SONiC 2021 Update and Beyond

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OPEN PLATINUM™

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Gartner report on SONiC

"By 2025, 40% of organizations that operate large data center networks (more than 200 switches) will run SONiC in production environments…
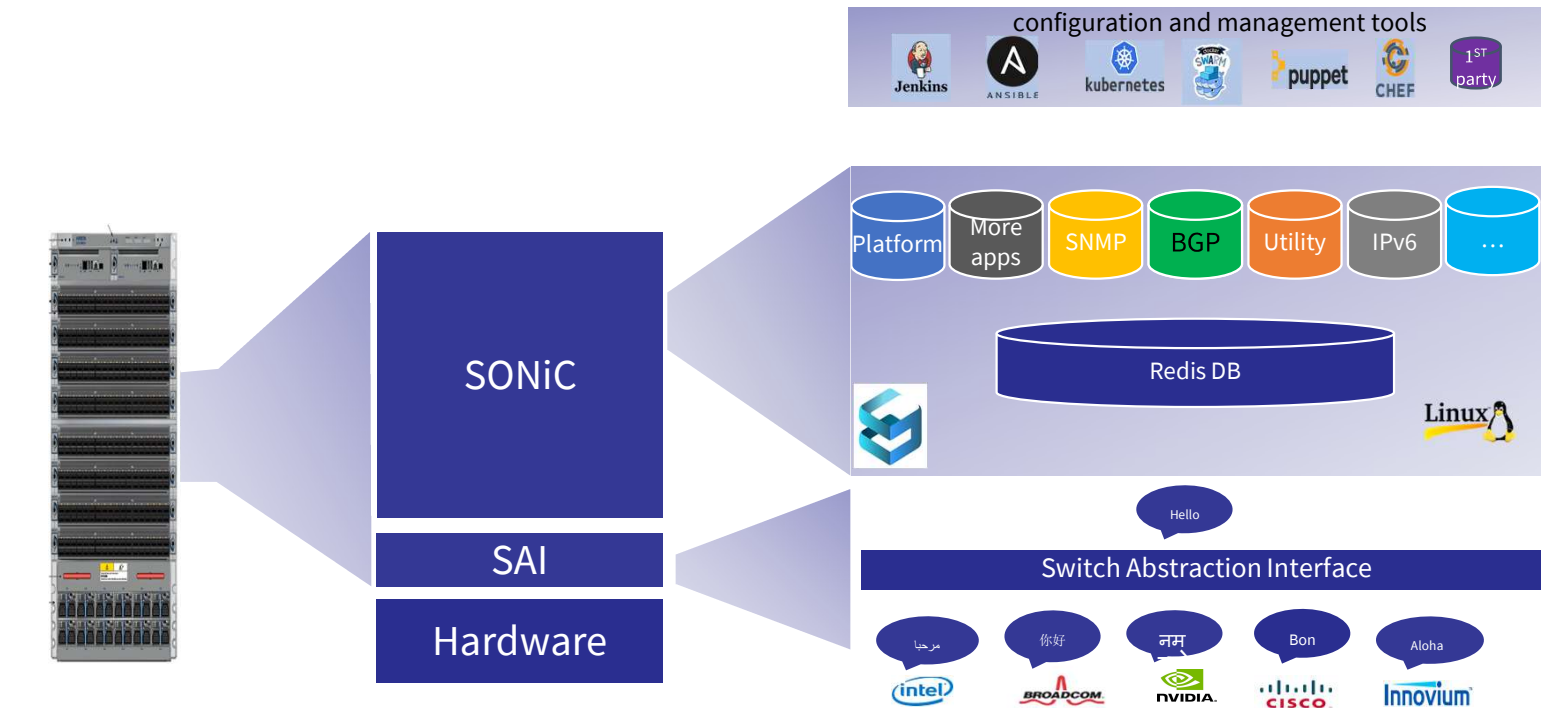
Due to this rapidly expanding customer interest and commercial ecosystem, there is a strong possibility that, during the next three to six years, **SONiC will become analogous to Linux as a server OS**, allowing enterprises to standardize on an NOS that is supported across hardware vendors."

