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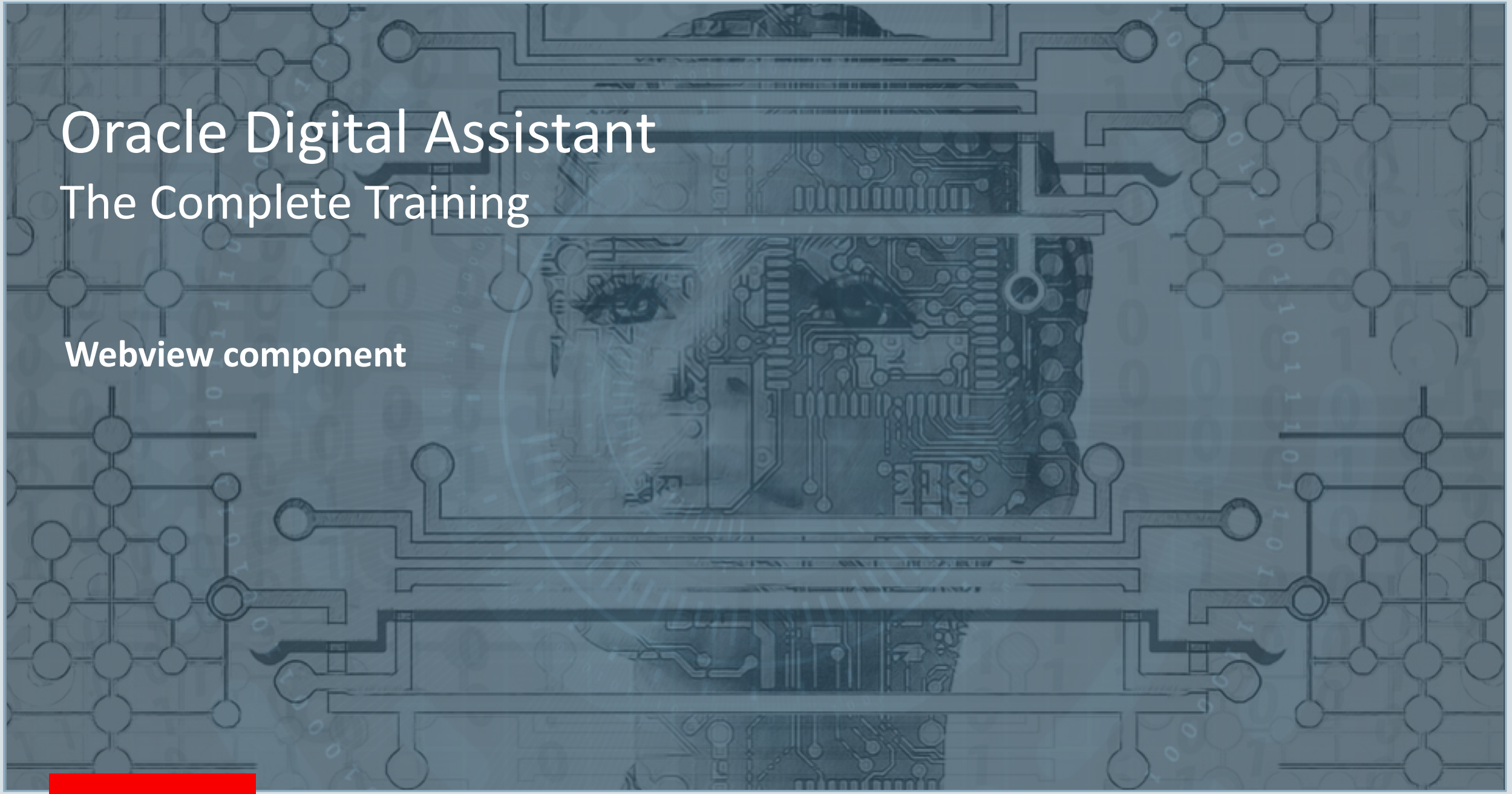
Oracle Digital Assistant

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

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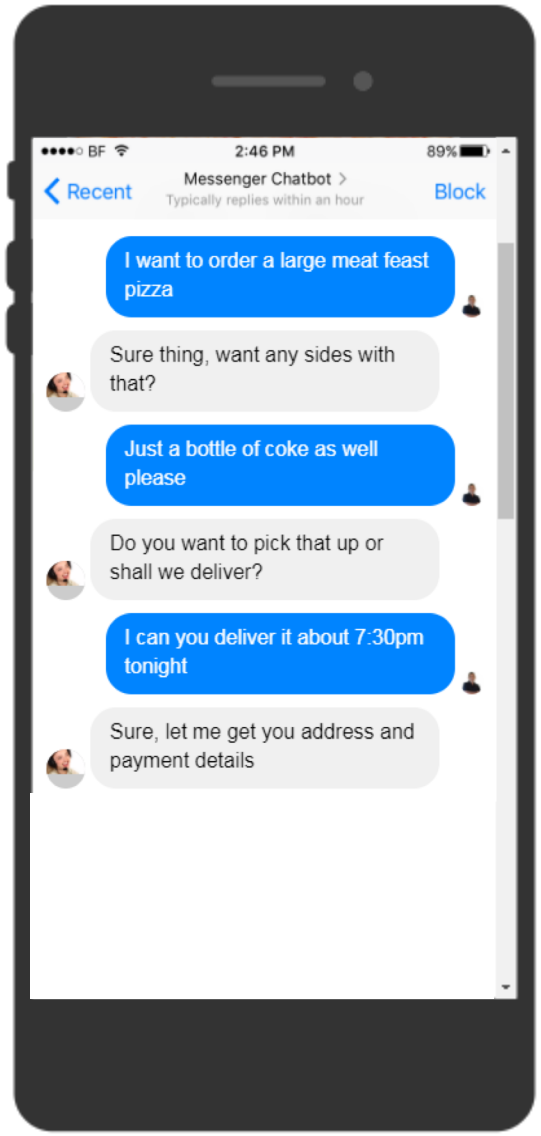
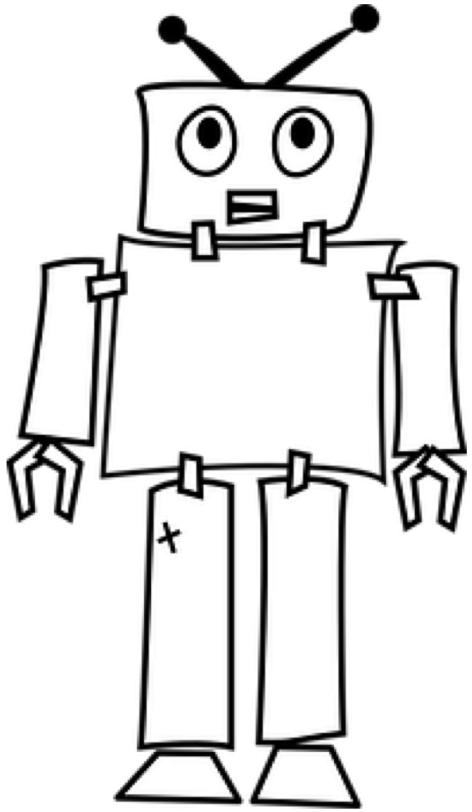
A typical conversation

