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Next Generation Controller for JSF

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What is a Controller?

- Inherent in the Model-View-Controller architecture
- Eliminates hard-coded navigation logic
- Orchestrates interaction between view and model
- Connects pages to a logical flow that defines the application's business process
- A map of navigation targets and the paths between them

JavaServer Faces

- Standard View/Controller layer in Java EE
- Advanced controller
 - Page flow navigation
 - Definition of managed beans
 - Memory scopes for beans

We Needed More

- Process flow
- Reusability
- Single Page Interface
- More
 - Bookmark support, parameters, redirect

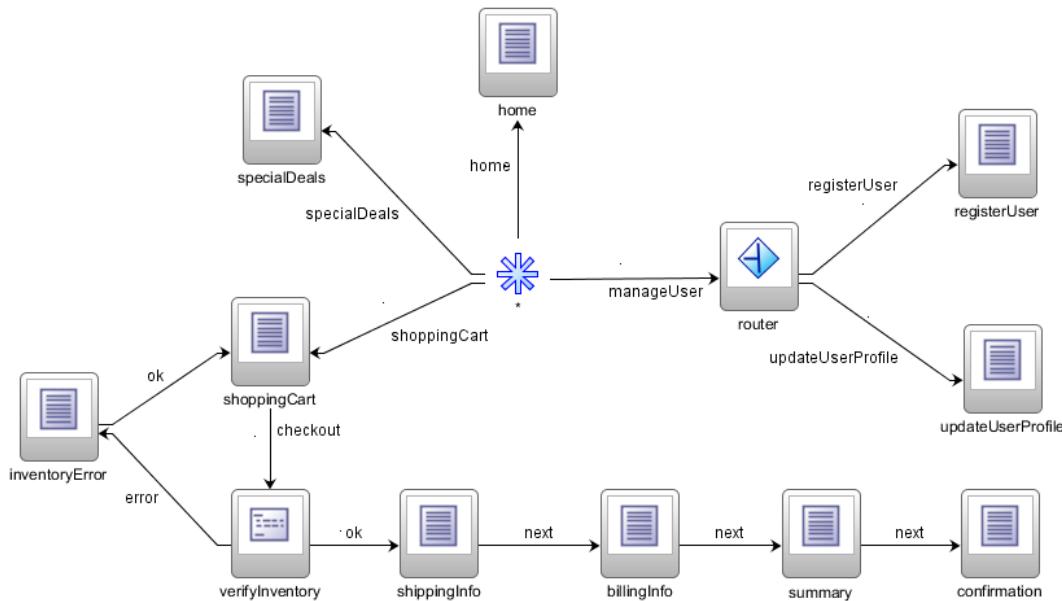
ADF Controller

- Model process for Web UI
 - Page and task flow
- Extended reusability
 - Use in other flows
 - Use inside page
 - Package for dynamic addition to pages



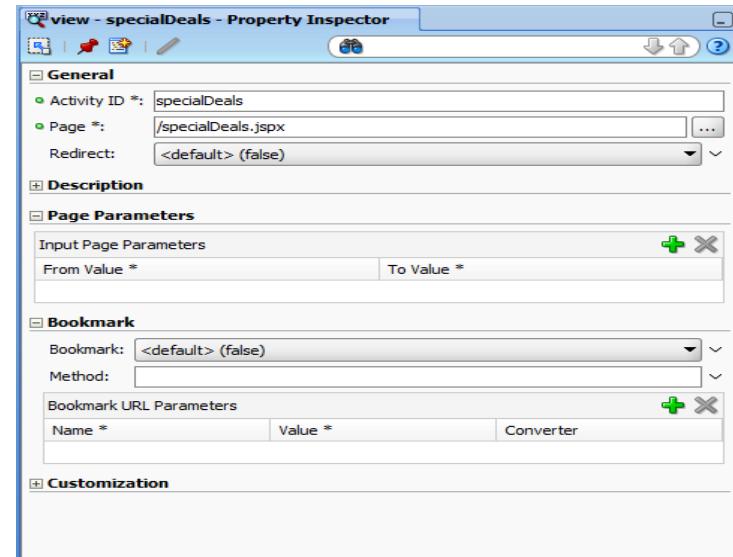
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From Page Flow to Process Flow



