Troubleshooting Webex Intermittent 604 Responses on Inbound Calls

Contents

Issue

Intermittent inbound call failures to Webex Calling Auto Attendant numbers where callers experience fast busy signals, "number is invalid" messages, or carrier announcements stating "call cannot be completed as dialed." During these failures, the local gateway/SBC receives SIP/2.0 604 "does not exist anywhere" responses from Webex Calling cloud servers. Failed call attempts often do not appear in Control Hub troubleshooting logs, indicating the calls can be rejected before proper hand-off to the Webex Calling platform.

Specific symptoms observed include:

- SIP/2.0 604 responses from multiple Webex Calling IP addresses
- Unexpected R-URL parameters in INVITE messages (for example, ";npdi;rn=..." parameters)

Environment

- Webex Calling Wholesale Deployment
- Local Gateway Certificate-based configuration using AudioCodes equipment
- SIP trunk connectivity to Webex Calling cloud infrastructure
- Multiple Webex Calling cloud server IPs involved in call routing

Resolution

The resolution involved addressing two primary technical issues identified during troubleshooting:

Issue 1: SIP OPTIONS Ping Failures

Step 1: Investigate SIP OPTIONS Behavior between the Local Gateway and Webex Calling Cloud Servers

- Webex Calling cloud servers send SIP OPTIONS pings to verify trunk connectivity. When these pings fail or receive no response, the trunk is marked as impaired, causing subsequent INVITE requests to receive 604 responses.

Step 2: Adjust Local Gateway SBC Configuration

- Configure the SBC to maintain persistent TCP/TLS sessions and ensure consistent responses to SIP OPTION requests. Reduce the OPTIONS retry intervals from 60 seconds to 30 seconds to improve responsiveness.

Step 3: Verify OPTIONS Message Exchange

Confirm through packet captures that:

- SBC is sending OPTIONS messages to each Webex Calling IP gateway
- SBC is responding to incoming OPTIONS with proper 200 OK responses
- No errors or failures occur in the OPTIONS exchange process

Issue 2: Unexpected R-URI Parameters

Step 1: Identify Problematic INVITE Header Format

- Review INVITE messages and identify unexpected parameters in the R-URI header. The problematic format contained additional NPDI (Number Portability Database Indicator) information:

```
INVITE sip:+19073461446;npdi;rn=+19078840195@10.244.99.204:5060;transport=udp SIP/2.0
```

Step 2: Implement SBC Message Manipulation

- Configure the SBC to remove NPDI information from INVITE headers before forwarding to Webex Calling. The corrected header format must be:

```
INVITE sip:+19073461446@10.244.99.204:5060;transport=udp SIP/2.0
```

Step 3: Monitor Call Success After Header Manipulation

- Implement the header manipulation change and monitor inbound call completion rates. Test calls complete successfully without receiving 604 responses.

Verification Steps

Step 1: Confirm Trunk Stability

- Verify the SIP OPTIONS between the local gateway IP and Webex Calling IPs remain stable in both directions and no additional 604 responses occur for the affected organization/trunk.

Step 2: Validate Call Completion

- Test inbound calls to the Auto Attendant number to ensure successful completion and proper appearance in the Control Hub troubleshooting logs.

Cause

The issue was caused by two separate but related problems:

Primary Cause: Trunk connections were intermittently marked as impaired due to a failed SIP OPTIONS ping exchange between Webex Calling cloud nodes and the local gateway. When Webex Calling receives an INVITE on a trunk marked as down due to missing OPTIONS responses, it triggers a "604 Does not exist anywhere" response.

Secondary Cause: INVITE messages contained unexpected R-URI parameters (";npdi;rn=..." values) that were forwarded from the PSTN provider through the local gateway to Webex Calling. Some Webex Calling servers can handle these parameters while others cannot, resulting in inconsistent call success rates and 604 responses from servers that cannot process the unexpected parameters.

Related Content

- Troubleshoot Webex Calling calls in Control Hub
- Get Started with Local Gateway
- Cisco Technical Support & Downloads