

ORACLE®

Oracle Digital Assistant

The Complete Training

Webview component

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Topic agenda

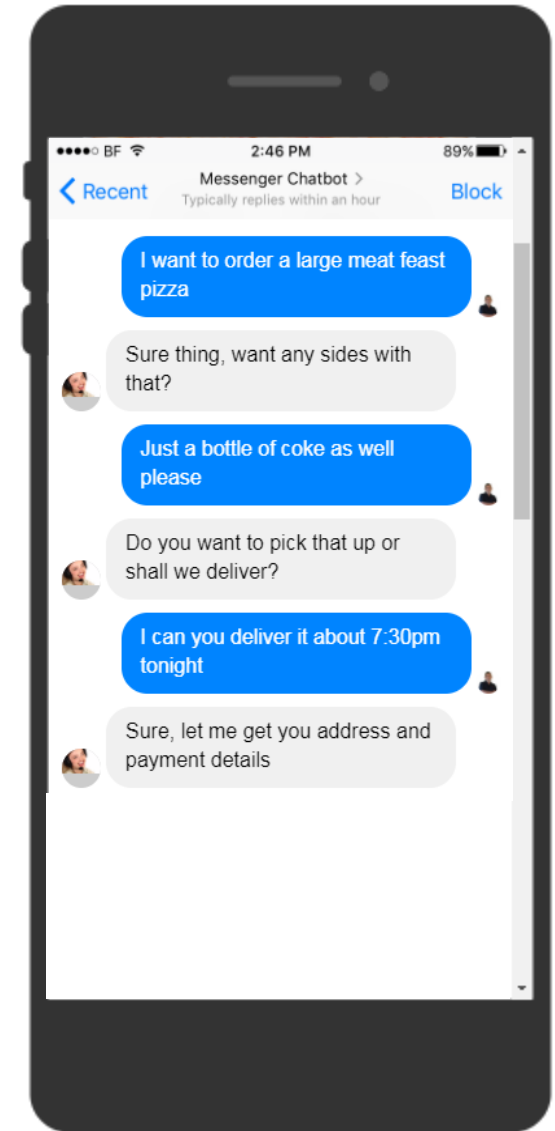
- 1 ➤ When conversation is not enough
- 2 ➤ System.Webview
- 3 ➤ Local web applications
- 4 ➤ Remote web applications
- 5 ➤ Remote web app vs. local web app

Topic agenda

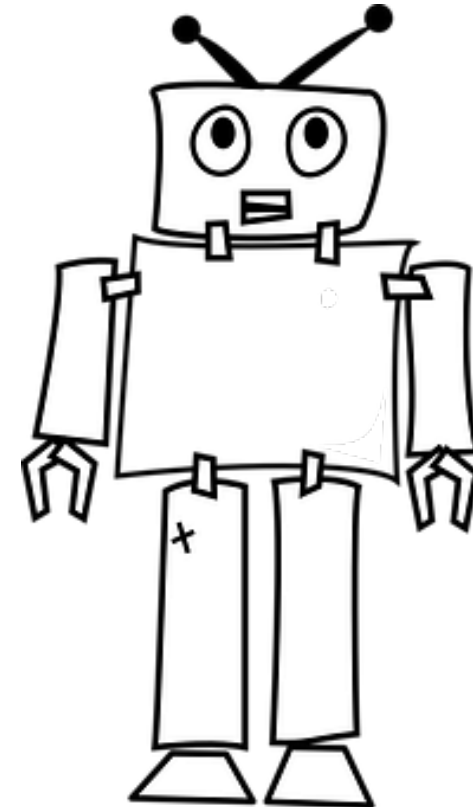
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A typical conversation

- Natural language conversation
 - Unstructured
 - Free flowing
 - Conversational



Not all use cases are perfect matches
for the conversational channel.



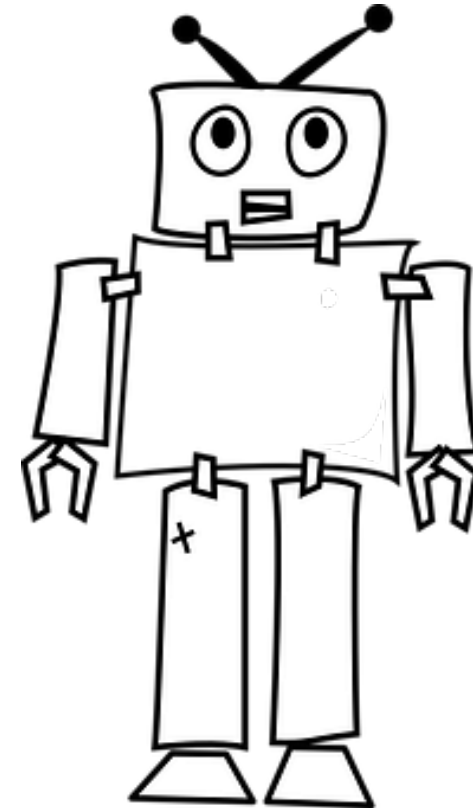
Limitations of the conversational channel

- Long conversations are difficult to have in a chat
 - Users have a limited attention rate and are easily distracted
 - Hard to change user input at a later point in a conversation
 - Lack of support for structured data input
- UI limitations
 - Missing widgets (e.g. date picker or calendar, LOV)
 - No type-ahead support
- Display of sensitive information
 - No way to obfuscate password or credit card details

