



INTERNET ADDENDUM
DATE: FEBRUARY 5, 2016

1. Overview

The purpose of this document is to set guidelines for when Customers leverage the public Internet for connectivity to Cameo Global CloudBlu™ Hosted Solutions.

2. Definitions

- **Voice over Internet Protocol (VoIP):** a general term for a family of transmission technologies for delivery of voice communications over IP networks such as the Internet rather than the public switched telephone system (PSTN).
- **VoIP Network:** a Public Telecommunication Network over which VoIP Services are provided.
- **VoIP Service(s):** all of the services and technologies that allow the transmitting, receiving, delivering and routing of voice telecommunications by means of internet protocol (IP); i.e., commercial VoIP, PBX VoIP, hosted PBX or any like service regardless of branded terminologies.
- **Public Switched Telephone Network (PSTN):** also referred to as the Plain Old Telephone Service (POTS), is the network of the world's public circuit-switched telephone networks.
- **Internet Service Provider (ISP):** a company that offers its customers access to the Internet. The ISP connects to its customers using a data transmission technology appropriate for delivering IP such as dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects.
- **Multiprotocol Label Switching (MPLS):** is a mechanism in high-performance telecommunications networks that directs data from one network node to the next based on short path labels rather than long network addresses, avoiding complex lookups in a routing table.
- **Firewall:** a technological barrier designed to prevent unauthorized or unwanted communications between computer networks or hosts.
- **Enhanced 911, E-911 or E911:** a North American telecommunications - based system that automatically associates a physical address with the calling party's telephone number and routes the call to the most appropriate Public Safety Answering Point (PSAP) for that address. The caller's address and information is displayed to the call taker immediately upon call arrival. This provides emergency responders with the location of the emergency without the person calling for help having to provide it.

3. Guidelines

In order for Cameo to support our customers and deliver cost-effective services for specific sized customers, Cameo makes its hosted solutions available over the public Internet. However, Cameo recommends for a consistent high quality voice experience a dedicated, managed, circuit (MPLS) should be in place.

Cameo is not responsible for customer's network connections or for conditions or problems arising from or related to customer's network connections (e.g., bandwidth issues, excessive latency, network outages), or caused by the Internet. Cameo is responsible for their equipment, monitoring its own networks, and notifying customers of any internal issues that may impact the Cloud Services. Cameo will monitor the network connection(s) and the bandwidth to the customer's network and will notify customers of any issues. Cameo's CloudBlu™ data center servers and infrastructure are designed and implemented to industry standards with Quality of Service (QoS), and are not oversubscribed. To prevent network oversubscription Cameo will work with customers to estimate anticipated solution network bandwidth requirements. It is a Cameo recommendation to add the incremental, network bandwidth to their existing Internet network connectivity to mitigate potential bandwidth congestion and subsequent voice quality/impact issues due to lack of QoS on Internet networks. VoIP solutions require a reliable network that meets the following requirements:

- One way maximum latency of 150 milliseconds
- One way jitter under 30 milliseconds

- o Packet loss of less than 1%
- o VoIP packets (signaling and bearer traffic) prioritized to ensure quality

Cameo cannot guarantee end to end voice quality over the Internet and will not attempt to troubleshoot Internet related problems within our contracts. Any troubleshooting of voice quality issues with Internet connections will be billed at the rates specified in the contract.

Cameo is not responsible for the QoS associated with the Internet or customer's network. Therefore, the customer exploring VoIP services should consider the issues and potential limitation of VoIP telephone service including but not limited to service quality, latency, availability, voice quality, and 911.

4. Potential Issues with Public Internet Connection

Cameo has seen main type of issues when utilizing a public Internet connection for voice services. Below is a partial list of the most common occurrences.

- **Choppy Voice** – The public Internet does not support QOS so packets can be lost or delayed which can cause all types of voice quality issues.
- **IP Phones Unregistering** – IP Phones get their registration and call control from an IP PBX. Their status is based on certain packets that go back and forth. If too many of those packets get lost the IP Phone can go into an unregistered mode.
- **One-Way Audio** – can help when a packet knows how to get from point A to point B but does not know how to go from point B to point A or takes a different path that has too much delay.
- **Firewall Issues** – specific ports need to be open when traversing a firewall. Base on the signaling type and the voice type (i.e. SIP).

5. Revision History

Revision #	Date of Change	Responsible	Summary of Change
1.1	January 22 2015	MH	Policy created
1.2	January 28, 2016	MJ	Verbiage Change
1.3	February 5, 2016	DH	Format Updated

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