

Re-host Mainframe Applications and Dramatically Lower Your Costs

NTT DATA Transaction Processing Environment

Benefits:

- Runs re-hosted IBM CICS transactions, IBM IMS™ applications, IDMS DC programs and related resources on industry-standard systems
- Offers native support for virtual storage access method (VSAM) files in addition to leading relational databases
- Includes GUI-based administration and monitoring, as well as built-in diagnostic utilities
- Utilizes authentication and resourcelevel security similar to IBM RACF® technology
- Maintains transactional integrity and consistency

Comprehensive mainframe transaction processing on distributed systems

Preserving and extending the valuable business logic, data and end-user interfaces of your mainframe applications on industry-standard systems, like UNIX and Linux, is now possible with re-hosting. With the NTT DATA Transaction Processing Environment (TPE), you get software that runs and updates your mainframe applications and data on cost-effective industry-standard systems. TPE protects proven application investments, as well as related source code, data files and screen definitions, providing a scalable platform for integrating those IT assets with new Java Enterprise Edition (JEE), a service-oriented architecture (SOA) and web services. As a fundamental part of Mainframe Re-hosting by NTT DATA, TPE provides a solid foundation to extending the life of businesscritical legacy workloads.

Cut costs without impacting ongoing operations

TPE has enabled many organizations to cut annual operating costs by 30-70% without impacting ongoing operations. Our software provides a safe alternative for custom IBM® CICS® transactions, IBM IMS™ applications, IDMS DC and related legacy systems. Unlike re-engineering or commercial-off the-shelf (COTS) alternatives, applications remain intact with our re-hosting approach. Development resources easily adapt to the new environment, and application end users may not even require retraining.

Scalable and robust transaction management

Central to TPE is a powerful, logically threaded engine that provides a rich transaction processing environment. Built on a highly scalable architecture designed to take full advantage of a shared pool of server processes, TPE's performance improves linearly as additional CPUs are added to a deployment platform.

Because TPE uses multiple threads, there is no need for administrators to run numerous regions or replicate environments to support high volume workloads. This means applications that were previously mainframe based continue to enjoy a high-throughput transaction processing system — one that supports a network of thousands of concurrent users accessing large, heterogeneous databases without complex configuration requirements.

To maintain robust transactional integrity and consistency after migration, TPE supports parameters such as commitment and recovery, as well as user-level file locking, lock contention and resolution.

Connectivity and interoperability

Supporting a high degree of compatibility with mainframe systems, TPE provides a flexible alternative for complex legacy environments.

The connectivity extensions in TPE handle a large set of distribution and intercommunication services between TPE and IBM CICS systems. To another mainframe, TPE can appear as a remote region. Interoperability between regions can be addressed by intersystem communication (ISC), IBM MQSeries® technology and IBM Systems Network Architecture (SNA) networking.

TPE supports transaction routing, enabling it to act as a terminal-owning region (TOR), application-owning region (TOR), an application-owning region (AOR) or a data-owning region (DOR). It also supports resource definition online (RDO), which allows attributes of resources associated with a TPE region (such as maps or programs) to be added,

removed or modified dynamically.

Data access and integrity

TPE supports all three major mainframe VSAM file types — KSDS, RRDS and ESDS — as well as popular relational databases like IBM DB2® LUW, Microsoft SQL Server, Oracle® database and Sybase. The technology allows for recovery of VSAM files, temporary storage queues, transient data queues and asynchronous transaction starts. All interactions with relational databases and VSAM files are controlled and synchronized using XA-compliant architecture. To ensure data integrity, full two-phase commit and rollback commands are supported, and database recovery facilities are provided.

Application types

TPE supports several mainframe-compatible application languages on lower-cost industry-standard systems, while keeping valuable business logic intact. This allows your organization to gain immediate reuse advantages.

Our re-hosting software supports distributed COBOL platforms such as NTT DATA Enterprise COBOL and Micro Focus COBOL. It can also execute applications written in the C language and Java.

End-user interface options

TPE supports multiple client and presentation options including desktop workstations, web browsers, telephones, ATMs, voice recognition units, kiosks, smart cards or other internet-enabled appliances.

Supported client types include TN3270 and TN3270E, SNA 3270 terminals, BMS, ECI and EPI, TCP/IP socket, SSL, IBM WebSphere® MQ, SOAP, Java, JEE adapter and IBM CICS web interface. The software's scalable communication servers can handle more than 50,000 simultaneous clients in a single region.

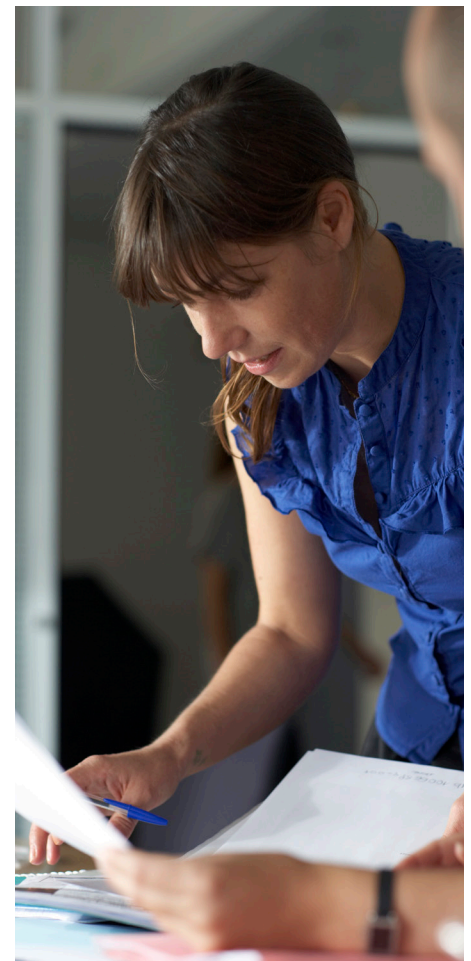
System administration and monitoring

TPE eases the tasks required for enterprise application management by supplying and supporting a variety of administration tools. Facilities are

provided for table management, file management (which includes VSAM catalogs and files), record editing, resource and access management and problem determination, such as database recovery and problem trace facilities.