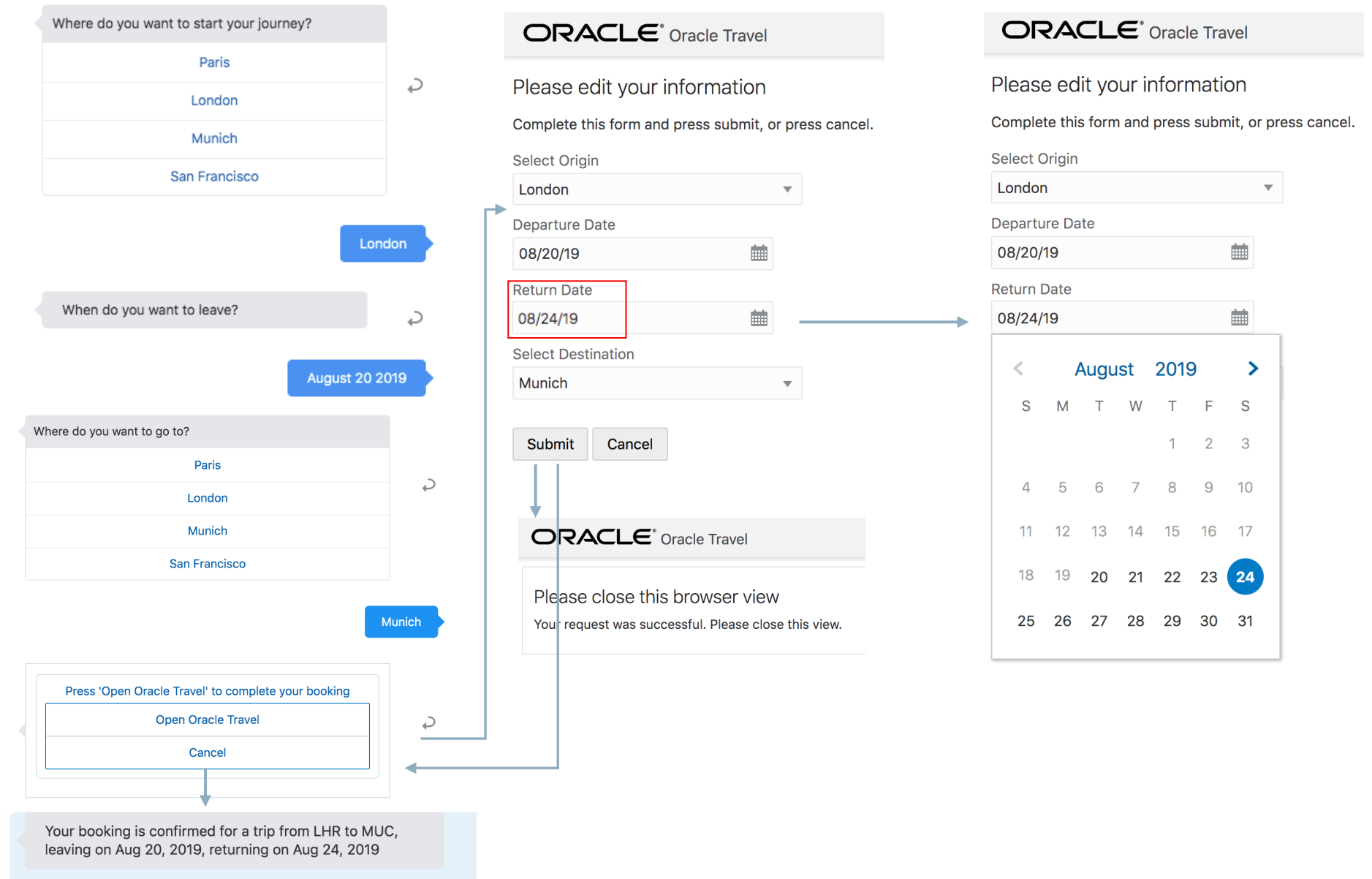


Humans use a whiteboards and lists if conversation is not enough.

So what's the equivalent for chatbots?



Example Oracle Travel



Topic agenda

- 1 ➤ When conversation is not enough
- 2 ➤ **System.Webview**
- 3 ➤ Local web applications
- 4 ➤ Remote web applications

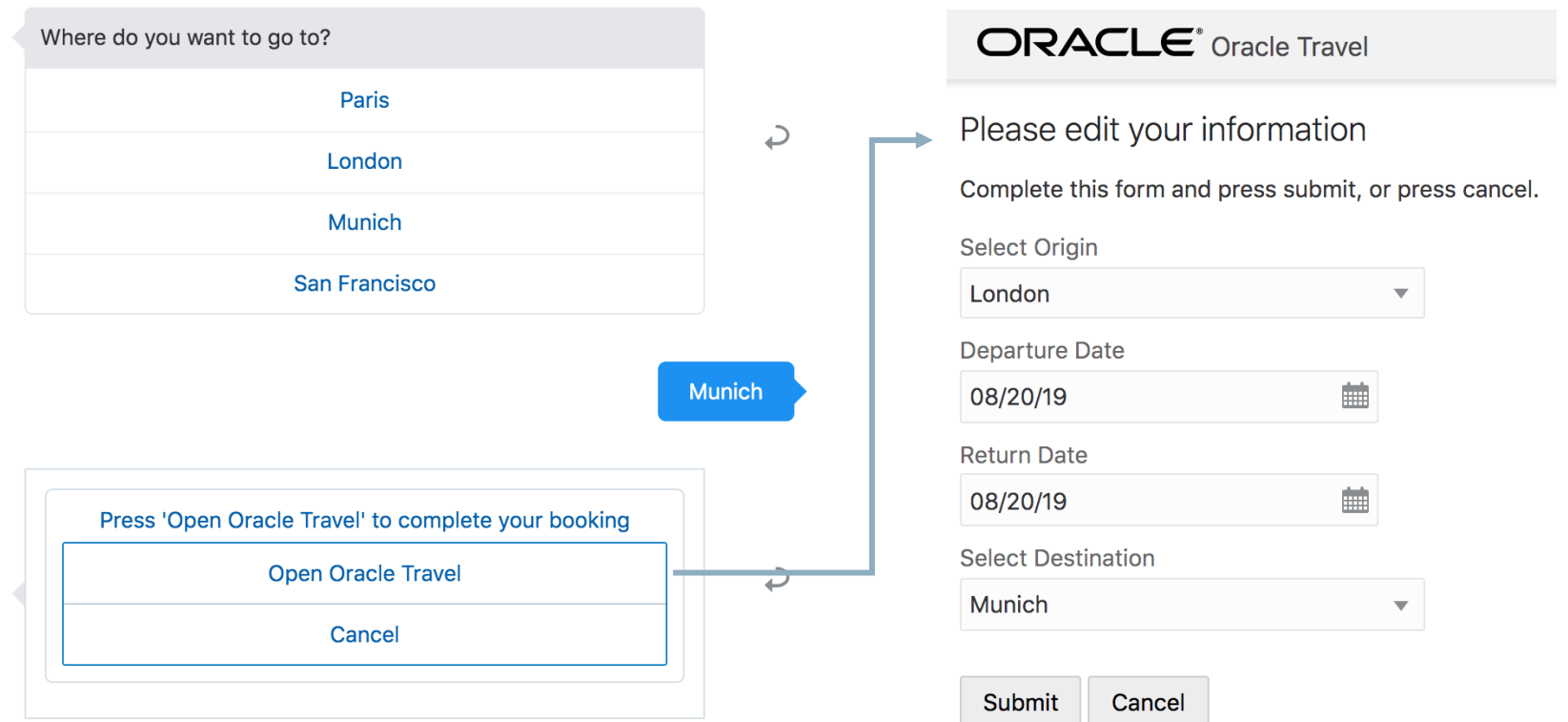
System.Webview component overview

Component

Properties

Transitions

- Displays link to launch web application in separate browser tab (web) or webview (mobile)



