



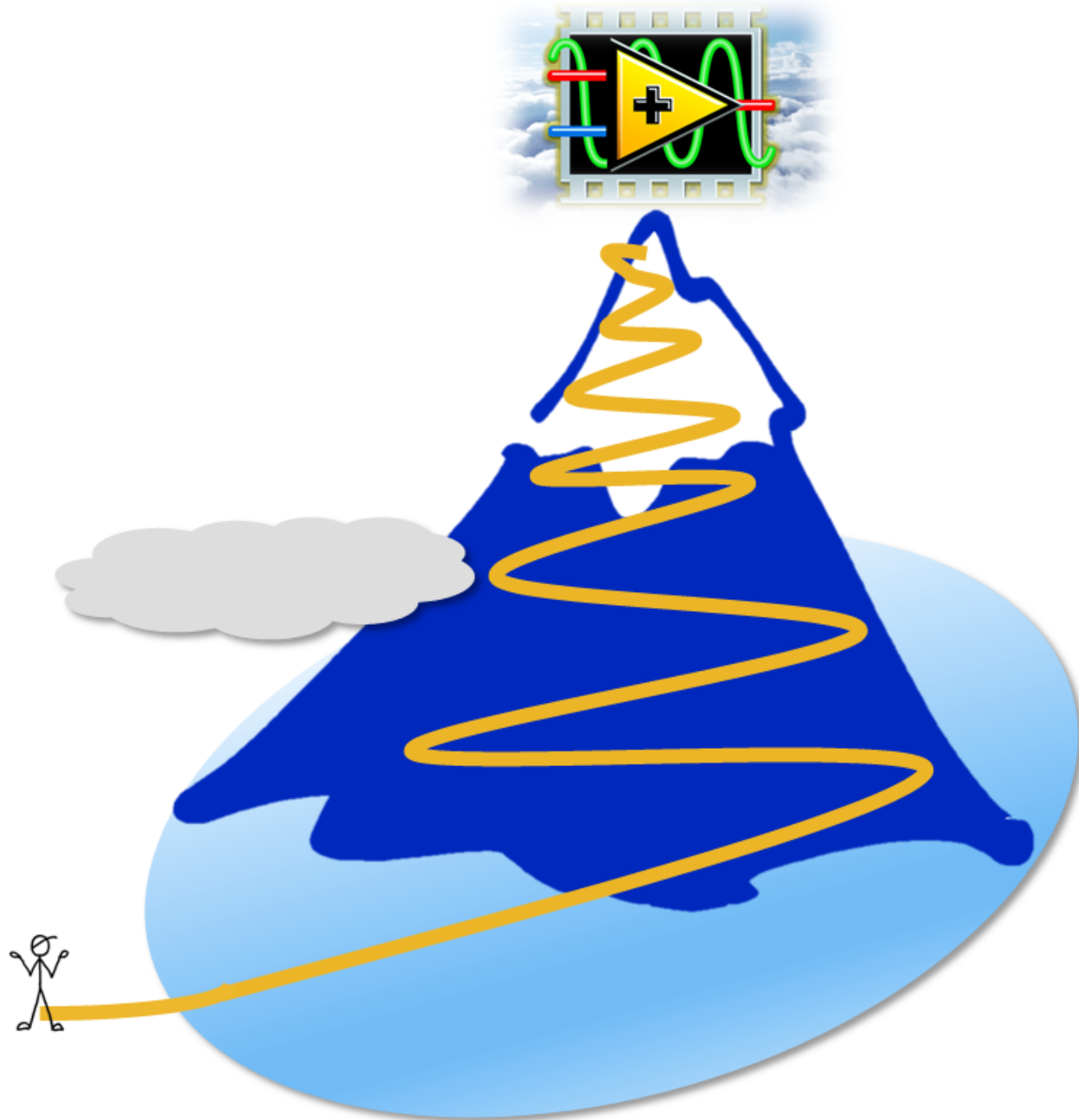
LabVIEW Developer Days

Build Code. Form Communities. Gain Confidence.

