

MAINFRAME REHOSTING SOLUTION FOR LEGACY ENTERPRISE APPLICATIONS

KEY BENEFITS

BENEFITS

- Reduce TCO.
- Improve business agility.
- Modernize applications.
- Preserve legacy logic and business SLAs.
- Minimize mainframe costs and fund new initiatives.
- Mitigate migration risks.

As companies face increasing pressure to deliver more business value from their IT spending and free up funding for new business initiatives, reducing mainframe costs and modernizing legacy applications have become top-of-mind concerns for CIOs and CFOs alike. Oracle provides a foundation for rehosting intact mainframe applications and data on lower-cost platforms without losing business value or sacrificing Quality of Service (QoS). The result: reduced mainframe maintenance costs, million instructions per second (MIPS) growth, and accelerated service-oriented architecture (SOA) enablement.

The Challenges of Application Modernization

Business-critical mainframe applications often constitute invaluable assets, their embedded business logic representing years of development and evolution. Among large enterprises, these assets represent 70 to 80 percent of all business-critical applications, with annual maintenance of mainframe hardware and supporting software consuming 60 to 80 percent of IT budgets.

Moving these applications from mainframe systems presents several key challenges, including

- How to preserve the business logic and valuable data in these applications
- How to maintain scalability, reliability, transactional integrity, and other QoS attributes in an open systems environment
- How to ensure that migrated applications continue to meet rigorous performance requirements
- How to achieve predictable, cost-effective results with low project risk

Meeting these challenges requires a strong application infrastructure—one that natively supports key mainframe languages and transaction services; enables the automated adaptation of application code; and delivers proven, mainframelike QoS on open systems platforms. It must also provide native SOA enablement to rapidly extend rehosted applications for integration via a services infrastructure.

Oracle's mainframe rehosting solution combines the industry-leading multilanguage application server and SOA infrastructure with best-in-class solutions and services partners. The result is a robust, SOA-enabled environment for rehosted batch and transaction processing (TP) applications, integrated with a proven, low-risk, highly automated migration process.

Protect Investment in Legacy Applications

Unlike migration approaches based on risky rewrites of mainframe applications, Oracle's mainframe rehosting solution keeps applications and data intact—providing continuity in business logic evolved over years of development and maintenance. The development team can also maintain and extend the applications in a familiar language, TP, and data environment. The solution provides robust integration of Java Platform, Enterprise Edition (J2EE) components with rehosted applications, preserving end-to-end transaction and security contexts. Rehosted applications can also expose business services through Web services and enterprise service bus (ESB) interfaces for direct integration into the enterprise SOA.

Reduce Mainframe Costs and Fund New Initiatives

A recent Gartner survey on inhibitors to the growth of mainframe use identified IBM and third-party mainframe software costs as leading causes. These ongoing costs, along with lock-in issues, have prompted many enterprises to consider offloading some applications to lower-cost UNIX/Linux platforms, either to move away from the mainframe completely or to defer mainframe upgrades.

The broader software choices based on open standards result in lower software total cost of ownership (TCO), while modern management and development tools lead to productivity increases. After migration, many customers have experienced a 50 to 90 percent reduction in annual maintenance costs. These substantial savings can help organizations reduce data center facility costs, lower environmental costs, and improve profitability, while funding application modernization efforts such as service-enabling the enterprise application infrastructure.

With Oracle's mainframe rehosting solution, customers facing increased capacity needs can defer mainframe upgrades by rehosting applications. This frees up sufficient MIPS to avoid an upgrade.

Deliver Unparalleled Reliability and Scalability

The mainframe's reliability, scalability, manageability, and other QoS attributes have earned it preeminence for business-critical applications. Today, however, leading open systems platform vendors provide similarly robust systems with scalability to hundreds of processors, a complete partitioning continuum, workload management, and a sophisticated operating system and management environment—supporting mainframe attributes at significantly less cost.

Combining these systems with the proven capabilities of Oracle's mainframe rehosting solution enables robust clustering with high availability, fast failover, dynamic load balancing, and unlimited scalability. Oracle customers running mission-critical applications in open systems environments experience QoS as good as, and in many cases better than, that of the source mainframe.

