

Cisco CCNA (200-301)

Characterizing REST-based APIs

Learning Objective: Recognize REST-based API uses and output.

Description: The use of REST API's is prevalent everywhere including networks. You will learn about the characteristics of REST-based APIs and why we use it.

- **What is the REST API?**
 - another use for HTTP
 - built on HTTP
 - APIs are also referred to as "Web services"
- **How do they work?**
 - Request and Response
 - HTTP REQUEST (GET) ----> process
 - HTTP RESPONSE
 - URL: What are you requesting?
 - <https://api.chucknorris.io/jokes/random>
- **how do we know it works?**
- HTTP verbs and CRUD (Create, Read, Update, Delete)
 - POST = Create - creates new object or resource
 - GET = Read - retrieves resources
 - PUT (PATCH)=Update - modifies Large(small)
 - DELETE = Delete - removes a resource
 - Response Status Code: "Did it work?"
 - 200 (OK) --good
 - 201 (created) - new resource created
 - 302 (found) - previously moved
 - 304 (not modified) - no retransmission -possibly "cached"
 - 400 (Bad Request) - invalid
 - 401 Unauthorized - incorrect authentication
 - 403 Forbidden - not allowed
 - 404 (Not found) - resource not back
 - 500 (Internal Server Error) - something wrong server
 - 503 (Service Unavailable) - cannot complete request
 - Headers (Data Encoding)
 - Content-type -- "application/json" specifies format of the data in the body
 - Accept -- "application/json" specifies a requested format
 - Authorization -- "string " provides credentials
 - Date -- "Tues, 25 July 2019"
 - **What is the data type?**
 - Contained within the Body
 - Format JSON or XML
 - POST, PUT, PATCH include data.
 - GET responses will include data
 - **What about Authentication and Security?**
 - None: Web API resource is public --anyone
 - BASIC HTTPS: username and password encoded and passed to the server e.g. "basic encodedstring" <base64>
 - Token: API dependent. Retrieved from Web API
 - OAuth2: framework to request from an authentication provider
 - e.g. authorization: "bearer xxxx"
 - Token and OAuth2 are short lived (usually 5 minutes)

Endnotes, External and Etc.

- 6.5 Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding)