MP-DCCP progress

draft-ietf-tsvwg-multipath-dccp-05

Markus Amend on behalf of the authors, TSVWG @IETF114

LIFE IS FOR SHARING.

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

-04 → -05 comparison draft status and prototype

Ready

Function/Mechanism	Draft	Prototype	
Handshaking	✓	✓	
MP Capable Feature	✓	✓	
MP_KEY	✓	—	MP_KEY is implemented, but only "plain text " type is supported.
MP_SEQ	✓	✓	
MP_HMAC	✓	✓	
MP_RTT	✓	✓	Impl. PR#12
MP_JOIN	✓	✓	Impl. PR#13
MP_ADDADDR	✓	✓	Impl. PR#15
MP_REMOVEADDR	✓	✓	Impl. PR#15
MP_PRIO	✓	✓	Impl. PR#14

Improved

Partially ready

Function/Mechanism	Draft	Prototype
MP_CONFIRM	✓	— Started
Fallback mechanism	✓	—
MP_FAST_CLOSE	✓	✗
MP_CLOSE	✓	✗

Improved

Roadmap: Complete prototype until IETF 115

✓ Finalized, ready for review/testing

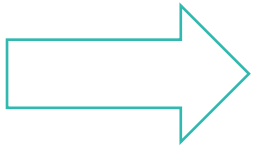
— Work on, contribution is welcome

✗ Not implemented, contribution is welcome

Linux reference implementation - Status

- Default
- OTIAS
- Redundant
- RR
- MinRTT
- Strict Priority
- Handover

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?