- Natural language conversation
  - Unstructured
  - Free flowing
  - Conversational



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



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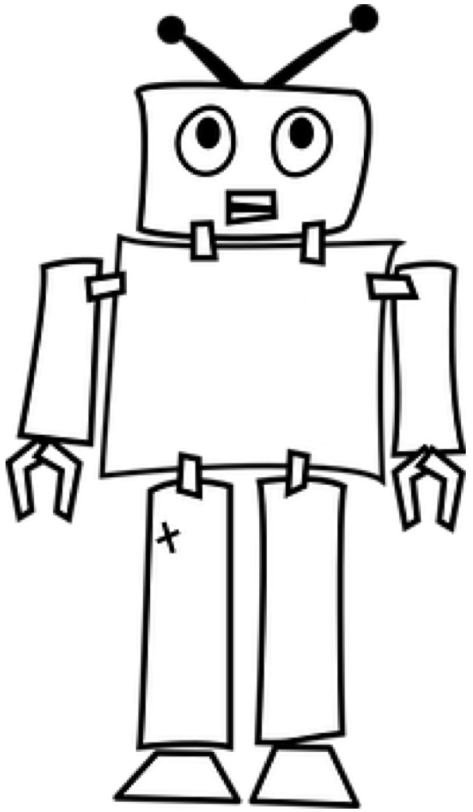
Limitations of the conversational channel

- 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?



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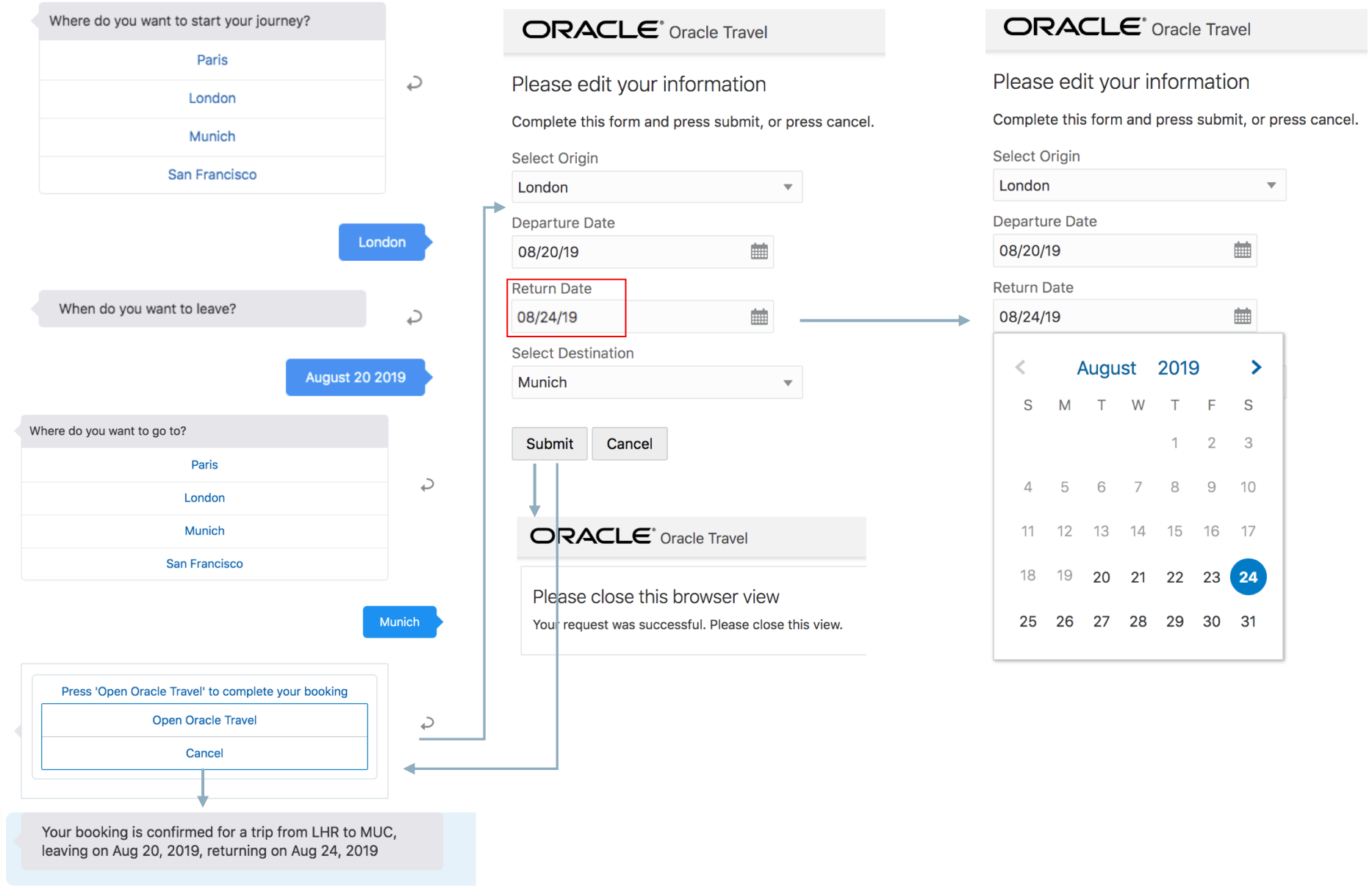
Example

