Voice Termination and SBC's Welcome Packet

Table of Contents

Welcome to Bandwidth!

The Bandwidth Client Services Account Manager (CAM) is working to set up termination voice services. Below is the information needed to help with configuration.

- Provide the Client Services Account Manager with any public termination IP addresses that should be added to Bandwidth's ACL (whitelist) for the outbound traffic.

- If API access is needed for ordering numbers in the web portal, more information is available at http://my.bandwidth.com/portal/apidoc/.

Specifications for Voice Interop

- LRN Billing

  o The associated rate deck you are supplied will rate each termination call based on the LRN of the dialed number. If you are either unable to 'dip' for LRN within your internal call processing or have questions surrounding the rating options, please consult the Customer Account Manager that will be assigned to work through your migration.

Bandwidth has multiple geographically redundant signaling proxy facilities in the United States. This section gives guidance as to how and what should be expected.

- **IP Information:**

  o **Bandwidth employs a mated pair of SBC's for signaling redundancy. *Please ensure that either can be accessed in the event that one is offline.***
  o **For termination, the customer should ensure that both IP addresses are configured for outbound traffic in the event that one is offline.**
  o **The IPs for the SBC's are**
    - **67.231.1.112**
    - **67.231.5.112**

- **SIP** – Bandwidth will only allow signaling via the SIP method encompassing the following RFCs (if any other protocol is sent, calls will not setup):

  ⓘ RFC 2833

- **Ports to be Opened and IPs to be Allowed** – Many customers require that their PBX be protected by a firewall. The user needs to check with their firewall manufacturer for compliance. The

Firewall must have the ability to act as either a SIP ALG or a Back-to-Back User Agent (B2BUA). The following ports are required to allow for full 2-way audio:

- o UDP port 5060 – must be opened to support SIP signaling.
- o UDP ports 1024 to 64,000 – must be opened either statically or dynamically (ALG) to allow for the audio path.
- o Bandwidth uses multiple IPs to allow media from its gateways.

- **Attributes** – Bandwidth SIP trunks have certain attributes such as DTMF, Dial Plans, Codecs, Signaling Protocol, IP Protocol, and Media Anchoring.

- **DTMF** - Dual-tone multi-frequency signaling is used for detecting dialed digits over the SIP Trunk, either outbound or inbound. Bandwidth supports in-band or out-of-band DTMF outlined in RFC 2833.

- **Dial Plans** – Bandwidth supports only E.164 for outbound calling.

- **E.164** – This is the recognized International standard. It is characterized by a "+" followed by a country code (i.e. "1" U.S.) and then the specific phone number.
  - o Example Local & Long Distance: +19192971100
  - o Example International: +4402074942020

- **IP Protocols** – Bandwidth requires that all SIP and Audio be delivered via UDP. TCP will not be accepted or delivered by Bandwidth. The UDP packets must be no larger than 1350 bytes.

- **Codecs Supported** – Bandwidth supports 3 codecs to date: G.729a, G711ulaw, and T.38. But, if a downstream carrier does not support T.38 then the network will fall back on G711ulaw

- **Call Concurrency Limit Reached** – If the customers call concurrency limit is reached there will be a 503 service unavailable or a 486 Busy Here Signal.

- **Features** – Bandwidth SIP trunks utilize SIP features like; Outbound Caller ID, in very specific ways.

- **Caller ID Outbound** – Bandwidth SIP uses the FROM field to represent the caller ID name and number & call rating. If a Remote-Party ID field (RPID) is included in the SIP INVITE message, the RPID will be used for caller ID and for call rating. Note: P-Asserted-Identity and Privacy headers are also supported.

  - ☏ Example <<FROM>>
  - ☏ Example <<TO>>
  - ☏ Example <<RPID>>

Support and Ticketing

Customer Experience: 855-VoIP-Pro (855-864-7776) or support@bandwidth.com

The Customer Experience Team is comprised of the following departments:

- Service Outage Emergencies (24x7) – options 1,1
- Technical Support (24x7) – options 1,2
- Account management and general inquiries – options 1,3
- Data Services, (LNP, order management, etc) – options 1,4 (LNP)
- Billing and Payments – option 3

Bandwidths ticketing system is an alternate method to engage support.

To open a ticket:

1. Send an email to carrieroutage@bandwidth.com or support@bandwidth.com, depending on the type of request (service outage vs. general maintenance items) and a ticket will automatically be opened and directed to the proper group.

2. Tickets will email updates each time one is received (to both the submitter and those CC'd). You may also follow the process below to get into the ZenDesk ticketing system, on the gray bar on top click the tab "submit a request" to submit a ticket.

   a. To view and/or open tickets online use this link: http://mybwc.zendesk.com/home.

   b. On the top of the screen, click on the company organization tab (just to the right of check existing requests). All the open tickets will be listed to be able to check any updates and quickly communicate additional information.

3. Call bandwidth and request to have a ticket open at 855-864-7776.

For questions about the ticketing process or support groups, please email support@bandwidth.com.

Bandwidth Escalation Contacts

If your questions or concerns have not been addressed by the above contacts in a timely manner, and as represented by the service levels in the Customer Success Guide, please escalate as follows:

1st Level Escalation

Technical Support

Casey Dover

Manager, Tier 2 Voice Team

Office: 919.439.2612

Mobile: 919.297.8783

cdover@bandwidth.com

Account Management

Matt Ruehlen

Manager, CAM Team

Office: 919.439.3536

Mobile: 919.727.6288

mruehlen@bandwidth.com

LNP and Data Services

Lindsey Carr

Manager, Data Services

Office: 303.228.8831

2nd Level Escalation

Gary Fowler

Senior Director, Network Operations

Office: 919-439-4723

Mobile: 919-244-0495

gfowler@bandwidth.com

Ryan Henley

Vice President, Customer Operations

Office: 303-949-5471

Mobile: 303-949

rhenley@bandwidth.com

3rd Level Escalation

Mary Tuten

Senior Vice President, Customer Experience

Office: 303.253.9904

Mobile: 303.877.6209

mtuten@bandwidth.com

4th Level Escalation

Steve Leonard

Executive Vice President, Bandwidth

Office: 919.439.3925

Mobile: 617.460.5208

sleonard@bandwidth.com

5th Level Escalation

Chris Chuang

Chief Strategic Officer and COO, Bandwidth

Office: 919.297.1081

Mobile: 919.600.0098

cchuang@bandwidth.com