



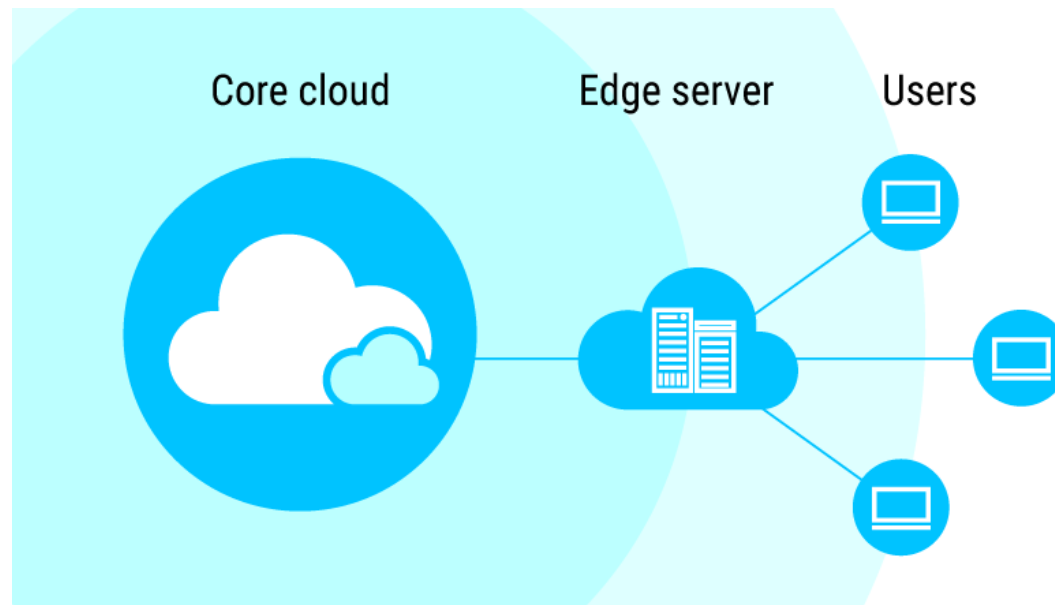
Living on the Edge



January 20th, 2021

Today's Cloud Architecture

Networks are evolving to meet growing use cases. Edge computing is part of the industry's answer.



Source: ITP Networks

- Multiple edges: Cloud Edge, **Telco Edge**, **Premises Edge**, Device Edge
- Edge computing is a key part of IoT and 5G so it will continue to grow in importance to networks.

Why use Edge Computing?

Benefits of Edge Computing:

1. It helps off load the central network by serving traffic locally.
2. Reduces network latency.
3. Can still support operations with intermittent connectivity.
4. Reduces deployment time. SW is easier to deploy than HW.

These benefits are more important in satellite networks!

1. Satellite connections are expensive.
2. High latency compared with terrestrial.
3. Difficult to reach locations make it hard to respond.

Service Provider Opportunity

- Many telcos, MNOs and enterprises have or are adopting virtualization and edge computing.
- But Satellite Service Providers have been slower to adopt this emerging technology.

“The edge cloud will not only become the new point of service delivery and experience but also the point of innovation and monetization, allowing various ecosystem players such as content providers, Hyperscalers, and enterprise application providers to work together.” – Network Computing

