Application integration solutions
To support your IT objectives

WebSphere. software

IBM application integration software on IBM System z technology: Supporting your most demanding SOA requirements.

Flexibility and resiliency—when you need them most

Market conditions and business requirements are changing rapidly. Unpredictable market forces, such as mergers and acquisitions, expanding regulatory requirements and globalization, can inhibit revenue growth. Investments over the years in applications and solutions can drain your budget due to maintenance.

To keep pace with the speed of business, you need to enable all your applications to communicate with one another—regardless of programming languages, system platforms, programming models, protocols or data formats. At the same time, you need to continue deriving value from your existing IBM System z™ assets.

Enterprises today have a huge ongoing investment in the System z platform. Some industry estimates have suggested that these System z assets are worth trillions of dollars. Businesses depend on the ability of IBM CICS® Transaction Server and IBM IMS™ to process billions of transactions each day and of IBM DB2® for z/OS to deliver years of 100-percent availability, including upgrades. Given that background and the growing investment by both clients and IBM in the platform, there is an increasing need to see how these assets can be reused more effectively. A big part of this focus is on integration, providing the ability to reuse enterprise data, applications and skills in a service oriented architecture (SOA).

For many years, the mainframe has been associated with a set of traditional core values—availability, security and scalability. It has served as an excellent environment to deploy mission-critical applications. The costs of failures, such as downtime or security breeches, are high. And businesses need to support a range of requirements, such as extreme transaction processing. In modern business environments, it is clear that resiliency is of growing importance.

Application integration solutions on IBM System z are designed to support the most stringent quality-of-service requirements. In addition, you can take advantage of significant performance and manageability benefits by consolidating your application infrastructure into a single-tier solution. In some cases, hundreds of distributed-platform servers can be consolidated onto a single System z server. Because energy consumption remains one of the hottest issues facing businesses today, the consolidation potential of System z, supported by the application integration portfolio, can help you become greener. For example, System z can operate on 1/12 the electricity of a distributed server farm with equivalent processor capability.

Whatever your application integration approach, we can help build a solution that combines traditional mainframe values of availability, security and scalability with the flexibility required for modern SOA implementations.

Application integration on System z

IBM application integration products connect everything inside and outside your company—enabling your SOA to deliver reliability and security with high performance and high availability, spanning newly developed Web services and complex heterogeneous environments.

Our application integration products can help you integrate, automate and manage end-to-end processes more effectively. Slash maintenance times and costs. Connect internal and external applications to exchange information reliably so that you can respond to customer needs faster. Share data descriptively and intelligently between dissimilar applications across your entire organization for increased reuse. With IBM application integration products, you can exploit key features of the IBM z/OS® operating system, such as the security manager, the workload manager and IBM Parallel Sysplex® technology for top-class availability, dynamic resource allocation and industry-leading security. Enjoy the benefits of Linux® on IBM System z with IBM z/VM® operating-system virtualization capabilities and IBM Integrated Facility for Linux (IFL) specialty processors for efficient consolidation and top performance.

Extending the reach of core business applications on the mainframe

Connectivity has become increasingly critical to integrate existing and new applications, processes and services in an efficient and cost-effective manner. Core business applications on the mainframe often operate in silos. Connecting these applications in a standardized way to other applications within your enterprise and outside it is critical. You need a connectivity solution that provides the same quality of service as your business-critical applications. It should be able to handle complex transactions across multiple resource types and roll back distributed transactions when problems occur. It should also provide effective end-to-end monitoring and measurements, and enable you to meet security and regulatory requirements.

WebSphere MQ: Delivering a secure, reliable, mission-critical messaging backbone for SOA

IBM WebSphere® MQ provides enterprise messaging, connecting virtually any commercial IT system. It moves and provides assured delivery of:

- *Data*
- *Messages*
- *Events*
- *Files*
- *Web-service requests*
- *Web-service responses*

WebSphere MQ provides messaging-based connectivity between applications running on the z/OS, Linux on System z, Linux, Microsoft® Windows®, IBM AIX®, IBM System i™ and Sun Solaris operating systems. In fact, it provides messaging for all the major client computing platforms, enabling core applications in CICS, IMS and other System z subsystems to be connected to distributed applications, in a reliable, secure, low-maintenance and auditable way.

To meet your business-continuity requirements, IBM WebSphere MQ for z/OS helps ensure reliable, proven message delivery, where messages are delivered exactly once and transactional (unit-of-work) support helps ensure the integrity of critical transactions. Engineered natively for z/OS, WebSphere MQ for z/OS takes full advantage of the unique features of the platform to enable its tremendous quality of service and dynamic workload management. Features include IBM Resource Access Control Facility (RACF®), automatic restart manager (ARM), IBM Workload Manager (WLM), Parallel Sysplex with WebSphere MQ shared-queue support, DB2 data sharing and Resource Recovery Services (RRS) global transaction coordination. WebSphere MQ for z/OS provides a specialized bridge for CICS and IMS transactions.

