ITSE333A ABAP

Lesson 8: Business Server Pages

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Agenda

1. Maintenance and execution of BSPs
2. Usage of BAPIs in BSPs
3. HTMLB
4. Model View Controller

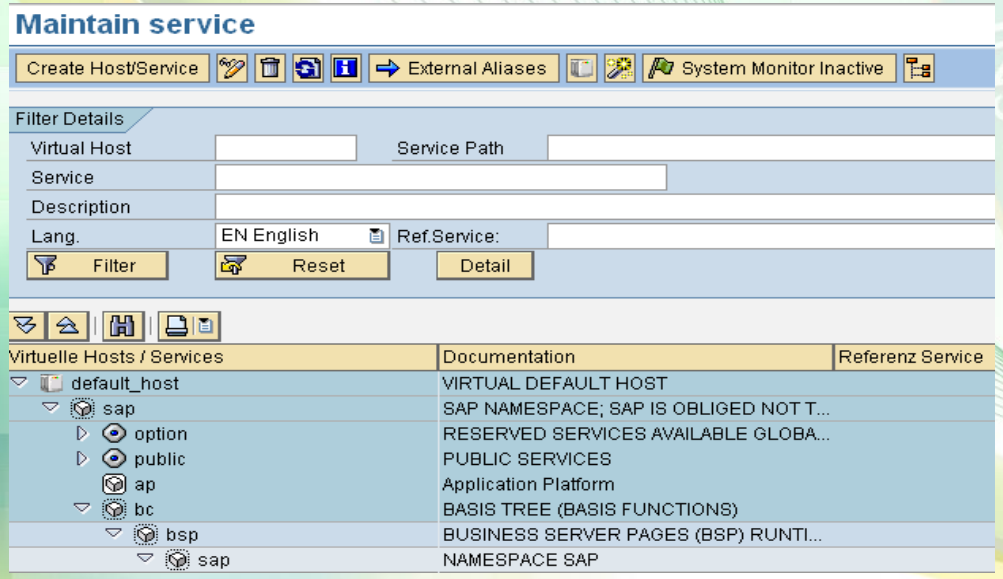
Business Server Pages (BSP)

- Web extension for ABAP
- Enables the use of ABAP and server-side JavaScript within HTML pages created and hosted on a SAP System
- Can be used for the realization of extensive portal solutions
- Availability of BSPs starting with SAP Web Application Server 6.20

Maintenance and execution of BSP‘s

- Maintenance by transaction SICF
- Execution: http://<host>:<ABAP Port>/sap/bc/bsp/sap/<Program name>\<Page name>.htm

