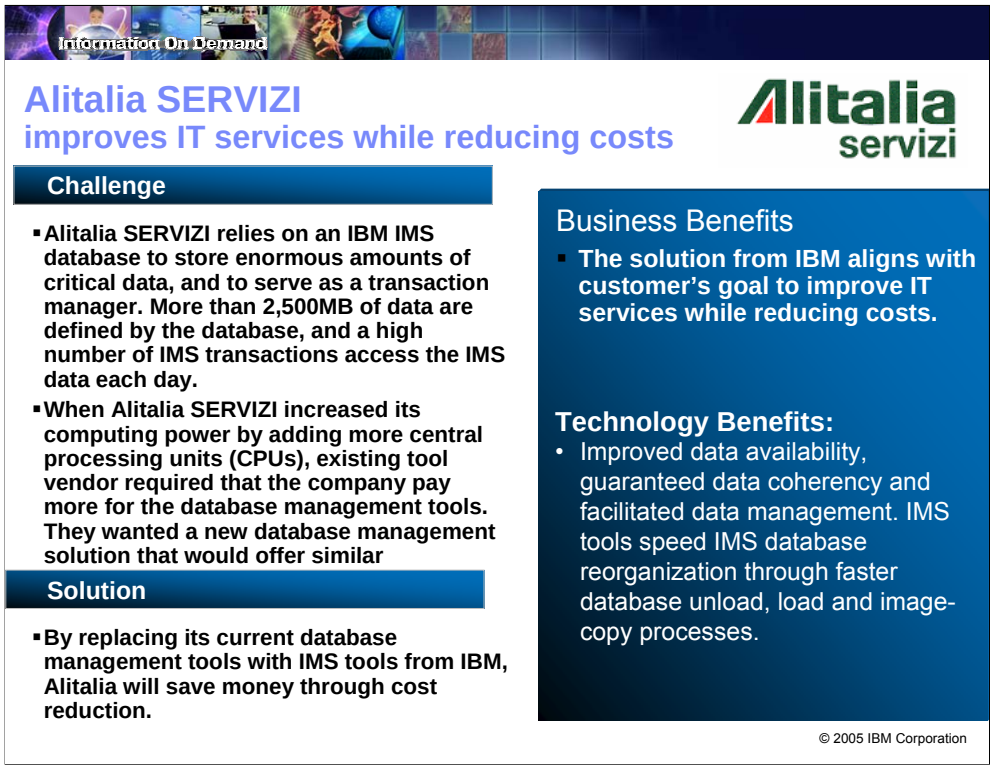
There is an article on this in the latest IMS Newsletter issue.



Key message: Here's a real life example of IOD and IMS – and motorcycles

With the help of WebSphere Information Integrator Classic Federation software, KMC can incorporate data from IMS, Virtual Storage Access Method VSAM and flat files into a central database from each of its remote warehouse locations. As a result, parts and accessories orders that are placed to Kawasaki through its dealer order system - both over the Internet and via the phone - can now be processed the day they are received. The solution also **provides greater insight** into inventory trends, product availability and supply management.

