



A note from the student behind this lab

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SIP flashcards

448 cards from the written rooms. Know and Again on the site stay in this browser.

1. **SIP** Application signaling for sessions. The base specification is RFC 3261. [What SIP is for](#)
2. **SDP** Describes media. Offer/answer is RFC 3264. [What SIP is for](#)
3. **RTP** Carries the media packets after the answer names the port. [What SIP is for](#)
4. **100 Trying** Hop-by-hop provisional. A stateful proxy generates it and does not relay one. [What SIP is for](#)
5. **5060** Default port for SIP over UDP and SIP over TCP. [Ports, transports, and where a request can go](#)
6. **5061** Default port for SIP over TLS. [Ports, transports, and where a request can go](#)
7. **Content-Length** On a stream transport, this is how the parser finds the end of the message. [Ports, transports, and where a request can go](#)
8. **WS / WSS** WebSocket transport tokens from RFC 7118. The SIP methods do not change. [Ports, transports, and where a request can go](#)
9. **tel:+15551212** A global telephone URI. The scheme is RFC 3966. [E.164, sip URIs, and tel URIs](#)
10. **user=phone** The sip user part should be read as a phone number. [E.164, sip URIs, and tel URIs](#)
11. **E.164** The ITU-T numbering plan. The URI citation in this course is RFC 3966. [E.164, sip URIs, and tel URIs](#)
12. **Request-URI** Where this hop sends the request. Retargeting changes it and leaves To in place. [E.164, sip URIs, and tel URIs](#)
13. **Standards Track** The status of RFC 3261. It is the base specification. [How to read an RFC](#)
14. **Section 20** Header field catalog, including the compact names defined there. [How to read an RFC](#)
15. **Section 21** Response code catalog. [How to read an RFC](#)
16. **Section 25** ABNF. Use it when a message looks almost right. [How to read an RFC](#)
17. **RFC 5411** Informational hitchhiker's guide. A map, not the base spec. [The hitchhiker guide is a map](#)
18. **RFC 3262** PRACK and reliable provisional responses. [The hitchhiker guide is a map](#)
19. **RFC 4028** Session timers. Not a substitute chapter inside 5411. [The hitchhiker guide is a map](#)
20. **RFC 6026** Corrects INVITE 2xx transaction handling after 3261. [The hitchhiker guide is a map](#)
21. **IETF Trust** Legal provisions for IETF documents. Read them before copying protocol text. [Licenses, codecs, and what you may copy](#)
22. **Opus** RFC 6716, plus the Opus license page and the IETF IPR disclosures. [Licenses, codecs, and what you may copy](#)

23. **G.711** ITU-T recommendation for PCMU and PCMA. Not an IETF RFC. [Licenses, codecs, and what you may copy](#).
24. **G.729** ITU-T recommendation. Verify patent status. Do not state an expiry date. [Licenses, codecs, and what you may copy](#).
25. **z9hG4bK** Magic cookie at the start of a branch parameter. [Reading the first INVITE](#)
26. **Max-Forwards: 70** The value a UAC SHOULD put on a request it originates. [Reading the first INVITE](#)
27. **No To tag** An initial request is outside a dialog, so To has no tag. [Reading the first INVITE](#)
28. **RFC 5737** Documentation IPv4 ranges used for the examples in this course. [Reading the first INVITE](#)
29. **UAC** Creates a request. Defined with the rest of the user-agent rules. [Roles a trace is actually showing](#)
30. **Stateful proxy** Transaction state, own Via branch, own 100 Trying. [Roles a trace is actually showing](#)
31. **Redirect** 3xx and a Contact, then it is out of the call. [Roles a trace is actually showing](#)
32. **B2BUA** UAS plus UAC. Expect a second dialog. See RFC 7092. [Roles a trace is actually showing](#)
33. **INVITE / ACK / BYE** Set up, complete the handshake, and end a confirmed dialog. [Methods and status codes](#)
34. **CANCEL** Abandon an unanswered INVITE. It is not BYE. [Methods and status codes](#)
35. **401 vs 407** UAS or registrar challenge versus proxy challenge. [Methods and status codes](#)
36. **1xx** Provisional. The transaction is still waiting for a final response. [Methods and status codes](#)
37. **v / f / t / i** Via, From, To, Call-ID. [Headers and compact forms](#)
38. **m / l / c / k** Contact, Content-Length, Content-Type, Supported. [Headers and compact forms](#)
39. **o and u** Event and Allow-Events. RFC 6665. [Headers and compact forms](#)
40. **r and b** Refer-To and Referred-By. RFC 3515. [Headers and compact forms](#)
41. **Branch** Transaction identifier. Cookie z9hG4bK plus a unique token. [Transactions and the branch cookie](#)
42. **Retransmission** Same message, same branch, sent again by the transaction timer. [Transactions and the branch cookie](#)
43. **2xx ACK** New transaction, new branch, end to end. CSeq number matches the INVITE. [Transactions and the branch cookie](#)
44. **Timer B** INVITE transaction timeout, 64 times T1. No ACK is generated. [Transactions and the branch cookie](#)
45. **Call-ID + tags** The dialog id. Both tags are required once the dialog exists. [Dialog identity](#)
46. **Early** Provisional response with a To tag. Not confirmed yet. [Dialog identity](#)
47. **Confirmed** A 2xx to INVITE. BYE is now the teardown. [Dialog identity](#)

48. **CSeq** Increments for new in-dialog requests. ACK and CANCEL keep the INVITE number. [Dialog identity](#)
49. **T1 = 500 ms** Default RTT estimate. Timer A starts here on UDP. [T1, the transaction timeout, and Timer C](#)
50. **64*T1** Timer B for INVITE and Timer F for non-INVITE. [T1, the transaction timeout, and Timer C](#)
51. **T2 = 4 s, T4 = 5 s** Retransmit cap, and how long a message may remain in the network. [T1, the transaction timeout, and Timer C](#)
52. **Timer C** Proxy timer for an unanswered INVITE. More than 3 minutes. [T1, the transaction timeout, and Timer C](#)
53. **Via transport** UDP, TCP, TLS, WS, or WSS for this hop. [UDP, TCP, TLS, and WebSocket](#)
54. **received / rport** Response address and, with RFC 3581, the source port. [UDP, TCP, TLS, and WebSocket](#)
55. **session protocol sipv2** Dial-peer command that selects SIP for that peer. [UDP, TCP, TLS, and WebSocket](#)
56. **ip address trusted list** Sources allowed to present SIP. See the toll-fraud guidance. [UDP, TCP, TLS, and WebSocket](#)
57. **Non-2xx ACK** Same branch as that hop's INVITE. Generated by the client transaction. [Two different ACK rules](#)
58. **2xx ACK** New branch, dialog route set, end to end. [Two different ACK rules](#)
59. **CSeq: 1 ACK** Same number as the INVITE. The method token changes to ACK. [Two different ACK rules](#)
60. **603 then ACK** Forward the 603. ACK it on this hop. Do not relay the ACK. [Two different ACK rules](#)
61. **Record-Route** Inserted by a proxy that must see later requests in the dialog. [Record-Route and the route set](#)
62. **lr** Required on that URI. It selects loose routing. [Record-Route and the route set](#)
63. **UAC reverses** Response Record-Route, reversed, becomes the caller's route set. [Record-Route and the route set](#)
64. **Contact** The remote target. It becomes the mid-dialog Request-URI. [Record-Route and the route set](#)
65. **Supported: 100rel** The UAC can do reliable provisionals. [PRACK and reliable provisionals](#)
66. **RSeq** Identifies the reliable provisional. [PRACK and reliable provisionals](#)
67. **RAck** RSeq, then the CSeq number and method being acknowledged. [PRACK and reliable provisionals](#)
68. **PRACK** A new transaction. Its success response is 200 OK, not ACK. [PRACK and reliable provisionals](#)
69. **UPDATE** Session refresh or change. Own transaction. RFC 3311. [UPDATE before the INVITE completes](#)
70. **No ACK** 200 OK finishes UPDATE. ACK is reserved for INVITE. [UPDATE before the INVITE completes](#)

