

Media C

MoH Multicast B

Media D

SIP Phone A

MoH Source

MoH Server

MoH Multicast A

rtp\_mcast\_moh.pcapng

UDP Data  
Length 180

SIP INVITE

Via	SIP/2.0/UDP 10.10.244.200: 5060;branch=...
Call-ID	DCB12C26- 16B211EA- 80258D63-...
UA	Cisco- SIPGateway/ IOS-17.1.1
CSeq	101 INVITE
Contact	<sip:2001@10. 10.244.200: 5060>
Max-Fwd	68
Owner	CiscoSystemsSI P-GW-UserAgent 523 5465 IN ...
Session Name (s)	SIP Call
Connection	IN IP4 10.10.244.200
Media	audio 8074 RTP/AVP 0 19
Connection	IN IP4 10.10.244.200
Attr	rtpmap:0 PCMU/8000
Attr	rtpmap:19 CN/8000
Attr	ptime:20
Media	video 8072 RTP/AVP 119...
	3 more

SIP 100 Trying

SIP 180 Ringing

SIP 200 OK

Contact	<sip:1008@10.180. 110.48:5060>;+u. sip!devicename....
Connection	IN IP4 10.10.214.98
Media	audio 19046 RTP/AVP 0 101
Attr	rtpmap:0 PCMU/8000
Attr	rtpmap:101 telephone-event/ 8000
Attr	fntp:101 0-15
Media	video 0 RTP/AVP 31 34 96 97
Attr	rtpmap:31 H261/90000
Attr	rtpmap:34 H263/90000
Attr	rtpmap:96 H263-1998/90000
Attr	rtpmap:97 H264/90000
Attr	content:main
Attr	inactive

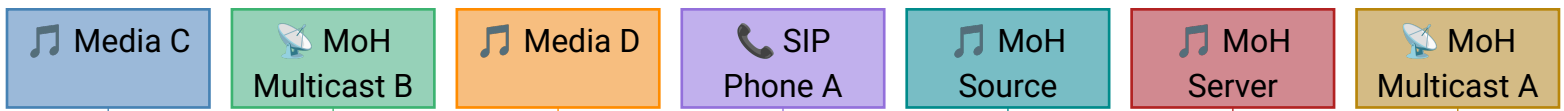
Frame 1 |  
2019-12-05T16:26:33.258974Z

SIP INVITE initiates a call – carries SDP offer with codec/media proposals; callee responds with 180 Ringing, then 200 OK with SDP answer

100 Trying – proxy accepted the request and is searching for the callee; stops retransmission timer; no end-to-end significance

180 Ringing – callee's phone is alerting; caller hears locally generated ringback; 183 with SDP offers early media (in-band ringback) instead

200 OK – call answered (for INVITE) or registration accepted (for REGISTER); SDP answer completes codec negotiation; caller must send ACK to complete 3-way handshake



✓ SIP ACK

Call-ID	DCB12C26-16B211EA-80258D63-C4D3649F@10.10.244...
CSeq	101 ACK

← RTP

Setup frame	593
Marker	True
Codec	ITU-T G.711 PCMU (0)
Sequence number	65502
Timestamp	1182057999
SSRC	0xa0a033a4 (2694853540)

← RTCP SR

Packets	248
Bytes	39680

→ UDP Data

Length	46
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← SIP INVITE

Via	SIP/2.0/UDP 10.180.110.48:5060;branch=...
Call-ID	DCB12C26-16B211EA-80258D63-...
UA	Cisco-CUCM12.5
CSeq	101 INVITE
Max-Fwd	70
Contact	<sip:ef63152f-917c-4f6b-881f-d1c0bed01604...>
Owner	CiscoSystemsC CM-SIP 36227 2 IN IP4...
Session Name (s)	SIP Call
Connection	IN IP4 0.0.0.0
Media	audio 19046 RTP/AVP 0 101
Attr	rtpmap:0 PCMU/8000
Attr	inactive
Attr	rtpmap:101 telephone-event/8000
Attr	fmt:101 0-15
Media	video 0 RTP/AVP 31 34 96 97...
	6 more

⌚ SIP 100 Trying

✓ SIP 200 OK

Contact	<sip:2001@10.10.244.200:5060>
Connection	IN IP4 10.10.244.200
Media	audio 8074 RTP/AVP 0
Connection	IN IP4 10.10.244.200
Attr	inactive
Attr	rtpmap:0 PCMU/8000
Attr	ptime:20
Media	video 0 RTP/AVP 31

Frame 686 | 2019-12-05T16:26:46.861954Z

Frame 697 | 2019-12-05T16:26:47.046994Z

💡 RTCP Sender Report – media sender reports packet/byte counts and NTP timestamp for lip-sync; receivers use this to calculate jitter and loss  
 Frame 1267 | 2019-12-05T16:26:52.740958Z

💡 SIP INVITE initiates a call – carries SDP offer with codec/media proposals; callee responds with 180 Ringing, then 200 OK with SDP answer

💡 100 Trying – proxy accepted the request and is searching for the callee; stops retransmission timer; no end-to-end significance

💡 200 OK – call answered (for INVITE) or registration accepted (for REGISTER); SDP answer completes codec negotiation; caller must send ACK to complete 3-way handshake

Media C

MoH Multicast B

Media D

SIP Phone A

MoH Source

MoH Server

MoH Multicast A

Connection	IN IP4 10.10.244.200
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✓ SIP ACK

Call-ID	DCB12C26-16B211EA-80258D63-C4D3649F@10.10.244...
CSeq	101 ACK

☎ SIP INVITE

Via	SIP/2.0/UDP 10.180.110.48: 5060;branch=...
Call-ID	DCB12C26-16B211EA-80258D63-C4D3649F@10.10....
UA	Cisco-CUCM12.5
CSeq	102 INVITE
Max-Fwd	70
Contact	<sip:ef63152f-917c-4f6b-881f-d1c0bed01604@10....

