7

Routing Messages

Objectives

After completing this lesson, you should be able to:

- Describe routing concepts
- Explain how routing works
- Use conditional branching or routing table for content-based routing
- Use XQuery-based policies for dynamic routing

Agenda

- Routing overview
- Content-based routing
- Dynamic routing

Message Routing: Overview

- The ability to route a request to a specific service provider based on a static or variable routing criteria
- Types of routing:
  - Static routing
    - Routing action
  - Content-based routing
    - Conditional Branch node
    - Routing Table action
  - Dynamic routing
    - Dynamic Routing action
    - Routing Options action

Routing Use Cases

- Header-based routing
- Routing a message based on:
  - The type of the payload
  - Operation
- Runtime protocol selection

Header-based Routing

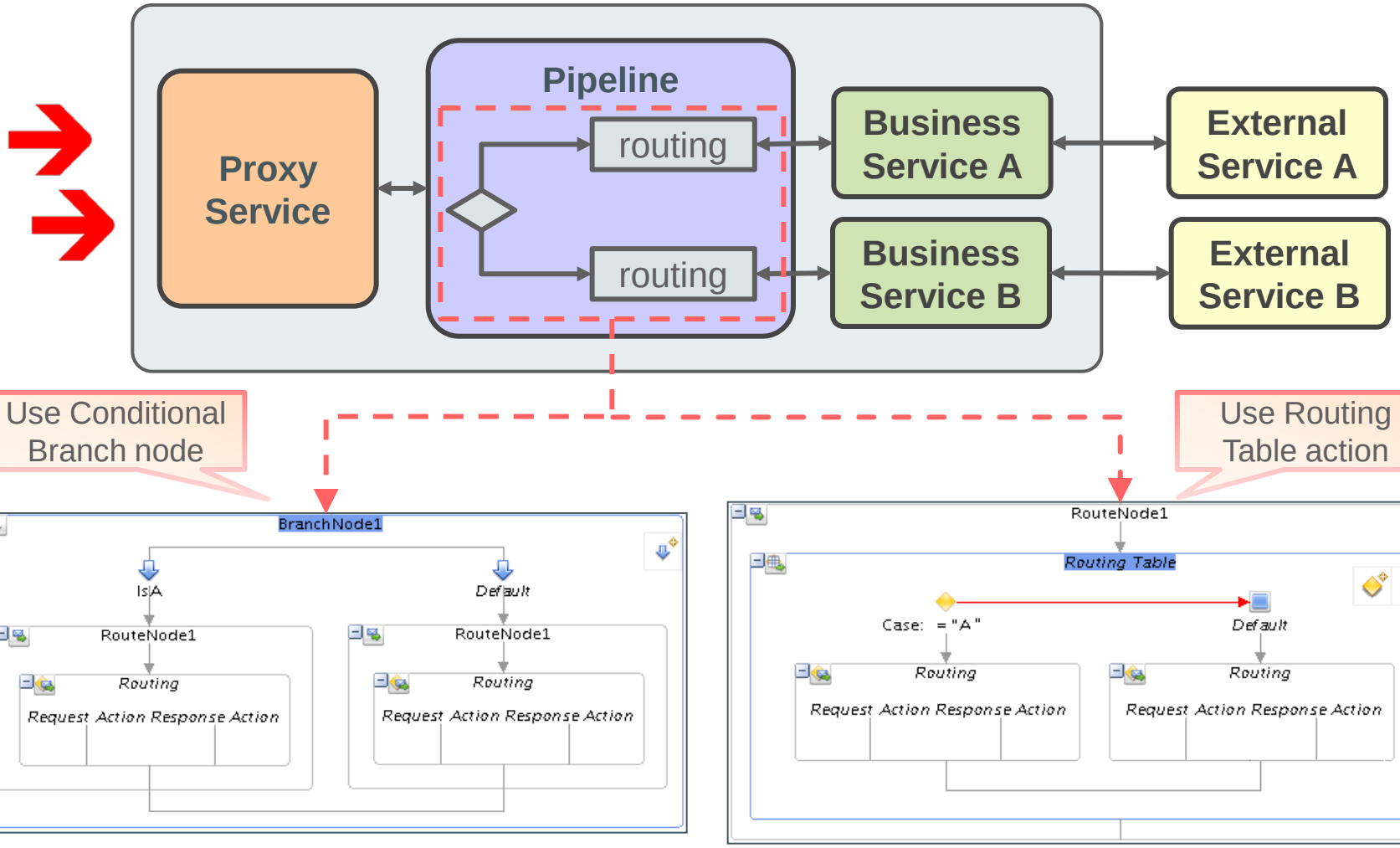
Header-based routing is more efficient as payload does not have to be processed.

```
<Soap:Envelope>
<Soap:Header>
  <m:path xmlns:m="http://oracle.example.com/rp/"
   Soap:actor="http://schemas.example.com/soap/actor"
   S:mustUnderstand="1">
    <m:action>http://example1.com/</m:action>
    <m:to>http://example2.com/router</m:to>
    <m:fwd>
       <m:via>http://example3.com/router</m:via>
   </m:fwd>
  </m:path>
</Soap:Header>
<Soap:Body> ... </Soap:Body>
</Soap:Envelope>
```

