

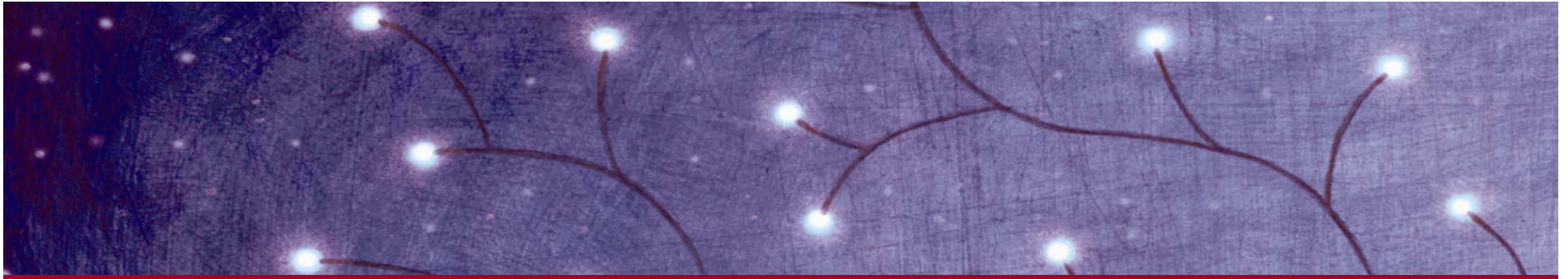


Service Oriented Architecture for Law Firms:
SOA is inevitable, are you ready?

David Pilling

Director of

Applications and Development



"Things should be made as simple as possible, but no simpler."

-- Albert Einstein

SOA: Evolution through Innovation

Executing a set of instructions to perform a task



Hardware Based

- ⋮ Physical Motion
- ⋮ Hand-Wired

Charles Babbage's Difference Engine

1822



Unstructured Code

- ⋮ Conditional Control Transfer "If-The-Else"
- ⋮ GOTO

U.S. Government ENIAC

1942

John Von Neumann Conditional Control

1945

Grace Hopper First Compiler

1951

FORTRAN / COBOL

1957
1959



Structured Code

- ⋮ Top Down
- ⋮ Logical branching
- ⋮ Dynamic variables

BASIC

1964

PASCAL

1968

C

1972



Object Oriented Code

- ⋮ Code ReUse
- ⋮ Tightly Integrated Logic of Objects

C++

1983

Java

1993



SOA

- ⋮ Service Base ReUse
- ⋮ Loosely Coupled
- ⋮ Platform, OS, Language Independent

