knowledge16

Experience the Service Revolution



# External Web Services – Integration 201


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servicenow

# Introductions



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- Alex Steinwachs – Solution Consultant
  - Based in Florida (Go Bolts!)
  - With ServiceNow since 2015
  - Implementation Consultant prior to joining ServiceNow
  - Extensive custom application and scripting experience
  - Makes beer for fun in spare time!





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- Joseph Evans – Solution Consultant
  - ServiceNow employee since 2014
  - Based out of the ServiceNow NYC Office
  - ServiceNow customer prior to employment with NOW
  - Extensive custom application and scripting experience
  - Writes ServiceNow JavaScript for fun in spare time!





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# Overview of Lab

- Initial setup and logistics
  - Log in to your instance and the Slack channel
- Creating and testing the connection
  - Create a new REST message and send a test message
- Use Web Services in the Workflow Editor
  - Create a new REST message and use it within a workflow
- Setup and configure OAuth
  - Learn how to configure OAuth with your ServiceNow integration
- Use Web Services connection in a script
  - Configure a UI Action to call a web service and manipulate field values



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# Top Takeaways

1. Gain exposure to integration concepts and best practices.

2. Learn how to setup REST messages in ServiceNow.

3. Use those integrations in a fun and meaningful way in ServiceNow.



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# Lab 1.0 – Initial Setup and Logistics

- Log in to your ServiceNow instance
- Change admin account name
- Create a Slack account – http://bit.ly/1QPyq2y
- Join the Slack Channel – https://k16web201.slack.com
- (Optional) Create a Slack team and Channel









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# Integrations



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**What System would someone integrate ServiceNow into?**



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- Critical Business Systems (EMR, ERP, CSM)
- Databases
- Home grown apps
- Other Cloud providers
- Communication Systems
- Active Directory
- Vulnerability Scanners
- Other Companies
- …



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**What integration points does ServiceNow have available?**



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- Databases
- Home grown apps
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- …

**What integration points does ServiceNow have available?**

- Web Services
- JDBC
- ODBC
- CSV
- XML
- Orchestration
- Email
- LDAP
- …



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# External Web Services



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# External Web Services

- External web services are used to interact with 3rd party systems outside of a ServiceNow instance over the web.



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- External web services are used to interact with 3rd party systems outside of a ServiceNow instance over the web.
- Common web service formats include:
  - SOAP – Simple Object Access Protocol
  - REST – REpresentational State Transfer



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# External Web Services

- External web services are used to interact with 3rd party systems outside of a ServiceNow instance over the web.
- Common web service formats include:
  - SOAP – Simple Object Access Protocol
  - REST – REpresentational State Transfer
- Communication is performed using machine readable file formats such as:
  - XML – eXtensible Markup Language
  - JSON – JavaScript Object Notation



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# Simple Object Access Protocol (SOAP)

