Enabling Brandable Energy Profile Management
To the Socially Conscious Consumer
While Expanding Amenities

Third Party Customer Face
The Story

- Well off empty nesters with a social conscience.
  - Socially Green
  - Willing to pay for it
  - Do not want to pay attention to it.
- They read about a new service offered by their security monitoring company Lots-O-Alarms (LOA) offering Green Energy Management.
LOA, already connected to homes, now offers Energy Management

- Customers can select from a variety of programs:
  - Lowest Cost,
  - All Renewable,
  - Nearly Green (Renewable unless cost exceeds baseline by 15%)
- LOA contracts directly with a number of energy producers to provide an energy pool for each of its programs.
LOA Capabilities:

- directly reads the electric meters to get real time energy use rate throughout each day.
- re-uses existing internet connection to customer premises, installed for security alarm monitoring, to orchestrate services in each house.
- Probes network devices to learn of changes in house systems
Customer Control

- Select Energy Program to meet their needs and values
- Define in house priorities using LOA web site as often as they wish
  - Hot tub
  - Guests in for week-end
- Can be as involved or not as they wish
IT Archetype: European Seafood Safety Tracking System

User:
- HTML

eFolder based Super Portal:
- Role
- Working eFolder
  - Content card
  - Workflow card
  - Work card (Service card)

WS/ebXML client

Service providers:
- (Information Owners in Legacy & Expert systems)

Public Service Catalogues
- Template Registry
- ebXML Registries
- UDDI WS Registries

Messageing:
- SOAP/ebMS
- FTP
- HTTP
- SMTP

Exposing services
- WSDL
- ebXML

XML

Exposing services
- ebXML based Super Portal
  - Messageing:
    - SOAP/ebMS
    - FTP
    - HTTP
    - SMTP

XML
Larger Context

- Well off empty nesters with a social conscience.
  - Socially Green
  - Willing to pay for it
  - Do not want to pay attention to it.

- They read about a new service offered by their security monitoring company Lots-O-Alarms (LOA) offering Green Energy Management.

- End Users make choices to enhance benefits, not just avoid cost.
  - Life-Style Choice
  - Cost Reduction is not only driving value
  - Requires “High Touch” responsive interface

- Consumer Choice not Utility Commission Mandate

- Open Interfaces to reduce friction between when customer makes changes to supplier relations
Customers can select from a variety of programs:
- Lowest Cost,
- All Renewable,
- Nearly Green (Renewable unless cost exceeds baseline by 15%)
- LOA contracts directly with a number of energy producers to provide an energy pool for each of its programs.

Persistent Internet connectivity may already exist
- Enhanced Customer Choice drives acceptance
- Underlying framework for open markets in Energy
Customer Capabilities

- Select Energy Program to meet their needs and values
- Define in house priorities using LOA web site as often as they wish
  - Hot tub
  - Guests in for weekend
- User Interface is external to architecture, so no standardization is required
- Tactics are dynamic without long term lock-ins to particular approach.
LOA Responsibilities:

- directly reads the electric meters to get real time energy use rate throughout each day.
- re-uses existing internet connection to customer premises, installed for security alarm monitoring, to orchestrate services in each house.
- Probes network devices to learn of changes in house systems
- End User (and designee) direct access to meters
- Adaptive re-use of connections
- WS-Discovery to supplement whole-house registry.
- oBIX catalog of relevant points
Customers can log onto a web site which queries their house for manageable service profile for the systems in that house. The customer can then set, as frequently or as rarely as they wish, which services they are willing to degrade to maintain load profiles. Although each house is different, LOA uses web services based on oBIX to operate house systems while hiding the complexity and diversity of different systems from its operating center.

Internet connection enables user interface as well as remote procedure, but not with the same end-points.

Timing and non-repudiation become critical:
- Can changes be entered today to become effective next weekend?
- Liability for damage if aggressive load management selected.
- Liability for damage if power not supplied.

Must hide complexity/diversity of underlying controls to reduce market friction.
Business Modelling with UMM
(UMM integrates different business models)

Business Domain View (BDV)

Business Requirement View (BRV)

Business Transaction View (BTV)

UMM View

Defined by UN/CEFACT

Includes
Includes
Includes

Supports
Supports
Supports

Use results from UMM To model business processes. Eg. Porter, eTOM

Use results from UMM To model business processes. Eg. Zachman, SCOR

Business Processes

B2B processes

ebXML Defined by UN/CEFACT

ebXML Components

Business Processes
Virtual Enterprises offer cross-domain scenarios

- Service Oriented Enterprises can share any service externally as easily as internally
- Novel orchestrations of external services become virtual enterprises
- At the User Interface, Virtual Enterprises are indistinguishable from other enterprises.
ebXML supports the exchange of different payloads
LOA hopes to expand its offerings to support near-grid scenarios

- including local generation and storage of energy for some of its customers.
- Optimize performance and maintenance of customer systems.
- LOA is looking for higher premiums from both sides when it can
  - guarantee load shedding target in advance to producers
  - guarantee greater reliability to its customers.
LOA plans to partner with efficiency and maintenance organizations

- Virtual Corporations
- Semantic Interoperability
- Service Centric Software Engineering
- Local “men with trucks”
Virtual Corporations leveraging 3rd parties for enhanced system [performance]
Process Control Optimizers driven by Government Regulation is not 1st choice for Customer Service
Metcalf’s Law
  - Network Power increases as the square of the number of nodes
  - Applies to Service Nodes as aptly as to Network Nodes
Key Challenges as Protocols Mature

- Statefull to Stateless
- RPC to Message
- Request to Binding Contract
- Vocabulary to Semantics
New Niches as Market Matures

- 3rd Part auditing
  - of Service Levels
  - of Power Generated
    - Including semantic description
  - of Power Consumed
- House System Analytics
- Privacy Framework

Can regulatory framework we design today support such niches without collapse?
Open Access to Metering Data
- Enforcement of Contracts
  - Security Assertions and Non-Repudiation
  - Even if it means throttle on home/group
  - Managing Liability
- Privacy Management
  - Transactional Data vs. Federated Security