For increased security, IBM WebSphere MQ Extended Security Edition for z/OS offers a multiplatform security-management solution that provides data protection for WebSphere MQ software-based applications, without the need to modify or even recompile them.

WebSphere MQ is also available on, and fully exploits, Linux on System z platform.

Secure and reliable messaging provided by WebSphere MQ is fundamental to the SOA connectivity. WebSphere MQ offers the necessary qualities of service required for your mission-critical business and provides a messaging backbone that can be used by all of IBM's ESB offerings.

Delivering an enterprise service bus

Your enterprise service bus (ESB) solution should support your service-level commitments and requirements for availability, reliability, scalability, flexibility, disaster recovery and security. IBM has multiple ESB offerings that can be used on their own or together as a federated model to provide an ESB infrastructure to enable SOA across your entire business. These offerings provide the flexibility to select a solution that matches your business objectives and existing environment.

With IBM ESB solutions, you can service-enable key business transactions, and improve resiliency, the ability to handle peak workloads without performance degradation, and flexibility for economical growth in the future.

WebSphere Enterprise Service Bus: Built on WebSphere Application Server for an integrated SOA platform

IBM WebSphere Enterprise Service Bus provides a fast and simple-to-use environment to enable the connection and integration of applications based on standards, particularly Web-services standards. It delivers a robust, security-rich and scalable foundation, as well as the ability to host services and integrate with other services. IBM WebSphere Enterprise Service Bus for z/OS fully uses the advantages of System z technology through the underlying IBM WebSphere Application Server for z/OS platform. WebSphere Enterprise Service Bus is also available on Linux on System z.

WebSphere Message Broker: Built for universal connectivity and transformation in heterogeneous IT environments

IBM WebSphere Message Broker provides an integrated ESB that can connect just about any application or service to any other application or service, which can be particularly beneficial for large heterogeneous environments. WebSphere Message Broker handles a broad range of transports and protocols, including WebSphere MQ, Java™ Message Service (JMS), Version 1.1, Hypertext Transfer Protocol over Secure Socket Layer (HTTPS), Web services, file and user-defined. It handles practically any data format, including C and COBOL data structures, XML and industry formats, such as Society for Worldwide Interbank Financial Telecommunication (SWIFT), electronic data interchange (EDI) and Health Information, Portability and Accountability Act (HIPAA). Advanced data transformation and validation for complex and variable data formats can be achieved in combination with WebSphere Transformation Extender for z/OS.

Connect everything inside and outside your company, and continue to derive value from your System z assets.

WebSphere Message Broker enables you to bring together existing and new applications and services. It provides support for existing applications—whether through WebSphere MQ, CICS, IMS or Virtual Storage Access Method (VSAM)—as well as support for new Web services.

IBM WebSphere Message Broker for z/OS is tightly integrated with the z/OS platform. It can provide the same look, feel and operational characteristics as a z/OS subsystem, delivering the same quality of service, including dynamic workload management and transactional support. Linux on System z is another option for deploying WebSphere Message Broker on System z.

To add scalable security processing when the security volumes for Web services increase, you can use the seamless integration between WebSphere Message Broker and IBM WebSphere DataPower® Integration Appliance XI50. This integration enables you to configure the WebSphere Integration Appliance DataPower XI50 device using the WebSphere Message Broker operational console. It enables you to deploy WebSphere Message Broker flow end points and security profiles to the WebSphere DataPower Integration Appliance XI50 device using common descriptions and tools for security processing.

WebSphere DataPower Integration Appliance XI50: Specialized hardware ESB for simplified deployment and hardened security

IBM offers a hardware ESB, built specifically for simplified deployment and hardened security. WebSphere DataPower Integration Appliance XI50 is a rack-mounted network device that redefines the boundaries of middleware. It provides specialized hardware that integrates many ESB functions into a single device for simplified deployment and ongoing maintenance. WebSphere DataPower Integration Appliance XI50 can help provide secure services on the network with sophisticated Web-services access control, policy enforcement, message filtering and field-level encryption. It is optimized to bridge between leading standard protocols at wire speed, including Web services, messaging, files and database access. It enables transformation between a wide range of data formats (including XML) and mainframe applications (including COBOL copybooks) as well as other industry standards or custom formats.

Complementary SOA capabilities

Along with the robust ESB offerings, IBM has a product portfolio that provides a range of other complementary SOA connectivity capabilities, beyond those provided by an ESB alone.

