



Cloud SD-WAN Gateway Universal CPE Based on Latest Intel® Atom C Series and X Series Processors

A faint, light blue world map is visible in the background of the bottom section of the slide.

Senao Networks Inc.

EnGenius Cloud SD-WAN Security Gateway Solution

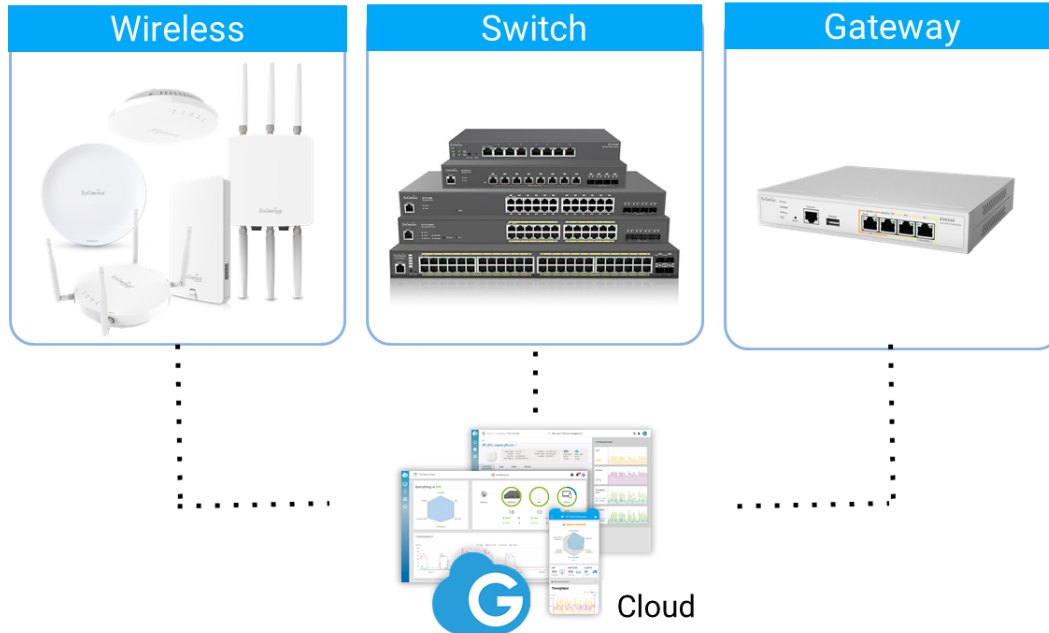
EnGenius®



Antony Lai

Vice President, Cloud Technology

- A Cloud Networking Company to provide **business-grade** Networking solutions.
- Solutions includes **Security Gateway, Switches and AP's** managed by **Cloud** management platform and mobile app.



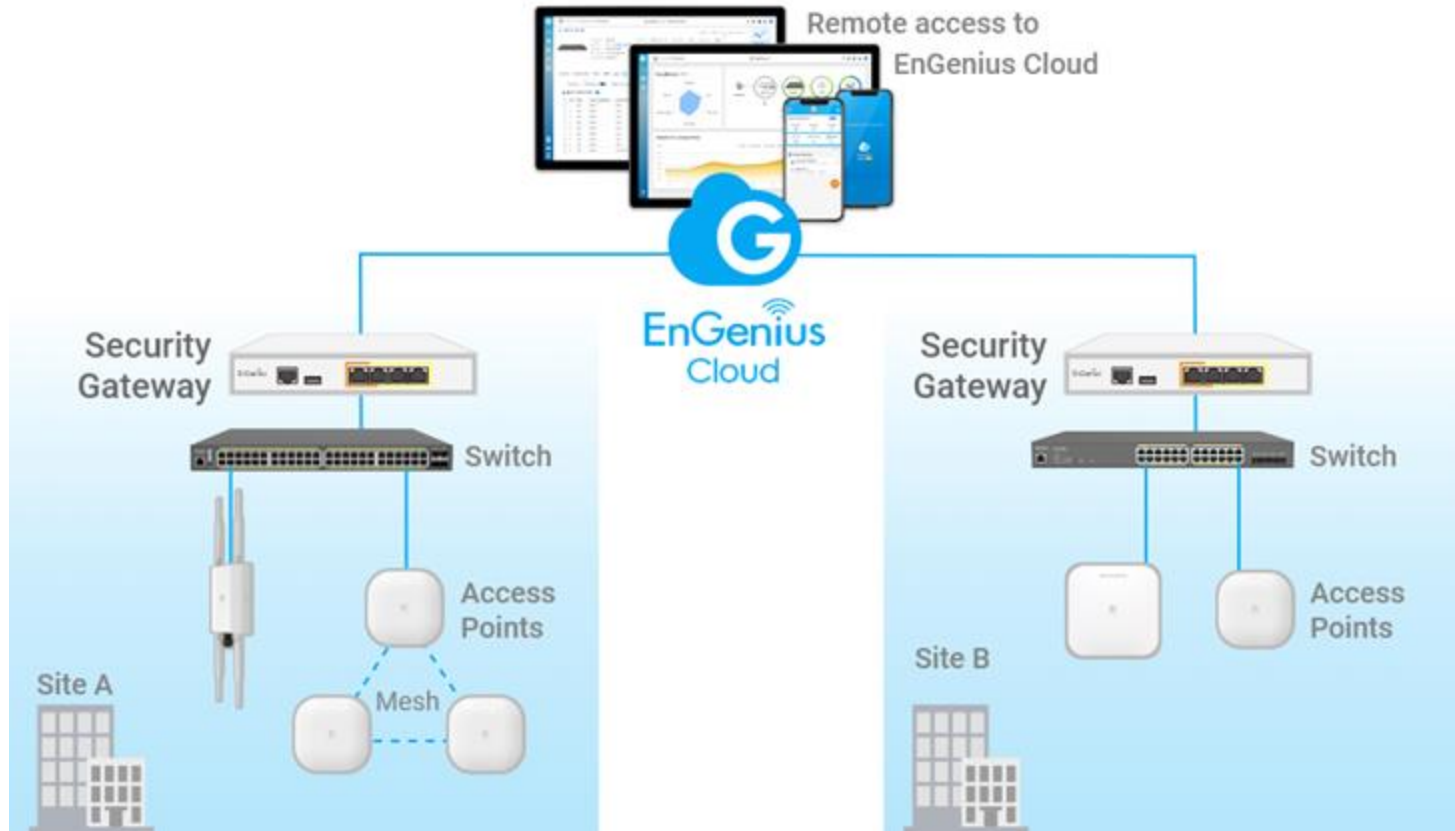
Have a full control of Cloud-managed Switches, Access Points, and devices no matter where you go.

