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Applying OSiRIS NMAL to Network Slices on SLATE

Tuesday, November 5, 2019 4:15 PM (15 minutes)

We will present techniques developed in collaboration with the OSiRIS project (NSF Award #1541335, UM, IU, MSU and WSU) and SLATE (NSF Award #1724821) for orchestrating software defined network slices with a goal of building reproducible and reliable computer networks for large data collaborations. With this project we have explored methods of utilizing passive and active measurements to build a carefully curated model of the network. We will show that by then using such a model, we can dynamically and programmatically alter network and host configuration to effectively respond to changing network conditions.

As part of our presentation, we will show how SLATE, operating over a slice of the Internet2 network, provides a container focused platform for running a Network Management Abstraction Layer (NMAL), allowing us to control applications in a reliable and reproducible way. This presentation will demonstrate how NMAL tracks live network topological and performance statistics on an Internet2 slice with SLATE-enabled hosts to enact traffic engineering and container placement decisions in order to optimize network behavior based on user defined profiles. We will conclude by discussing the future of this work and our plans for using it to support science activities in production.

Consider for promotion

No

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