MP-DCCP progress

draft-ietf-tsvwg-multipath-dccp-05

Markus Amend on behalf of the authors, TSVWG @IETF114
Main changes since IETF113 (-04 → -05)

Editorial: #83, #86, #87, #88, #90, #93, #96, #97, #104

Re-define MP_RTT Age parameter #81
Add Closing procedure description and diagrams #85
Enhanced MP_CLOSE description including connection and subflow socket states #73
Clarify Address ID usage #91
Extend MP_PRIO definition #74
Update IANA section proposing MP options, new DCCP Reset code value and MP_KEY Key types to be registered #79
Fallback section enhanced for version/MP_KEY/checksum mismatch and impact on MP-DCCP connection or subflows #78
Enhanced description and secured MP_ADDADDR & MP_REMOVEADDR #100, #101, #106, #108

Full Changelog: draft-ietf-04...draft-ietf-05
Maturity state

Author’s freezed feature state already with -04.

Focus is now on

  • editorial fixes
  • incorporate more feedback from external review
  • clarifications and design improvements based on prototype implementation

External review phase started with first comprehensive feedback:

https://github.com/markusa/ietf-multipath-dccp/pulls/boucadair

https://github.com/markusa/ietf-multipath-dccp/issues/created_by/boucadair
### Ready

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<thead>
<tr>
<th>Function/Mechanism</th>
<th>Draft</th>
<th>Prototype</th>
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<tbody>
<tr>
<td>Handshaking</td>
<td>✅</td>
<td>✅</td>
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<tr>
<td>MP Capable Feature</td>
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<td></td>
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<tr>
<td>MP_KEY</td>
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<td>MP_SEQ</td>
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<td>MP_RTT</td>
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<td>MP_JOIN</td>
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<td>MP_ADDADDR</td>
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<td>MP_REMOVEADDR</td>
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<td>MP_PRIO</td>
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### Partially ready

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<tr>
<th>Function/Mechanism</th>
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<tbody>
<tr>
<td>MP_CONFIRM</td>
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<tr>
<td>Fallback mechanism</td>
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<td>MP_FAST_CLOSE</td>
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<tr>
<td>MP_CLOSE</td>
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</table>

MP_KEY is implemented, but only "plain text" type is supported.

MP_ADDADDR is implemented, but only "plain text" type is supported.

**Roadmap:** Complete prototype until IETF 115

- Finalized, ready for review/testing
- Work on, contribution is welcome
- Not implemented, contribution is welcome
Linux reference implementation - Status

MP-DCCP published prototype features

- MP-DCCP
- Encapsulation framework
- Scheduling - Traffic distribution logics.
- Compensate paths latency difference
- Congestion Control CCID 2, 3, 5 path estimation as input for scheduling decision
- (Re-)Establish/destruct flows

Tunneled multipath transport requirements, e.g., 3GPP ATSSS

- Multi-path transport
- Support for traffic on L2 and upwards
- Steering modes
- Re-ordering
- Path measurement
- Path management

Available for integration into Android and Linux based devices and ready for testing since IETF 113

7 selectable scheduling algorithms enable a range of use cases

Add. re-ordering mechanism soon to be published using MP_RTT for dynamic path latency difference determination
General updates from the MP-DCCP eco-system

3GPP MP-DCCP Lower Layer (MP-DCCP-LL) solution for 3GPP ATSSS matured: TR23.700-53 v0.2.0

MP-DCCP prototype used to demonstrate bad effect of multipath latency difference on e2e services due to reordering.

- Contributed as 3GPP SA2 WG document to illustrate need for in network re-ordering mechanisms
- Verified for QUIC and different types of CCs over MP-DCCP
- Also valid for 3GPP discussed alternative MP-QUIC + MASQUE + DATAGRAM
- Presentation of results in the ICCRG slot on Thursday

OEM will start MP-DCCP smartphone integration in September with focus on interoperability with MP-DCCP Proxy

Two new universities confirmed experiments with MP-DCCP, e.g., for vehicle communication
Feedback from the audience?

**Question from the authors:**
Assuming sufficient external review is submitted and 3rd party presents interoperability results, **WGLC reasonable at IETF 115?**