71. **Early dialog** UPDATE can run before the first INVITE completes. [UPDATE before the INVITE completes](#)
72. **RFC 6141** Read this before changing the remote target. [UPDATE before the INVITE completes](#)
73. **Session-Expires** Seconds until the session must be refreshed, plus an optional refresher. [Session-Expires and 422](#)
74. **Min-SE** Minimum interval. Never below 90 seconds. [Session-Expires and 422](#)
75. **422** Session Interval Too Small. Retry with the Min-SE from the response. [Session-Expires and 422](#)
76. **refresher** uac or uas. That side sends re-INVITE or UPDATE. [Session-Expires and 422](#)
77. **CANCEL** Same branch as the unanswered INVITE. CSeq number unchanged. [CANCEL, BYE, and re-INVITE](#)
78. **487** Final response to the INVITE that was cancelled. Then ACK. [CANCEL, BYE, and re-INVITE](#)
79. **BYE** Ends a confirmed dialog. Higher CSeq. Both tags. [CANCEL, BYE, and re-INVITE](#)
80. **re-INVITE** Mid-dialog INVITE. See RFC 6141 if Contact changes the target. [CANCEL, BYE, and re-INVITE](#)
81. **Refer-To** The request the recipient should send. Compact form r. [REFER and Replaces](#)
82. **202 Accepted** REFER was accepted. Watch NOTIFY for the real result. [REFER and Replaces](#)
83. **Replaces** call-id, to-tag, from-tag of the dialog to take over. [REFER and Replaces](#)
84. **sipfrag** A status line in the NOTIFY body, such as SIP/2.0 200 OK. [REFER and Replaces](#)
85. **To on REGISTER** The address-of-record being bound. [REGISTER and bindings](#)
86. **Contact** The binding: where requests for that address-of-record can go. [REGISTER and bindings](#)
87. **423** Interval Too Brief. Read Min-Expires and retry. [REGISTER and bindings](#)
88. **Contact: *** With Expires: 0, removes all bindings for the address-of-record. [REGISTER and bindings](#)
89. **NAPTR** Selects the SIP service, such as SIP+D2U or SIP+D2T. [Locating a server with RFC 3263](#)
90. **SRV** Host and port for the selected service. [Locating a server with RFC 3263](#)
91. **A / AAAA** Addresses for the SRV target. [Locating a server with RFC 3263](#)
92. **Numeric IP** No domain lookup. Send to that address. [Locating a server with RFC 3263](#)
93. **lr** Loose routing. Pop Route, keep the Request-URI. [Loose routing and Max-Forwards](#)
94. **Max-Forwards** Starts at 70. Decrement by each proxy. [Loose routing and Max-Forwards](#)
95. **483** Too Many Hops. The request arrived with Max-Forwards 0. [Loose routing and Max-Forwards](#)
96. **482** Loop Detected from a Via loop, not from the hop budget. [Loose routing and Max-Forwards](#)
97. **reg-id** Identifies one flow. A new value is a new flow. [Outbound, reg-id, and keepalives](#)

98. **+sip.instance** URN for the UA instance, stable across flows. [Outbound, reg-id, and keepalives](#)
99. **CRLF keepalive** Double CRLF on connection-oriented transports. Single CRLF answers. [Outbound, reg-id, and keepalives](#)
100. **STUN keepalive** The UDP keepalive in the outbound specification. [Outbound, reg-id, and keepalives](#)
101. **Path** Inbound vector stored with the binding. RFC 3327. [Path and Service-Route](#)
102. **Service-Route** Outbound preloaded route from the registrar. RFC 3608. [Path and Service-Route](#)
103. **Ir on Path** The edge URI is loose-routed, same as Record-Route. [Path and Service-Route](#)
104. **Preloaded Route** The UA puts Service-Route into Route on a new INVITE. [Path and Service-Route](#)
105. **pub-gruu** Stable URI for one UA instance. [GRUU and a single instance](#)
106. **temp-gruu** Instance URI that hides the address-of-record. [GRUU and a single instance](#)
107. **+sip.instance** The URN the registrar binds to those GRUUs. [GRUU and a single instance](#)
108. **gr** URI parameter that marks a GRUU. [GRUU and a single instance](#)
109. **Fork** One incoming INVITE, one client transaction per target. [Forking and early dialogs](#)
110. **Early dialog** A To tag on a provisional response. One per branch. [Forking and early dialogs](#)
111. **Multiple 200 OK** Forward each. The UAC ACKs each and may BYE the extras. [Forking and early dialogs](#)
112. **6xx** Cancel the other pending branches. Do not start new ones. [Forking and early dialogs](#)
113. **RFC 8866** Current SDP. It obsoletes RFC 4566. Trust the RFC Editor status banner. [The lines in an SDP body](#)
114. **c=** Connection address where media should be sent. [The lines in an SDP body](#)
115. **m=** One media stream: type, port, protocol, and payload types. [The lines in an SDP body](#)
116. **a=** An attribute. After m=, it belongs to that stream. [The lines in an SDP body](#)
117. **Same count** The answer has exactly as many m-lines as the offer. [Same m-lines, same order](#)
118. **Same order** Line n in the answer answers line n in the offer. [Same m-lines, same order](#)
119. **Port 0** Rejects that stream and keeps its position. [Same m-lines, same order](#)
120. **RFC 6337** Usage examples and the pitfalls of rebuilding SDP. [Same m-lines, same order](#)
121. **Encoding name** Match opus to opus even when the payload type numbers differ. [rtpmap names and fmltp parameters](#)
122. **0 / 8 / 9 / 18** PCMU/8000, PCMA/8000, G722/8000, G729/8000. [rtpmap names and fmltp parameters](#)
123. **G722/8000** RTP clock is 8000. Audio sample rate is 16 kHz. [rtpmap names and fmltp parameters](#)