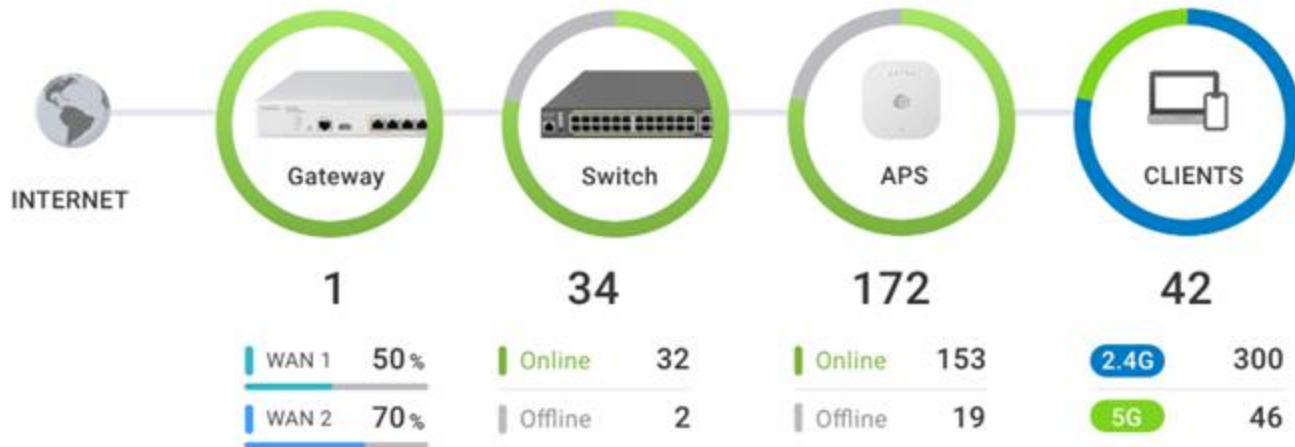


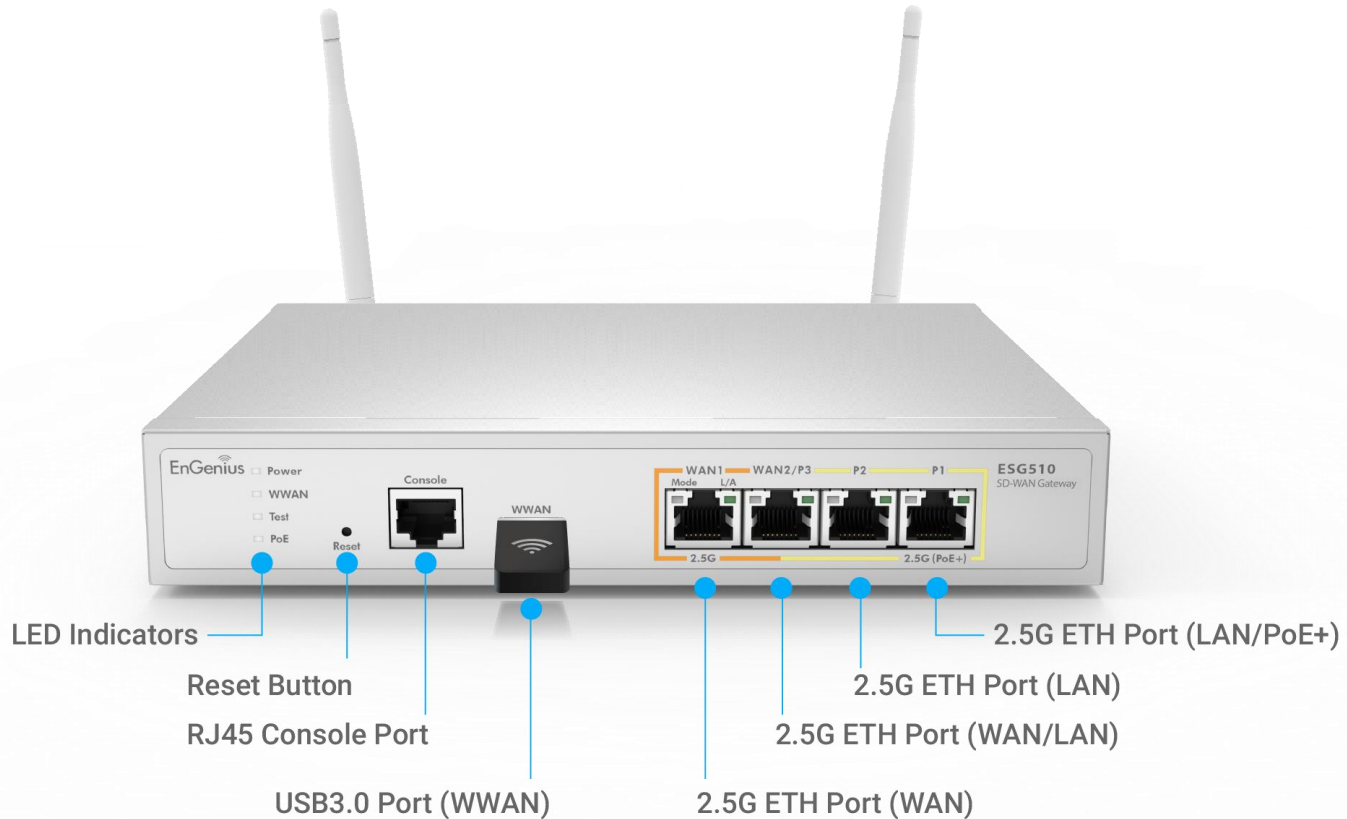


	ESG320	ESG330	ESG510	ESG610	ESG620
CPU	Intel® Atom® C1100	Intel® Atom® X7211E	Intel® Atom® E3940	Intel® Atom® C3558	Intel® Atom® C3558
Interface	4 x 1Gbe 1x SFP	3x 1Gbe + 1x 2.5Gbe 1 x SFP	4 x 2.5Gbe	4 x 2.5Gbe	8 x 2.5Gbe + 2 x 10G SFP+
PoE	1x PoE+ 802.3 af/at	1x PoE+ 802.3 af/at	1x PoE+ 802.3 af/at	1x PoE+ 802.3af/at	4 x PoE+ 802.3af/at
