AltiGen KB

AltiGen QoS Statement

Introduction: Network QoS is a way to help ensure that the desired VoIP quality is delivered when delay, jitter, and/or packet loss are potential concerns. A number of standards exist that can provide QoS capabilities in IP-based networks. This document provides a description of AltiGen's VoIP network QoS implementation.

Type-of-Service (ToS) and DiffServ Support:
IP has long supported a per-packet QoS marking in its ToS field. This 8-bit field originally used 3 bits to support 8 precedence values, along with some handling flags in the remaining 5 bits.
The ToS byte format is as follows:

The ToS byte is broken into three fields: Precedence, ToS, and MBZ.

Precedence is the most used of the three fields. Defined by three bits, there are 8 possible precedence values, from 000 (decimal 0) through 111 (decimal 7). Value 101 (decimal 5) in Precedence bits definition means "Critical".

The first 6 bits of TOS octet are mapped into DiffServ Code Point (DSCP) for Differentiated Services. DSCP = '101000' map to Class Selector of Class 5. This value is backward compatible with IP Precedence bits "Critical" setting.

AltiGen's server and IP phone set the ToS byte to 10100000, which will signal to the network switch and router that the packet is critical, or class 5, for DSCP Class Selector to assure maximum compatibility. This setting applies to RTP packets for voice stream.

An Expedited Forwarding Per-Hop Behaviors (EF PHB) has been defined by standards committees with recommended DSCP value '101110'. Some service providers provision their networks to honor this DSCP setting for low latency packet delivery but not '101000'. In this case, you can configure your WAN edge router to match the UDP Port range in the RTP packets and change the DSCP setting in these packets to EF PHB value, so that these packets can be delivered in low loss and low delay through your service provider's network.