Gartner 2021 Market Guide for Data Center Switching

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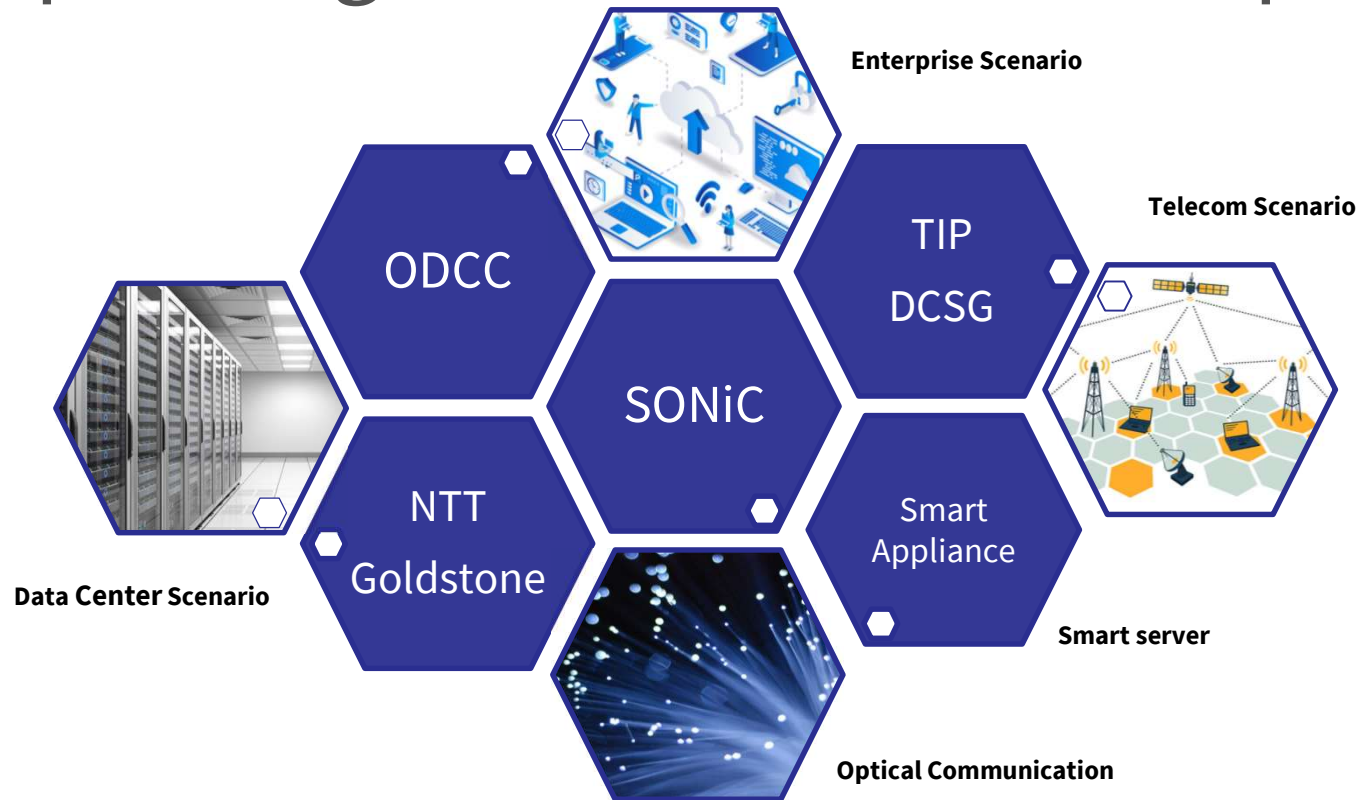OCP GLOBAL SUMMIT

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SONiC – a non-traditional switch NOS

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Expanding to more scenarios rapidly

Enterprise Scenario

Telecom Scenario

ODCC

TIP
DCSG

SONiC

NTT
Goldstone

Smart
Appliance

Data Center Scenario

Smart server

Optical Communication

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SONiC Eco-system

Welcome

RAGILE

H3C
数字化解决方案领导者

SUPERMICRO

PANTHEON.tech

美团

Merchant Silicon

MEDIATEK · Nephos

BROADCOM

CISCO

MARVELL

intel

BAREFOOT NETWORKS

Innovium

Mellanox TECHNOLOGIES · NVIDIA

Centec

Switch Platform

ARISTA

DELL · CISCO · NOKIA

JUNIPER NETWORKS · 恒为科技 EmbedWay · Edge-corE NETWORKS

Celestica · facebook · ALPHA Networks

Quanta Computer · WNC Wistron NeWeb Corp. · Ruijie Networks

ufiSpace

PEGATRON 和硕联合科技 · DELTA · Inventec

inspur · MiTAC

CREDO we connect. · STORDIS

Adoption

Alibaba Group 阿里巴巴集团

Tencent 腾讯

Linked in · JD Cloud

Microsoft

ebay · DiDi

criteo.