System.Webview component overview

Component

Properties

Transitions

- Displays link to launch web application in separate browser tab (web) or webview (mobile)
 - Remote web application
 - Locally deployed Single Page Application (SPA)
- Passes parameters from bot to web application (optional)
- Web application uses callback URL to return to bot
 - Optionally, passes data back

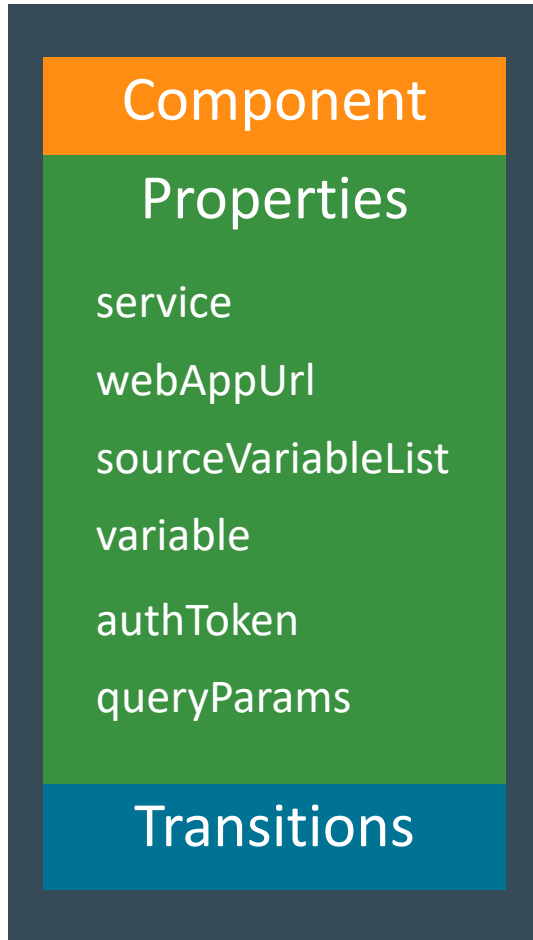
Using the component template

The screenshot illustrates the process of selecting and configuring a component template in the Oracle Bot Builder interface. A sidebar on the left contains icons for a bot, settings, and a list. A green button labeled '+ Components' with a help icon is at the top. Below it, a 'Select a Component Type' dialog is open, displaying five options: Control (tree icon), Language (speech bubble with 'A' and 'Z'), Security (lock icon), User Interface (hand cursor icon), and Variables (green 'x' in parentheses). The 'User Interface' option is selected and highlighted with a blue border. To the right, a 'Component Template' dialog is open for the 'User Interface' category. It features a list of templates on the left: Interactive, List - set action, List - set variable, Output, Resolve entities, Text, and Webview (which is selected and highlighted in blue). The main area of the 'Component Template' dialog shows a code editor with the following JSON template:

```
webview:
  component: "System.Webview"
  properties:
    # sourceVariableList is a comma-delimited list of user or
    context variable names. These variable names are the parameters which
    values will be made available to the webview. These variables are the
    input parameters for the webview
    sourceVariableList:
      # variable refers to name of a single variable that will
      contain a string value. This variable is the output result of the
      webview that is used to identifies the callback payload. When the bot
      user completes the interactions with the webview, the webview can
      provide a user gesture to send a callback with a payload to the bot.
      The payload will then be stored in this variable. The value in this
      variable can be accessed at a later point in the dialog flow
      variables:
```

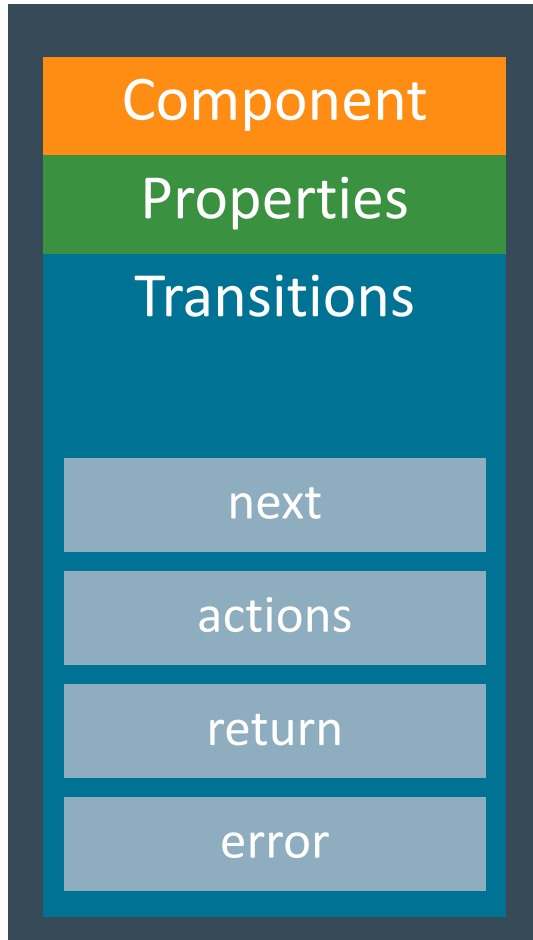
At the bottom of the 'Component Template' dialog, there is an 'Insert After' dropdown menu, a 'Remove Comments' toggle switch (currently turned on), and an 'Apply' button.