- Includes an endpoint URL to send each request
- Required format of the request as a web services description language (WSDL) file
- SOAP components:
  - Envelope – identifies the XML document as a SOAP message (required)
  - Header – contains header information
  - Body – contains call, and response information (required)
  - Fault – provides information about errors that occur while processing

```
<SOAP-ENV:Envelope xmlns:xsd="http://www.w3.org/2001/XMLSchema" xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encod:
  <SOAP-ENV:Body>
    <GetQuote xmlns="http://www.webserviceX.NET/">
      <symbol xsi:type="xsd:string">${symbol}</symbol>
    </GetQuote>
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```



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# REpresentation State Transfer (REST)

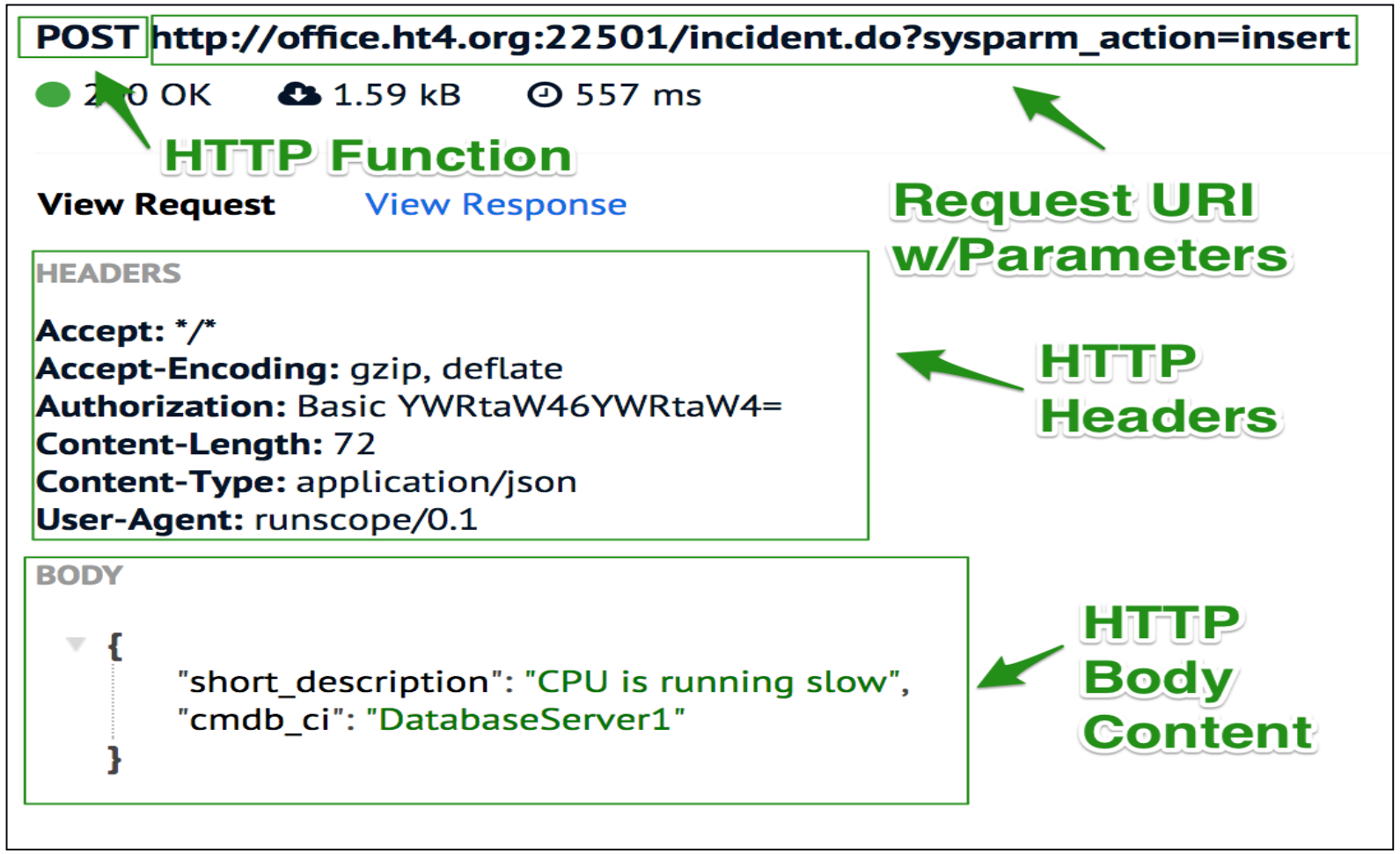
- Applications using REST are often referred to as RESTful APIs
- A web service methodology
- Attempts to decompose an application into smaller components or resources
- Utilizes smaller HTTP-based communication for scalable interaction



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# Major Components of a REST Message

- HTTP Function
- Uniform Resource Identifier (URI)
- HTTP Headers
- URL Parameters
- HTTP Body/Content





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# HTTP Request & Response



REQUEST URL

HTTP Headers

Content (optional)

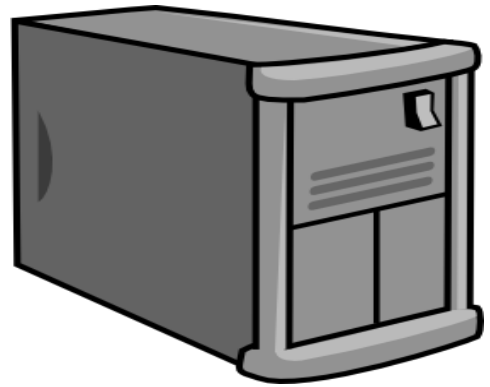
**HTTP Request**

**HTTP Response**

Status Code

HTTP Headers

Content





