The Future of Data Systems

The Issues of Today & The Vision of Tomorrow
Open Site Architecture key issues

- Exposes Data to All Authorized
- Supports Legacy Systems
- Neutral Set of API’s
- No Single Point of Failure
- Minimizes Duplicate Processors
- Supports Scalability of Site Network
- Supports Multiple Devices & Network
- Provides Performance & Cost Benefit
Open Site Architecture
Additional Requirements

- Multi-platform Support
- Multi-version Support
- Application Independence
Suggested solution

- Web Services using LDAP
- Universal Plug’n Play
- Message Broker
- JXTA
Basic Component diagram

- Client
- OSA Client Connector
- OSA Service Connector
- Service
- Device
Mega Trends in Retailing

- Branding
- Globalization
- Entertainment
- Technology
State of the Industry
The Past

- Corner Stores
- Chains & mergers
- Integration becomes an Issue
- Technology to manage the company
State of the Industry
The Present

- Device integration standards proposed
- EDI standards are defined
- POS back office interfaces are proposed
- Payment systems product codes are defined
- Adoption of open non-proprietary standards
State of the Industry
The Future

- Based on technology
- Knowledge based organization
- Learning and changing faster than the customer base
- Facts paired with the science of cycles becomes the knowledge to predict the future
Knowledge Based Organization

- The information age is becoming the real time communication age
- Knowledge is the capital of the new millennium
- Knowledge
  - Actionable
  - Has value
Knowledge Based Organization

- The greater your knowledge of your consumer, the more value you can add to their experience
- Failing to understand the customers wants and needs leads to decreased business
- Sharing this knowledge within and outside the organization allows for the provision of added value to the customer
Recreating the Retailing

- New products
- New methods of delivery
- New rewards
- Application of technology
- Don’t compete... change the rules
Marketing in the New Millennium

- Localized marketing becomes personalized in the new millennium
- A knowledge base is the catalyst that facilitates personalized marketing
- “And/or” philosophy
The Scenario of the Future
Vision

- A world where...
  - ...bits and atoms are merged
  - ...physical objects communicate in real time all the time
  - ...the Internet extends into everyday products
  - ...everything is connected
Why atoms matter

- Atoms matter because...
  - ...you can’t eat bits
  - ...human beings are made of atoms
    - ‘and will be for the foreseeable future’
  - ...exchange of atoms (‘trade’) is the root of all commerce
Technology

• ...computers that can make decisions on their own
Example Applications

- **What can you do with this technology?**
  - **Supply chain benefits**
    - Reduce out of stocks, reduce inventory, speed up delivery, check freshness, track and trace, produce to demand, identify sources of diversion, identify counterfeiting, theft prediction, faster recalls
  - **Consumer benefits**
    - Direct order from home, smart appliances, (e.g. microwave, washing machine, refrigerator), smart healthcare, assisted living
  - **New and less expected benefits**
    - Customized products, smart recycling, checkout-less stores
Consumer Benefits
Inside the Home

- Multiple Points of Access
- Open Dialog with Surroundings
Consumer Benefits
Outside the Home

- **New Generation of RFID Technology**
- **Major cost break-through for RFID.**
- **Targeted at Smart Label applications**
  - Airline Baggage
  - Express Parcels
  - Product Authentication
  - Disposable Tickets
- **Well established Printer, Scanner, and Label Partners.**
The Consumer’s own unique biometric identification makes it all possible...

Supports requests from any Biometric sensor-equipped Device or point of access such as the example shown above, and any input device serving as an Internet portal, such as a microphone or a finger sensor connected to a PC, keyboard, mouse or other device.
Convergence Retailing

- Grocery
- Retail Products
- Car Wash
- Fast Food
- Kiosk Services
- Internet
- Banking
- Fuel Management
Authorization Technology

- Iris Scan, Finger Scan, Hand Geometry, Voice Verification, and Dynamic Signature Verification
- Iris Scan System only Unobtrusive Biometric ID Method

Benefits:
- Secure Credit Transactions
- Minimize Drive-Offs
- ID Regular Customers
Horizontal Enterprise

DIGITAL MARKETPLACE

• Purchasing
• Online Catalog

ASP

• Labor Mgmt
• Fuel Mgmt
• Inventory Mgmt

PORTAL

• Industry News
• Auctions
• Classified Advertising
Relationship Technology for Neighborhood Retailing

Transforming Transactions into Relationships

Customer Profitability

Merchandise Forecasting & Replenishment

Local Assortments

Customer Loyalty

Consumer Demand

High Performance Merchandising & Marketing

Customer Touch Points

Merchandise Supply Chain

Sales Information

Product Information

Customer Transactions

Customer Interactions
CONSUMER-CENTRIC DW
Real-time offer personalization & delivery

INTER-ENTERPRISE DW
CPFR - Shared repository between trading partners

ENTERPRISE DATA WAREHOUSE
“Single Version of the Truth” Cross Functional

B to B EXTRANET
Forecasting, Planning, Replenishment

B to C INTERNET
Product Sales DW MERCHANDISING Functional DSS

ACTIVE WAREHOUSE

Customer DW MARKETING Functional DSS

Target Marketing & Campaign Management

SALE!