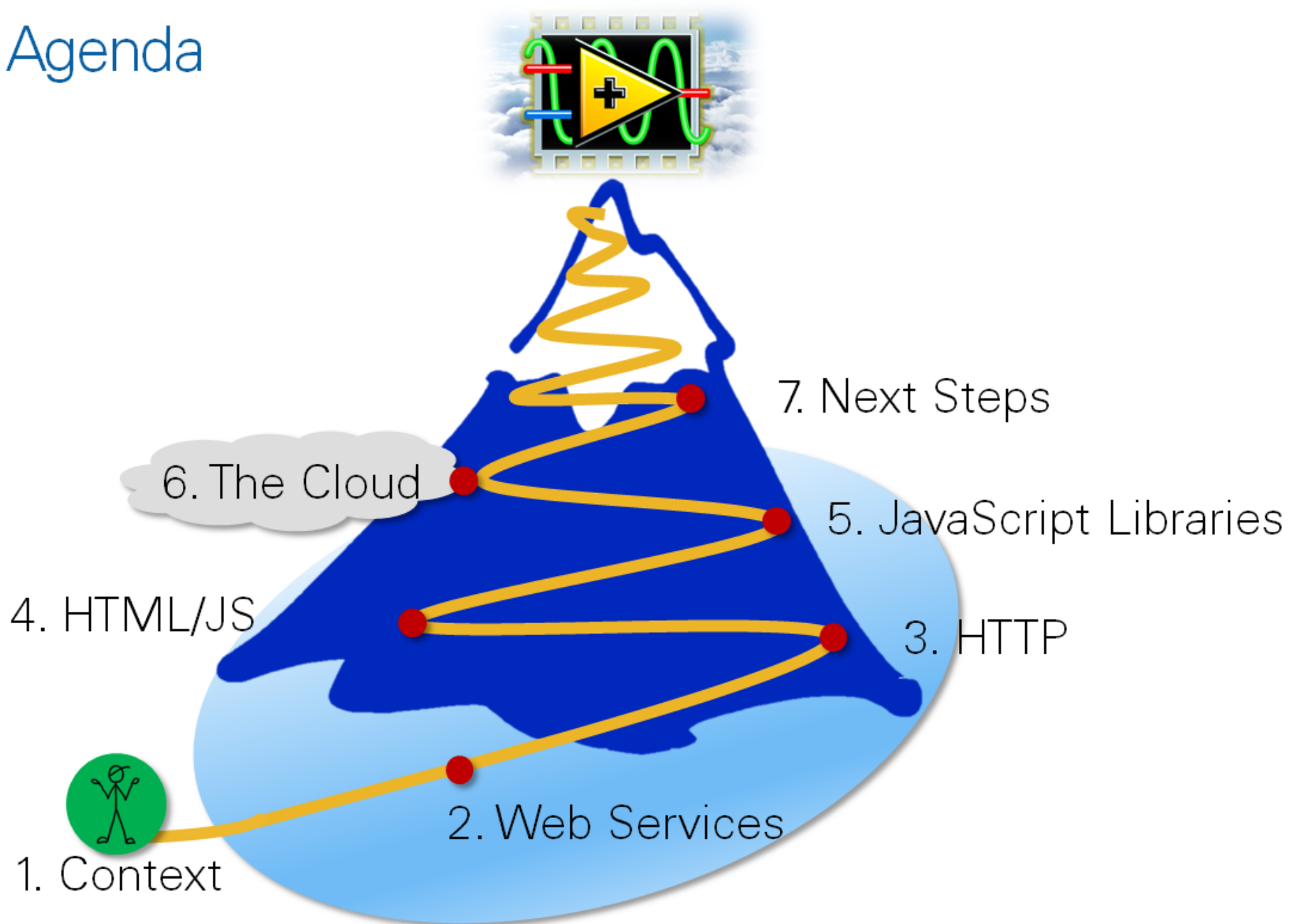


Building Web Applications with LabVIEW



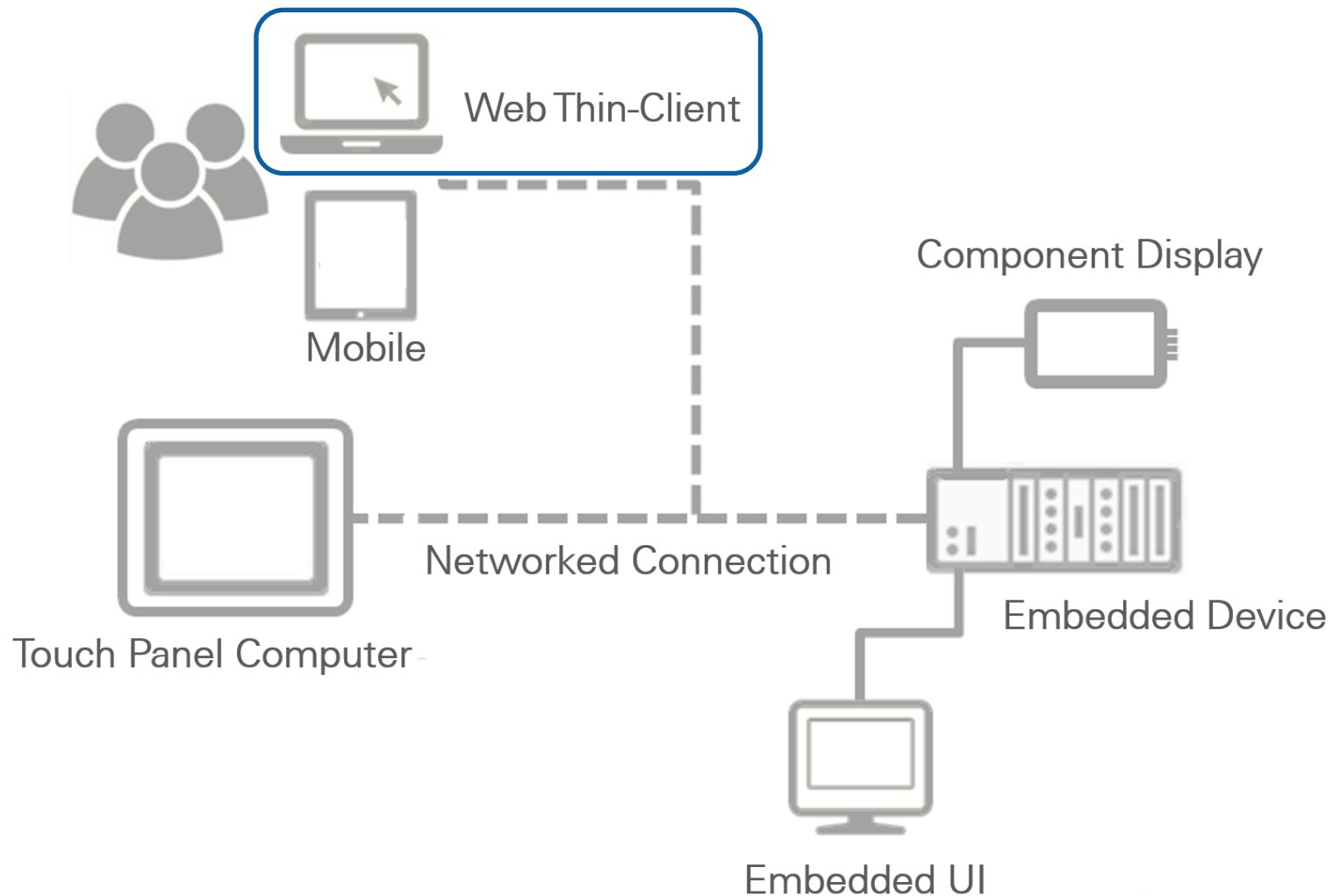


Agenda



www.tinyurl.com/lvweb

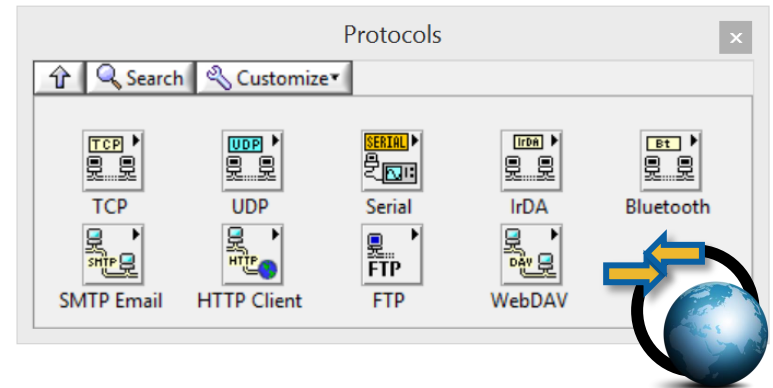
Remote Connectivity Options in LabVIEW



LabVIEW Web Client Technologies

Native Technologies

- HTTP Palette
- TCP/UDP/FTP/SMTP/WebDav
- LabVIEW Web Server



External Tools

- LabSocket
- WebPager
- Cloud Dashboard



LabVIEW Web Client Technologies

Native Technologies

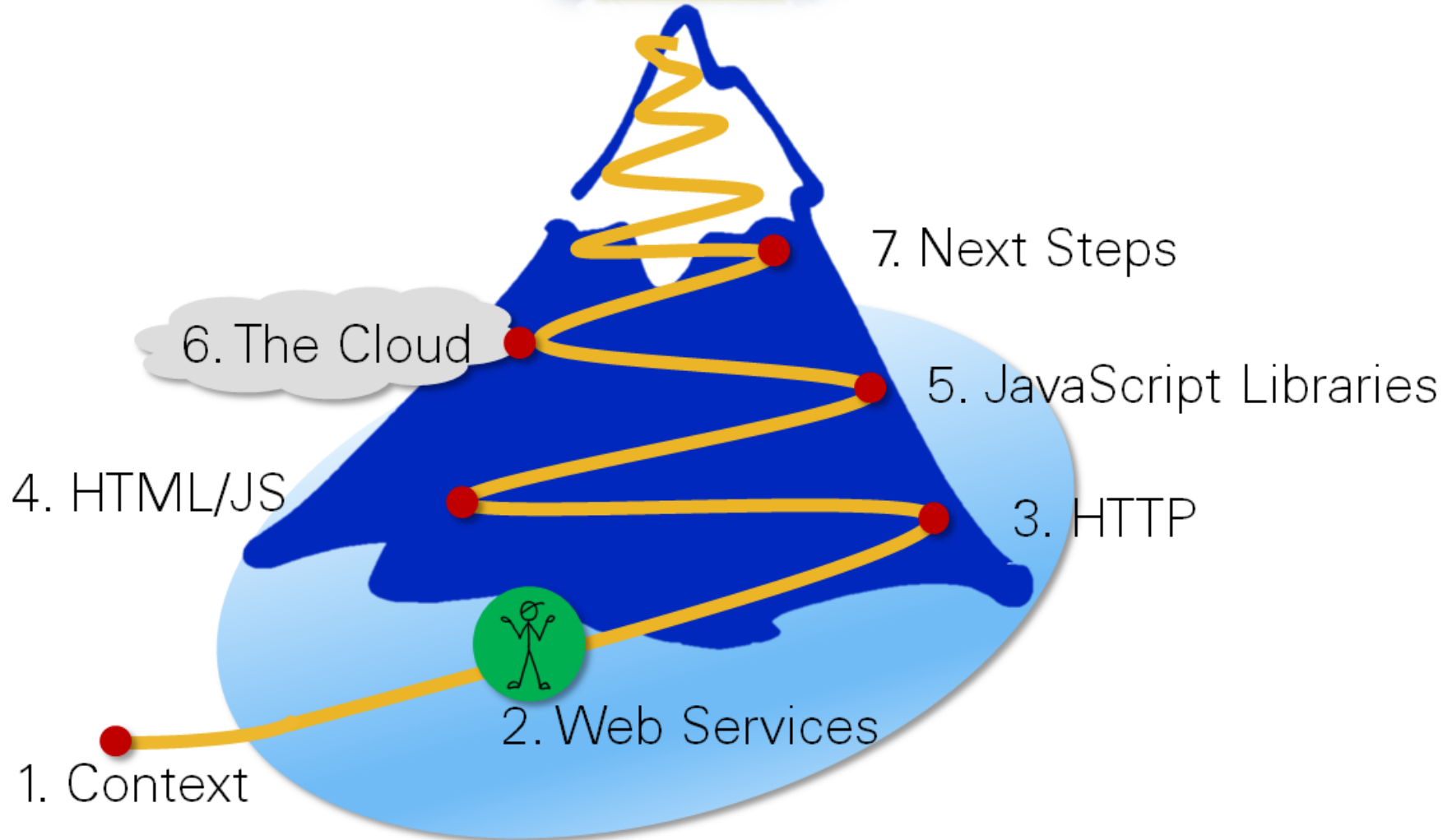
- HTTP Palette
- TCP/UDP/FTP/SMTP/WebDav
- **LabVIEW Web Server**



External Tools

- LabSocket
- WebPager
- Cloud Dashboard

2. Web Services



What is a Web Server?

Software that accepts and responds to HTTP requests, usually from a browser.

A **web server** is an information technology that processes requests via HTTP, the basic network protocol used to distribute information on the World Wide **Web**. The term can refer either to the entire computer system, an appliance, or specifically to the software that accepts and supervises the HTTP requests.

Web server - Wikipedia, the free encyclopedia

en.wikipedia.org/wiki/Web_server Wikipedia ▾



More about Web server

Feedback

LabVIEW Web Services

LabVIEW Web Services host web content and respond to HTTP requests.

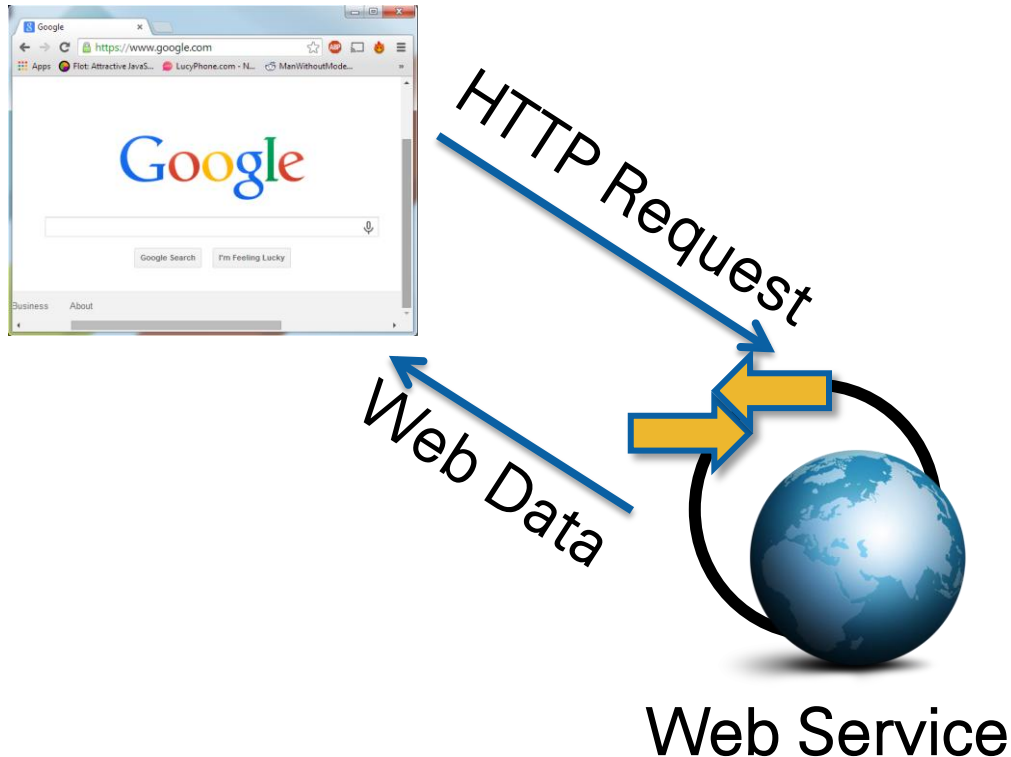


Web Service

LabVIEW Web Services

LabVIEW Web Services host web content and respond to HTTP requests.

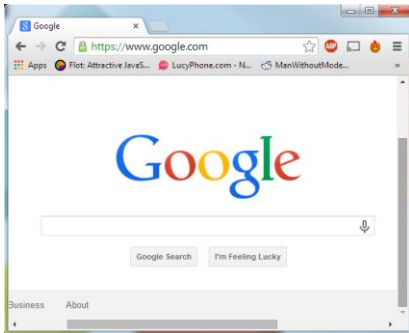
Web Browser



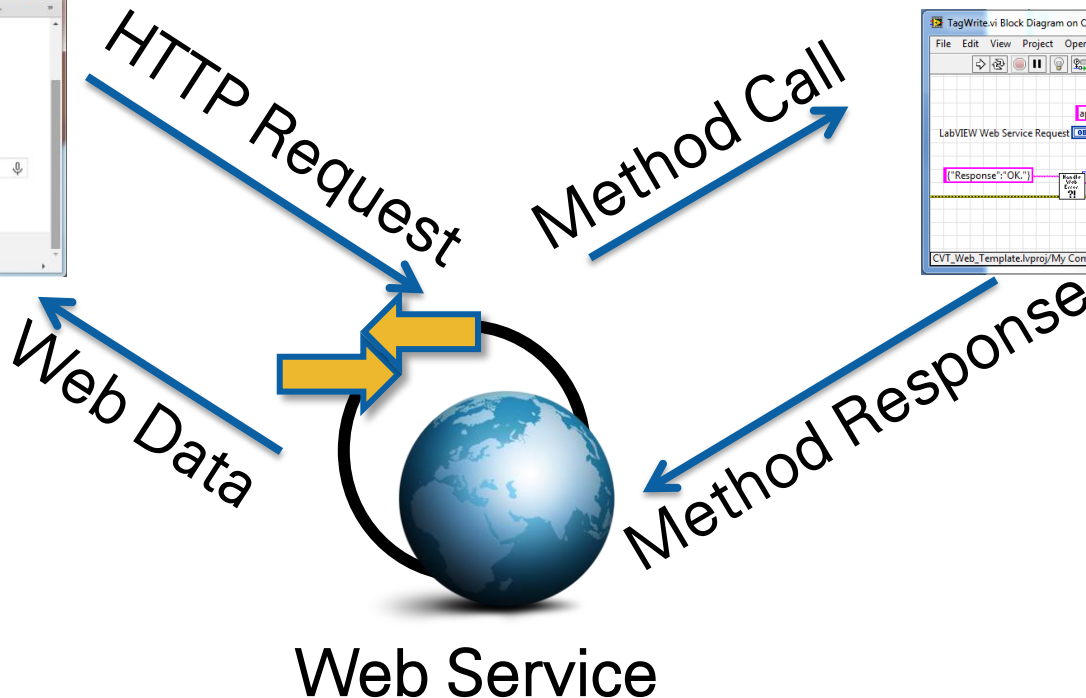
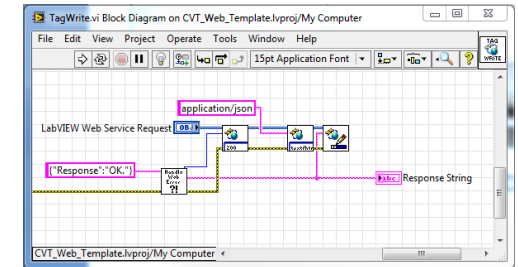
LabVIEW Web Services

LabVIEW Web Services host web content and respond to HTTP requests.

