OSI Model

The Open Systems Interconnection (OSI) model is a 7-layer view of networking that abstracts and encapsulates the functionality of each component of networking.

OSI Layer 1: ________________

OSI Layer 2: ________________

OSI Layer 3: ________________

IPv4, Packet Length: 0x00c6 (198 bytes); Source IP: ac.16.b4.a3 (172.22.180.163); Destination IP: 12.dc.95.a6 (18.220.149.166)

OSI Layer 4: ________________

Port :0x00bafa (47866) connecting to Port :0x0050 (80); Checksum 0x079e; Timestamp: 0x814630a0 (2168860832)

OSI Layer 5, 6, and 7: ________________

GET / HTTP/1.1\r\nUser-Agent: Wget/1.20.3 (linux-gnu)\r\nAccept: */*\r\nAccept-Encoding: identity\r\nHost: waf.cs.illinois.edu\r\nConnection: Keep-Alive\r\n
Transport Layer (Layer 4) Protocols:
There are also two major Layer 4 protocols that are widely used throughout the Internet (and more exist that are less used):

1.

2.

Features of TCP and UDP:

<table>
<thead>
<tr>
<th>Feature</th>
<th>TCP</th>
<th>UDP</th>
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Communication Between Processes: Web Services
One of the primary ways that processes will communicate is via “web services” -- applications that communicate using the HTTP protocol.

The HTTP protocol has two components:

[1]:

REQUEST Packet Organization:
- Line Delineation:
- HTTP Request Action/Verb, Page, and Version (Line 1):
- Request Headers (Lines 2+):
- Payload (or “contents”/“data”):

[2]:

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<tr>
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<td>11</td>
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<tr>
<td>POST /extract HTTP/1.1</td>
<td>Host: localhost:5000</td>
<td>User-Agent: curl/7.68.0</td>
<td>Accept: <em>/</em></td>
<td>Content-Length: 3046796</td>
<td>Content-Type: image/gif</td>
<td>If-Modified-Since:</td>
<td>Content-Type:</td>
<td>Cache-Control:</td>
<td>Last-Modified:</td>
<td>Content-Length:</td>
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<tr>
<td>1xx</td>
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<td>4xx</td>
<td>5xx</td>
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<tr>
<td>100: Continue</td>
<td>200: OK</td>
<td>304: Not Modified</td>
<td>400: Bad Request</td>
<td>500: Internal Server Error</td>
<td>...</td>
<td>...</td>
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In general, the request and response follows the same format with only one major exception:
- Response “Status Code” (Line 1):