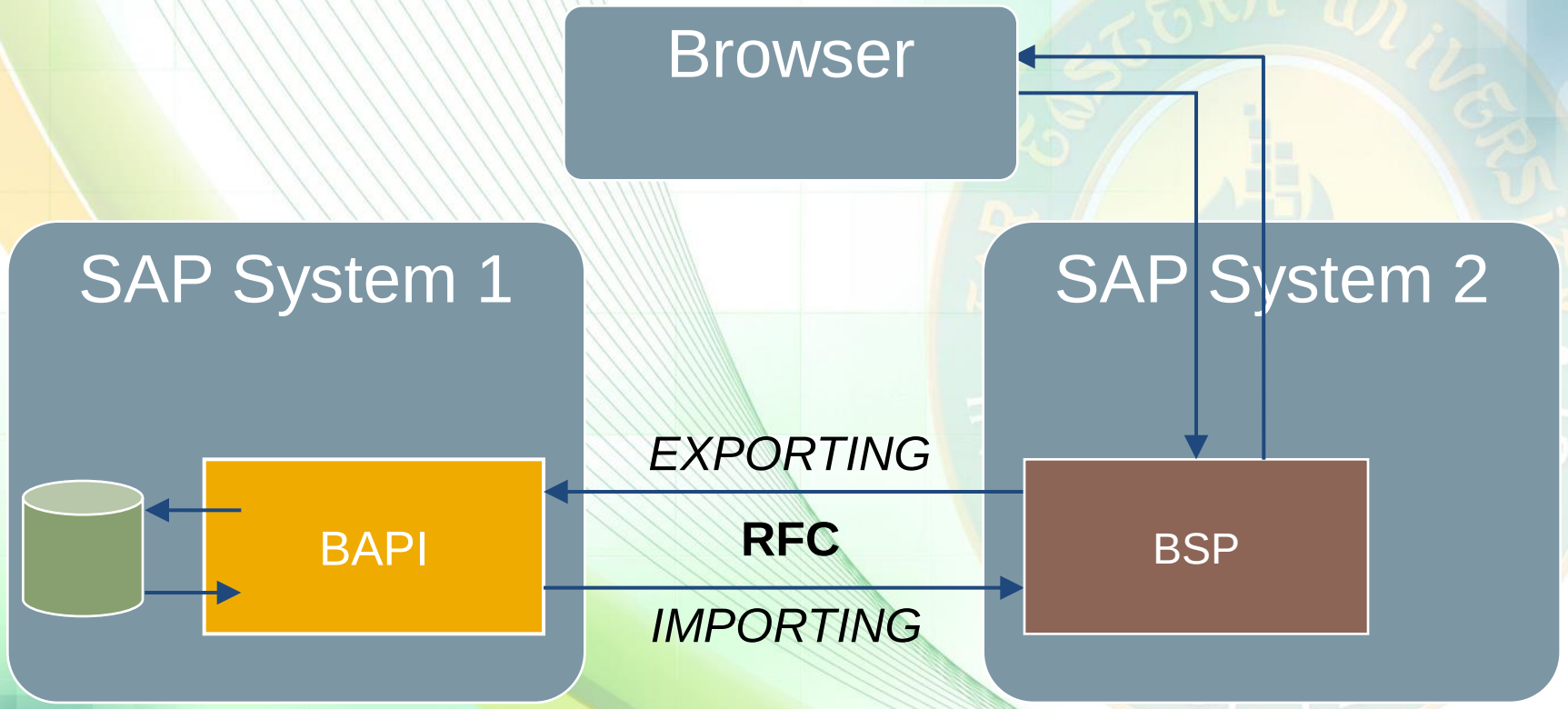
  E.g.: http://g51as1.informatik.tu-muenchen.de:8051/sap/bc/bsp/sap/<Programname>\<Page name>.htm



Usage of BAPIs in BSPs I

- Business Application Programming Interface = BAPI
  - BAPI represent an interface to the outside world
  - SAP systems offer a wide range of different BAPIs
  - BAPI calls are executed using RFC
  - Transaction „BAPI“ shows all available BAPIs of the current SAP system
  - Search for BAPIs using BAPI Browser, cross-system access possible
  - Use of BAPIs with help of information available in the BAPI Browser

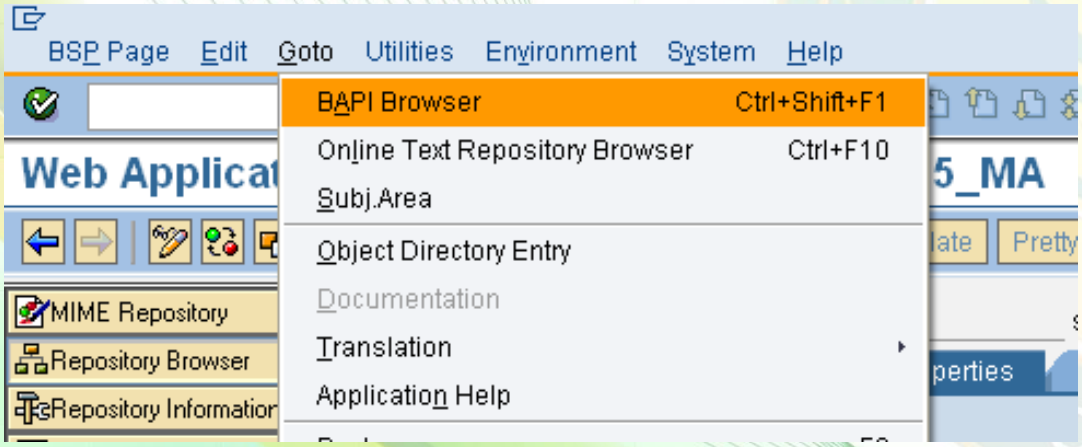
Usage of BAPIs in BSPs II



- This example: Call of an external BAPI
- Other possible examples: Call of an internal BAPI