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# Major REST Functions

- Most Common
  - POST
  - PUT
  - GET
  - DELETE
- Less Common
  - PATCH
  - HEAD
  - OPTIONS



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# Generally Accepted REST Collections & Elements

- Collections

  Lists or Groups
  http://ht4.org/api/users

  GET: Returns list of users
  POST: Creates a user record
  PUT: Modifies a filtered list of records
  DELETE: Deletes qualifying records

- Elements

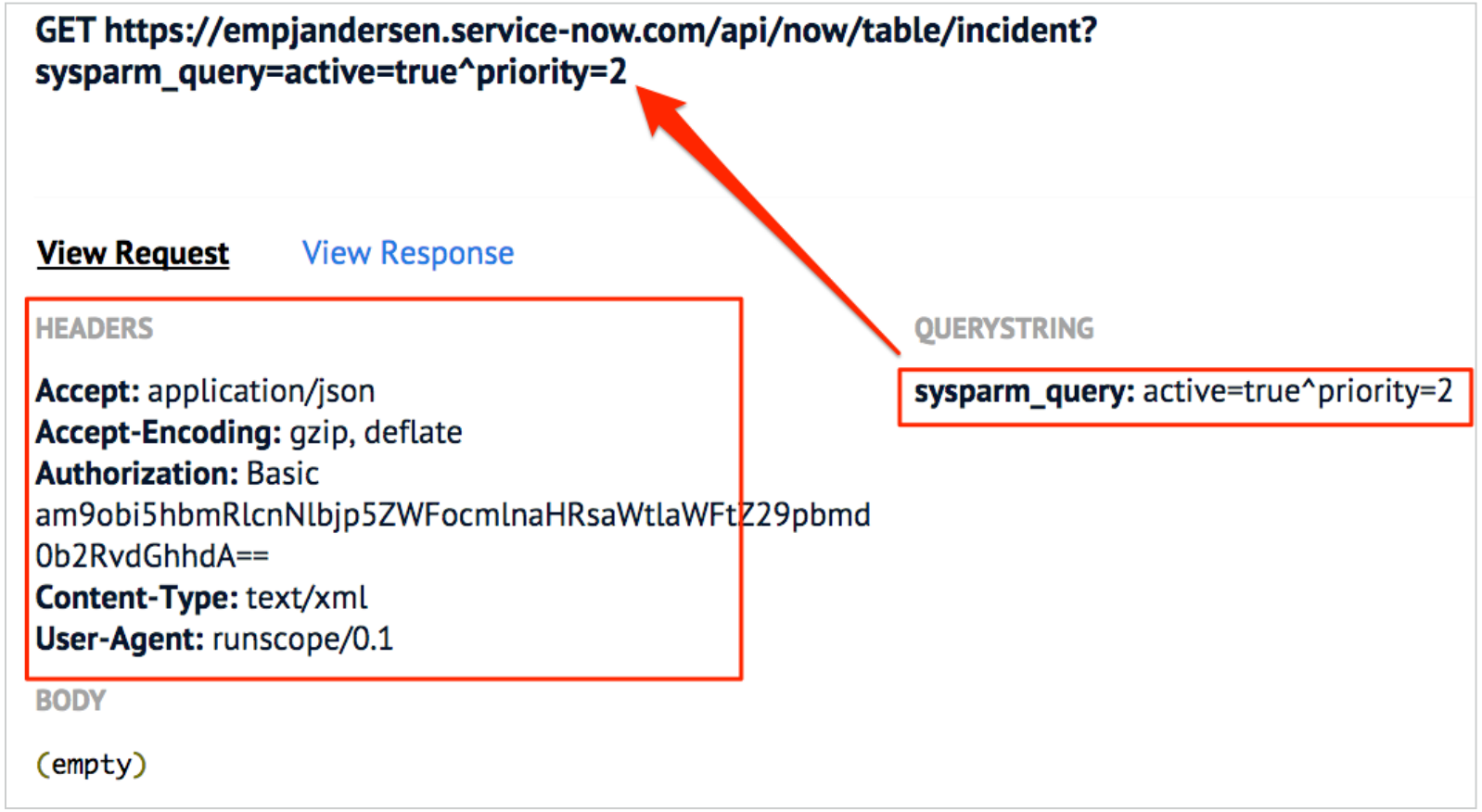
  Individual Items
  http://ht4.org/api/users/john

  GET: Returns user record
  POST: N/A
  PUT: Modifies single record
  DELETE: Deletes record


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# HTTP Methods Used with REST

- GET
  - Typically used for queries
  - HTTP Components
    - Request URL & Parameters
    - HTTP Headers

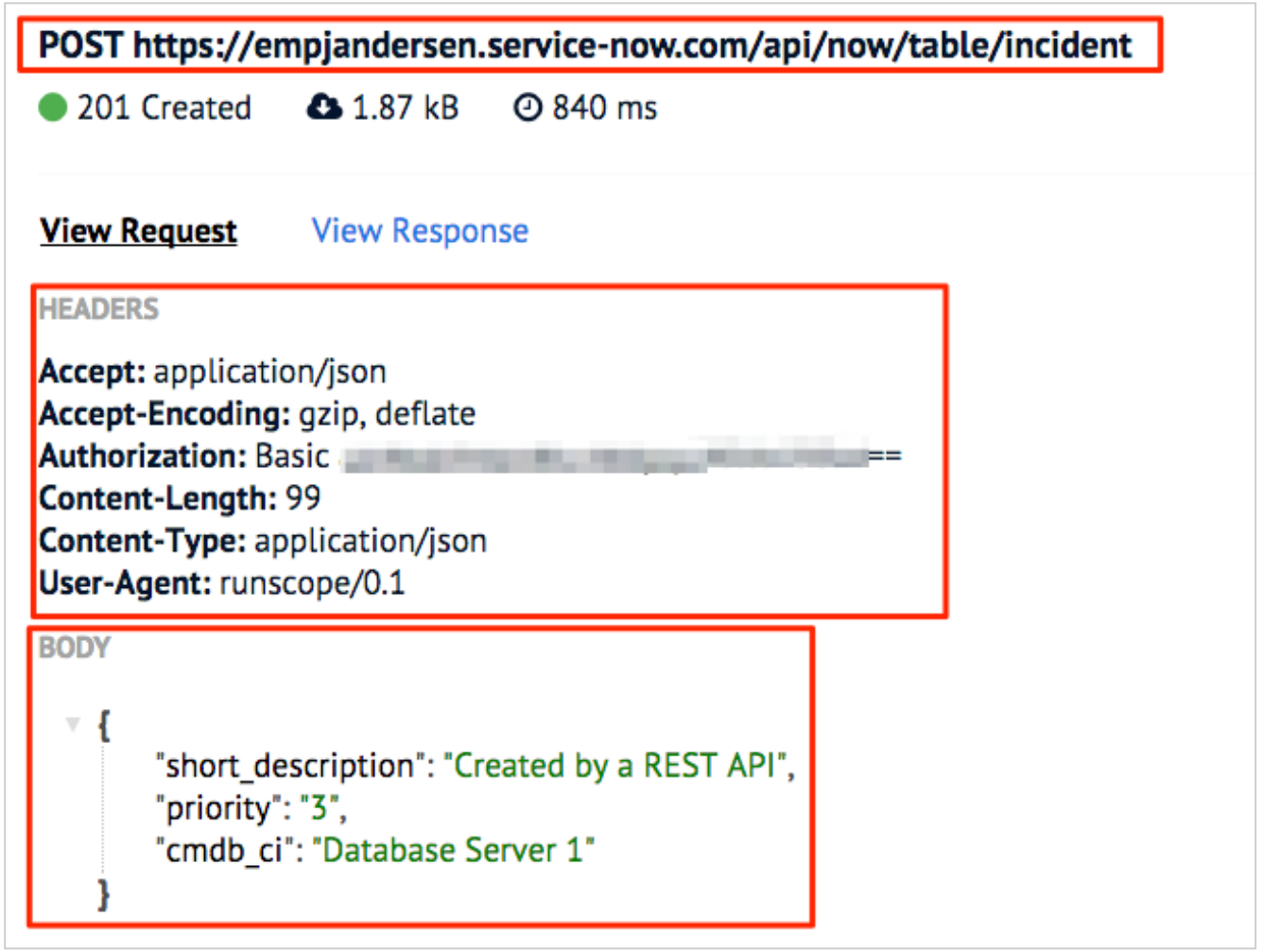





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# HTTP Methods Used with REST

- POST
  - Typically used to create a resource
  - HTTP Components
    - Request URL & Parameters
    - HTTP Headers
    - Content

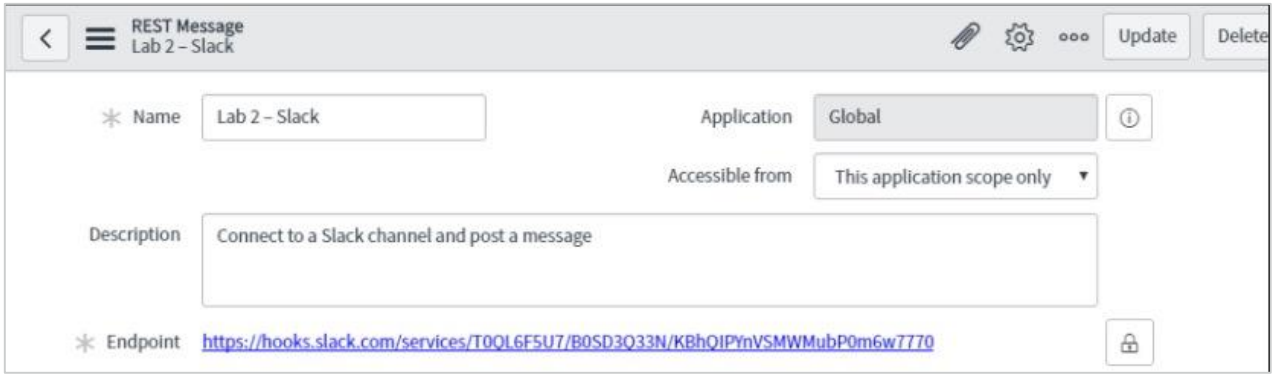





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# Lab 2.0 – Creating and Testing the Connection

- Create a new Outbound REST Message
- Configure the REST message POST method
- Generate and enter test values
- Test connection to Slack!

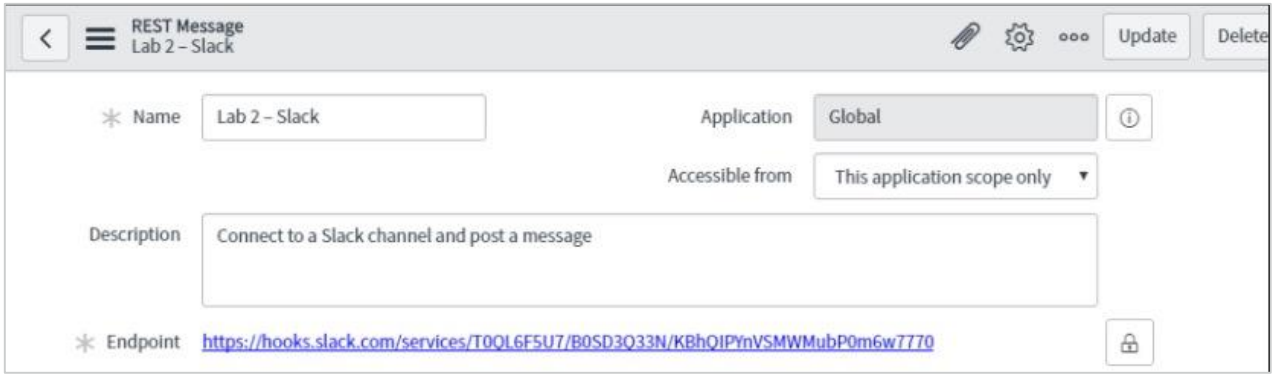


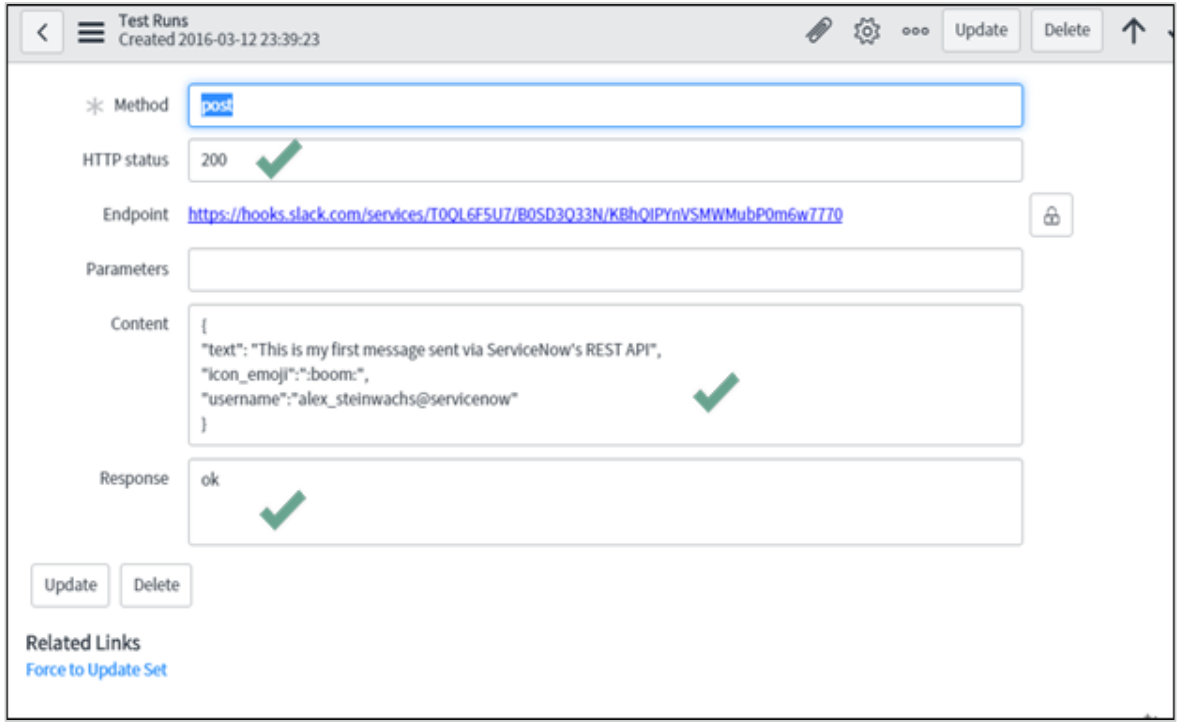


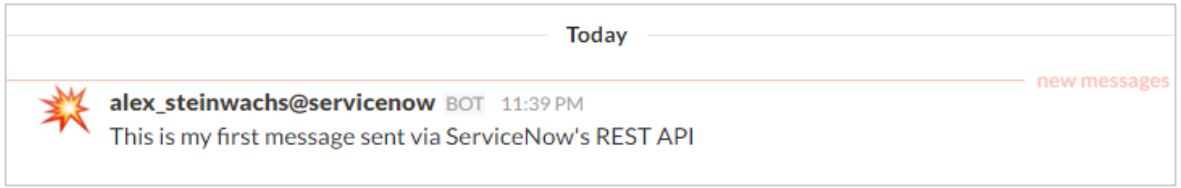