COMCAST

Baidu 百度 · Target

System/Service

wipro · apstra · BROADCOM

Asterfusion · XCLOUD NETWORKS

CANONICAL

NVIDIA · AVIZ · docker

KEYSIGHT TECHNOLOGIES · 香港科技大學 THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

augtera networks · insidepacket

DELL · HiWire ACTIVE ELECTRICAL CABLES

Community growth

2 releases/year	**400 ~ 800** commits/month
1710 active code contributors	**105** supported platform

Community Member

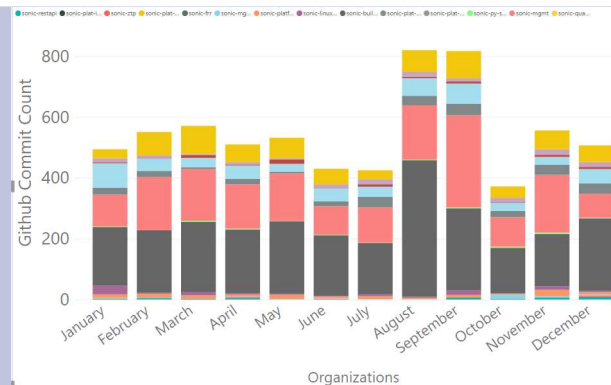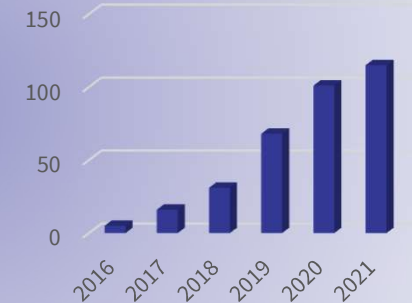
Supported Platforms

New Subgroup on Special Topics
- PINS subgroup
- DASH subgroup
- IPSec SAI subgroup
- YANG model subgroup
- Kubernetes subgroup
- Chassis subgroup
- MPLS subgroup
- SONIC application subgroup
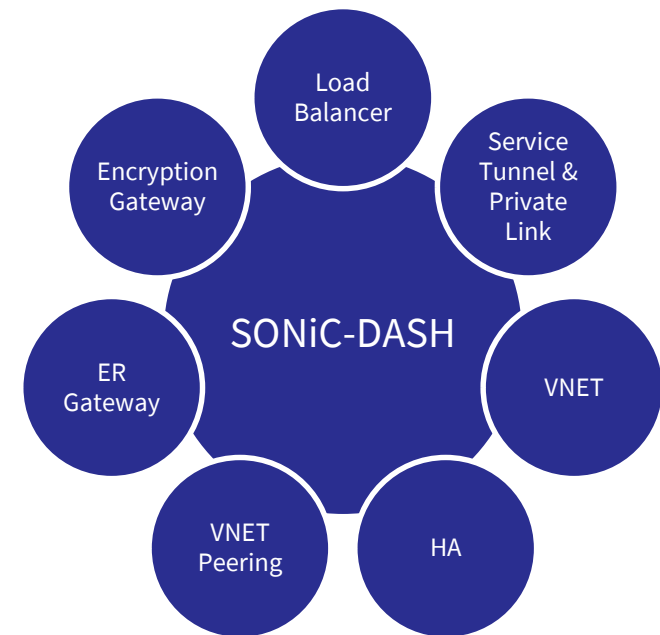
SONiC DASH - Disaggregated APIs for SONiC Hosts