Key message: From the customer – "saved one full year" of development time



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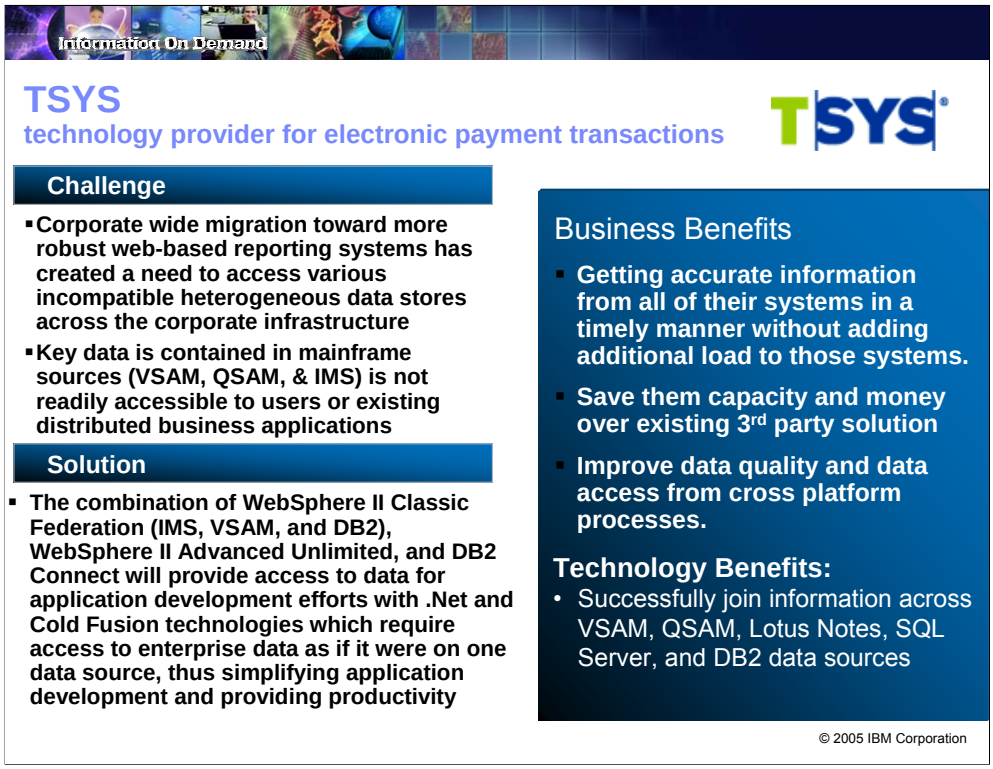


The corporate wide migration toward more robust web-based reporting systems has created a need to access various incompatible heterogeneous data stores across the corporate infrastructure. Currently, the procedures to access much of this data are difficult to implement, time intensive to implement, or not completely reliable to use. This has limited the types and amounts of data that many of our web-based systems have access to. As web-based solutions become more popular and begin to require the combining and comparing of some of these heterogeneous data stores an easier and more efficient way to access these data stores will need to be found. The purpose of this study is to show that this short coming in our IT Infrastructure presents a real business need and to offer a potential solution to this problem.

Currently, there are six different types of data stores with significant volumes of data in our IT infrastructure (SQL based databases, Domino databases, VSAM, QSAM, DB2, & IMS). Four of those data stores are on the mainframe. The vast majority of our corporate web applications run in the client/server environment on either Windows or Unix/Linux servers. Today, we have direct read access to only one of the data stores on the mainframe, DB2. This is accomplished through IBM's DB2 Connect or Neon's Shadow Direct. Both of these applications are great at accessing DB2 data. The problem lies in accessing the other data stores (VSAM, QSAM, & IMS) directly. Considering the large amount of data stored in these data stores, that is a real problem. In order to access data in any of these stores a mainframe application must be written to create an extract file that can then be transferred to the client/server environment via NDM (Network Data Mover). Any time we have to include application programming in a project to get to the data, we are incurring more programming cost per project. Not to mention taking application programming man hours off client projects to work on internal projects.

There is another way to accomplish our data access needs. IBM has a product named DB2 Information Integrator Classic Federation. DB2 IICF, as I will call it throughout the rest of this study, allows web-based application and traditional client/server

Assicurazioni Generali Implementing HALDB

Challenge: Partition DB Support solved the database size limit back in 1997, but availability issues also needed to be addressed.