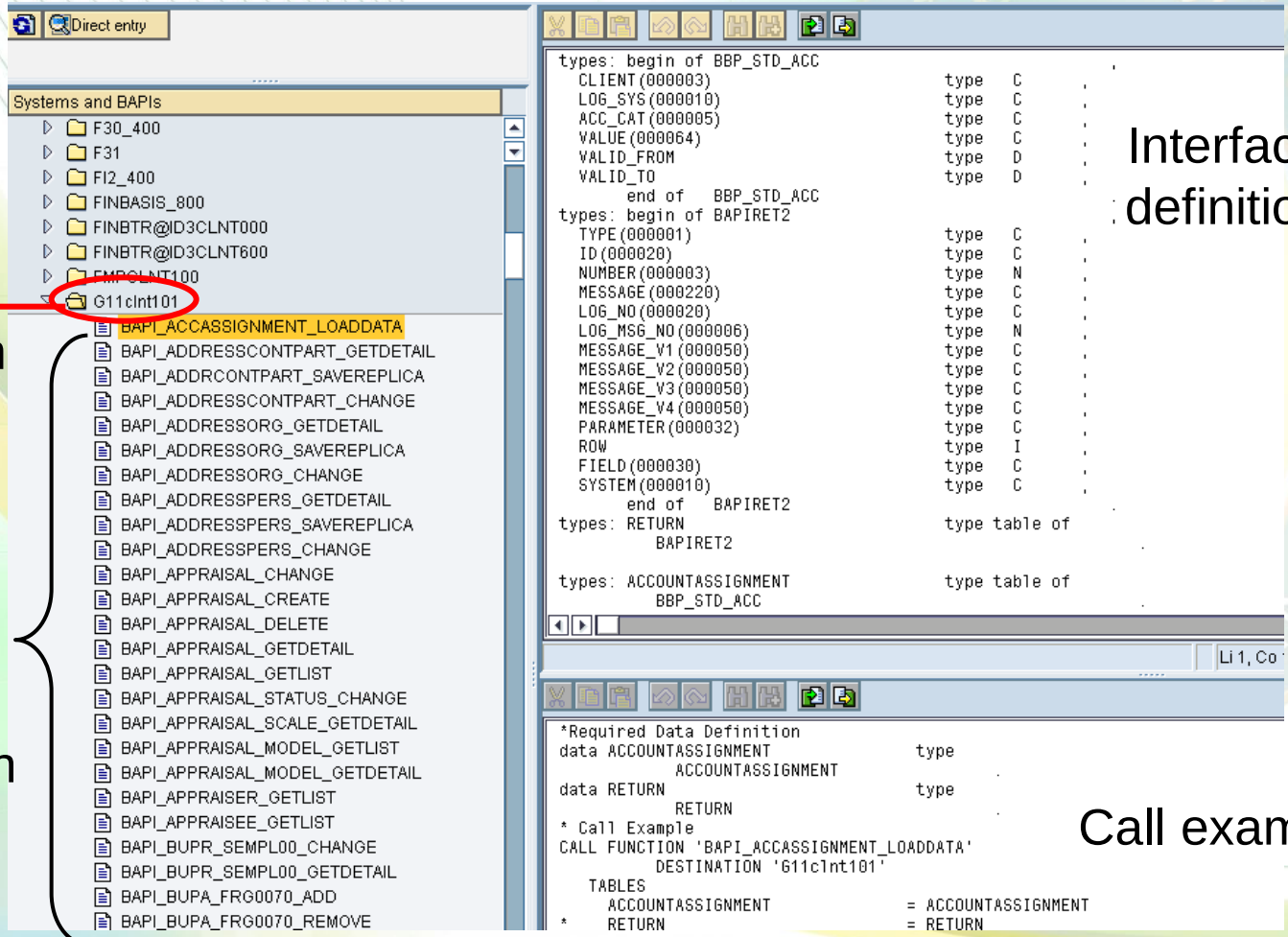
Using BAPI Browser I

- Call BAPI Browser in transaction SE80
  - Menue item ‚Goto' → ‚BAPI Browser'



Using BAPI Browser II

- BAPI Browser components:



RFC-Connection

Available BAPIs for RFC-Connection

Interface definition

Call example

Usage of BAPIs in BSPs III

Example scenario:

- Call BAPI „BAPI_USER_GET_DETAIL“
  - Show details of a certain user
  - BAPI offers broad functionality for query of user data
  - Use of BAPI in order to show the „last changed on“ date