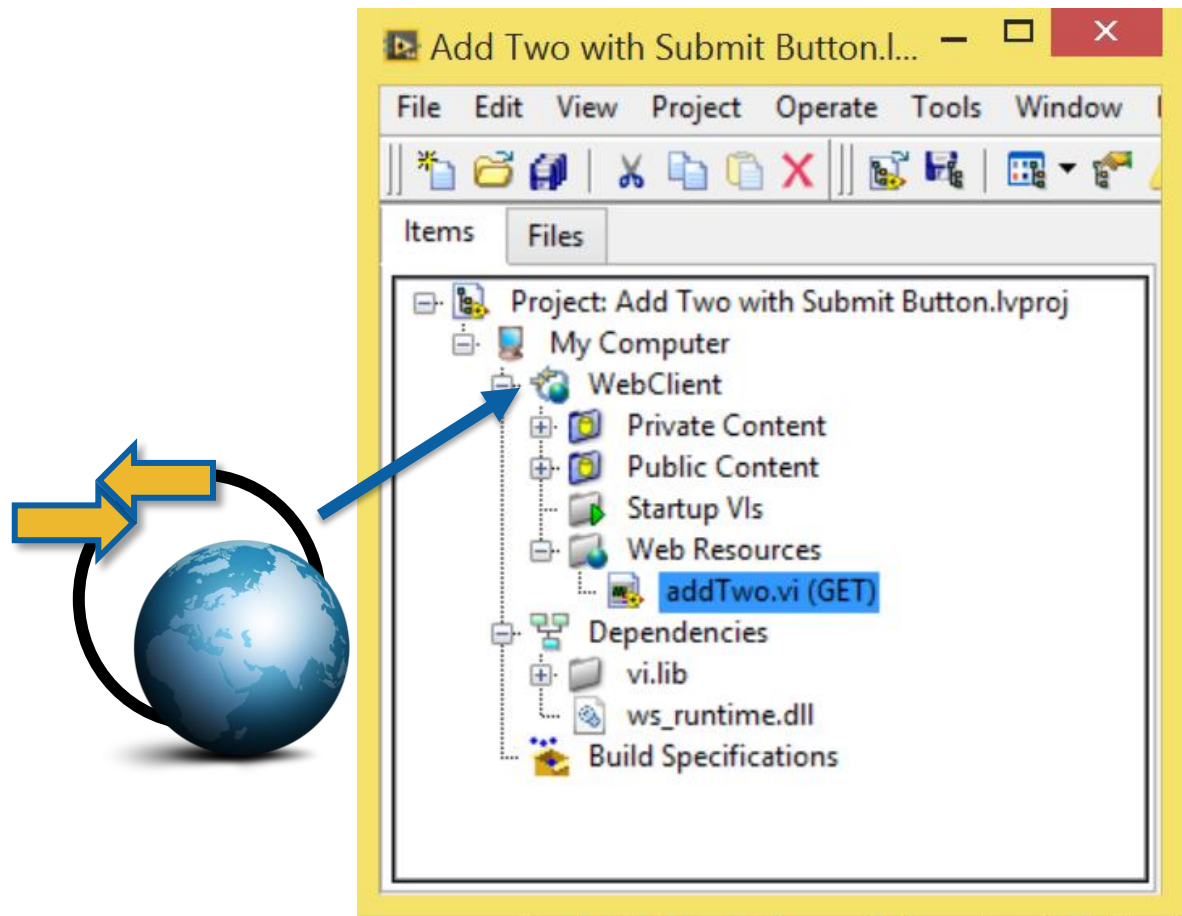
Web Browser



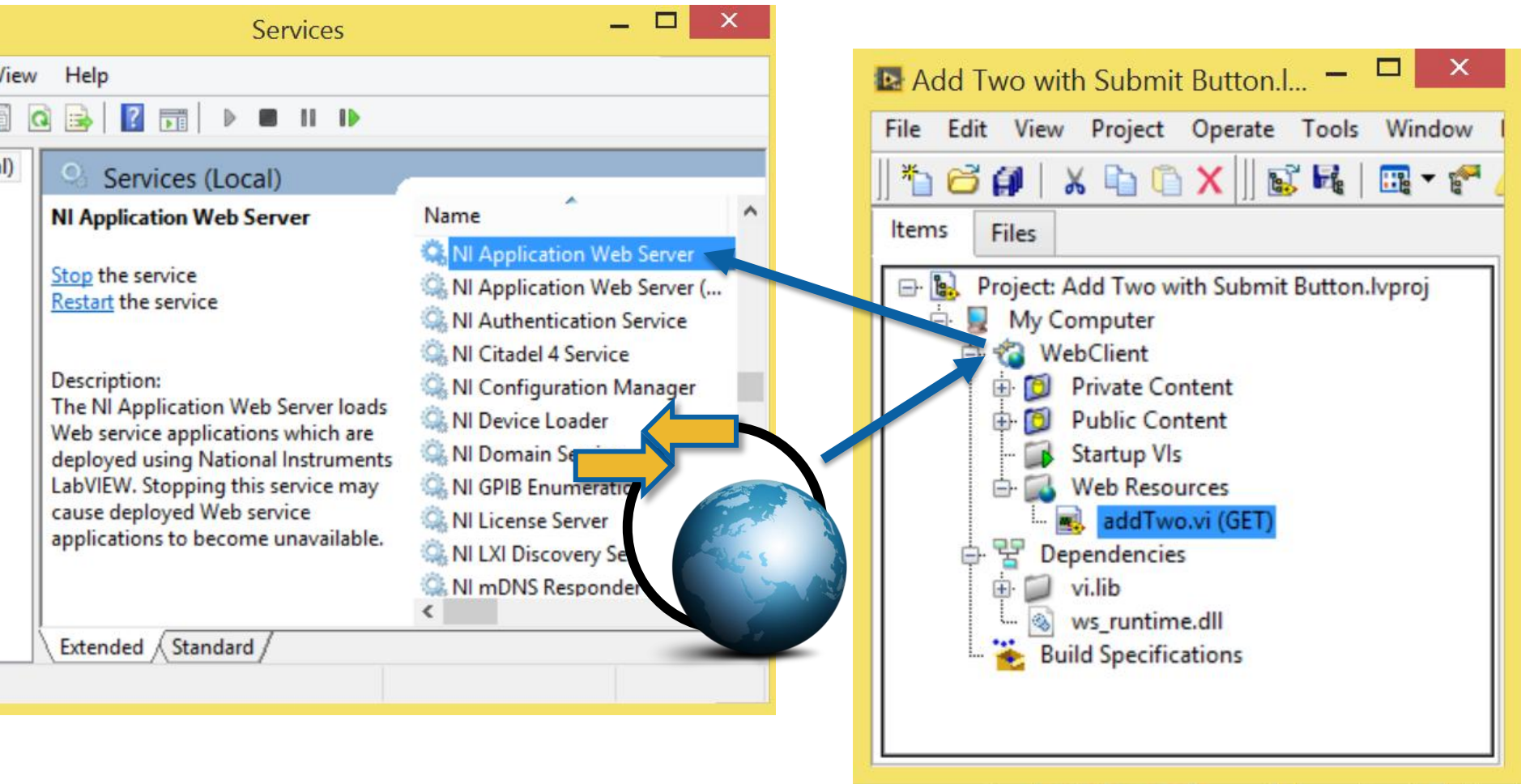
LabVIEW Web Method



Web Service in a Project

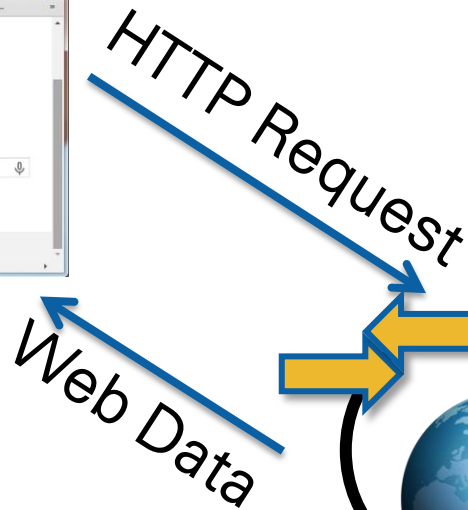
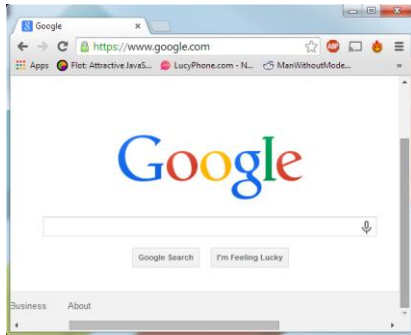