Agenda

- Routing overview
- Content-based routing
- Dynamic routing

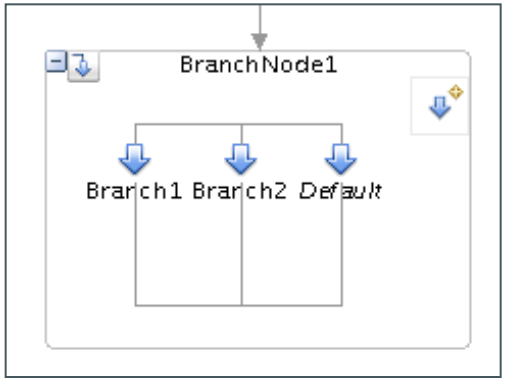
Content-based Routing



Conditional Branch Node

The Conditional Branch node allows you to route the incoming requests to different target services based on different conditions including:

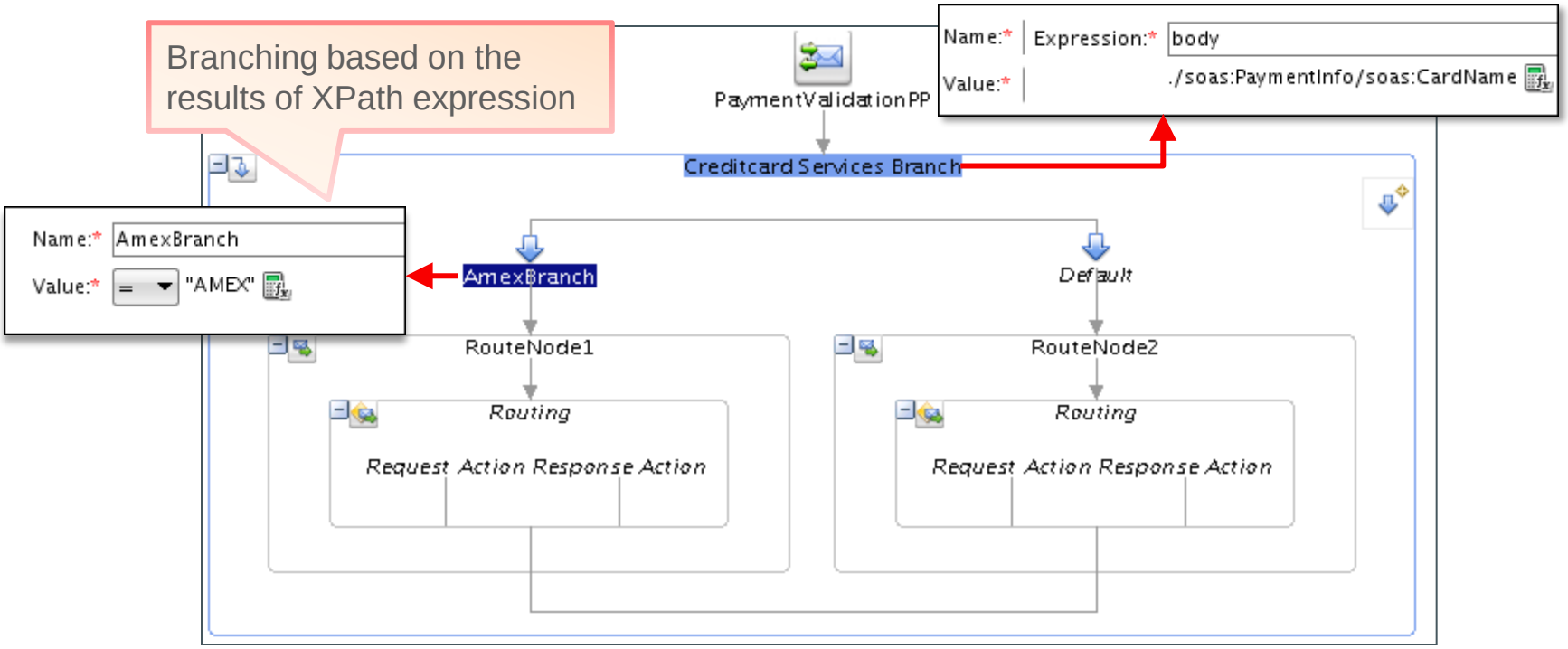
- equal to (=)
- not equal to (!=)
- less than (<)
- less than or equal to (<=)
- greater than (>)
- greater than or equal to (>=)



