

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

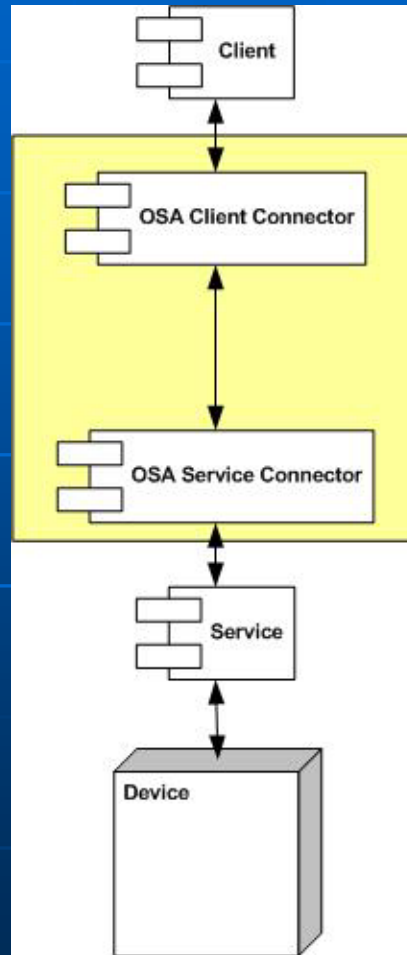
Open Site Architecture Additional Requirements

- Multi-platform Support
- Multi-version Support
- Application Independence

Suggested solution

- Web Services using LDAP
- Universal Plug'n Play
- Message Broker
- JXTA

Basic Component diagram



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

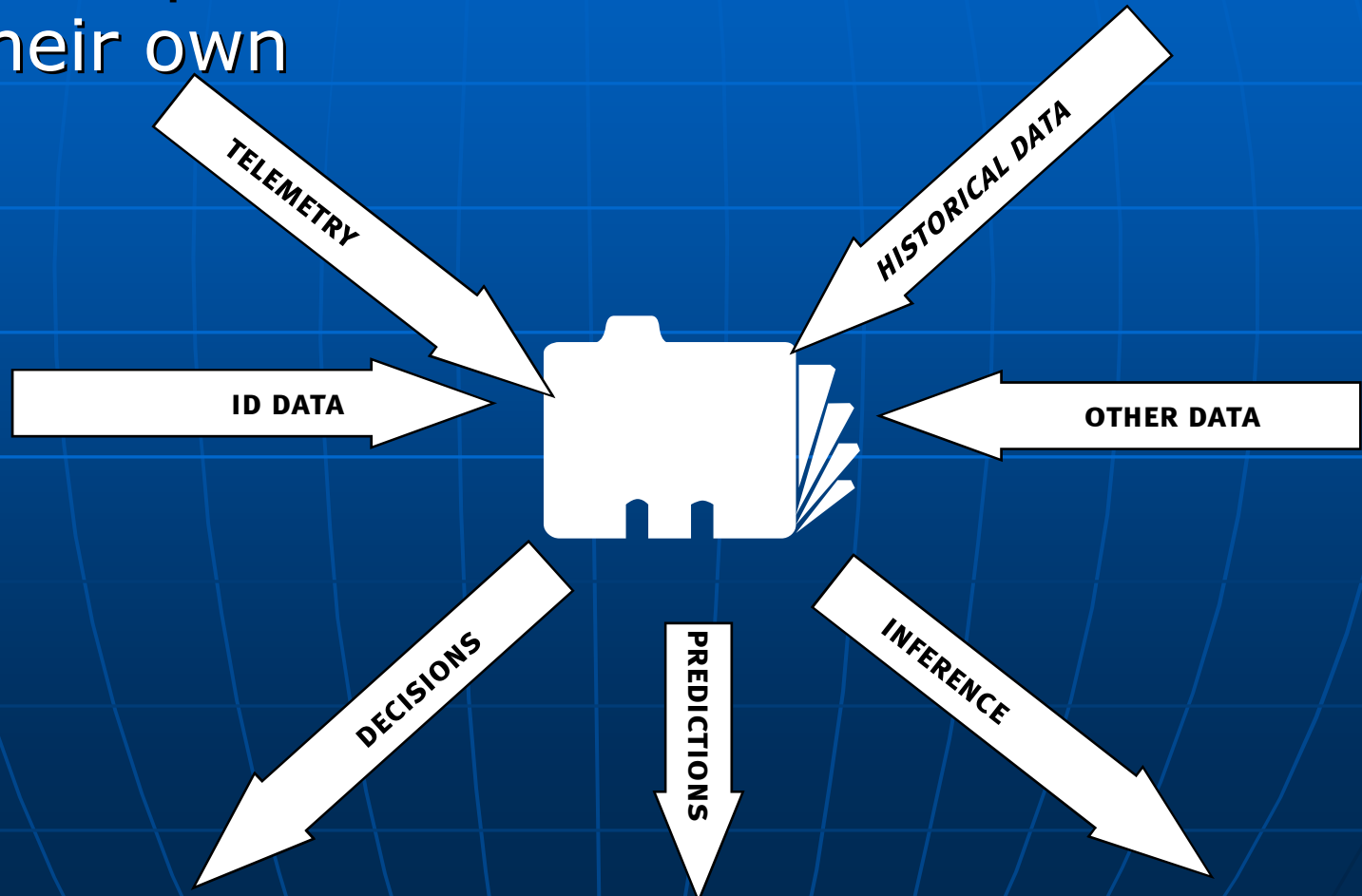
- A world where...
 - ...bits and atoms are merged
 - ...physical objects communicate in real time all the time
 - ...the Internet extends into everyday products
 - ...everything is connected