🕒 SIP 100 Trying

✓ SIP 200 OK

Contact	<sip:2001@10.10.244.200:5060>
Connection	IN IP4 10.10.244.200
Media	audio 8074 RTP/AVP 0 19
Connection	IN IP4 10.10.244.200
Attr	rtpmap:0 PCMU/8000
Attr	rtpmap:19 CN/8000
Attr	ptime:20
Media	video 8078 RTP/AVP 119
Connection	IN IP4 10.10.244.200
Attr	rtpmap:119 H264/90000
Attr	fntp:119 profile-level-id= 42801E;packetiza...

✓ SIP ACK

Call-ID	DCB12C26-16B211EA-80258D63-...
CSeq	102 ACK
Owner	CiscoSystemsCCM-SIP 36227 3 IN IP4 10.180.110.48
Media	audio 19046 RTP/AVP 0
Connection	IN IP4 0.0.0.0
Media	video 0 RTP/AVP 31 34 96 97
Connection	IN IP4 10.10.214.98

☎ SIP INVITE

Via	SIP/2.0/UDP 10.180.110.48: 5060;branch=...
Call-ID	DCB12C26-16B211EA-80258D63-...

Frame 3397 |  
2019-12-05T16:27:14.63696Z

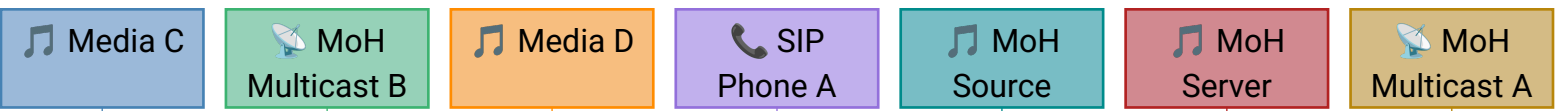
💡 SIP INVITE initiates a call – carries SDP offer with codec/media proposals; callee responds with 180 Ringing, then 200 OK with SDP answer

💡 100 Trying – proxy accepted the request and is searching for the callee; stops retransmission timer; no end-to-end significance

💡 200 OK – call answered (for INVITE) or registration accepted (for REGISTER); SDP answer completes codec negotiation; caller must send ACK to complete 3-way handshake

Frame 3479 |  
2019-12-05T16:27:16.19798Z

💡 SIP INVITE initiates a call – carries SDP offer with codec/media proposals; callee responds with 180 Ringing, then 200 OK with SDP answer



UA	Cisco-CUCM12.5
CSeq	103 INVITE
Max-Fwd	70
Contact	<sip:ef63152f-917c-4f6b-881f-d1c0bed01604...>
Owner	CiscoSystemsC CM-SIP 36227 4 IN IP4...
Session Name (s)	SIP Call
Media	audio 16384 RTP/AVP 0
Connection	IN IP4 239.1.1.1
Attr	X-cisco-media: mmoh+ConnSen dOnly
Attr	ptime:20
Attr	rtpmap:0 PCMU/8000
Attr	recvonly
Media	video 0 RTP/AVP 31 34 96 97...
	7 more

➔ RTP

Setup frame	3481
Marker	False
Codec	ITU-T G.711 PCMU (0)
Sequence number	55602
Timestamp	3085418304
SSRC	0x214ef3eb (558822379)

⌚ SIP 100 Trying

📊 RTCP RR

✅ SIP 200 OK

Contact	<sip:2001@10.10.244.200:5060>
Connection	IN IP4 10.10.244.200
Media	audio 16384 RTP/AVP 0
Connection	IN IP4 239.1.1.1
Attr	recvonly
Attr	rtpmap:0 PCMU/8000
Attr	ptime:20
Media	video 0 RTP/AVP 119
Connection	IN IP4 10.10.244.200
Attr	rtpmap:119 H264/90000
Attr	fntp:119 profile-level-id= 42801E;packetiza...

✅ SIP ACK

Call-ID	DCB12C26-16B211EA-80258D63-C4D3649F@10.10.244...
CSeq	103 ACK

Frame 3482 |  
2019-12-05T16:27:16.202977Z

- 💡 100 Trying – proxy accepted the request and is searching for the callee; stops retransmission timer; no end-to-end significance
- 💡 RTCP Receiver Report – reports packet loss fraction and jitter for each source; high jitter or loss indicates network congestion affecting voice quality
- 💡 200 OK – call answered (for INVITE) or registration accepted (for REGISTER); SDP answer completes codec negotiation; caller must send ACK to complete 3-way handshake

Frame 3601 |  
2019-12-05T16:27:18.502964Z