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- Record Workflow
  - Call API directly from Visual Workflow
  - Great for sending data to another system and waiting for a response to continue a process



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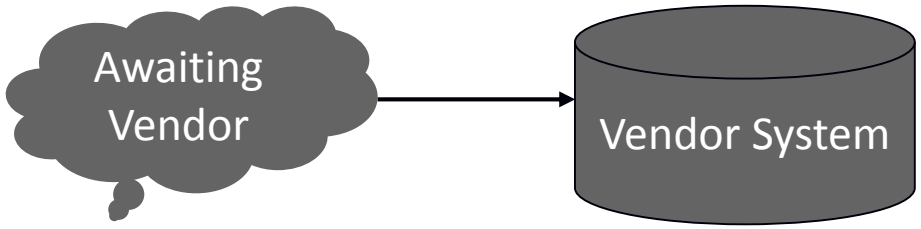





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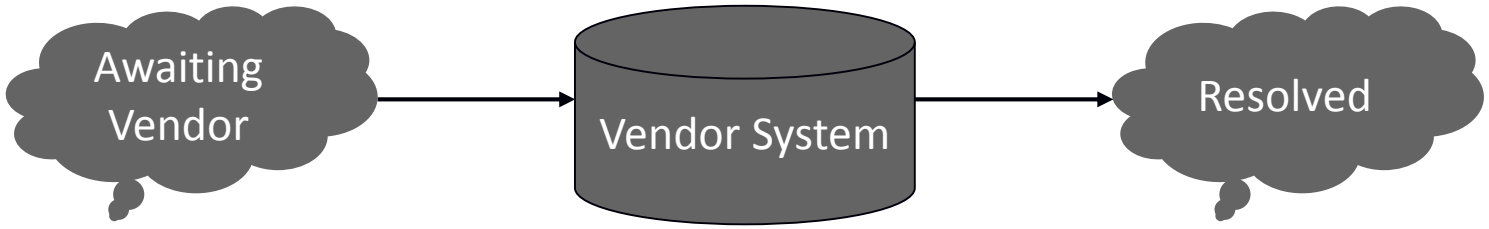





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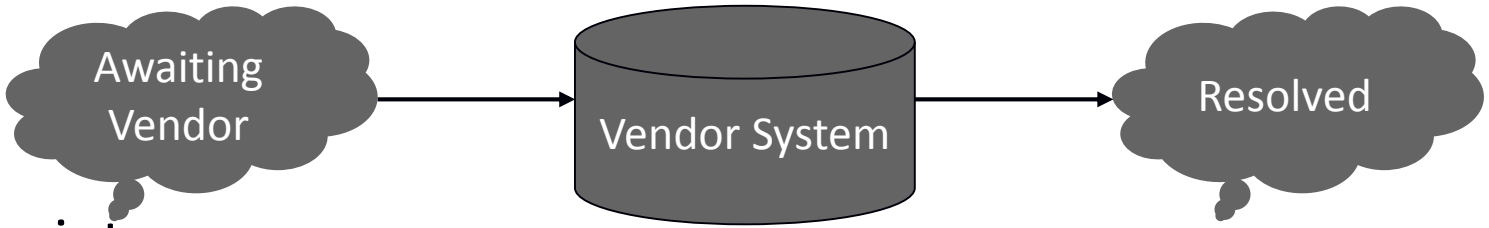





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  - Include the API function in your Scripts
  - Great for transforming or looking up data

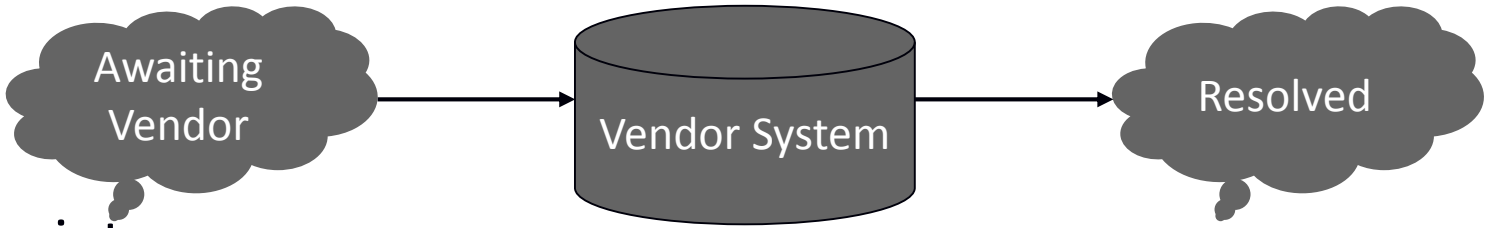




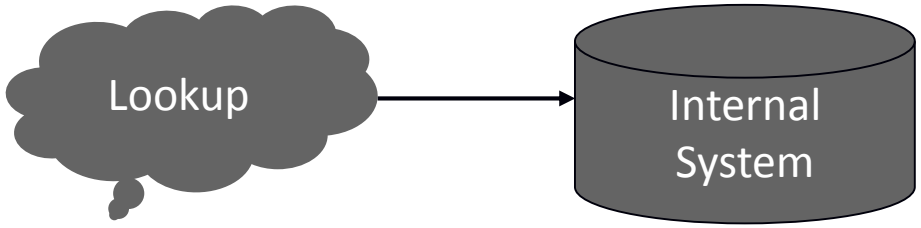
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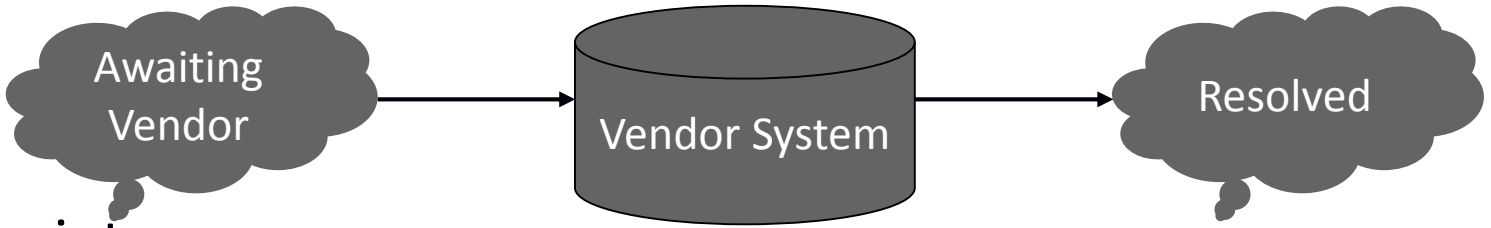




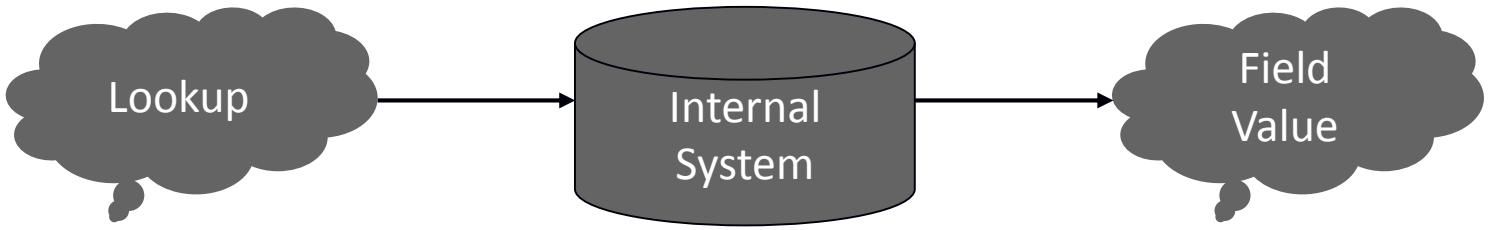

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# RESTMessageV2 API

- ServiceNow has a built in function to call configured REST messages
- The RESTMessageV2 API allows you to send outbound REST messages using JavaScript
  - Use the RESTResponseV2 API to manage the response returned by the REST provider
  - You can use this API in scoped applications, or within the global scope
- Significantly enhanced with the Fuji release
- Available for Workflows and Scripts



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# RESTMessageV2 API Functions

- RESTMessageV2(String name, String methodName)
  - Instantiates a RESTMessageV2 object using information from a REST message record
