# Distributed Application Management

## Agenda
◆Industry trends
◆Technology trends
◆IT management challenges
◆IT management approaches
◆IT management futures

## Industry Trends
◆Server operating system changes
▲ MVS - 16% to 8% of market (1996 to 2000)
▲ UNIX - 38% to 33%
▲ NT - 6% to 33%
◆Internet fever
▲ 40 million Internet users in 1996 grows to 110 million in 2000
▲ 7% corporations supporting electronic commerce in 1996 grows to 65% in 2000
▲ 40% of large enterprises perform high volume transactions over the Internet in 2000
◆Packaged ERP application growth
▲ $4.5 billion in 1996 grows to $11 billion in 2000

## Technology Trends
◆Server architectures improve and consolidate
▲ 64 bit architectures
▲ SMP/ MPP architectures
▲ Intel I2O initiative
▲ HP / Intel joint development
◆Objects gain respectability
▲ CORBA, DCOM, OLE, IIOP
◆Middleware takes off in client/server
▲ Tuxedo, Encina, Transaction Server, Viper
▲ MQ Series, DECmessageQ, Peer Logic, Falcon

## Technology Trends
◆Database evolution
▲ RDBMS, OODBMS, ORDBMS, Universal
▲ Data warehousing
▲ Data replication
▲ Multi-dimensional databases / OLAP
▲ Parallel database engines
◆Internet technology adoption
▲ Firewalls

- ▲ CGI applications, Java, ActiveX, Netscape One, JDBC
- ▲ Ubiquitous browsers
- ▲ Network Computers

# Business Purpose of IT

**Automate business processes to gain competitive advantage**
- ▲increase profit
- ▲increase productivity
- ▲additional customer services and products
- ▲improve operational efficiency

# IT Management Challenges

- ◆**Enhance user productivity:**
  - ▲ensure service (availability, response times, throughput) provided to IT users maximizes their productivity
- ◆**Increase management efficiency:**
  - ▲manage greater scope of applications, databases, middleware, servers and network elements with same or fewer staff
- ◆**Reduce costs:**
  - ▲reduce training costs and the time and expertise required to implement new applications and infrastructure

# Meeting the Challenges

- ◆**Enhance user productivity:**
  - ▲understand the user's perspective of delivered service
  - ▲optimize service provided to users
- ◆**Increase management efficiency:**
  - ▲build automated correction into the management solution
  - ▲move to automated dynamic tuning
- ◆**Reduce costs:**
  - ▲build knowledge directly into the management solution
  - ▲move to dynamic knowledge and self-learning

# IT Management Evolution

- ◆**Advanced management solutions**
  - ▲Dynamic Optimization
  - ▲Self-healing
  - ▲Fault tolerance
  - ▲Automated response
- ◆**Traditional management solutions**
  - ▲Administration
  - ▲Decision Support
  - ▲Statistical analysis
  - ▲Historical analysis
  - ▲Performance monitoring
  - ▲Status reporting
  - ▲Object discovery

▲Data collection
▲Configuration and deployment

# IT Management Approaches
◆"Bottom up" element management
　▲apply management processes to individual components
　▲start with network elements and individual systems
◆"Top down" holistic management
　▲take a logical view of the environment across multiple elements that support a business process
　▲start with applications and data

# Element Management
◆Disconnect between user perception and support alignment
　▲delivered service -- primary user view
　▲technology components -- primary support view
◆Increases importance of level one support
　▲help desk must translate user perception and map onto the technology view before passing to level two support
◆Primarily focused on technology management
　▲configuration, fault, recovery management, performance monitoring
◆Increases complexity of management

# Enhancing Element Management
◆Integrating management frameworks
　▲typically catalogs of loosely integrated solutions
　▲reduces number of physical consoles
◆Correlation engines / Manager of Managers
　▲correlation engine without rules is like providing a C++ compiler to the HR department as a payroll application
　▲centralized correlation is very inefficient
　▲typically a very static solution
◆System integrators
　▲making money out of basic deficiencies in management solutions

# Top Down Management
◆ Upper layers provide business advantage and are closer to IT users
◆ Top-down management
　▲enables IT to show business ROI
　▲provides the user perspective of service
　▲enhances management of underlying layers

# Top Down Management
◆Requires ability to monitor and manage applications
　▲flexibility required to handle multi-tiered applications
　▲extensibility required to manage existing applications
　▲toolkits required to instrument new applications
◆Database management extremely important

▲ database-enabled applications
▲ multi-tiered applications using database server
◆ Web-enabled applications require a dynamic management approach
▲ stateless nature of the Web
▲ floating applets (Java, ActiveX)

# Application Monitoring

◆ Requires application vendors to provide instrumentation and internal knowledge for the management solution
◆ Requires instrumentation mechanisms that can be easily understood and incorporated by application developers
▲ API set
▲ SNMP
◆ Would be enhanced by a standard for instrumenting applications
▲ DMTF - Application MIF
▲ IETF - Application MIB
▲ WBEM - HyperMedia Management Schema (HMMS)

# Database Management

◆ Requires ability to monitor and manage databases
▲ database specific instrumentation and knowledge
◆ Database administration
▲ database schema management
▲ database integrity checking, statistics gathering and optimization
▲ data loading, unloading, transformation and movement
◆ Backup and recovery
▲ database aware and application data grouping

# Web-enabled Application Management

◆ Need to manage Web application end-to-end
▲ Web server, gateway, application, database
◆ Requires dynamic management environment
▲ adaptive intelligence for new applications
▲ management information arrives with applet
▲ ability to dynamically represent relationships between managed objects
◆ Web technologies can play an important role in IT management
▲ WBEM initiative
▲ Java Management API (JMAPI)

# Advanced Management Solutions

◆ Encapsulated knowledge
◆ Dynamic action orientation

◆**End-to-end enterprise scope**
◆**Self-learning, expanding knowledge**
◆**Dynamic tuning capabilities for each technology**
◆**Application orientation for context, content and business priority**

## Implications for Management Solutions
◆**Current frameworks will have to evolve as Web technology becomes the standard framework**
◆**Vendor partnerships will become key to successful incorporation of knowledge into management solutions**
◆**Advanced management solutions will need to provide self-healing, self-optimizing capabilities focused on the end-to-end application**
◆**Dynamic tuning capabilities will need to be implemented at all technology layers for use by the management solution**

## Summary
◆**Many of the "new technologies" are old techniques repackaged**
◆**Top down approach is already in use in mainframe environments and must be utilized for distributed management**
◆**Advanced management solutions becoming available within the next 12-18 months are critical to future successful IT management**
◆**Vendor collaboration and openness will improve probability of success for advanced management solutions**

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Carl Coken, a senior strategic marketing manager for BMC Software Inc., is responsible for helping create the company's Internet strategy, including the creation of product requirements and building of relationships with the Internet software community and network device vendors.  Prior to BMC, he was at Digital Equipment Corp. creating their award winning Internet AlphaServer product line as well as the company's entry-level AlphaServer product line.  Prior to Digital, Mr. Coken was employed at Compaq Computer Corp., where he led the Transaction Processing Performance Council and handled many of their strategic software vendor partnerships and participated in the startup of the company's VAR recruitment program.

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