Solution: IMS HALDB

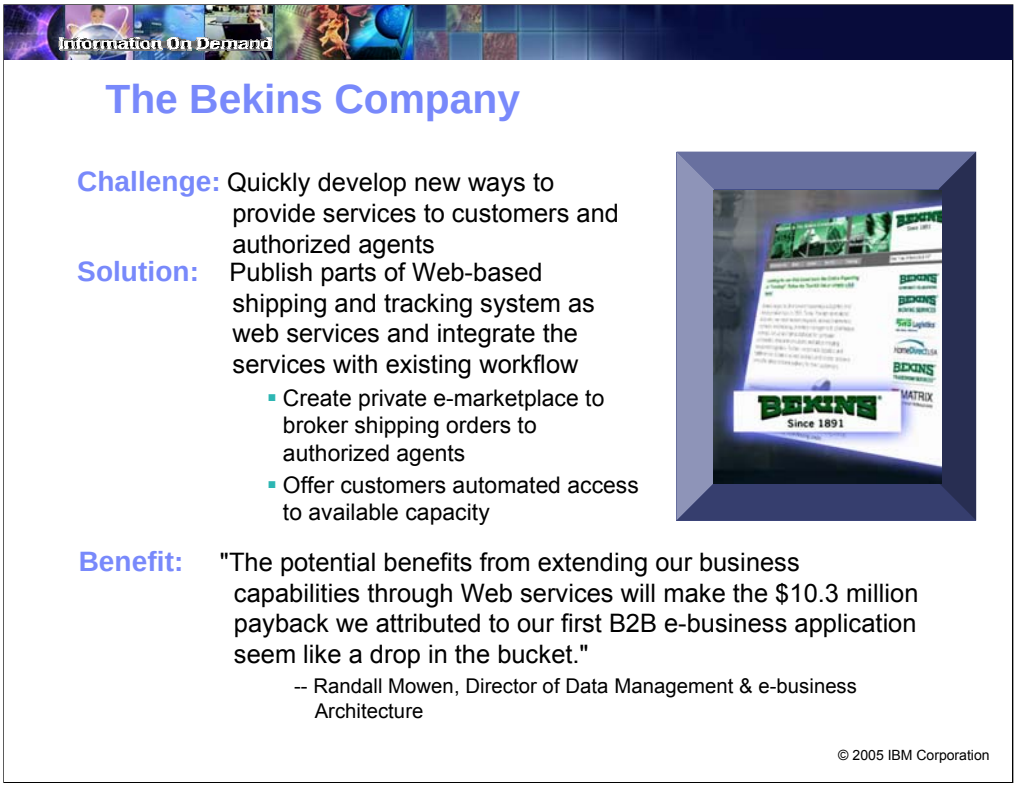
Benefits:

- Secondary Index Partitioning
- Concurrency
- IMS code
- Availability with Parallel IC/REORG/RECOVERY
- Capacity for planned 30GB DB with 9 partitions

The Generali Group consists of 500 companies directly or indirectly controlled by the Trieste-based Parent Company, Assicurazioni Generali, Italy's top insurance company. The Generali Group carries on insurance operations in some 50 markets over the five continents, through a network of more than 140 local units (branches and subsidiary companies) as well as through a number of specialized offices providing assistance to multinational clients the world over. In terms of written premiums, the Generali Group holds the third place in Europe and ranks among the 20 largest insurers at world level.

