

**SOLUTION BRIEF**

# Fortinet and Cloudify Security Solution

## Comprehensive Security Supported by Advanced NFV Orchestration

### Executive Summary

Network functions virtualization (NFV) is hitting the mainstream in the IT industry. Network functions are being decoupled from hardware and are shipped and delivered as virtual functions in the form of virtual appliances. While this brings with it a lot of flexibility and new opportunities, it comes with its own set of new challenges—mostly related to effective management of virtual functions. Installation and configuration of a physical appliance is a process that is fully controlled: logistics, delivery, installation, and configuration. The person who installs it needs to know cabinet wiring, and even ensure that a proper site survey is conducted in advance. There are a number of steps that can be checkpoints. In a virtual world, proper software assistance is needed to control this process because today, with software-driven network functions, hundreds of firewalls can be instantiated with a single click of a button.

Therefore, in an NFV era, there is a critical need for software-assisted orchestration and configuration.

Cloudify and Fortinet recently established a technology partnership to address the above challenges in order to help organizations rapidly and effectively provision and deploy new services and secure their deployments.

### Solution Description

Cloudify, coupled with Fortinet’s best-of-breed security technology, enables customers to receive a fully tested and validated solution with a layer of dynamic services on top to be able to leverage the promise of the cloud. The Fortinet FortiGate virtualized appliance is orchestrated by Cloudify Manager, where Cloudify is able to fulfill the roles of VNFM and NFVO in the context of ETSI MANO, providing full life-cycle automation—scale, heal, and rollback. By serving as the VNFM, Cloudify translates the Topology and Orchestration Specification for Cloud Applications (TOSCA)-based VNFD (VNF Descriptor) template into a set of actions that help instantiate the FortiGate VNF on top of any VIM/NFVI.

Once the VNF is instantiated, services can be provisioned, and this is performed by the NFVO function. A unique benefit for customers is being able to have both the VNFM and NFVO leverage the same TOSCA modeling paradigms through the Cloudify Manager.

The award-winning Fortinet FortiGate network security platform integrates into the Cloudify TOSCA orchestration platform to provide comprehensive security protection. FortiGate firewalls offer protection from a diversity of threats, with support for all of the security and networking services offered by the FortiOS operating system. FortiGate provides high-performance, layered security services and granular visibility for end-to-end protection across the entire network.

### Joint Solution Components

- Fortinet FortiGate
- Cloudify Manager

### Joint Solution Benefits

- Comprehensive security
- Standards-based integration, using TOSCA-based orchestration
- VNFM and NFVO functionality supported by single platform: Cloudify Manager
- Leverage the industry’s best validated security protection offered by Fortinet’s award-winning FortiGate network security platform to protect against sophisticated cyber threats

