

Demo Proposal

P4-16 IPv6 Implementation of Cisco ACI Data Plane

Abstract

Cisco invented the Application Centric Infrastructure (ACI) for network switches using a proprietary ASIC and software. Kubernetes [1] supports ACI network configuration. With success of ACI, Cisco has also published the ACI data plane forwarding [2] and other ACI functions. ACI collects nodes with common application tier or services in an Endpoint Point Group (EPG). ACI defines a forwarding policy matrix and a service graph for EPGs and programs the data plane. Our demo is a P4-16 program, supports only IPv6, which implements ACI forwarding, policy enforcement, and service graph creation in the data plane. The demo runs on generic compute. The Tofino ASIC from Barefoot could be used with the P4 program for functionality in hardware.

For future plans, we plan on using a P4runtime client to program the ACI data plane.

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References:

1. KUBER-ACI: <https://kubernetes.io/docs/concepts/cluster-administration/networking/>
2. ACI-FORW: <<https://tinyurl.com/y3lyu78b>>