What is Software for Open

Networking in the Cloud(SONiC)?By Asterfusion

SONiC stands for Software for Open Networking in the Cloud. It is an open-source network operating system (NOS) developed by Microsoft and the Open Compute Project (OCP) community. SONiC is designed to run on commodity networking hardware and provides a flexible and programmable platform for cloud-scale networking.

Key Points:

SONiC is an open-source network operating system developed by Microsoft and the Open Compute Project community.
It is designed to run on commodity networking hardware.

SONiC provides a flexible and programmable platform for cloud-scale networking.

Uses of SONiC:

Data Centers: SONiC is commonly used in large-scale data centers to manage and operate network switches. It offers flexibility and programmability, allowing operators to customize and optimize their network infrastructure to meet specific requirements.

Cloud Service Providers: Cloud service providers often deploy SONiC to build and manage their networking infrastructure. It enables them to scale their networks efficiently, improve network performance, and reduce costs.

Enterprise Networks: Some enterprises adopt SONiC to build and manage their own data center networks. By using SONiC, they can have more control over their network infrastructure and tailor it to their specific needs.

SONiC Architecture

SONiC's architecture is based on a modular design that utilizes Docker containers to encapsulate various functional components. These components interact with each other and with the underlying Linux host system. Here is a high-level overview of the SONiC architecture:

Docker Containers: SONiC breaks down its main functional components into separate Docker containers. Some of these containers include:

Dhcp-relay: Handles DHCP relay functionality.

Pmon: Monitors the health and status of various components.

Snmp: Provides SNMP (Simple Network Management Protocol) support.

Lldp: Implements LLDP (Link Layer Discovery Protocol) functionality.

Bgp: Handles BGP (Border Gateway Protocol) routing.

Teamd: Manages link aggregation and teaming.

Database: Stores network configuration and state information.

Swss: Implements the SONiC switch state service.

Syncd: Synchronizes the switch ASIC state with the SONiC database.

2.**Linux-Host System**: While most of SONiC's main components are contained within Docker containers, there are key modules that reside within the Linux-host system itself. These include:

CLI (Command-Line Interface) / sonic-cfggen: Provides CLI functionality and system configuration capabilities.

3.Interactions: The Docker containers interact with each other and with external entities. They communicate with a centralized Redis engine for certain interactions, while other interactions involve netlink, the /sys file system, and other components.