System.Webview component properties



- **service**
 - Named configuration for local or remote app access
- **webAppUrl**
 - Remote web application URL (legacy property)
- **variable**
 - receives data object returned from web application (callback)
- **authToken**
 - If remote application requires authentication
- **queryParams (optional)**
 - JSON formatted key-value pairs added to webAppUrl

System.Webview component transitions

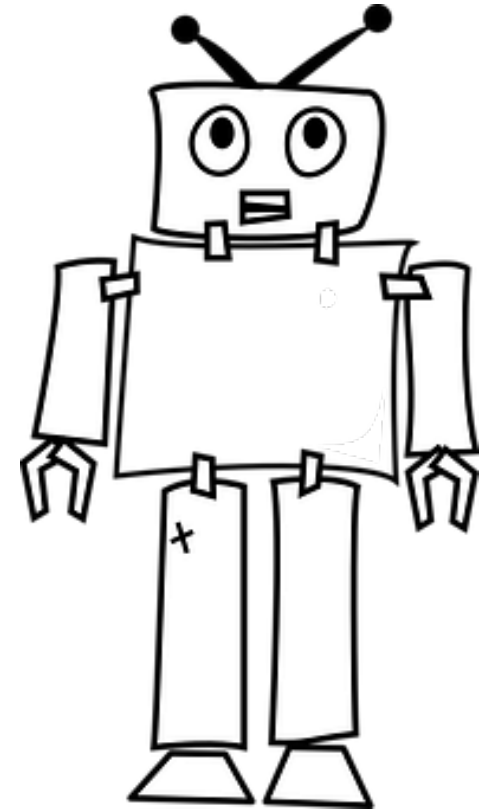


- Use **next** transition to navigate to next state upon web application success
- Use **return** transition to exit conversation upon web application success
- Use **error** transition to handle component exceptions
- Use actions transitions
 - **Cancel** to handle case where users presses "cancel" link
 - **textReceived** to handle case in which user types a text

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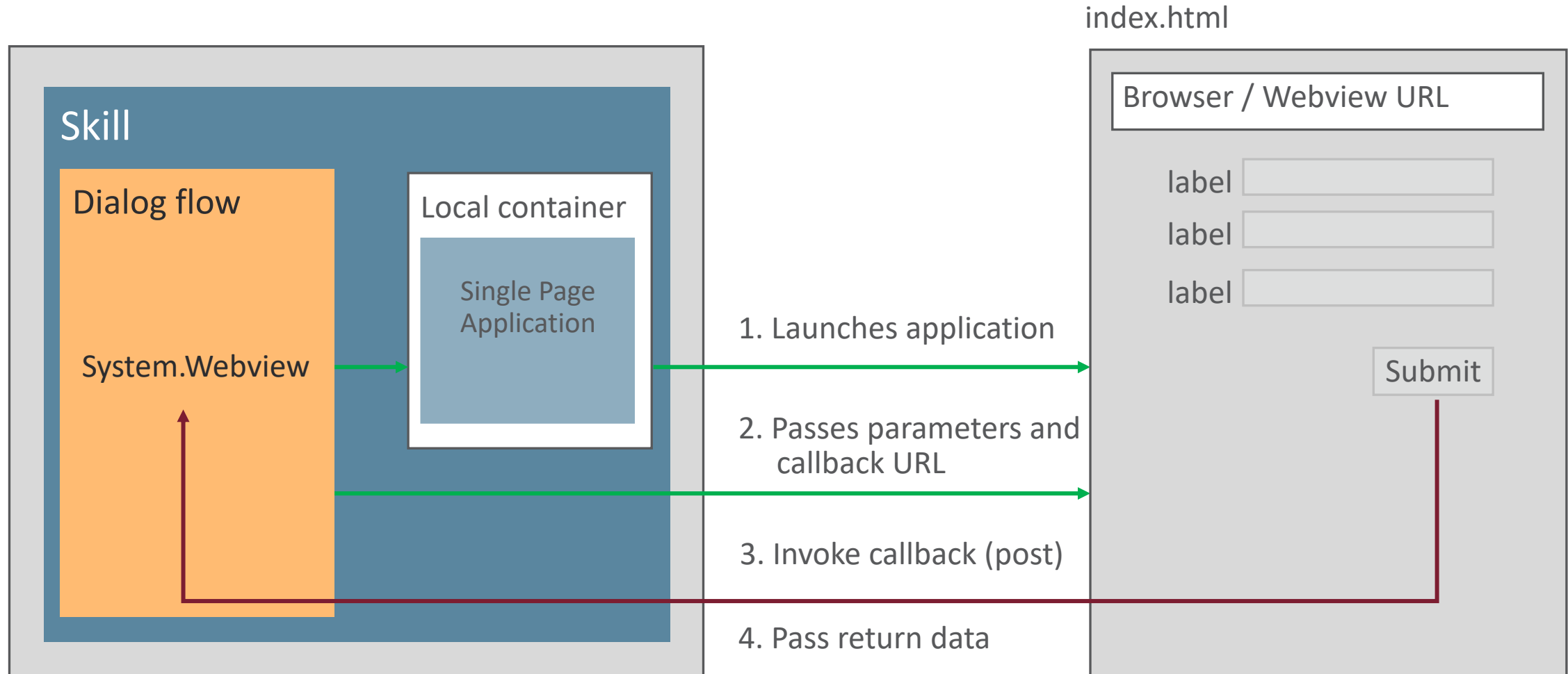
Like custom components, single page applications can be hosted within a skill



Single Page Application (SPA)