124. **fmt** Parameters for one payload type. Do not guess unknown ones. [rtptime and fmt parameters](#)
125. **sendrecv** Send and receive. The usual active call. [Direction attributes and hold](#)
126. **sendonly** Send, and do not receive. A common hold. [Direction attributes and hold](#)
127. **recvonly** Receive only. The usual answer to sendonly. [Direction attributes and hold](#)
128. **inactive** Neither direction. Also a common hold. [Direction attributes and hold](#)
129. **m=audio 0** Rejects that audio stream. Keep proto and a format. [Port 0 rejects a stream](#)
130. **Same index** A rejected line is still answered in its original position. [Port 0 rejects a stream](#)
131. **No common codec** Port 0 on that m-line, not a deleted body. [Port 0 rejects a stream](#)
132. **Offer port 0** The answer port is also 0. [Port 0 rejects a stream](#)
133. **183 + SDP** Usual early-media pattern. Not true of every 183. [Early media and 183](#)
134. **180** Ringing. Local ringback when this message has no SDP. [Early media and 183](#)
135. **100rel** Makes a provisional response reliable. PRACK it. [Early media and 183](#)
136. **Two bodies** Compare 183 SDP with the 200 OK SDP before you lock the port. [Early media and 183](#)
137. **RFC 6337** Offer/answer usage and the mistakes to stop repeating. [Offer/answer pitfalls in RFC 6337](#)
138. **sess-version** Increase it when the SDP changes. [Offer/answer pitfalls in RFC 6337](#)
139. **Delayed offer** No SDP in the INVITE. Offer in the reliable response. Answer in the ACK. [Offer/answer pitfalls in RFC 6337](#)
140. **Do not rebuild** Edit m-lines in place. Do not drop, swap, or renumber them. [Offer/answer pitfalls in RFC 6337](#)
141. **V=2** RTP version is 2. [The RTP header](#)
142. **Sequence** Plus one for every packet from that source. [The RTP header](#)
143. **Timestamp** Media clock. 20 ms of G.711 or G.722 steps by 160. [The RTP header](#)
144. **SSRC** 32-bit source id chosen by the sender. [The RTP header](#)
145. **PT 0** PCMU/8000, static. [Static and dynamic payload types](#)
146. **PT 8** PCMA/8000, static. Not the same as PCMU. [Static and dynamic payload types](#)
147. **PT 9** G722/8000. Sample rate is still 16 kHz. [Static and dynamic payload types](#)
148. **PT 18** G729/8000, static. [Static and dynamic payload types](#)
149. **G.711** PCMU/8000 and PCMA/8000. Read ITU-T G.711. They are not interchangeable. [G.711, G.729, and Opus](#)
150. **G.729** rtptime G729/8000, static PT 18. Read ITU-T G.729. This course states no licensing result. [G.711, G.729, and Opus](#)
151. **Opus** RFC 6716. Read the RFC and the license. [G.711, G.729, and Opus](#)
152. **IPR** Check IETF IPR disclosures. This course states no legal result. [G.711, G.729, and Opus](#)
153. **SR** Sender report. Used when this participant has sent RTP. [RTCP sender and receiver reports](#)
154. **RR** Receiver report. Fraction lost, cumulative loss, jitter. [RTCP sender and receiver reports](#)

155. **Port pair** RTP on an even port, RTCP on the next higher port, by default. [RTCP sender and receiver reports](#)
156. **Not SIP** 200 OK does not carry fraction lost. [RTCP sender and receiver reports](#)
157. **RFC 4733** telephone-event. Obsoletes RFC 2833. Trust the status banner. [telephone-event and other digit paths](#)
158. **Events 0-15** DTMF. Event 16 is flash. [telephone-event and other digit paths](#)
159. **Dynamic PT** Match the name telephone-event in SDP. [telephone-event and other digit paths](#)
160. **Not INFO** RFC 6086 is a method. application/dtmf-relay is a vendor body. [telephone-event and other digit paths](#)
161. **a=ptime:20** 20 ms of media per packet. SDP, not RTP. [ptime, packet rate, and EF](#)
162. **50 and 160** G.711 at 20 ms: 50 packets/s, 160 payload bytes, plus headers. [ptime, packet rate, and EF](#)
163. **EF** Voice service class in RFC 4594. [ptime, packet rate, and EF](#)
164. **RFC 3246** Defines the EF per-hop behavior. No router config in this lesson. [ptime, packet rate, and EF](#)
165. **200 OK** Offer/answer finished. It does not prove both RTP directions. [One-way audio](#)
166. **sendonly answer** Answerer sends, does not receive. One-way by negotiation. [One-way audio](#)
167. **c= and port** The destination you must capture. [One-way audio](#)
168. **SR from one side** The other side is not sending, according to RTCP. [One-way audio](#)
169. **401** From the UAS. Challenge is WWW-Authenticate. Retry with Authorization. [401, 407, and digest](#)
170. **407** From the proxy. Challenge is Proxy-Authenticate. Retry with Proxy-Authorization. [401, 407, and digest](#)
171. **RFC 7616** HTTP digest algorithms. Read the algorithm parameter. [401, 407, and digest](#)
172. **Stop here** Identify the header. Do not compute a digest in this lesson. [401, 407, and digest](#)
173. **RFC 3261 §18** SIP over TLS. Same methods. Via transport TLS. [TLS and domain certificates](#)
174. **5061** Usual TLS port in RFC 3261. [TLS and domain certificates](#)
175. **RFC 5922** The certificate must identify the SIP domain. [TLS and domain certificates](#)
176. **Not SRTP** TLS on SIP does not select the media keying method. [TLS and domain certificates](#)
177. **RFC 3711** SRTP. Protects RTP. Profile RTP/SAVP. [SRTP and two keying methods](#)
178. **RFC 4568** SDES. a=crypto in SDP. Protect the signaling. [SRTP and two keying methods](#)
179. **RFC 5764** DTLS-SRTP. Keys from DTLS. Fingerprint in SDP. [SRTP and two keying methods](#)
180. **Per leg** Do not assume two peers share one keying method. [SRTP and two keying methods](#)
181. **RFC 3323** Privacy header. id withholds a network-asserted identity. [Privacy and asserted identity](#)

182. **PPI** P-Preferred-Identity. A hint from the UA inside the trust domain. [Privacy and asserted identity](#)
183. **PAI** P-Asserted-Identity. Trusted networks only. Not a signature. [Privacy and asserted identity](#)
184. **Strip** Remove PAI and PPI when the request leaves the trust domain. [Privacy and asserted identity](#)
185. **RFC 8224** STIR. Identity header in SIP. [STIR, PASSporT, and SHAKEN](#)
186. **RFC 8225** PASSporT. [STIR, PASSporT, and SHAKEN](#)
187. **RFC 8226** Certificates for STIR. [STIR, PASSporT, and SHAKEN](#)
188. **Levels A/B/C** ATIS SHAKEN. Confirm the current ATIS document. See also the FCC page. [STIR, PASSporT, and SHAKEN](#)
189. **Scanning** Unsolicited SIP from addresses you did not provision. Close the exposure. [Scanning, hijack, and toll fraud](#)
190. **Hijack** Unexpected Contact on an address-of-record. Authenticate REGISTER. [Scanning, hijack, and toll fraud](#)
191. **Toll fraud** Unauthorized calls that run up charges. Authorize the source. [Scanning, hijack, and toll fraud](#)
192. **FCC page** Call authentication is not a substitute for outbound authorization. [Scanning, hijack, and toll fraud](#)
193. **Allow list** Named peers only. See the CME toll-fraud guide for trusted sources. [Hardening a SIP edge](#)
194. **Digest** 401 uses Authorization. 407 uses Proxy-Authorization. [Hardening a SIP edge](#)
195. **RFC 5922** Certificate name equals the SIP domain. [Hardening a SIP edge](#)
196. **Per-leg SRTP** Do not copy keying from one peer to another. [Hardening a SIP edge](#)
197. **Embedded** Via, Contact, and SDP c= carry addresses NAT does not rewrite. [Embedded addresses and NAT](#)
198. **c=** Media destination. A private value is non-routable on the public Internet. [Embedded addresses and NAT](#)
199. **200 OK** Signaling can succeed while RTP still cannot go where c= points. [Embedded addresses and NAT](#)
200. **RFC 5737** 203.0.113.10 and the other lab addresses are documentation ranges. [Embedded addresses and NAT](#)
201. **RFC 3581** rport. Symmetric SIP response routing. [rport and symmetric responses](#)
202. **received** Source address the server saw. [rport and symmetric responses](#)
203. **rport value** Source port the server saw. [rport and symmetric responses](#)
204. **Not SDP** rport does not rewrite c=. [rport and symmetric responses](#)
205. **RFC 8489** Current STUN. Obsoletes RFC 5389. Trust the status banner. [STUN server-reflexive addresses](#)
206. **Binding** Request that asks what address the server sees. [STUN server-reflexive addresses](#)
207. **XOR-MAPPED-ADDRESS** The reflexive address in the success response. [STUN server-reflexive addresses](#)