Configuring Conditional Branch Node

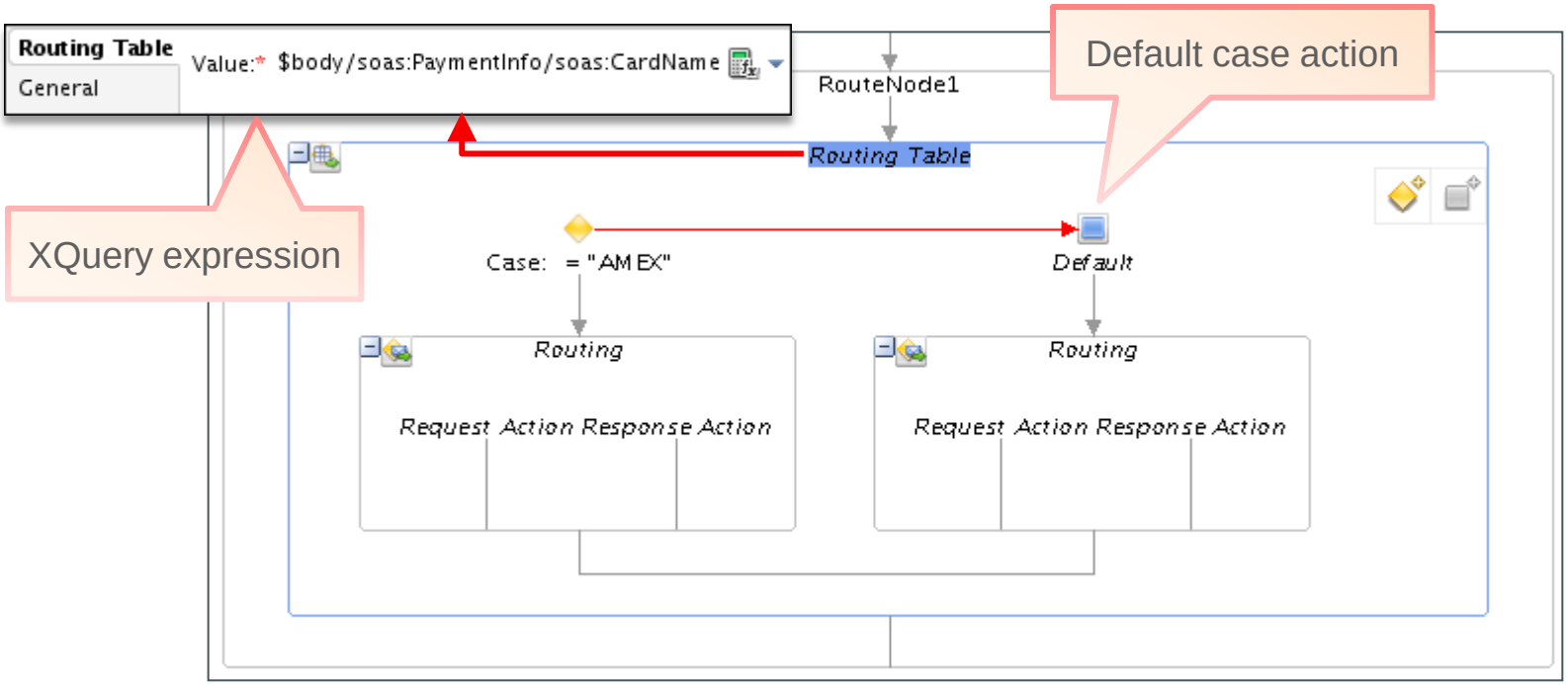
Conditional branching can be based on:

- Variable value in the message context
- Results of an XPath expression



Routing Table Action

- A routing table is used to select different routes based on the results of a single XQuery expression in a message flow.
- A routing table action contains a set of routes wrapped in a switch-style condition table.



Conditional Branching Versus Routing Table

- Use conditional branching if the condition that you are branching on is known early in the message flow.
- If your logic is common regardless of the message destination, use routing table for routing decision-making until the business service invocation.

Quiz

What do you use to select different routes based on the results of a single XQuery expression?

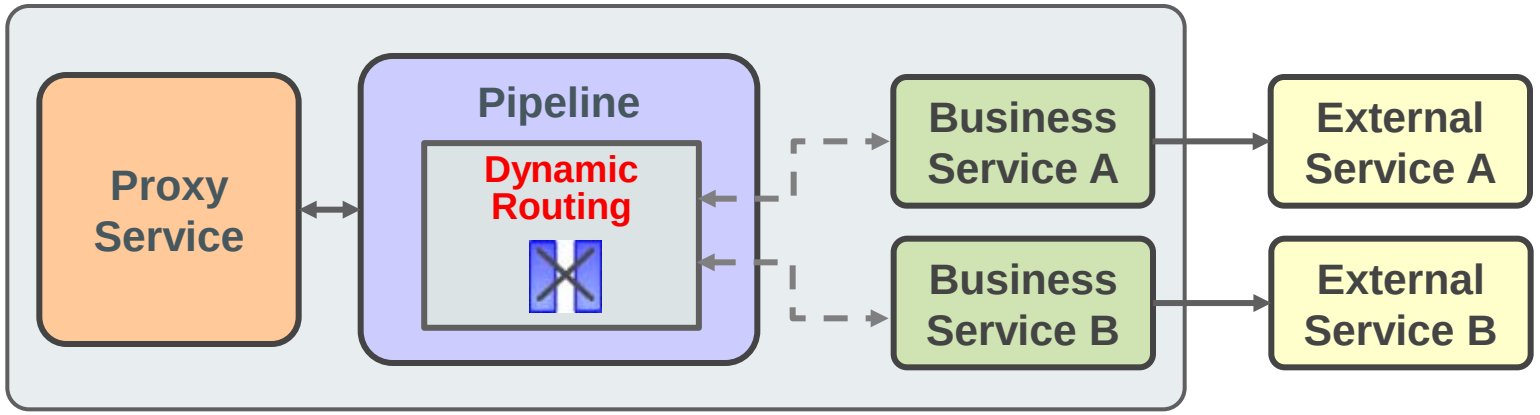
a. Dynamic routing
b. Routing table
c. Route node
d. None of the above