Web Service in a Project

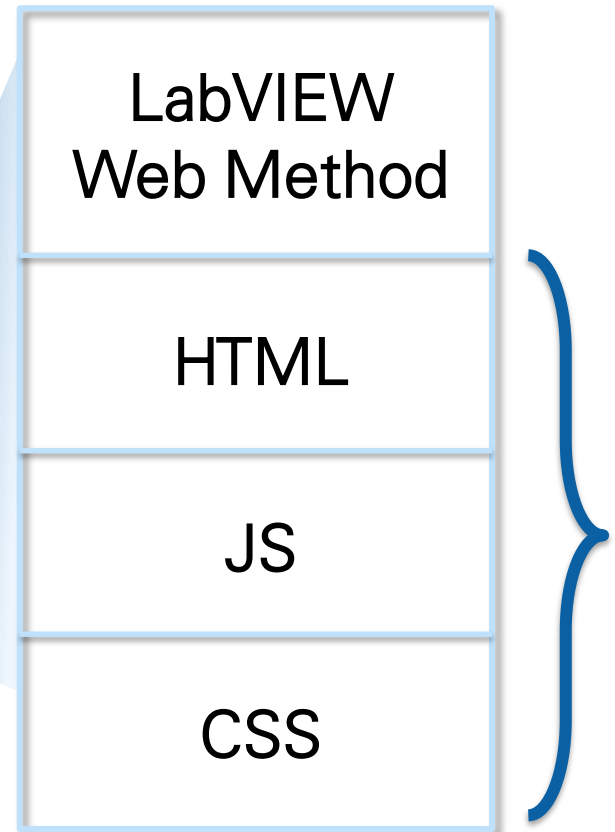


Static Content and Web Methods

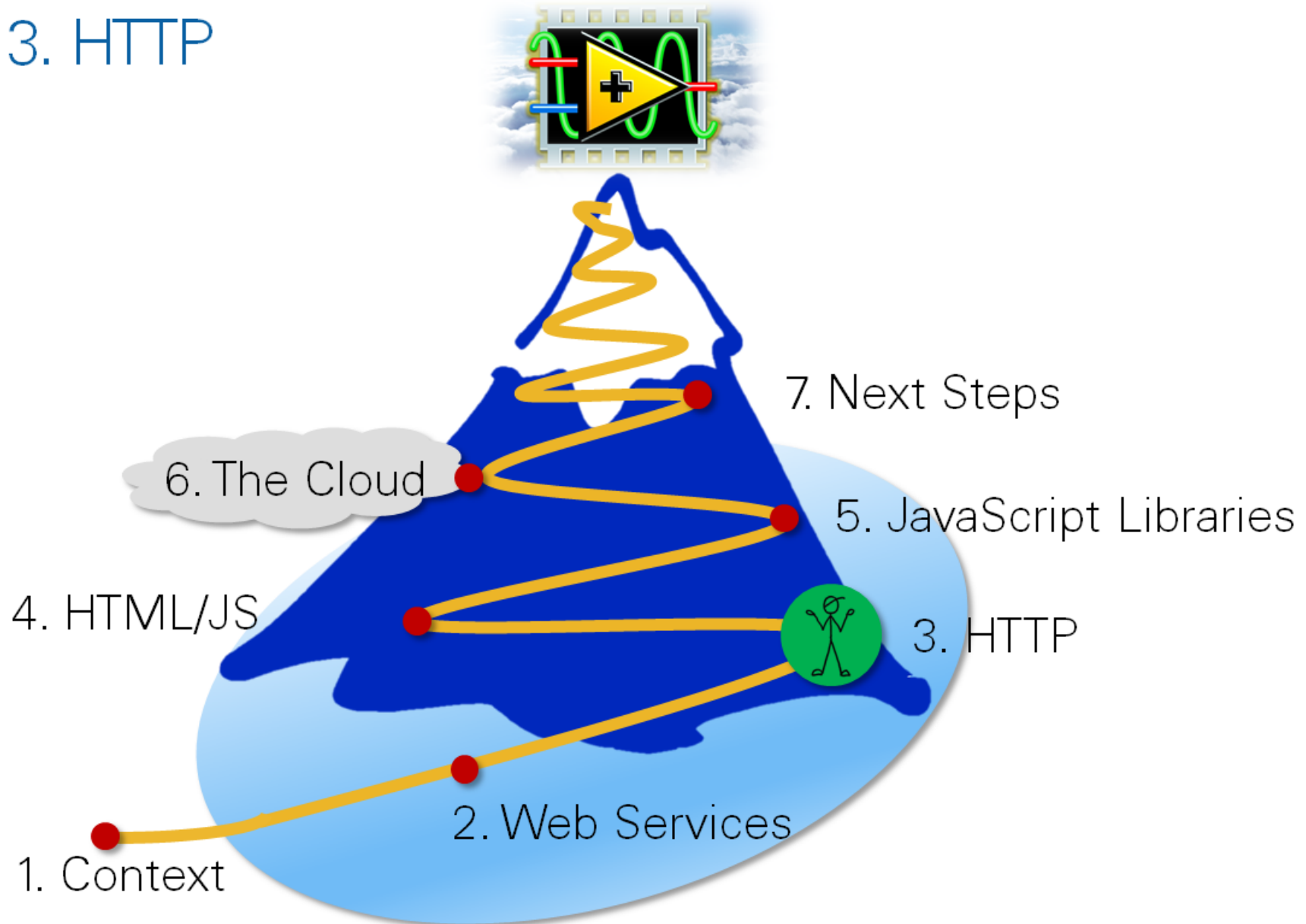
Web Browser



Web Service



3. HTTP

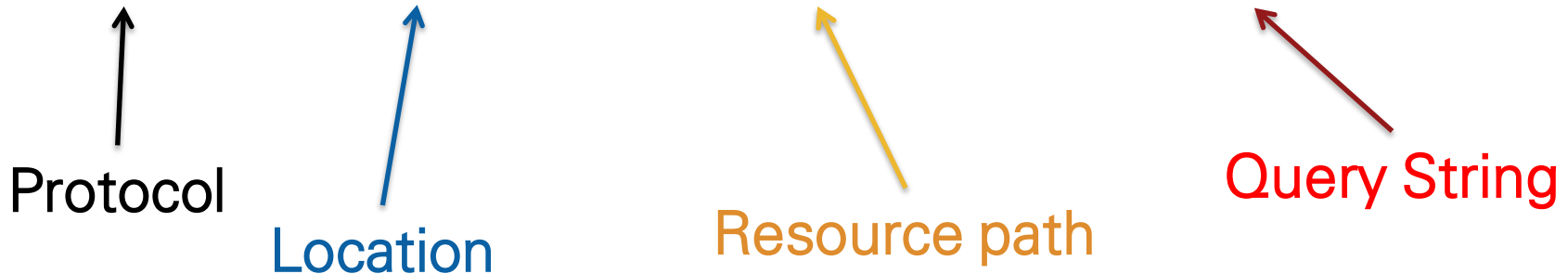


URL

Uniform Resource Locator OR “Web Address”

scheme://domain:port/path?query_string

http://www.ni.com/exampleURL?value="true"



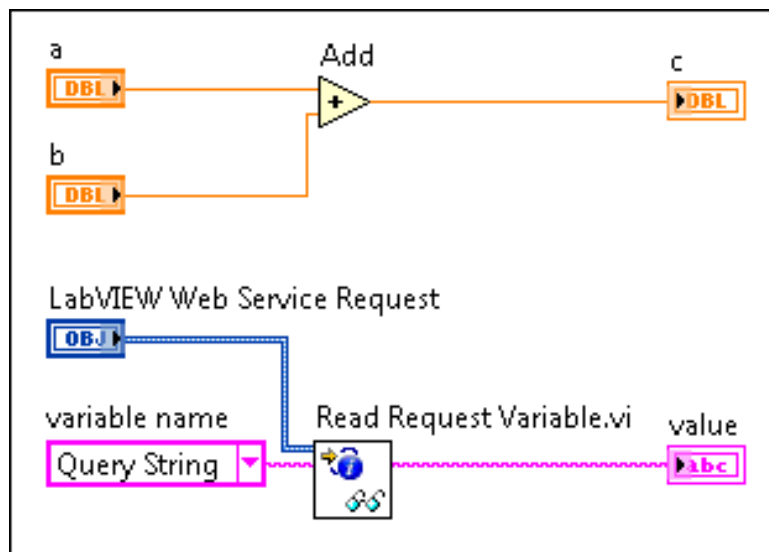
HTTP Demo – Add two numbers

DEMO

127.0.0.1:8001/WebService1/add?b=2.4&a=4.6

This XML file does not appear to have any style information associated with it. The document tree

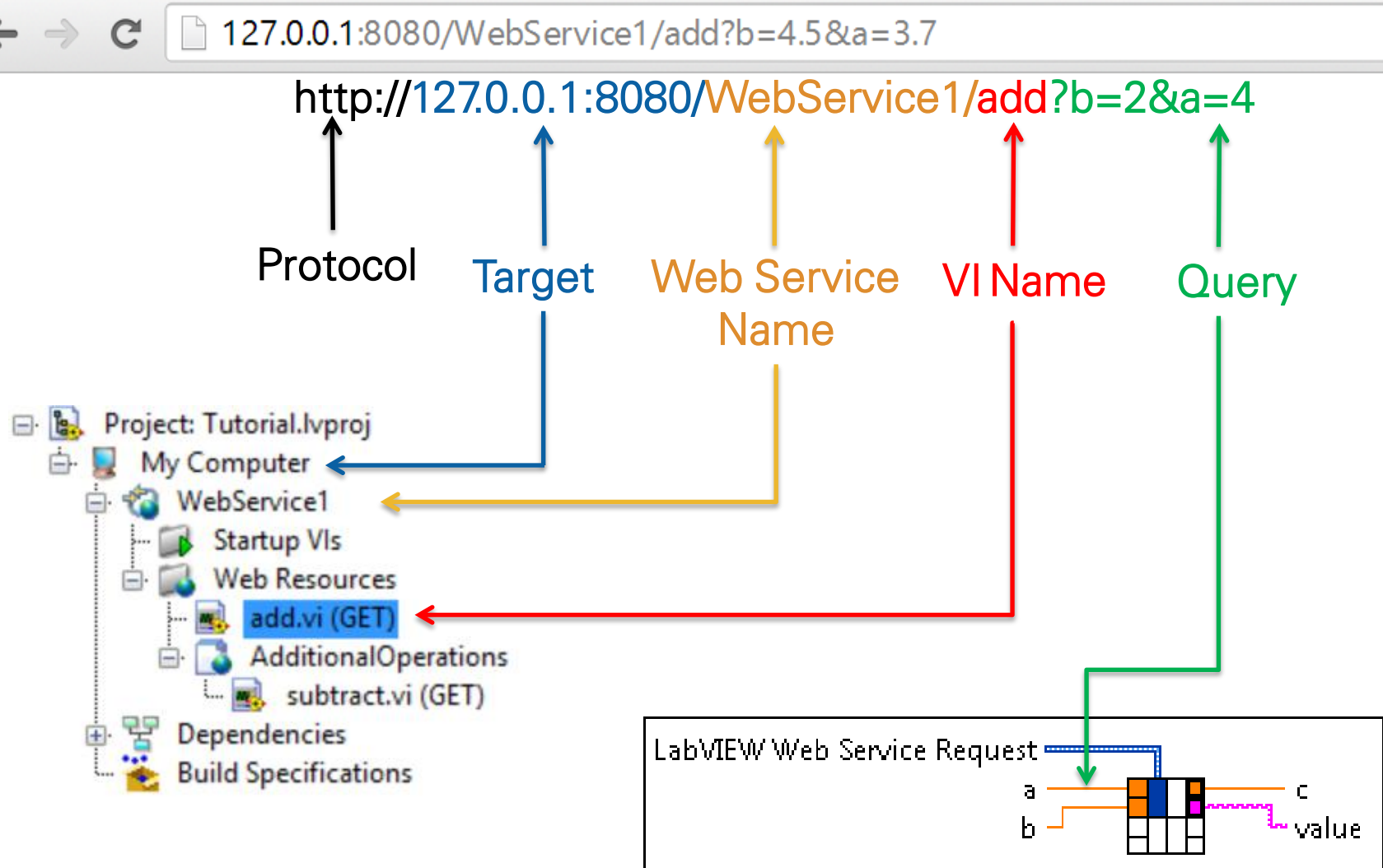
```
<Response>
  <Terminal>
    <Name>c</Name>
    <Value>7</Value>
  </Terminal>
  <Terminal>
    <Name>value</Name>
    <Value>b=2.4&a=4.6</Value>
  </Terminal>
</Response>
```



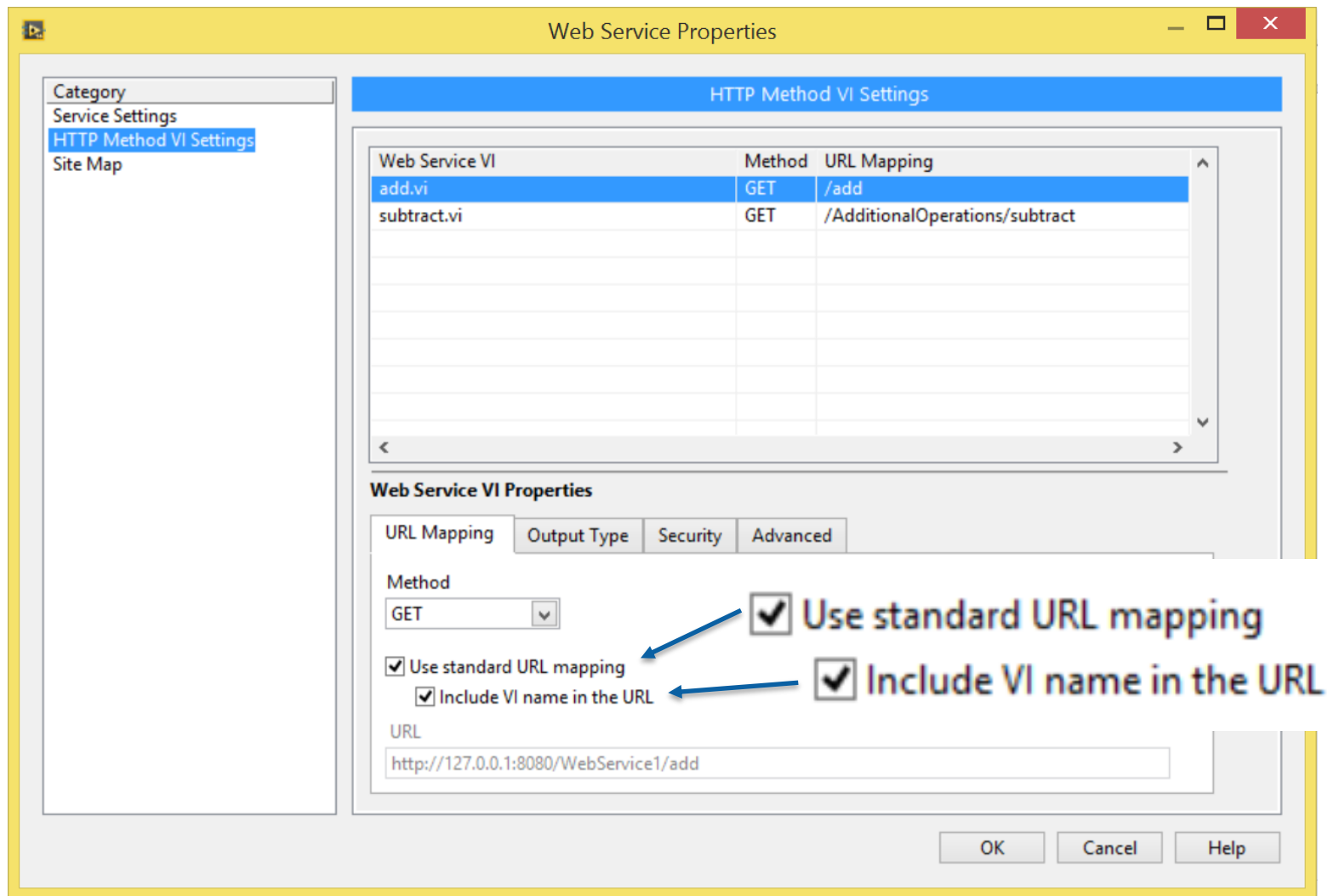
Ex.