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.**



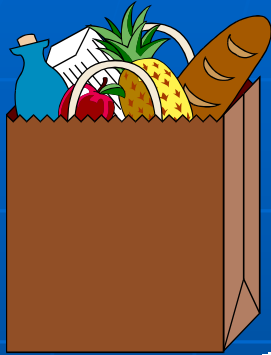
The Consumer's own unique biometric identification makes it all possible...



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

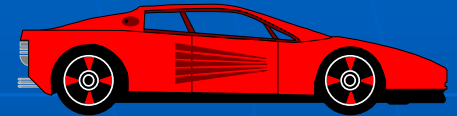
Grocery



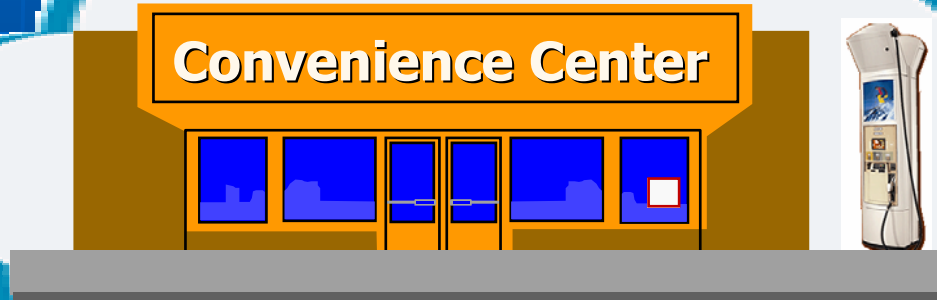
Retail Products



Car Wash



Convenience Center



Internet
I2

Fast Food



Kiosk Services



Fuel
Management

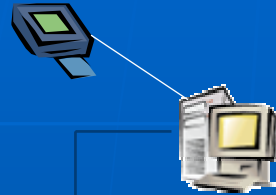


Banking



The Big Picture

Access Points



Web Server



C-Store POS



QSR POS



Grocery POS



Payment Processor



Networks



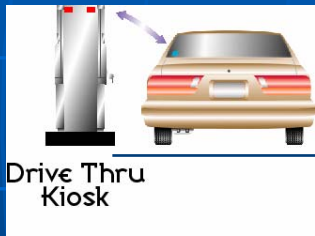
Diagnostics & Distribution Center



ERP System



Ethernet LAN



Drive Thru Kiosk



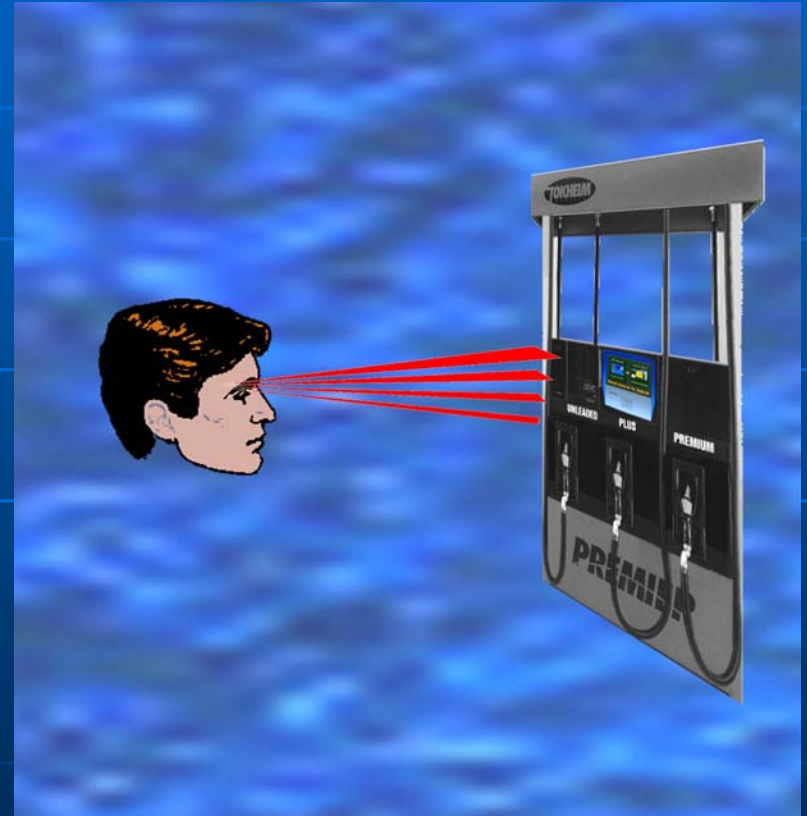
Carwash Kiosk

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



