

How is Round-Trip Time (RTT) measured?

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One IQM agent is used during U7-type (UDP-echo) test, responder should run UDP-echo service. IQM agent encapsulates test request timestamp in the UDP datagram date field. Time is gathered from the local clock of the IQM agent. Request is forwarded to the measured host running UDP-echo service. According to RFC 862 (Echo Protocol), echo service should reply data without changes. So, the IQM agent gets information on the request origination time from datagram replied. RTT is calculated as a time difference between request origination timestamp and time of reply received. Since both times are gathered from the IQM agent local clock, there is no additional time error.

Two IQM agents are used during U0-type tests. Agents send test request series to their respective counterpart. One-way trip times from source to destination (SD) and destination to source (DS) are measured. Test UDP datagram contains encapsulated timestamp gathered from originator's local clock. Receiving side gets it's own local time. One-way trip time is calculated as a time difference between request origination timestamp (using originator's local clock) and local time of receiver at the test request delivery. RTT is calculated as the sum of the two one-way trip times. Local clocks of the agents should be synchronized.