How to manage hybrid resources in a 5G world

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Emerging 5G networks create new possibilities for telecom providers, enterprises, and consumers. In addition to faster mobile and fixed wireless access for residential and business customers, 5G networks support cutting-edge technologies for Industrial IoT, Augmented/Virtual Reality applications, AI and Blockchain.

Applications such as smart factory, E-Agriculture, autonomous driving, AI-powered health diagnostics, and personal robot assistants are becoming reality. Gartner predicts up to 20.4 billion IoT devices will be in service by 2020.

However, 5G is not only about mobile technology. To keep pace with 5G, backbone networks must be upgraded and properly managed to meet bandwidth and performance requirements.

Software-defined networking (SDN) and Network function virtualization (NFV) are essential to support the evolution that is taking place in today's network architectures. SDN uses mechanisms of control and user plane separation to define network resources programmatically. NFV allows far better network flexibility through the abstraction and partitioning of network resources into virtual elements.

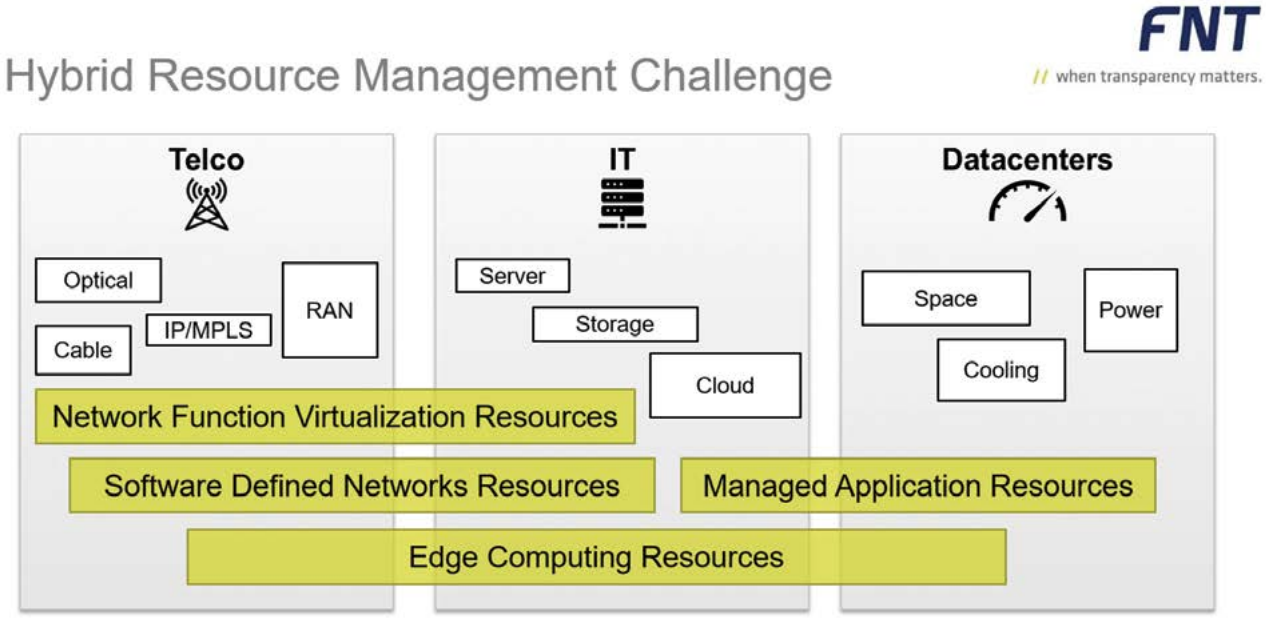
Network as a Service (NaaS), like other cloud services, relies on virtualization technology. Network slices can be specifically configured to support certain use cases. Each use case receives a unique set of optimized resources and network topology—covering certain service level agreement-specified factors such as connectivity, speed, and capacity that all suit the needs of that application.

Mobile edge computing brings computational resources closer to the source – to the network edge – and takes the burden of massive data processing (IoT, AR/VR) off the central office.

While physical, logical and virtual resources can be easily managed separately, ICTs often face challenges when it comes to managing them in unison. To effectively manage hybrid resources in today's digital, IoT-enabled, 5G world, implementing a unified network resource inventory solution is business-critical.

The Challenge

ICTs are facing the challenge of managing new, complex resource types. Unlike conventional resources and resource facing services, hybrid resources like VNF, SD-WAN, network slice and mobile edge computing (MEC), must be managed across Telco, IT and Data Center domains.



Hybrid resources need to be managed across all three domains: Telco, IT and Datacenter.

Simplicity, promised by softwarization, urges providers to maintain high-availability clouds and data centers. As a result, new network operation teams, or NetOps, must consist of individuals with a broad knowledge of networks and IT. And, of course, there is a diversity of VNF vendors with proprietary EMS, which again create silos in the cloud.

Hybrid resource management enables NetOps to crush complexity and gain transparency on the hybrid network.

The Solution

Utilizing a Network Resource Inventory (NRI) system is proven to drive operational efficiency. To master hybrid resource management, ICT service providers must also adopt a solution known as Unified Resource Inventory (URI), or Hybrid Inventory (HI), to document all resources in one place, across the silos.

A Hybrid Inventory solution should provide the following features and capabilities:

- All-embracing data model and resource types – passive, physical, logical and virtualized
- Modern REST API to integrate with its environment, e.g. Trouble Ticketing and Fault Management systems
- Discovery and reconciliation mechanisms to synchronize the inventory with network and cloud to keep it up to date
- Support for service fulfilment and assurance scenarios

Overall, while resource management in the 5G era is a challenge, a hybrid inventory helps ICT service providers streamline the process by managing telco, IT and data center infrastructure holistically within one software solution. By managing all assets used in the production of services via a single, dynamically updating repository that integrates with key systems, providers will have the information and tools to support not only existing networks, but networks of the future as they undergo digital transformation. This gives providers the visibility needed to convert emerging opportunities into revenue.

As we look to the future, we're bound to see new and exciting inventory software developments from augmented reality and machine learning. Augmented reality will boost operations on mobile sites and in data centers with Hybrid Inventory as a data source. Integrating machine learning into Discovery and Reconciliation (D&R) processes will enable massive intelligent discrepancy resolving and "discovery" of passive network domain interconnections.

For more information, visit us at:
networktransformation.fntsoftware.com

About FNT

FNT is a leading provider of standard software solutions that enable CSPs to accelerate their digital transformation by holistically managing the hybrid resources in today's complex networks. The core of the solution is a comprehensive data model for all assets and resources in the telecoms, IT and data center infrastructure – both core and edge. This central system of record holistically manages the hybrid network and service resources of wireline and wireless networks across all layers, and lays the foundation for all planning, fulfillment and assurance processes across all technologies. The result of this unified resource management is much-needed visibility into all physical, logical and virtual resources, which is critical for managing today's converging technologies.