Cross Docking Information



Retail Site Operations

Home Office



Management Information

Operational Information

Business Application

Business Application

Confirmation

Information Atoms

Digital Marketplace

Ordering

Business Application

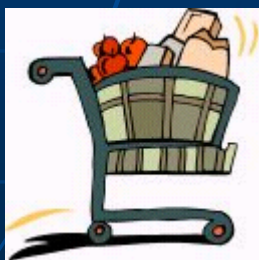
TRANSACTION

TRANSACTION

Supply Partner



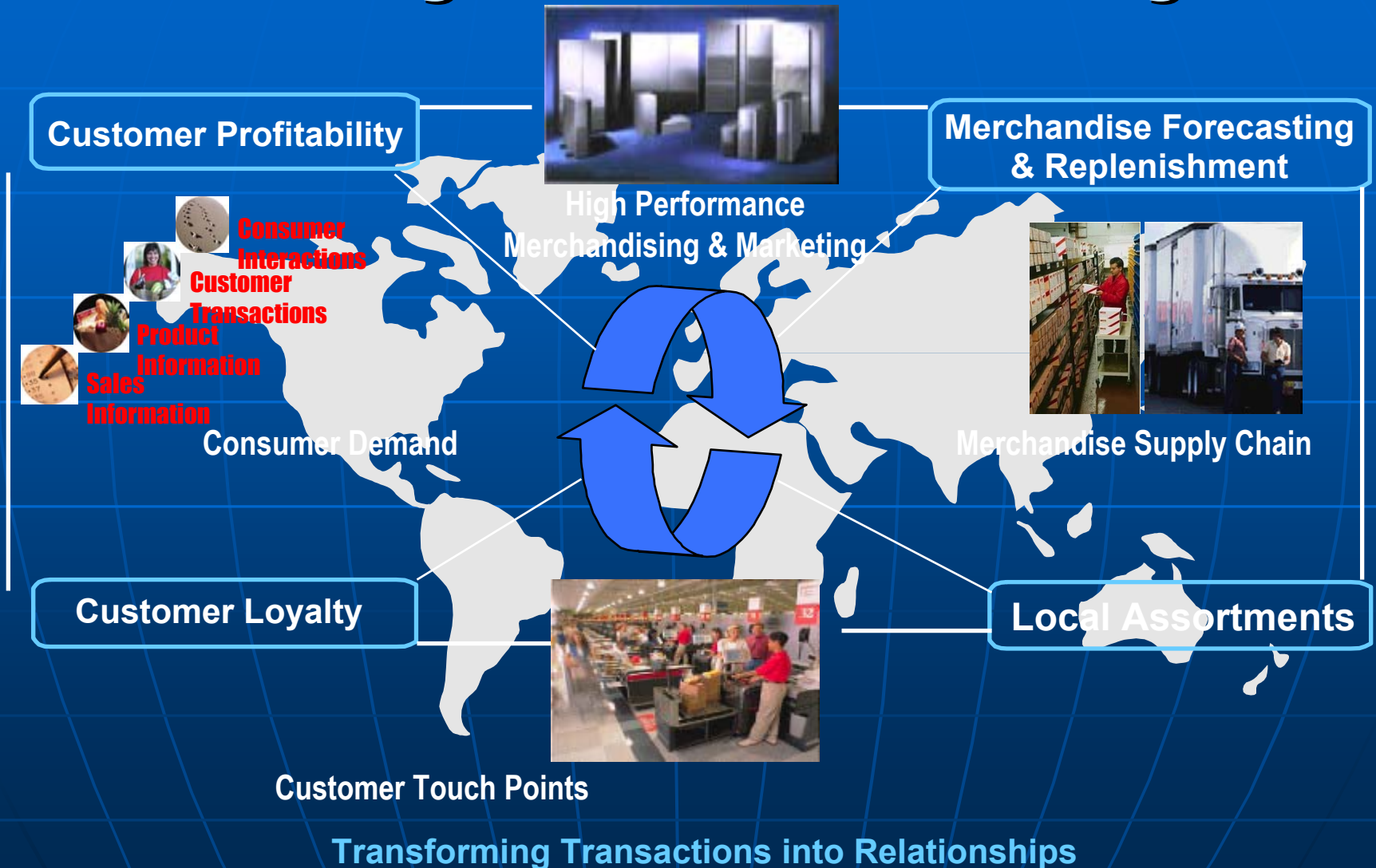
Consumer



Horizontal Enterprise



Relationship Technology for Neighborhood Retailing



INTER-ENTERPRISE DW
CPFR - Shared
repository between
trading partners



B to B
EXTRANET

B to C
INTERNET

CONSUMER-CENTRIC DW
Real-time offer
personalization
& delivery

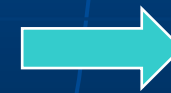


Forecasting,
Planning,
Replenishment

Target Marketing
& Campaign
Management



**ACTIVE
WAREHOUSE**



Product Sales DW
MERCHANDISING
Functional DSS



Customer DW
MARKETING
Functional DSS