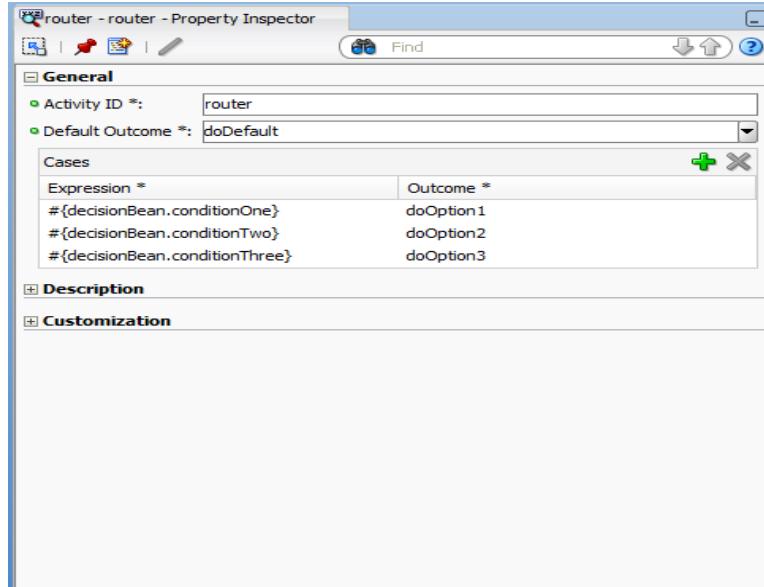
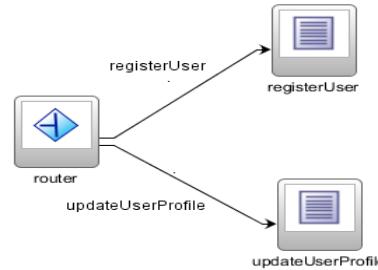
View Activity

- Used to display a page
- Attributes:
 - Page file (e.g. specialDeals.jsf)
 - Redirect behavior
 - Input parameters
 - Bookmark behavior



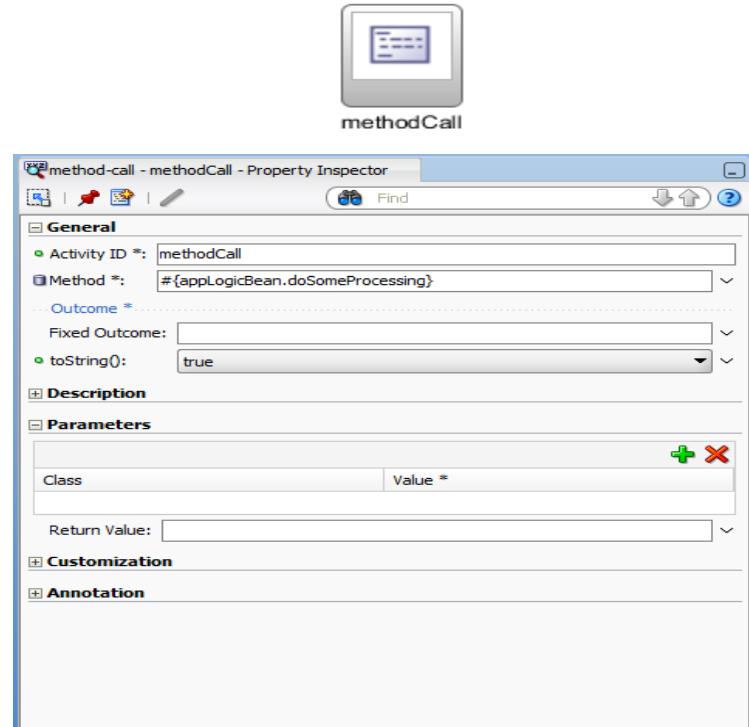
Router Activity

- Conditional Control Flow
- Similar to switch statement
- Series of EL expressions
 - First to evaluate to true wins
- Default outcome



Method-Call Activity

- Invokes application logic via an EL expression
- May generate a fixed outcome or use method return value