Example: Call BAPI in BSP – Step 1

Step 1: Definition of variables

- Temporary variables

```
data username type c.
data tmp_islocked type BAPISLOCKD.
data tmp_moddat type BAPIMODDAT.
```

- Interface variables

```
data ISLOCKED type BAPISLOCKD.
data LASTMODIFIED type BAPIMODDAT.
```

Example: Call BAPI in BSP – Step 2

Step 2: Definition CALL FUNCTION

```
CALL FUNCTION 'BAPI_USER_GET_DETAIL'
  DESTINATION 'G11clnt101,
EXPORTING …..
IMPORTING …...
```

- CALL FUNCTION refers to the BAPI name
- DESTINATION refers to the RFC-connection
- EXPORTING refers to input parameters of a BAPI
- IMPORTING refers to output parameters of a BAPI

Example: Call BAPI in BSP – Step 3

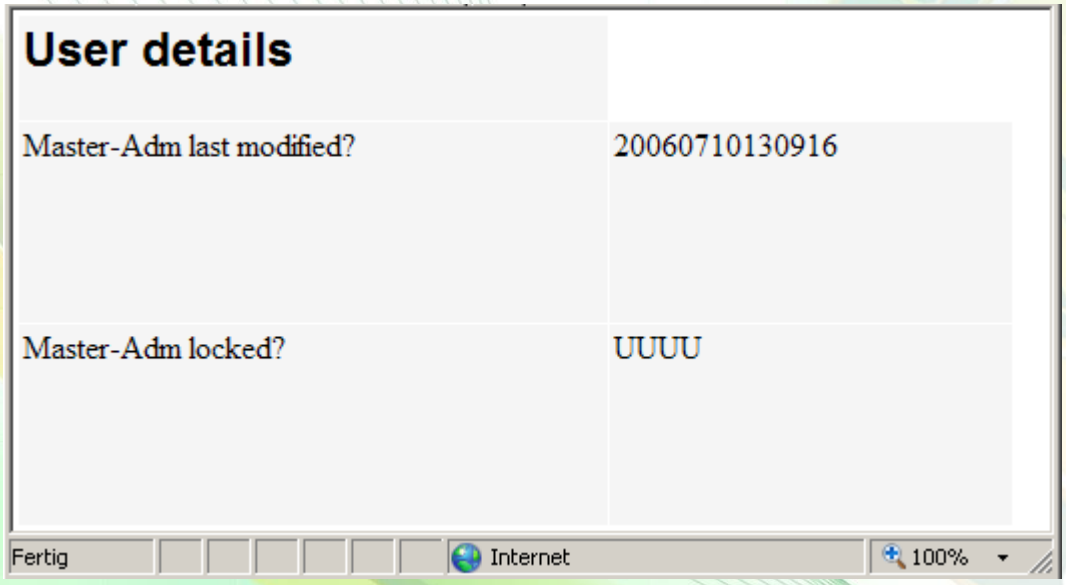
Step 3: Complete call within a BSP:

```
CALL FUNCTION 'BAPI_USER_GET_DETAIL'
 DESTINATION 'G51'
 EXPORTING
    username                = 'master-adm'
 IMPORTING
    lastmodified            = tmp_moddat.
```

- Query of the „Last changed on“ date (→lastmodified) of user „master-adm“
- Output is assigned to variable tmp_moddat

Example: Call BAPI in BSP – Result

- Result:



Example: Call BAPI in BSP

- Complete source code:

```
<%@page language="abap" %>
<%@extension name="htmlb" prefix="htmlb" %>
<htmlb:content>
  <htmlb:page title="Flugresultate" >
    <table width="100%" height="100%" cellspacing="1" cellpadding="2" border="0">
       <tr class="sapTbvCellStd"> <td bgcolor="Whitesmoke" valign="top">
           <h2> User details </h2>
        <%
           data: username type c.
           data ISLOCKED type BAPISLOCKD.
           data lastmodified type bapimoddat.
           data tmp_islocked type bapislockd.
           data tmp_moddat type bapimoddat.
           CALL FUNCTION 'BAPI_USER_GET_DETAIL'
           DESTINATION ,G51'
           EXPORTING
           USERNAME                    = 'master-adm'
           IMPORTING
           islocked                      = tmp_islocked
           lastmodified                  = tmp_moddat.
           %>
    <tr>
        <td bgcolor="Whitesmoke" valign="top"> Master-Adm last modified? </td>
        <td bgcolor="Whitesmoke" valign="top"><%= tmp_moddat %></td>
    </tr>
    <tr>
        <td bgcolor="Whitesmoke" valign="top"> Master-Adm locked? </td>
        <td bgcolor="Whitesmoke" valign="top"><%= tmp_islocked %></td>
    </tr>
    </table>
  </htmlb:page>
</htmlb:content>
```