- 208. **Not SIP** A STUN server does not store a SIP Contact. [STUN server-reflexive addresses](#)
- 209. **RFC 8656** Current TURN. Obsoletes RFC 5766. Trust the status banner. [TURN relays](#)
- 210. **Allocate** Reserves a relayed transport address. [TURN relays](#)
- 211. **Relay** Peers send media to the relay. TURN forwards it. [TURN relays](#)
- 212. **Not SIP** Allocate is not REGISTER and not an SDP rewrite. [TURN relays](#)
- 213. **RFC 8445** Current ICE. Obsoletes RFC 5245. Trust the status banner. [ICE candidate types](#)
- 214. **host** Local interface. [ICE candidate types](#)
- 215. **srflx / relay** STUN reflexive address, and TURN relay. [ICE candidate types](#)
- 216. **prflx** Discovered during a connectivity check. [ICE candidate types](#)
- 217. **ALG** In-path SIP and SDP rewrite. Often corrupts the call. [The SIP ALG problem](#)
- 218. **Length** If Content-Length does not match the body, the edit is corrupt. [The SIP ALG problem](#)
- 219. **TLS** The ALG cannot rewrite what it cannot see. [The SIP ALG problem](#)
- 220. **Disable it** Turn the ALG off. Do not stack a second hidden editor. [The SIP ALG problem](#)
- 221. **Latch** Learn the remote RTP address from the first packet instead of trusting c=. [Media latching on an SBC](#)
- 222. **RFC 5853** SBC requirements. Not an IETF algorithm for latching. [Media latching on an SBC](#)
- 223. **Authenticated** Latch only after signaling is accepted, and only toward the expected side. [Media latching on an SBC](#)
- 224. **ICE** RFC 8445 is the specified candidate check when both ends use it. [Media latching on an SBC](#)
- 225. **RFC 5853** Informational requirements from SBC deployments. Not an SBC protocol. [RFC 5853 is requirements, not a protocol](#)
- 226. **No SBC method** INVITE and OPTIONS stay as RFC 3261 defined them. [RFC 5853 is requirements, not a protocol](#)
- 227. **Datasheet** Session and transcode limits are platform-specific. [RFC 5853 is requirements, not a protocol](#)
- 228. **B2BUA** The usual SIP role behind an SBC. Taxonomy is RFC 7092. [RFC 5853 is requirements, not a protocol](#)
- 229. **B2BUA** UAS plus UAC. Two dialogs for one call. [An SBC is commonly a B2BUA](#)
- 230. **Pure proxy** Forwards the request and adds Via. [An SBC is commonly a B2BUA](#)
- 231. **Call-ID** Often different on the two legs of an SBC. [An SBC is commonly a B2BUA](#)
- 232. **RFC 3261** Defines the B2BUA as UAS concatenated with UAC. [An SBC is commonly a B2BUA](#)
- 233. **Via** Identifies the previous SIP hop. Hide the internal one. [Topology hiding rewrites the addresses you leak](#)
- 234. **Contact** Dialog target. An SBC usually substitutes its own. [Topology hiding rewrites the addresses you leak](#)
- 235. **c=** SDP connection address. Anchoring rewrites it. [Topology hiding rewrites the addresses you leak](#)

- 236. **User-Agent** A common topology leak. Stripping it is a product rule. [Topology hiding rewrites the addresses you leak](#)
- 237. **Anchor** RTP terminates on the SBC. SDP c= names the SBC. [Anchor, bypass, transcode, and DTMF](#)
- 238. **Bypass** SIP through the SBC. Media between endpoints. [Anchor, bypass, transcode, and DTMF](#)
- 239. **Transcode** Decode and encode. Capacity is on the datasheet. [Anchor, bypass, transcode, and DTMF](#)
- 240. **telephone-event** RFC 4733 DTMF in RTP. [Anchor, bypass, transcode, and DTMF](#)
- 241. **OPTIONS** Capability and liveness request. RFC 3261. [OPTIONS keepalives](#)
- 242. **CSeq method** Must match the start line. OPTIONS stays OPTIONS. [OPTIONS keepalives](#)
- 243. **200 OK** The peer answered. The call is a later transaction. [OPTIONS keepalives](#)
- 244. **Interval** Configured on the product. Not an RFC constant. [OPTIONS keepalives](#)
- 245. **Admission** Refuse new work when the configured budget is exhausted. [Call admission stays on the datasheet](#)
- 246. **503** Service Unavailable. Confirm the product's actual code. [Call admission stays on the datasheet](#)
- 247. **Datasheet** The only source for this platform's session limit. [Call admission stays on the datasheet](#)
- 248. **No CPS formula** Do not invent calls-per-second math. [Call admission stays on the datasheet](#)
- 249. **Active** The unit currently processing the dialogs. [Active and standby, without a made-up timer](#)
- 250. **Standby** Ready to take the role. Not a SIP method. [Active and standby, without a made-up timer](#)
- 251. **No timer here** Do not invent a failover interval. [Active and standby, without a made-up timer](#)
- 252. **Dialog state** A B2BUA holds it. Survival is a product question. [Active and standby, without a made-up timer](#)
- 253. **CUBE** Cisco Unified Border Element. An IOS XE B2BUA. [CUBE is an IOS XE B2BUA](#)
- 254. **IOS XE** The operating system whose voice stack CUBE uses. [CUBE is an IOS XE B2BUA](#)
- 255. **SIP profiles** Header modifications. Guide for 17.6 and later. [CUBE is an IOS XE B2BUA](#)
- 256. **B2BUA** The role RFC 7092 taxonomizes. [CUBE is an IOS XE B2BUA](#)
- 257. **dial-peer voice N voip** Creates the VoIP dial peer numbered N. [Dial peers select the SIP next hop](#)
- 258. **session protocol sipv2** This dial peer speaks SIP. [Dial peers select the SIP next hop](#)
- 259. **session target ipv4:** The next-hop IPv4 address. [Dial peers select the SIP next hop](#)
- 260. **192.0.2.40** Carrier address in this synthetic. [Dial peers select the SIP next hop](#)
- 261. **sip-profiles** voice class sip-profiles N holds the rules. [voice class sip-profiles](#)
- 262. **remove** request INVITE sip-header Diversion remove. [voice class sip-profiles](#)
- 263. **After 15.4** Inbound profile support, per the use-case technote. [voice class sip-profiles](#)
- 264. **CSA tester** Try the profile before loading it. [voice class sip-profiles](#)

- 265. **Delayed offer** INVITE without SDP. Offer comes later. [Early offer and delayed offer](#)
- 266. **Early offer** The INVITE already contains the offer. [Early offer and delayed offer](#)
- 267. **early-offer forced** Dial-peer command that forces an outbound offer. [Early offer and delayed offer](#)
- 268. **ACK answer** Used when the offer arrived in the 200 OK. [Early offer and delayed offer](#)
- 269. **SIP trunk** CUCM's adjacency to CUBE or another peer. [CUCM trunks, SIP profiles, and Lua](#)
- 270. **CUCM SIP profile** Not voice class sip-profiles. [CUCM trunks, SIP profiles, and Lua](#)
- 271. **Lua** Normalization scripts exist. Open the admin guide. [CUCM trunks, SIP profiles, and Lua](#)
- 272. **MTP required** Confirm the guide for that version before checking it. [CUCM trunks, SIP profiles, and Lua](#)
- 273. **SIP integration** The documented Unity Connection path. Open your version's guide. [Unity Connection SIP integration](#)
- 274. **Diversion** RFC 5806 redirecting number. Reason unconditional in the lab. [Unity Connection SIP integration](#)
- 275. **History-Info** RFC 7044. Use it if the guide asks for it. [Unity Connection SIP integration](#)
- 276. **Not SCCP-by-guess** Do not invent SCCP as the current default. [Unity Connection SIP integration](#)
- 277. **debug ccsip messages** Shows sent and received SIP. [debug ccsip messages](#)
- 278. **sip-profiles debug** debug ccsip feature sip-profiles. [debug ccsip messages](#)
- 279. **CSA** SIP Profile Tester in Collaboration Solutions Analyzer. [debug ccsip messages](#)
- 280. **Sent / Received** Direction markers around each SIP message. [debug ccsip messages](#)
- 281. **realm** Routing and policy context on the Oracle SBC. [Oracle SBC objects](#)
- 282. **session-agent** Named next hop. [Oracle SBC objects](#)
- 283. **in-manipulationid** Which sip-manipulation runs on arrival. [Oracle SBC objects](#)
- 284. **out-manipulationid** Which sip-manipulation runs on the way out. [Oracle SBC objects](#)
- 285. **header-rule** One rule inside a sip-manipulation. [Header rules run in order](#)
- 286. **delete** Removes the named header. Lab rule strip-server. [Header rules run in order](#)
- 287. **store** Keeps a value for a later rule. Run it first. [Header rules run in order](#)
- 288. **reject** An HMR action. Read the release guide for the status. [Header rules run in order](#)
- 289. **SWe Edge** Edge product. Family includes SBC 1000 and SBC 2000. [Ribbon Edge, Core, and public validation lists](#)
- 290. **SBC Core** A separate family. [Ribbon Edge, Core, and public validation lists](#)
- 291. **ACS snapshot** 5110, 5210, 5400, 7000, and SWe for that validation. [Ribbon Edge, Core, and public validation lists](#)
- 292. **No invented CLI** Admin guides live on the documentation portal. [Ribbon Edge, Core, and public validation lists](#)
- 293. **Action Subject** Which header or element the rule touches. [AudioCodes manipulation in software 7.6](#)
- 294. **Action Type** Add, Remove, Modify, prefix, suffix, or Normalize. [AudioCodes manipulation in software 7.6](#)

- 295. **IP group** Inbound or outbound assignment of the set. [AudioCodes manipulation in software 7.6](#)
- 296. **Release menu** The clicks change. Use the 7.6 manual you are running. [AudioCodes manipulation in software 7.6](#)
- 297. **CUBE line** request INVITE sip-header NAME remove. [Three manipulation grammars](#)
- 298. **Oracle block** header-rule, header-name, action delete. [Three manipulation grammars](#)
- 299. **AudioCodes row** Action Type Remove on an IP group. [Three manipulation grammars](#)
- 300. **Do not paste across** Each grammar is parsed by its own product. [Three manipulation grammars](#)
- 301. **PAI** P-Asserted-Identity, RFC 3325. [Identity at a trust boundary](#)
- 302. **Privacy** RFC 3323. id asks the network to withhold identity. [Identity at a trust boundary](#)
- 303. **Diversion** RFC 5806 redirecting header. [Identity at a trust boundary](#)
- 304. **History-Info** RFC 7044. Map it only as the interop guide says. [Identity at a trust boundary](#)
- 305. **RFC 5922** SIP domain certificates. [Certificate names and Contact](#)
- 306. **Teams Contact** FQDN. An IP draws 403. [Certificate names and Contact](#)
- 307. **Teams wildcard** CN or SAN wildcards are supported for Direct Routing. [Certificate names and Contact](#)
- 308. **Webex LGW wildcard** Not supported for Local Gateway. [Certificate names and Contact](#)
- 309. **pstnhub** sip, sip2, and sip3.pstnhub.microsoft.com. [Teams Direct Routing signaling](#)
- 310. **5061** Direct Routing signaling port. [Teams Direct Routing signaling](#)
- 311. **Verified domain** Not a name ending in onmicrosoft.com. [Teams Direct Routing signaling](#)
- 312. **No RFC 5923** The SIP proxy does not support connection aliasing. [Teams Direct Routing signaling](#)
- 313. **OPTIONS 200** Marks the Direct Routing SBC healthy. [OPTIONS health and SRTP media](#)
- 314. **CSeq** Method token matches the request. OPTIONS, not INVITE. [OPTIONS health and SRTP media](#)
- 315. **Table cell** Checked 2026-10-14: CSeq: 1 INVITE. Do not copy it. [OPTIONS health and SRTP media](#)
- 316. **SRTP** Media processors use SRTP. RFC 3711. [OPTIONS health and SRTP media](#)
- 317. **SIP TLS** Signaling from an IOS XE Local Gateway to Webex. [Webex Calling Local Gateway](#)
- 318. **SRTP** Media for that IOS XE Local Gateway. [Webex Calling Local Gateway](#)
- 319. **Certificate trunk** How a third-party SBC is supported. [Webex Calling Local Gateway](#)
- 320. **ByoPSTN** Bring your own PSTN. Not Cloud Connected PSTN. [Webex Calling Local Gateway](#)
- 321. **Cisco Calling Plan** One of the three organization-article choices. [Three PSTN choices, one per location](#)
- 322. **Cloud Connected PSTN** A cloud partner through Webex. Not the Local Gateway. [Three PSTN choices, one per location](#)