ADF Memory Scopes

- PageFlowScope
 - Spans multiple pages
 - Can have lifespan shorter than session
- ViewScope
 - Lifespan equal to the current viewId
- BackingBeanScope (advanced topic)
 - Essentially a portioned request scope
 - one instance per view source document
 - Useful for avoiding conflicts in composite pages

Bounded Task Flow – Reusable Units

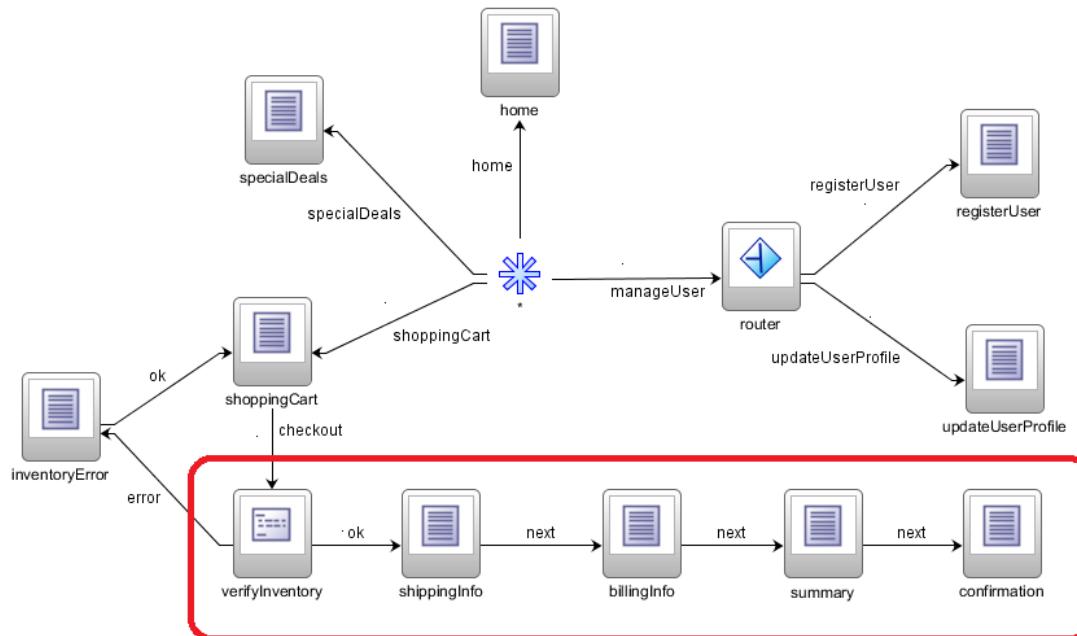
A web application's equivalent of a method

- A logical grouping of activities and control flow rules
- Invoke from other flows
- Invoke inside a region of a page