The NTT DATA Transaction Processing Environment Manager, included with TPE, enables remote management and monitoring of TPE regions. By displaying real-time system status and processing rates, TPE Manager's Java-based GUI provides a flexible and comprehensive interface for enhancing the efficiency and performance. It also features an alerting capability which allows administrators to be automatically notified of potential application bottlenecks or issues.

TPE's accounting resources collect information on system usage that can help administrators gather resource utilization information, including transaction execution, program execution, CPU utilization,



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file access, elapsed time and numerous other criteria. This information can be used for leading third-party accounting packages, as well as capacity planning for one or more systems.

Flexible and secure environments

TPE allows a wide range of security options. Basic user sign-on validation is provided through the administration of sign-on table entries, as well as through external security management (ESM) systems. Customizable user exits can also be used for individual resource-level access control and audit requirements.

Utilizing TPE with the NTT DATA Transaction Security Facility (TSF) provides a flexible and secure environment for application resource control. TSF is an extensible ESM available for TPE environments. It uses a role-based access control (RBAC) security model to handle regions and associated resources that includes support for LDAP.

Software development

Developers can maintain current

productivity levels and broaden their skill sets through the use of leading, open systems solutions, made possible by a comprehensive development environment available for TPE.

Developers continue to write, maintain, support and extend TPE application programs in much the same way they did on the mainframe for COBOL, C or Java programs. Visual Studio- or Eclipse-based integrated development environments can be used to develop and maintain the application software. The Workstation Group's uni-SPF offering has been extended to facilitate a customized development platform similar to the familiar mainframe ISPF environment for TPE.

A complete lifecycle approach to services and support

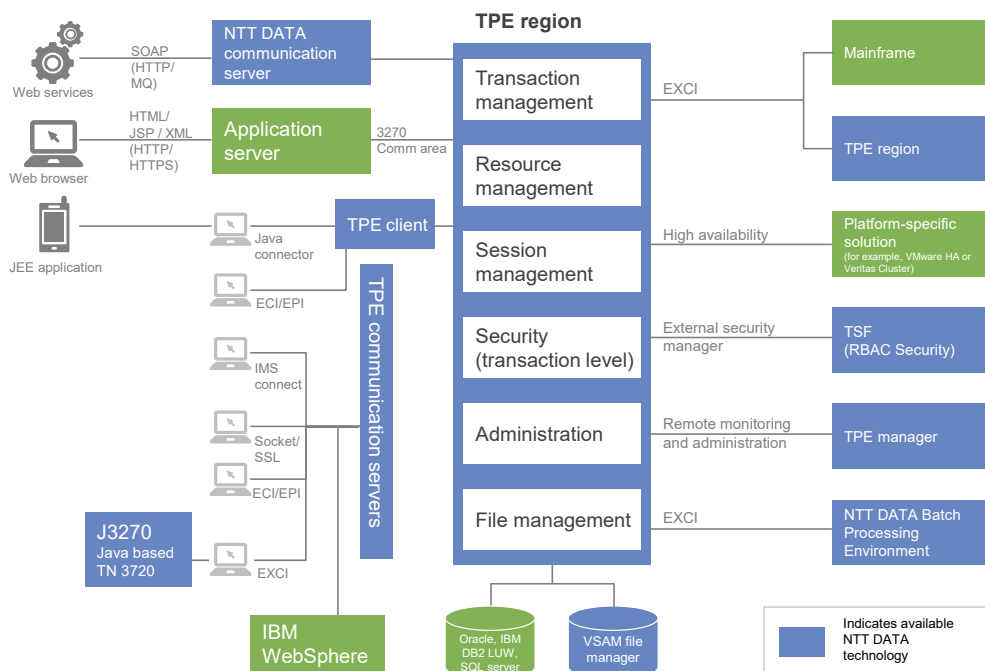
To ensure that your team can actively develop, manage and evolve application environments following any implementation, NTT DATA Services offers a range of post-migration lifecycle services.

With just one phone number, you can take advantage of our comprehensive product support. Let NTT DATA's worldclass technical support team help you successfully manage issues from root cause analysis to final resolution.

Evolutionary path forward

After moving a mainframe system to a re-hosted environment, your team will be able to develop new processes, architectures and end-user interfaces. You'll also be able to implement initiatives such as web services and SOA in a cost-effective, scalable platform. TPE supports the web and document CICS APIs and CICS web services (client and server), and allows JEE applications to access transactions as defined in TPE.

Start developing future business initiatives today. With TPE, you can build on existing application investments and bridge legacy applications with solutions that minimize risk and maximize results for many years to come.



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NTT DATA Services partners with clients to navigate and simplify the modern complexities of business and technology, delivering the insights, solutions and outcomes that matter most. As a division of NTT DATA Corporation, a top 10 global IT services and consulting provider, we wrap deep industry expertise around a comprehensive portfolio of infrastructure, applications and business process services.