HTMLB

- Extension of HTML by SAP
- HTML-Business
  - HTML-Business for Java
  - HTML-Business for ABAP
- HTMLB is used e.g. for Enterprise Portal

Comparison HTML / HTMLB

HTML → HTMLB

```
<%@page language="abap" %>

<html>
<head>
   <title>My BSP</title>
<% data: vari type i. %>
</head>

<body>
<%--This is a comment --%>
<% vari = 5 %>
In this coding following value
   is assigend to variable
   „vari":
<%= vari %>
<br>
That's it.

</body>
</html>
```

```
<%@page language="abap" %>
<%@extension name="htmlb"
   prefix="htmlb" %>

<htmlb:content design="design2003" >
  <htmlb:page title=„My BSP" >
    <%  data: vari type i. %>



<%--This is a comment --%>
    <% vari = 5. %>
In this coding following value is
   assigend to variable „vari":
<%= vari. %>
<br>
    That's it using HTMLB.

</htmlb:page>
</htmlb:content>
```

HTMLB Statements

```
<%@extension name="htmlb" prefix="htmlb" %>
```

- Naming of extension; in this case „htmlb“

```
<htmlb:content design="design2003" >
```

- Begin of content-tags with explicit design definition
- Standard designs: design2003, design2002 and classic
- Design2003 can be used only for MS IE Version 5.5 or higher

```
  <htmlb:page title="Meine BSP" >
```

- Begin of page-tags with definition of title for BSP
- Explicit <head> tag is not required any more
- Explicit <body> tag is not required any more

```
</htmlb:page>
</htmlb:content>
```

- Closing tags for page and content

HTMLB – Text fields

- Text fields:

  <htmlb:textView text = „Hi this is a textView“ design =„Emphasized“ />

  Hi, this is a textView

- Text fields include different attributes:
  - Text: The displayed text
  - Design: Different design types
    - Emphasized
    - Header 1-3 - Headlines
    - Reference – *italic Reference*
    - Standard
    - etc.

HTMLB – Forms, Input fields

Forms

- <htmlb:form id = "myFormId" method = "post" encodingType = "multipart/form-data" >
  Equivalent of *form* in HTML

Input Fields

- <htmlb:inputField id="IP1" />
- Input field:

What about an input field:

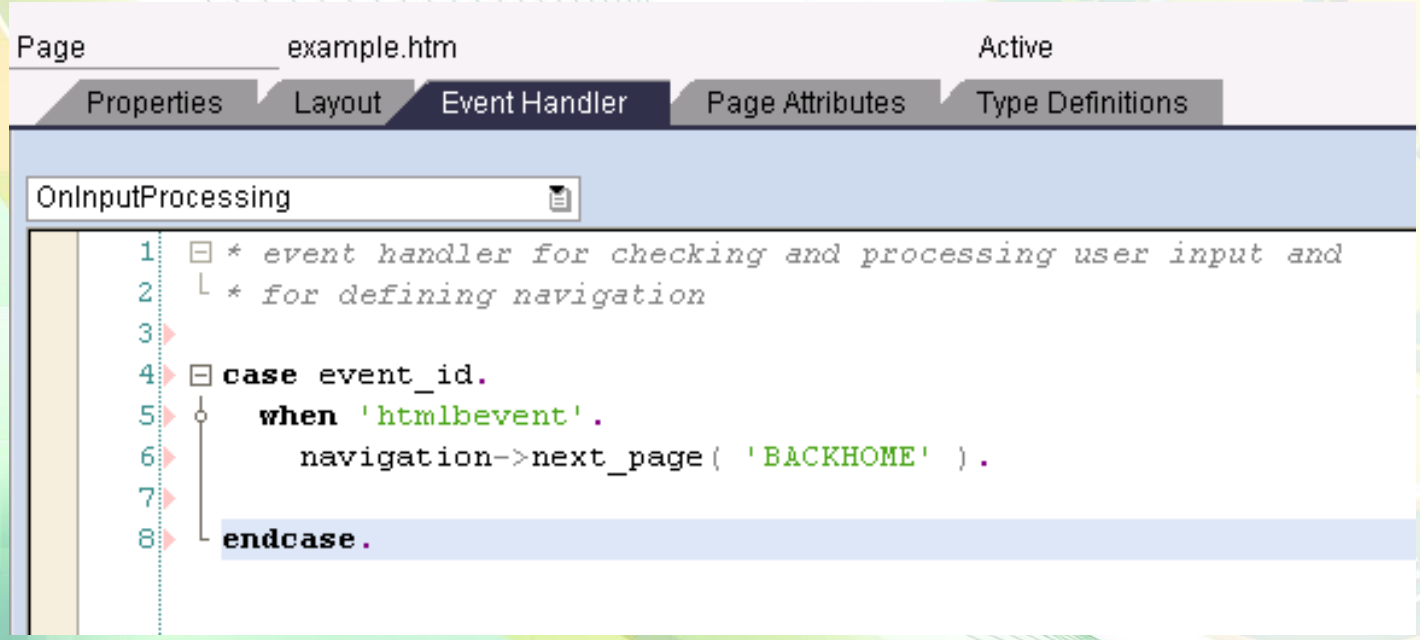
HTMLB – Buttons, Events

Buttons

- <htmlb:button id = "SaveChanges" onClick = "SubmitChange" text = "Submit Button" onClientClick = "onInputProcessing(htmlbevent);" />
- Button for sending forms
- Important: onClientClick raises event, in this case: onInputProcessing(htmlbevent)
- Event is called onInputProcessing
- Event_id is called: htmlbevent

HTMLB - Eventhandler

- Events are defined in the Eventhandler!



HTMLB – RadioButtons I

Radiobuttons

```
<htmlb:radioButtonGroup id = "myID" columnCount = "2" >
        <htmlb:radioButton id = "RBGenderFemale" text =
   "female" tooltip = "I am female" disabled = "false" />
        <htmlb:radioButton id = "RBGenderMale" text = "male"
   tooltip  = "I am male (and this button is disabled)"
   disabled = "true" />
</htmlb:radioButtonGroup>
```

- RadioButtons always belong to a RadioButtonGroup
- RadioButtonGroup with attributes
  - Id: Unique ID
  - columnCount: Number of columns
  - currentItem: Defines the active item

HTMLB – RadioButtons II

```
<htmlb:radioButtonGroup id = "myID" columnCount = "2" >
        <htmlb:radioButton id = "RBGenderFemale" text =
   "female" tooltip = "I am female" disabled = "false" />
        <htmlb:radioButton id = "RBGenderMale" text = "male"
   tooltip  = "I am male (and this button is disabled)"
   disabled = "true" />
</htmlb:radioButtonGroup>
```

- RadioButton with attributes
  - Id: Unique ID
  - Text: Text of RadioButtons
  - Tooltip: Text that is displayed as tooltip
  - Disabled: RadioButton cannot be selected

HTMLB - Layout

- RadioButtons
- Tree with treeNodes
- TabStrips
- TableView

Let's try some radio buttons:
female male

Some cool stuff: treeView
e-enviroment
Desk
Network
LAN
WAN
Infrared

Some other very cool stuff: tabstrips
Tab 1 Tab 2 Tab 4
Body of Tab 4

TableView example 1

	MDT	ID	Nr	Lnd	Abflugstadt	FLH	Lnd	Ankunftstadt	FLH	Flugdauer	Abflug	Ankunft	Entf	In	Charter	Ankunft n Tag(e) später
	902	AA	0026	DE	FRANKFURT	FRA	US	NEW YORK	JFK	7:20	08:30	09:50	3.851,0000	MI		0
	902	AA	0064	US	SAN FRANCISCO	SFO	US	NEW YORK	JFK	5:21	09:00	17:21	2.572,0000	MI		0
	902	AZ	0555	IT	ROME	FCO	DE	FRANKFURT	FRA	2:05	19:00	21:05	845,0000	MI		0
	902	AZ	0788	IT	ROME	FCO	JP	TOKYO	TYO	12:55	12:00	08:55	6.130,0000	MI		1
	902	AZ	0789	JP	TOKYO	TYO	IT	ROME	FCO	15:40	11:45	19:25	6.130,0000	MI		0