Agenda

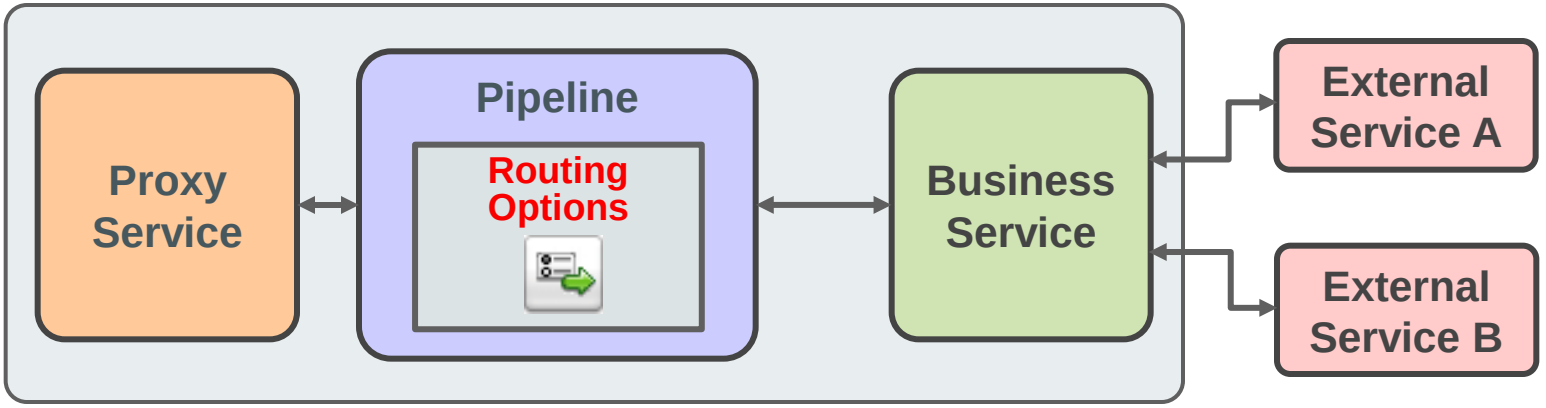
- Routing overview
- Content-based routing
- Dynamic routing

Dynamic Routing

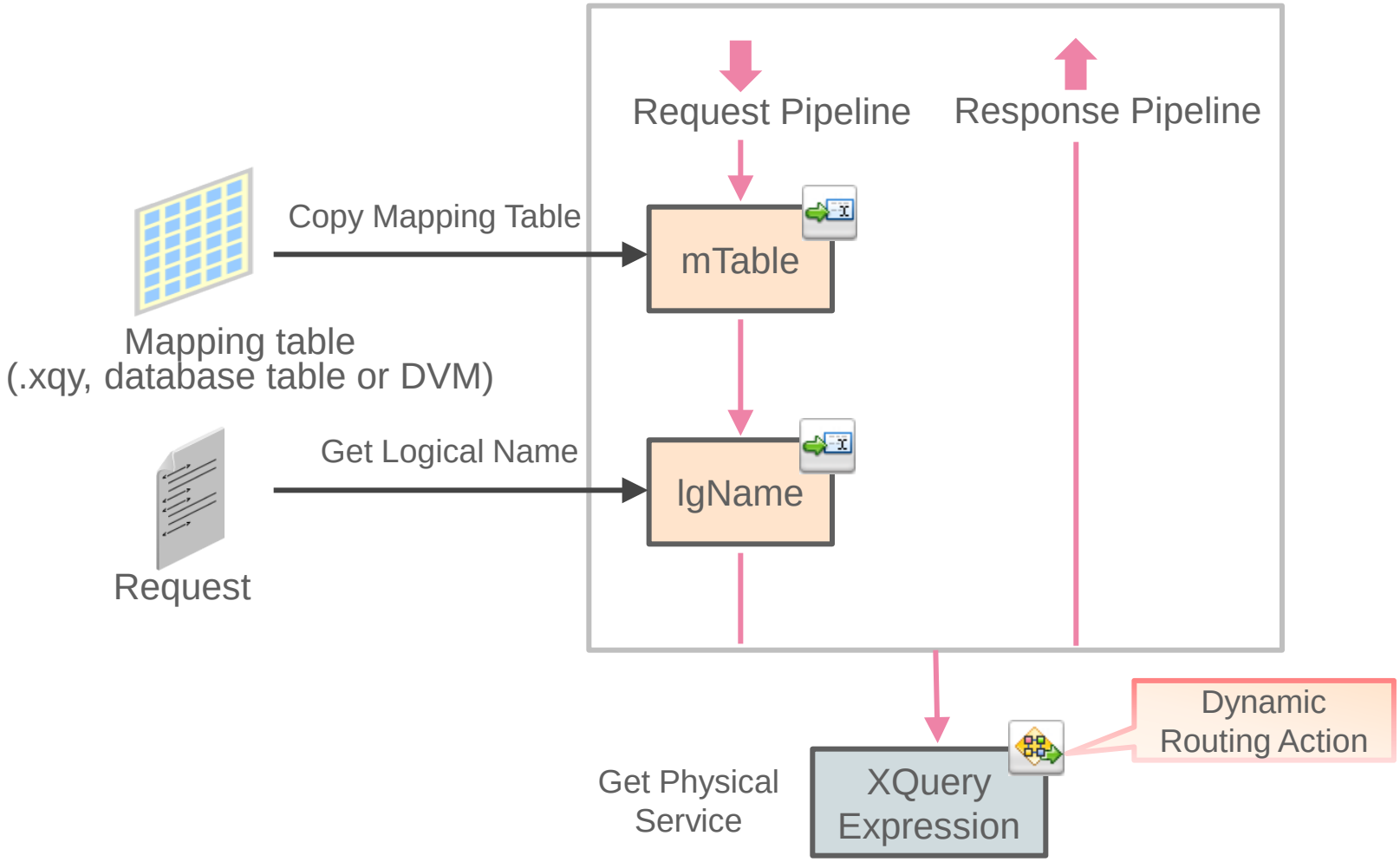
- Use a Dynamic Routing action to dynamically invoke different business services.