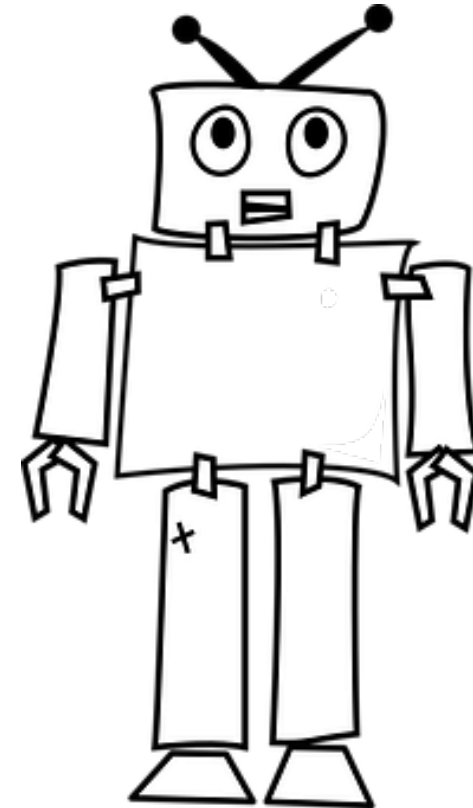
- Client side web applications that load a single HTML page
 - Dynamically updated in response to user interaction
 - No constant page reloads
 - Uses JavaScript, Ajax and HTML5
- Frameworks
 - Oracle JET, Oracle Visual Builder, Angular, React, etc.
 - Model–View–ViewModel (MVVM) architectures
 - Separation of data logic from UI definition and UI logic

Local invocation architecture



Parameters passed from the skill to
the web application are accessible
through JavaScript

```
window.webviewParameters['parameters'];
```



SPA Application Reference

Skill

Dialog Flow

callWebview:

component: "System.Webview"

properties:

service: "oracletravelweb"

sourceVariableList: "origin,destination"

variable: "webviewresponse"

prompt: "Press 'Open Oracle Travel' ..."

linkLabel: "Open Oracle Travel"

cancelLabel: "Cancel"

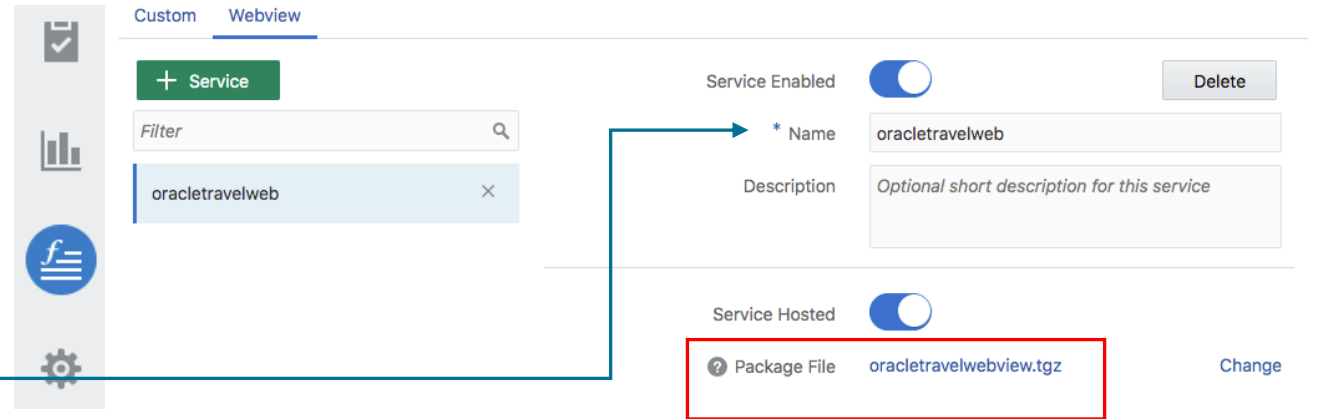
transitions:

next: "handleResponse"

actions:

textReceived: "onCancel"

cancel: "onCancel"



- Package web application
 - web folder
 - `tar -zcvf <name>.tgz *`
- Upload per drag and drop

SPA Application Parameter Passing

Skill

Dialog Flow

callWebview:

component: "System.Webview"

properties:

service: "oracletravelweb"

sourceVariableList: "origin,destination"

variable: "webviewresponse"

prompt: "Press 'Open Oracle Travel' ..."

linkLabel: "Open Oracle Travel"

cancelLabel: "Cancel"

transitions:

next: "handleResponse"

actions:

textReceived: "onCancel"

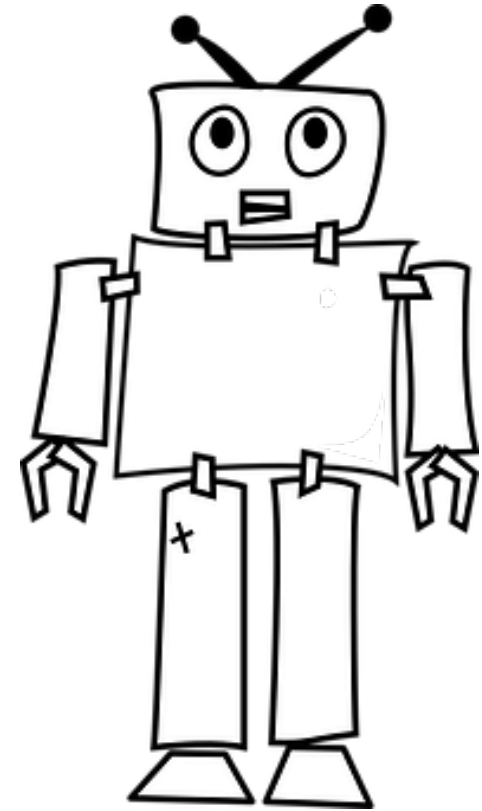
cancel: "onCancel"

```
{ "parameters": [  
  {  
    "key": "origin",  
    "value": "LHR"  
  }, {  
    "key": "destination",  
    "value": "SFO"  
  }, {  
    "key": "webview.onDone",  
    "value": "http://<url>/connectors/v1/callback?state=cb5443 . . 2c"  
  }  
]}
```

Single Page Application

```
let webviewParameters = window.webviewParameters !=  
null?window.webviewParameters['parameters'] : null;
```

The **webview.onDone** parameter is automatically added to the payload and passes the skill's **callback URL** property to the web application



SPA Application Response

Skill

Dialog Flow

callWebview:

component: "System.Webview"

properties:

service: "oracletravelweb"

sourceVariableList: "origin,destination"

variable: "webviewresponse"

prompt: "Press 'Open Oracle Travel' ..."

linkLabel: "Open Oracle Travel"

cancelLabel: "Cancel"

transitions:

next: "handleResponse"

actions:

textReceived: "onCancel"

