Service Oriented Architecture

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Change in Technology and Demand

• Services Provided on the Internet
• Rapid use of Digital Social Activity and Collaboration
• Technological Advances enabling real-time complex event processing and real-time analytics
• Change in Services and Resources
• Change in Demand/Expectations
Application Architecture Must Support Business Demands

- Connection between Information, Devices, Services both business and social.
- Real Time Access enabling Business decisions
- Systems designed to anticipate the user’s needs and proactively serves up the most appropriate and customized content, product or service. “Person Centric”
Older Architecture

- Inflexible
- Not Modular
- Not designed for Real-time integration
- Does not support parallel or in memory computing
- Designed for specific connectivity
- It does not support multiple server scalability.
Key Architectural Strategies Meeting the Demand

- Enterprise Data is Encapsulated
- Back-End functionality is Encapsulated
- Consumable API’s
- REST/SOAP
- Request/Event Driven
- Clients from multiple devices.
Trends in Application Designs

- Composite Applications
- Multichannel Applications
- User Interface (Front End)
  - Frequently changing
  - Service Oriented
  - Familiar user experience (Consumer Like)
  - User Context
  - Intermittent access
- Processing (Back End)
  - Service Oriented
  - Event Driven
  - Platform Independent
  - Parallel and in memory processing
  - Multitenant (Single Instance Serving multiple client-organizations)
  - Stateless (efficient use of resources)
Successful Implementation Strategy

• Separation of Concerns and define dependencies.
  – Fordham Space of Control (including internal and cloud systems)
    • Fordham Data Sources/Integration
    • Privileged data services (Query Analytics, Transaction processing - Change and Event posting)
    • Integrated Data Services
    • Multistep processing Real-Time/Batch
  – Outside Sources Space of Control
    • External data sources and services
  – Human/Non Human clients
    • Human Clients (Web Clients/Personal devices)
    • Non-Human clients (External Applications/Devices)
**ESB and SOA**

- **Enterprise Service Bus (ESB)**
  - software architecture model used for designing and implementing communication between mutually interacting software applications in a service-oriented architecture (SOA).

- **Service Oriented Architecture (SOA)**
  - a software design and software architecture design pattern based on discrete pieces of software providing application functionality as services to other applications. This is known as service-orientation. It is independent of any vendor, product or technology.
Fordham’s Current ESB/SOA

On premises systems

MDR
Banner
ODS
PowerFaids
StarRez
FileMaker Pro
Other Systems
Degree Works

Fordham’s Enterprise Service Bus
WebServices – Event Queue – Talend – Consumable API

Cloud

Slate
Aces
Fordham Connect (Sugar CRM)
OrgSynch
Explorance
OnBase
Other Systems

iModules
Applications Participating in our SOA

- Banner
- Fordham Connect
- ORGSYNCH
- SLATE
- IMODULES
- FILEMAKER PRO (INCIDENT RESPONSE)
- RamVan Reservation/Ticketing
- Others to follow
Security

• Public (ie Mobile Apps)
  – Person authenticates and then their identity is considered when calling the WebService.

• Private (Fordham Connect).
  – The specific application is granted access to call the WebServers.
Overall Architecture

People: PC’s, Laptops, Notepads, Smartphones...

Portal (My.Fordham.Edu, Mobil Portal)

External Applications
Fordham Connect, Slate, Aces2, OnBase, Imodules, Explorance, ORGSYNCH, Other Systems

Fordham’s Enterprise Service Bus
WebServices – Event Queue – Talend – Consumable API

On Premises Systems
Questions?