XML

1997



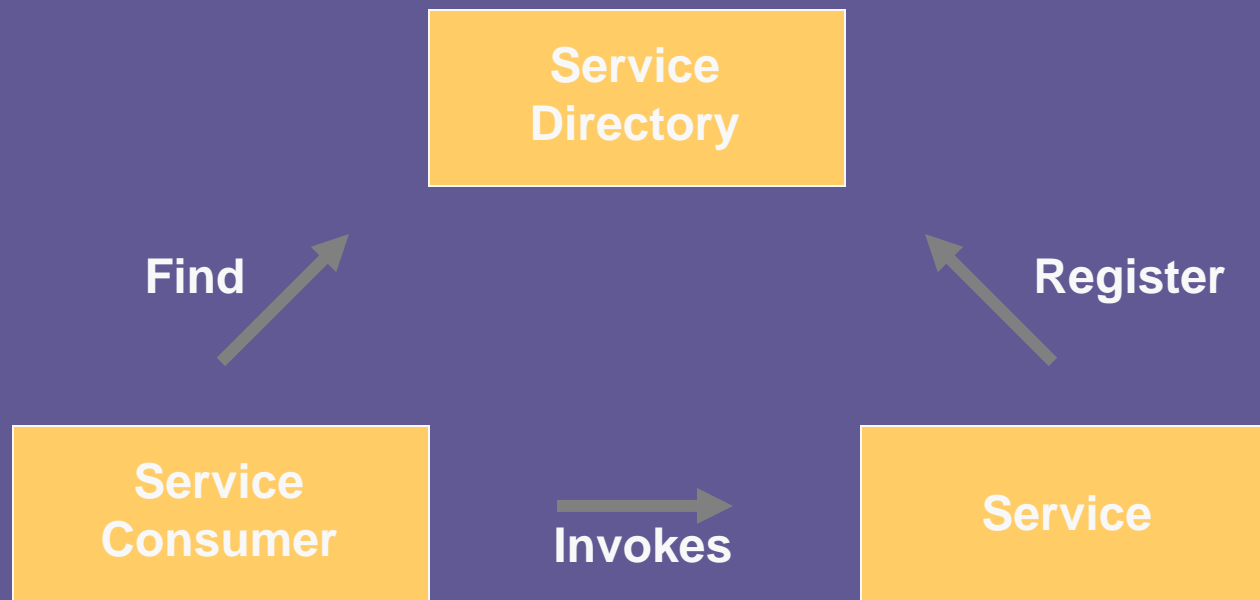
SOA: A Common Understanding

An architectural style of building software applications that promotes loose coupling between components for their reuse

SOA: Application Building Characteristics

- ❖ Services are:
 - ❖ Self-contained module that performs a predetermined task
 - ❖ Software components that have published contracts/interfaces
 - ❖ Platform-Independent
 - ❖ Language-Independent
 - ❖ Operating-System-Independent
- ❖ Promotes application assembly, flexibility to access most suitable form & presentation factor
- ❖ Consumers can dynamically discover services
- ❖ Services are interoperable

SOA: A Common Understanding



SOA: A Common Understanding

❖ Advantages

- ❖ Leverage existing investments
- ❖ Interoperability between heterogeneous applications
- ❖ Facilitate access to business logic and information among diverse services

❖ Challenges

- ❖ Managing services
- ❖ Insufficient attention to service governance; their performance, reliability, and security
- ❖ Providing appropriate levels of security
- ❖ Insuring Interoperability of services
- ❖ Vendor hype can create false expectations

SOA: Architectural Principles

- ❖ **Loose coupling** - Services maintain a relationship that minimizes dependencies and only requires that they maintain an awareness of each other
- ❖ **Service contract** - Services adhere to a communications agreement, as defined collectively by one or more service description documents
- ❖ **Service abstraction** - Beyond what is described in the service contract, services hide logic from the outside world
- ❖ **Service reusability** - Logic is divided into services with the intention of promoting reuse
- ❖ **Service composability** - Collections of services can be coordinated and assembled to form composite services
- ❖ **Service autonomy** – Services have control over the logic they encapsulate
- ❖ **Service optimization** – All else equal, high-quality services are generally considered preferable to low-quality ones
- ❖ **Service discoverability** - Services are designed to be outwardly descriptive so that they can be found and assessed via available discovery mechanisms



SOA: Research

THANK YOU !

Additional Handout Information on SOA Follows

SOA: Web Enabled Technologies for SOA

- ❖ **XML** - a markup language for describing data in message payloads in a document format
- ❖ **HTTP** (or **HTTPS**) - request/response protocol between clients and servers used to transfer or convey information
- ❖ **SOAP** - a protocol for exchanging XML-based messages over a computer network, normally using HTTP
- ❖ **XACML** - a markup language for expressing access control rules and policies.
- ❖ **Web Services Description Language (WSDL)** - XML-based service description that describes the public interface, protocol bindings and message formats required to interact with a web service
- ❖ **Universal Description, Discovery, and Integration (UDDI)** - An XML-based registry to publish service descriptions (WSDL) and allow their discovery

SOA: Reference Material

- ❖ CIO Magazine - ABC: An Introduction to Service-oriented Architecture (SOA)
http://www.cio.com/article/40941/ABC_An_Introduction_to_Service_oriented_Architecture_SOA
- ❖ Microsoft – Service Oriented Architecture: <http://msdn2.microsoft.com/en-us/architecture/aa948857.aspx>
- ❖ Service-Oriented Architecture and Web Services: Concepts, Technologies, and Tools:
<http://java.sun.com/developer/technicalArticles/WebServices/soa2/>
- ❖ Migrating to a Service-Oriented Architecture: <http://www.ibm.com/developerworks/library/ws-migratesoa/>
- ❖ History of Computer Programming Languages:
http://www.princeton.edu/~ferguson/adw/programming_languages.shtml