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Real-time Publish-Subscribe (RTPS)

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Real-time Publish-Subscribe(RTPS) wireprotocol defines a set of requirements for a wire protocol suitable for the Data Distribution Service (DDS). Primary considerations in the design of the RTPS wire protocol are: performance, configurability (tuning quality-of-service), fault-tolerance (no single points of failure), extensibility (support new transports), plug-and-play connectivity (automatic discovery), modularity, scalability, and type safety.

RTPS imposes very little requirements on the underlying transport: a connectionless service capable of sending packets best-effort is sufficient. A connection-oriented protocol can be used but is not required. The mechanisms of the underlying protocol map to the generalized notions of the RTPS Platform Independent Model (PIM).

The original DDSI-RTPS specification defined a Platform Specific Model (PSM) built upon the User User Datagram Protocol (UDP) because of its simplicity, universal availability, best-effort and connectionless capabilities, predictable behavior, scalability, and multicast support.

However, some DDS systems would benefit from an RTPS PSM built upon the Transmission Control Protocol (TCP). Among other scenarios, a TCP PSM would be better suited for communication through firewalls, where often UDP traffic is filtered; could leverage existing TCP-based load-balancing infrastructure; and would allow DDS to be deployed in some applications where governance mandates TCP exclusively. Therefore, the goal of this Request For Proposal (RFP) is to meet the requirements set forth by the RTPS PIM with minimum possible overhead using TCP.

Source: Real-time Publish-Subscribe (RTPS)