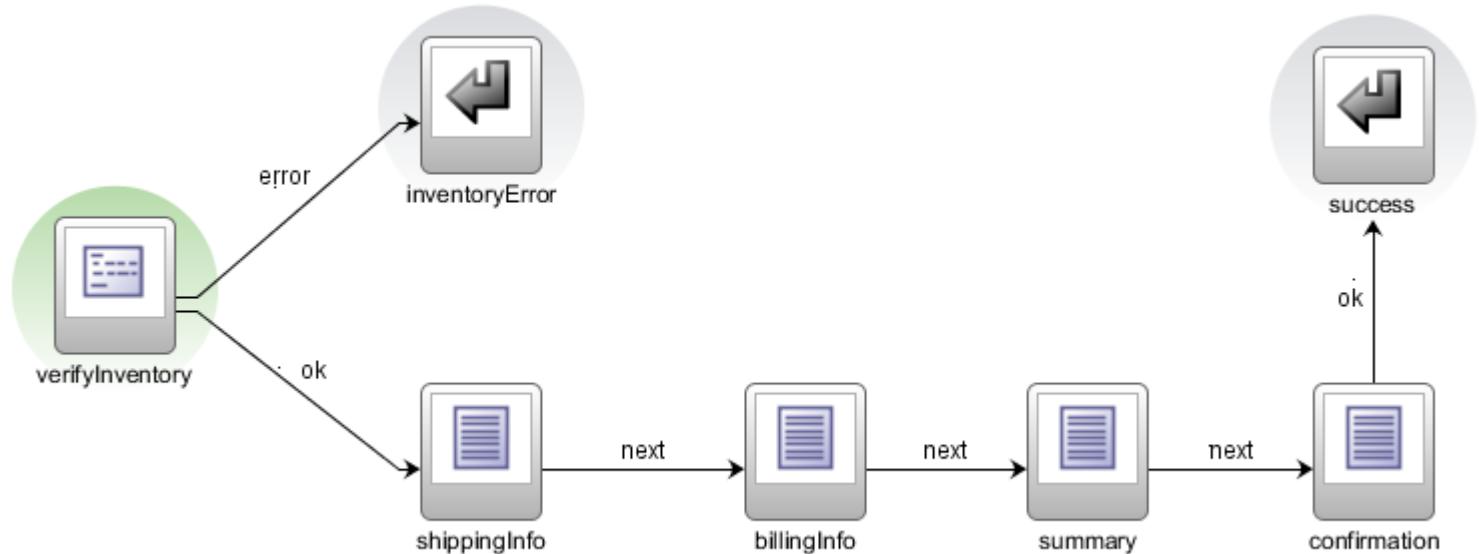
Bounded Task Flow Characteristics

- Single entry point – the default activity
- Multiple end points – return activities
- Input parameters and return values
- Optional initializer and finalizer methods
- Has its own pageFlowScope instance
 - “local” variables
- Localized managed bean definitions

