Testing in the SOA Environment

SOA Testing

With organizations focusing on SOA and integration architectures, application implementations are becoming complex mix of web services, mid-tier services and exposed legacy services. Traditional code based testing approaches are not able to ensure quality and a new testing approach is required to enable SOA projects to reliably deliver on their promise of creating value for the business.

Challenges & Solutions in Testing SOA

The challenge of testing a SOA is the process flow across application stacks and technologies. Unlike preceding generations of client-server and mainframe systems, SOA systems are not screen-centric but integration-centric. This poses a unique challenge for testing methodologies, which rely heavily on screen verification to validate the integrity of the entire process.

- **Loose coupling between services and implementation changes**
  - Testing along multiple dimensions for functionality
  - Test for interoperability and compliance to standards
  - Test for security
  - Test for performance

- **Information required from multiple perspectives**
  - Tests from the service providers perspective
  - Tests from the service consumer perspective
  - Test from the registry perspective

- **Multiple points of failure and difficulty in isolating bugs**
  - Test services in isolation
  - Test earlier in life cycle

- **Nature of testing**
  - Testing exclusively through GUI is insufficient
  - Test Harnesses to invoke services directly
  - Requires both technical and business expertise

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The SOA Testing Lifecycle

**Web Services Testing**

- **Unit Testing**
- **Functionality Testing**
- **Compliance and Interoperability Testing**
- **Quality of Service / Performance Testing**
- **Security Testing and Vulnerability Assessment**
- **End-to-End Integration Testing**

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**Application Integration Testing**

- **System / Regression Testing**
- **Acceptance Testing**
- **Test Results Reporting & Analysis**
Challenges

- To identify efficient monitoring and measurement of the application
- Load balance a shared Oracle luggage database
- Tracking of billions of items of baggage
- Ensure accurate delivery of baggage
- Monitor number of bags per person
- Identify - overweight, underweight and oversize baggage
- Monitor line items
- Monitor expedite bags
- Provide maximum availability during normal operations
- Validate data from the scanner to application with SOA testing approach

Case Study

Baggage System for a leading US Airline

One of the world's largest airlines - along with its travel partners - serves more than 1000 cities in more than 160 countries on six continents

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Wipro Solution

- Provide consolidated expertise
- SOA based architecture and design using Wipro developed methodologies
- SOA migration enabled the move from a legacy environment to an SOA based environment
- Dedicated testing in various phases for SOA/Web service testing
- Emphasis on the SOA/Web services testing using an automation tool
- Processes level approach

Customer Benefits

- Test process assessment done with automation tool for SOA/Web services that ensures the stability
- Ensures quality of the application
- Improved performance
- Enhanced visibility and decision support

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