5th P4 Workshop Talk Proposal (June 5, 2018)

Title

Stratum: Enabling the Next Generation of SDN Interfaces

Abstract

P4 and P4 Runtime continue to gain momentum and mindshare as the next big network control protocol. However, there are currently very few switches that currently provide an implementation of P4 Runtime, and there are currently no fully open source hardware switch agents or network operating systems that support P4 Runtime. Furthermore, P4 Runtime only solves part of the network interface problem, namely data plane control, but network control planes also require interfaces for configuration, monitoring and operations. Until we see a greater variety of hardware, a full complement of interfaces, and open source implementations, it will be difficult for network operators to adopt and fully embrace P4 Runtime.

To help address these challenges, the Open Networking Foundation (ONF) along with several of its members have started a new project: Stratum, a lightweight, production-ready data plane agent that implements P4 Runtime (for data plane control), gNMI (for configuration and monitoring), and gNOI (for operations).

This talk will begin with the motivation for Stratum and overview of the data plane interfaces (P4 Runtime, gNMI, gNOI). It will also cover the project's design principles and architecture to help switching chip and platform vendors understand how to integrate Stratum onto their hardware. The talk will conclude with several use cases from project members that leverage Stratum.

Speaker

Brian O'Connor works on open source SDN platforms at the Open Networking Foundation (ONF). He is currently serving as ONF's technical lead for the Stratum project. He is a contributor to the ONOS project and serves on the project's technical steering team, as well as a core developer and maintainer for Mininet. Brian received Bachelor's and Master's degrees in Computer Science from Stanford University.

About Stratum

Stratum is currently undergoing incubation development by the project's members, and it has been demonstrated running on Google's hardware [1]. This open source project will be available to the broader community at the end of 2018.

For more information on Stratum, visit https://stratumproject.org/

[1] Shah, Vivek et al. (2018, March). "Google, Facebook and Big Switch Demo Next Generation Network Operating Systems B." Keynote at OCP US Summit. Available: https://youtu.be/g_aPC1x4_cA?t=461