<http://127.0.0.1:8001/WebService1/add?b=4.5&a=3.5>

HTTP Demo – Add two numbers

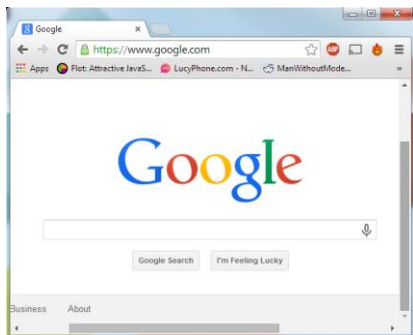


URL Mapping

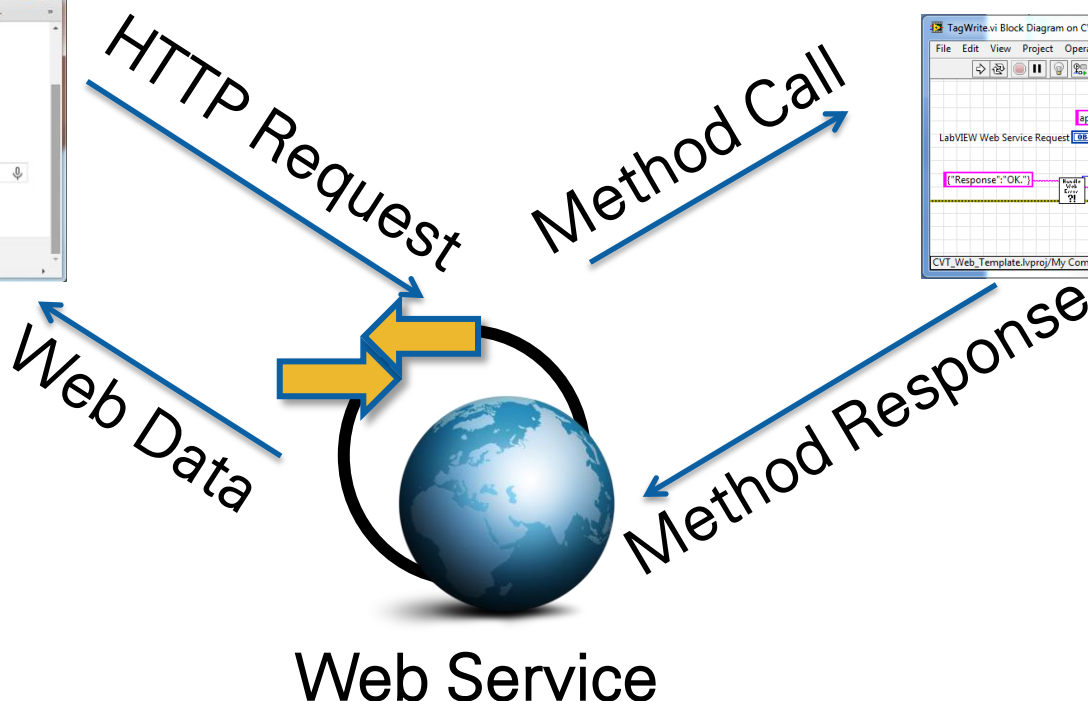
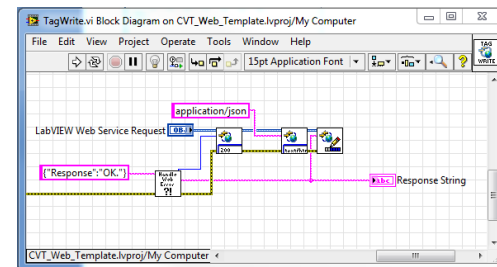


Browser to LabVIEW Communication

Web Browser

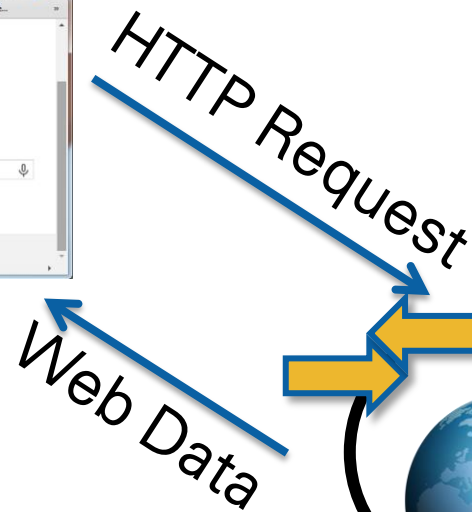
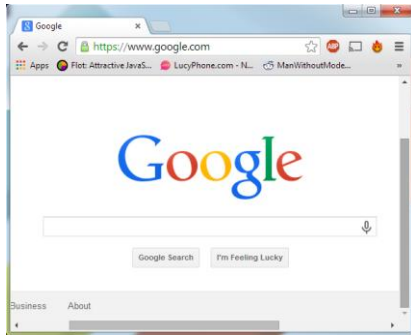


LabVIEW
Web Method

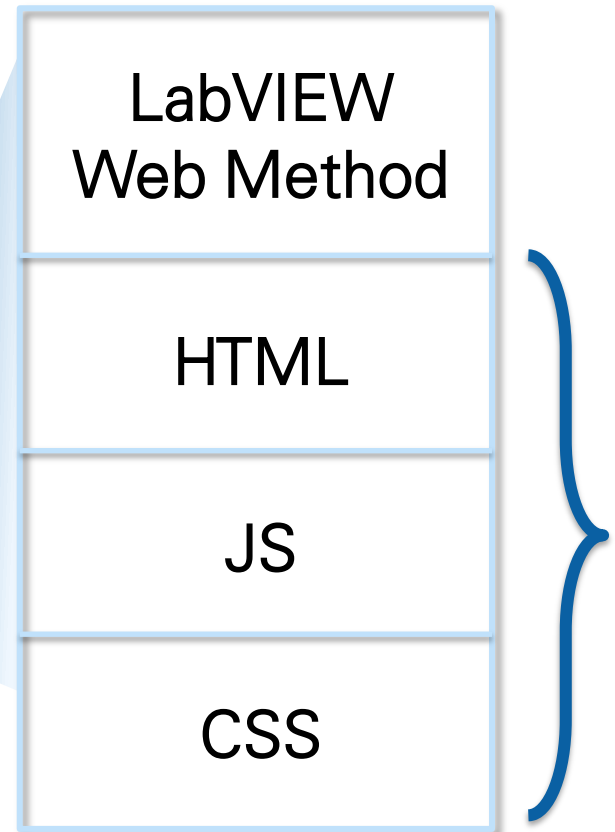


Static Content and Web Methods

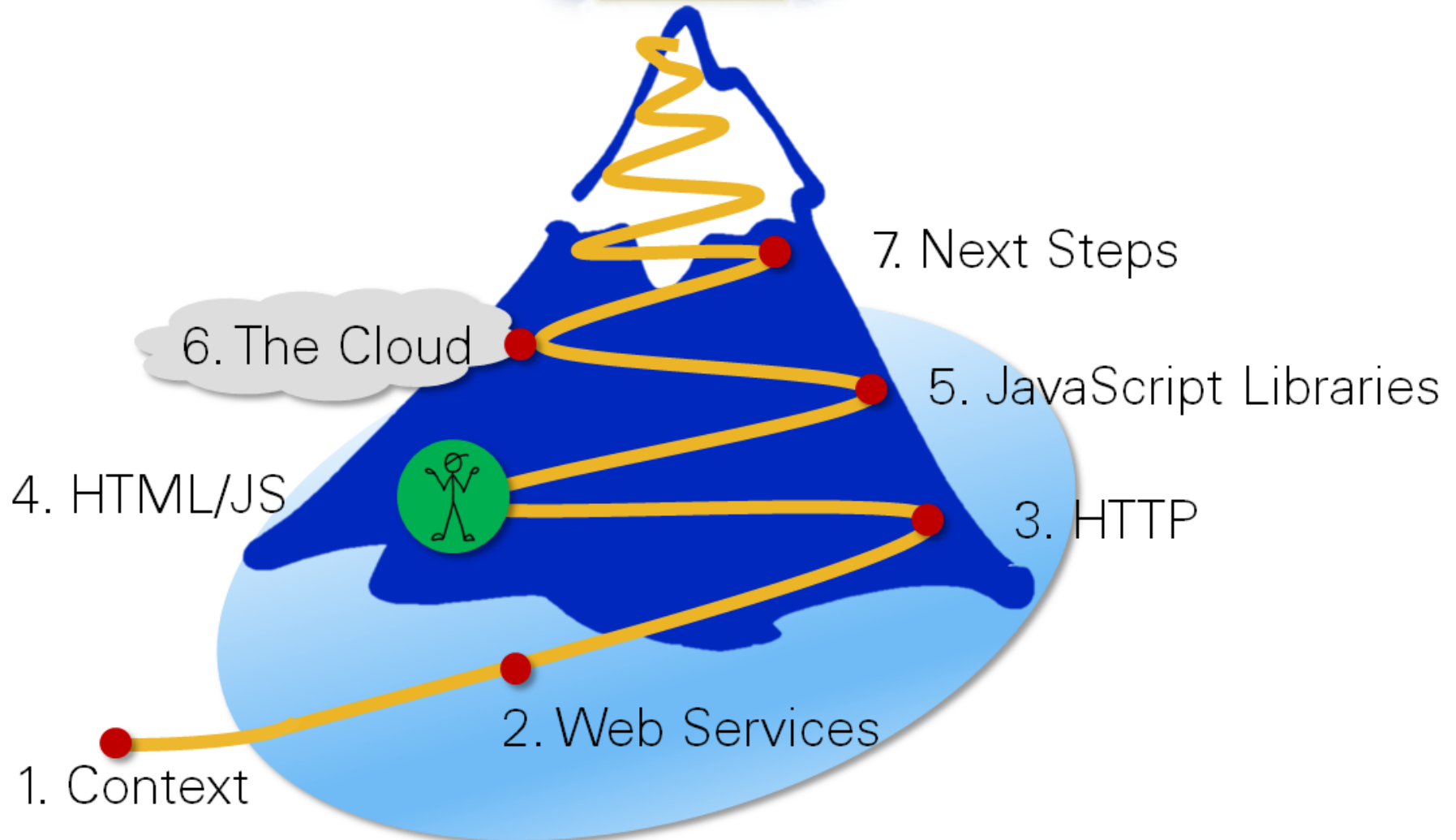
Web Browser



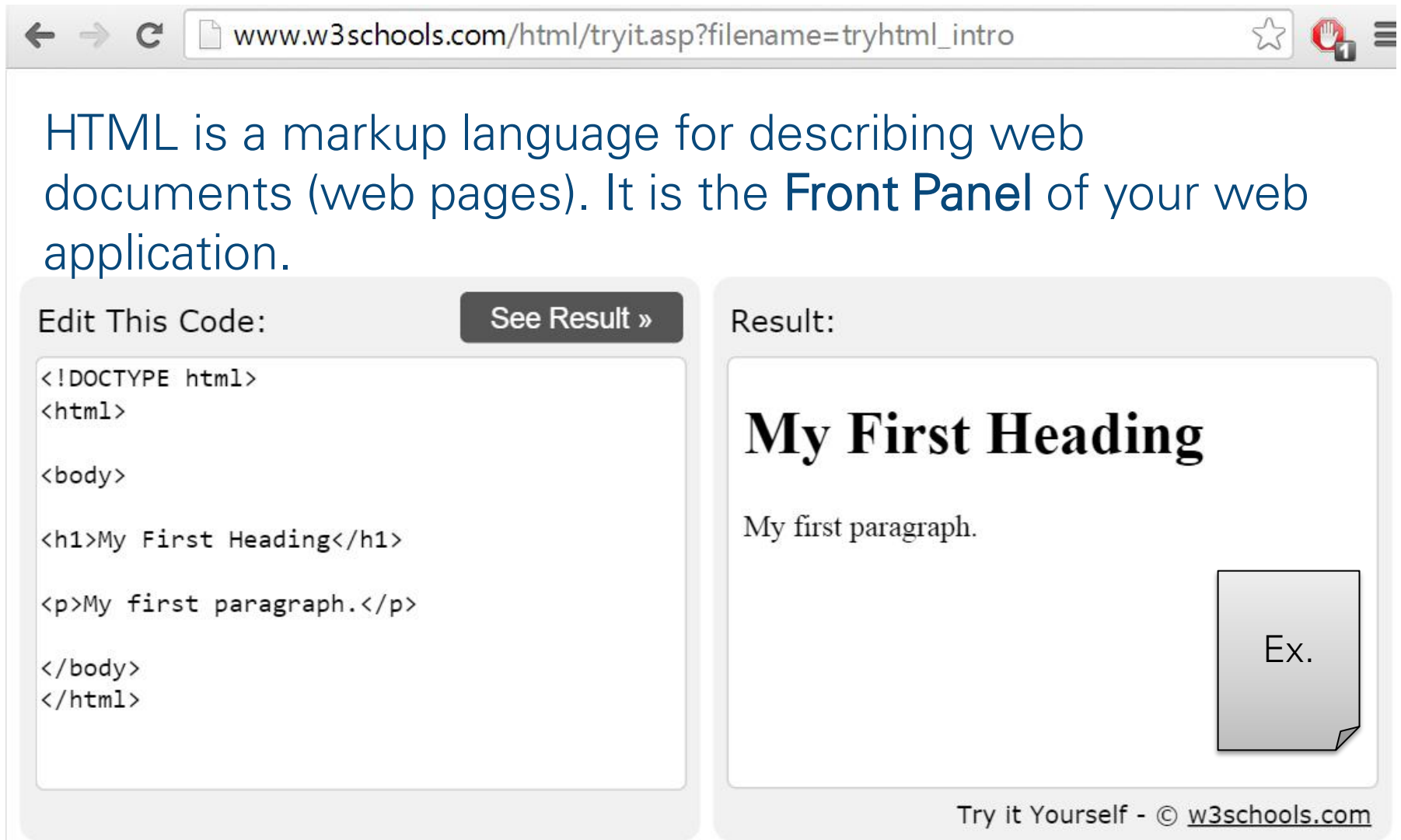
Web Service



4. HTML/JS



What is HTML?



