

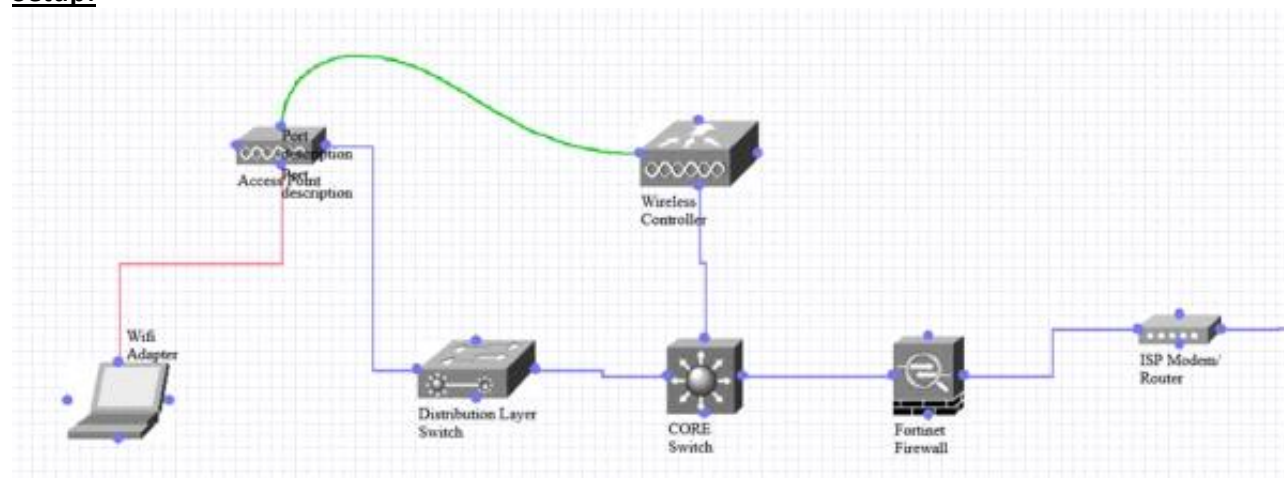
Teams, Zoom and Webex issue

12 November 2022 10:20

Problem Description:

Video call freeze issue.

Setup:



Wireless Controller, Core switch, Distribution layer switch, AP, Fortinet firewall and ISP router/modem.

----- CAPWAP Traffic

----- Wired Traffic

----- Wireless connectivity between AP and client.

Troubleshooting done in past:

We have applied best practices on WLC and already upgraded to latest version 8.5.171.0. Also we are getting 80 Mb speed on wireless clients which is great as per bandwidth (100 Mb).

Observations for yesterday:

As I mentioned in call, "Wireless network is extension of Wired network. Because ultimately, wireless traffic will pass from wired." So suspectedly we checked wired network of office. For any kind of Teams, Webex and Zoom interruption issue, we have to make sure that below UDP ports should be open from firewall or from switch (see if extended ACL is blocking the ports or not):

Teams:

3478

3479

3480

3481

Webex:

9000

5004

Zoom:

8801

8802

Testing done yesterday on Wireshark:

Over office Wifi (Test client: Manoj Sir's laptop):

We installed Wireshark on one of the test client and connected it to Wireless SSID at office. We selected Wi-Fi interface in Wireshark and applied "udp.port == 9000". Then we asked Sir Manoj to join Webex session. We found that initially Client was sending traffic to Webex server on port 9000 but not getting response. After that we found that Webex traffic started using TCP port 443 instead of UDP 9000 (because client was not getting any response on UDP 9000 or might not be opened at Wired end). Please refer below document related to Teams, Zoom and Webex:

Teams: <https://learn.microsoft.com/en-us/answers/questions/896023/when-does-microsoft-teams-use-tcp.html>

Zoom: <https://www.speedguide.net/port.php?port=8801>

Webex: https://help.webex.com/en-us/article/WBX264/How-Do-I-Allow-Webex-Meetings-Traffic-on-My-Network?#id_135400

Over home Wifi of Rakesh Sir:

We installed Wireshark on Rakesh Sir's Laptop when he was working from home and connected it to home wifi. We selected Wi-Fi interface in Wireshark and applied "udp.port == 9000". Then we asked Rakesh Sir to join Webex session. We instantly started getting traffic on UDP port 9000. Also Rakesh Sir confirmed that clients never face issue on Zoom or Teams while working from home.

TCP is connection oriented and UDP is connection less. Via using TCP port 443, if client would not get any response/ acknowledgement of any transmitted packet, it will retransmit the same packet again. So lets assume, during Webex call (when it uses TCP), if client would not get any response of a TCP packet, it will retransmit again until it get any response. This retransmission can cause delay/ lag of voice traffic.

UDP performance is fastest at delivering packets on the network for many reasons. The first is that it doesn't check if the packet is fully received. Another is that this protocol is not sensitive to packet reorder. This means that UDP can deal with it without considering it as packet loss.

Testing done on wired network of office:

We connected Laptop on office's switch. We selected Ethernet interface in Wireshark and applied "udp.port == 9000". Then we asked Sir Manoj to join Webex session. We found that initially Client was sending traffic to Webex server on port 9000 but not getting response. After that we found that Webex traffic started using TCP port 443 instead of UDP 9000.

Testing done by directly connecting the laptop on Office ISP router/ modem:

Then we have a doubt that office ISP link might be blocking the UDP traffic. So for testing purpose, we connected Manoj Sir's laptop on ISP router via LAN cable (also configured the static IP). We selected Ethernet interface in Wireshark and applied "udp.port == 9000". Then we asked Manoj Sir to join Webex session. We instantly started getting traffic on UDP port 9000.

(NOTE: We have also done the same testing for Zoom on UDP port 8801 and saw same behaviour like Webex).

Conclusion:

Based on testing, we have seen that ISP router is allowed to transfer UDP Traffic. But over wired as well as wireless, we were not getting response for UDP port 9000. So we request you to check the policies on Fortinet firewall whether it is blocking the UDP traffic or not. You can also raise a TAC case with Fortinet for recommendations. I will wait for your response.