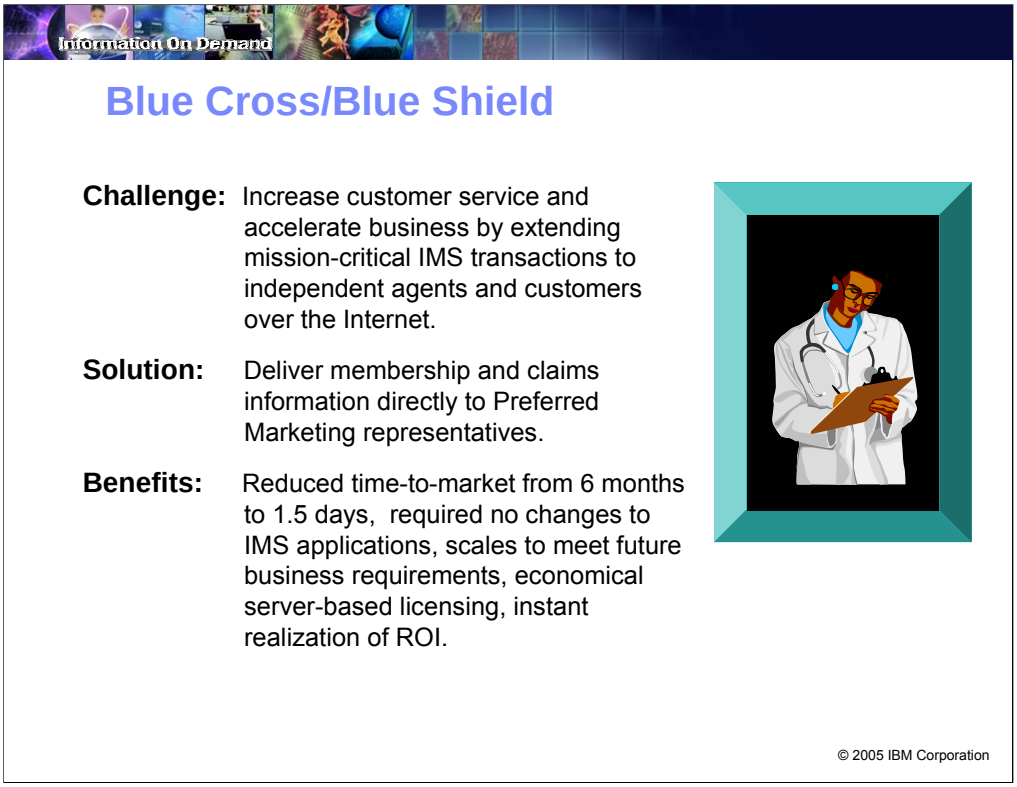
IMS has a strong presence in Generali's Italian IT infrastructure. Five IMS Systems (two production) run the major IMS business critical

IBM Global Services worked with the Arizona DMV to provide online web enablement for vehicle registration accessing existing applications and data on IMS. This saves the long wait lines that we as customers so often find ourselves in. The success of this program has helped us work with other states on similar opportunities.



Bekins has been providing high-quality transportation and distribution services across North America for more than a century. The company's e-business journey started in July 1999 when it launched a Web-based shipping and tracking system for its customers, including major e-commerce retailers who ship high-value products direct-to-business and direct-to-consumer. The goal was to put shipment tracking information directly into the hands of its customers and their end customers via the Internet, in order to stay competitive and improve customer service.

Using the IBM WebSphere platform, including VisualAge for Java, company developers completed the initial release in record time, providing a highly robust, scalable and secure