Oracle Travel



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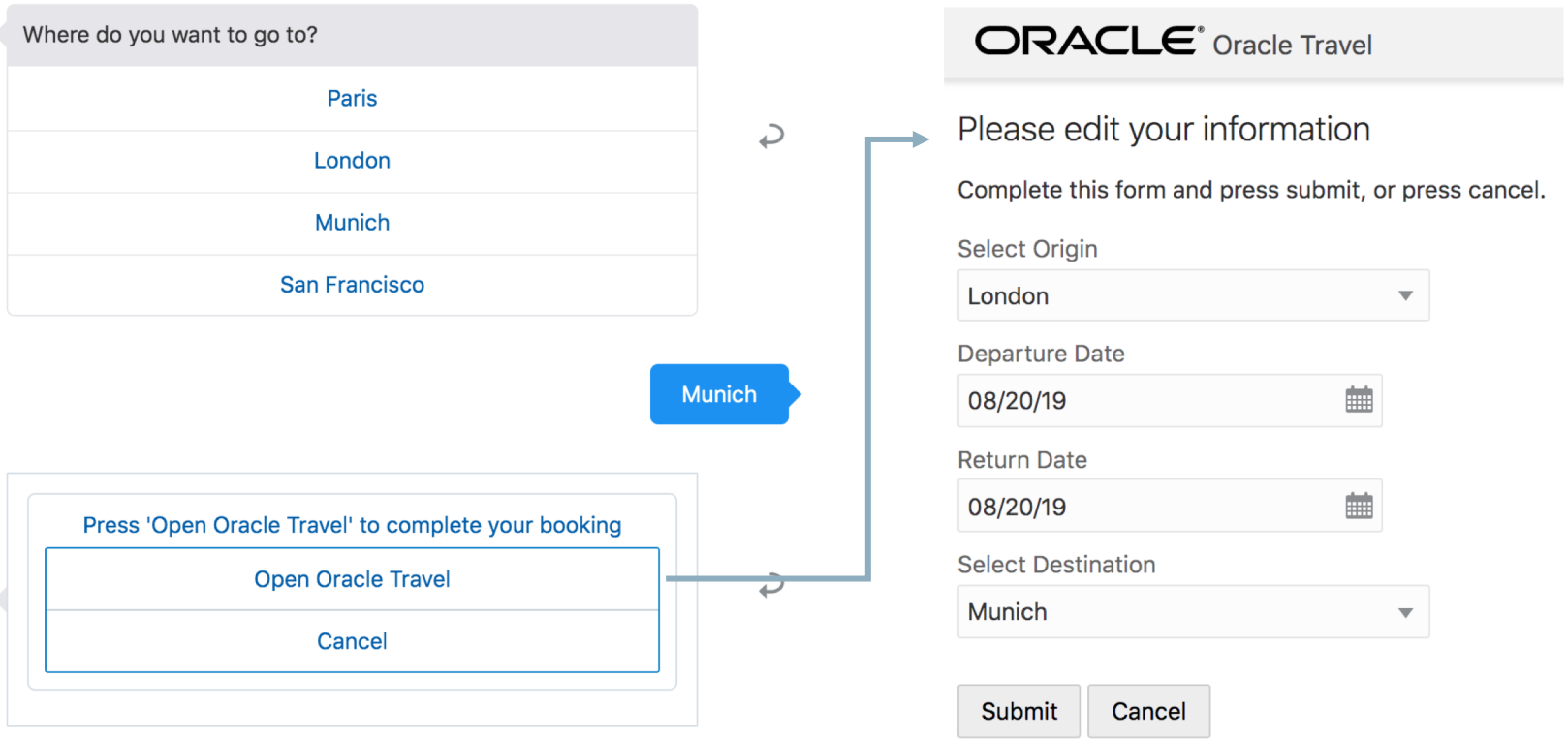
`System.Webview` component overview

