DEPLOYING WIND RIVER'S TITANIUM EDGE CLOUD SOLUTION ON CENGN'S CLOUD INFRASTRUCTURE

CENGN collaborated with member Wind River to provision and deploy an instance of Wind River's Titanium Edge NFV software platform solution in CENGN's project space environment. This provided the opportunity for Wind River to demonstrate the high availability and versatility of Titanium Edge, while also discovering the possibilities of integrating CloudOps' CloudMC into their package.

PROJECT GOALS

- Deploy Wind River's Titanium Edge product into CENGN's Project Space environment.
- Verify the full functionality of Titanium Edge in CENGN's cloud infrastructure.
- Collaborate through training to identify how CloudOps and Wind River can integrate their technologies.

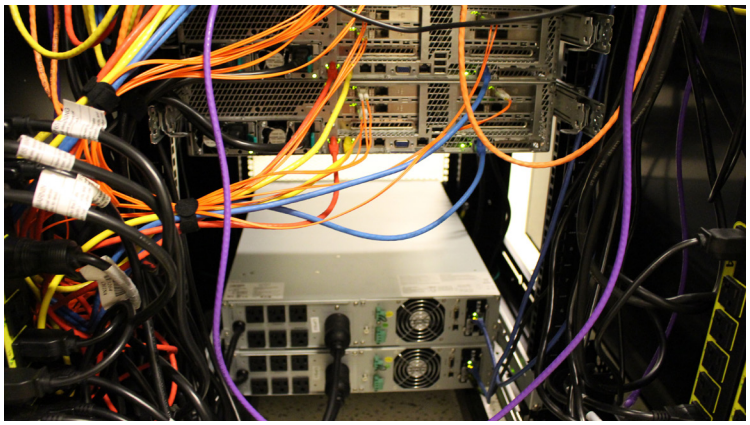

Figure 1. Wind River's Titanium Edge Software running on CENGN's Cloud Infrastructure

WIND RIVER'S TITANIUM EDGE

Wind River is a member of CENGN specializing in embedded, cloud and IoT software for devices, machines and systems. With products in the Aerospace & Defense, Automotive, Industrial, Medical and Networking spaces, Wind River has deployed software in over 2 billion devices.

As part of their comprehensive portfolio, Wind River's Titanium Cloud is the industry's only fully integrated, ultra-reliable, deployment-ready portfolio of software virtualization platforms. The Titanium Edge member of this portfolio is targeted for edge cloud computing. CENGN tested Wind River's Titanium Edge product in the CENGN lab, verifying that it could have a fully functioning, highly available two-node cloud instance running multiple cloud tenants with internal and external networks.

CLOUD PROJECT OVERVIEW

WIND AN INTEL COMPANY	2 Intel servers, Titanium Edge software, switch configurations, training, deployment and demonstration of Titanium Edge Cloud
CloudOps	Educate project team on CloudMC, participate in installation of Titanium Edge Cloud at CENGN
CENGN	Project space, network and cabling, Top of Rack switch, project management and support

CLOUDOPS - CLOUDMC

CloudOps is a growing Canadian technology company providing private and public cloud services to businesses looking to adopt and successfully operate cloud platforms. CloudMC is an infrastructure as a service (IaaS) portal for service providers that offers cloud service orchestration, management, and provisioning. It is Wind River's hope that this project can lead to CloudMC's integration with Titanium Edge. According to Wind River, pairing CloudMC with the Titanium Cloud technology could allow for a commercial NFV hosting solution offering the following functionality: role based access control, licensing/metering with show back/chargeback reporting, capacity management and a trial environment.

THE CHALLENGE

In today's growing IT environment, cloud network infrastructure needs to be optimized for low cost and high-performance to make it more accessible to the open source community innovating IoT. Enterprise server and computing technologies were not designed for the rigorous demands of the carrier network and critical infrastructure. Current cloud infrastructure lacks the flexibility, performance, and reliability required to run next generation networks. Wind River's Titanium Cloud portfolio was created to address these issues.

THE SOLUTION

Wind River's Titanium Edge product reduces the size and cost of deploying a virtualized network by integrating the best in reliable, open, and secure system components. Wind River provides their Titanium Edge product as an all-in-one integrated package, including Linux O/S, accelerated virtual switch, virtualization infrastructure manager and OpenStack cloud hosting components.