  - You must have a REST message record defined before you can use this constructor



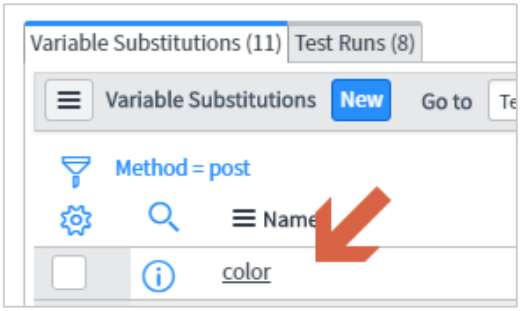



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# RESTMessageV2 API Functions

- RESTMessageV2(String name, String methodName)
  - Instantiates a RESTMessageV2 object using information from a REST message record
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- setStringParameter(String name, String value)
  - Set a REST message function variable with the specified name from the REST message record to the specified value
  - XML reserved characters in the value are converted to the equivalent escaped characters



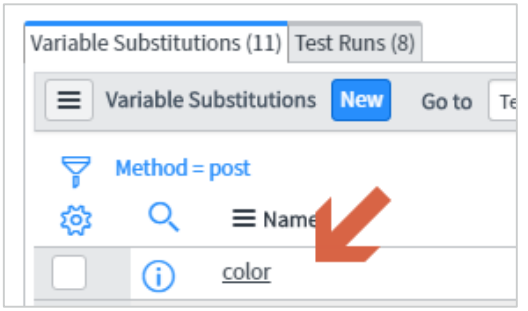



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- setStringParameter(String name, String value)
  - Set a REST message function variable with the specified name from the REST message record to the specified value
  - XML reserved characters in the value are converted to the equivalent escaped characters
- execute()
  - Send the REST message to the endpoint



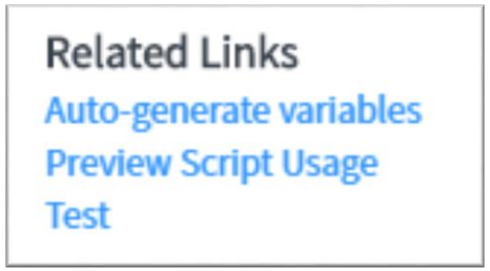






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# Easy Button

- ServiceNow will generate a sample script with the Preview Script Usage Related Link

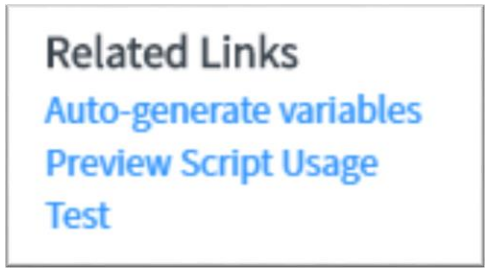





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# Easy Button

- ServiceNow will generate a sample script with the Preview Script Usage Related Link
- Use this as a starting point to create your integration