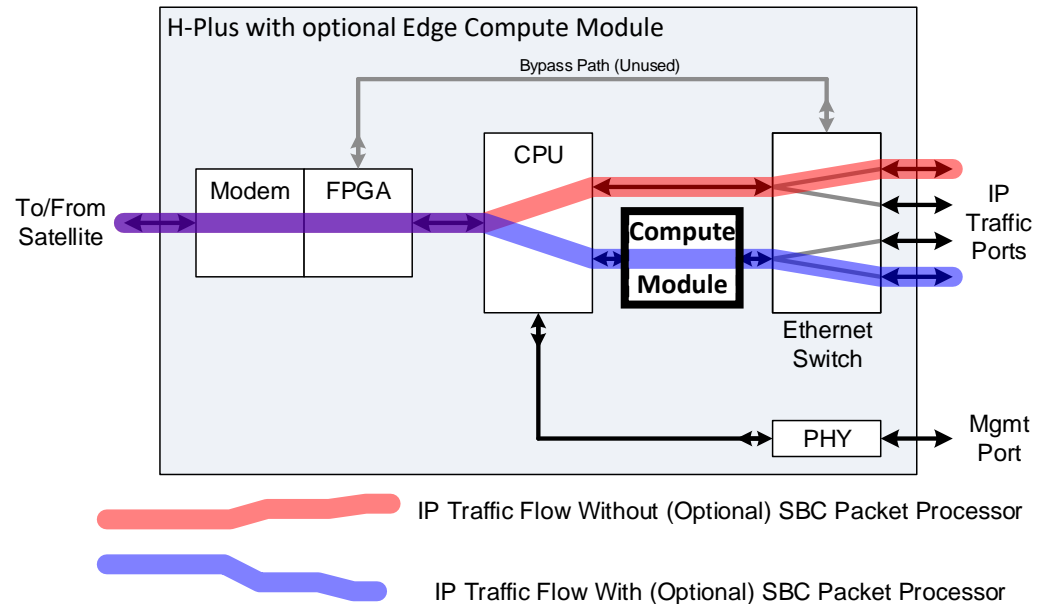
Edge Compute in the H-Plus Modem

- Optional Compute Module in the Heights H-Plus mid-range modem
- In-line and/or bypass user traffic capable
- Standard form factor with choice of ATOM / i3 / i5 processor
- Reduces rack space, improves security.