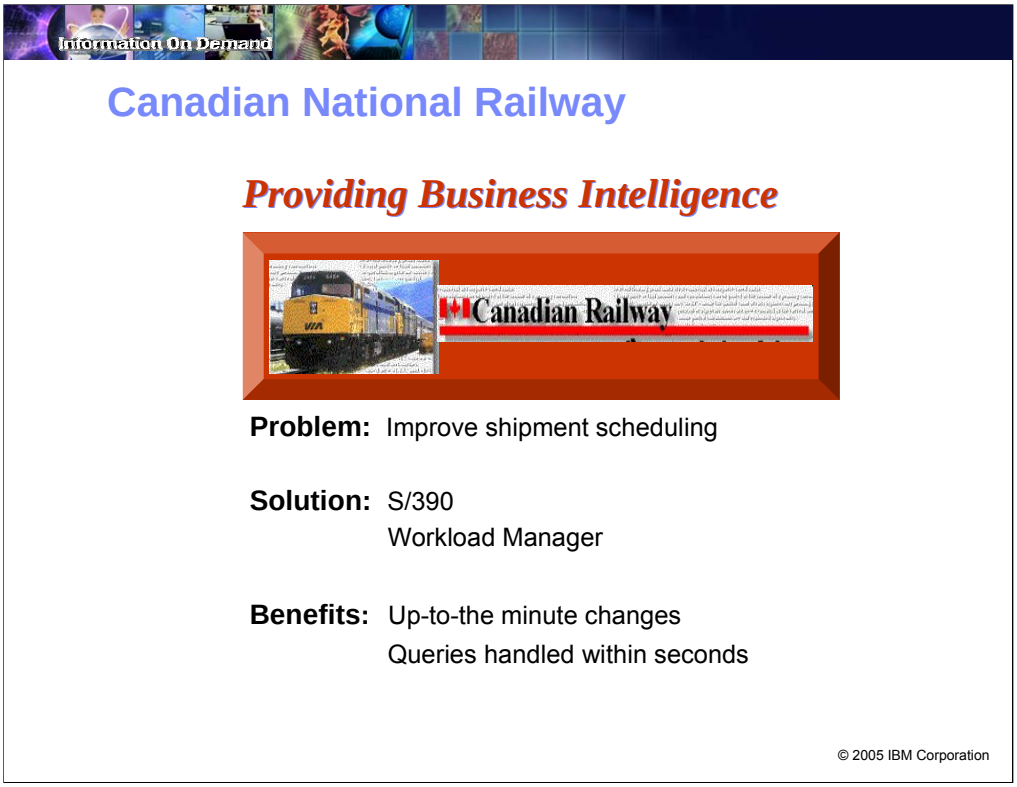


Realizing the business opportunities of communicating directly to business partners and customers, BlueCross BlueShield of Montana (BCBSMT) undertook the mission of extending their existing business-critical IMS environment to the Web. Engaging several consultants and performing internal evaluations, resulting in building a pilot system, BCBSMT determined that they did not want to re-engineer their existing IMS applications and required the extranet application to scale to meet their current and future user demands. Replacing a 6-month effort in one and a half days, they used TransLink to help deliver a very simple solution to a complex problem, efficiently and economically.

Boeing has inaugurated a new on-line system that will enable the company's customers to quickly locate, order, and track shipments of aircraft spare parts. Using Web technology and the Internet, the new system is designed to augment an electronic data interchange (EDI) setup that wasn't nimble enough to keep up with the industry's rigorous maintenance demands. The name of the game is just-in-time inventory. Using the Boeing Web site, a customer can interactively query Boeing's spare parts IMS database by type of part or by location of that part on the aircraft, thanks to middleware on the Web server that converts a customer's HTML request into CGI and then into the appropriate format to access IMS. After finding the right part, a customer can then

VisualAge Pacbase is a repository-based application development environment. It offers life-cycle coverage of AD needs from analysis and design to production. It produces web-based e-business applications as well as Batch and Online across 30+ platforms This slide sums up here in key points and in three categories everything you have to know about the product: The development, runtime, and in maintenance of the applications.VisualAge Pacbase is used by other customers in other ways as well.

Caja Madrid is a large banking customer, who was challenged with building a new insurance and customer relationship management system, to be deployed on the branch network for over 9000 users. This solution uses Java



Canadian National Railway was looking to improve the scheduling of freight shipments.

The solution: Business Intelligence processing is done on the S/390.

This allows Canadian National Railway to better use the data they have available...and they can make up-to-the minute changes as needed and handle queries within seconds.

One customer that is realizing the benefits of IMS Connect is Merita Bank in Finland. Merita Bank is the Finnish part of the Nordea, the largest financial services group in the Nordic and Baltic region

Merita Bank is running over 3 million IMS-transactions during a normal banking day, approx. 190 tx's per second during the peak hour, and most of the transaction are coming from the bank's branch office network that has been TCP/IP based for several years.

