SecEdge: Place Edge Applications with Network Security Components

演讲稿

Good morning, everyone. I am honored to be here to present my final project: SecEdge, place edge applications with network security components. I will show my presentation as the following six parts.

First of all, let’s see some background about Edge Computing. Computing Infrastructure is developing, from Mainframe: one big machine and many monitors. To PC or personal servers which are separate. To Cloud Computing. I think we all know about Cloud Computing. Then what’s next after Cloud Computing. Many people think it is the Edge Computing.

[C] Edge Computing is very easy to understand. Let’s see the picture. We can add some computation resources between Cloud and Host to help us compute faster. We can think about these resources as the right picture. From Host to Edge Computing to Cloud, the computation resources or the stability is increasing; the latency from host is also increasing. Computation at the Host is about 1ms while at Edge, the network latency will be about 10 ms and to Cloud it will be 100ms. Some applications are very sensitive to latency, such as self-driving car. We can the curve of A in the picture. Some are not very sensitive, such as download a file, we can see the curve C. There are some applications which are a little sensitive.

[C] For them, 10ms latency is OK and they need more resources than Host. These applications include Cloud Computer, Cloud Games, Video Analysis and some IoT applications.

[C] Next, let us see the development of edge computing. [C] There are many different concepts provided by different teams. For example, Cisco gives the concept of Fog Computing which means that computing can happen in the network devices. [C] There are also many companies, Cloud Provider, CDN Provider and ISP all want to provide their own solutions of Edge Computing.[C] Besides, there are many open projects from Linux Foundation.

We have known that Network Security Implementation develops with the computing infrastructure. At the beginning, we have hardware as a middlebox and we have learned to use the Hillstone Device. When it comes to Cloud, we use NFV to make a service function chain