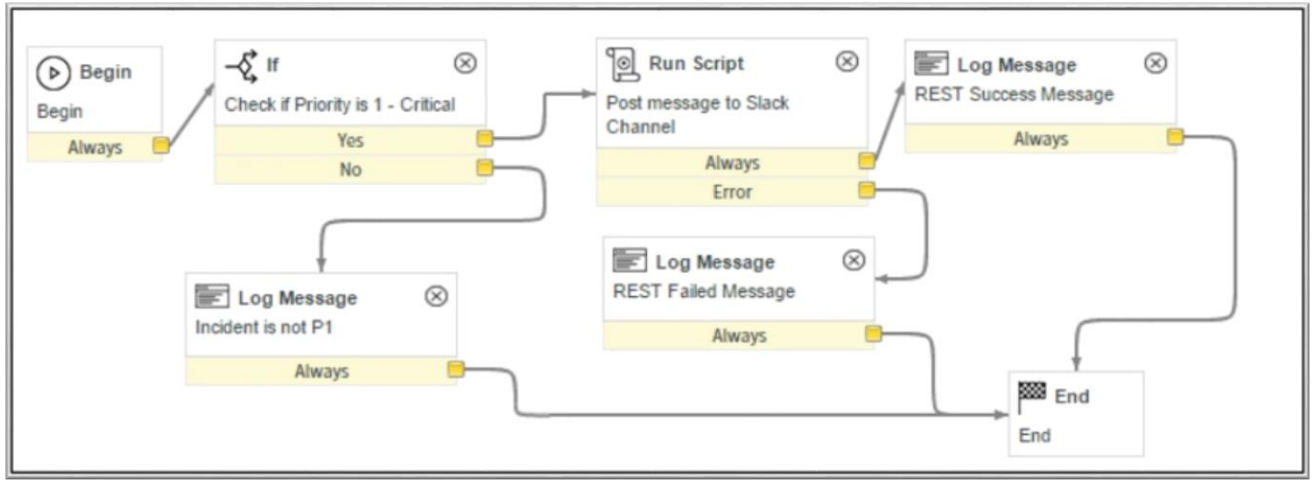


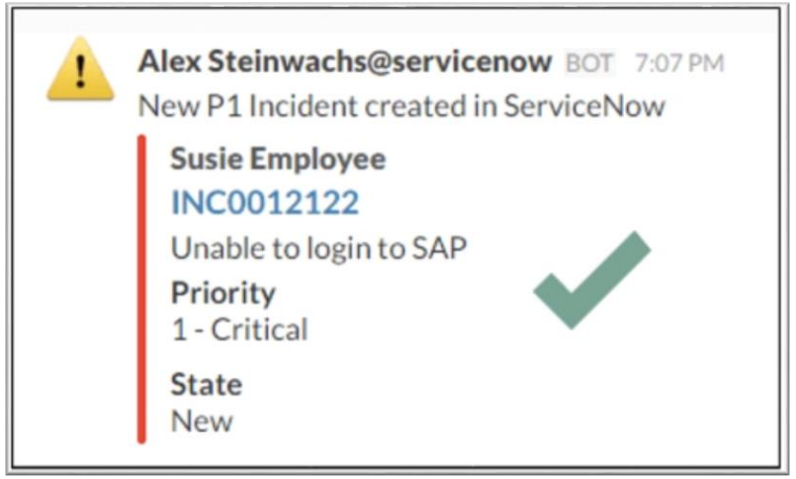


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# Lab 3.0 – Using Web Services in the Workflow Editor

- Create a new Outbound REST Message
- Test sending the REST Message to Slack channel
- Configure a new incident workflow using a REST activity
- Post a message to Slack using the workflow
- (Optional) Add additional fields to the workflow and post to Slack



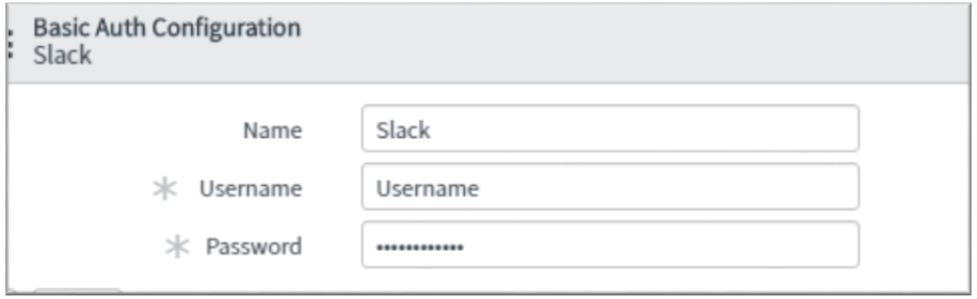






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# Authentication Methods

- Basic authentication
  - Provide Username and Password with each request
  - Most Common, least secure

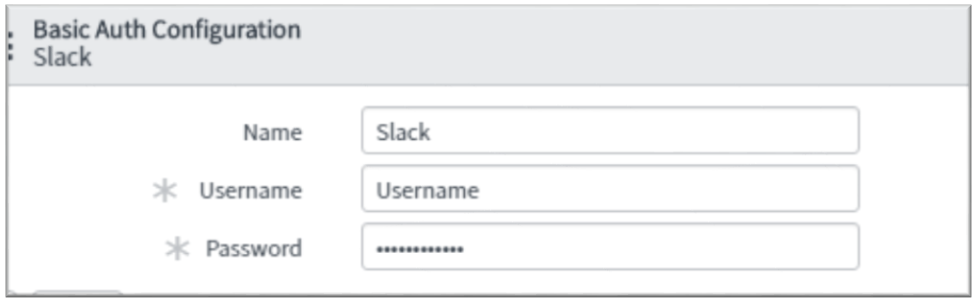




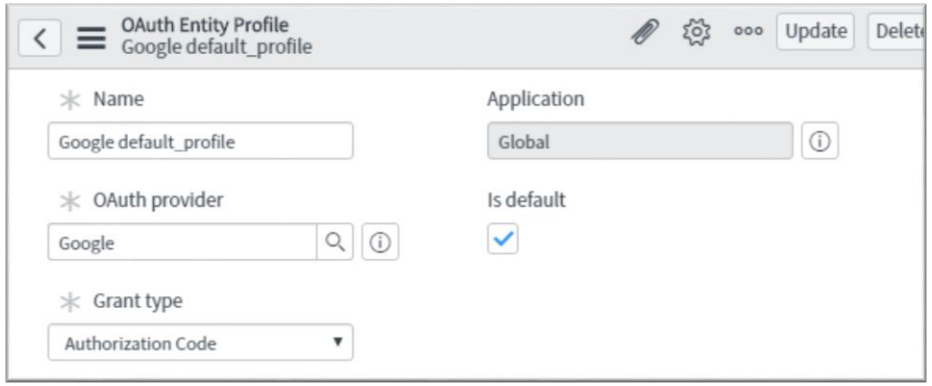

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# Authentication Methods

- Basic authentication
  - Provide Username and Password with each request
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- OAuth 2.0
  - OAuth provides secure delegated access to server resources on behalf of a resource owner
  - Send OAuth access token with each request

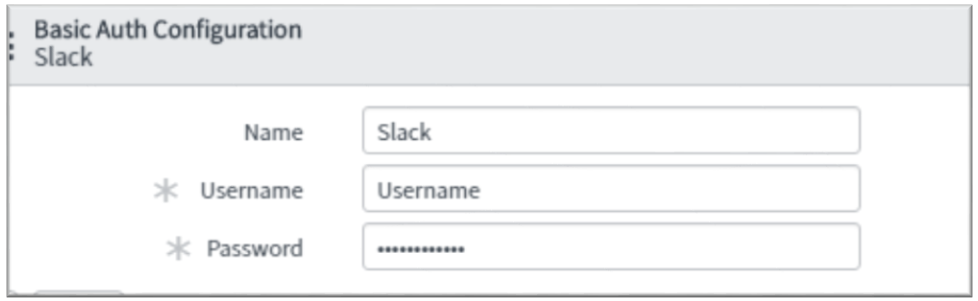




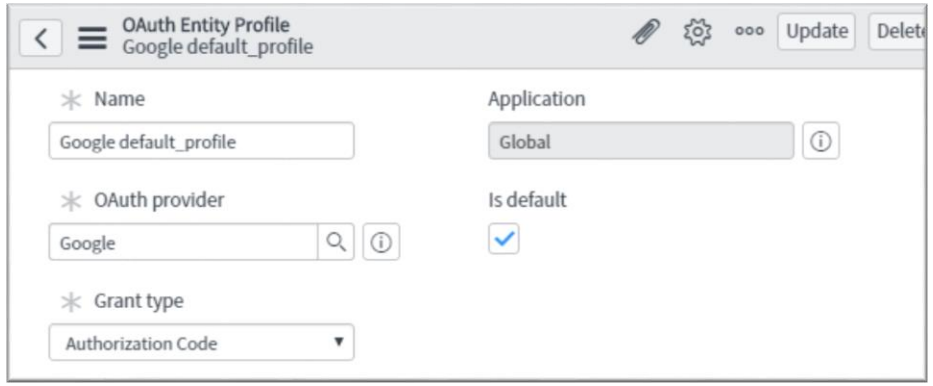

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# Authentication Methods

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  - Most Common, least secure




- OAuth 2.0
  - OAuth provides secure delegated access to server resources on behalf of a resource owner
  - Send OAuth access token with each request