Mounting	Desktop/Wall mount	Desktop/Wall mount	Desktop/Wall mount	Desktop/Wall mount	Rackmount

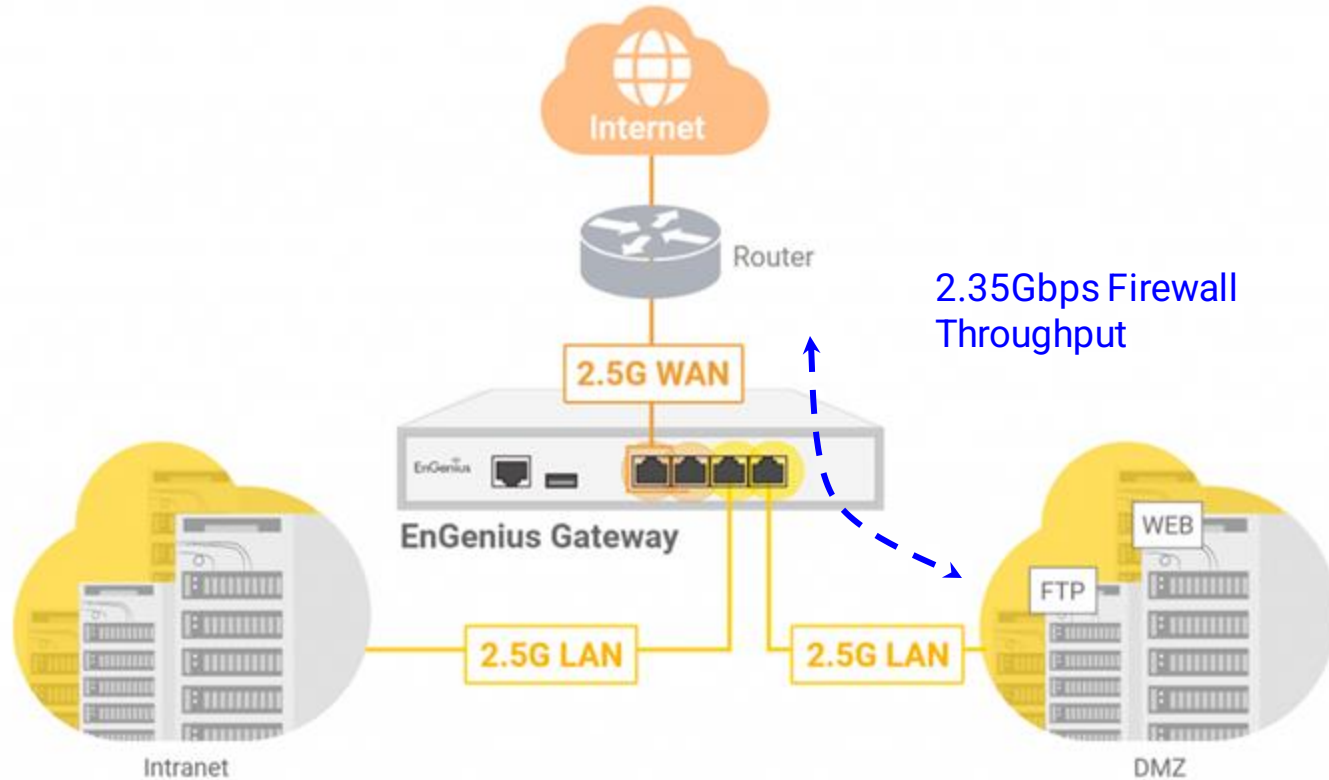
Introducing EnGenius SD-WAN Security Gateway (ESG)



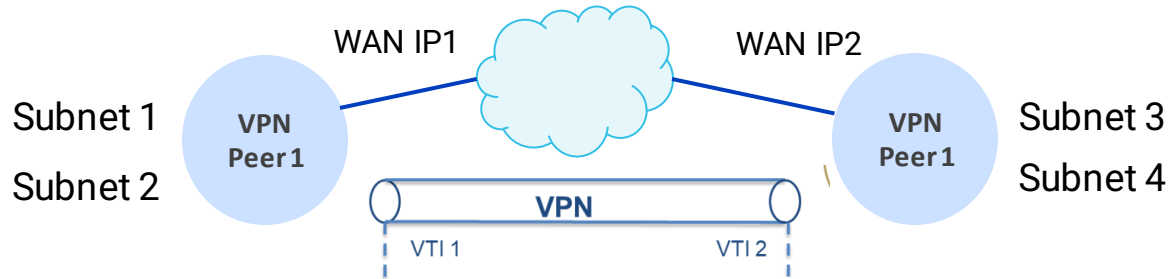




Optimal Performance with 4 x 2.5 GbE Ports



Complicated VPN Connection Configuration



	VPN Peer 1
Public IP	WAN IP 2
Private Subnets	Subnet 1 Subnet 2
IPSec Policy (cypher)	Same
Pre-shared Secret	Same