- Use a Routing Options action to dynamically set the endpoint URI used on the business service.



Dynamic Routing with Dynamic Routing Action by Example



Mapping Table Used by Dynamic Routing Action: Example

mapping.xqy

```
<map>
   <row>
      <logical>Oracle</logical>
      <physical>corpRentalcar/goldserviceBS</physical>
   </row>
   <row>
      <logical>ABC Corp</logical>
      <physical>corpRentalcar/silverserviceBS</physical>
   </row>
</map>
```

Project name

Business service

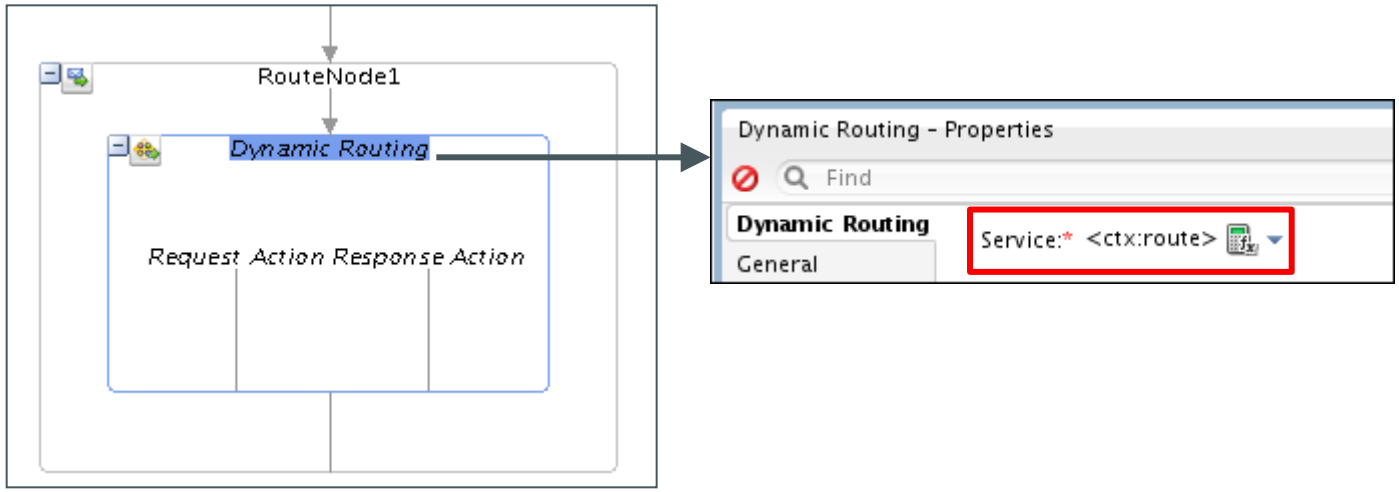
XQuery Expression for Dynamic Routing Action

Invoke a business service.

