

Secure, Highly Available Transactions Over The Enterprise

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Today's Business:

The only constant is change ...

- Year 2000 "Anxiety"
- Globalization and De-Regulation
- Extended Enterprise Value Chains
- Internet Gold Rush

Enterprise IS Reality:

Many Projects Fail

- 54% of IT projects fail
- 70% of IT budget is spent on infrastructure
 - High risk
 - Expensive
 - Proprietary
 - Adds nothing to company differentiation

Tomorrow's Enterprise IS reality:

Explosion of Business Transactions

Tomorrow's Enterprise IS:

create and manage more transactions in spite of:

- Shortage of Skills
- Tightening of release cycles
- Accelerating Technology Cycles

We've Entered the Era of the Application

- **The Era of Operating Systems**
 - Build your own DBMS
 - Build the infrastructure & application
- **The Era of the Database**
 - Open Systems
 - Buy the DBMS
 - Build infrastructure & application
- **The Era of the Application**
 - Buy the Application

The challenge:

Enterprise Applications Silos

The Solution

Application leverage with Enterprise Middleware

What is Enterprise Middleware

Major Categories

About Two-Tier (Client/ RDBMS)

Limited Use in Mission-Critical Environments

- **Proprietary to DBMS**
- **Not scalable on Client Side**
- **Not modular enough**
- **Business logic on client**
 - Poor security/Poor change management
- **Poor interconnectivity between RDBMS**
- **Poor transaction control between RDBMS**
- **Suitable for departmental and workgroup solution**
 - Will reach threshold at some number of users

2-Tier vs. 3 Tier

Better long term return with Middleware

If the Network is the Computer then...

Middleware *Makes* the Application

Middleware hides application environment complexity

Middleware Solution Requirement

Transparent Naming Services

- **Location transparency**
 - Service is referenced by name, not location
 - In-memory bulletin board for speedy access
- **Automatic requests routing**
- **Conditions can be applied**
 - Data dependent routing
 - Load balancing
 - Priority scheduling

Middleware Solution Requirement *Flexible Communications*

- **Support any data type**
- **Run on any network**
- **Support any communication mode**
 - Synchronous/Asynchronous
 - Conversations
 - Unsolicited Broadcast
 - Events
 - TxRPC
 - Reliable Messaging
 - Forwarding
- **Support any communication protocol**
 - TCP/IP - IPX/SPX - SNA - X.25 - LU6.2

Middleware Solution Requirement *Complete Transaction Management*

- **Support for X/OPEN DTP Model**
 - XA
 - XATMI
- **Support full Transaction semantics**
 - Begin, Commit, Abort, Two-phase commit coordination
- **Support all Transaction options**
 - Autotransaction
 - Transaction forwarding
 - Transaction chaining

Middleware Solution Requirement

Reliable, Recoverable Queuing

- **Reliable store and forward**
 - Delayed or batch processing
 - Anticipated failure/servers currently off-line
- **Easy to use!**
 - Provision of queue servers
 - No need to change server code
 - Priority, time based, LIFO, or FIFO options

Middleware Solution Requirement

Support for Publish/Subscribe Events

- **Automatic, dynamic reactions to runtime events**
- **Subscription to events**
- **Subscription to class of events**
- **Filtering**

Middleware Solution Requirement

Comprehensive Security

- **Multiple levels of authentication**
 - System access credentials
 - Interoperability with vendor security such as HP Praesidium
 - Encryption
- **Authorization via access control lists**
 - Group/Permission pairs
 - Service/Queue/Event granularity

Middleware Solution Requirement

Fault Tolerance / Fault Management

- **Monitor viability of components**
- **Perform automatic recovery**
- **Migration of components**
- **Replication of Servers and services**

Middleware Solution Requirement

Proven Production-Level Performance

- Look for TPC-C numbers
- Dynamic load balancing
- Replication
- Data dependent routing
- In-memory name services
- Prioritization
- Efficient resource utilization
 - Thin client
 - Efficient RDBMS

Middleware Solution Requirement *Flexible Mainframe Connectivity / Interoperability*

- TCP-IP connections
 - IMS
 - CICS
- OSI-TP connections
 - Unisys, Bull, ICL

Middleware Application Example:

Mobile Phone Sales Application using OLTP messaging

- **Project Objectives**
 - Improve Customer Service Levels
 - On Line, Real time systems support
 - Business Process Reengineering
 - Full System Integration
- **Results**
 - System Runs in 7x24 operation
 - Significant Improvements in Customer Service Levels
 - No Double Entry or Faxes in Process

Middleware Application Example

Customer Care System using mainframe connectivity

- **Project Objectives**
 - Improve Customer Care system merging sales, billing and service while reducing cost
 - Service 7500 reps with 57 Million calls/year
 - Integrate DBMS with over 100 Million records
 - New system needed to be Object Oriented
 - Requirements included: 7x24 availability, high volume OLTP, and scalability
- **Results**
 - Response time improved from 4 to 2 secs
 - Greater Customer Satisfaction
 - Lower Support Costs

Middleware Application Example

Inter-Bank Payment System using a TP Monitor

Middleware Application Example

Trader Automation using publish/subscribe messaging

Hewlett-Packard and BEA

Solutions for the distributed enterprise

Complete Solution

Meets requirements for Enterprise Middleware outlined in this paper

Transactions + Objects + Messaging

Technology + Services + Support

Complete Security and Internet Access

Turn-Key solution for business problems

Hewlett-Packard and BEA

Solutions for the distributed enterprise

Integration

BEA TUXEDO integration with HP Praesidium

BEA TUXEDO certification and testing with HP

MC/ServiceGuard

HP OpenView integration for

BEA TUXEDO

BEA Manager

So why use Middleware?

Application Return on Investment depends on Middleware

- **Middleware simplifies application development**
- **Middleware speeds application time to market**
- **Middleware ensures platform independence**

BEA Middleware Suite

A Solid Foundation for Enterprise Applications

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Solutions for the distributed enterprise

Questions & Answers

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