	VPN Peer 2
Public IP	WAN IP 1
Private Subnets	Subnet 3 Subnet 4
IPSec Policy (cypher)	Same
Pre-shared Secret	Same

Ipssec Policy:

- IKE v1/v2
- IPsec Phase 1 / 2 [Encryption/ Authentication/ DH group/ Lifetime]

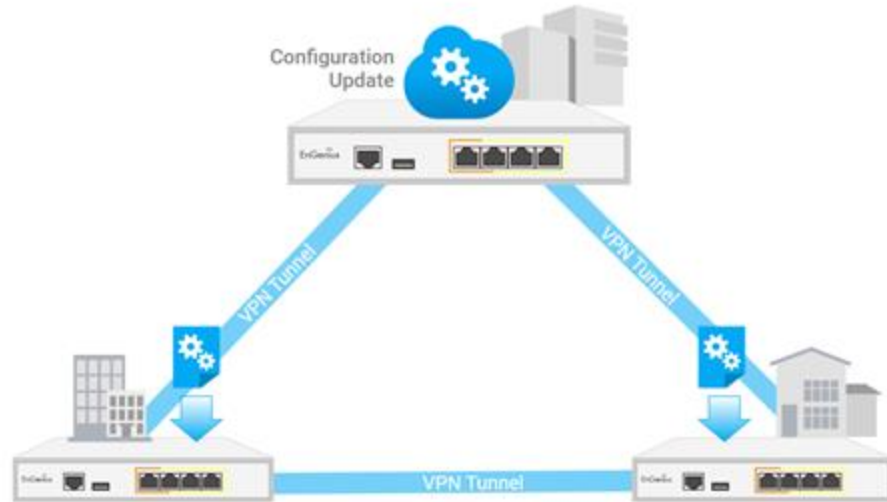
- Few clicks away to setup Site to Site VPN automatically, no annoying VPN parameter settings required
- WAN IP change will automatically updated to other VPN peers to keep VPN connected

Mesh VPN (as a Hub) ⓘ
 Hub-and-Spoke (as a Spoke)

Hubs

- ESG510
- ESG510(Frank)
- ESG510(Alcindo)
- ESG510(J.Home)
- ESG510(Oscar)

Local LAN	Subnet	Use VPN
LAN	192.168.202.0/24	<input checked="" type="checkbox"/>



Senao
VPN Status

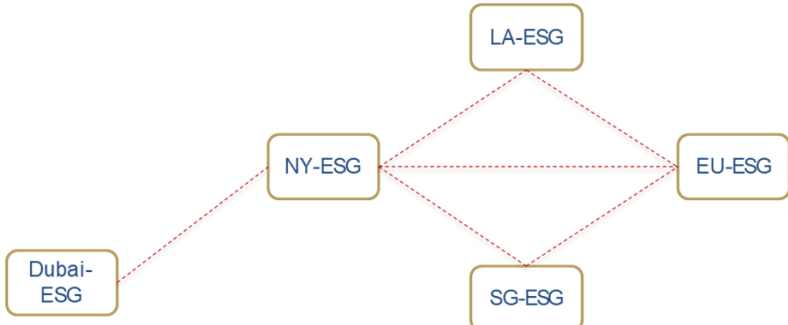
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VPN Nodes