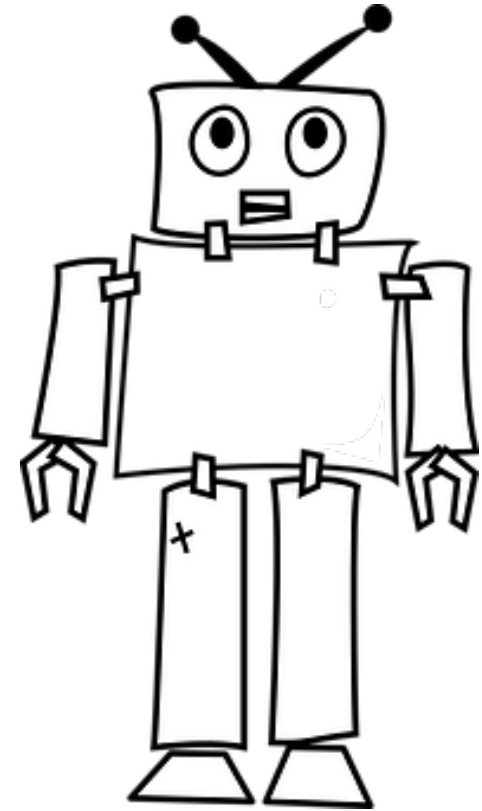
cancel: "onCancel"

```
let data = {};  
data.origin = self.origin();  
data.destination = self.destination();  
data.departureDate = (new Date(self.departureDate())).getTime();  
data.returnDate = (new Date(self.returnDate())).getTime();  
let webViewCallback = queryParameters.get('webview.onDone');
```

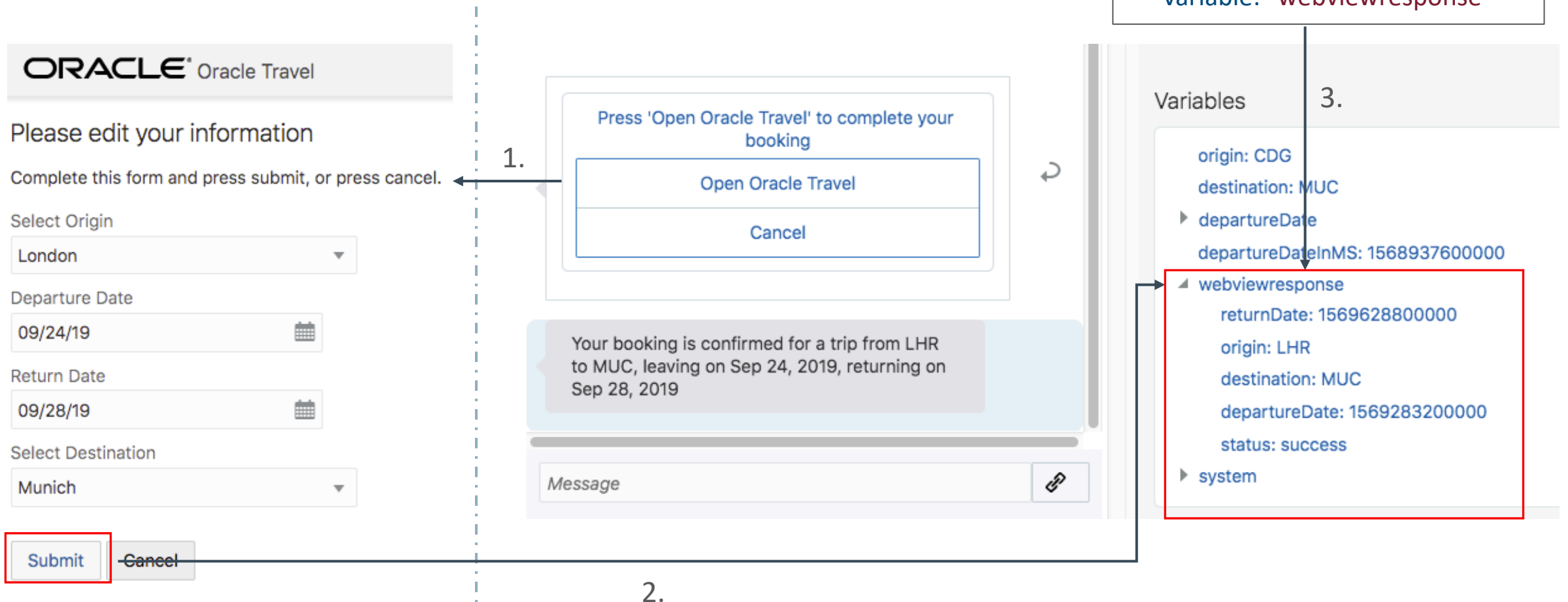
```
$.post(webViewCallback,JSON.stringify(data),function(data,status){  
  if(status == "success"){  
    console.info("success");  
  }  
  else {  
    console.error(" error status: " + status);  
  }  
});
```

```
${webviewresponse.value.origin}  
${webviewresponse.value.destination}  
${webviewresponse.value.departureDate?numberToDate},  
${webviewresponse.value.returnDate?numberToDate}"
```

When registering web applications in a skill, bot designers cannot see the data structure returned by the app.



Debugging using the conversation tester



```
callWebView:  
  component: "System.Webview"  
  properties:  
    ...  
    variable: "webviewresponse"
```

Topic agenda

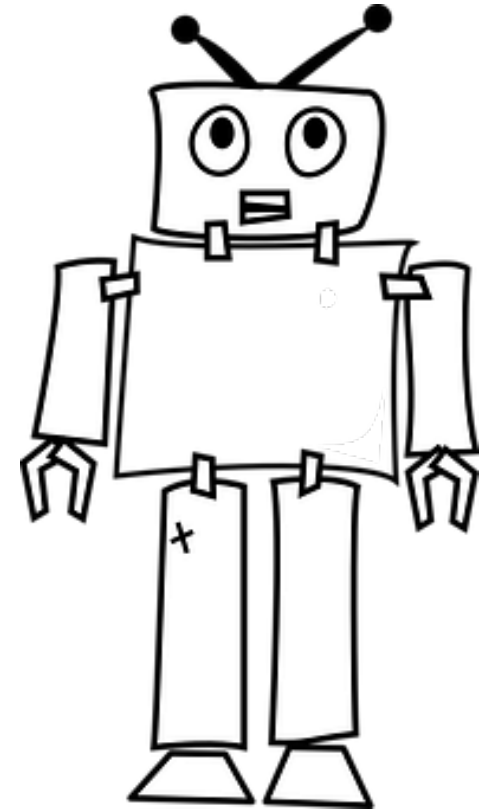
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Remote web applications