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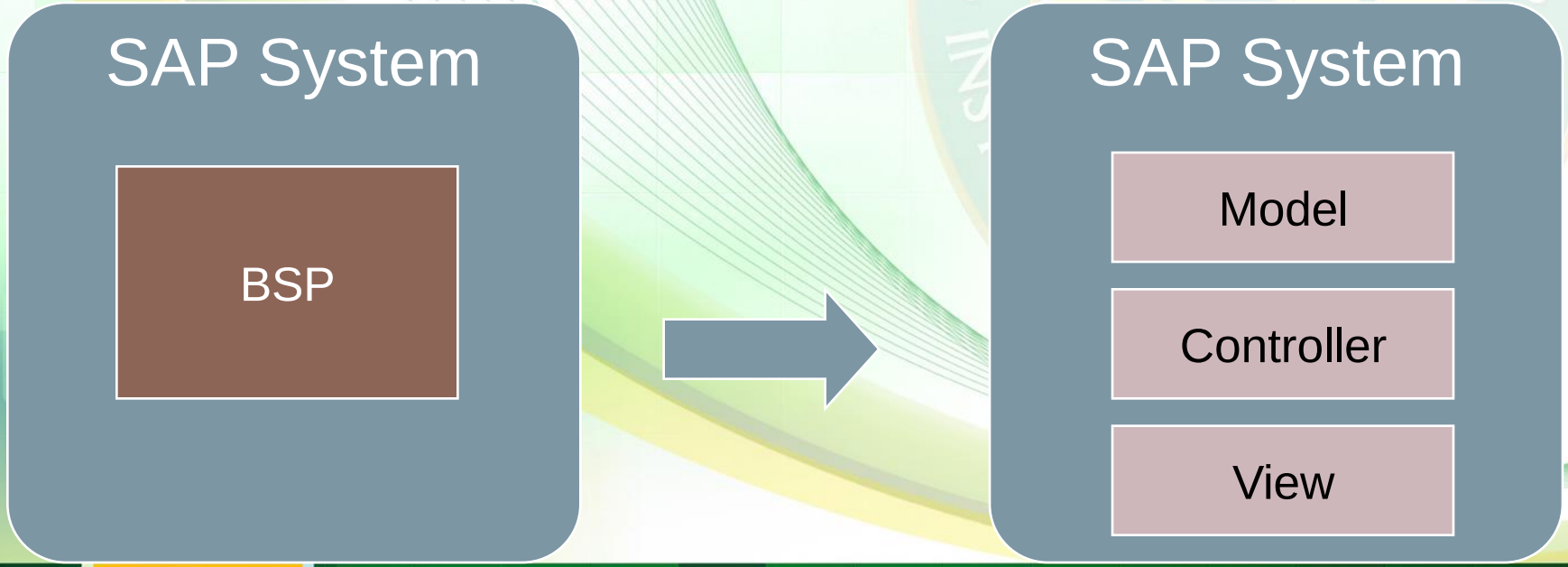
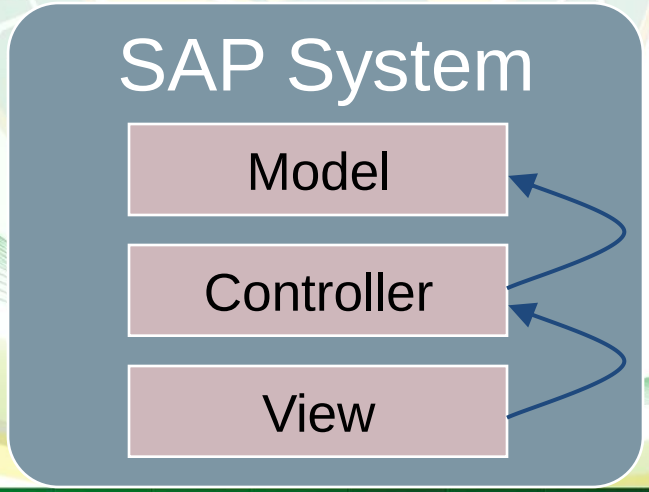
Model View Controller

- Up-to-now: Presentation logic and application logic both are included in a BSP
- Model View Controller: Separation between logical layers

