Multipath TCP Robust Session Establishment (RobE) Request for WG Adoption

draft-amend-tcpm-mptcp-robe

Peng Liu(liupengyjy@chinamobile.com)

IETF-113, March, 2022
Value of this draft for MPTCP/MPQUIC/MP-DCCP

• The optimizations in this draft are used to solve the problem of connection setup failure that is essentially caused by establishing a connection only on “default path” with unknown path status.

• This problem is a real problem and has been occurring during multipath protocol deployment and implementation.

• Even if the current document has a focus on MPTCP, it could be expanded towards (MP-)QUIC and MP-DCCP support which have similar initial path requirements.
Definition for Robust Session Establishment

1. MPTCP RobE [draft-amend-tcpm-mptcp-robe]* is a set of extensions to regular MPTCP [RFC6824] and MPTCP v1 [RFC8684]. It is designed to provide a more Robust Establishment (RobE) of MPTCP sessions.

2. RobE includes RobE TIMER, RobE_SIM, RobE_eSIM and RobE_IPS. It also presents the design and protocol procedure for the combination scenario in addition to these stand-alone solutions, i.e. the combination of RobE_SIM and RobE_IPS, the combination of RobE_TIMER and RobE_IPS.

*originating from MPTCP WG. History at https://datatracker.ietf.org/doc/draft-amend-mptcp-robe/
Short Solution Recap

Regular MPTCP 😊
If the initial flow cannot be established, there is no connectivity!

RobE_SIM ➔
Uses all path simultaneously.

RobE_TIMER ⏳
Uses SYN retransmission timer to try subsequent path.

RobE_IPS ↔
Derives path quality from measurements and select promising path accordingly.
Status Recap-01

• Status updates since IETF 110
  • Negotiating with TCPM chairs the possibility for getting rid of IPR blocking issue towards adoption of MPTCP RobE
  • Criteria 1/ is something the authors can work on by talking to the other people who need the publication of the RFC and want an RFC. For instance, a TCPM presentation from a network operator other than Deutsche Telekom with test results of the suggested mechanisms would be interesting input to the TCPM working group. Alternatively, running code from a vendor not owning IPR would also proof that the IPR conditions are not a real-world problem. Deployment in major open source operating systems would also be very useful - specifically if included in the main tree. Support can also be stated off-list to the chairs if needed.

• ietf-110: draft-amend-mptcp-robe-01 was submitted and classifying license issue

• ietf-109: IPR Disclosures Concern → Updated IPR Disclosures with license, Request WG Adoption
  • https://datatracker.ietf.org/ipr/4312/
  • https://datatracker.ietf.org/ipr/4423/
• draft-amend-tcpm-mptcp-robe-00 was submitted and implementation demo was presented in ietf-108
  

• “Evaluate MPTCP RobE at IETF107 hackathon” has been published (but ietf-107 hackathon was cancelled in COVID-19 times)
  
  https://trac.ietf.org/trac/ietf/meeting/wiki/107hackathon/mptcp-robe/testbed
  https://github.com/multipath-tcp/mptcp

• draft-amend-mptcp-robe-00 was submitted and presented in ietf-106
  
Next Steps

• WG Adoption ?
• Next iteration of the draft document