Enabling REST Services with SAP PI

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Learning Points

- Understanding the REST architecture and concepts
- Understanding the differences between SOAP and REST
- Guidelines for implementing REST
- Why using SAP PI for RESTful services
- Important features of a REST adapter for SAP PI
Understanding the REST architecture and concepts

- REST stands for Representational State Transfer.
- REST is a style of software architecture for distributed hypermedia systems such as the web and mobile applications.
- REST is based on the client/server model with requests and responses.
- Requests and responses are the transfer of representations of resources.
- A resource is any coherent and meaningful entity or object you want to publish.
- Resources are typically identified by logical URLs.
Understanding the REST architecture and concepts

- **REST Example**

- This simple URL is sent a HTTP GET request to the server to get data of a particular customer.

- The result data is returned in the HTTP response and may contain raw data.

- RESTful services use HTTP requests to POST data (create), PUT data (update), GET data (queries), and DELETE data.

- REST enables CRUD (Create/Read/Update/Delete) operations based on the HTTP methods.
Understanding the differences between SOAP and REST

- REST is a lightweight alternative to SOAP/Web Services.
- REST is resource focus, while SOAP is activity focus.
- The ATOM Publishing Protocol is designed on the REST principles. ATOM provides a way to create, edit, and delete resources, such as newsfeeds.
- SOAP service could be a service for capacity planning. The activity is the process of determining the production capacity and it is more complex than retrieving and updating object information.
- SOAP is supported by WS standards which are not available with REST.
  - Security: WS-Security
  - Reliable messaging: Web Services-Reliability
Why using SAP PI for RESTful services

- Provisioning and Consumption of REST services:
  - Exposing existing enterprise services as REST services.
  - Consuming REST services as part of an integration process.
- Tight integration with SAP backend thru standard adapters like IDOC or BAPI.
- SAP PI is proven and robust integration platform with a large installation base.
- SAP PI provides important features like message transformation, message routing and cross components process orchestration.
- Integrated development environment and runtime configuration.
- Integrated monitoring with Solution Manager.
Important features of a REST adapter for SAP PI

- Full integration with the Adapter Framework and Monitoring.
- Support synchronous and asynchronous REST services.
- JSON and OData support.
- Support of OAuth for authentication.
- Integrated monitoring with SAP PI Runtime Workbench and Solution Manager.
Advantco REST Adapter for SAP PI Demonstration

- Live host of Advantco REST adapter to show features
Return on Investment

- Enabling faster adaption of the SOA as REST describes services in function of resources.
- Business can describe resources with corresponding behaviors. This will facilitate better communications between business and IT.
- Faster implementation as business and IT will use same notion of an object/resource.
- Solution can be implemented on existing well-proven infrastructure e.g. WWW.
- Exposing internal services to more lightweight applications on mobile devices and clouds applications.
Best Practices

- Keep in mind that REST is resource focused.
- Try to apply SAP PI best practices since they are applicable.
- Try to use same SAP PI channel for all CRUD operations:
  - Semantic is based on the HTTP method
    - GET: query
    - POST: create
    - PUT: update
    - DELETE: deletion
- Try not to have long URI as some systems have limitations on the URI length.
- Do not include actions in the URI.
Key Learnings

- REST architecture provides an alternative to expose enterprise services to mobile and cloud applications.
- REST services are focus on resources, enabling better communication between business and IT.
- SAP PI provides REST service provision and consumption:
  - Provisions: exposing SAP backend functionalities as RESTful services.
  - Consumption: Consuming RESTful services in integration processes.
- REST adapter for SAP PI enables easy and faster implementation of REST services with full integration with the SAP PI integration platform.
Thank you for participating.

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