- Mutual authentication using protocol profiles
  - Establishes trust by exchanging Secure Sockets Layer (SSL) certificates

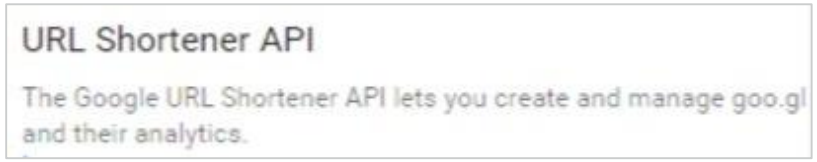


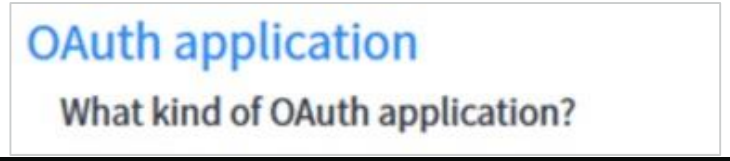
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# Lab 4.0 – Setup and Configure OAuth

- Create a new Google Project in the Google Developer Console
- Use the Google API Manager to configure the URL Shortener API
- Setup an OAuth client ID to connect from your ServiceNow instance
- Configure the Google Service as an OAuth provider in your instance
- Add the Google URL Shortener to OAuth entity scope
- Configure a new REST Message with the URL Shortener API






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# How Does OAuth Work?



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# How Does OAuth Work?






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# How Does OAuth Work?




Incident
data



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# How Does OAuth Work?






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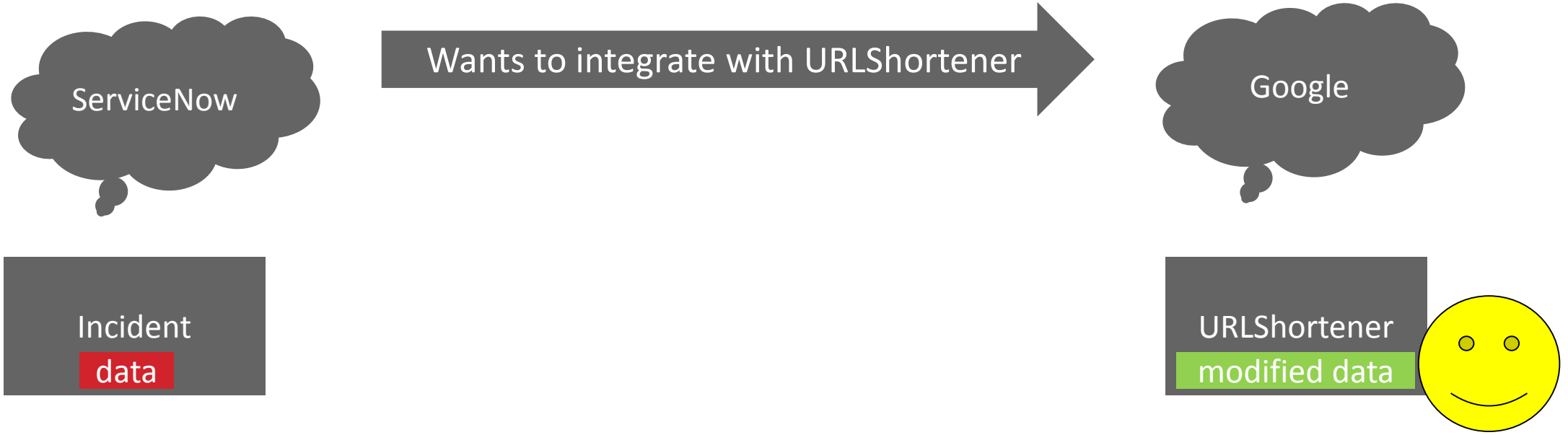
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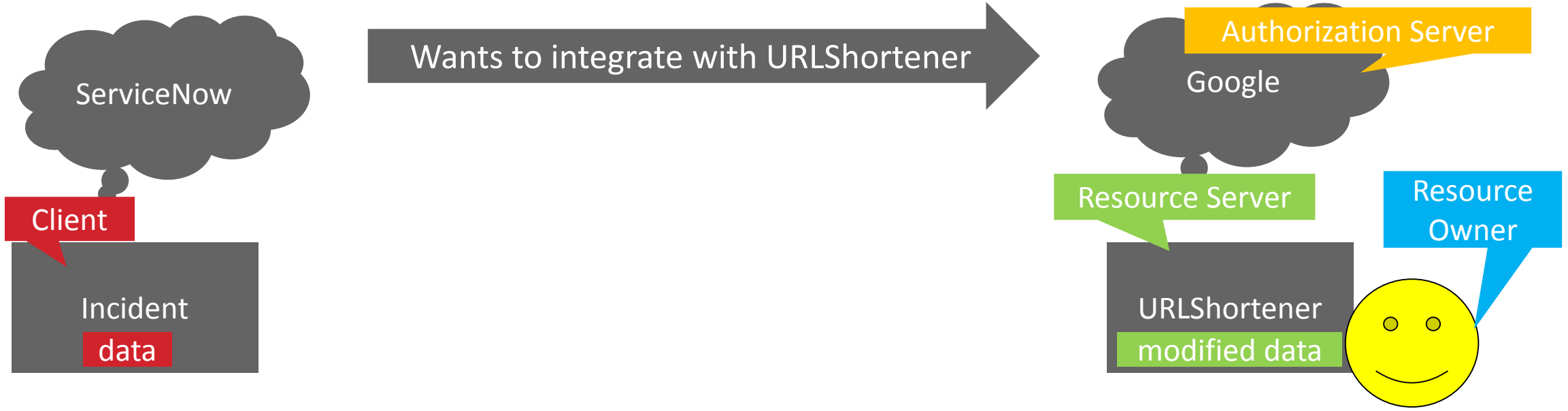
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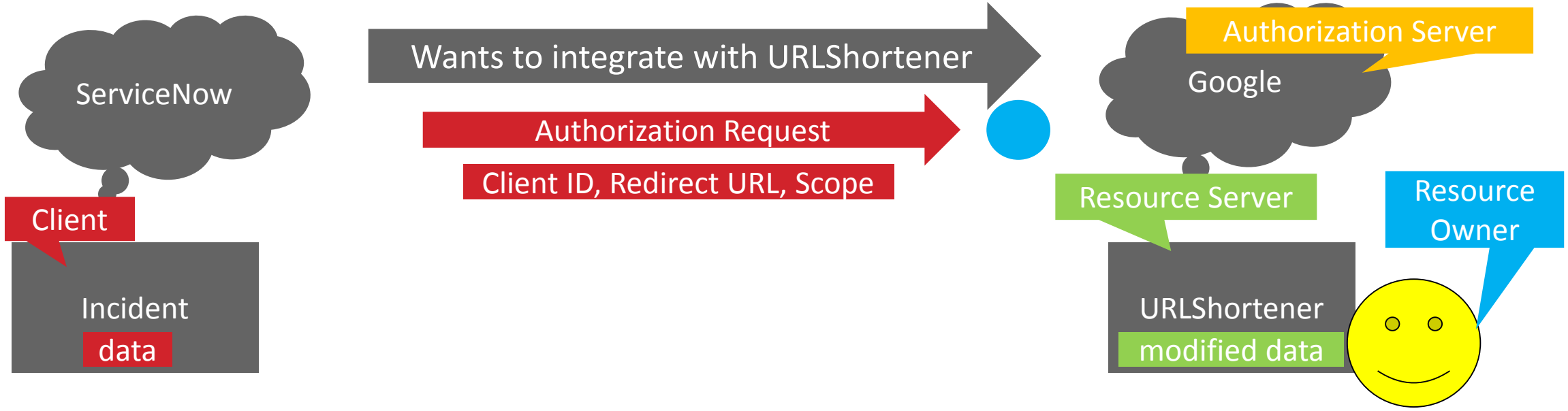
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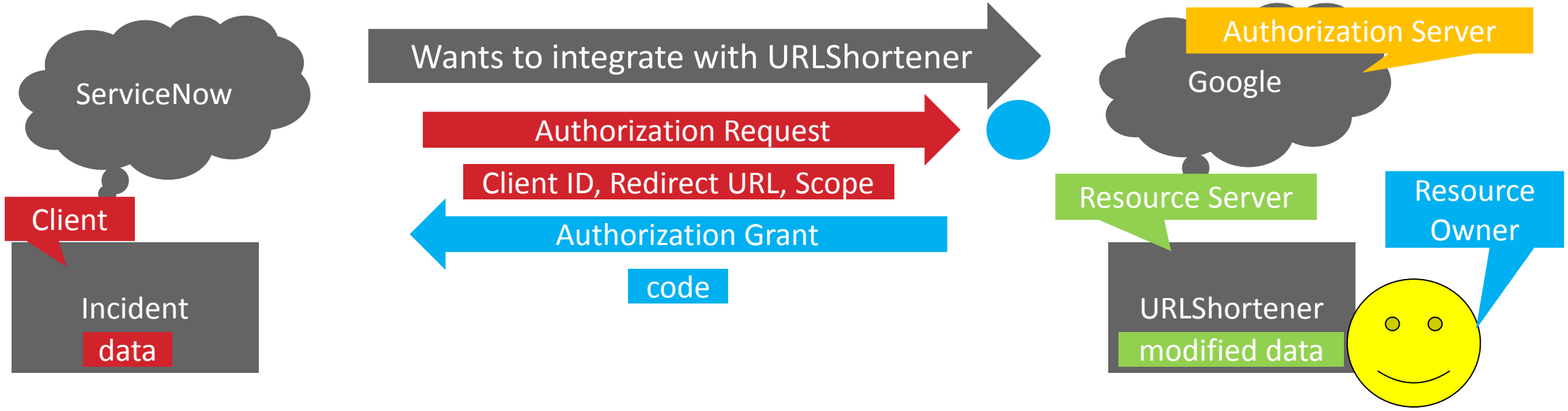
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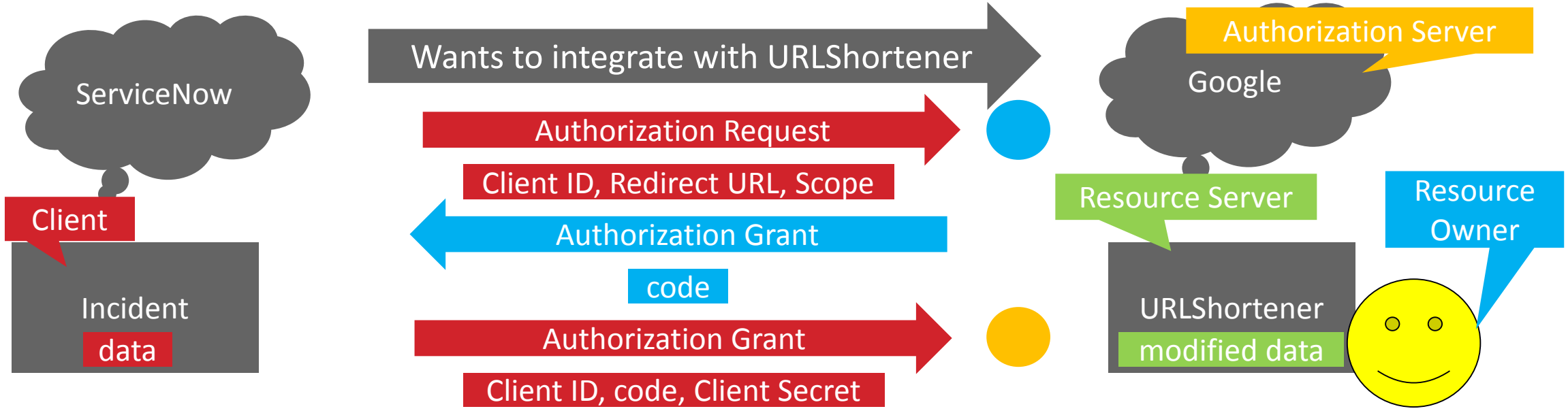
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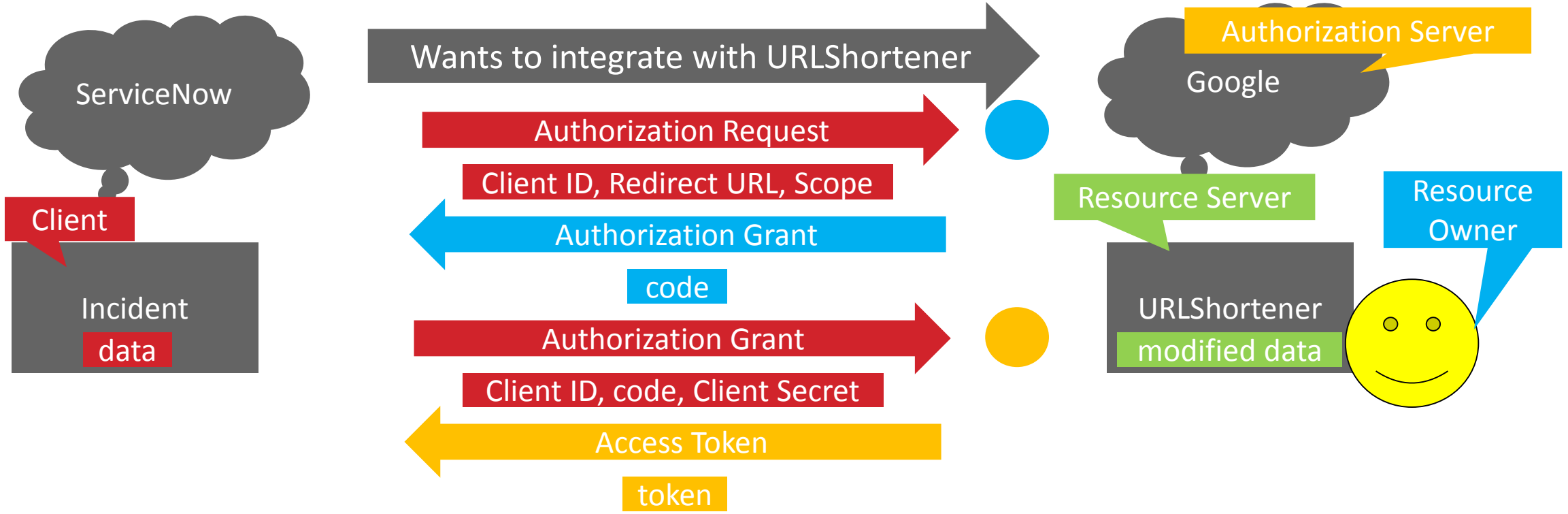