- 323. **Local Gateway** Premises-based PSTN. One connection on the location. [Three PSTN choices, one per location](#)
- 324. **ByoPSTN** Bring your own PSTN. [Three PSTN choices, one per location](#)
- 325. **Managed PSTN** Ordinary Connect calls. No customer SIP trunk required. [Amazon Connect voice boundaries](#)
- 326. **SIPREC** External voice into the analytics connector. [Amazon Connect voice boundaries](#)
- 327. **Voice Connector** Chime SDK SIP trunking service. [Amazon Connect voice boundaries](#)
- 328. **Not a bridge** Carrier through Voice Connector into Connect needs specialist approval. [Amazon Connect voice boundaries](#)
- 329. **BYO SIP** Your ITSP or gateway connects to Five9 SBCs. [Five9 BYO SIP and Twilio trunks](#)
- 330. **Entitled groups** Self-service exists for entitled BYO SIP trunk groups. [Five9 BYO SIP and Twilio trunks](#)
- 331. **Termination URI** Must appear in the Request-URI or Twilio drops the request. [Five9 BYO SIP and Twilio trunks](#)
- 332. **sip not sips** Origination URLs use sip. sips is not supported. [Five9 BYO SIP and Twilio trunks](#)
- 333. **BYOC Cloud** Public internet SIP. RTP crosses the internet. [Genesys BYOC and NICE CXone SIP](#)
- 334. **BYOC Premises** Customer-managed Edge. Hybrid media is allowed. [Genesys BYOC and NICE CXone SIP](#)
- 335. **December 1, 2026** Genesys Hardware Solution only. [Genesys BYOC and NICE CXone SIP](#)
- 336. **CXone ports** 5060 and 5061, plus dynamic RTP/SRTP. [Genesys BYOC and NICE CXone SIP](#)
- 337. **Call-ID** Same value for the dialog. A B2BUA may use a new one on the other leg. [Match a ladder before you change anything](#)
- 338. **CSeq** Integer plus method. The ACK for an INVITE keeps the INVITE's number. [Match a ladder before you change anything](#)
- 339. **Via branch** Transaction hop id. Look for the z9hG4bK cookie. [Match a ladder before you change anything](#)
- 340. **2xx ACK** End to end. New branch. RFC 6026 corrects the transaction rules around it. [Match a ladder before you change anything](#)
- 341. **180** Ringing. Provisional alerting. [Status codes you will actually see](#)
- 342. **183** Session Progress. Provisional, often where early media shows up. [Status codes you will actually see](#)
- 343. **487** Request Terminated. The INVITE's answer after CANCEL. [Status codes you will actually see](#)
- 344. **606** Not Acceptable. Global. 488 is only this UA. [Status codes you will actually see](#)
- 345. **sip** Display filter for SIP packets. Field names live on the SIP reference page. [Display filters for SIP and RTP](#)
- 346. **rtp** Display filter for RTP packets. Field names live on the RTP reference page. [Display filters for SIP and RTP](#)

- 347. **sip.Method** Safe display field for the SIP method. [Display filters for SIP and RTP](#)
- 348. **Confirm CSeq** sip.CSeq.method is common. Confirm it on the SIP display-filter reference. [Display filters for SIP and RTP](#)
- 349. **ccsip messages** IOS voice debug that prints SIP send and receive. [IOS ccsip and ccapi debug](#)
- 350. **ccapi inout** IOS voice debug of the call-control API. Not a SIP RFC. [IOS ccsip and ccapi debug](#)
- 351. **Sent / Received** Direction on the debug. The SIP start line comes after it. [IOS ccsip and ccapi debug](#)
- 352. **Synthetic** Lab output in this track is synthetic. Customer logs stay out. [IOS ccsip and ccapi debug](#)
- 353. **488** Not Acceptable Here. This UA. Often codec or SDP. [488 codecs and 422 session timers](#)
- 354. **422** Session Interval Too Small. RFC 4028. Read Min-SE. [488 codecs and 422 session timers](#)
- 355. **telephone-event** RFC 4733. Offer it on purpose if you need DTMF. [488 codecs and 422 session timers](#)
- 356. **Offer/answer** The answer is a subset. No shared audio codec tends to 488. [488 codecs and 422 session timers](#)
- 357. **Name mismatch** Handshake fails. No SIP status from the peer. [TLS names, trust anchors, and version](#)
- 358. **Untrusted CA** Handshake fails. Fix the trust anchor. [TLS names, trust anchors, and version](#)
- 359. **TLS 1.2+** Teams Direct Routing floor in the OPTIONS troubleshooting page. [TLS names, trust anchors, and version](#)
- 360. **FQDN Contact** Required toward Teams. An address literal draws 403. [TLS names, trust anchors, and version](#)
- 361. **Category** Read it on the header. 3261 is Standards Track. 6881 is BCP. [Read an RFC header before you cite it](#)
- 362. **Obsoletes** The new RFC names the one it replaces. 8866 and 4566 are the SDP pair here. [Read an RFC header before you cite it](#)
- 363. **Updates** A correction that leaves the base in force. Check 6026's header. [Read an RFC header before you cite it](#)
- 364. **rfc-editor.org** The header you cite. Months in this lesson are not invented. [Read an RFC header before you cite it](#)
- 365. **Trusted list** Who may present VoIP signaling. CME and SRST each have a page. [The toll-fraud class, stated defensively](#)
- 366. **401 / 407** UAS and proxy digest challenges. Secrets stay unprinted. [The toll-fraud class, stated defensively](#)
- 367. **Numbering plan** Dial-peers match the plan, including whether international destinations are in it. [The toll-fraud class, stated defensively](#)

368. **STIR context** FCC call authentication and RFC 8224. A different question from the source list. [The toll-fraud class, stated defensively](#)
369. **trusted list** Addresses allowed to present inbound VoIP. CME page or SRST page. [Trusted addresses and source restrictions](#)
370. **authenticate** The check that uses the list. [Trusted addresses and source restrictions](#)
371. **Two pages** CME and SRST differ. Quote no shared list size. [Trusted addresses and source restrictions](#)
372. **Border pair** 198.51.100.30 and 192.0.2.40 in the teaching snippet. [Trusted addresses and source restrictions](#)
373. **urn:service:sos** RFC 5031 service URN for emergency calling. [Emergency calling, location, and the FCC page](#)
374. **RFC 6881** BCP for emergency calling services. [Emergency calling, location, and the FCC page](#)
375. **Geolocation** RFC 6442 location conveyance. [Emergency calling, location, and the FCC page](#)
376. **fcc-mlts** Kari's Law and RAY BAUM's Act. The page wins over a retelling. [Emergency calling, location, and the FCC page](#)
377. **7866** Session recording protocol. SRC forks to an SRS. [Disclosed recording with SIPREC](#)
378. **7865** Recording metadata. Read it for fields. [Disclosed recording with SIPREC](#)
379. **Disclosed** Quality monitoring and compliance, with the parties on notice. [Disclosed recording with SIPREC](#)
380. **Retention** A legal question. Outside the RFC. [Disclosed recording with SIPREC](#)
381. **EF** Expedited Forwarding per-hop behavior. RFC 3246. [Voice, EF, and what the PHB does not design](#)
382. **Telephony** The service class RFC 4594 maps to EF. [Voice, EF, and what the PHB does not design](#)
383. **Codepoint** Use the value RFC 3246 recommends. Do not invent a second one. [Voice, EF, and what the PHB does not design](#)
384. **Not a LAN** Queues and campus policy stay in the approved design. [Voice, EF, and what the PHB does not design](#)
385. **OPTIONS** Liveness. Alarm when the trunk stops answering. [Alarms that match the failure](#)
386. **503** Service Unavailable. Page the server-side class. [Alarms that match the failure](#)
387. **TLS floor** Toward Teams, 1.2 or newer, or the handshake never yields SIP. [Alarms that match the failure](#)
388. **SRS down** Recording-session alarm. RFC 7866. Retention stays outside the RFC. [Alarms that match the failure](#)
389. **Baseline** The last good OPTIONS or the current snippet, written down. [One change in the window](#)
390. **One variable** A single address, codec, or TLS setting. [One change in the window](#)
391. **Verify** One signal. A 200, or the test call to +15551212. [One change in the window](#)
392. **Rollback** The previous value of that same variable. [One change in the window](#)