Component

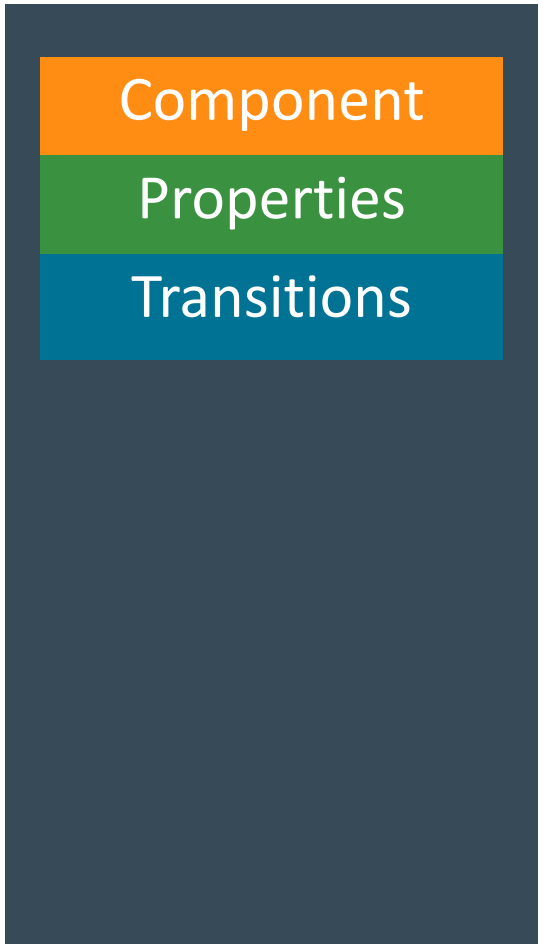
Properties

Transitions

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

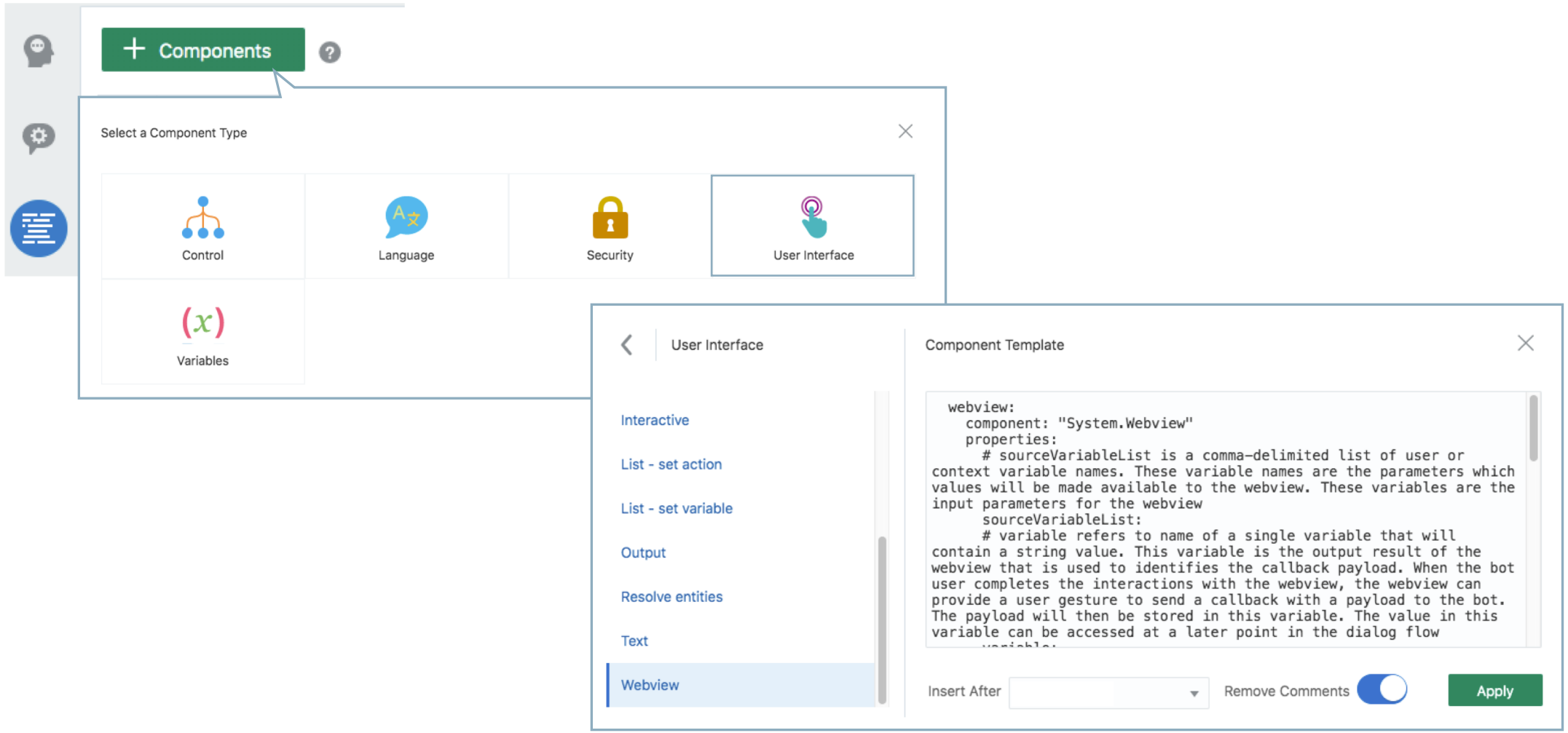


`System.Webview` component overview

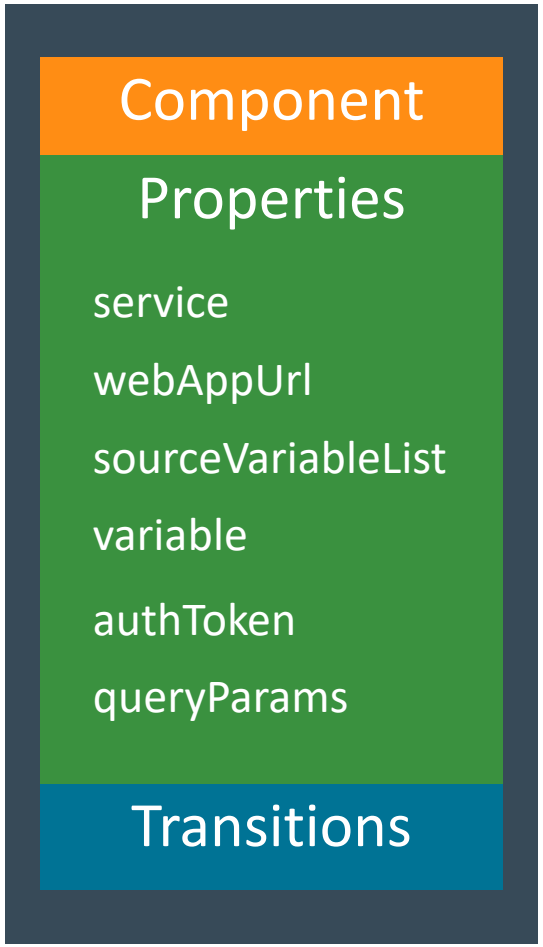


- Displays link to launch web application in separate browser tab (web) or webview (mobile)
  - Remote web application
  - Locally deployed Single Page Application (SPA)
- Passes parameters from bot to web application (optional)
- Web application uses callback URL to return to bot
  - Optionally, passes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

Using the component template



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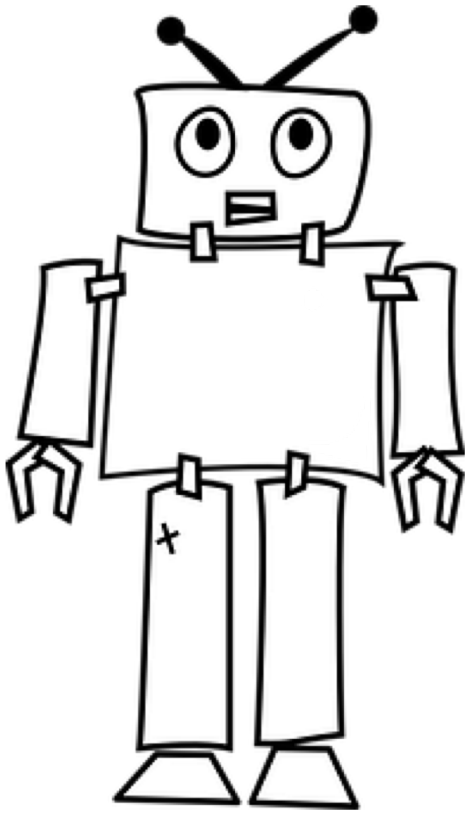
Like custom components, single page applications can be hosted within a skill



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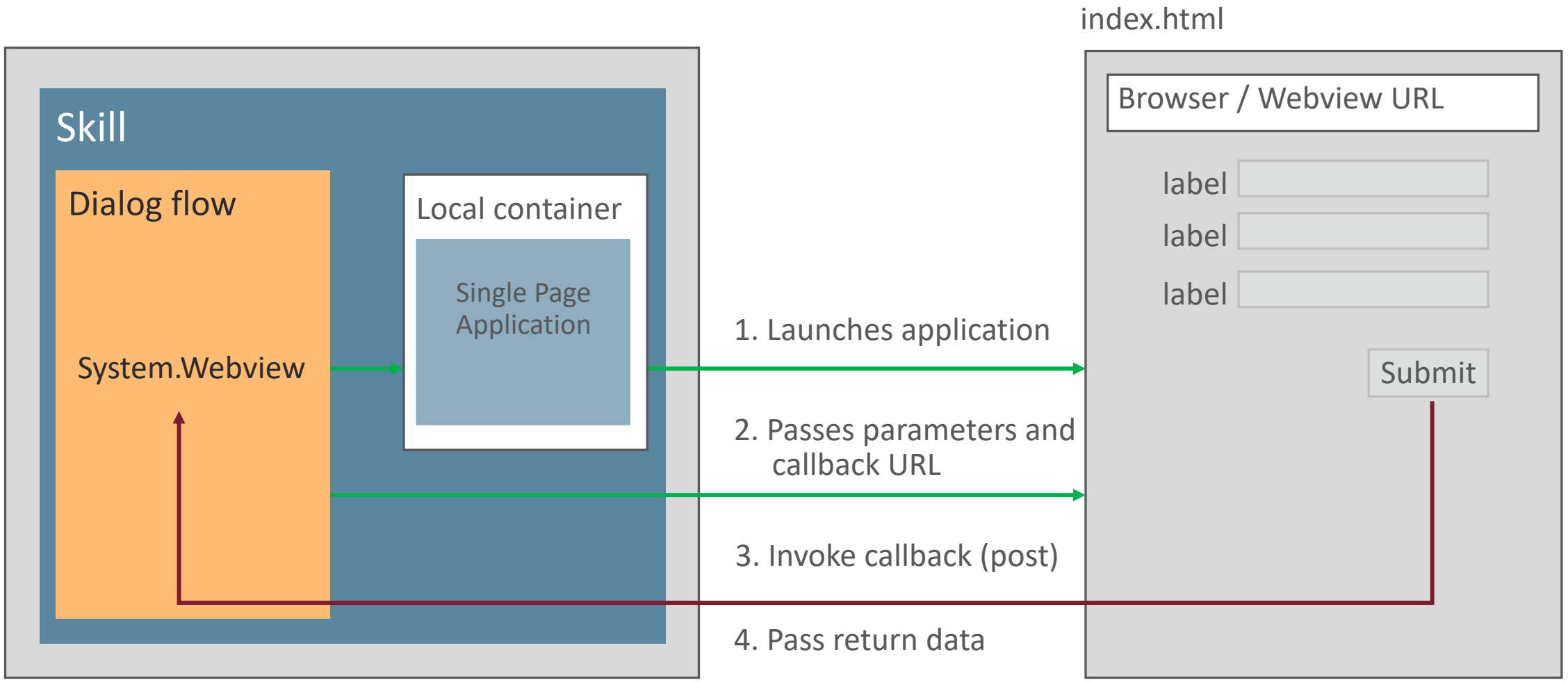
Single Page Application (SPA)