Gateway : NY-ESG

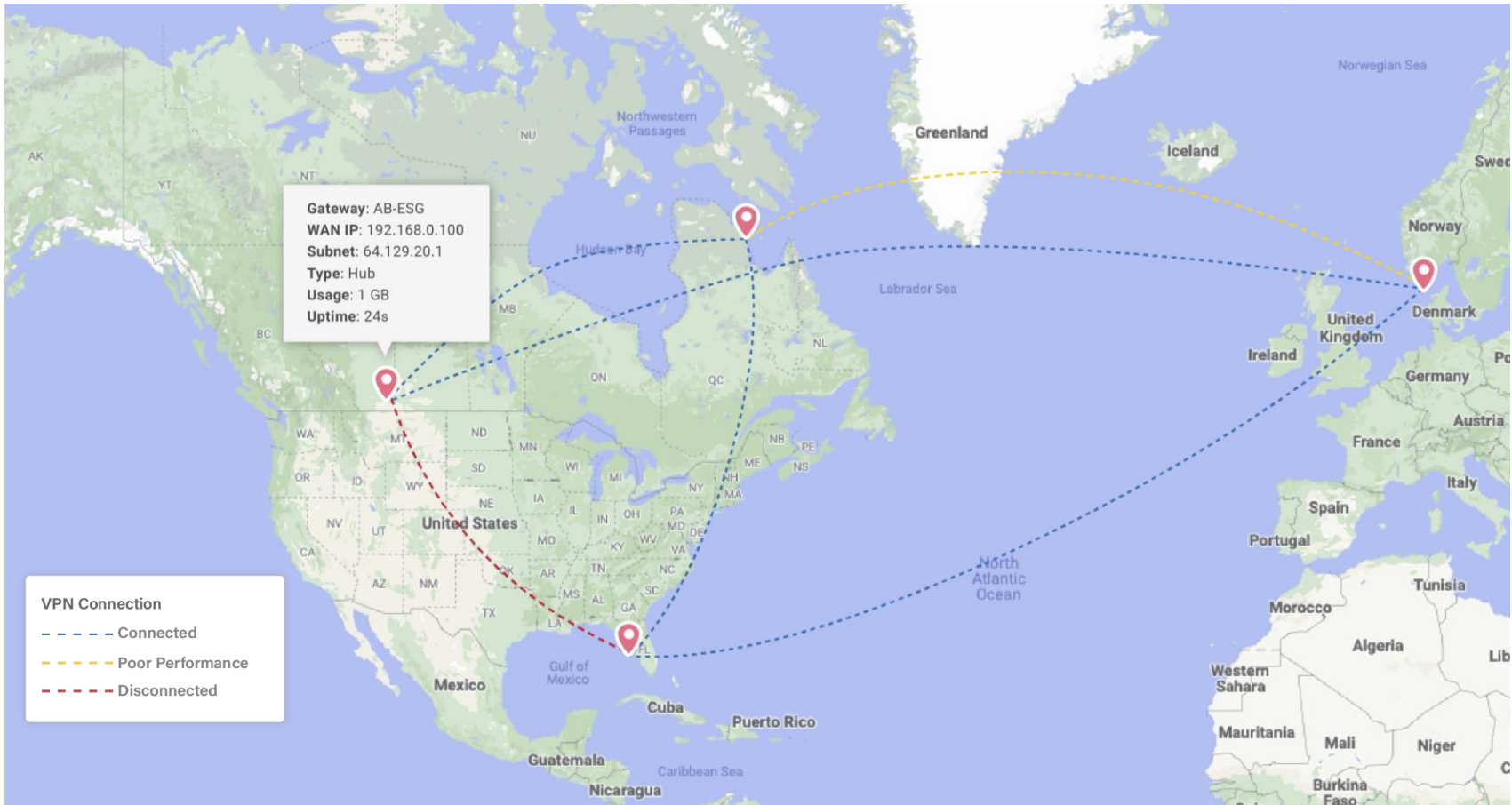
EnGenius Peers 3rd-party VPN

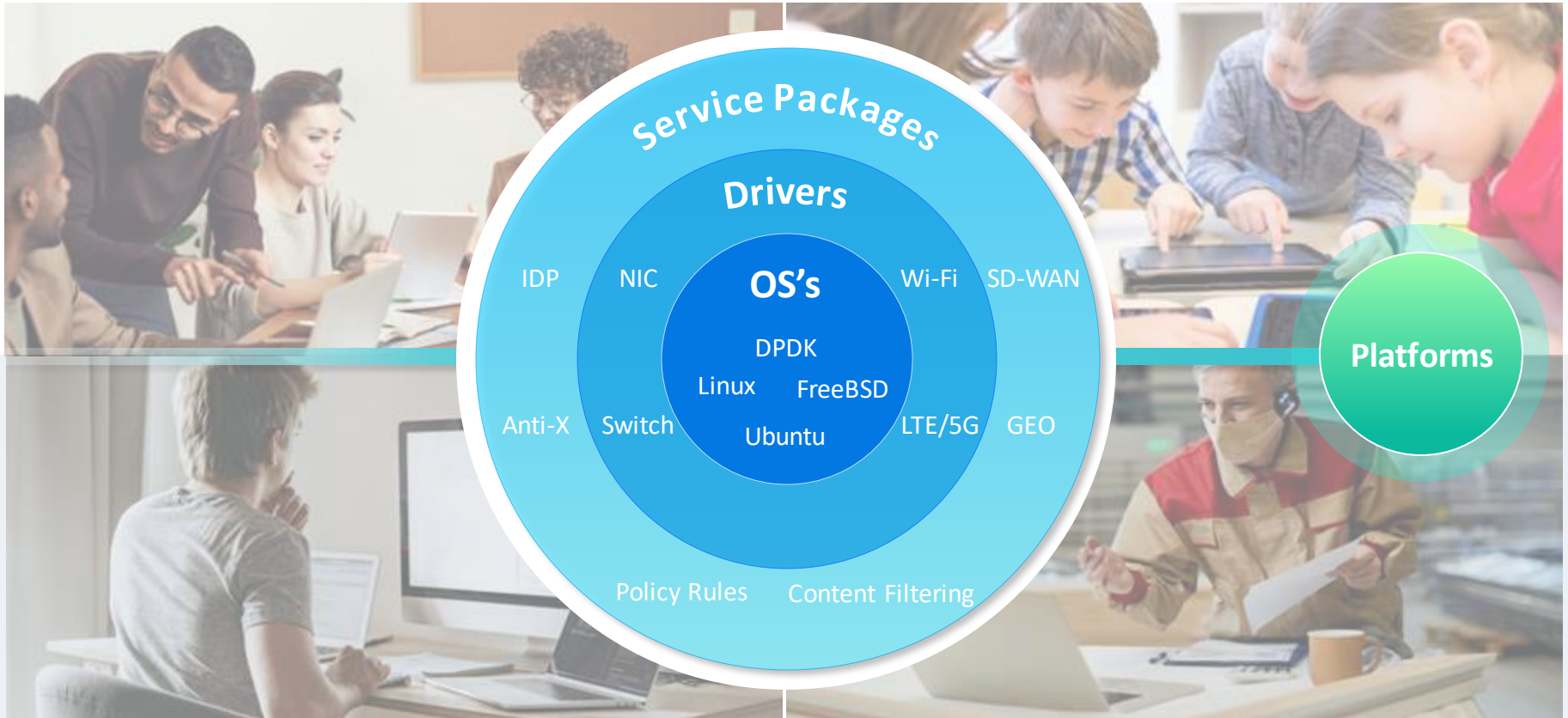
Gateway	Network	WAN IP	Subnet	Type	Mode	Usage	Latency	Uptime	...
LA-ESG	LA Network	192.168.0.100	64.129.20.1	Hub	Router	1 GB	10 ms	5d:16h:23m	
EU-ESG	EU Network	192.168.0.100	36.129.20.1	Hub	NAT	1 GB	10 ms	5d:16h:23m	
SG-ESG	SG Network	192.168.0.100	118.129.20.1	Hub	Router	1 GB	10 ms	5d:16h:23m	
Dubai-ESG	Dubai Network	192.168.0.100	10.129.20.1	Spoke	NAT	1 GB	10 ms	5d:16h:23m	