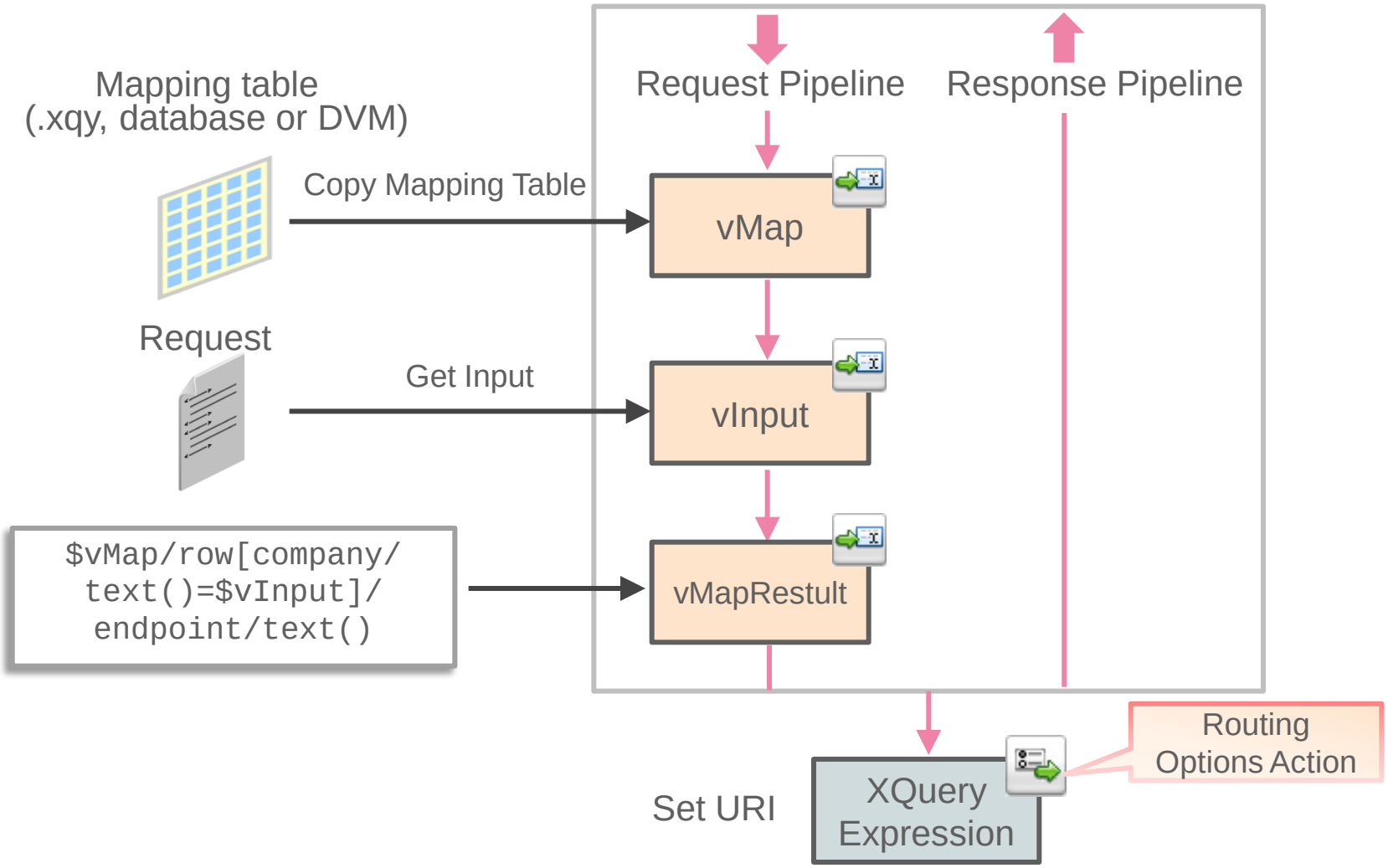
```
<ctx:route>
    <ctx:service
      isProxy='false'>{$Projectname/$BizService}
    </ctx:service>
    <ctx:operation>{$operation}</ctx:operation>
</ctx:route>
```

Configuring Dynamic Routing Action

In a message flow, use a dynamic routing action to assign a route for a message based on the routing information available in an XQuery resource.