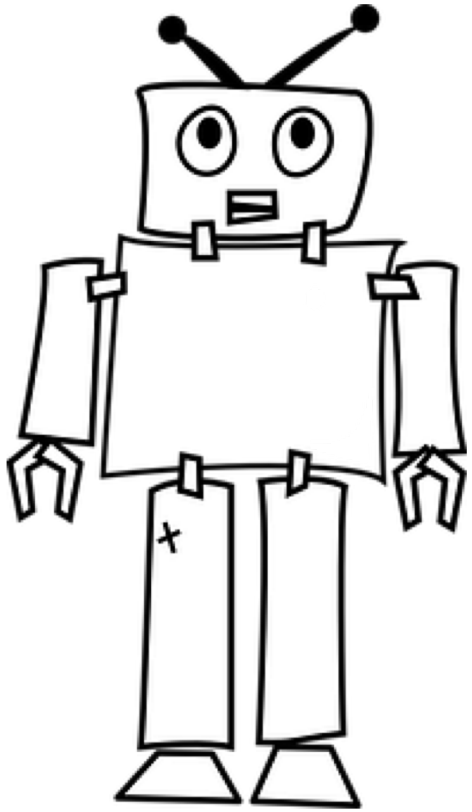
- Client side web applications that load a single HTML page
  - Dynamically updated in response to user interaction
  - No constant page reloads
  - Uses JavaScript, Ajax and HTML5
- Frameworks
  - Oracle JET, Oracle Visual Builder Cloud Service, Angular, React, etc.
  - Model–View–ViewModel (MVVM) architectures
  - 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'];
```



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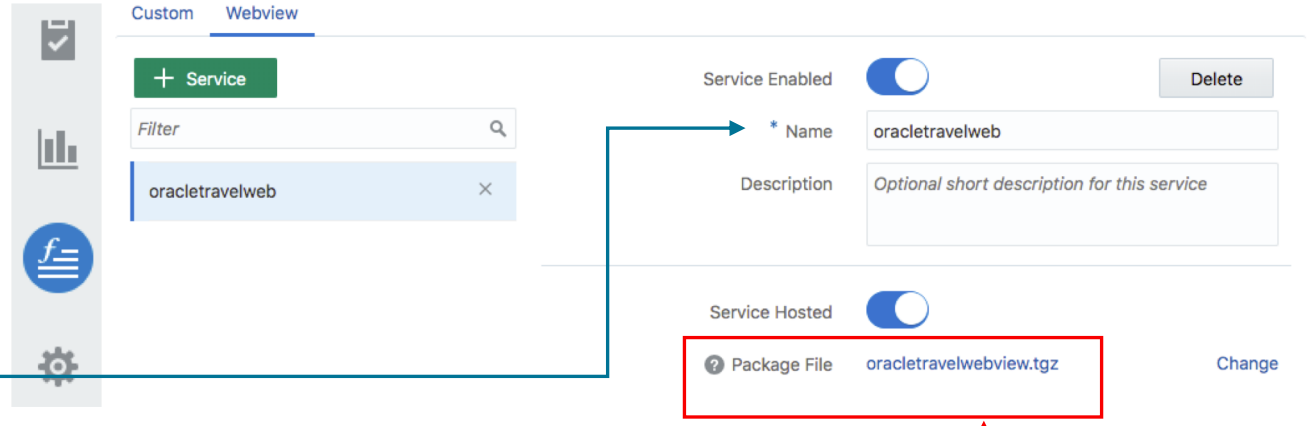
SPA Application Reference

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

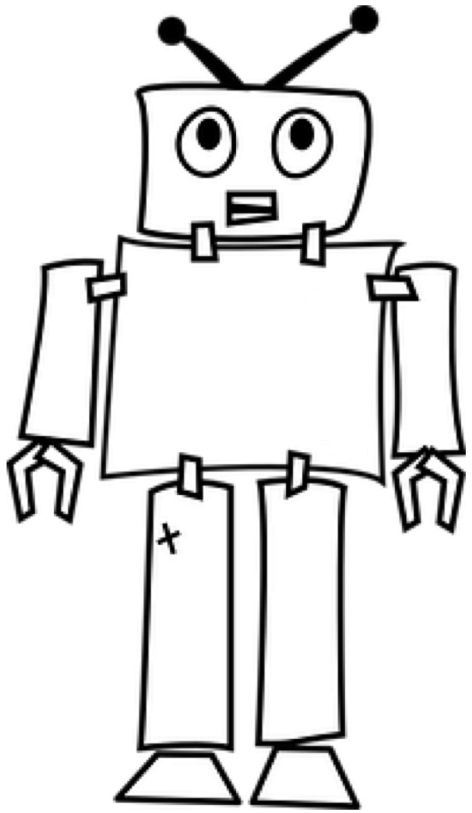
```
callWebview:
  component: "System.Webview"
  properties:
    service: "oracletravelweb"
    sourceVariableList: "origin,destination"
    variable: "webviewresponse"
    prompt: "Press 'Open Oracle Travel' …"
    linkLabel: "Open Oracle Travel"
    cancelLabel: "Cancel"
  transitions:
    next: "handleResponse"
    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



