Cloudify
BY GIGASPACES

Lifecycle Orchestration and Automation of Multiple VNF Applications with Cloudify

Two major European Telcos have turned to Cloudify for open source orchestration and automation of virtualized network functions (VNF). In both organizations, the process of onboarding their VNF applications was mostly manual, taking years to implement and often leading to inevitable human error. One Telco was looking for a single orchestration to manage all their core network services such as LDAP and IMS on top of OpenStack infrastructure and IPv6 network. The other was looking for a complete open orchestration that would work across their existing VMware infrastructure as well as their new OpenStack infrastructure.

Both companies chose Cloudify over the competition due to its infrastructure-agnostic, modular, pure-play orchestration platform that provides the agility and tool chain integration that they needed to successfully virtualize their network functions, leveraging their existing environments and tool sets.

Cloudify is a standards-based orchestration platform for implementing virtualized network functions.

Being standard-driven and therefore inherently infrastructure agnostic, Cloudify is uniquely positioned to fit into heterogeneous Telco and enterprise environments by supporting any application stack, handling containerized and non-containerized workloads and integrating seamlessly with any DevOps-related tool chain.

Cloudify is based on TOSCA – the Topology and Orchestration Specification for Cloud Applications from the OASIS Foundation. In using TOSCA as the standard templating language, Cloudify provides a single orchestration platform across cloud platforms, regardless of the cloud environment, virtualization approach and automation tool sets.

This infrastructure agnosticism and standards-based approach to orchestration were the enablers behind both companies finding true, open source automation in Cloudify.

The Telco initiated a market scan to evaluate various orchestration technologies.

Future Proof

- Several options for how to approach the management
- Too early to say which one will survive

Observe the development

Complexity

- Focus on main application mgmt functions-dsh*
- Seperate from infra & service mgmt

Don't over engineer

IT Approach

- Ensure modularity avoid monolithic solutions
- Support agile & DevOps concepts

Reuse existing IT methodology & tools

Independence

- Avoid vendor specific management
- Consider open source

Ensure apps are ready for generic mgmt

They found Cloudify to be the only orchestration platform that meets all their requirements.

In one case, the Telco's existing environment was highly complex, consisting of various components that needed to be orchestrated towards an end to end service. The environment was distributed and spanned a layered architecture with both frontend and backend datacenters. The datacenter management was handled by a tailored OpenStack distribution to support the Telco's specific requirements, such as integration with a Netconf/ YANG based SDN controller, IPv6 networking and a real-time OSS system. They examined different orchestration solutions, but none managed to address the complex environment and advanced use case.

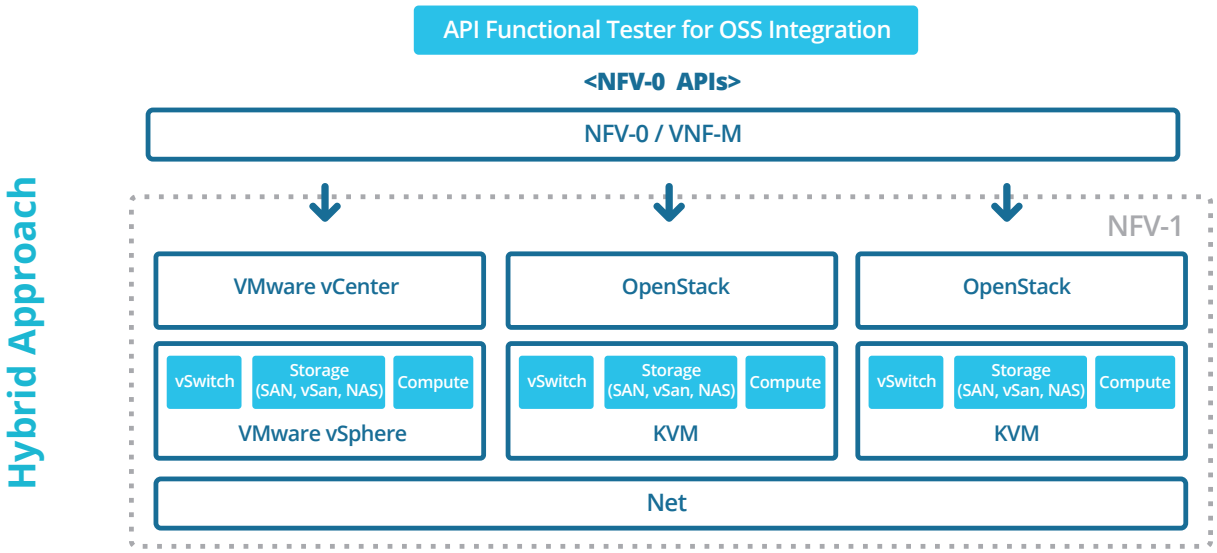
The Telco chose Cloudify for the open source, modular orchestration platform that they were seeking. Cloudify automated the previously manual, repetitive and error-prone process of onboarding their complex DNS system. Through Cloudify, the Telco has a model and schema to support many other applications, ultimately being used to automate their entire datacenter, with Cloudify for the topology and Chef for the configuration management.

The Telco was then able to demonstrate dynamic lifecycle management of ClearWater IMS, including scaling and healing of the VNF's resources based on real-time traffic and application performance. The VNF was orchestrated over multiple OpenStack datacenters with networking in IPv6. The Telco now has a "tailored IPv6" OpenStack environment with proxies and special network addressing with minimum network hops between the subscriber and the network core or internet.

At the other organization, the process of onboarding their virtualized IP Multimedia Subsystems (IMS) had become extremely lengthy, spanning a number of years, and was highly prone to error. They were looking for an agile orchestrator capable of automating the process, that can fit into the environment and use case: combining multiple VNFs and their sub components (e.g. DNS and vIMS) into a service offering, adhering to specific ordering and dependencies between components. Connection to OSS, proxy based connection to internet, and multi VIM environment, comprising of both OpenStack and VMware needed to be taken into account.

Cloudify enabled the Telco to deploy across multiple environments, including OpenStack and VMware vCloud Director with multi VIM support. Cloudify delivered the automation, monitoring, healing and scaling they needed to ensure a timely and secure VNF onboarding process. Service ordering and dependencies between components, e.g. DNS and vIMS sub components was also handled by Cloudify.

The process enabled the Telco to adapt its operational process for service deployment and management, significantly cutting on OPEX and on time to market of new services.



Reference architecture for a Hybrid Approach to VNF Onboarding