WebSphere Transformation Extender for z/OS

WebSphere Transformation Extender for z/OS is a universal data-transformation and validation engine for high-volume, multi-input processing of complex and variable data formats. Virtually any kind of formatted data can be transformed without coding or scripting skills. It can be run native on z/OS in batch from job control language (JCL), participate in CICS or IMS transactions, and pre- or post-process information for DB2 and VSAM files. It can also exploit transient data queues, temporary storage queues and COMMAREA storage buffers, can be called from and call out to COBOL, C and Java applications, and connect with WebSphere MQ. Editions are also available for extending WebSphere Message Broker, IBM WebSphere Process Server and WebSphere Enterprise Service Bus—all available on z/OS. And integrating key enterprise applications and converting business information to leading industry EDI and B2B standard-exchange formats is made easier with WebSphere Transformation Extender industry and enterprise packs containing prebuilt format templates. For example, WebSphere Transformation Extender Pack for SEPA is helping banks and financial institutions meet their compliance obligations to the European Union's Single Euro Payments Area (SEPA) initiative.

CICS Transaction Gateway

IBM CICS Transaction Gateway provides open standards-based connectivity, enabling CICS applications to be integrated within an SOA. At the same time, it preserves the long-established qualities of security, reliability, data integrity and optimal application responsiveness of CICS Transaction Server. CICS Transaction Gateway has been proven over many years to provide highly flexible, security-rich and scalable access to CICS applications. It requires minimal changes to CICS systems and usually no changes to existing CICS applications. CICS Transaction Gateway supports the standard Java 2 Platform, Enterprise Edition (J2EE) Connector architecture (JCA), Version 1.5 specification as its strategic interface. It enables CICS applications to be used in comprehensive and sophisticated Java and Web-services solutions hosted on IBM WebSphere products. These products include IBM WebSphere Application Server, IBM WebSphere Enterprise Service Bus and IBM WebSphere Process Server. Reusing applications in mixed CICS and WebSphere workloads delivers real business value by supporting reuse, which gives your organization flexibility and helps reduce cost. For the System z platform, CICS Transaction Gateway is available on z/OS and Linux on System z.

WebSphere Adapters

To achieve flexibility, new SOA business services need to be insulated from the where and the how. The service does not need to know where the information it requires comes from, and it should not need to know how the information is obtained. And of course, it needs to be insulated from how many applications were touched to answer a query. WebSphere Adapters accelerate solution delivery and reduce the costs of ongoing maintenance when used with an ESB from WebSphere. New and enhanced WebSphere Adapters for z/OS include e-mail, Java Database Connectivity (JDBC), Flat File, FTP and SAP. You can develop custom J2EE JCA adapters to meet unique business requirements with the toolkit provided. These adapters can also be extended to integrate with IBM WebSphere Integration Developer for improved productivity.

Enabling enterprise governance: Maximize the business value of your SOA

Making the most of your SOA potential depends on how well you govern and manage the services in your SOA. IBM WebSphere Service Registry and Repository provides management and governance capabilities that enable you to get the most business value from your SOA. It facilitates storing, accessing and managing service information, called service metadata, so that you can easily select, invoke, govern and reuse your services. Through its robust registry and repository capabilities and its tight integration with IBM SOA Foundation products, WebSphere Service Registry and Repository can be an essential foundational component of your SOA implementation.

With WebSphere Service Registry and Repository, you can promote reuse and eliminate redundancies by increasing architectural visibility of services, applications and processes across the organization, including CICS technology-enabled Web Services. WebSphere Service Registry and Repository provides capabilities designed to help increase runtime flexibility. The dynamic service selection and intelligent message routing capabilities of WebSphere Service Registry and Repository are supported in WebSphere Message Broker, WebSphere Enterprise Service Bus and WebSphere DataPower Integration Appliance XI50.

WebSphere Service Registry and Repository helps manage service interactions and dependencies by handling policies, versioning, classification and usage throughout the SOA life cycle (model, assemble, deploy and manage). These capabilities enable you to approach IT governance holistically through tight integration with IBM's ESB, service-management and development solutions. And they enable you to institute best practices and enforce business policies in your SOA deployments, while supporting impact analysis of service introduction, deletion or alteration by maintaining relationships.

For the System z platform, WebSphere Service Registry and Repository runs on z/OS and Linux on System z.

Connectivity capabilities delivered on System z

When you choose IBM connectivity capabilities delivered on the System z platform, you can enable an effective end-to-end ESB deployed in your enterprise to meet the needs of your enterprise, and to gain the core of the connectivity you are likely to need for your SOA.

For more information

To learn more about ESBs on the IBM System z platform, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/software/integration/esb
and
ibm.com/software/os/systemz

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