The screenshot shows a web browser window with the address bar displaying `www.w3schools.com/html/tryit.asp?filename=tryhtml_intro`. The page content is divided into two main sections: "Edit This Code:" and "Result:". The "Edit This Code:" section contains a text area with the following HTML code:

```
<!DOCTYPE html>
<html>

<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```

Next to the text area is a button labeled "See Result »". The "Result:" section displays the rendered output of the code, which is a large heading "My First Heading" followed by a paragraph "My first paragraph.". In the bottom right corner of the "Result:" section, there is a small icon of a document with the text "Ex." on it. At the bottom of the page, there is a footer that reads "Try it Yourself - © w3schools.com".

What is JavaScript?



JavaScript can change HTML content. It is the **Block Diagram** of your web application.

Edit This Code:

See Result »

```
<!DOCTYPE html>
<html>
<body>

<h1>What Can JavaScript Do?</h1>

<p id="demo">JavaScript can change HTML
content.</p>

<button type="button"
onclick="document.getElementById('demo').
innerHTML = 'Hello JavaScript!'">
Click Me!</button>
```

Result:

What Can JavaScript Do?

JavaScript can change HTML content.

Click Me!

Ex.

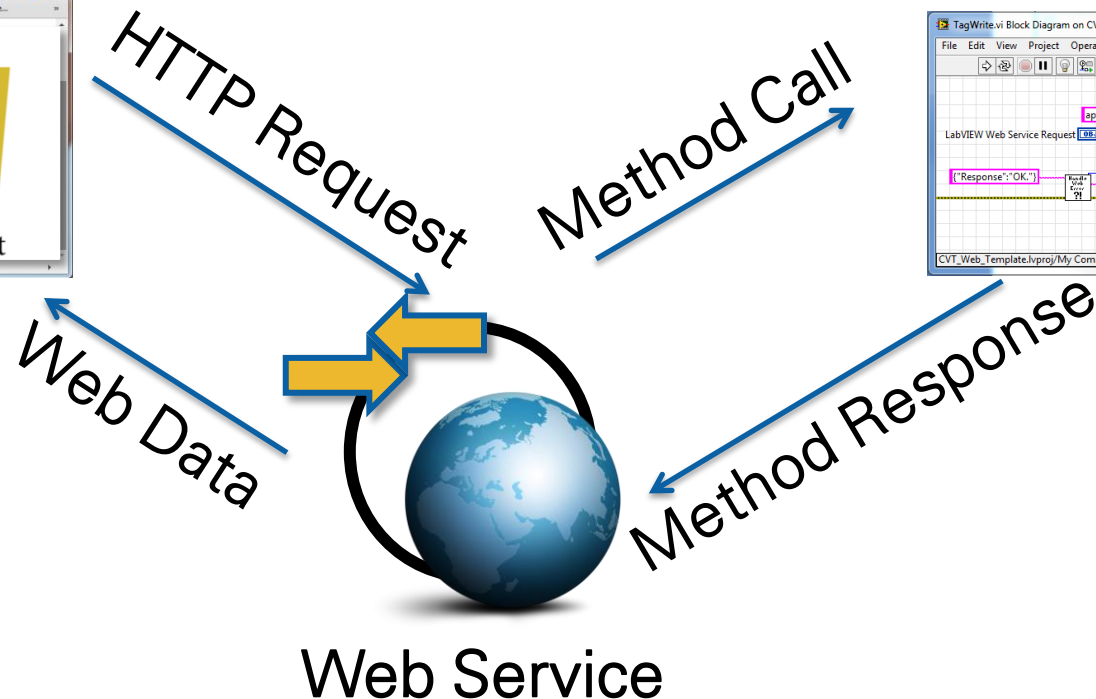
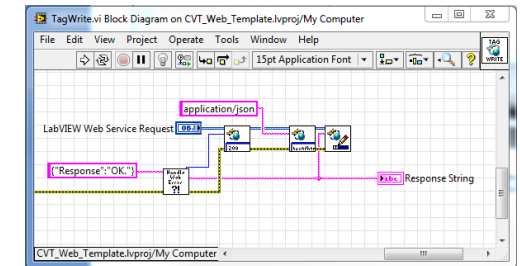
Try it Yourself - © w3schools.com

HTML and JavaScript Run in the Browser

Web Browser



LabVIEW
Web Method



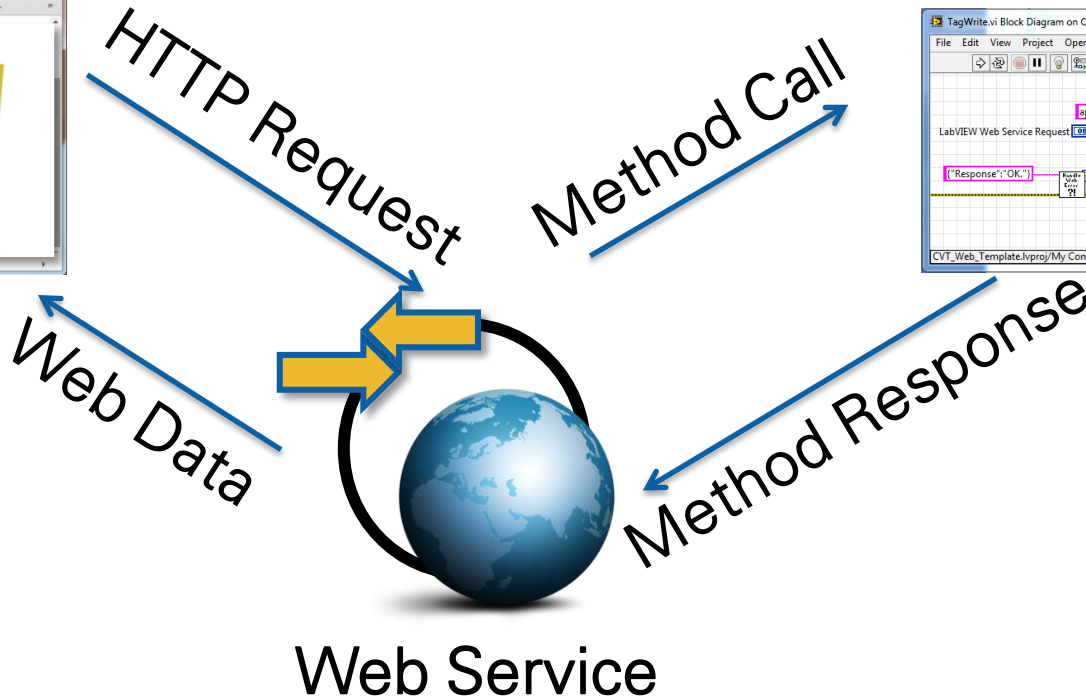
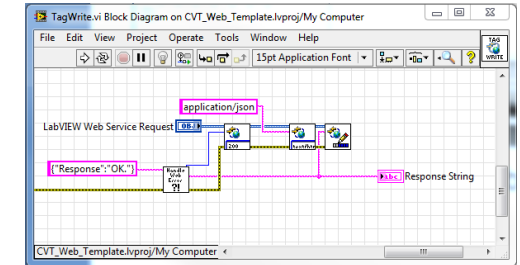
AJAX

Asynchronous JavaScript and XML – web applications with behind the scenes updates

Web Browser



LabVIEW Web Method



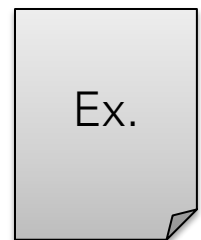
AJAX Demo – Add on Value Change

DEMO



First Number	<input type="text" value="5"/>
Second Number	<input type="text" value="7"/>
Result	12

<http://127.0.0.1:8001/WebClient/addTwoOnValueChange.html>



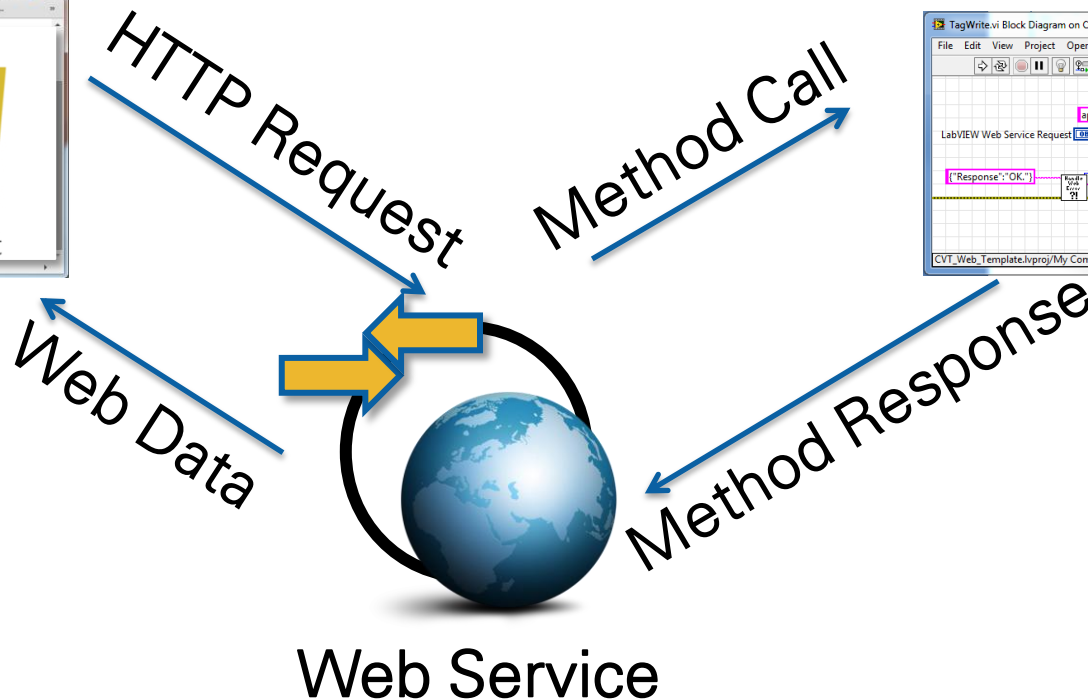
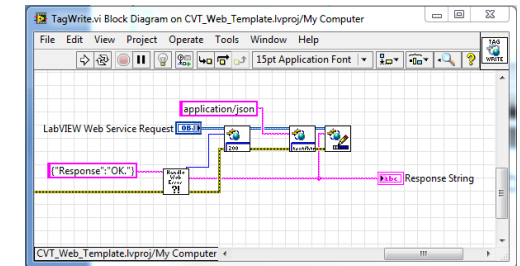
AJAX

Asynchronous JavaScript and XML – web applications with behind the scenes updates

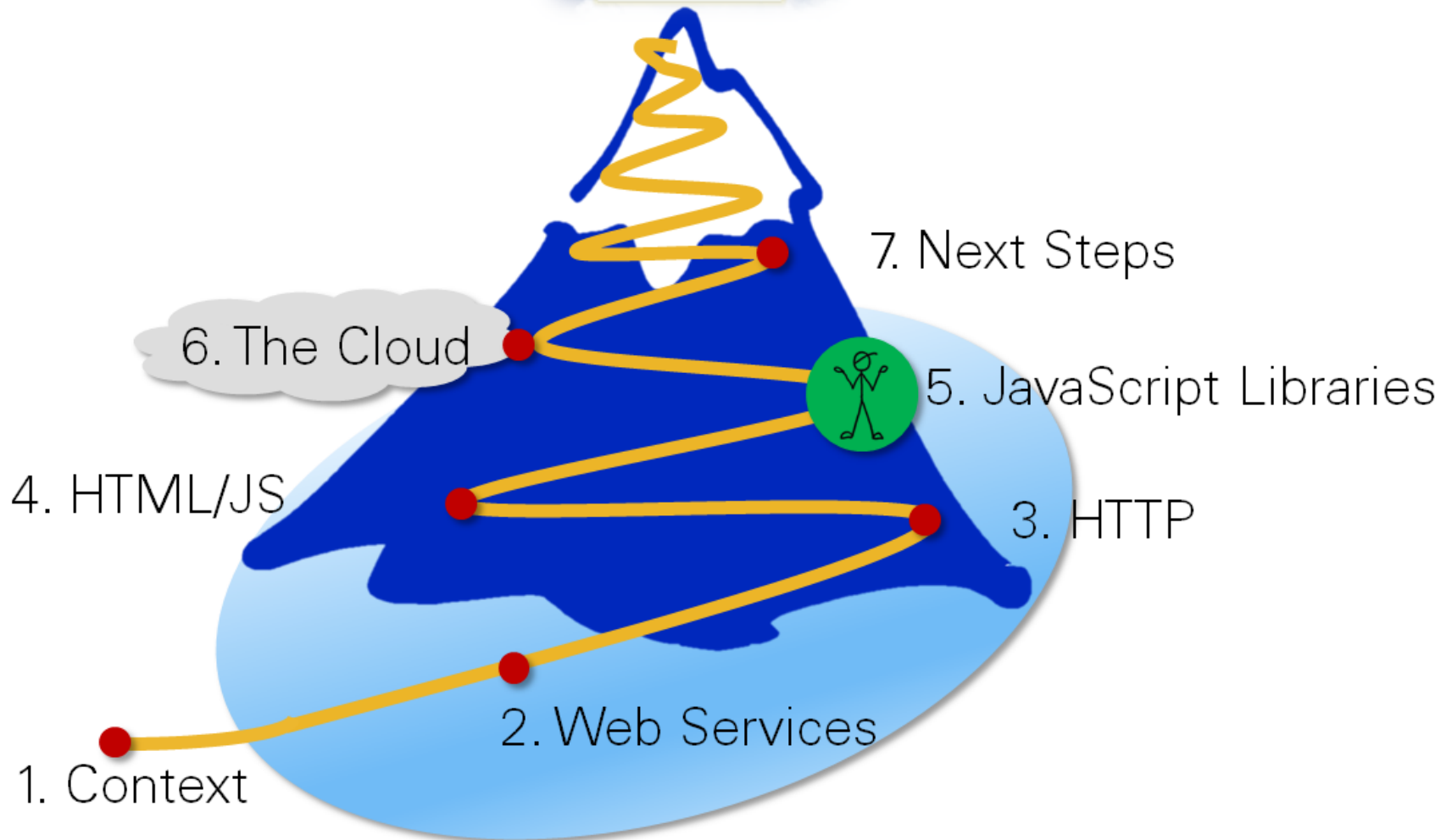
Web Browser



LabVIEW Web Method



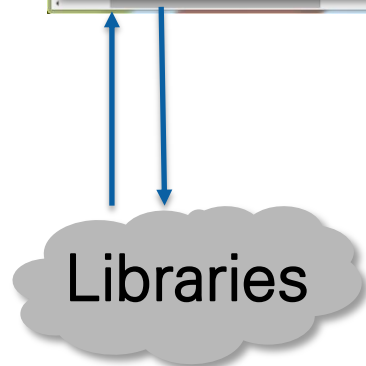
5. JavaScript Libraries



JavaScript Libraries

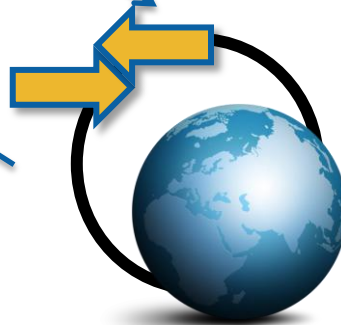
```
<!--Import javascript library-->  
<script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
```

Web Browser



HTTP Request

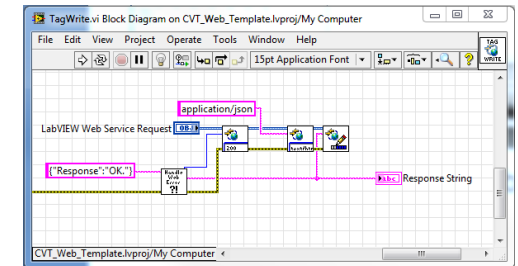
Web Data



Web Service

Method Call

LabVIEW Web Method



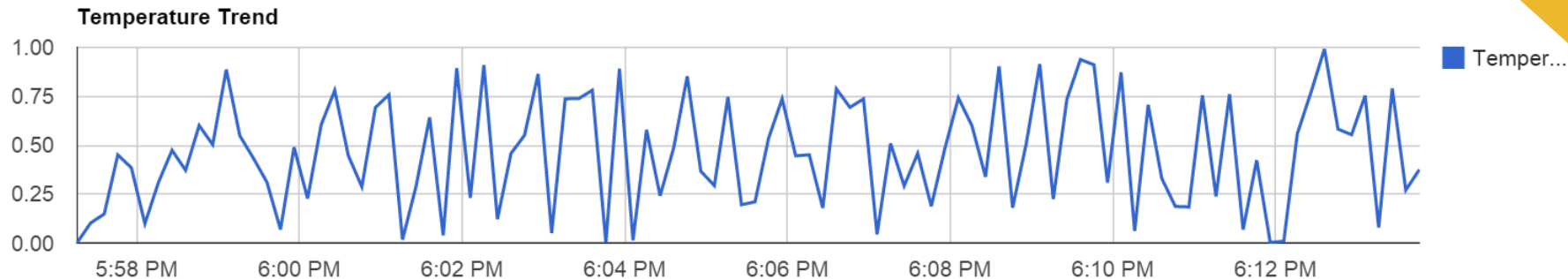
Method Response

Graph Example

DEMO

127.0.0.1:8080/ChartsService/Static/Initial.html

Graph Test