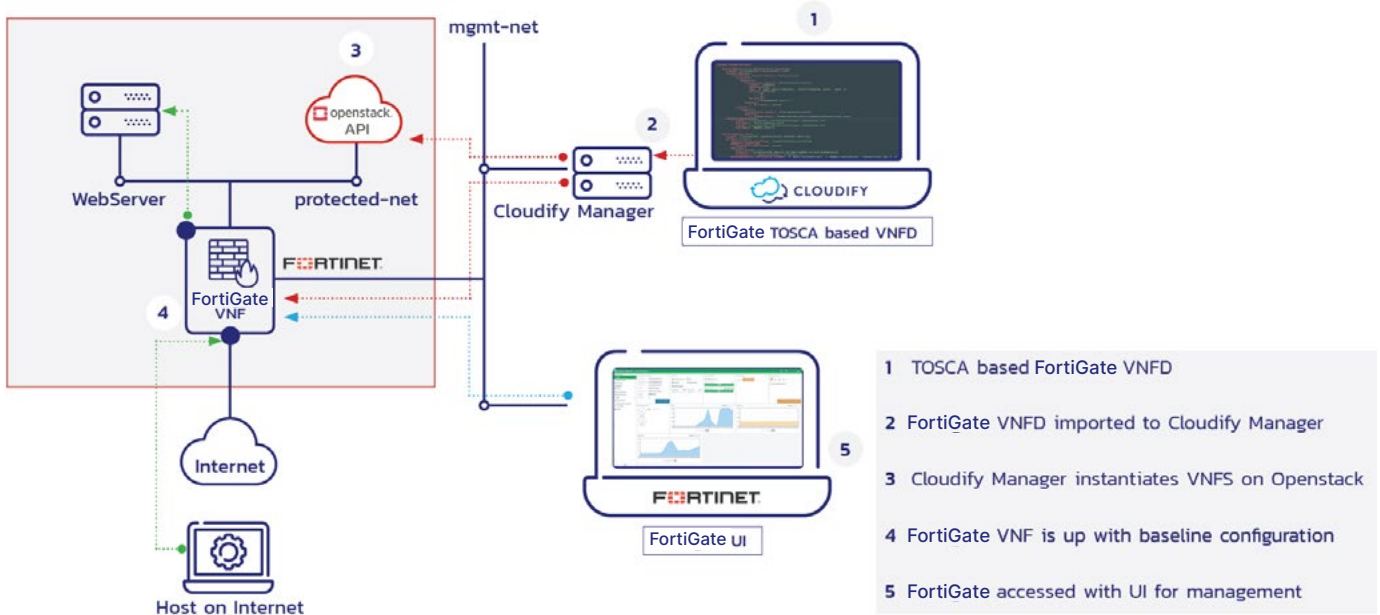


FortiGate is a key part of the Fortinet Security Fabric, which enables security components to collect and share intelligence between devices, systems, and partners, support unified management, and synchronize and automate responses to threats. The open, end-to-end fabric of security solutions—woven together to scale and adapt as business demands change—enables organizations to address the full spectrum of challenges they currently face across the expanding attack surface. The FortiGate platform also leverages global threat intelligence to protect individual customers, by using Fortinet FortiGuard Security Subscription Services to enable visibility and control for next-generation protection against advanced threats, including zero-day attacks.

Cloudify Manager is an open-source cloud orchestration platform, native to NFV, that is model driven and based on the TOSCA standard and built to automate the entire application life cycle. Developers model their topology once, using a standard-based service modeling language (in YAML format), describing the desired state of the service. The Cloudify orchestrator is responsible for mapping the desired state into a set of execution workflows to interact with the underlying services and infrastructure, which includes instantiation of the network, machines, and software installation on those machines once they have been instantiated in the order defined in the service model.

Cloudify can be leveraged as both the NFVO and VNFM, in the context of the ETSI MANO architecture, and is able to interact with multiple VIMs, containers, as well as external and nonvirtualized infrastructure and devices, and OSS and BSS in a brownfield environment, all through a single pane of glass. VNF providers, telcos, and operators alike can realize the benefits of the cloud with Cloudify's assistance in the transition from nonvirtualized appliances to virtualized cloud-native network functions, with full life-cycle management and orchestration from the deployment phases, through intelligent placement awareness, service function chaining during runtime, and all the way through Day 2 operations of management, monitoring, self-healing, scaling, and teardown.

The functionality of the joint solution is summarized in the illustration below:



## Integration Features

The Cloudify integration with the Fortinet FortiGate also provides out-of-the-box auto-scale, auto-heal, rollback, and update capabilities on any virtualized environment. It also contains definitions for all infrastructure-related items alongside test environments.



## Scale and heal capabilities

To provide scale and heal capabilities, the Cloudify blueprint uses a policy mechanism included in the Cloudify Manager that defines events or proactive actions that should be triggered based on predefined criteria. Criteria are defined based on performance metrics of given VM collected by the Cloudify agent installed on this VM.

To provide FortiGate performance metrics, a proxy approach is implemented as per the diagram.

## About Cloudify

Cloudify is an open source TOSCA-based cloud management platform, built on orchestration-first, and model-driven principles. Cloudify is revolutionizing the way modern IT can be delivered, by getting IT and developers working together on a single platform, managing and automating the entire application lifecycle, from start to finish. Learn more at <http://cloudify.co/>



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