ACME Web Shop

JOURNAL- LAB3

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Order Process

What is the role of Order Process in ACME web shop implementation?

The role of the Order Process is to define the sequence of events that are bound to take place one a customer clicks on "Checkout". We modeled our order process in BPEL. It interacts with the three services – Inventory, Shipping and Payment Merchant service

Describe briefly the Order Process?

When an instance of our Order Process which is an instance of BPEL process is first triggered, it calls the Inventory Service to check whether the items that the customer wants to purchase are available or not. Once this information is fetched from the Inventory Service, it is passed on to the customer for her to decide on which items to add or remove. Following that, the Shipping Service is invoked and the customer is informed of the shipping options that she has. She can select from these shipping options. The customer will have at most two options to select from: express shipping type or regular shipping type. Once the customer selects her shipping preference, the BPEL process calculates the total order amount (including the shipping charges and forwards it to the customer). The last step for the customer is to make the payment. Once that has been done, our BPEL process will be invoked using a SOAP message that a polling consumer, listening on the queue, would send to this BPEL service.

How the Order Process was implemented?

Steps:

- Define the bindings, port types and messages for the BPEL service
- Import the wsdl files for the Inventory Service, Shipping Service and the Payment Service
- Create a workflow of the services that will be invoked
- Map the input and output of these invocations to input and outputs of the BPEL process
- Deploy

What tools were used to implement the BPEL business process?

We used the following tools for developing the Shipment Service:-

- WSo2 Developer Studio 2.1.0
- WSo2 Business Process Server

What tool was used to test the Shipment Service?

We used the SOAPUI tool (http://www.soapui.org) to test the Order Process.

What kinds of tests were performed?

We performed functional testing of our BPEL process. We tested if all the services were invoked properly and were providing correct responses.

Describe briefly the various test cases written?

For this BPEL process, we wrote four tests cases, two each for happy paths and fault cases. The tests steps are such that they have to be run one after the other (that is in the same sequence), since it requires the correlationID to be properly communicated between different requests. We also checked some invalid cases as well.

Resupply Process

The resupply process has two BPEL process: one process which will be invoked by partner Acme Webshops in the event that they want to buy some items from us, whereas the other BPEL process will be invoked from time to time to resupply the inventory, in case there are any low quantity items. In the first task, a web shop can buy using our webshop in case he is low on items. When that process is invoked, the availability of the items is checked. In case the items are available, the partner webshop is informed of this. The webshop can then invoke the buy function to buy the products.
In the other BPEL process we have a process that calls the getLowQtyItems method of the Inventory Service. It will then loop through all the items and call on some other webshop to buy items from them.

Difficulties Faced

Some things in our solution do not work as expected.

Order Process:
1. In order process we don't have proper fault handling - only default faults are thrown. We should improve this and pass meaningful faults from the webservices.
2. In order process we should deal with timeout in our sequential receive blocks. We should use Pick, OnMessage and OnAlarm in order to do this.

3. We are missing part about persisting order somewhere. Currently, it persists inside the business process instance.
4. We use orderId as correlation. But more convenient is to use sessionId and create order after finalization of data. But since we are missing the thing # 3 we don't have ability to store orders.
6. We are missing buyInventory call after we receive the payment in order to update inventory database.

Resupply process - 1:
1) Here we have unresolved problem with IDE. It always shows that BPEL is corrupted but it deploys correctly onto the bp server.
2) Another problem here is that buy operation cannot be visible by others based on wsdl file. We tried to find the problem but were not able to find it. Tried creating everything from the beginning but it also didn't work.
3) We don't have test cases for this part because it does not work.

Resupply process - 2:
1) We integrated this resupplying process with Resupplying Process # 1 as a custom shop, so it also fails when it tries to call buy operation. This problem will be solved with Resupply Process -1 problems
5. Weight and volume of the products are expected to be passed from client/invoking side (i.e. web shop application), but we have enough information (but not enough time) to calculate total weight and volume inside the business process.