The connection from the bank office's workstation has been through SNA gateways that convert the protocol between TCP/IP and IMS SNA SLUTYPEP (WS -> bank office server -> banking net -> SNA server -> 3745/2216 -> IBM host)

13 500 defined SNA sessions (from which up to 5 000 concurrently active) requires several SNA servers and the servers have not been working as reliably as desired and the error in SNA server has wide affects in IMS transaction processing

A project was established to replace SNA gateways by IMS Connect that enables the straight connection from workstation to IMS by using TCP/IP (WS -> banking net - IBM host (OSA Express)).

Merita Bank was a Jump Start customer for IMS Connect and the project started a limited pilot production that expanded to production deployment in phases. They began their IMS Connect usage with IMS version 6.

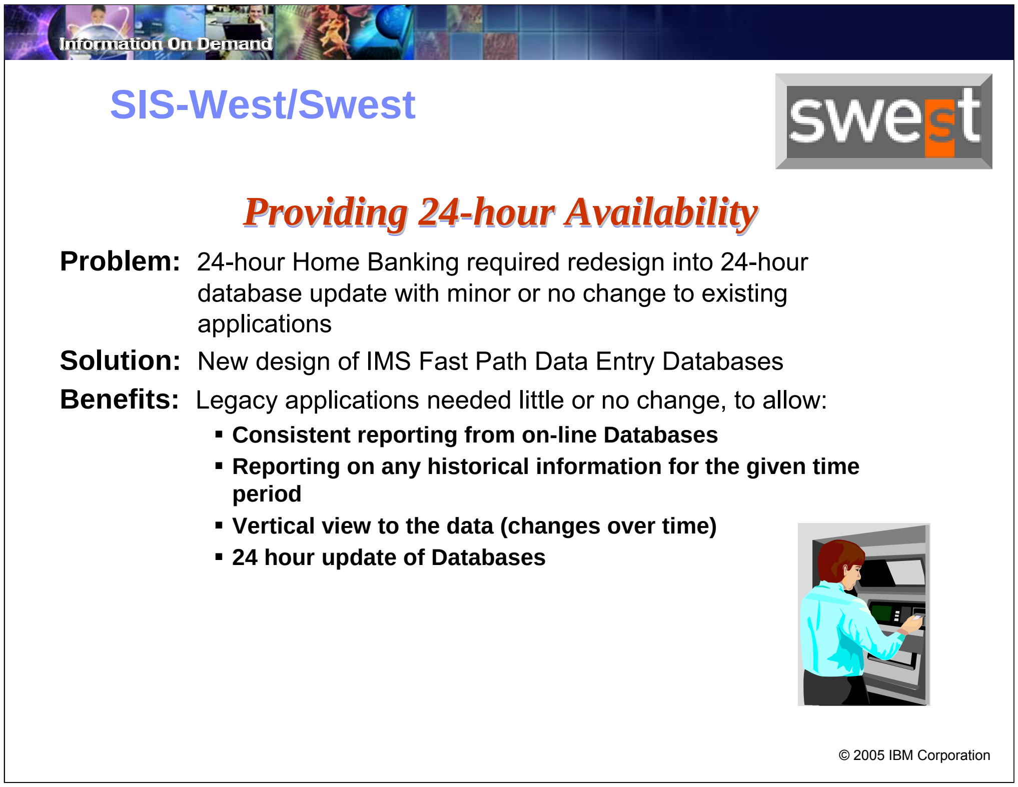
In the tests the IMS Connect has been proved to be very stable

PMU has been using IMS for 8 years and now has 4 years of intensive production on IMS.

After some CICS/DB2 prototyping, they chose IMS in order to reach their transaction throughput goal of 1400 transaction/second.

The reputation for excellence of breeding and for French horse racing are a great asset for PMU in the exporting of its know-how to other markets. PMU often acts as a technical expert for foreign partners wanting to set up a pari mutual betting network on horse races or on their own events or for operators already present and wanting to increase their betting facilities.

