Using Service Oriented Architecture
David Harrington, VP/CTO

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Legacy Software Architecture

- Updates and Order Processing
- Medications, Conditions, Allergies, Devices
- Detailed Product Database
- Member Personal & Contact Info.
- Order Fulfillment
- Member Information / Orders, Updates, Etc.
- Medical Information / Electronic Health Record
- Emergency Call Response

MED
Legacy Network Architecture

DMZ

Firewall

Reports & Other Processing

Processing
Service Oriented Architecture

- **What**
  - A set of guiding principles and a logical framework providing web services planning, development, deployment, and management functionality.

- **Why**
  - **Agility**
    - Change is the only constant
    - “Loosely coupled” nature allows IT to adapt to changes unlike the traditional tightly coupled technology architectures [MED] that are more brittle.
  - **Business “Relevance”**
    - “SOA is IT finally expressed to a level where it is meaningful to business people.”
    - Allows for close alignment between IT and MedicAlert business.
Security

- **Benefits**
  - Original WC3 Web Services spec designed with interoperability in mind -- overlooked security.
  - Shields against web service attacks.
    - Probing attacks – scan for open services
    - Coercive parsing – message tampering
    - Malicious content – hackers embed viruses, worms, or malware to payloads of messages
  - Customized rules to protect against attacks based on MedicAlert policy.
  - Fortifies MedicAlert Member’s private information.

- **Can we live without it?**
  - Extremely difficult to protect MedicAlert’s IT infrastructure from malicious attacks.
  - Extremely difficult to protect Medicalert Member’s private information.
Service Management

- **Benefits**
  - Provides common management and monitoring capabilities for all web services.
  - Monitors and logs web service transactions.
  - Provides versioning capabilities for web services. (1.0, 1.1, 2.0, etc.)
  - Prioritizes/routes requests based on MedicAlert policy.

- **Can we live without it?**
  - Unmanaged web services pose potential security risks.
  - Unmanaged web service errors are extremely complex to diagnose. No monitoring, no logs, no diagnosis.
  - Unmanaged web services cannot be proactively maintained (load balancing, fault changeovers, preventable maintenance).
Business Process Integration

- **Benefits**
  - Platform for building composite, orchestrated applications
  - Improving time to market - hours instead of days or weeks
  - Efficient visual environment
  - Productive Infrastructure
    - enterprise-class scalability and reliability provide reduced cost, development time, and risk
    - flexibility enables IT to react quickly to change

- **Can we live without it?**
  - Process Integration Servers are extremely complex to develop in-house.
  - Without Integration Servers, MedicAlert IT Systems are disparate and lack effective means of communication.
  - Without Integration Servers, MedicAlert’s efforts to operate in a business-to-business scenario will take a considerably longer implementation time.
MedicAlert Before BPI

- Business process logic not properly re-used
- Code changes could impact entire environment
- Regression testing very difficult if not impossible
- Requires business rule changes duplicated
- Overall system lacked in business agility
MedicAlert with BPI

- Business process logic is defined in a single location
- Business logic can be modified w/o interrupting current transactions
- Simpler test model
- Technology is separated from business logic via web services.

SOI = Service Oriented Integration
UIP = User Interface Process
MVC = Model-View-Controller
Process Model Overview
MedicAlert Enterprise Architecture

- Application Architectures
- Business Process Management
- Business Services
- Service Orientation
- Base Architectures
SOA Network Architecture
E-HealthKey Transaction Flow

Technology Products
- Forum XWall
- Microsoft Windows Server 2003
- Amberpoint Mgmt Foundation
- Microsoft BizTalk Server

Technology Concerns
- Security and Encryption
- Identity & Access Mgmt
- Service Mgmt
- Business Logic Containers

MedicAlert Systems
- Firewall
- Authorization
- Web Services
- MedicAlert Business Rules

Memphis DB

MedicAlert Foundation
MedicAlert Repository Services

- E-Script Info
- Member Info
- Vital Sign Info
- Patient Info
- Claims Info

Pharmacies, Drug Stores & PBMs
- MedicAlert Worldwide DB
- Home Health Monitoring Systems
- Doctors & Hospital Systems
- Health Benefit Payers & Plans

Member Interaction

Central Repository Stored at MedicAlert®
- Critical Health History
- Family Notifications
- Digital Images