Contribution ID: **155** Type: **not specified**

Multipath TCP Upstreaming

Monday, 9 September 2019 12:00 (45 minutes)

Multipath TCP (MPTCP) is an increasingly popular protocol that members of the kernel community are actively working to upstream. A Linux kernel fork implementing the protocol has been developed and maintained since March 2009. While there are some large MPTCP deployments using this custom kernel, an upstream implementation will make the protocol available on Linux devices of all flavors.

MPTCP is closely coupled with TCP, but an implementation does not need to interfere with operation of normal TCP connections. Our roadmap for MPTCP in Linux begins with the server use case, where connections and additional TCP subflows are generally initiated by peer devices. This will start with RFC 6824 compliance, but with a minimal feature set to limit the code footprint for initial review and testing.

The MPTCP upstreaming community has shared a RFC patch set on the netdev list that shows our progress and how we plan to build around the TCP stack. We'll share our roadmap for how this patch set will evolve before final submission, and discuss how this first step will differ from the forked implementation.

Once we have merged our baseline code, we have plans to continue development of more advanced features for managing subflow creation (path management), scheduling outgoing packets across TCP subflows, and other capabilities important for client devices that initiate connections. This includes making use of a userspace path manager, which has an alpha release available already. In future kernel releases we will make use of additional TCP features and optimize MPTCP performance as we get more feedback from kernel users.

Both the communication and the code are public and open. You can find us at mptcp@lists.01.org and https://is.gd/mptcp_upstream

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Session Classification: Networking Summit Track