With Oracle's broad partner ecosystem, all major aspects of the mainframe system can be mapped to equivalent open systems solutions, ensuring the right fit and the optimum price/performance for the target systems. The rules-based conversions support numerous datasources and languages, including a fourth-generation

programming language (4GL). Oracle's application infrastructure ensures mainframe class performance and scalability, while Oracle Tuxedo Web services and ESB extensions provide SOA enablement for business-critical logic and processes.

	SOURCE ENVIRONMENT	TARGET ENVIRONMENT
Hardware	IBM ES/9000, System z	IBM, HP, Sun, Dell
Operating system	IBM OS/390, z/OS	AIX, HP-UX, Linux, Solaris
Transaction engine	IBM CICS	Oracle Tuxedo
User interface	3270/BMS	JSP/HTML
Databases	DB2, IMS/DB	Oracle, DB2
Files	VSAM, QSAM	ISAM, Oracle, DB2
Programming languages	COBOL, C, Assembler, 4GLs	C/C++, AcuCOBOL-GT, Micro Focus COBOL
Batch command language, utilities, and job scheduler	JCL, REXX, SORT, CA-7/CA-11	ksh, SyncSort, CA AutoSys, Metatools, ORSYP \$Universe

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Oracle Tuxedo, a proven application server for rehosting mainframe applications, delivers more than 10,000 transactions per second with subsecond response time. Used by the world's largest banks, brokerages, payment networks, airlines, retailers, and other large enterprises, Oracle Tuxedo delivers fully distributed transaction management services, bulletproof reliability, and superscalable performance with strong workload management and standards-based interoperability. It is an ideal option for rehosting customer information control system (CICS) applications with automated mapping from CICS APIs to equivalent Oracle Tuxedo APIs. Native Web services support, via Oracle Service Architecture Leveraging Tuxedo (SALT) and Oracle Service Bus, makes it easier to quickly integrate rehosted applications into the SOA framework.

Modernize Applications with Flexible Options

Oracle provides a broad range of reengineering options. Although customers desire to preserve the application business logic as well as core data and file structures, they often choose to make one or more of the following adaptations when rehosting applications:

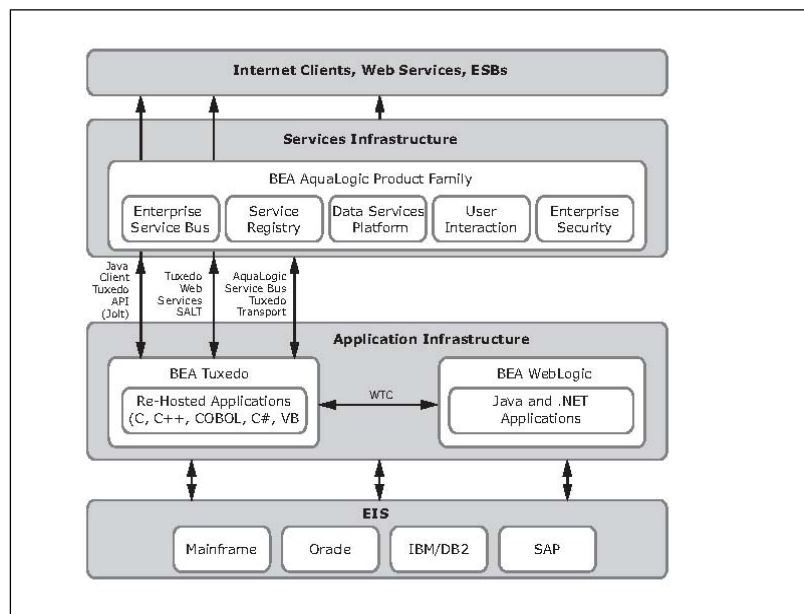
- Map 3270/bridge management system screens to a JavaServer Page or HTML-based user interface using automated transformation tools.

- Map extended addressing–compliant service availability mapping file data to a relational database, simplifying access from other applications and extending transactional integrity.
- Migrate the assembler and legacy 4GL programs to COBOL or C/C++ to simplify maintenance.
- Update the data schema by merging tables and adding or renaming columns as well as data cleansing.
- Adjust batch/TP concurrency controls to provide 24/7 availability of the online system.