```
<html>
<head>
  <!--Load the AJAX API-->
  <script type="text/javascript" src="https://www.google.com/jsapi"></script>
  <script type="text/javascript" src="loadgraph.js"></script>
</head>

<body>
  <h1>Graph Test</h1>
  <!--Div that will hold the line graph-->
  <div id="chart_div"></div>
</body>
</html>
```

<http://127.0.0.1:8001/GraphService/Initial.html>

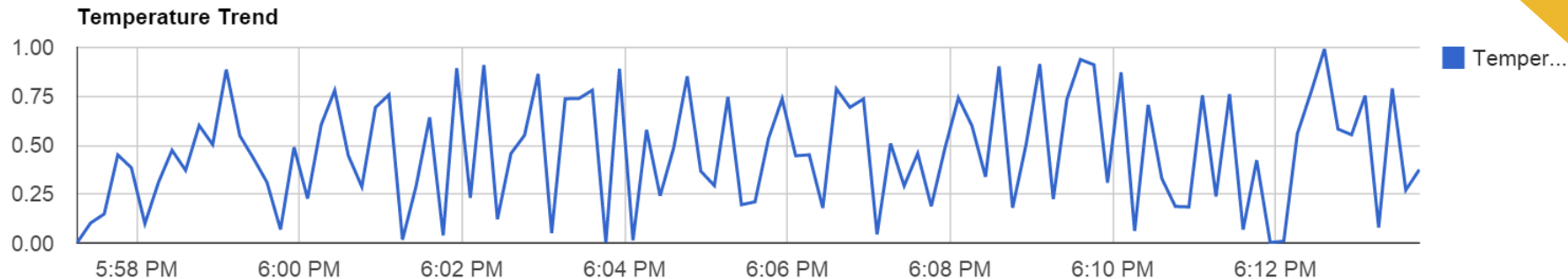
Ex.

Graph Example

DEMO

← → ↺ 127.0.0.1:8080/ChartsService/Static/Initial.html

Graph Test



```
<!--Load the AJAX API-->
<!--Import javascript library-->
<script src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
<script type="text/javascript" src="https://www.google.com/jsapi"></script>
<script type="text/javascript" src="loadgraph_Button.js"></script>
</head>
```

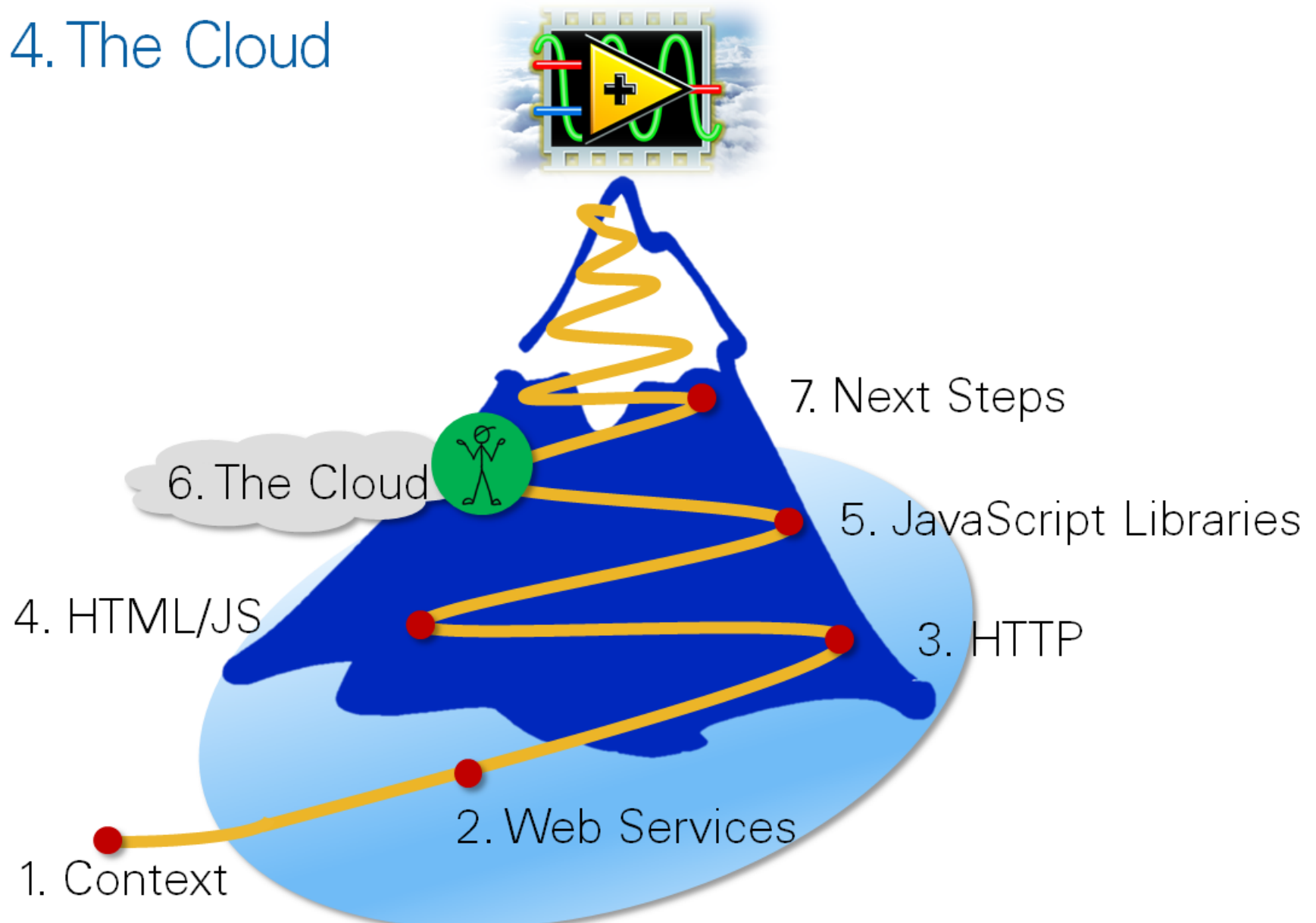
```
<body>
<h1>Graph Test</h1>
<!--Div that will hold the line graph-->
<div id="chart_div"></div>
<button type="button" id='submitButton'>Submit</button>
```