Since 1986, PMU's activities have been developing in three main directions using IMS



SIS West / Swest provides Savings bank services across Germany, handling 1500 transactions per second on 5 IMS systems. SIS West redesigned their customer information system (KIS) to run in production since 1997 without interruption. The database is about .4 Terabytes of data, spread over 5 IMS systems. On-line updates are applied at any time. Several hundred reports are taken per day, some of them are based on final processing of the last day, others on last ultimo, or the 10th or the 20th of the month. Until June the customer allowed reporting on the last year-end. Some reports are taken on the last position. New applications are on development to deal with changes over

Some Customer Excerpts from IMS Newsletters:

- GAD has used IMS as its banking base for more than a decade. In terms of reliability, IMS is without competition. Anything that might unseat IMS as the central platform must prove that it is as reliable as IMS. "Nothing in the world is perfect, but IMS is the perfect base" for GAD's banking infrastructure
- Royal Bank of Canada has based its mainframe business on IBM software for many years: IMS, DB2, MQSeries and CICS.The challenge was to transform these legacy systems to an online system for e-business...today RBC offers extensive online banking services to customers, supporting 4,500 ATMs with over 1.9 million Internet customers. In 1995 RBC became the first Canadian bank to offer services through the World Wide Web, in 1996 RBC launched its first Internet Banking Service.
- Assicurzioni Generali in Mogliano, Veneto has used IMS in a key role in its datacenter operations for over 30 years. They have six IMS systems: three production, two pre-production one for testing. The production systems process over 600,000 complex transactions per day on 2.4 terabyte database, compressed to 600GB.
- The President and CEO of Surefire Solutions Inc. says " IMS systems are the workhorses for many of the jobs I work with because of its scalability, reliability and performance capabilities are second to none, and we now have the tools to web enable these systems with very little effort. (in Bekins Company case study)
- Handelsbanken uses WAP with IMS for Internet banking. In a part of the world where over 60% of the population carries a cell phone, Svenka Handelsbanken, in a strategic partnership with IBM, became the first bank to deliver a working wireless application
- At Barclays' PLC there is a major dependency on the S/390 infrastructure. The impact of a failure in these systems is significant...customers expectations have changed in recent times to the point where "24 by 7" service must be realized. The current IMS configuration, operating with datasharing in a Parallel Sysplex environment, was essential to resolve capacity problems and is an essential stepping stone to meet future business and availability challenges