393. **Role** What the box does on the ladder: UA, proxy, registrar, B2BUA. [A glossary tied to a document](#)
394. **B2BUA** UAS plus UAC. RFC 7092. Typical SBC. [A glossary tied to a document](#)
395. **Document** The cite you can open. A logo is not a document. [A glossary tied to a document](#)
396. **SDP row** RFC 8866 now. RFC 4566 is the one it moved from. [A glossary tied to a document](#)
397. **WFM / QM** Operations systems. No SIP RFC in this library. [Neighbors that are not SIP elements](#)
398. **SIPREC** The recording neighbor that is SIP. RFC 7866 and RFC 7865. [Neighbors that are not SIP elements](#)
399. **CRM** Not a SIP element. No invented vendor features. [Neighbors that are not SIP elements](#)
400. **Above the media** Analytics and agents. SIP and RTP still carry the session. [Neighbors that are not SIP elements](#)
401. **Above RTP** Analytics and agents. The packets remain RTP. [Workforce tools and agents above the media](#)
402. **Dialog** Still Call-ID, CSeq, To tag. RFC 3261. [Workforce tools and agents above the media](#)
403. **Disclosed fork** SIPREC when the SBC records. RFC 7866. [Workforce tools and agents above the media](#)
404. **No invented features** Vendor guides or an honest gap. Not a fake RFC. [Workforce tools and agents above the media](#)
405. **SSCA** SIP School Certified Associate. 20 CEC credits toward BICSI, per the SSCA page. [Certifications this edition will name](#)
406. **CLCOR** 350-801. Core for CCNP Collaboration and the Collaboration Core specialist. [Certifications this edition will name](#)
407. **Concentrations** 300-815 CLACC, 300-820 CLHCT, or 300-830 CLCCE. One of them, plus the core. [Certifications this edition will name](#)
408. **MS-721** Collaboration Communications Systems Engineer Associate. Certifications change. Use the link. [Certifications this edition will name](#)
409. **Banner** RFC Editor header beats a blog. [When the page and the memory disagree](#)
410. **Cisco page** Exam topics change. The Cisco page wins. [When the page and the memory disagree](#)
411. **MS-721 link** Certifications change. Use the certification page. [When the page and the memory disagree](#)
412. **Checked dates** February 3, 2026. April 28, 2026. October 29, 2026. Source check 2026-10-14. [When the page and the memory disagree](#)
413. **CUCM** Registrar and trunk call-control point. [CUCM, UCCX, and CVP without a fake script](#)
414. **UCCX** Call control through CUCM. Not the carrier trunk. [CUCM, UCCX, and CVP without a fake script](#)

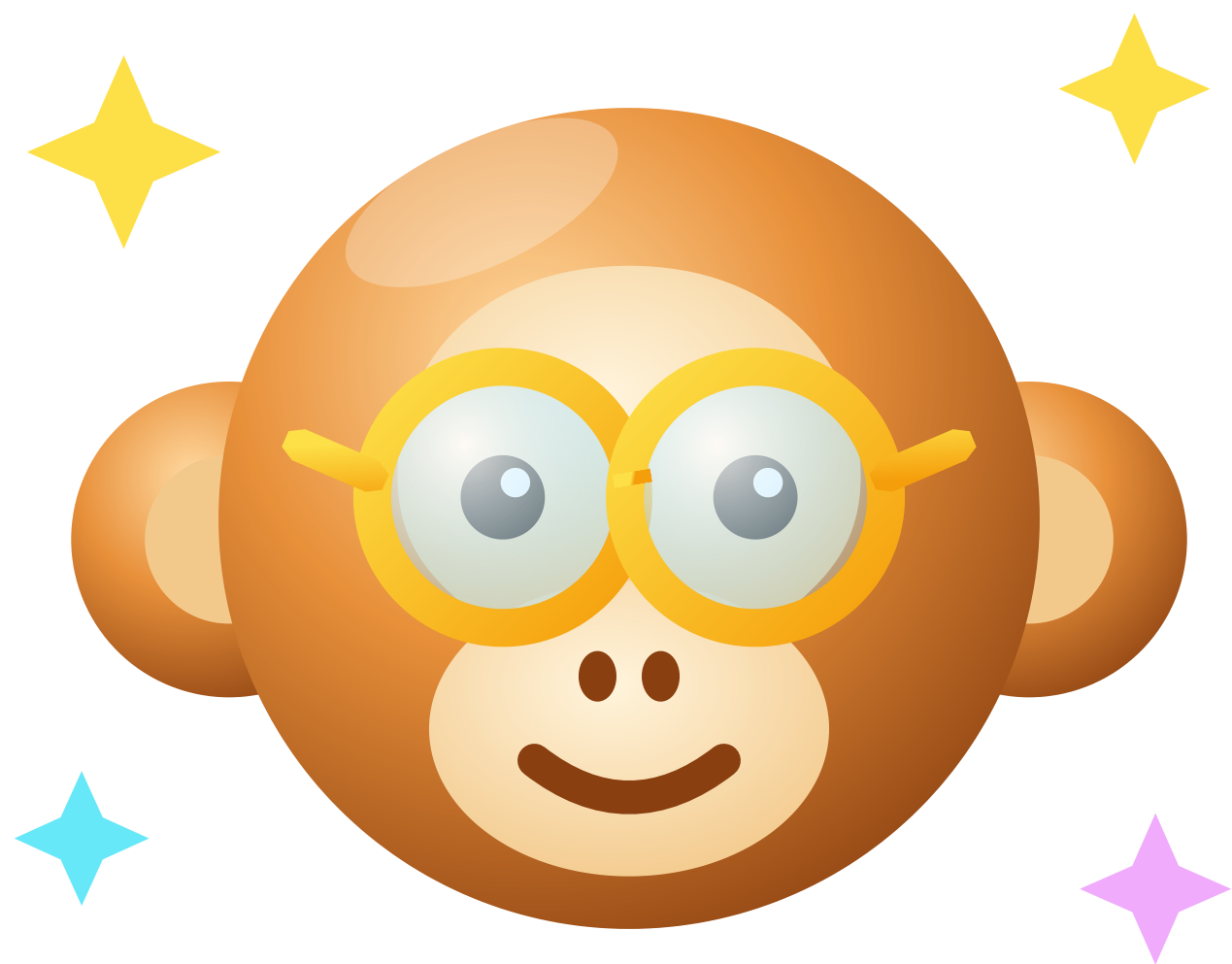
- 415. **CUBE or CUCM** Where PSTN SIP lands. [CUCM, UCCX, and CVP without a fake script](#)
- 416. **CVP** SIP among CVP, gateways, and CUCM, in that version's guide. [CUCM, UCCX, and CVP without a fake script](#)
- 417. **Local Gateway** Premises PSTN pattern for Webex Calling. [Webex Calling local gateway, and a separate contact center](#)
- 418. **Organization PSTN** Configured on the Webex Calling PSTN page. [Webex Calling local gateway, and a separate contact center](#)
- 419. **Placeholder host** example.com stands in so the lesson does not invent the edge FQDN. [Webex Calling local gateway, and a separate contact center](#)
- 420. **Separate product** Webex Contact Center. Check its current design guide. [Webex Calling local gateway, and a separate contact center](#)
- 421. **Call-ID + To tag** Dialog match. No To tag on a brand-new INVITE. [Signaling drill with the cited answer](#)
- 422. **Branch** Transaction hop. z9hG4bK. [Signaling drill with the cited answer](#)
- 423. **2xx ACK** End to end. RFC 6026. [Signaling drill with the cited answer](#)
- 424. **487** INVITE's final response after CANCEL. ACK is hop by hop. [Signaling drill with the cited answer](#)
- 425. **488** This UA. Session description. RFC 3261 and RFC 3264. [Media drill with the cited answer](#)
- 426. **422** RFC 4028. Raise the session interval to Min-SE. [Media drill with the cited answer](#)
- 427. **telephone-event** RFC 4733. DTMF in the offer you mean. [Media drill with the cited answer](#)
- 428. **Keying** RFC 3711 plus either RFC 4568 or RFC 5764. Record which. [Media drill with the cited answer](#)
- 429. **RFC 7092** B2BUA taxonomy. New Call-ID on the other leg is normal. [SBC drill with the cited answer](#)
- 430. **RFC 5853** SBC deployment requirements. [SBC drill with the cited answer](#)
- 431. **Trunk landing** CUBE or CUCM. Not UCCX. [SBC drill with the cited answer](#)
- 432. **Teams pair** TLS 1.2+ and an FQDN in Contact. [SBC drill with the cited answer](#)
- 433. **Symptom** Silence after connect, Alice at 203.0.113.10. Written first. [Symptom, ladder, one packet, one variable](#)
- 434. **Ladder** INVITE, 100, 180, 200, end-to-end ACK. One Call-ID. [Symptom, ladder, one packet, one variable](#)
- 435. **One packet** 200 OK SDP. 203.0.113.20, UDP 19642, PCMU. [Symptom, ladder, one packet, one variable](#)
- 436. **One variable** Capture that port. Config edits wait, and then they are single. [Symptom, ladder, one packet, one variable](#)
- 437. **Six rows** TLS, codecs, numbering, trusted addresses, OPTIONS, SRTP keying. [An interconnect checklist, not a config dump](#)
- 438. **telephone-event** On the codec row on purpose. RFC 4733. [An interconnect checklist, not a config dump](#)
- 439. **E.164** Number form. tel URI is RFC 3966. [An interconnect checklist, not a config dump](#)