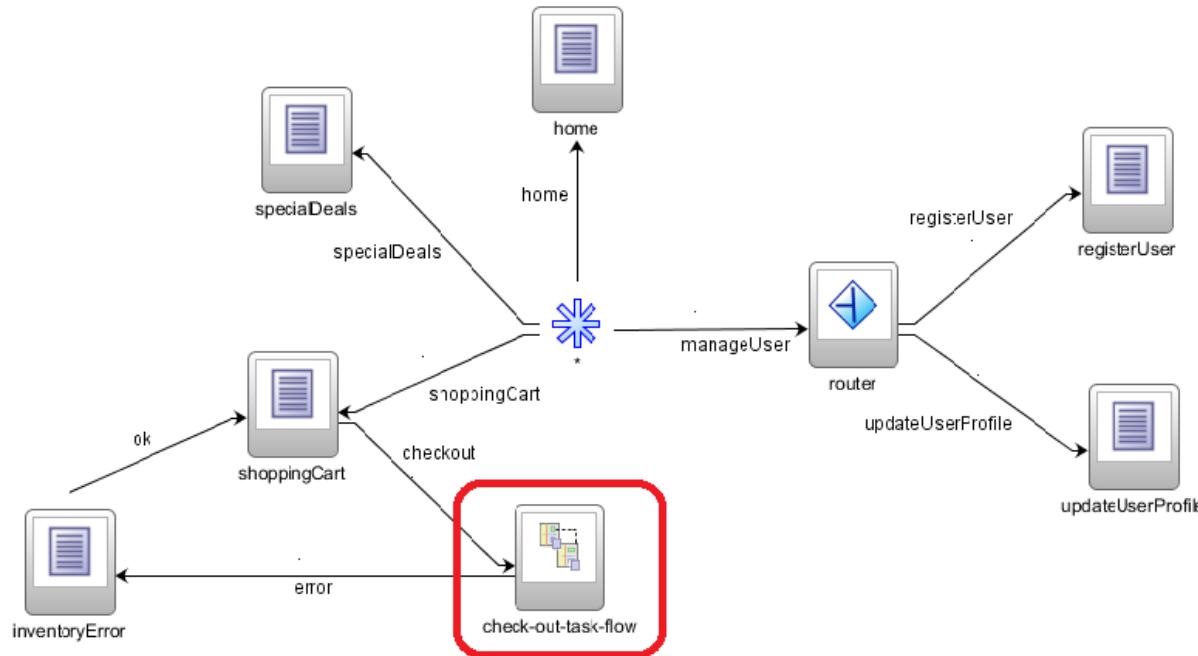
Example: Checkout Flow



Example: Checkout Bounded Task Flow



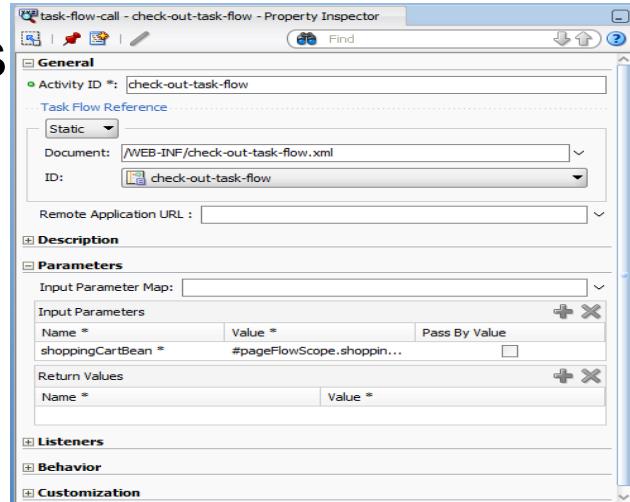
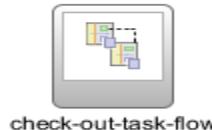
Example: Call to Checkout Task Flow



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Task Flow Call Activity

- Which bounded task flow to invoke
- Where to get input parameter values
- Where to store returned values
- Advanced Options:
 - Invoke in a remote web app via URL
 - Launch in a separate dialog window



Increased Reusability

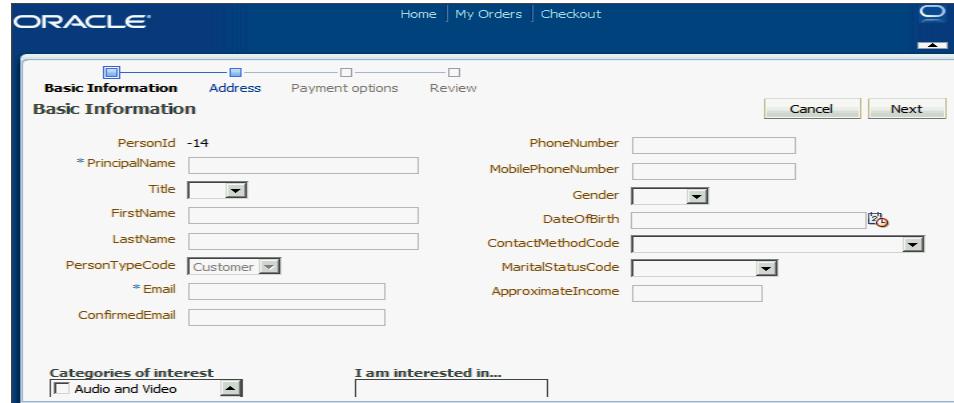
- TaskFlow Template
- Parameters
 - Input parameters can influence behavior
- Return value

Bounded Task Flow – Advanced Features

- Transaction semantics
 - Begin / commit / rollback on task flow entry / exit
- Re-entry behavior
 - e.g. browser back-button
- Exception handling
- Authorization
 - Which users & groups can invoke a task flow?
- ADF Model DataControl sharing

Train Flow

- Multi-step flows (wizards)
- Built in train model
- Built in train navigation components
- Can dynamically enable/skip stations



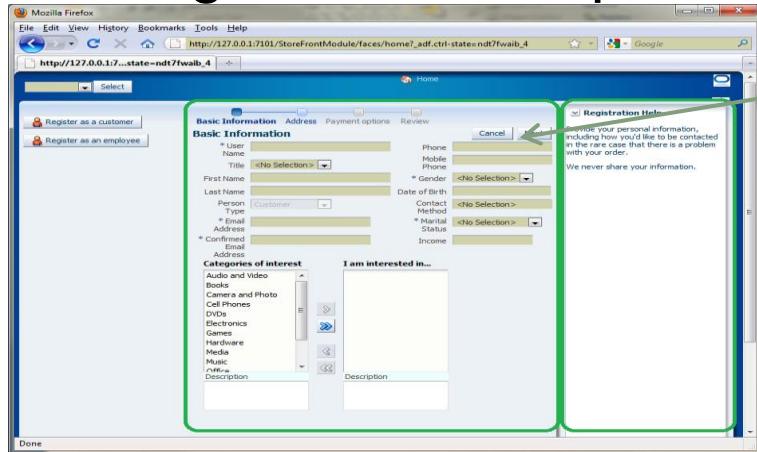
The screenshot shows a web-based application window titled 'ORACLE' at the top. Below the title, there are navigation links: 'Home', 'My Orders', and 'Checkout'. The main content area is a 'Basic Information' wizard step. At the top of this step, there are four tabs: 'Basic Information' (which is selected and highlighted in blue), 'Address', 'Payment options', and 'Review'. Below the tabs, the step is titled 'Basic Information'. The form contains several input fields:

