

TCMTF

Tunneling Compressed Multiplexed Traffic Flows

BoF / IETF 89 London / Tuesday 4 March 2014
Mirja Kühlewind & Brian Trammell, Co-Chairs

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Agenda

- 13:00 Introduction
(5 min, M. Kühlewind, B. Trammell)
- 13:05 TCMTF Concept (5 min, D. Lopez)
- 13:10 Improvements since Berlin
(5 min, J. Saldana)
- 13:15 WG Formation Intro (5 min, D. Wing)
- 13:20 Open Mike / Charter Discussion (40 min)

Questions to Consider

- Is a TCMTF WG built around this charter likely to be successful...
 - is this a solvable problem?
 - do we need to standardize a solution to this problem within the IETF?
 - is this approach a good starting point?
 - is implementation/deployment of this approach likely?
- Is it necessary to form a new WG to do this work?
- Who is willing to work on this topic in a new TCMTF WG (authors, reviewers)?

Draft Charter (1)

- RFC4170 (TCRTP) defines a method for grouping packets when a number of UDP/RTP VoIP flows share a common path, considering three different layers:
 - EC RTP header compression
 - PPPMux multiplexing
 - L2TPv3 tunneling
- TCRTP optimizes the traffic, increasing the bandwidth efficiency of VoIP and reduces the amount of packets per second at the same time.

Draft Charter (2)

- However, in the last years, emerging real-time services which use bare UDP instead of UDP/RTP have become popular. Due to the need of interactivity, many of these services use small packets (some tens of bytes). Some other services also send small packets, but they are not delay-sensitive (e.g., instant messaging, m2m packets in sensor networks). In addition, a significant effort has been devoted to the deployment of new header compression methods with improved robustness (ROHC).

Draft Charter (3)

- So there is a need of replacing RFC4170 with an extended solution able to optimize these new flows, also using improved compression methods. The same structure of three layers will be considered:
 - Header compression: different protocols can be used: no compression, ECRTTP, IPHC and ROHC.
 - Multiplexing: PPPMux will be the option.
 - Tunneling: the options in this layer are L2TP, GRE and MPLS.

Draft Charter (4)

- New scenarios where bandwidth savings are desirable have been identified, in addition to those considered in RFC4170. In these scenarios, there are moments or places where network capacity gets scarce, so allocating more bandwidth is a possible solution, but it implies a recurring cost. However, the inclusion of a pair of boxes able to optimize the traffic when/where required is a one-time investment.

Draft Charter (4): Scenarios

- **Multidomain:** the TCM-TF tunnel goes all the way from one network edge to another, and can therefore cross several domains.
- **Single Domain:** TCM-TF is only activated inside an ISP, from the edge to border inside the network operator.
- **Private Solutions:** TCM-TF is used to connect private networks geographically apart (e.g. corporation headquarters and subsidiaries), without the ISP being aware or having to manage those flows.
- **Mixed Scenarios**, any combination of the above.

Draft Charter (5)

- A first document (TCM-TF reference model) will define the different options which can be used at each layer. It will include a detailed specification of the scenarios of interest. Specific problems caused by the interaction between layers will have to be issued, and suitable extensions may have to be added to the involved protocols. The impact on other protocols will also be studied. However, the development of new compressing, multiplexing or tunneling protocols is not an objective of this Working Group. In addition, since the current RFC 4170 would be considered as one of the options, this RFC would be obsoleted.

Draft Charter (6)

- Since standard protocols are being considered at each layer, the signaling methods of those protocols will be used. Thus, interactions with the Working Groups and Areas in which these protocols are developed can be expected. Taking into account that different options will be considered when a pair of TCM-TF optimizers want to establish a session, they will have first to negotiate which concrete option would they use in each layer. This will depend on the protocols that each extreme implements at each level, and in the scenario. So another document (TCM-TF - negotiation protocol) will include:
 - a mechanism to setup/release a TCM-TF session between an ingress and an egress-optimizer.
 - a negotiation mechanism to decide the options to use at each layer.

Draft Charter (7)

- As a counterpart of the bandwidth saving, TCM-TF may add some delay and jitter. This is not a problem for the services which are not sensitive to delay. However, regarding delay-sensitive services, the Working Group will also develop a document (TCM-TF - recommendations) with useful recommendations in order to decide which packet flows can or can not be multiplexed and how. The document will present a list of available traffic classification methods which can be used for identification of the service or application to which a particular flow belongs, as well as recommendations of the maximum delay and jitter to be added depending of the identified service or application. The eventual impact of multiplexing on protocol dynamics (e.g. the loss of a multiplexed packet, MTU-related issues) will also have to be addressed.

Draft Charter (8-9)

- The working group may identify additional deliverables that are necessary/useful, e.g., a mechanism for a TCM-ingress optimizer to discover an egress optimizer, and vice versa. The working group would re-charter to add them before working on them.
- Interactions with other Working Groups can be expected, since TCM-TF uses already defined protocols for compression, multiplexing and tunneling (ROHC, PPPMux, MPLS, GRE, L2TP).

Draft Milestones

- Specification of TCM-TF reference model and the scenarios of interest, to obsolete RFC4170
 - candidate is draft-saldana-tsvwg-tcmtf
- Specification of TCM-TF negotiation protocol
 - no present candidate
- Specification of TCM-TF recommendations of using existing traffic classification methods, maximum delay and jitter to add, depending on the service
 - candidate is draft-suznjevic-tsvwg-mtd-tcmtf