Title:
The Extensible Network – Innovation in Protocol and Data Plane Agility

Abstract:
This talk will explore the concept of "*The Network as an ASIC*" where a provider's network is seen as a distributed construct of functions and actions where the right behaviors can be introduced at various stages of the network. And where the use of a common programming language can be used to abstract complexity and reach various targets.

We then introduce the notion of network programming through protocol innovations with SRv6 (https://tools.ietf.org/html/draft-filsfils-spring-srv6-network-programming-00, https://tools.ietf.org/html/draft-ietf-6man-segment-routing-header-06) , where a single protocol can be used to represent almost all network permutations and how P4 and PISA hardware has leapfrogged its introduction in the industry. Through the use of programmable data planes such as the VPP software forwarder and P4, we illustrate how new END functions and TRANSIT behaviors, associated to Local SIDs, can be created and deployed, enabling true network extensibility

The talk concludes by illustrating new use cases provided by P4 and programmable data planes in a provider environment. Including some challenges.

Speakers:
Daniel Bernier – Bell Canada
Daniel is a senior technical architect within the network strategy group at Bell Canada. His role involves researching new approaches to solve network challenges and collaborate with the rest of Bell Canada's architecture teams to help evolve Bell's network. His domains of research are programmable data planes and SDN controllers with practical use cases such as service function chaining. Daniel is also a member of the OpenDaylight User Advisory Group and a participating member at IETF in various working groups.

Milad Sharif – Barefoot Networks
Milad Sharif is a software engineer at Barefoot Networks, where he is exploiting programmable data plane to build new networking systems. Milad received his PhD from Stanford University with focus on high performance networks and reconfigurable fabrics using optical circuit switches. Milad is broadly interested in architectures and algorithms for large-scale datacenter networks and is actively participating in various IETF working group