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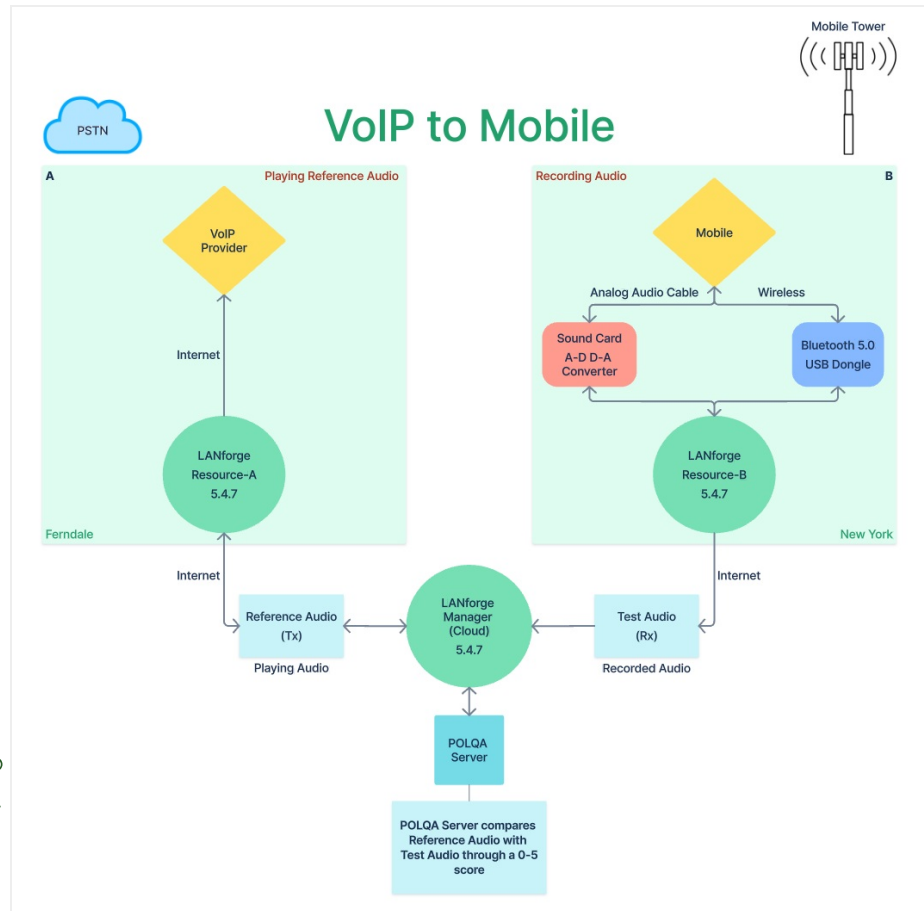support@candelatech.com
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VoIP-Mobile Audio Quality Testing using POLQA

Goal: Evaluate the voice call quality made between VoIP-SIP and Mobile call through POLQA scores.

Consider an example: LANforge-A (resource) makes a VoIP-SIP phone call towards a Mobile device which is connected to LANforge-B (resource) via LANforge manager (cloud). LANforge-A plays a reference audio file over the call. The call is being recorded by LANforge-B. After the call completes, both the reference audio file and recorded audio file are evaluated by LANforge manager using the POLQA server. The POLQA server scores the recording based on audio quality loss during the call.

1. Requirements:
    A. LANforge systems (version 5.4.7). One manager and atleast one resource.
    B. VoIP service provider
    C. POLQA license and server
    D. Mobile Phone having Bluetooth and active SIM card.
    E. Bluetooth 5.0 USB dongle (BR/EDR = LE Controllers)
    F. Analog audio cable
    G. USB sound card
    H. Internet access
    I. Mobile network

2. Configuration:
    A. Connection between one or more LANforge resource systems towards one LANforge manager (Cloud) should be done till here.
    B. LANforge licenses and POLQA licenses are installed.
    C. Installation steps: Follow /home/lanforge/audio-bluetooth/README.txt on all LANforge resources.

D. After installation, please `reboot` all the LANforge systems.

E. On the LANforge manager (cloud), open the `GUI`.
   In the VoIP/RTP tab, select **Create**.

A. Cross Connect details to be filled are:

I. **TX Endpoint A:** The VoIP-SIP endpoint performs an outbound call over the Internet towards the Mobile phone mentioned in RX Endpoint B. During this call, SIP plays an audio Tx File over the call.

   i. `Phone:` SIP Phone info

   ii. `Call Gateway:` SIP Call Gateway info

   iii. `Auth User Name:` SIP User info

   iv. `Resource:` LANforge resource-A (hostname sk01 from Ferndale location in this example)

   v. `Port:` Management Port with Internet access (eth0 in this example)

   vi. `Display Name:` SIP Name or mac_address

   vii. `Tx file:` reference audio file to be played on call

II. **RX Endpoint B:** The Mobile connected to LANforge resource-B receives an inbound call from VoIP-SIP over the Internet. LANforge resource-B starts recording the active incoming audio call via Bluetooth channel or analog audio cable option at the specified Record File location. The recorded file is then evaluated by POLQA server against the original Tx File.

   i. `Phone:` Mob phone number

   ii. `Call Gateway:` AUTO

   iii. `Auth User Name:` AUTO

   iv. `Resource:` LANforge resource-B (hostname sk03 from New York location in this example)

   v. `Port:` Management Port with Internet access (eth0 in this example)

   vi. `Display Name:` Mobile mac_address

   vii. `Tx file:` same audio file as TX Endpoint-A Tx File

   viii. Checkboxes:

      i. `Mobile:` **True**

      ii. `Rcv Call:` **True** (become a receiver)

    iii. `Bluetooth:` **True** (Record call through Bluetooth channel optional)

     `Bluetooth:` **False** (Record call through analog audio cable)

    iv. `Record:` **True**

    v. `Enable POLQA:` **True**

   ix. `Record File:` Recording folder path

   x. `POLQA Server:` POLQA Server Address

  B. Select `Apply`, `OK`, and **START** the test.

 F. Go To `VoIP/RTP Endps` tab to get the **POLQA Score**.

3. Sample POLQA Score Report from POLQA server. (Check: `MOS-LQO` Score)

4. If you need assistance, you can contact us at support@candelatech.com