Networked Supply Chain Management

Session 3103
Agenda

- Supply-Chain Management—Opportunities and Challenges
- Technology Choices and Solutions
- Cisco Case Study
- Emerging Industry Exchanges
- Next Steps

The Internet-Enabled Enterprise

Internet

Internet Business Engaged Enterprise

Channel/Distribution

Suppliers/Manufacturers

Partners

Customer Care

E-Commerce

Workforce Optimization

Employees

E-Learning
Why Supply Chain Management?

Increasing customer demands
- Measured on responsiveness
- Expectation of high, consistent quality
- Mass customization

Globalization of competition
- Broadening of global markets
- Emergence of new competitors
- Scale for growth

Rising development costs
- Compressed product lifecycle
- Need dramatic cost reduction
- Need to return to core competency
- Rapid development cycle

To survive in the Internet economy, enterprises need to extend processes to create a virtual extended enterprise.

The Extended Enterprise

Product Service
- Depot Inventory, Versions, Demand

Order Fulfillment
- Order Commit, Demand, Planning, Build, Ship, Pay

Internet Business
- Engaged Enterprise

Customer

Internet

Suppliers/Manufacturers

Product Life Cycle
- Design, Release, Change, Retire
We estimate that supply-chain planning vendor revenue will top $3.6 billion, triple today’s current revenue, by 2002. By 2004, 90% of enterprises that fail to apply SCM technology and processes will lose preferred supplier status.

Gartner, ITxpo ’99

Enterprises plan to increase their extranets by 41% over the next two years.

Forrester Research Inc ’99

SCM Example: TSMC and Adaptec

Process integration with Extrinsic, SAP multiple automated processes:

- Purchase Order/Acknowledgement
- WIP Update
- Ship Notification
- Demand Forecast
- Engineering Design and Test

• Results:
  - Increased customer loyalty
  - Reduced product lead times
  - 14 Times ROI over three-year period
Modes of Networking and Collaboration

Your Company

- Private Network (FR, ISDN, Leased Line, xDSL, Cable)
- VAN
- Internet
- IP VPN
- Application Integration
- Data Exchange
- Web Access
- Process Sharing
- Dialup/EDI
- Web Browser/XML/EDI
- Marketplaces
- Web Browser/XML

How Do You Connect With Your Extranet Partners Today?

- Frame Relay: 50%
- Leased Line: 34%
- Public Internet: 34%
- Public Internet (VPN): 28%
- Dialup/ISDN: 28%
- Carrier IP Backbone (IP/VPN): 26%
- ATM: 6%

Source: Forrester Research Inc—Nov '99

Survey of 50 Global 2500 Companies
Business Requirements Drive Connectivity Solution

Typically Companies Choose More Than One Solution

Private Network

- Strategic set of suppliers/partners
- Limited scalability due to cost
- High level of control (security, performance)
Private Network: Security

- Firewalls for protecting confidential internal resources
- Authentication, authorization for preventing unauthorized user access

Cost of Supply-Chain Downtime

<table>
<thead>
<tr>
<th>Application</th>
<th>Cost per Minute</th>
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<tbody>
<tr>
<td>ERP</td>
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<tr>
<td>Supply Chain Mgmt.</td>
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<td>E-Commerce</td>
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<td>Internet Banking</td>
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<td>Messaging</td>
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Survey of 250 Fortune 1000 Companies

Source: The Standish Group
Private Network: High Availability

- Fast convergence around failures
- Network device redundancy and resiliency
- Dual homing to service providers
- SLA monitoring

Virtual Private Networks

- Scalable
- Affordable
- IP VPN service can provide improved SLA
Virtual Private Networks: Security

- Authentication: Digital Certificates, Shared Keys
- Privacy: Virtual Private Networks, IPSec

Virtual Private Networks: Integrated Solution

- Integrated routing, VPN, firewall, QoS and IPSec support
- Cisco IOS software Release 12.0
Centralized VPN Client Scalability and Management

- Support for 1000's of client sessions
- Client autoconfigured with user authentication
- Centrally defined policy-based network access

Dialup to Value-Added Network

- Standard document
- Non-repudiation
- Non-real-time
- Too expensive for smaller suppliers
Web Access and EDI over the Internet

- Cost effective for all suppliers and partners
- Limited integration

Web-Access Scalability

- Server Load Balancing (SLB)—scalable web access
- LocalDirector, Integrated SLB
Web-Access Security

Perimeter Security—Firewalls

Web-Access Security

Intrusion Detection Security Policy Management
Web-Access Availability

- Load balancing across ISP’s, network and servers
- Fast automatic fail-over—transparent to user
- HSRP, fast spanning tree, stateful failover
- Maximize server availability

High Availability Across the Stack

- Minimizing planned and unplanned downtime
- Distributed intelligence
- Fast convergence
- Load balancing/redundancy
- Robust hardware and software
- Best practices
Partnering for Highly Available E-Business

Back-End and Middle-Tier
- Enterprise Storage
- Database Cluster
- Oracle Parallel Server
- Oracle Application Server
- Application Servers
- Oracle8i

Front-End
- Access Network
- Distributed Director
- Cache Engine
- Catalyst Switch
- Cisco Router
- PIX Firewall
- Local Director
- Web Servers

High Availability Foundation

Back-End and Middle-Tier
- Enterprise Storage
- Database Cluster
- Application Servers
- Oracle8i

Front-End
- Access Network
- Internet
- ISP 1
- ISP 2
- Web Servers

www.eECOstructure.com
### Network Solutions Benefits Summary

<table>
<thead>
<tr>
<th>Business Process Integration</th>
<th>Flexibility</th>
<th>Scalability</th>
<th>Reliability</th>
<th>Security</th>
<th>Cost</th>
<th>Latency</th>
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<tbody>
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<td>Private Network</td>
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#### Cisco Case Study

**Problem:**
Scale through dramatic growth
Increased product volume and complexity
Higher customer expectation for delivery

**Solution:**
Partnerships between key suppliers and functions in Cisco

**Results:**
$175M annual savings
$269M revenue contribution
56% product outsourced
>90% factories are partner owned
45% reduction in supply chain inventories
Emerging Industry Exchanges

- Flexibility
- Scalability to support all-tiers
- New applications

Industry Exchange Applications

- Real-time visibility
- Collaborative planning
- Build-to-order
- Optimized inventory

A Multitier, Integrated Supply Chain

Collaborative Product Development
- On-line development
- Collaborative design
- Interactive scheduling

Exchanges

E-Enabled, Dynamic Trading Communities
- Auctions, RFQs
- Consortium buying
- Liquid market for surplus
- Catalog purchasing
Industry Exchange Predictions

- 10,000 B2B exchanges by 2003 (source: Gartner)
- $7.29 trillion in B2B commerce by 2004 (source: Gartner)
- 250 million business users procuring over the Internet by 2003 (source: IDC)
- 40% of B2B will be captured by B2B exchanges by 2004 (source: “B2B Exchanges”)

Industry Exchanges Today

1st B2B E-Marketplace in Belgium

Retail’s First Worldwide Online Supply Marketplace

Multi-Billion-Dollar B2B Internet Venture
Industry Exchange

Secure, Guaranteed Delivery of Messages and Transactions

Industry Exchange Infrastructure Requirements

Exchanges Behave Like Public Utilities
What’s Next

- Attend other related Networkers presentations:
  - E-Commerce
  - Introduction to VPNs
  - Advanced Topics in Enterprise VPN’s and PKI
  - VPN Product Update
- Understand your supply-chain business goals
- Engage Cisco and ecosystem partners
- Develop networking strategy and choose appropriate infrastructure(s)

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