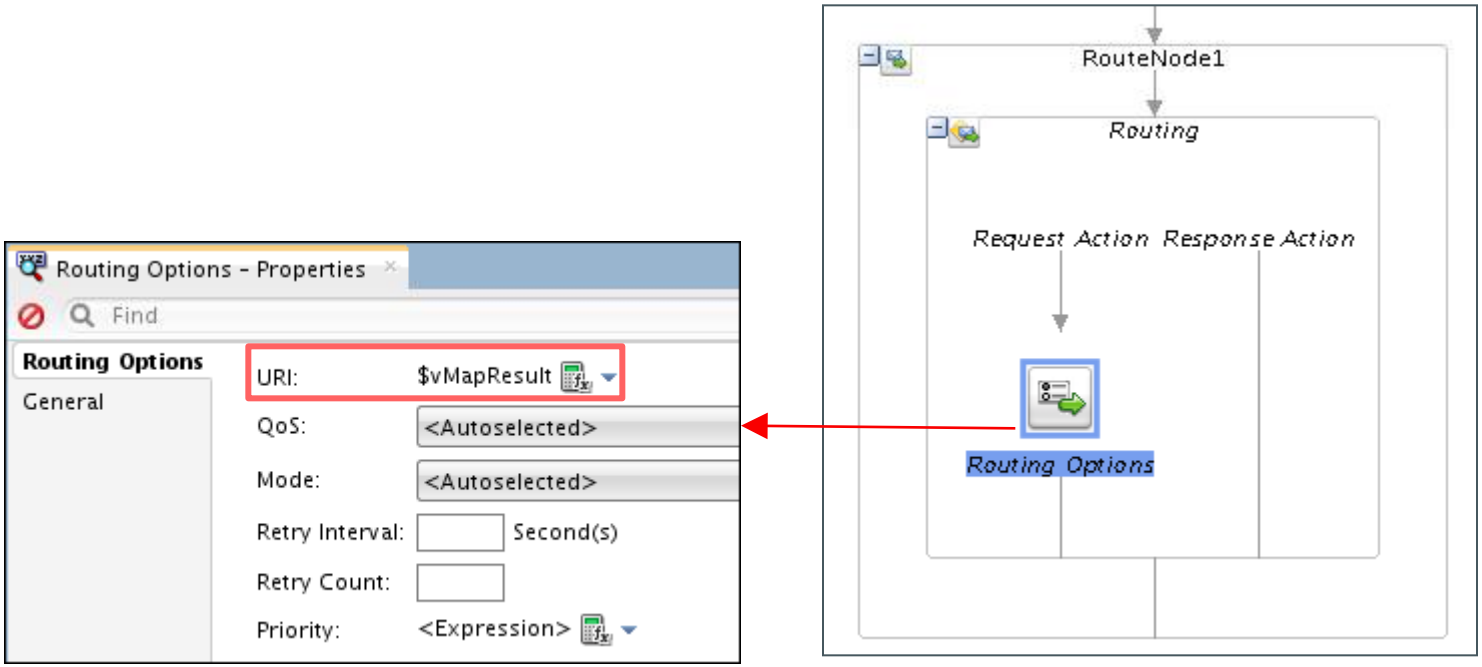
Dynamic Routing with Routing Options Action by Example



Mapping Table Used by Routing Options Action: Example

```
<map>
   <row>
      <company>Oracle</company>
      <endpoint>http://corpRentalcar.com:8888/goldservice</endpoint>
   </row>
   <row>
      <company>ABC Corp</company>
       <endpoint>http://corpRentalcar.com:9999/silverservice</endpoint>
   </row>
</map>
```

Configuring Routing Options Action



Quiz

Which action can be used to change the endpoint URI of the external service when you invoke using business service?

a. Routing
b. Routing Table
c. Dynamic Routing
d. Routing Options

Summary

In this lesson, you should have learned how to:

- Describe routing concepts
- Explain how routing works
- Use conditional branching or routing table for content-based routing
- Use XQuery-based policies for dynamic routing

Practice 7: Overview

- 7-1: Static Routing Messages Using Conditional Branching
- 7-2: Dynamic Routing Messages Using XQuery-based Policy