IMS Continues to Address Challenges of a Rapidly Changing World

Providing Quality through On-Demand Solutions

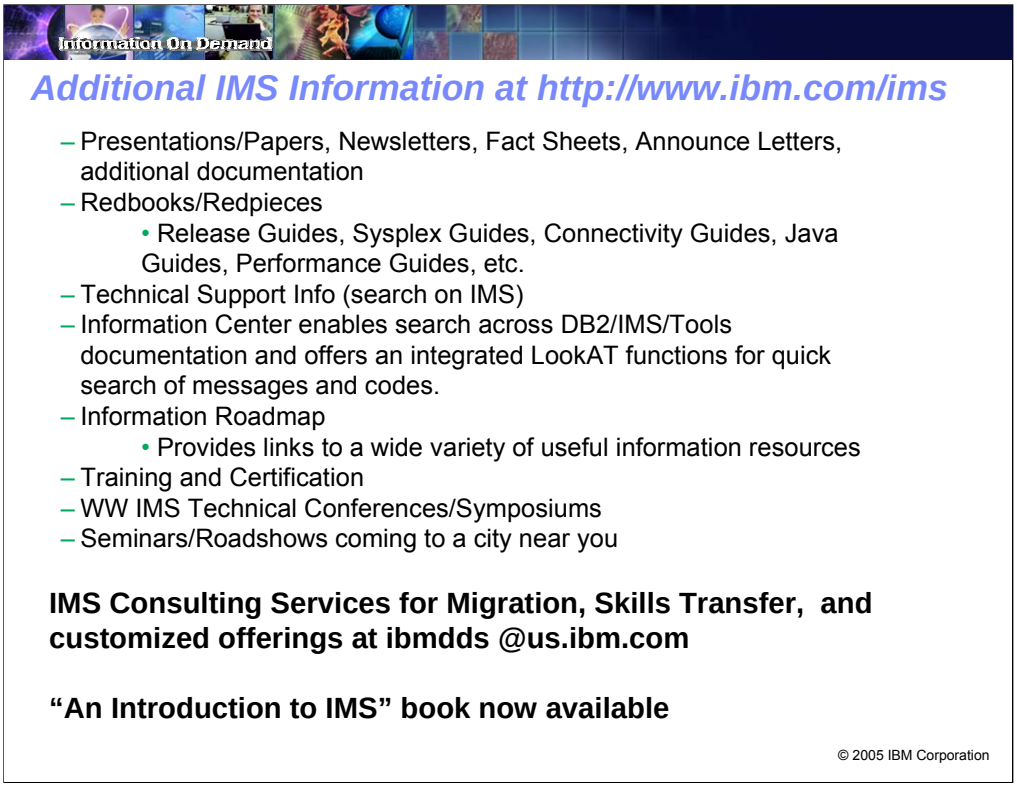
- **Information Integration and Open Access with New Application Development/Connectivity**
  - ✓Ease/broaden user access
  - ✓Web, Java, XML and Linux access
  - ✓Ease application developer effort
  - ✓Auto-application-generation tools
- **Manageability Ease with Autonomic Computing**
  - ✓Ease installation and operations efforts
  - ✓High levels of security
  - ✓End-to-end transaction integrity
  - ✓Real time data currency
  - ✓Highest code quality
- **System Scalability for Virtualization in Performance/Capacity/Availability/Recovery**
  - ✓Handling increasing workload
  - ✓Handling unpredictable volumes
  - ✓More hours for workload
  - ✓Continuous up time for applications and user access
- **On Demand business with IMS extends the investment**

IMS continues to address the challenges of a rapidly changing world. It is providing the utmost in quality through Information Integration with new Application Development/Connectivity solutions. These solutions ease and broaden user access, opening IMS applications and data up to the Web, Java, XML and Linux environments. New technology and automatic application generation tooling ease application developer efforts.

IMS along with the S/390 and the z/Series have been providing solutions to ease Manageability as well. These solutions ease installation and operations efforts, provide a high level of security, end-to-end transaction integrity, and real time data currency,

Systems Scalability is also provided to handle the increasing workload and unpredictable volumes, as well as more hours for workload and the continuous uptime demands for applications and user access.

All of this is provided with the highest quality and availability and for the lowest cost of computing. Customers are using this power to take on new on demand business related applications, greatly extending their investments.



Key Message: IMS continues to provide information and services for our clients

A wide range of IMS Information is available

The IMS solutions are generally available along with other IBM products in support of IMS. Additional documentation and information is available from the IMS home page at http://www.ibm.com/ims.

The IBM International Technical Support Organization has been producing redbooks and redpieces with additional information, available at http://www.redbooks.ibm.com. A number of IMS Technical Conferences are also being provided on an ongoing basis.

Examples Exchange is a Web site dedicated to IMS samples and examples. You can view examples and submit your own examples for others to use e.g.How to build a Java application that uses the J2EE Connector Architecture Common Client Interface

The newest piece of IMS literature and the one we’re all excited about is a new comprehensive textbook created at SVL by the team lead for IMS Information Developement, which should hit the bookstores in December, hopefully in time for you to include it in your holiday shopping. It is much more technically comprehensive than the modest title suggest. It really ought to be: “everything You Wanted to Know About IMS But Were Afraid to Ask”