- 'PersonId' (value: -14) with a note: * PrincipalName
- 'Title' (dropdown menu)
- 'FirstName'
- 'LastName'
- 'PersonTypeCode' (dropdown menu, value: Customer)
- '* Email' (input field)
- 'ConfirmedEmail' (input field)
- 'PhoneNumber' (input field)
- 'MobilePhoneNumber' (input field)
- 'Gender' (dropdown menu)
- 'DateOfBirth' (input field)
- 'ContactMethodCode' (dropdown menu)
- 'MaritalStatusCode' (dropdown menu)
- 'ApproximateIncome' (input field)

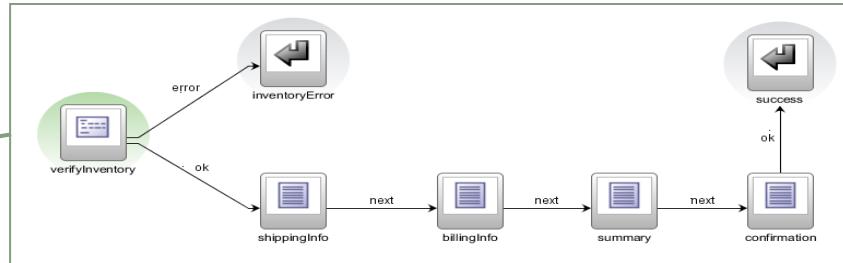
At the bottom of the step, there are two sections: 'Categories of interest' (checkboxes for 'Audio and Video') and 'I am interested in...' (input field).

Reuse TaskFlows In Pages - Regions

- Build portions of a page from task flows
- Page constructed from regions
- Regions are independent



Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://127.0.0.1:701/StoreFrontModule/faces/home?_adf.ctrl-state=ndt7fwai8_4
http://127.0.0.1:701/_state=ndt7fwai8_4
Select Home
Register as a customer
Register as an employee
Basic Information Address Payment options Review
Basic Information
User Name
Title <No Selection>
First Name
Last Name
Person Customer
Type Email Address
Confidential Address
Categories of interest
I am interested in...
Audio and Video
Books
Cameras and Photo
Cell Phones
DVDs
Electronics
Gems
Hardware
Media
Music
Office
Description
Done



Dynamic Regions

- Enables single page interface design
- Switch content shown in region at runtime
- Drop bounded taskflow on a page as dynamic region
- Creates a managed bean holding information on which task to display
- Create links to switch content

Contextual Events

- Communicate events between regions on page
- Enables one region to influence another
- Publish/Subscribe events
- Managed at the containing page level

Demo

- House Buying Application
- Demands:
 - Bookmarkable house info page with parameter
 - Reusable in other parts of the application
 - Guided flow for price change activity
 - Switch between seeing pictures of the house and adjusting price

Demo Recap

- HouseInfoFlow Task Flow
 - Method call
 - TaskFlow input parameter
 - Bookmarkable
- Reusing the HouseInfoFlow
 - JSF page calls the taskflow using taskFlowActivity

Demo Recap

- Reusable Bounded Train TaskFlow change price
 - Bounded, page fragments, train, transaction management
- Dynamic Region
 - Add two taskflows to a page
- ADF Library
 - Package taskflows for reusability across applications
- ADF Declarative Debugger

Summary

- ADF Controller extends the JSF controller functionality
- Transition from page flows to task flows
- Increases your application's modularity and reusability
- Enables advanced dynamic user interface

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