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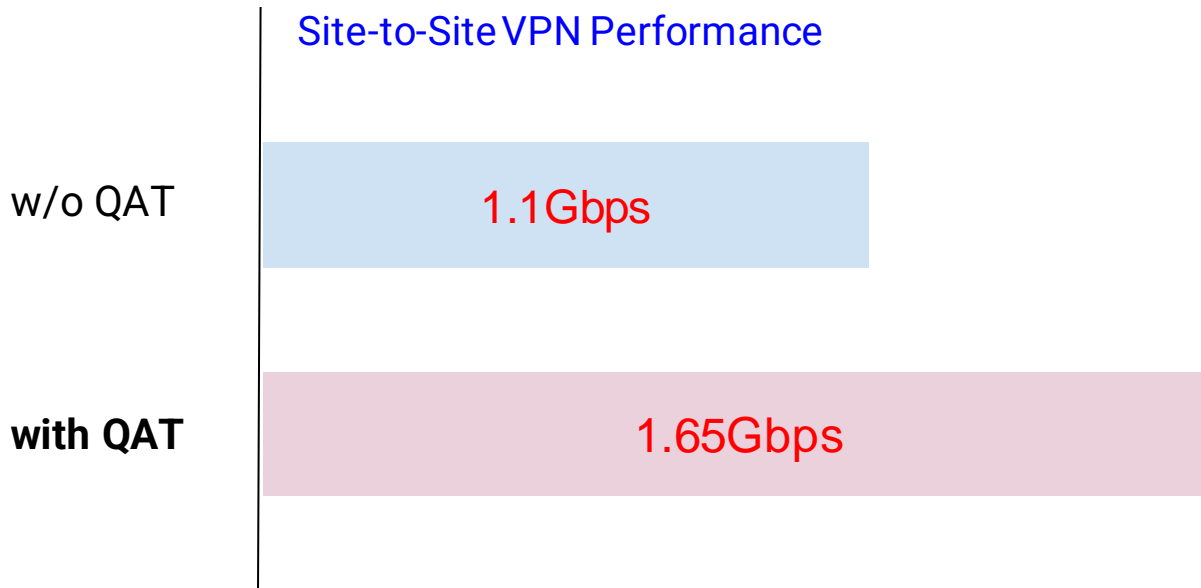
graph TD
    Dubai-ESG --- NY-ESG
    NY-ESG --- LA-ESG
    NY-ESG --- SG-ESG
    NY-ESG --- EU-ESG
    LA-ESG --- EU-ESG
    SG-ESG --- EU-ESG
  
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- Turbo Mode to boost the performance with low operation frequency
- Enhanced Crypto (SHA, AES-NI, etc)
- 64kB Instruction Cache and 2x read bandwidth which provides greater impact on performance
- Higher memory bandwidth which is critical for networking workloads specially SD-WAN
- Intel AVX2 support
- VNNI support for AI application acceleration

Leverage Denverton QAT Engine to Accelerate VPN Performance over 50%





Senao SD-WAN Security Gateway Architecture



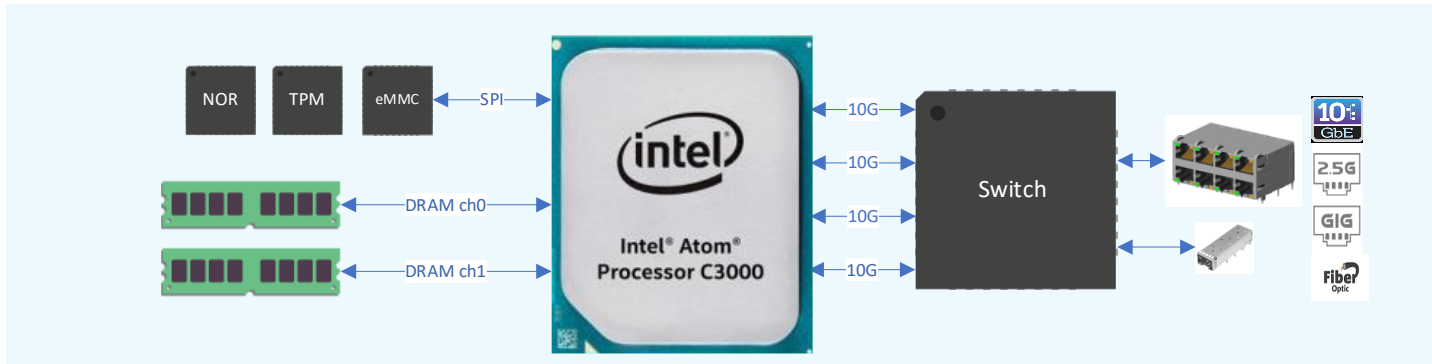
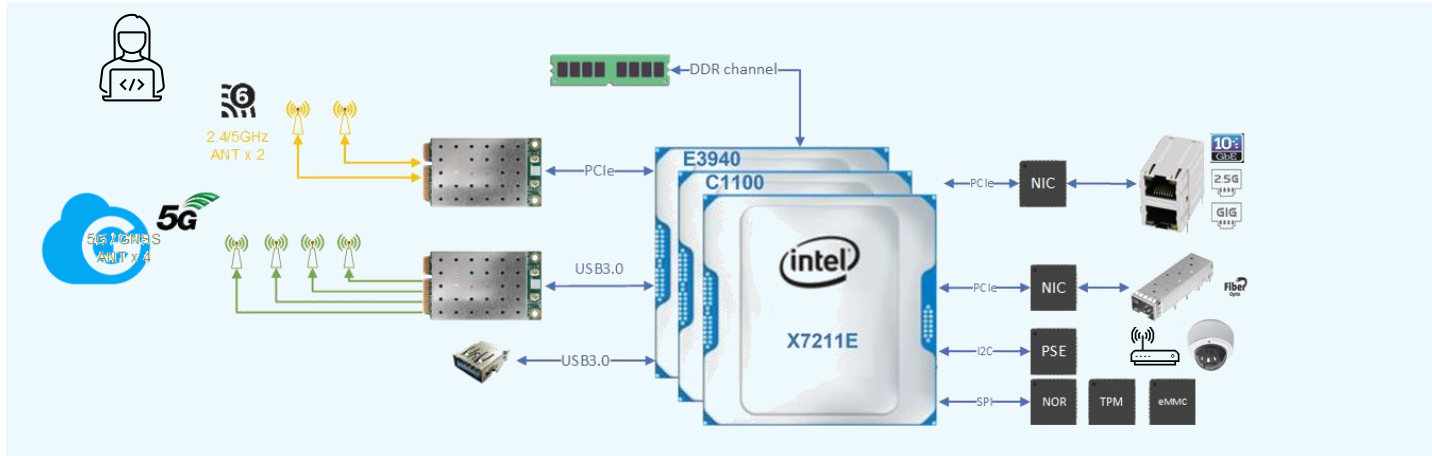
Dr. Bou Lin

