SERVICE ORIENTED ARCHITECTURE

Introduction

- SOA is an architecture approach for
    - Defining
    - Linking
    - Integrating

    reusable business services that have clear boundaries and are self-contained with their own functionalities.

- Concept of Services
    - A higher-level abstraction that's independent of application or infrastructure IT platform and of context or other services

What's the best fit for SOA?

- Centralized business functions used by multiple entities

- Integration with partners

- The existence of old technologies that are still working

Business Agility Enablement

- Loose coupling

- Reuse

- Extensibility

Is SOA always a better solution?

- A homogeneous IT environment

- When true real-time performance is critical

- When things don't change

- When tight coupling is not an inconvenience

Definition of a Service

- "A service is a function that is well-defined, self-contained, and does not depend on the context or state of other services."

- "...a service is defined as a unit of work to be performed on behalf of some computing entity, such as a human user or another program."

Role of XML in SOA

- XML resolves the challenge of working with different data formats in different applications across multiple platforms

- XML is based on open standards and promoting platform-independent business integration

- XML has the benefit of ease of representation, being text-based, flexible and extensible by nature

- XML is the foundation for virtually all web services standards, such as XML schema, SOAP, Web Services Description Language (WSDL), and Universal Description, Discovery, and Integration (UDDI).

Role of Service Registry

- Directory of services available in an SOA system
- Removes the high coupling resulting from hard-wiring the consumer to the provider by holding the service endpoint locations,
- Eases the potential difficulties in replacing one service implementation with another if needed.
- Highly scalable – grows with the system
- Provides a catalog of services to business needs
- Helps ensure the integrity of service governance and policies

What's a business process?

- "A business process can be defined as a set of interrelated tasks linked to an activity that spans functional boundaries. Business processes have starting points and ending points, and they are repeatable."

- "A business process can be seen as a set of activities performed by a business entity in response to an event. This set of activities is harmonized, described and integrated within the business process."

Elements of business process

- Input - The information needed by the activities of the process to produce a result.

- Output - All the data and information generated by the process. The output represents business goals and measurements needed for the business.

- Events - Notifications of some occurrence of importance. An indication, for example. They can occur before, during, and after the execution of a process.

Elements of business process

- Subprocess - Smaller process, or process steps, inside a process. A subprocess is used when it's not possible to represent the scope of work with only a set of activities.

- Activity - The lowest level of work in a process

- Performance Metrics - Attributes that represent the effectiveness of a process to determine if it meets the required performance

Role of standards in SOA

- Standards ensure interoperability across system and partners.

- Using standards speeds up development and delivery through processes and tools.

- Standards enable better management and visibility of IT assets.

- Standards ensure quality of service (QoS).

- Standards help with flexibility by reducing dependencies on a specific implementation.

WS-Security

- Based on adding SOAP extensions to the message header to store security metadata that's intended to provide protection through message integrity, confidentiality, and authentication

- Provides a general-purpose mechanism to associate security tokens to the message rather than a fixed security mechanism

WS-I

- "The Web Services Interoperability Organization (WS-I) is an open industry organization chartered to establish Best Practices for web services interoperability, for selected groups of web services standards, across platforms, operating systems and programming languages."

Thank You!