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SPA Application Response

Skill

Dialog Flow

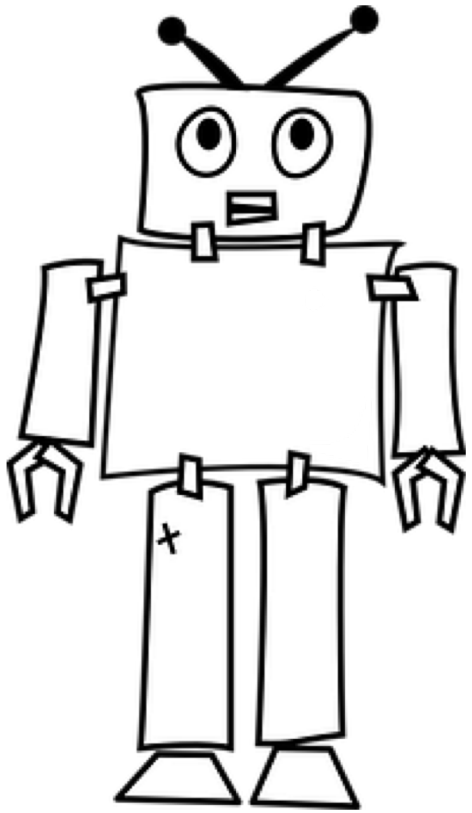
```
callWebview:
  component: "System.Webview"
  properties:
    service: "oracletravelweb"
    sourceVariableList: "origin,destination"
    variable: "webviewresponse"
    prompt: "Press 'Open Oracle Travel' ..."
    linkLabel: "Open Oracle Travel"
    cancelLabel: "Cancel"
  transitions:
    next: "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.



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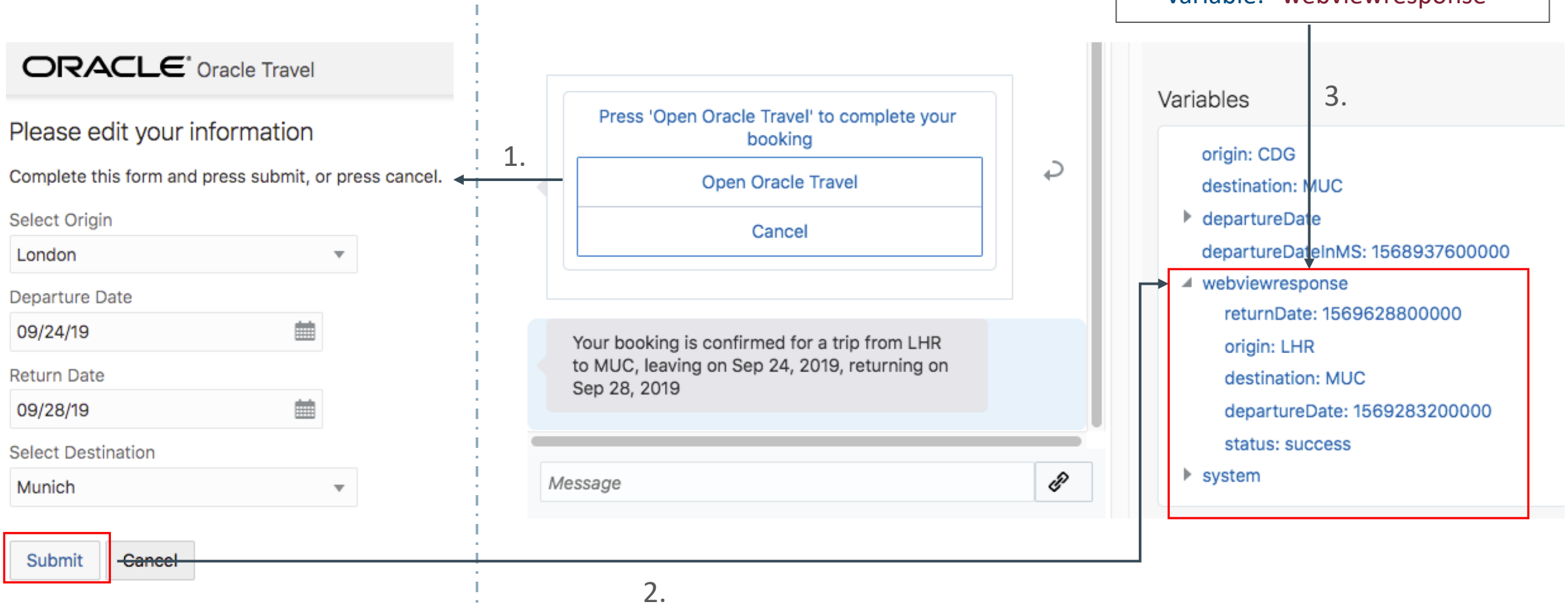
Debugging using the conversation tester

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



