

Lesson 10

HTTP Request, HTTP Response and RESTful HTTP APIs

Application Layer Protocols in TCP-IP protocol Suite

- An Application uses a protocol for communication
- TCP-IP suite Application layer protocols for Internet uses HTTP, FTP, SMTP, POP3, TELNET and number of other protocols.

HyperText Transfer Protocol (HTTP)

- Most-widely used Application layer protocol for communication over TCP/IP
- An HTTP client first connects to an HTTP server using TCP transport layer and then other lower layers
- The client then sends a resource after establishing a HTTP connection

HTTP Request Message Example

POST /item HTTP/1.1

Host: ii.jj.kk.mm
Content-Type: text/plain

Content-Length: 200

Means use version 1.1 of HTTP and send
using POST () methods

Content type is plain text and length =
200 B

HTTP Response on Processing of Request

200 OK Content-Type: text/plain

Content-Length: 200

200 is standard code in an HTTP connection which conveys successful receipt of 200 B contents

Data Exchanges between HTTP Web-Objects

- HTTP connection enables one way communication at an instance from client API to a server and at another instance from server to the API

HTTP Polling

- A method for receiving new message or update from an HTTP server
- Polling means finding whether new message or update available and receive that in case available

HTTP Transfer Characteristics

- Stateless, which means, each data transfer is an independent request
- Header overhead information and meta-data of previous state needs to be resent with each HTTP request
- Meta Data describe the data for later on interpretation at the other end

Header Size

- Each data interchange needs large headers over 100s of Byte, and thus greater latency in request-response exchanges due to inclusion of meta data

Usages of HTTP Transfers both directions at same instance

- Multiple TCP connection,
- HTTP requests at short regular intervals so that responses are nearly in real time,
- Polling at successive intervals

HTTP long polling

- API sends a request to the server, server keeps the request open for a set period, and
- Stream hidden in iframe
- The polling methods have high latencies and header sizes of 100s B.

RESTful

- RESTful When all interactions used in the Applications conform fully to the REST constraints then that are called RESTful.

RESTful APIs

- Comply with these constraints, and thus conforming to the REST architectural style
- Web services with RESTful APIs adhere to the REST architectural constraints

Application layer APIs and Apps RESTful HTTP, MQTT and XMPP

- Communication management functions
- HTTP enables Internet access and support methods are HTTP POST and HTTP GET

RESTful HTTP Communication feature

- Communication over the HTTP use verbs (commands) same as in HTTP, namely, GET, POST, PUT and DELETE.
- HTTP access by GET, POST, PUT and DELETE methods for the resources and building web-services

Summary

We learnt

- HTTP Request Message
- HTTP Response Message
- Stateless Nature of HTTP and solutions
- HTTP enables access by GET, POST, PUT and DELETE methods for the resources and building web-services

End of Lesson 10 on
HTTP REQUEST, HTTP
RESPONSE and RESTful HTTP
APIs