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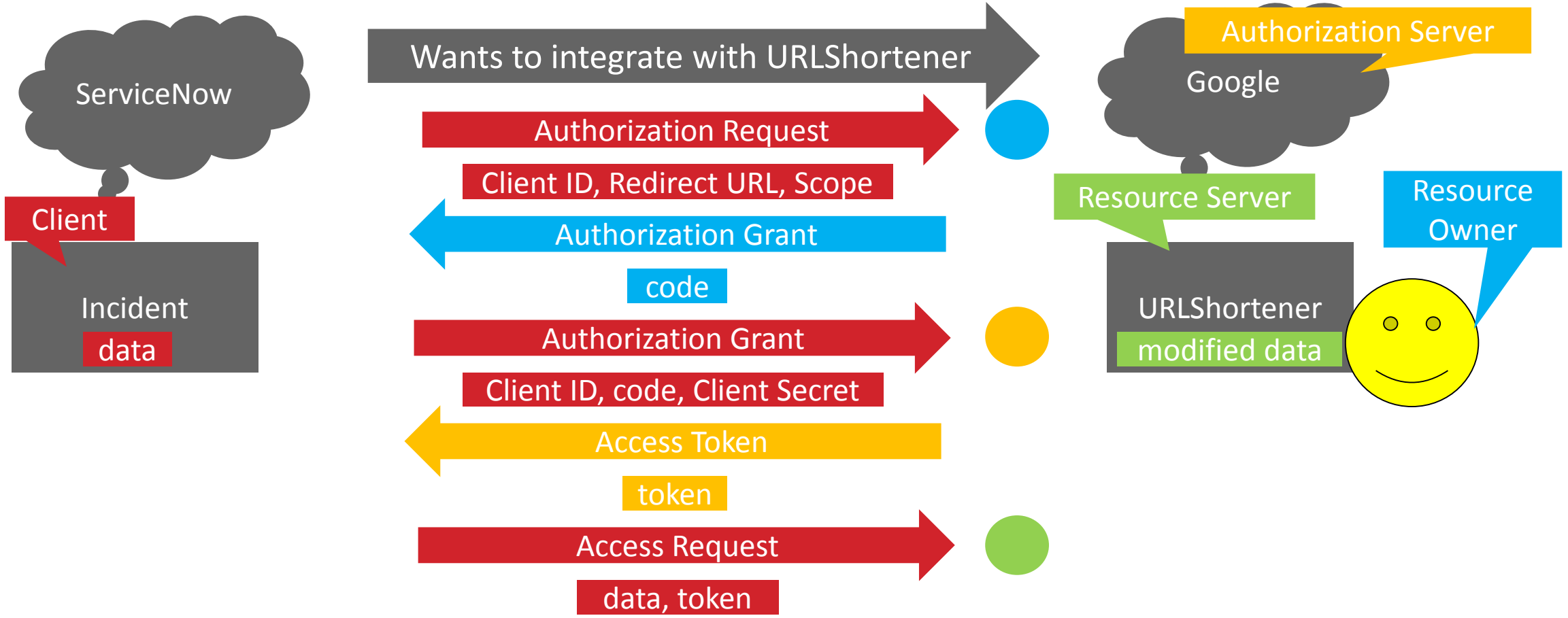
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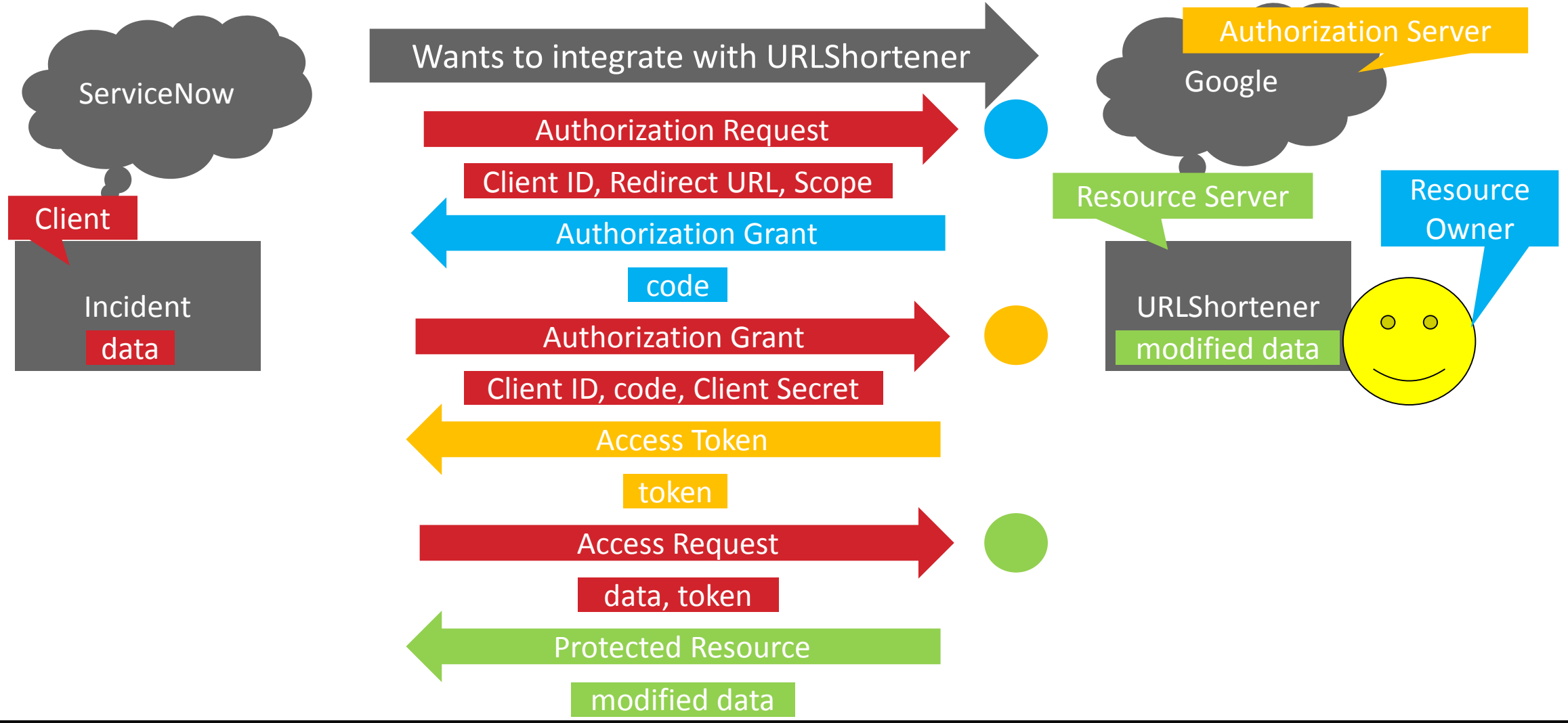
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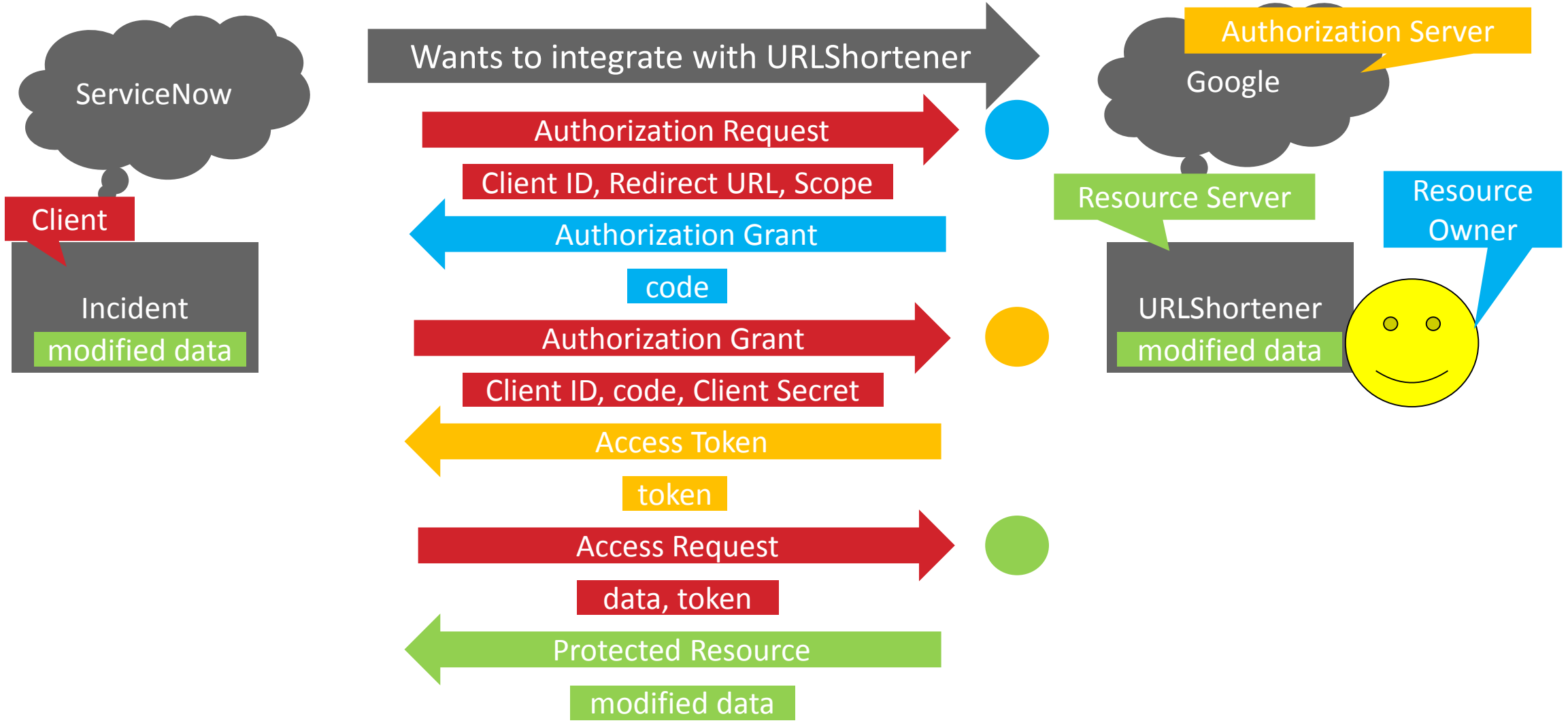
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# Lab 5.0 – Using a Web Services Connection in a Script

- Configure the GET method in your REST Message
- Set up HTTP parameters to accept a shortened URL
- Test converting the short URL to its original long URL
- Configure the Incident form to accept a URL field
- Create a new UI action to toggle the URL field between its long a short form





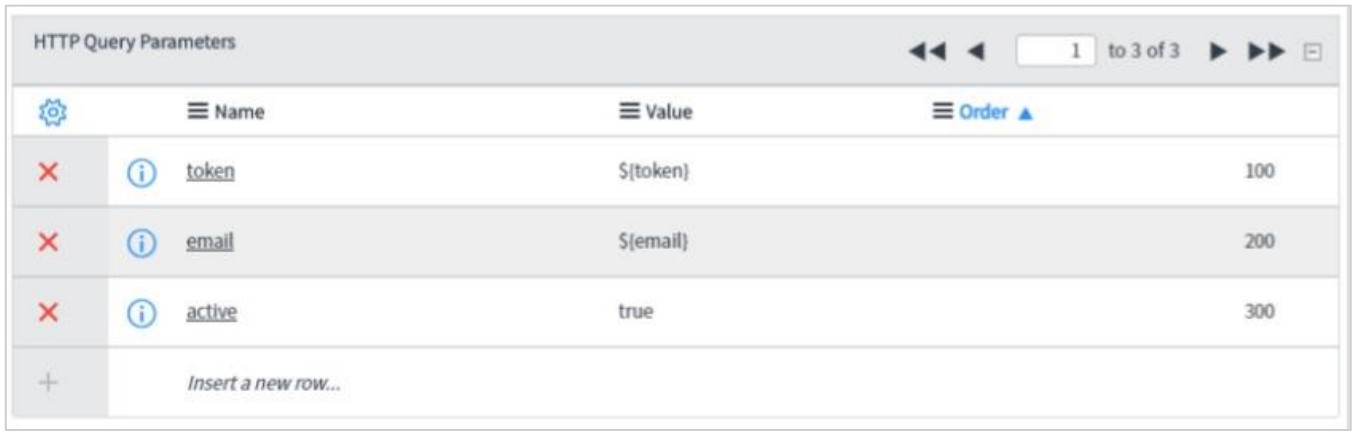




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# Lab 6.0 – Take Home Practice (Optional)

- Create a new Slack team and Channel
- Configure a new outbound REST Message to your Slack team URL
- Generate a Slack API OAuth token
- Create a Catalog Item to send a Slack invite to an email recipient






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# Top Takeaways

1. Gain exposure to integration concepts and best practices.

2. Learn how to setup REST messages in ServiceNow.

3. Use those integrations in a fun and meaningful way in ServiceNow.



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## Take the Survey

Please take a moment to complete a session survey in the Knowledge16 app.

# Thank You


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