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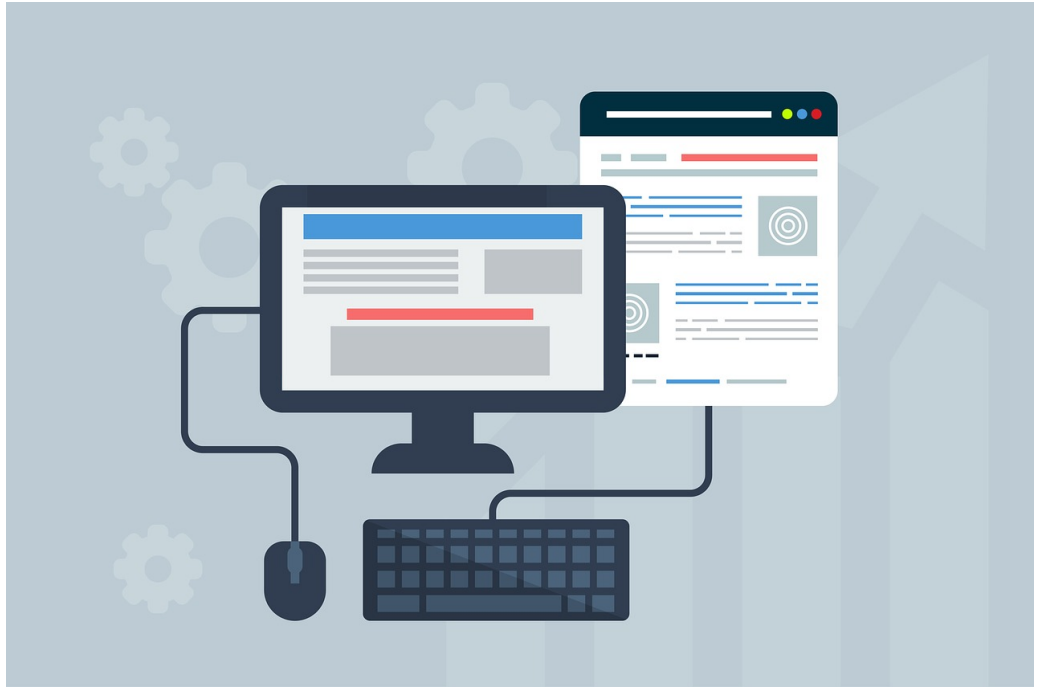
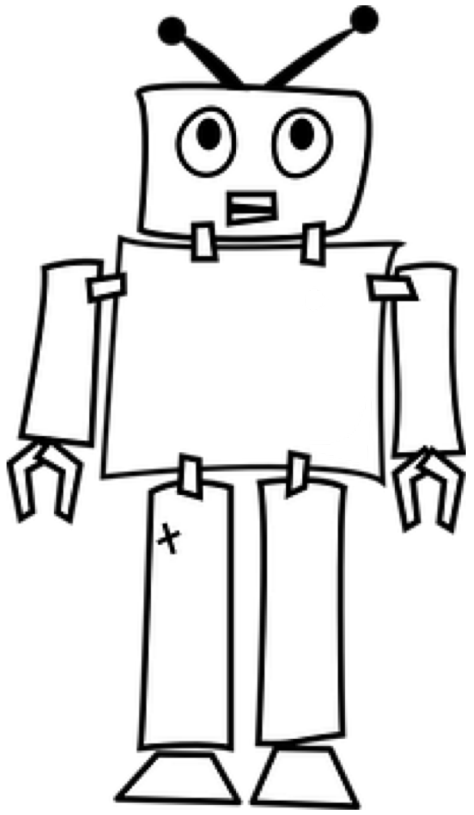
Remote web applications

- 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.



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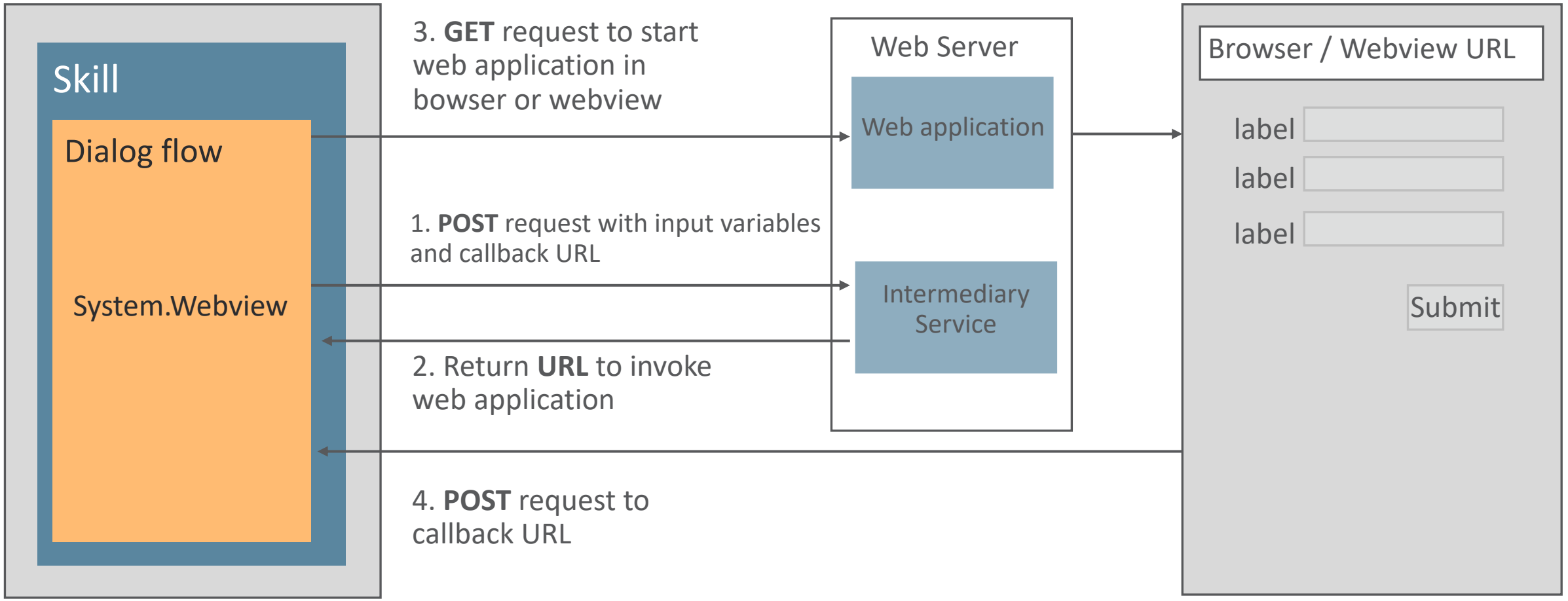
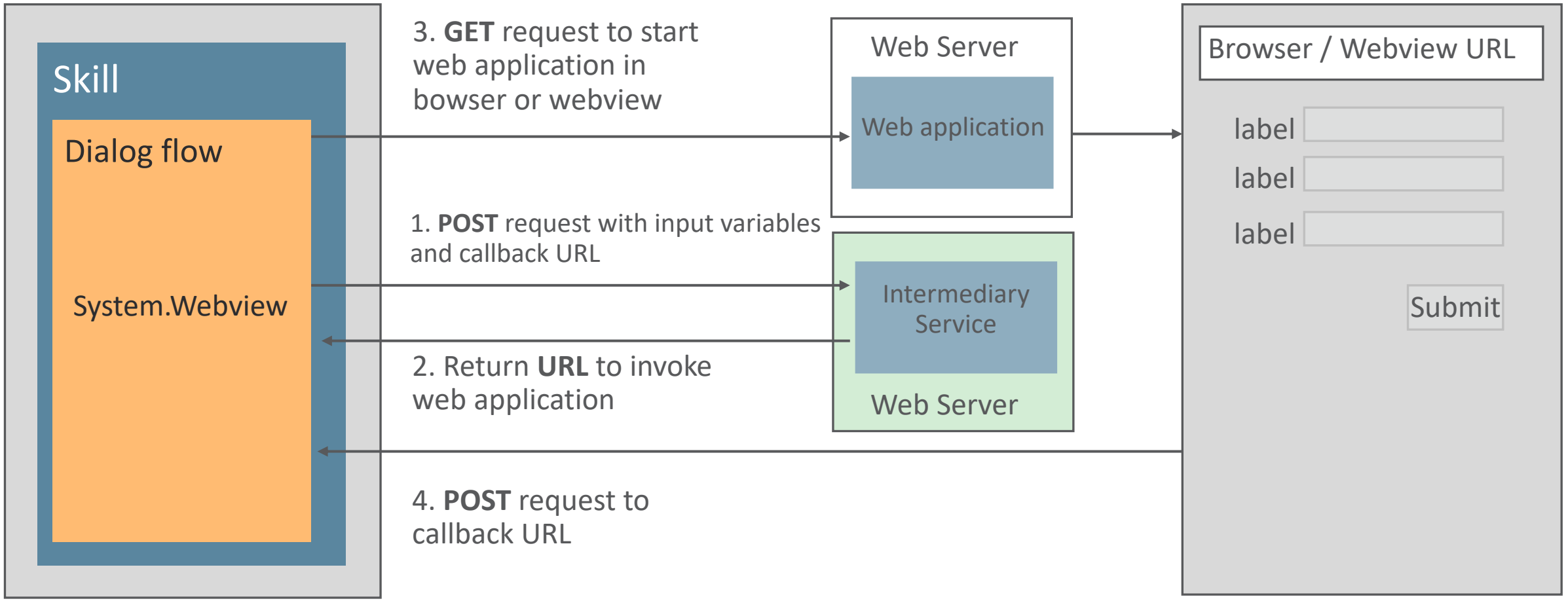
Remote invocation architecture



Alternative remote invocation architecture



Intermediary service configuration

Skill

Dialog Flow

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  transitions:
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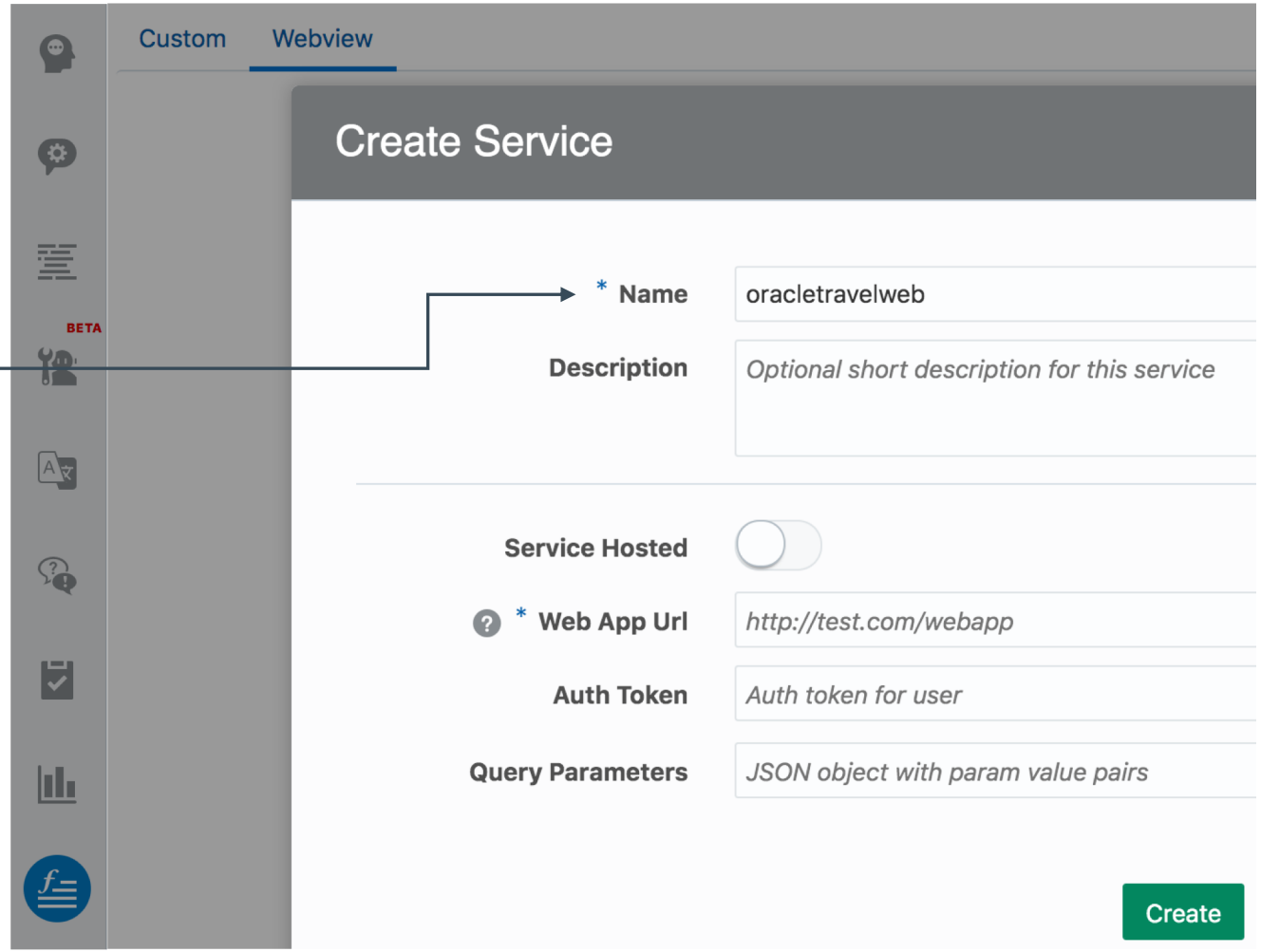
    actions:
      textReceived: "onCancel"
      cancel: "onCancel"
```



