



### CTA SIP Functional Differences - Current Platform vs Pillar Platform

#### Differences impacting Retransmission for Data Recipients:

	Retransmission - Current Platform	Retransmission - Pillar Platform
Connectivity	<ul style="list-style-type: none"><li>• Clients can simultaneously connect to primary and backup retransmission servers</li><li>• On each retransmission server, separate connections are required for CQS and CTS systems. Retransmission requests for each system are only allowed on its respective connection. System ID on the retransmission request must match the ID of the system to which that connection is associated with. Allowed System names are - CTSA, CTSB, CTSI, CQSE and CQSF</li></ul>	<ul style="list-style-type: none"><li>• Clients can establish connection to either Primary or Backup server. Connecting to second server will automatically disconnect the first</li><li>• A single connection on a request server is used to request retransmission of both CTS and CQS data. Retransmission requests are allowed for System ID of either CQS or CTS on the same connection. Allowed System names are - CTSA, CTSB, CTSI, CQSA and CQSB</li></ul>
Data Publication	<ul style="list-style-type: none"><li>• Retransmitted data is published via a single multicast data stream</li></ul>	<ul style="list-style-type: none"><li>• Retransmitted data is published via two distinct multicast data streams for redundancy</li></ul>
Sequence Number Handling	<ul style="list-style-type: none"><li>• Retransmission request contains the Block Sequence numbers for the message blocks that need to be retransmitted</li></ul>	<ul style="list-style-type: none"><li>• Retransmission request contains the actual Message Sequence numbers for the message blocks that need to be retransmitted. Client needs to keep track of total messages received, and request retransmission accordingly</li></ul>



## CONSOLIDATED QUOTATION SYSTEM AND CONSOLIDATED TAPE SYSTEM

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	Retransmission - Current Platform	Retransmission - Pillar Platform
Request Validation	<ul style="list-style-type: none"><li>• Duplicate requests for same retransmission requested at same time are rejected</li><li>• Request for out of bound sequence numbers is rejected</li></ul>	<ul style="list-style-type: none"><li>• Duplicate requests for same retransmission are de-duplicated internally. No explicit reject is sent to the client for the request</li><li>• Request for out of bound sequence numbers is not rejected  E.g. If last processed Sequence is 1000 and Request comes for 900-1100, Messages with Sequence 900-1000 will be retransmitted</li></ul>
Request Priority	<ul style="list-style-type: none"><li>• Retransmission request with higher (most current) sequence number takes priority</li></ul>	<ul style="list-style-type: none"><li>• Retransmission requests are not prioritized based off sequence numbers</li></ul>
Request Limit	<ul style="list-style-type: none"><li>• Maximum number of retransmission requests that each Data Subscriber can make is imposed per system multicast line per user</li></ul>	<ul style="list-style-type: none"><li>• Maximum number of retransmission requests that each Data Subscriber can make is imposed per retransmission connection line per user</li></ul>
Denial of Service	<ul style="list-style-type: none"><li>• There is no Denial of Service for invalid requests. Incorrect login or invalid retransmission requests are rejected until client sends correct request.</li></ul>	<ul style="list-style-type: none"><li>• Incorrectly formatted Retransmission requests or invalid login attempts are rejected. Reaching a limit of 100 rejects will result in Denial-of-Service for a minimum of 60 seconds</li></ul>



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### **Document Version History:**

Date	Document Version #	Change Summary
March 27, 2020	1.3	<ul style="list-style-type: none"><li>Added supported system name for CQS and CTS under Connectivity</li></ul>
February 20, 2020	1.2	<ul style="list-style-type: none"><li>Updated Retransmission multicast redundant data stream</li></ul>
February 5, 2020	1.1	<ul style="list-style-type: none"><li>Minor update in document title</li></ul>
November 6, 2019	1.0	<ul style="list-style-type: none"><li>Initial version of the document</li></ul>