UNIFIED RESOURCE REPOSITORY

IT

SPACE, POWER, COOLING

CORE DATA CENTERS

DATA CENTER

TELCO

NFVI

VNF

PNF

NETWORK FUNCTION VIRTUALIZATION

EDGE DATA CENTERS

# FNT Hybrid Resource Management

## Manage virtual resources across silos in core and edge data centers

Transforming into a digital service provider enables organizations to automate a broad spectrum of processes. This makes it possible to launch and fulfill new products and services faster, ensure service quality and reduce OPEX. The most important requirement for achieving this transformation is unified management of both physical and virtual network assets as well as IT and data center resources.

Emerging 5G networks are driving providers to pursue digital transformation initiatives. A key element of digital transformation is virtualization, which involves moving network functions out of the network and into data centers. Network operators will be tasked with managing virtualized assets and resources that live outside the classical telecommunications domain along with the physical hardware and logical connectivity of the traditional telco network.

FNT Hybrid Resource Management solution addresses the challenges of virtualization by providing the means to centrally manage virtual assets and resources together with physical and logical ones. It enables operators to control and optimize the Network Function Virtualization Infrastructure (NFVI) hosting the Virtual Network Functions (VNFs) of various suppliers. It also enables them to manage the underlying server and storage infrastructure together with the related core and edge data center resources.

## UNIFIED RESOURCE MANAGEMENT ACROSS TELCO, IT AND DATA CENTER

FNT Hybrid Resource Management can be combined with other FNT Telco solutions to build an integrated unified resource repository across both traditional telecommunication infrastructure and the virtualized environment. It enables seamless management of the interaction between VNFs and Physical Network Functions (PNFs), which form overall Network Services. It solves problems caused by the diverse array of resources required to operate today's technologies. These technologies require physical, logical telco and virtual IT resources, plus VNFs based on data center resources. While all can easily be managed separately, it's challenging to manage them in unison. Easy navigation throughout these different types of resources is a crucial success factor. FNT enables central management, planning and documentation of all relevant physical, logical, and virtual resources, capacities, and assets across the telecommunications network, IT and data center infrastructure. These resources can be graphically visualized via configurable schematic views and geo-referenced map representations with integrated GIS capability. A graphical overview of

dependencies and relationships as well as details of the network infrastructure are available.

## ONE VIEW OF VIRTUALIZED RESOURCES

To master the virtualization challenge, service providers must document all virtual resources in one place. Every network will have many VNFs, from multiple suppliers, and executed on different NFVI platforms. All relevant information must be available for both operation and planning. FNT Hybrid Resource Management solution delivers the vendor-agnostic, technology-neutral, single source of truth repository operators need to simplify planning and managing of the virtualized environment.

Virtualized resources are deployed in core data centers, distributed edge data centers and micro data centers. VNFs are managed by applications from different suppliers. They are assigned to virtual machines and share underlying computing and storage resources in combination with the space, power and cooling resources provided by the various data center sites. FNT's solution uses information about all these resources. This data is critical to manage the virtualized environment and mandatory to manage the rollout of new VNF deployments.

# // USE CASES

## PLANNING & ROLLOUT MANAGEMENT OF VIRTUALIZED RESOURCES

Service providers are in expansion mode and investing in Network Function Virtualization. Whether to increase agility for new product launches, reduce costs by using commodity hardware, or building up distributed edge data center sites to deploy virtualized applications, their needs are the same. Centralized, real-time visibility into network resources with a common central database for all resource-related data.

- Plan VNF capacities according to rollout plans
- Analyze impact of new VNF rollouts and manage data center capacity extensions
  - Plan and rollout NVFI capacity using automatic work order creation
  - Distribute work orders via workflow integration to field teams/subcontractors to execute rollout, change, and repair processes
  - Plan and rollout power and cooling capacity

## HYBRID RESOURCE OPERATION

Software-defined networking (SDN) and network function virtualization (NFV) are essential to support the evolution taking place in today's network architectures. Also essential is a single, unified data source to keep track of the combined resources in a multivendor physical and virtual network and IT environment.

- Manage virtual resources
  - Synchronize virtual resources based on VMware, OpenStack, etc.
  - Manage VNF decomposition and assignment to underlying VMs and server clusters
  - Provide relationships between VNFs, NFVI, and traditional Telco resources and connections
  - Create overview of VNFs and VNFCs (multi-vendor), and allocated physical and virtual resources
  - Manage VNFs and NFVI from software lifecycle and licenses management perspective
- Fault and Impact Analysis
  - Analyze configuration at the time a failure occurred based on data history to address underlying issues that need to be resolved

## CAPACITY MANAGEMENT

Perform detailed planning of future business needs so you only spend funds on capacity expansion when you really need to. Visualize and analyze all usage-related elements in the data center infrastructure with dashboard-based forecast analysis to help keep space, power, cooling, and consumption under control.

- Manage available and used floor space in large central office locations, core data centers, edge data centers, and containers sites
- Manage power consumption and power generation
- Document and manage power cabling, UPS, PDU, and circuit breakers
- Monitor real-time power consumption and temperature data
- Manage cooling capacity and heat emission
- Manage server and storage capacity and server clusters
- Manage data center MAC process (Move, Add, Change)

# Major Benefits of FNT Hybrid Resource Management

### EFFICIENT OPERATION OF MULTI-VENDOR VNF DEPLOYMENTS

- Delivers transparency and visibility into multi-vendor VNF deployments and allocated physical and virtual resources for operational analysis

- Have all relevant, vendor-agnostic information available for both operation and planning purposes to support the many VNFs, from multiple suppliers, executed on different NFVI platforms dispersed across core and edge data center sites

### IMPROVED OPERATIONAL EFFICIENCY

- Provides a holistic view by delivering and maintaining an accurate and up-to-date inventory of all physical, and virtual resources

- Perform fault analysis based on historicized configuration data to address any underlying issues that need to be resolved, even when virtual resource configuration has been automatically changed

### IMPROVED CHANGE MANAGEMENT PROCESS

- Accurate information on server and storage capacity across the relevant edge and core data centers from the planning perspective

- Faster and more accurate impact analysis of new VNF rollouts to manage data center capacity extensions according to the appropriate MAC process (Move, Add, Change)

### DATA CENTER INFRASTRUCTURE MANAGEMENT

- Accelerate daily business processes and achieve greater operational reliability

- Comprehensive planning and lifecycle management

- Reliable load and capacity displays with accurate prediction

- True-to-scale 2D and 3D display of rooms and floor space

- Integrate real-time power consumption and climate data

- Precise planning and monitoring of heat output and cooling capacity

- Efficient change management and easy process automation

- Powerful evaluation, reporting, and dashboarding functionality

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