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"

Payload of Travel Example

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

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 chance parameter names

Service response of Travel Example

```
{
  "webview.url": "https://<app url>?callbackUrl=https://botphx1.botmxp.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

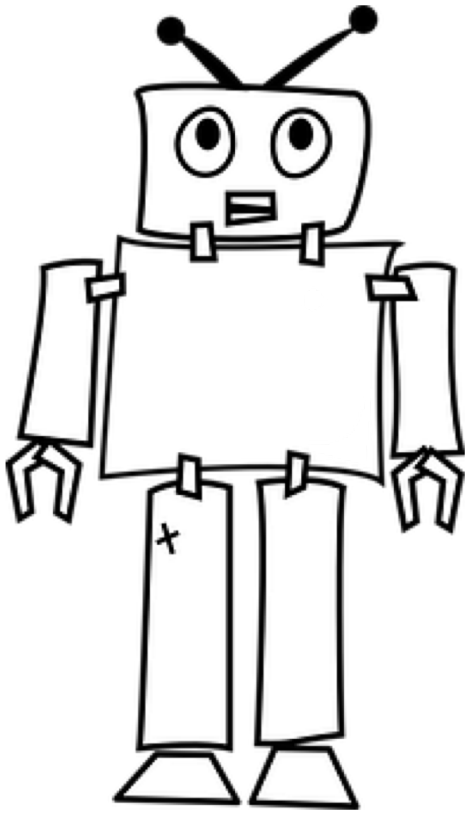
```
let data = {};
data.origin = self.origin();
data.destination = self.destination();
data.departureDate =
    (new Date(self.departureDate())).getTime();
data.returnDate =
    (new Date(self.returnDate())).getTime();

$.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

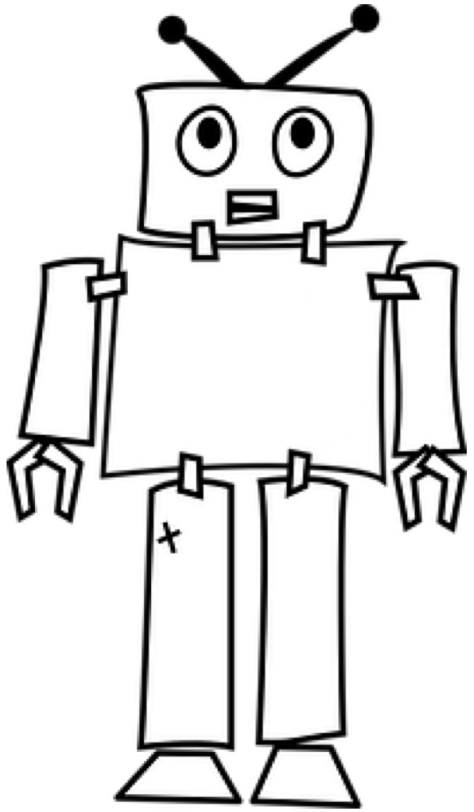
Remote web application

- 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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