Implementing web services-REST in Projects to make communication lightweight and scalable

Workshop Details:

Duration:	3 Days
Objectives and Takeaway :	Establishing smooth communication among heterogeneous applications is one of the big challenges. Over the time, many alternatives have been evolved. One of the highly rated alternative is REST web services. This course talks at length regarding Web Services in general and REST in specific. Covers important topics needed on floor like different content handlers, Interception, Caching, integration and Cache handling. **Take away :** Implementing REST in projects with different practices and achieving scalability and performance.
Participants' Entry Profile:	Refer next page for pre-requisite of this course. Participants are expected to meet pre-requisite for smooth execution of training and reaching level of depth of knowledge in training. Participants with minimum 2 years of experience in development in any OOPs programming language will be benefited optimum in this training.
Training Methodology:	The workshop will follow Synergetics methodology of **Concept Visualization, Active Experimentation** Trainer will balance concepts delivery and hands-on as per availability of time.

Setup Requirements

Hardware and Software Requirements:	Participant's as well as Trainer's Machine are required to have : **Hardware** ■ Intel Core i3 2.2 GHz ■ CD Rom Drive, 80 GB HDD, 2 GB RAM ■ LCD Color Monitor ■ LAN Connectivity **Software** ■ Windows XP or 7 ■ Internet Explorer 8 or above/Chrome/Firefox ■ Java SDK 1.7.x and Java Docs 1.7.x ■ **Database Server access for MS-SQL Server/Oracle 11g/Derby** ■ JDBC Driver for data base like- ojdbc6.jar ■ **Eclipse for JEE 3.7 onwards** ■ **Tomcat 7.0/GlassFish 3.2.x/JBoss 7+** ■ MS Office 2007 onwords ■ **CXF 2.0 distribution** • The installable must match in bits of the machine. • A shared disk-space among participants and trainer for trainer to share training stuff with participants.

	• Internet connection to fetch maven dependencies .
Training Lab Requirements:	Whiteboard 6 feet by 4 feet (minimum) Whiteboard markers – Red, Blue, Green, Black Video Projector (1024 X 768 resolutions)

Pre-requisite for training

A skill-set equivalent to Synergetics-Web Services Level 1

- Web service and its features
- WSDL and SOAP and web service architecture
- CXF 2.0 as platform for developing web service extensive application.
- Handling complex data
- Fault generation in a web service
- Basics of RESTful web services

Course Content

Day 1	➢ **Content Handlers** ■ StreamingOutput ■ InputStream ■ Reader ■ byte[] ■ String ■ char[] ■ Source ■ JAXB ■ JAXB JAX-RS Handlers ■ Using ContextResolvers to manage your own JAXBContext ■ Custom Marshaller ■ Jackson Framework ➢ **Response Codes** ■ List of Response codes and their meaning ■ Error Responses ■ Complex Responses ■ Exception Handling ■ Exception Mapping ➢ **Content Negotiation** ■ Understanding Content Negotiation ■ Preference Ordering ■ Language Negotiation ■ Encoding Negotiation ■ Content Negotiation using JAXB ■ Variant Processing
Day 2	➢ **HATEOAS** ■ Introduction ■ Advantages ■ HATEOAS Using JAX-RS ■ Building URI ➢ **Caching**

	■ Cache Control ■ Revalidation and Conditional GET ■ Last Modified ■ JAX-RS and Conditional GETs ■ Handling Concurrent Updates ■ JAX-RS and Conditional update ➢ **RESTful Client API** ■ Proxy based API ■ CXF Web Client
Day 3	➢ **CXF - WADL** ■ Introduction to WADL ■ WADL with References ■ Document resource classes and methods ■ Customizing WADL Generation ➢ **Integration** ■ Spring/Struts 2 Framework Integration with REST ➢ **Custom Interceptors** ■ What are Interceptors ■ PhaseInterceptors ■ ChainInterceptors ■ AbstractPhaseInterceptors ■ Phases in Inbound and Outbound chain ➢ **Security** ■ XML Security ■ Security using Spring Framework