Building a Service Oriented Architecture with the Apache ServiceMix ESB

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How is SOA Like Cycling Up a Mountain?

- Break down large tasks into smaller ones!
-- Bite size pieces are more realistic
-- Many small goals instead of one big one
Build on Many Small Successes to Reach Your Goal!

- Build on many small successes to reach your goal
- SOA is:
  -- An architectural paradigm
- SOA is not:
  -- A product
  -- One size fits all

- Smaller, more distinct, distributed and reusable units of logic called services
- Composite services - aggregate of
- Designed to better withstand unpredictable change
Service compositions are about a coordinated aggregate of services

- Loose coupling
- Service contracts
- Autonomy
- Abstraction
- Reusability
- Composability
- Statelessness
- Discoverability
- SOA is all about composite applications
-- Many reusable services aggregated into a service composition
- Gated community in a home owners assoc.
-- Provides services (grounds maintenance, cable TV, security, clubhouse w/ pool, etc.)
-- Used by many people (consumers)
-- HOA community is comprised of many owners
-- Adherence to basic conventions
--- HOA requirements
--- Address on house
--- Mailbox at end of driveway
--- Pay dues!
A story about skydiving...

- Michael Holmes
- Top ten skydiver in the world
- Member of the British skydiving team
- Reigning New Zealand champion
- 7,000+ jumps to his name
- Aware of the risks of his career
- Knows that panic-induced human error is to blame for almost all accidents
“I didn’t have time to think about anything... really I was just angry that I’d done everything exactly as I should and it hadn’t worked.”

- Michael plummeted 12,000 ft. to a failed parachute
There's no substitute for experience and knowledge of human organizational behavior in terms of SOA

- People use their experience even if it doesn't apply to the current situation
  -- See Harwells Laws

- Industry full of hope that is pinned on cookbook SOA methodologies
  -- There is no one-size-fits-all SOA recipe!
  --- Follow this recipe and you’ll be safe
  --- Go through the following 10 steps and your SOA will be a success.
  - You might end up being, “angry that you’d done everything exactly as you should and it still didn’t work!”
- Standards based architecture for pluggable components in a reliable manner
- Elimination of vendor lock-in
- Provides a base for a service oriented architecture
- JBI allows two types of plug-ins:
  -- Service Engines
  --- Provides functionality local to the NMR
  -- Binding Components
  --- Provides transports and protocols to communicate with services remote to the NMR
  --- Normalizes payload
- Packaging for configurations of components
  -- Service Unit (SU)
  --- META-INF/jbi.xml
  -- Service Assembly (SA)
  --- META-INF/jbi.xml
-- Similar to WARs and EARs with Java EE
- Each SU is like a little Spring application
  -- Including dependencies
- Each SA is an outer package
  -- SUs listed as dependencies
Apache ServiceMix

-- Apache License 2.0
-- Combines SOA and Event Driven Architecture
--- http://enterpriseintegrationpatterns.com/docs/EDA.pdf
-- Built on Apache ActiveMQ
-- Implements JBI and so much more!
-- Connectivity centric
-- Smart Routing capabilities
-- It’s very flexible!
Configuration

- (conf/servicemix.xml)
Developing Integrations With ServiceMix Demo

Development demo using ServiceMix
So What’s Coming in ServiceMix 4.0?

Framework: OSGi (Apache Felix)
SOAP Support: Apache CXF
Message Broker: Apache ActiveMQ
Routing Engine: Apache Camel
What is Apache Camel?
What is EIP?

- The bible of integration patterns
Example Pattern:
Content Based Router

```java
RouteBuilder builder = new RouteBuilder() {
    public void configure() {
        from("seda:a").choice().when(header("foo").isEqualTo("bar")) .to("seda:b") .when(header("foo").isEqualTo("cheese")) .to("seda:c") .otherwise().to("seda:d");
    }
};
```

- The Java version of the Camel CBR
Example Pattern: Content Based Router

- The XML version of the CBR
Camel Makes Routing Much Easier!

- Message routing is much easier with Camel!
Thank You for Attending

Please fill out your surveys