UniKix™ Transaction Processing Environment Software

Mainframe CICS Transactions on Open Systems

With thousands of customers worldwide and billions of transactions processed daily, home-grown CICS applications support a large number of today’s business-critical workloads. These enterprise applications retain time proven and high quality business models, often unique to a particular company.

Today’s economy demands that costs are driven out of all business processes, and IT is no exception. For those businesses with mainframes, this is an increasing challenge. With limited competition in the mainframe hardware business, the cost of mainframe systems has become uncompetitive when compared to equivalent Unix servers with more favorable economies of scale, and this trend shows no sign of change. The challenge for many mainframe-based businesses today is to maintain the value of proven CICS-based applications, while dramatically improving overall Total Cost of Ownership (TCO).

Robust Enterprise Framework

UniKix™ Transaction Processing Environment (UniKix TPE) software from Clerity Solutions, Inc. (Clerity) responds to business challenges by enabling the reuse of existing applications and data on cost-effective open systems. UniKix TPE software allows businesses to maintain investments in both well-tested applications and data on cost-effective open systems. UniKix TPE software allows businesses to maintain investments in both well-tested applications (source code, data files, screen definitions, etc.) and existing personnel. With UniKix TPE technology, the power, comprehensiveness, availability, and security previously found on mainframes is delivered on open systems platforms. In addition, many rehost customers find improvements in performance, reliability, scalability, and productivity following migration to these servers.

Primary Functions

UniKix TPE software is a native, fully-functional implementation of CICS for open systems platforms such as Solaris, AIX, HP-UX, and Linux. UniKix TPE software manages application-based resources such as programs, files, queues, transactions, screens, and terminals – providing a robust execution environment for business applications.

The primary functions of UniKix TPE software can be defined as follows:

- Transaction management
- Resource and session management
- Communications management
- Security
- Monitoring and administration

Transaction Management

UniKix TPE software allows CICS-managed applications to be rehosted to open systems servers with no change to the underlying business rules, and little or no change to program source code. This means that CICS applications that were previously mainframe-based can continue to enjoy a high-throughput
transaction processing system supporting a network of many thousands of concurrent users and concurrent access to large, heterogeneous databases. UniKix TPE software augments an open systems OS, providing enterprise-class management and configuration on cost-effective and powerful platforms.

UniKix TPE software is a logically-threaded system which provides a rich environment for CICS transaction processing. UniKix TPE software offers an extensive level of CICS compatibility, using much of the same terminology, standards, and interfaces as mainframe CICS. The result of a UniKix TPE software system is an enterprise OLTP environment ensuring consistent, fast, secure, and reliable processing of applications with separation of business rules from infrastructure.

**Resource and Session Management**

UniKix TPE software supports resource management associated with enterprise applications. Among these resource management capabilities are the following:

- Allocation of shared or multiplexed resources, including client terminals and PCs
- Access to heterogeneous databases and associated files
- Integrity parameters, such as commitment and recovery functions
- Security constraints associated with authentication and authorization

During the lifetime of a transaction, UniKix TPE software provides support for interaction between other processes, database connections, and queued resources within the physical server. UniKix TPE software interacts across terminals or workstations, or across distributed systems. UniKix TPE software configuration management includes utilities which support the management and maintenance of application regions, resources, and backup and recovery services.

UniKix TPE software supports all three major mainframe VSAM file types – KSDS, RRDS, and ESDS, as well as popular relational database management systems such as Oracle, UDB DB2, and Sybase. By supplying its own VSAM file services, UniKix TPE software allows mainframe CICS applications using VSAM to be rehosted easily (Figure 1).

**Communications Management**

UniKix TPE software provides several functions to share resources and data between UniKix TPE software regions and IBM mainframe CICS systems. UniKix TPE software supports the distribution of resources the same way as CICS on the mainframe does. UniKix TPE software supports the concepts of a Terminal Owning Region (TOR), Application Owning Region (AOR), and Data Owning Region (DOR). UniKix TPE software, with its connectivity extensions, provides a large set of distribution and intercommunication services between UniKix TPE software and IBM CICS systems. To an IBM CICS mainframe system, UniKix TPE software appears as a “remote region.” Interoperability between regions can be handled by Intersystem Communication (ISC), MQ Series, and SNA networking.