```
</body>
</html>
```

http://127.0.0.1:8001/GraphService/Initial_Submit.html

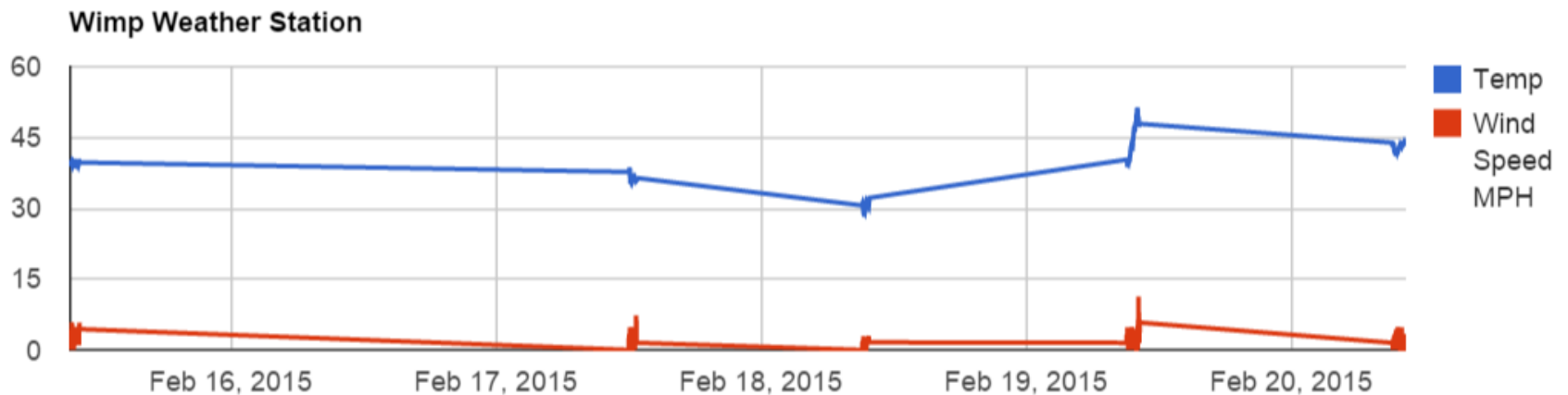
Ex.

4. The Cloud



Cloud Demo

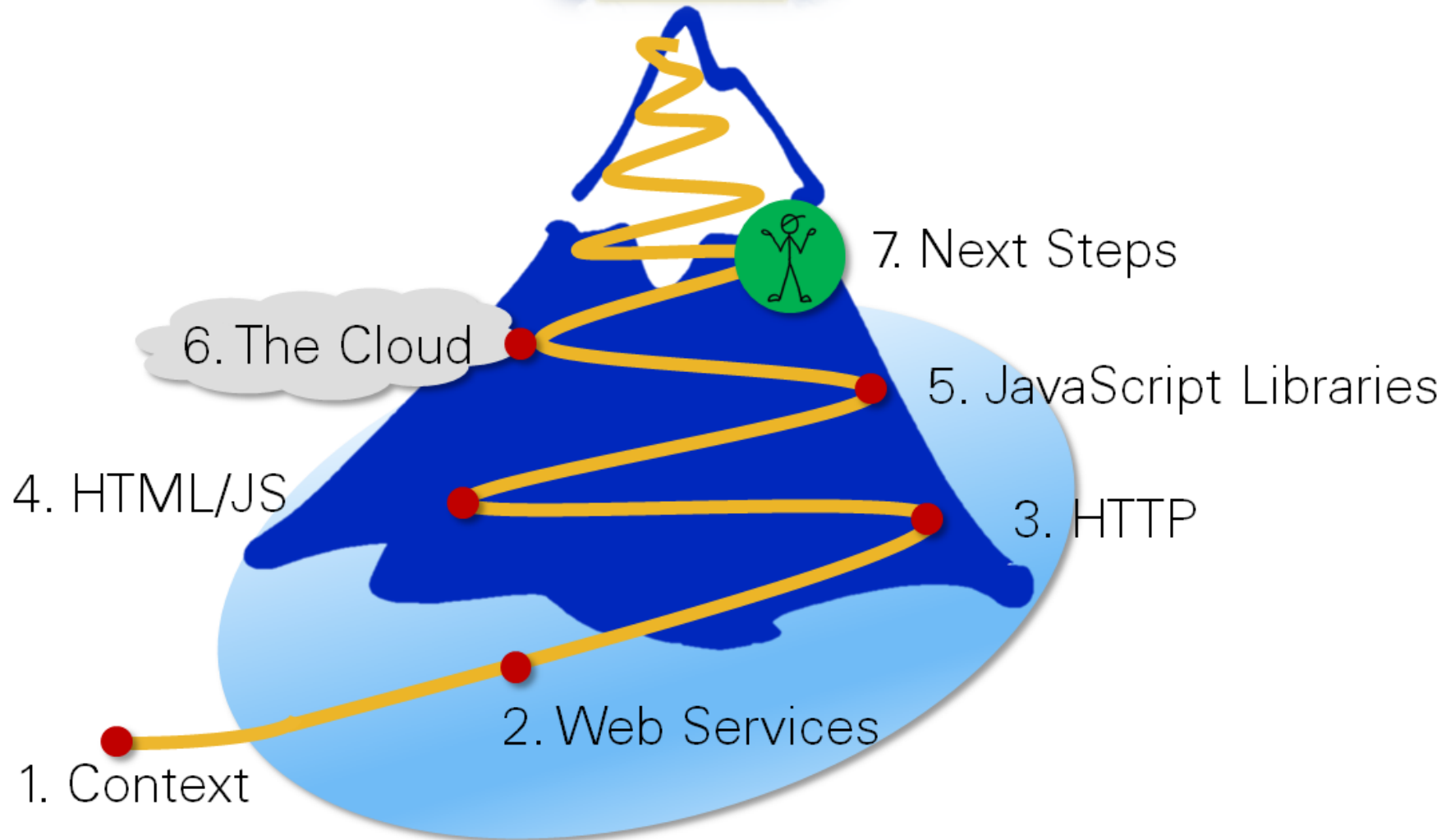
DEMO



<http://127.0.0.1:8001/SparkDataService/SparkData.html>



7. Next Steps



Next Steps: www.tinyurl.com/lvweb

- Getting Started Series
 - Context
 - Web Services
 - HTTP
 - HTML and JavaScript
 - AJAX
 - JavaScript Libraries
- Publishing Data Series
 - Text Stream
 - Table Display
 - Chart
 - Historian
- Misc Examples
 - Google Maps
 - Screenscape
 - Your Example Here!

Home > Community > LabVIEW Web Development



LabVIEW Web Development

Latest Activity: 1 week ago

Overview (customize)

Members (6)

Discussions (1)

Documents (6)

Group Overview



Bring your LabVIEW application to the web through LabVIEW web services, and share and improve your best practices by posting example web applications built with LabVIEW.

For a LabVIEW developer, it can be daunting to learn how to program a web client to monitor your data remotely. Learn from proven

Recent Content

Web Services Getting Started Series
1 week ago

New Under the Hood of LabVIEW 2013
1 week ago

Example 3 - Add Two On Value C
1 week ago

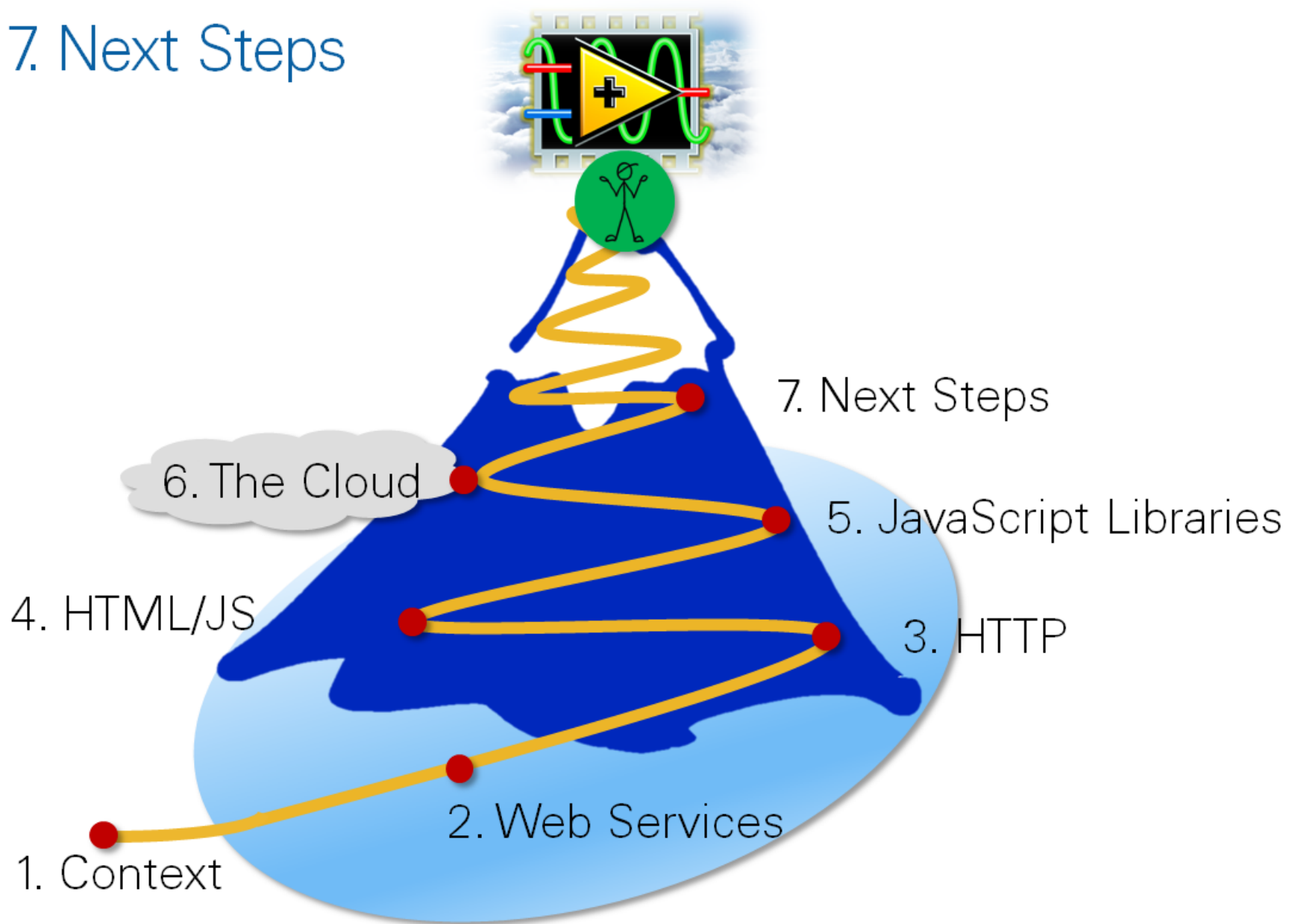
Example 1 - Add Two With Submi
1 week ago

Example 2 - Add Two with Polling
1 week ago

Web Services - Getting Started.ppt
1 week ago

What kind of web services demos
1 week ago

7. Next Steps



Questions?

Next Sessions

12:00 – 13:00

Lunch

13:00 – 13:45

User Interface Tips and Tricks

Improving Code Quality Through
Automated Code Analysis