- Innovation to deliver enterprise network performance to critical cloud applications
- Extending SONiC APIs to programmable smart devices
- Enable a broad hardware ecosystem to support SDN acceleration
- **Limitless networking** -100x connections/sec over software implementations
- 1st version of DASH APIs published for VNET scenario
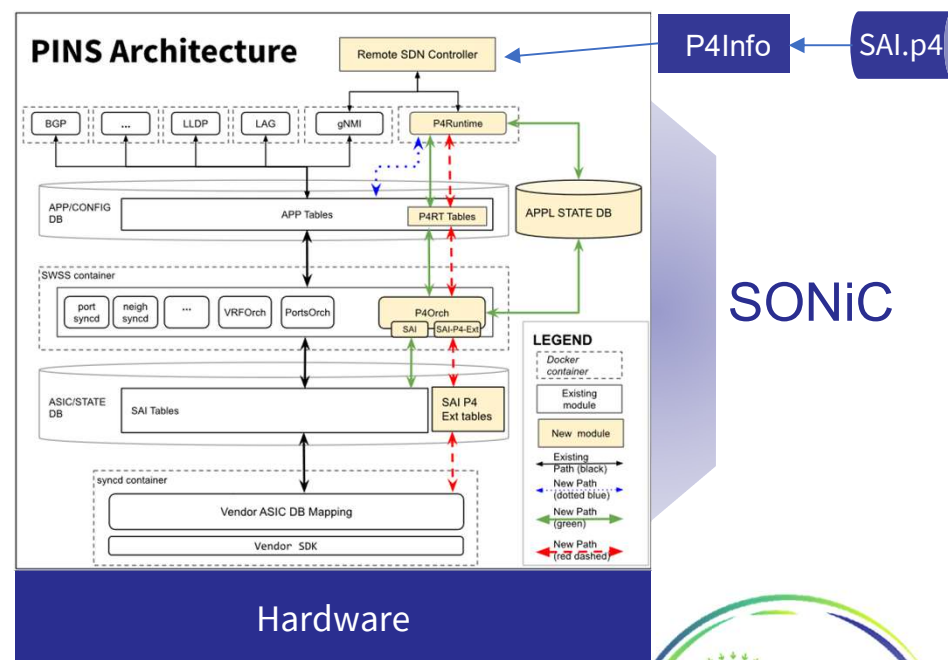- Open participation ecosystem for every organization and person on the planet

Load Balancer

Service Tunnel & Private Link

Encryption Gateway

SONiC-DASH

VNET

ER Gateway

VNET Peering

HA

https://github.com/Azure/DASH

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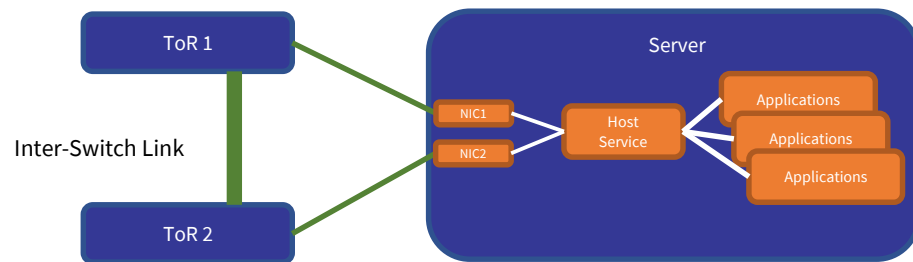NOVEMBER 9-10, 2021

PINS – P4Runtime Based SDN Stack

- P4 integrated network stack in SONiC
- Support new scenarios with programmable data-plane
- Packet process on your needs through P4RT control plane
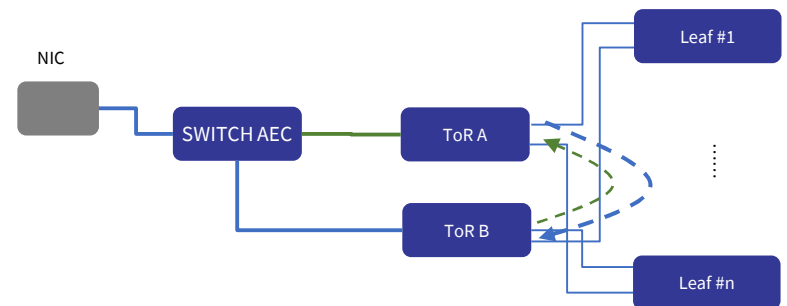- Flexible adoption with opt-in mode

Dual ToR – Carrier Grade Network Reliability

Traditional Way

ToR 1

Inter-Switch Link

ToR 2

Server

NIC1

NIC2

Host Service

Applications

Applications

Applications

Smart Cable for Dual ToR

NIC

SWITCH AEC

ToR A

ToR B

Leaf #1

Leaf #n

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SONiC & SAI Test Enhancement

