MPTCP – Multipath TCP

WG Meeting

Prague, IETF-93, 21st July 2015

Philip Eardley

Yoshifumi Nishida

Note taker

Jabber [IMPORTANT]

- Please include “-mptcp-” in your draft names
- Please say your name at the mike

Note Well

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Agenda (1)

- Chairs (~5 minutes)
- Implementations (~40 minutes)
  - Solaris - Rao Shoaib [10 min]
  - FreeBSD - Nigel Williams [10 min]
  - News from Hackathon (who?) [5 min]
  - Other implementation news?
  - Implementation draft (to appear) - Olivier Bonaventure [10 min]
- Experiences draft (30 minutes)
  - draft-ietf-mptcp-experience WG last call - Olivier Bonaventure [5 min]
  - MPTCP Experiences in the NorNet Testbed - Thomas Dreibholz [10 min]
  - MPTCP experiences - results from submitted papers – Olivier [? min]
  - Discussion on how to progress & submit the document to the IESG [15 min]
- Possible Mods to RFC6824bis (time as required)
  - Topics that have had recent discussion on the mailing list
  - http://datatracker.ietf.org/doc/draft-bonaventure-mptcp-exp-option/
  - Do we need both 4 & 8 byte Data ack & DSS?
  - http://datatracker.ietf.org/doc/draft-barre-mptcp-tfo/
  - http://datatracker.ietf.org/doc/draft-paasch-mptcp-syncookies/
  - http://datatracker.ietf.org/doc/draft-boucadair-mptcp-symmetric/
  - http://datatracker.ietf.org/doc/draft-bonaventure-mptcp-addr/
  - Other proposed mods to RFC6824bis that need face-to-face discussion

Agenda (2)

- MPTCP proxy (if time)
  - MPTCP proxy” - Xinpeng Wei [15 min]
  - Update on mobile MPTCP proxy deployment - SungHoon Seo [10 min]
- Other topics (if time)
  - Using MPTCP for channel combining for NASA project - Chairs on behalf of William Ivancic
  - Deployment use cases - Chairs on behalf of A.Palanivelan [5 min]

- Congestion control (MOVED)
  This talk is in ICCRG (Wednesday, 3.50pm - 5.10pm, Congress Hall I)
  * Three ways to (ab)use Multipath TCP Congestion Control - Costin Raiciu

Milestones

- Done: Consensus on what high-level changes are needed to the current MPTCP Experimental document in order to progress it on the standards track
- Done: Submit to IESG basic coupled congestion control as an experimental RFC
- Done: Submit to IESG architectural guidelines and security threat analysis as informational RFC(s)
- Done: Established WG consensus on the Architecture
- Apr 2015 : Re-charter or close
- Apr 2015 : Implementation advice (Informational) to IESG
- Apr 2015: MPTCP-enabled middleboxes (Informational) to IESG
- Jan 2015 : MPTCP standards track protocol to IESG
- Jan 2015 : Use-cases and operational experiences (Informational) to IESG

WG Item Status

- Analysis of MPTCP residual threats and possible fixes
  - draft-ietf-mptcp-attack
  - In AUTH48
- draft-ietf-mptcp-rfc6824bis
  - Stable, but several (small) mods have been suggested that we need to discuss
- Use Cases and Operational Experience with Multipath TCP
  - draft-ietf-mptcp-experience
  - WG last call successfully completed
- Implementation advice (WG doc required)
  - Since this topic is related to Operational Experience, it makes sense to progress this now
  - Suggestion is to start with https://tools.ietf.org/html/draft-barre-mptcp-impl-00
  - (and perhaps include some info from https://tools.ietf.org/html/draft-eardley-mptcp-implementations-survey)
- MPTCP-enabled middleboxes (no WG doc)
  - We have some individual drafts about proxies and related topics

Implementation Updates

- UCL’s Linux implementation
- Oracle –Rao Shoab
- FreeBSD – Nigel Williams
- News from Hackathon (Olivier, Sowmini, Thomas?) [5 min]
- Please let us know if you have other implementation news
- Discussion on WG Implementation draft - Olivier Bonaventure

Charter item: Implementation advice

The working group will document implementation advice. The current documents have several points where an implementer may benefit from guidance, for example about heuristics such as buffer sizing, or from advice about alternative implementations such as bump-in-the-stack.

Use cases and Operational Experiences

- Samsung /Korea Telecom release as part of GIGA LTE (LTE-WiFi convergence)
- Update of draft-ietf-mptcp-experience after WG last call - Olivier Bonaventure [5 min]
  - INFO doc required to progress RFC6824bis to STDS track
- MPTCP Experiences in the NorNet Testbed - Thomas Dreibholz [10 min]
- MPTCP experience - results from submitted papers (? minutes]
- Discussion on how to progress & submit the document to the IESG [15 min]

Charter item: Use-cases and operational experiences

- The working group will also explore and document results with several of the proposed use cases for MPTCP in more detail, to ensure that MPTCP works well in practice and that operational experiences and issues are understood and captured. Likely use cases are to offload traffic from 3G to WiFi, and to manage traffic within a data centre. Another scenario is to enable, without changing the MPTCP protocol, operation of a single-homed, MPTCP end host on a campus network that has multiple providers.
- Prior to publishing a Standards Track specification, the working group will document experimental results and operational experiences to-date. This should consider not just experience with well-connected fat-pipe networks and long-lived flows, but also consider a broader links and types of applications; particularly looking for cases where MPTCP could be detrimental in some way.

RFC6824bis

- The primary goal of the working group is to create a bis version of the protocol document on the Standards track
- Clarification questions and comments from Rao Shoaib
- Quite a few drafts about mods to RFC6824bis
- We prioritise our face-to-face time to discuss those proposals that have generated discussion /interest:-
  - http://datatracker.ietf.org/doc/draft-bonaventure-mptcp-exp-option/
  - Do we need both 4 & 8 byte Data ack & DSS?
  - http://datatracker.ietf.org/doc/draft-barre-mptcp-tfo/
  - http://datatracker.ietf.org/doc/draft-paasch-mptcp-syncookies/
  - http://datatracker.ietf.org/doc/draft-boucadair-mptcp-symmetric/
  - http://datatracker.ietf.org/doc/draft-bonaventure-mptcp-addr/
  - Other proposed mods to RFC6824bis that need face-to-face discussion

Other topics

- MPTCP proxy - Xinpeng Wei [15 min]
  - http://datatracker.ietf.org/doc/draft-wei-mptcp-proxy-mechanism/
- Using MPTCP for channel combining for NASA project - Chairs on behalf of William Ivancic
- Deployment use cases - Chairs on behalf of A.Palanivelan [5 min]
- Three ways to (ab)use Multipath TCP Congestion Control - Costin Raiciu
  - This talk is in ICCRG (Wednesday, 3.50pm - 5.10pm, Congress Hall I)

Charter item: MPTCP proxy

- Finally, the working group will explore whether an MPTCP-aware middlebox would be useful, where at least one end host is MPTCP-enabled. For example, potentially helping MPTCP's incremental deployment by allowing only one end host to be MPTCP-enabled and the middlebox acts as an MPTCP proxy for the other end host, which runs TCP; and potentially helping some mobility scenarios, where the middlebox acts as an anchor between two MPTCP-enabled hosts.
- The working group will detail what real problems an MPTCP-enabled middlebox might solve, how it would impact the Multipath TCP architecture (RFC6182), what proxy approach might be justified as compared against alternative solutions to the problems, and the likely feasibility of solving the technical and security issues.
- Some discussion on the mailing list about potential IPR
  - https://datatracker.ietf.org/ipr/2364