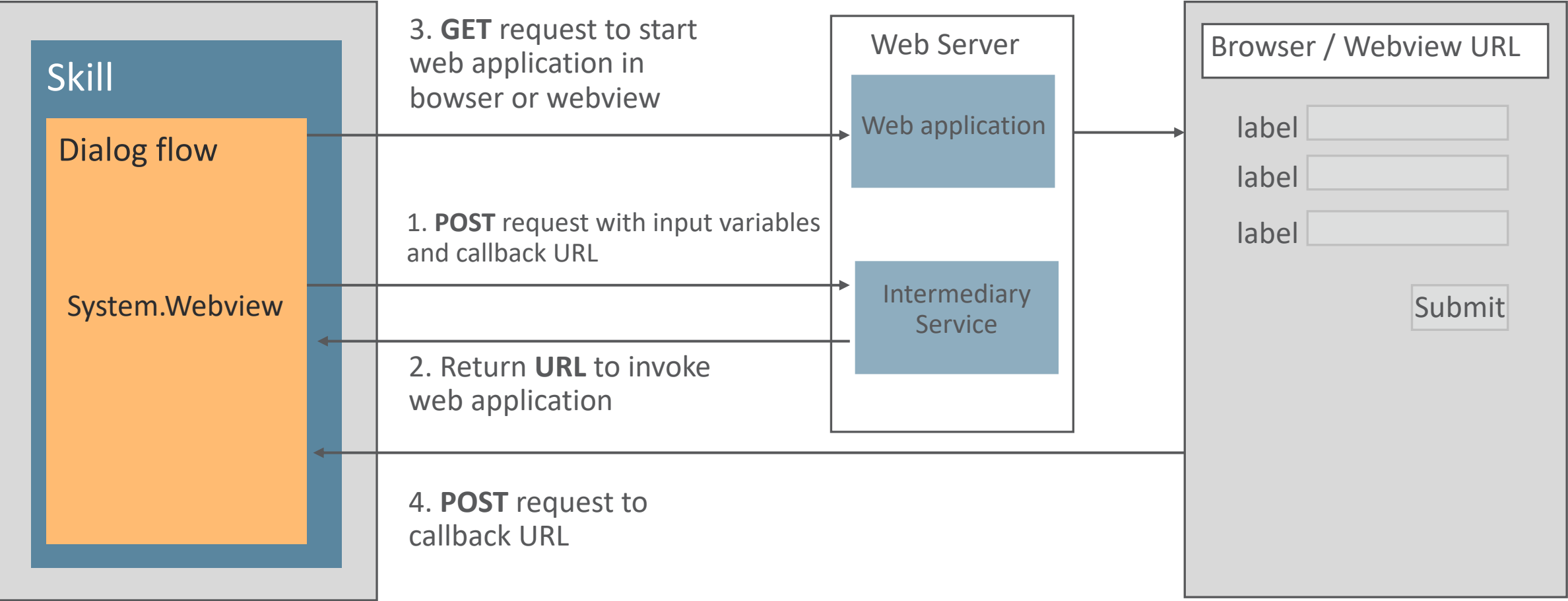
- Existing enterprise web applications
 - Leverage functionality of existing web applications
 - E.g. payment, approvals
- Applications specifically built for use with chatbots
 - Remote deployment because of
 - Data integration requirements
 - Security requirements
 - Central administration requirements



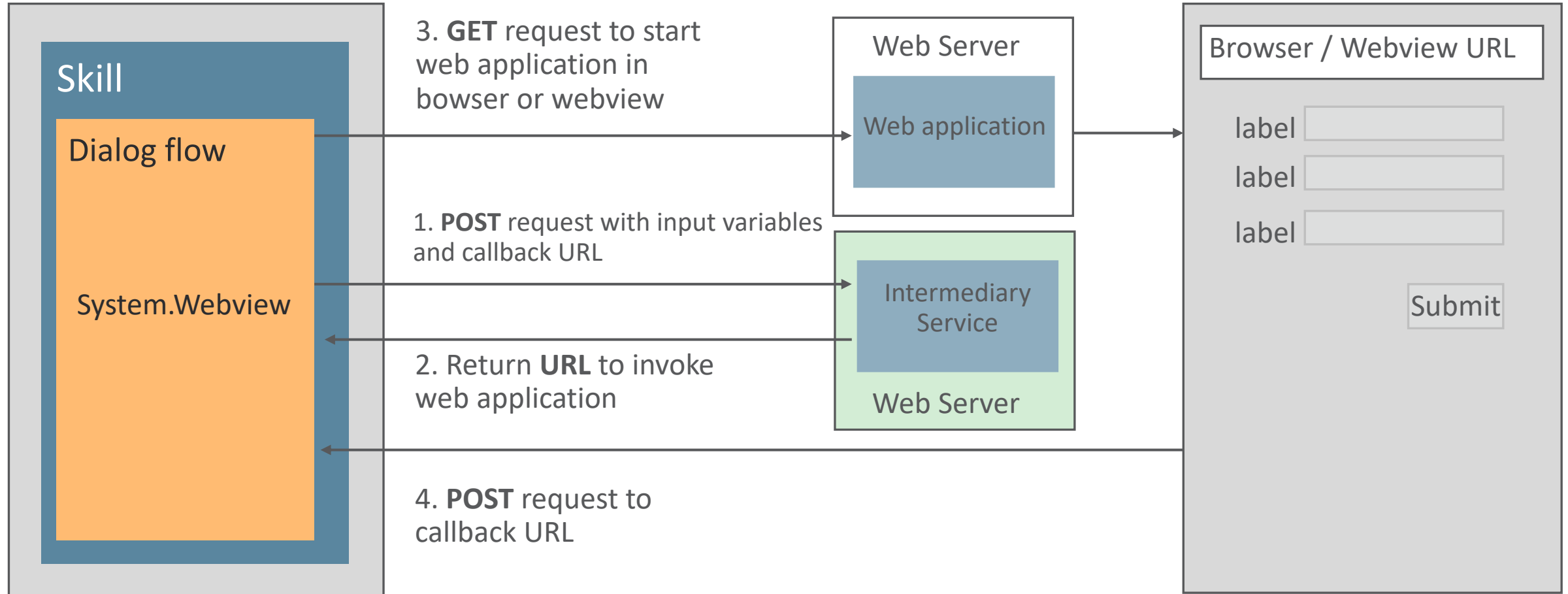
Remote web applications are **launched through an intermediary service** that prepares the web application request.