- Doubled number of test cases comparing to year 2020
- Diversified test infrastructure: Pytest, SpyTest, SNAPPI
- Extended test coverage to dual ToR, Chassis, RDMA, ANVL, SAI
- Fully automated nightly tests on master branch to keep high quality bar

Open

Automate

Repeatable

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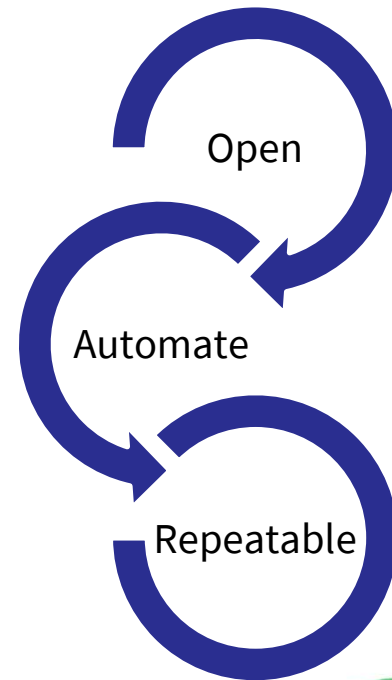
SONiC App Store Coming Soon

- More granular way for SONiC community to contribute
- Common place to host SONiC compatible apps
- Common provisioning flow
- Versioning
- Upgrades

SONiC Community

SONiC Powered DCs

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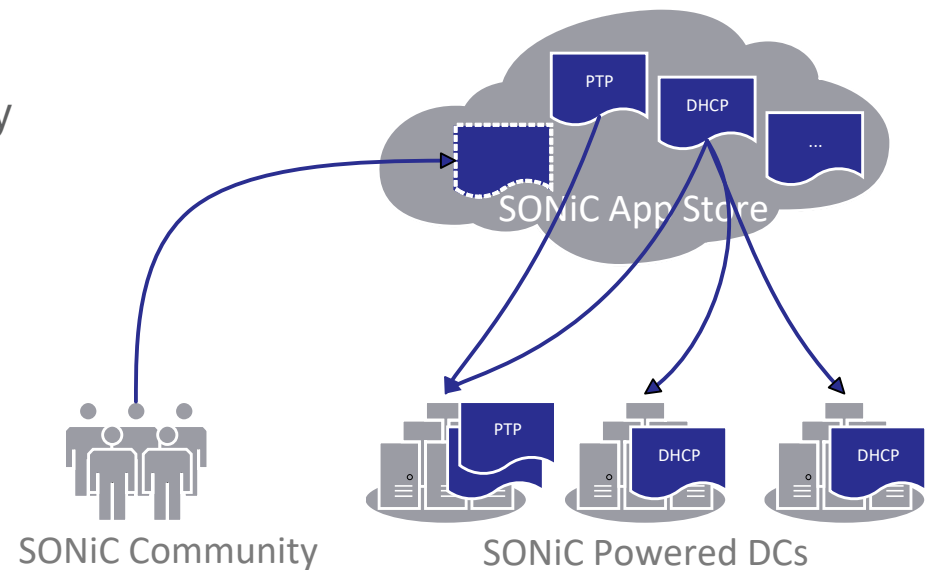
SONiC New Feature Highlight

Modernized SONiC docker management with **Kubernetes**

Fine-grained ECMP to allow users to manage traffic flow with fine granularity

Reliability improvement with SONiC **container warm restart**

Disaggregated Chassis support

IPv6 enhancement with **IPv6 link-local**, **DHCP Relay** and **BGP unnumbered neighbors**

Programable data plane with **P4 Integrated Network Stack** (PINS)

Carrier-grade network reliability with **smart cable** and **dual ToR**

Deliver enterprise network performance to critical cloud applications with **SONiC DASH**

Extend VXLAN EVPN to platforms which uses P2MP tunnel based L2 forwarding

Leaf to VTEP VXLAN Tunnel support through **Overlay ECMP**

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Call SONiC Contributors

- Inviting contributions in all areas

       SONiC/SAI

       Hardware platform

       New features, applications, tests and tools

       Download, test, Deploy!

- Website: https://azure.github.io/SONiC/

- Source code: https://github.com/Azure/SONiC/blob/master/sourcecode.md

- Mailing list: sonicproject@googlegroups.com

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Thank you!