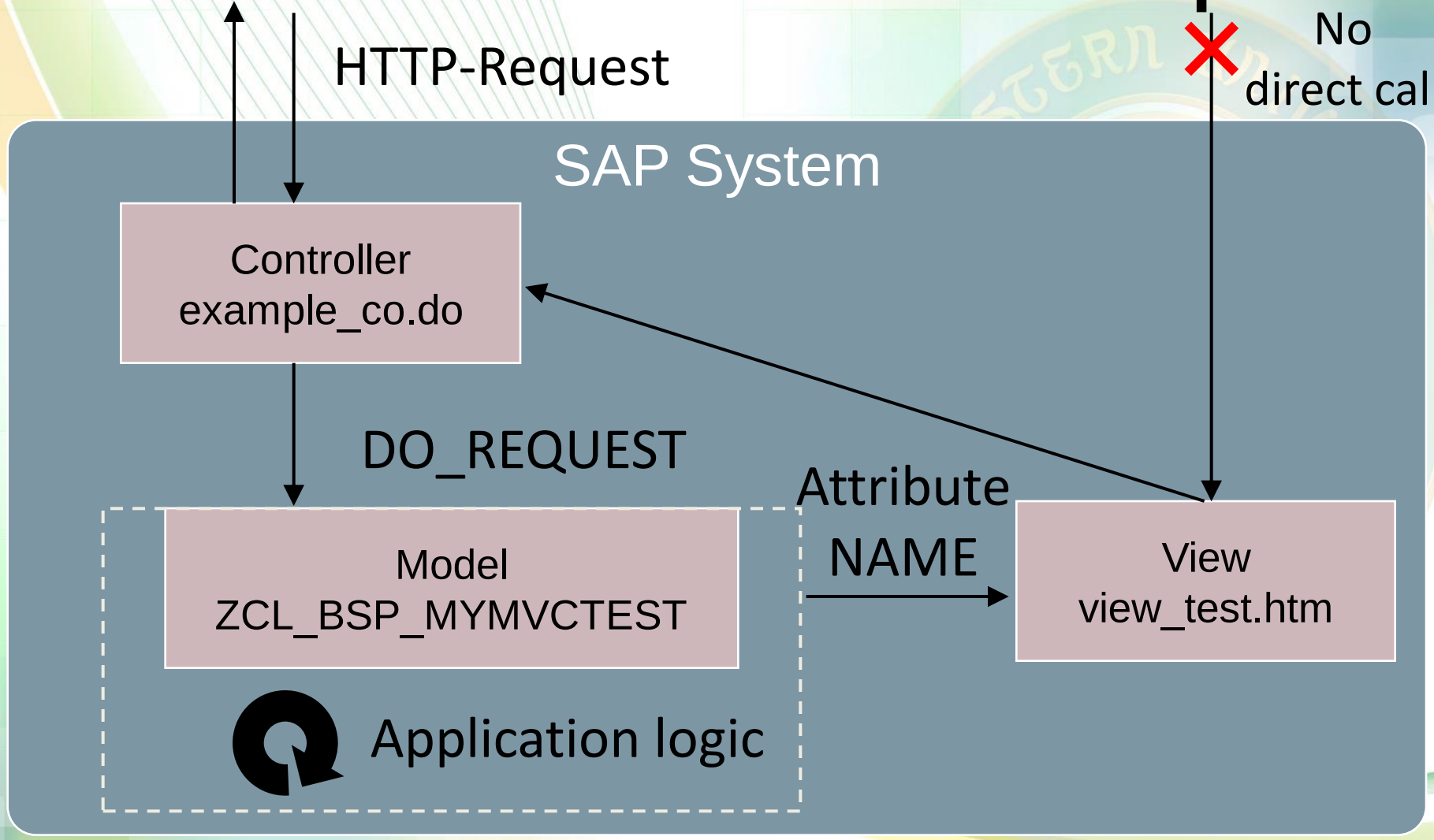


Model View Controller

- Model
  - Consists of a class derived from CL_BSP_MODEL
  - Processing takes place in background
- Controller
  - Handles Requests and forwards to Model
- View
  - Calls Controller
  - Only responsible for the visualization of data



Model View Controller - Example



Model View Controller - Example

1. Create Controller example_co.do
2. Derive own class ZCL_BSP_MYMVCTEST from CL_BSP_CONTROLLER2
3. Redefine method DO_REQUEST
4. Define view view_test.htm
5. Define attribute NAME
6. Call Controller

Model View Controller - Example