President



- 2006 spun off from Senao International Co., Ltd.
- Number of Employees Worldwide: 2,000+
- Listed on Taiwan's OTC Market (3558.TW)
- Business Focuses
 - Network communication products OEM / ODM / JDM design and CM manufacturing service
 - Product Technology
 - Wireless Solutions – Wi-Fi / Bluetooth / 5G
 - Ethernet Connectivity Products – PoE / L2 / L3 / Carrier Ethernet Switch / Data Center Programmable Switch
 - Network Appliance Products – UTM / SDWAN / SASE
 - AIoT Solutions – Industrial Sensors and Controller / IP Camera
 - Power - Network Power Supply / CRPS / PDU
 - Digital / Analog Wireless Long Range Phone

System Architecture for Enterprise Edge SD-WAN



Multi-Radio Coexistence: Challenges and Opportunities

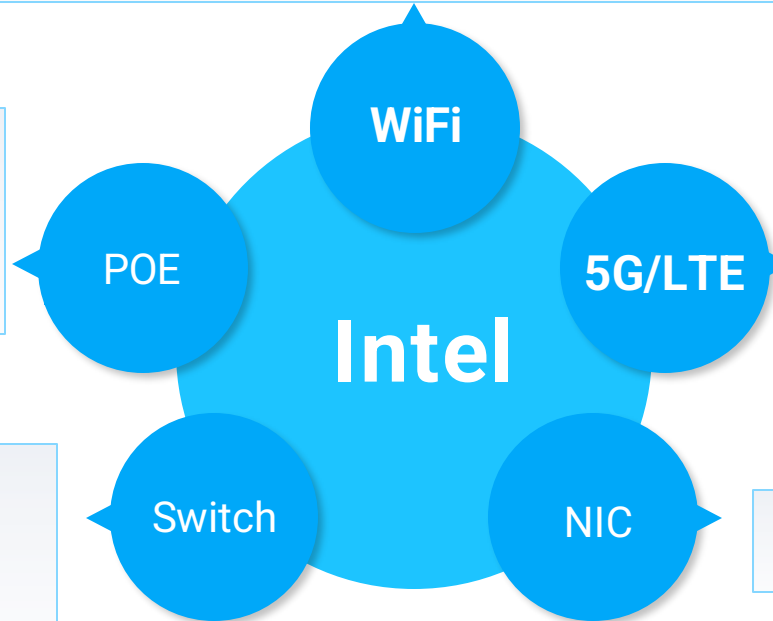


- 2.4GHz coexistence among WiFi/5G/LTE/BLE/USB3.0
- Tri-band (2.4GHz/5GHz/6GHz)
- 1~320MHz bandwidth implementation
- Inhoused antenna and module



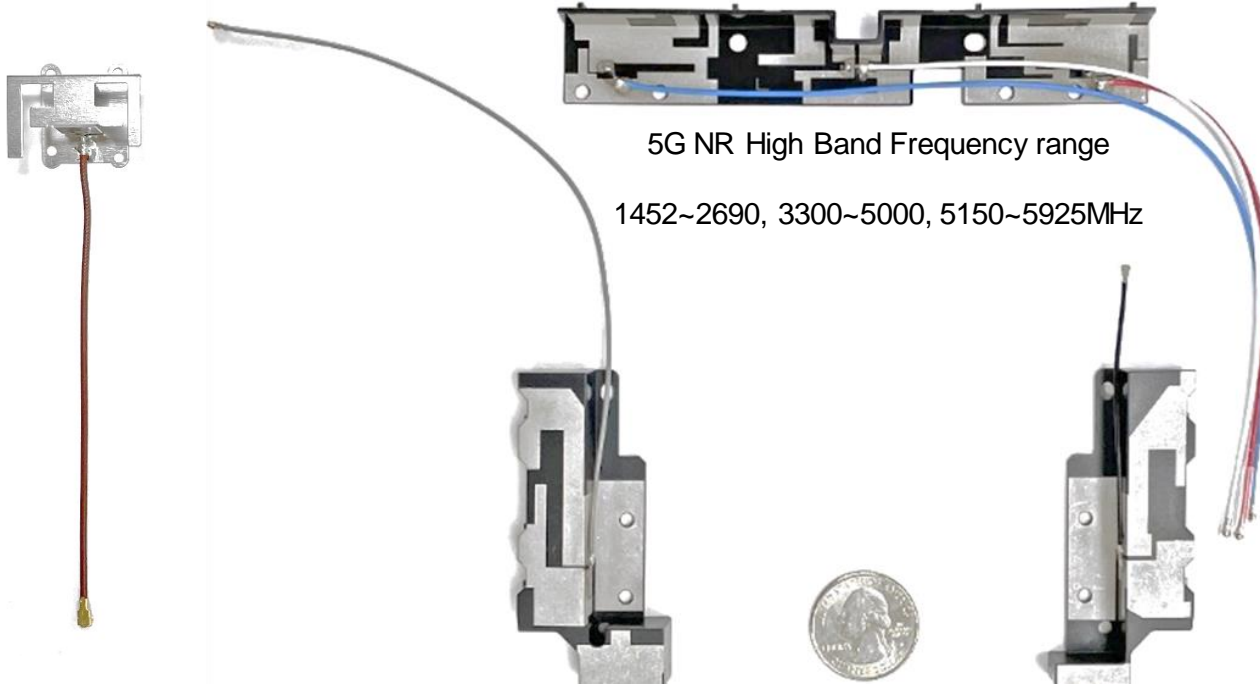
- PD and PSE design
- 802.3af/at/bt

- 1/2.5/5/10 GbE, SFP+/SFP
- Switch drivers porting



- 2.4GHz coexistence
- 5G FR1, LTE Cat 12/6/4
- Carriers OTA compliance (TRP/TIS)
- Commercial module qualification

- 1/2.5/10GbE, SFP+



5G NR High Band Frequency range

1452~2690, 3300~5000, 5150~5925MHz

WiFi Frequency Range

2400~2500, 5150~5850, 5925~7125MHz

5G NR Full Frequency range

617~960MHz

1452~2690, 3300~5000, 5150~5925MHz

Senao Networks focus on networking connectivity, provides total solution through vertical integration of critical parts.

