Datagram Packetization Layer
Path MTU Discovery
draft-ietf-tsvwg-datagram-plpmtud-05

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Last time

- Redesign spec around core components:
  1. Growth
  2. Reduction
     - Blackhole detection
     - PTB Handling
  3. Error states
  4. Resilience
Changes since
draft-ietf-tsvwg-datagram-plpmtud-03

- Described phases and named these consistently.

- Corrected transition from confirmation directly to the search phase (Base has been checked).

- Redrawn state diagrams (e.g., Fig 4).

- Renamed BASE_MTU to BASE_PMTU (because it is a base for the PMTU).

- Clarified PROBE_ERROR state.

- Clarified suspending DPLPMTUD.
Changes since draft-ietf-tsvwg-datagram-mlpmtud-03

- Verified normative text in requirements section.
- Clarified Terms
  - /packet probe/probe packet/
  - /validation/verification/
  - added term /Probe Confirmation/
- clarified Black Hole detection
- Added security considerations
DPLPMTUD

Mechanisms

- Probing
- Blackhole detection
- PTB Handling
- Error
DPLPMTUD

Mechanisms

• Probing
• Blackhole detection
• PTB Handling
• Error

Phases

• Path Confirmation
• Search
• Search Complete
• Error
DPLPMTUD Phases

- Path Confirmation
- Connectivity or BASE_PMTU
- Connectivity and BASE_PMTU confirmed
- CONFIRMATION TIMER Fires
- Search Complete
- Search Algorithm Completes
Robustness to paths unable to sustain the BASE_PMTU

- Not all paths are nice!
- PROBE_ERROR state for when PLPMTU seems less than BASE_PMTU
  - DPLPMTU continues to probe
  - Data could be endpoint fragmented
- Also needed for transient changes in network path
Resilience to inconsistent path information

- A PL sender could be able to detect inconsistent results:
  - PTB Size less than Successful Probe Size
  - Variable Successful Probe Size
  - Could be manifested as excessive fluctuation of MPS.
  - Need to avoid unnecessary black-holing of packets.
Implementation

• New UDP Implementation in a tool based on latest drafts
  • Lab testing of the tool
  • Real world testing
• Feedback from Christian Huitema (QUIC)
  • We will propose text for quic-transport
• Others?
Next Steps

• We think the core is stable and usable
  • We need to gather experience
  • Please try this :-)…

• Need to analyse impact of loss, reordering, etc

• We also plan to work on the “enhance” parts”:
  • Resilience and robustness to corner cases
  • Could consider other signals also (e.g., see 6MAN)
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