**Security**

A key component of the UniKix TPE software framework is UniKix™ Secure. UniKix Secure from Clerity provides the administration and runtime services of an External Security Manager (ESM) for UniKix TPE software. UniKix Secure uses a Role-based Access Control (RBAC) security model for one or more UniKix TPE software regions and their associated resources. In this model, permissions to resources are associated with roles, and users are assigned to appropriate roles. UniKix Secure’s model is inclusive in that all resources must be defined in the security repository, and permissions must be granted in order for any user or role to access them. Through the definition of roles and resources, UniKix TPE software with UniKix Secure provides a very flexible yet secure environment.

**Monitoring and Administration**

A major component of the UniKix TPE software administration framework is UniKix™ Manager. UniKix Manager provides remote monitoring capabilities for one or more UniKix TPE software regions. UniKix Manager allows thorough analysis of application resources, as well as displaying real time system status and processing rates. It also features an alerting capability which allows administrators to be automatically notified of potential application bottlenecks or issues. UniKix Manager’s Java-based GUI provides a flexible and comprehensive interface for enhancing the efficiency and performance of UniKix TPE software.

UniKix TPE software also supplies and supports a variety of administration tools, easing the tasks required for enterprise application management including: 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).

**Integration**

UniKix TPE software provides administration assistance for integration with external production environment software such as schedulers, print spoolers, and distribution, security, and RDBMS software. UniKix TPE software accounting collects information on system usage allowing administrators to track resource utilization information.
including transaction execution, program execution, CPU utilization, file access, elapsed time, and numerous other criteria. This information can then be utilized by leading third-party accounting packages, as well used for capacity planning for one or more systems. Finally, support for Resource Definition Online (RDO) allows attributes of resources (such as maps and programs) associated with a UniKix TPE software region to be added, removed, or modified dynamically.

**Performance**

With configurations delivering thousands of mainframe-equivalent MIPS, Sun, HP, and IBM open systems servers provide a realistic alternative to mainframes with comparable or better performance at a substantially lower cost.

**Software Programming**

UniKix TPE software provides immediate reuse advantages with the ability to move CICS transaction applications seamlessly from the mainframe to the open systems environment, generally with few or no program code changes.

A comprehensive development environment exists, consisting of both Clerity and leading third-party software solutions. This enables mainframe developers to not only maintain productivity levels, but to also broaden their skill sets through the use of leading edge solutions. Developers will continue to write, maintain, support, or extend UniKix TPE software application programs in much the same way as they write other programs - using Java, COBOL, C, or PL/I. Services are provided that allow J2EE Platform Enterprise Edition applications to access transactions defined in the UniKix TPE software. The services provided adhere to the Java specifications for interoperability.

**Client Services**

In addition to supporting a wide range of application types, UniKix TPE software provides support for multiple client and presentation options, allowing mainframe applications to be rehosted with minimal or no change to the user interface and therefore no disruption to end users. UniKix TPE software applications support a variety of client devices, including desktop workstations, web browsers, telephones, ATMs, voice recognition units, kiosks, smartcards, or other Internet-enabled appliances. UniKix TPE software's scalable communication servers can handle over 50,000 simultaneous clients in a single region.

Supported client types include TN3270 and TN3270E, SNA 3270 terminals, ECI
and EPI clients, TCP/IP socket clients, WebSphere MQ Clients, SSL clients, Java clients, and IBM’s CICS Client and Universal client products.

**Cornerstone of Clerity’s Mainframe Rehosting Solution Offerings**

UniKix TPE software is critical to enterprise value, providing middleware solutions that support today’s business-critical applications and integrate with tomorrow’s leading technology and development models. With UniKix TPE software, customers have significantly reduced annual IT costs for hardware, software, and support. Many have experienced a return on investment in 12 months or less.

Mainframe Rehosting solutions from Clerity make such results possible by reusing existing investments in both application and personnel, and by providing mainframe-equivalent (or better) performance and reliability. Since UniKix TPE software supports numerous standards and protocols, applications can evolve as needed using popular, open, industry-proven development technologies.

UniKix TPE technology has an extensive track record, proven by hundreds of customer installations. UniKix TPE software demonstrates the ability to support enterprise applications without extensive rewriting or reengineering of the original application and expands the future of business-critical applications.

Today, businesses can integrate UniKix TPE software applications with new processes and architectures using exciting Java based technology to build enterprise systems. With UniKix TPE software, companies can move quickly to future business initiatives, building on existing application investments, and bridging legacy with the future. UniKix TPE software is the solution that minimizes risk in the enterprise both today and in the future.