H-Plus Modem

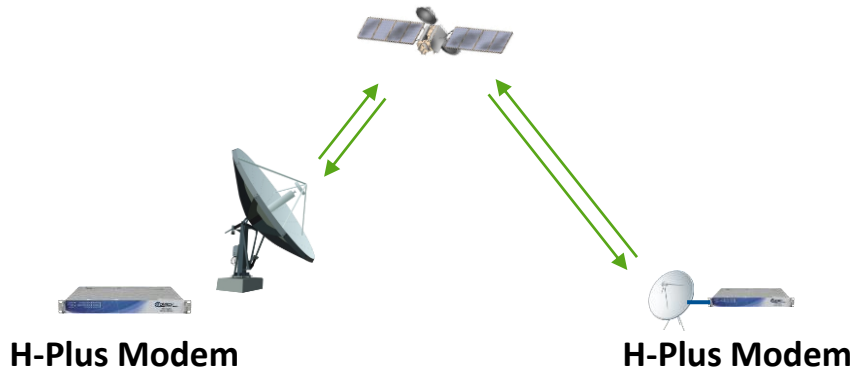


Compute Module



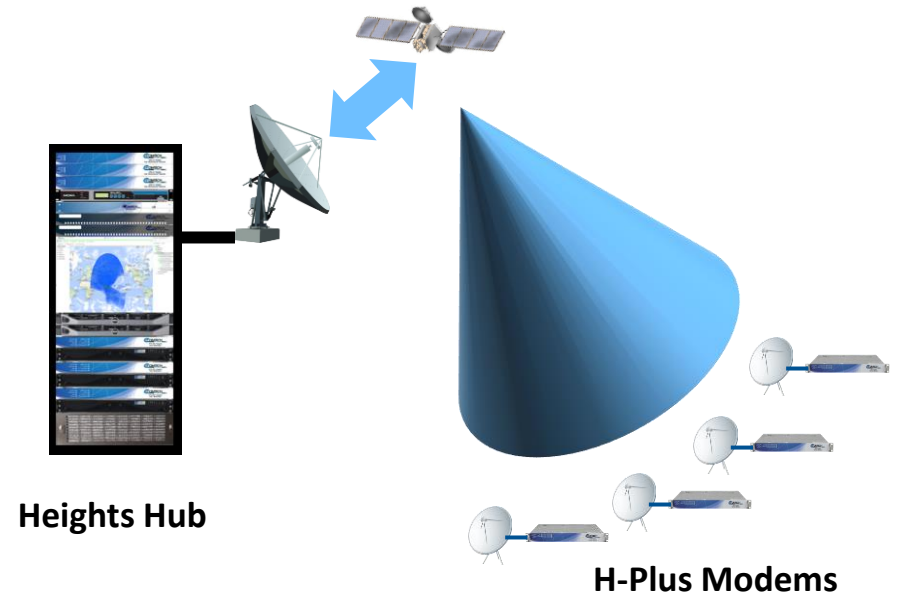
H-Plus Dual Mode Support

H-Plus Point-to-Point SCPC Mode



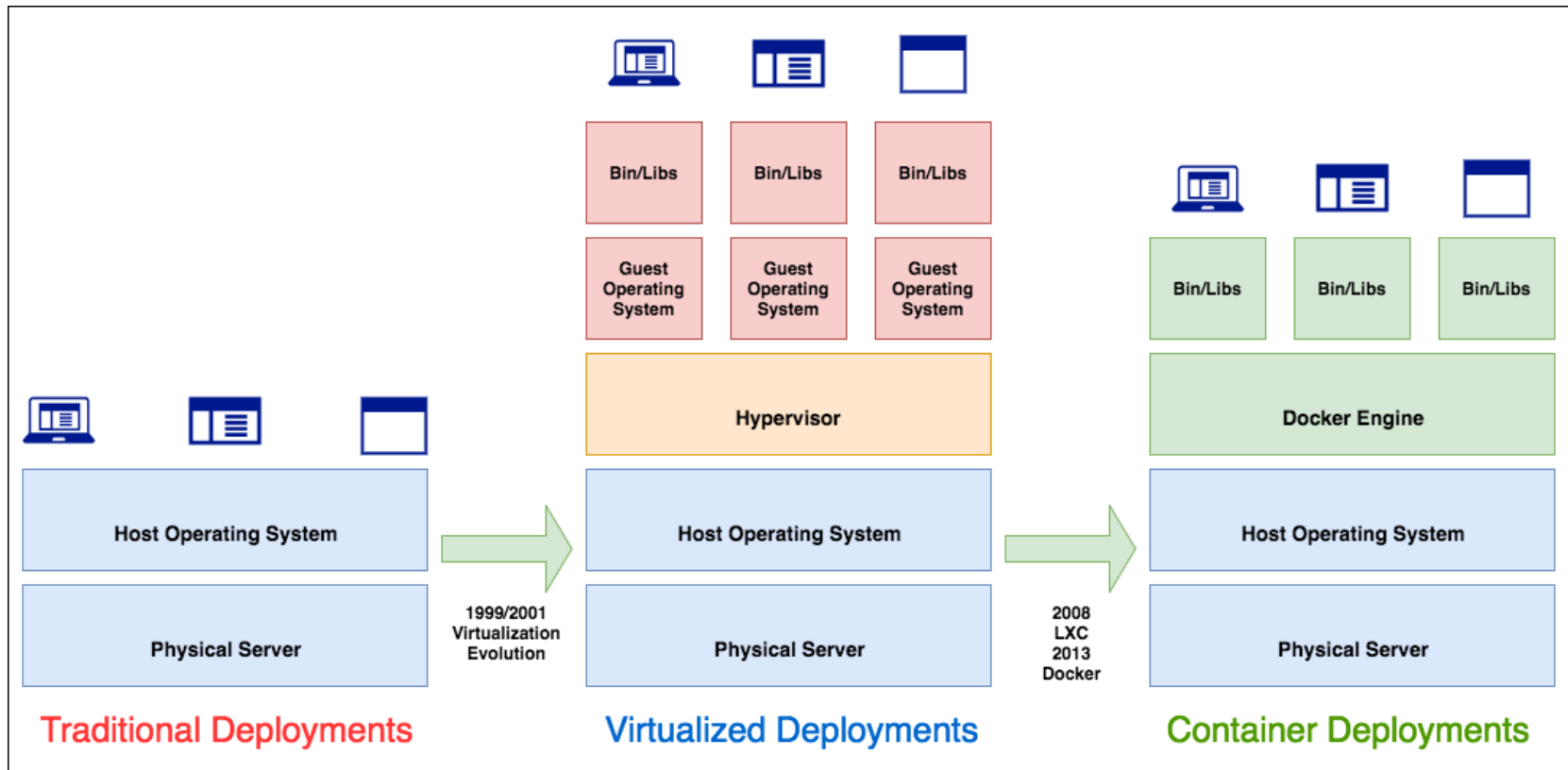
- Static SCPC TX and RX Carriers
- Supports Carrier-in-Carrier
- No hub needed
- DVB-S2X up to 120/120 Mbps

H-Plus Heights Network Mode



- Fully Managed Hub
- Shared Outbound
- Dynamic H-DNA Return Carriers
- Up to 100/40 Mbps

Virtualization Architectures



There are also both Open Source and COTS approaches to each architecture.

Edge Applications

Networking - SDN

- Open vSwitch – Open Source Switch
- Tungsten Fabric – Open Source Router
- Cisco vRouter
- Juniper vRouter

Value Added Services

- Firewalls, Encryption
- SD-WAN Endpoint
- Analytics Capture
- Policy Enforcement
- MEF Demarcation Point

Applications

- Memotec FX WANOP Appliance
- Content Caching and CDN
- 3G/4G/5G Core Network
- WiFi Captive Portal
- Authentication, DNS, DHCP

Diagnostic Tools

- Wire Shark
- iPERF
- Modem SW Archive
- Modem config backup

Life on the Edge

- Edge Computing will continue to grow in importance.
- Benefits for Satellite Service Providers:
 - Resource to differentiate and add value
 - Reduce time to deploy new services and upgrades
- Comtech's H-Plus modem provides maximum flexibility
 - Integrated Edge Compute
 - SCPC and VSAT modes
 - High data rate and Carrier-in-Carrier support



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