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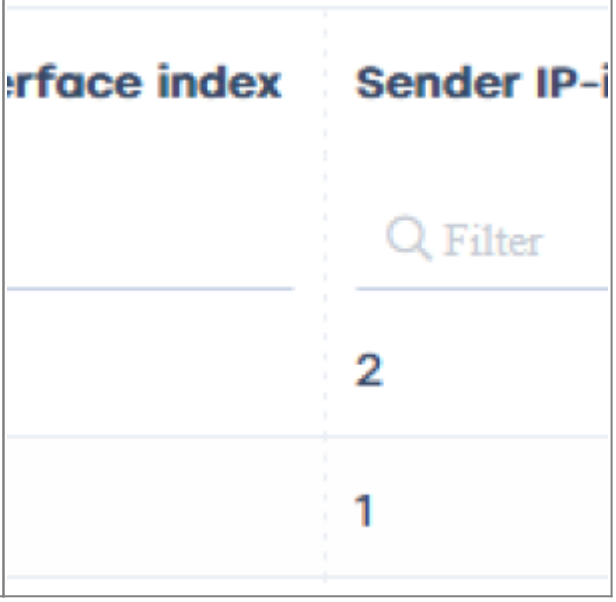
Description of QoE metrics

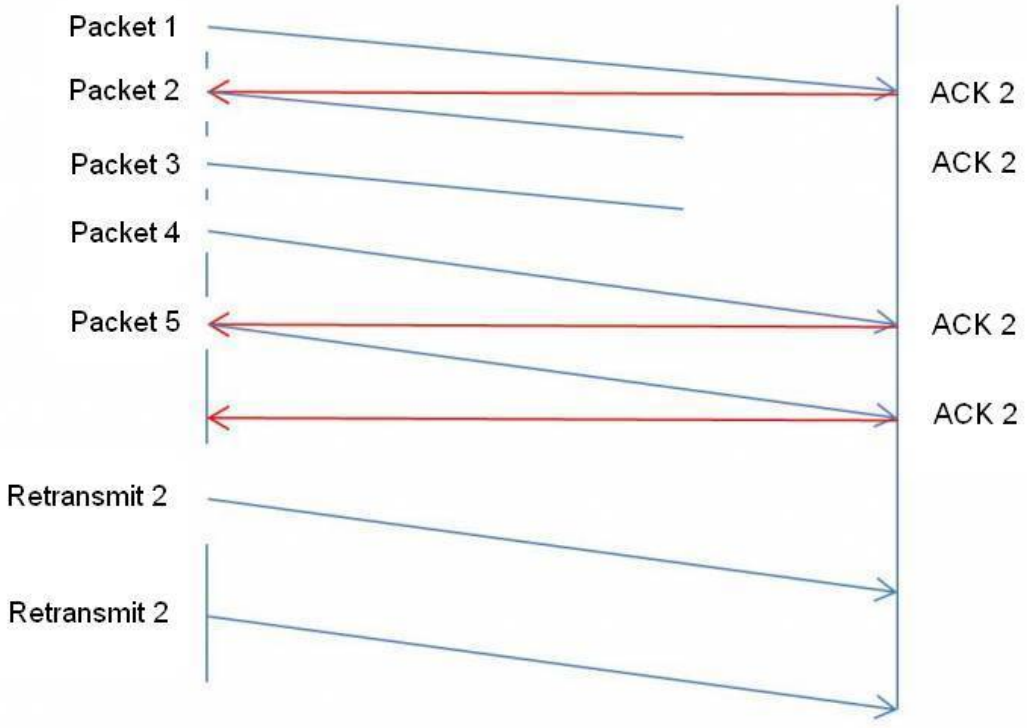
Netflow

Metric	Description	Values
Octet delta	Traffic difference (bytes) at the beginning and end of the specified period	
Fragmented packets delta	Difference of IP packets divided into parts/fragments at the beginning and at the end of the specified period	
RTT	Round-trip time is the time taken to send the signal plus the time it takes to confirm that the signal has been received. This round-trip time therefore consists of the time it takes to transmit a signal between two points within a single flow. All network activity within a source/destination socket (source IP:port /destination IP:port) is taken as a flow in DPI	
Sorce AS	AS host number	
Destination AS	Subscriber's AS number	
Post nat source IPv4-address	An IP address converted from private to public by NAT to communicate with external devices and access the Internet	
Post nat source port	A port converted by NAT from private to public for communicating with external devices and accessing the Internet	
Vchannel/Bridge	Vchannel — vChannel number. Bridge — number of the bridge through which the traffic goes	
Service class	Traffic classes cs0 — cs7. For more details see Traffic class allocation for a tariff plan	0 — cs0 1 — cs1 ... 7 — cs7

Metric	Description	Values
Reciever IP-interface index and Sender IP-interface index	Traffic direction	1 — to whom traffic is directed; 2 — where the traffic comes from. Example: The first option is outbound traffic; The second option is inbound traffic. 

Retransmits

1. Total retransmit percentage
2. The percentage of retransmissions when the traffic goes FROM subscriber
3. The percentage of retransmissions when the traffic goes TO subscriber



Retransmission types:

- **TCP Retransmission** is a classic type of packet retransmission. The packet sender having not

received acknowledgment from the addressee after the retransmission timer expires, resends the packet automatically, assuming that it is lost along the route. The timer value is flexibly adjusted and depends on the circular transmission time over the network for a particular communication channel. RFC6298 (Computing TCP's Retransmission Timer) specifies the algorithm to calculate the timer.

- **TCP Fast Retransmission** corresponds for the following case: the sender resends the data immediately after assuming that the sent packets are lost without waiting for the expiration of the transmission timer. Usually it can be triggered by receiving several consecutive (usually three) duplicate acknowledgments with the same serial number. For example, the sender transmitted a packet with sequence number 1 and received an acknowledgment equal to sequence number plus 1, i.e. 2. The sender understands that the next packet with number two is expected. Suppose that the next two packets are lost and the recipient receives data with serial number 4. The recipient resends the acknowledgment with the number 2. Upon the receiving the packet with the number 5, the sender still sends the acknowledgment with the number 2. The sender sees three duplicate acknowledgments, assumes that the packets 2 and 3 were lost and resend them without waiting for a timer to expire.
- **Spurious Retransmission** is the type of retransmission appeared in the version 1.12 of Wireshark sniffer and means that the sender resends packets to which the recipient has already sent acknowledgment.

Clickstream

All Clickstream metrics are defined for HTTP traffic only.
Metrics for HTTPS traffic cannot be defined because it is encrypted.

Metric	Description	Values
Path	The address to which the subscriber went	
Referer	The resource from which the request came. Used for redirection: the address from which the user went to the redirection page is memorized	
User agent	Allows you to understand from which device the request was made	
Method	Server request method	0 — undefined 1 — GET 2 — POST 3 — PUT 4 — DELETE
Result code	The HTTP code that the server returned	200 — OK 400 — Forbidden
Content length	How many bytes of information the server returned in response to the request	
Content type	Content-Type in HTTP, used to define the MIME type of a resource	
Locked	Bitmask, contains an indication that the resource has been blocked or redirected	0x3 for HTTP 0x1 for the rest
Host type		1 for HTTP 2 — CNAME 3 — SNI 4 — QUIC