

Using BMP over QUIC connection

draft-liu-grow-bmp-over-quic-01

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Why does BMP need QUIC?

➤ High Efficiency

- QUIC supports multiple simultaneous streams to carry data, which allowing each stream to transmit data concurrently
- BMP connection can be divided into multiple stream channels according to the peer information of BMP messages
- Avoid head-of-line blocking and improve overall performance

➤ Enhanced Security

- QUIC provides transport security with build-in encryption and authentication
- QUIC unidirectional stream consistent with the message transmission mechanism of BMP
- Protect against malicious attacks from the monitoring station to the monitored router

Connection Management

➤ Connection Establishment

- BMPoQUIC support by selecting ALPN in the TLS handshake
- The monitored router act as client and the monitoring station act as server
- The monitored router should be the initiator and the monitoring station act as acceptor

➤ Connection Termination

- Keep the QUIC connection persistent even if the BMP session is idle
- BMP monitoring station close the BMP session when receiving the termination message
- BMP monitored router send the termination message when detecting the interruption of the QUIC connection

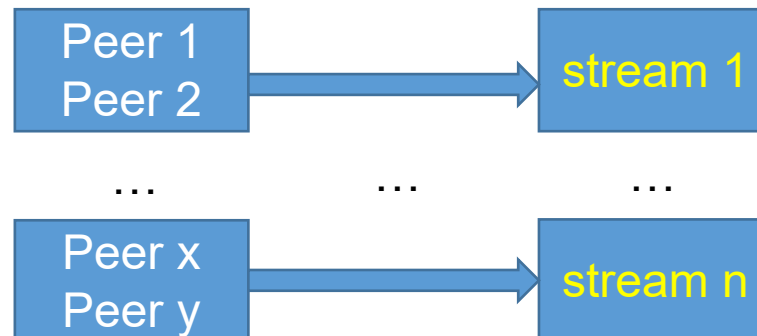
Stream mapping and usage

➤ Unidirectional Stream

- No BMP message is ever sent from the monitoring station to the monitored router
- BMP messages from monitored router should be mapped into unidirectional stream

➤ Multi-stream Selection

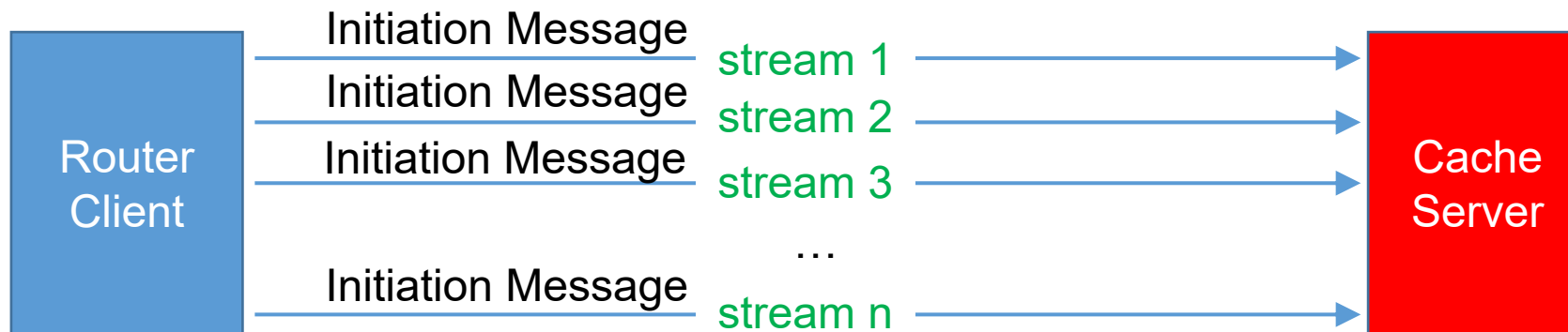
- A large number of routes for many peers which need be transmitted to the monitoring station
- In order to reduce the communication pressure and improve the communication efficiency
- Multiple streams can be allocated according to the number of peers of the router
- Each stream is used to transmit the BMP message of the specified peers



Stream mapping and usage

➤ Multi-stream Selection (Cont.)

- Each stream transmitting peer-insensitive BMP messages (not carry the per-peer header format) to ensure the order of BMP messages
- Peer-insensitive BMP messages include initiation message and termination message
- Cache server should consider the first received message as valid in multiple messages of the same type from multiple streams



Other Considerations

➤ Endpoint Authentication

- Using QUIC handshake authentication
- Using third-party authentication

➤ Operational Considerations

- Provide a configuration mechanism to enable BMPoQUIC on the BMP session
- If failing to establish a QUIC connection, monitored router should attempt to establish a TCP-based BMP session

➤ IANA Considerations

BMPoQUIC in ALPN Protocol IDs registry, The "BMPoQ" string identifies BMPoQUIC:

- Protocol: BMPoQUIC
- Identification Sequence: 0x42 0x4d 0x50 0x6f 0x51 ("BMPoQ")
- Specification: This document

Next Steps

- Request more feedback from WG
- Welcome questions and comments

Thanks!