Wi-Fi Antenna

- PIFA Module
- Dipole
- Sector
- Panel



Sheet Metal Fabrication

- Stamping Machine 80T/110T/200T
- Grinding Machine
- Silkscreen Printing
- NCT Punch Machine
- Bending Machine



Switch Power Supply Module

- Open Frame up to 1800W



Redundant RPS/CRPS

- Hot Swappable up to 2000W

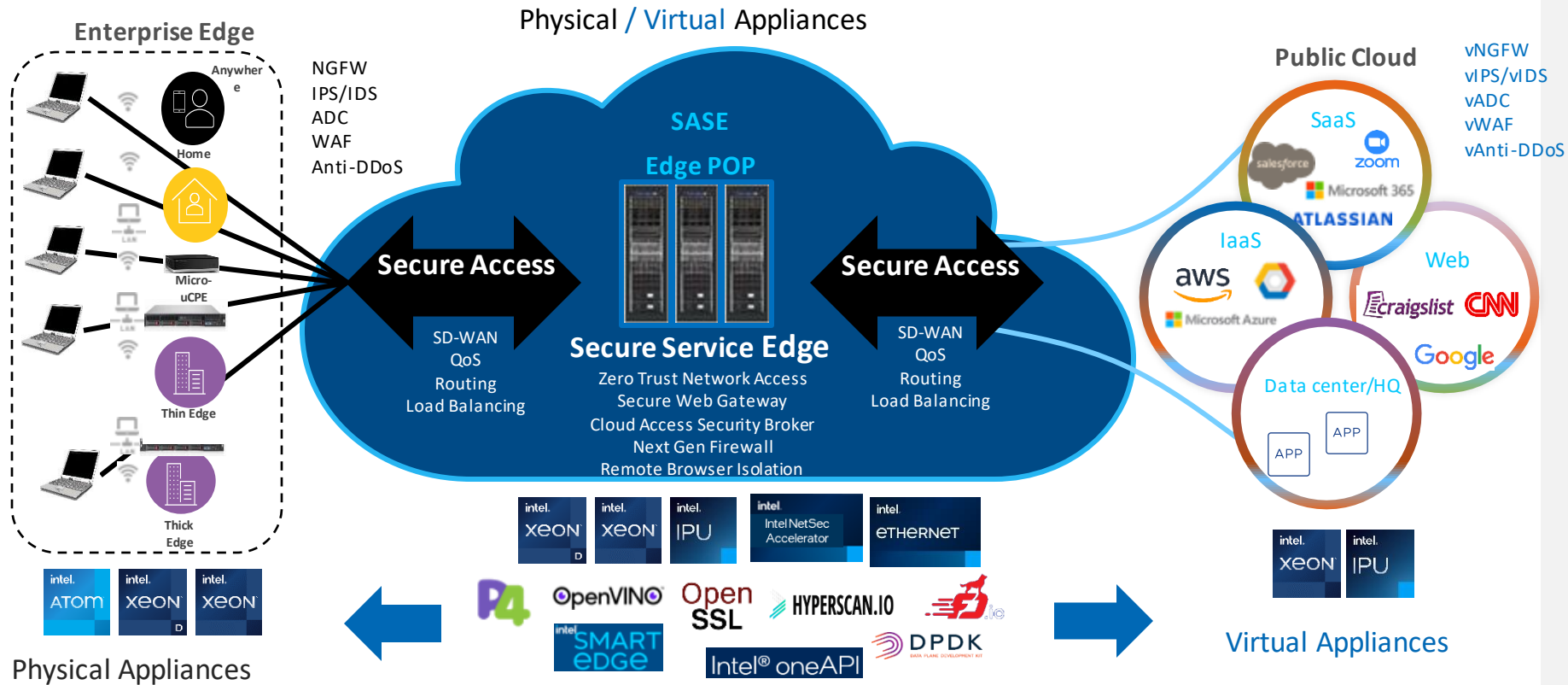


Cloud SD-WAN Gateway Universal CPE Based on Intel® Atom C Series and X Series Processors

Arpit Menaria, Segment Manager, Intel



Network Appliances are Pervasive in Edge to Cloud Infrastructure



Secure Access Service Edge (SASE) is a Security Framework Coined by Gartner
<https://www.gartner.com/en/webinars/4003208/evolve-to-the-future-of-network-security-using-the-secure-access-service-edge>

Intel Portfolio for Edge-Cloud Networking

1	<p>Scalability in Edge/DC/Cloud</p>		<p>Thin/Thick Edge, DC, Cloud Same infra, same software</p>	
2	<p>Consistency</p>		<p>Same infra, same software & workload movement flexibility across the Edge, DC, Public Cloud</p>	
3	<p>Performance</p>		<p>Room to Grow Reliable High Performance</p>	
4	<p>Security/analytics offloads & SDKs</p>			
5	<p>Network Specific NICs/Accelerators</p>			<p>NIC/PAC/FPGA/P4</p>

The Intel logo is centered on a solid blue background. It features the word "intel" in a white, lowercase, sans-serif font. A small blue square is positioned above the letter 'i'. To the right of the word "intel" is a registered trademark symbol (®).

intel®

Q & A

- OTA Chamber
- TRP (Total Radiated Power)
- TIS (Total isotropic sensitivity)

