Priority Based Mediation Configuration Model

Priority based mediation can be configured at two levels.

1. HTTP level
2. Mediation level

1. HTTP level configuration

HTTP level configuration is done by using a separate xml configuration file.

```
<Priority-Configuration>
   <priority-executor name="priority-executor">
      <queues isFixed="true|false">
         <queue [size=""] priority=""/>*
      </queues>
      <threads core="" max="' keep-alive=""/>
   </priority-executor>

   <!-- conditions for calculating the priorities based on HTTP message -->
   <conditions defaultPriority="">
      <condition priority="">
         <equal type="" source="" value=""/>
         <match type="" source="" regex=""/>
         <not>
            any boolean operator or boolean expression
         </not>
         <and>
            any boolean operator or boolean expression
         </and>
         <or>
            any boolean operator or boolean expression
         </or>
      </condition>
   </conditions>
</Priority-Configuration>
```

priority-executor section specifies the configuration of the ThreadPoolExecutor and the priority queue. Internally we are using multiple queues for handling messages with different priorities. queues configuration specifies those configurations. Queues configuration can have multiple queues with different priorities assigned. When a task is submitted to the executor it will put the task in to the a queue with the task's priority.

conditions section specifies the rules for determining the priority. conditions section is composed of several conditions. Each condition has a priority assigned. A HTTP request is evaluated against a condition. If the condition is matched the priority of the HTTP message is set to the priority of the condition.

Condition can have a boolean expression. Boolean expressions are created using the basic and, or and not operators and equal, match configurations.

2. Mediation level

Here is a sample configuration at mediation level. It has two priority executors in two different levels.

```
<definitions xmlns="http://org.apache.synapse/">
   <priority-executor name="priority-executor">
      <queues isFixed="true|false">
         <queue [size=""] priority=""/>*
      </queues>
      <threads core="" max="' keep-alive=""/>
   </priority-executor>

   <!-- first level priority execution, the switch is just to demonstrate the concept -->
   <sequence name="main">
     <switch>

            <case 1>
               <enqueue priority="" executor="priority-executor"
      sequence="testSequence"/>
             </case>
            <case 2>
               <enqueue priority="1" executor="priority-executor"
      sequence="testSequence"/>
             </case>
            <case 3>
               <enqueue priority="5" executor="priority-executor"
      sequence="testSequence"/>
             </case>
       <switch>

    </main>

   <sequence name="testSequence">
      <send/>
   </sequence>
</definitions>
```

In the mediation level, priority-executor configuration is same as in the HTTP layer.

Only difference is at this layer the configuration used to calculate the priority is standard synapse configuration language. After determining the priority, the enqueue mediator can be used to give the message to the priority-executor with the a given priority.