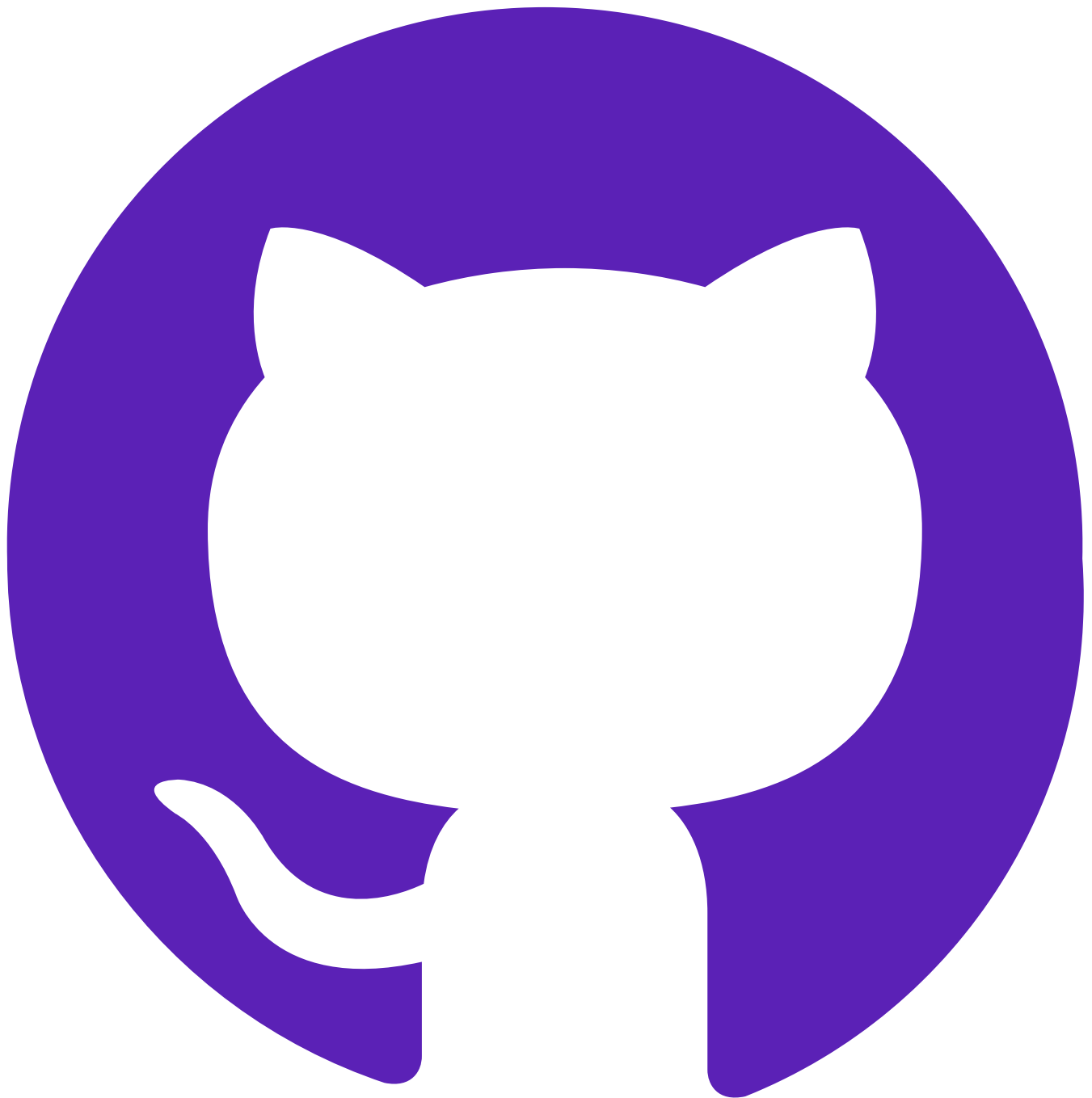
- 440. **Not a dump** Decisions only. No private key, no full dial-peer list. [An interconnect checklist, not a config dump](#)
- 441. **Path** CUCM, then a certified SBC, then Teams. No invented SKU. [CUCM, a certified SBC, and Teams Direct Routing](#)
- 442. **CUBE guide** Basic SIP configuration for the CUBE case. [CUCM, a certified SBC, and Teams Direct Routing](#)
- 443. **TLS 1.2+** Teams floor. Handshake failures are not SIP codes. [CUCM, a certified SBC, and Teams Direct Routing](#)
- 444. **FQDN Contact** sbc.example.com in the lab. An address literal draws 403. [CUCM, a certified SBC, and Teams Direct Routing](#)
- 445. **SDP** RFC 4566 moved to RFC 8866. [When the RFC number moves](#)
- 446. **ICE** RFC 5245 moved to RFC 8445. Confirm the banner. [When the RFC number moves](#)
- 447. **STUN / TURN** RFC 8489 and RFC 8656 in this library. Predecessors 5389 and 5766. [When the RFC number moves](#)
- 448. **Banner** A newer obsoleting RFC that this edition does not cite still wins. [When the RFC number moves](#)

Sources and go deeper

- [RFC 3261](#) — last checked 2026-10

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