These steps help modernize applications without rewriting the business logic or affecting developer continuity.

Service-Enable Rehosted Applications

To leverage and extend the value inherent in mainframe applications, organizations often follow-up rehosting by service-enabling applications for integration into an SOA framework.



The flexibility provided by the range of Oracle's service-enablement options helps meet the integration and QoS requirements of the most demanding applications.

When the business value of rehosted applications requires integration into a corporate SOA, the approach must maintain and extend the applications' QoS attributes, including

- Response time and scalability
- Transactional integrity and reliability
- End-to-end security for messages, policy, and authentication

- Heterogeneous client connectivity
- Services granularity
- Service orchestration and business process management integration
- Service-level agreement (SLA) management and SOA governance

Oracle's deep SOA expertise provides a unique advantage in helping you specify integration and QoS requirements. The flexibility provided by the range of service-enablement options, used individually or in combination, as illustrated in the diagram, helps meet the integration and QoS requirements of the most demanding applications:

- **Oracle SALT.** Native Oracle Tuxedo Web services for exposing business services using broadly accepted SOA standards, SOAP 1.1/1.2 over HTTP, Web Services Description Language 1.1, and emerging WS-* specifications.
- **Oracle Service Bus.** Managed deployment and runtime governance of service consumers and providers, with native Oracle Tuxedo transport and transformation capabilities.
- **Oracle Tuxedo Jolt.** Java client API for building servlets and applications that allow secure, scalable transactions between browser-based or standalone clients and Oracle Tuxedo applications, using application messaging and distributed transaction processing.
- **Oracle WebLogic Tuxedo Connector.** Bidirectional peer-to-peer integration with J2EE components, providing full transaction and security propagation between Oracle Tuxedo's C/C++ and COBOL applications and Oracle WebLogic Server Standard Edition.

Mitigate Migration Risk with Proven Approach

The risks and cost of a migration project are important considerations for any enterprise considering rehosting core applications. Oracle offers best-in-class products and services partners combined with years of experience and expertise. With more than 100 migrations in production, Oracle's methodology and tools are well-honed to address the needs of mainframe migration. Oracle provides you with the project strategies and specific capabilities that mitigate risks inherent in application migration and ensure a fixed project cost and duration. With Oracle, you will be able to

- Automatically uncover application dependencies and remap calls from CICS APIs to Oracle Tuxedo APIs and from BMS screens to JSP/HTML, as well as obtain file and database access to migrated data schema, and so on
- Handle the complexities of data migration including automated generation of data unloading and reloading jobs and data-specific validation programs
- Convert batch programs and Job Control Language jobs, providing tools to fill the gap between common mainframe utilities and UNIX/Linux commands
- Offer a pilot project to validate mainframe application assets and the target architecture environment

RELATED PRODUCTS

Oracle's mainframe rehosting solution includes the following products:

- Oracle Tuxedo
- Oracle Tuxedo Mainframe Adapter for SNA
- Oracle Tuxedo Mainframe Adapter for TCP
- Oracle Tuxedo Mainframe Adapter for OSI-TP
- Oracle SALT
- Oracle Service Bus

- Create a mainframe testing baseline and generate equivalent regression test cases on the target
- Provide performance benchmarking and optimization

Leverage the Power of Oracle's Mainframe Rehosting Solution

Today, some enterprises outsource mainframes without addressing application modernization, or attempt to rewrite applications that evolved over many years and many generations of developers. Oracle's mainframe rehosting solution reduces high mainframe costs while modernizing and SOA-enabling valuable legacy applications, enabling organizations to

- Reduce or eliminate mainframe costs, saving 50 to 90 percent in annual maintenance fees
- Preserve business logic and data by keeping COBOL applications intact in a familiar data and TP environment
- Ensure that the target environment meets or exceeds mainframe scalability and other QoS attributes
- Ensure best fit SOA integration with a flexible approach to service-enabling rehosted applications
- Offer flexibility in platforms, databases, COBOL compilers, and other components for the best fit with each customer's distributed environment and price/performance objectives

Contact Us

For more information about Oracle's mainframe rehosting solution for legacy enterprise solutions, please visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.

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