Remote invocation architecture



Alternative remote invocation architecture



Intermediary service configuration

Skill

Dialog Flow

callWebview:

component: "System.Webview"

properties:

service: "oracletravelweb"

sourceVariableList: "origin,destination"

variable: "webviewresponse"

prompt: "Press 'Open Oracle Travel' ..."

linkLabel: "Open Oracle Travel"

cancelLabel: "Cancel"

transitions:

next: "handleResponse"

actions:

textReceived: "onCancel"

cancel: "onCancel"

Custom Webview

Create Service

* Name

Description

Service Hosted ☐

* Web App Url

Auth Token

Query Parameters

Create

Intermediary service

- Prepares web application access
 - Creates web application access URL with all request parameters required
 - Chatbot parameters
 - Application specific parameters
- Service can be on same web server or different web server than the web application
 - If on the same server, may be able to save bot request parameters into session, thus avoiding issues with long URL
 - E.g. Internet Explorer supports 2,048 characters, minus the number of characters in the actual path
 - If on different servers, all web application request parameters need to be encoded as query parameters to the web application redirect URL sent to the bot

Payload sent to intermediary service

- POST call with JSON object containing key-value pairs
 - Keys are the names of parameters referenced in the `System.Webview` **sourceVariableList** property and "webview.onDone"

```
{
  "parameters": [{
    "value": "CDG",
    "key": "origin"
  }, {
    "value": "MUC",
    "key": "destination"
  }, {
    "value": "https://<url>:443/connectors/v1/callback?state= cb5443 ... 2c ",
    "key": "webview.onDone"
  }]
}
```

Payload of Travel Example

Intermediary service response payload

- Response from the intermediary service must be a JSON payload
- Payload contains single property **webview.url** with URL to remote web application
- Service developer defines the webview.url content
 - Can also change parameter names


Service response of Travel Example

```
{  
  "webview.url": "https://<app url>?callbackUrl=https://botphx1.botmvp.ocp.oraclecloud.com:443/  
    connectors/v1/callback?state=7648f4288b&origin=CDG&destination=MUC  
}
```

Web application response

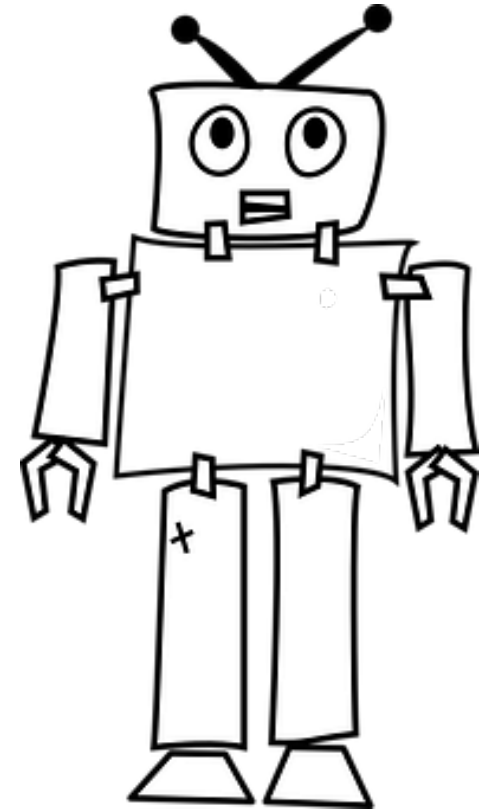
- Web application invokes callback URL sent with the initial request to return control to the bot and to optionally send data as a JSON payload

```
let data = {};  
data.origin = self.origin();  
data.destination = self.destination();  
data.departureDate =  
    (new Date(self.departureDate())).getTime();  
data.returnDate =  
    (new Date(self.returnDate())).getTime();  
$.post(webViewCallback, JSON.stringify(data));
```



```
{  
  "origin":"CDG",  
  "destination":"MUC",  
  "departureDate":1568937600000,  
  "returnDate":1568937600000  
}
```

Property names in the web application response payload don't need to match variable names in the dialog flow.



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Remote vs. local web application

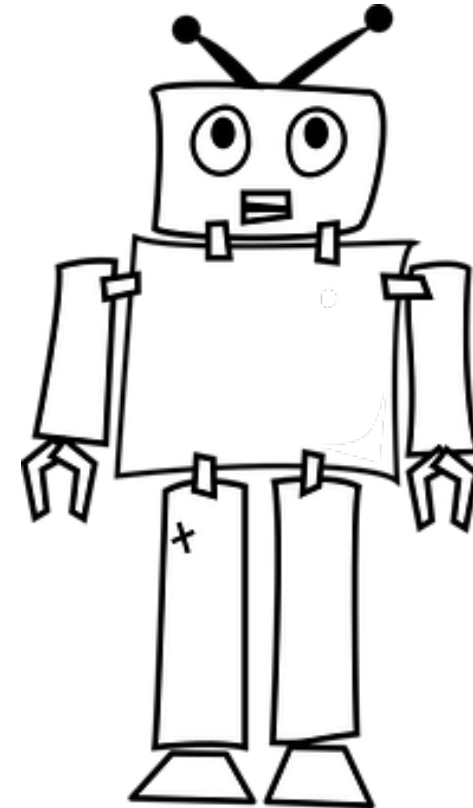
Remote web application

- Application needs to be modified or created to work with webview
- Good for Integrating existing web applications or functionality
- Security through web application authentication
- Leverage server side infrastructure
 - E.g. environment variables

Local application

- Application created for deployment to local container
- Easy support for structured data input and missing widgets (e.g. date picker support)
- No application security
- Good to use for self-contained skills deployed via skill store

The limitation of web applications displayed in webviews is that they don't work with voice.



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