CENGN MEMBERS

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TESTING

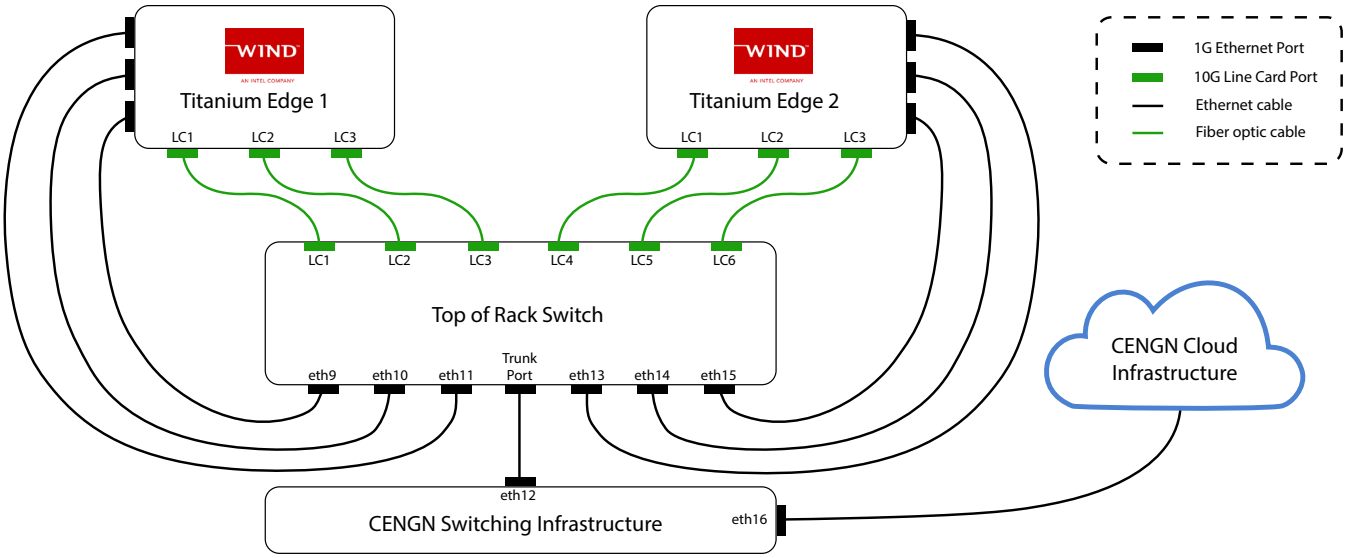

Figure 2. Wind River's Titanium Edge Software running on two servers connecting to CENGN's Cloud Infrastructure

CENGN collaborated with Wind River in four levels of successful testing for their Titanium Edge product.

1. Networks between the servers running the Titanium Edge product, a top of rack (ToR) switch and external networks were verified.

2. Intra-tenant connectivity was verified by spinning up two virtual machines (VMs) in a single physical node to test connectivity between them using internet control message protocol (ICMP)

3. Intra-tenant connectivity was tested between two physical nodes by spinning up two VMs in two different physical nodes and verifying connectivity between them using ICMP.

4. Verified if traffic generated from a VM can reach the internet.

Using both underlay and overlay testing, CENGN verified the performance of Wind River's Titanium Edge product. Titanium Edge demonstrated a high level of VM reachability, and reachability of a VM to the Internet. Wind River also demonstrated the high availability feature of Titanium Edge by leveraging generic virtual network functions (VNF). The successful testing of the cloud solution paved the pathway for integration of CloudMC with Titanium Edge, which is scheduled for the next collaborative project with CloudOps, Wind River, and CENGN.

CONCLUSION

In this collaborative project, CENGN and Wind River demonstrated the power of new cloud technology that has the potential to innovate the standards of cloud computing.

In addition to the successful deployment of Wind River's Titanium Edge, engineers from CloudOps and CENGN received extensive hands-on training on the operation of the Titanium Edge product. Engineers from Wind River and CENGN were also educated by CloudOps about their CloudMC solution, and the opportunities it can provide to cloud networking. By making cloud network deployment easier, faster, and more flexible, Wind River's Titanium Edge will enable enterprises to further their innovations in the networking, IoT and cloud hosting sectors.

Figure 3. CENGN and CloudOps training on Wind River's Titanium Edge

In our next project, CloudOps and Wind River have decided to integrate CloudMC with Titanium Edge. Both Wind River and CloudOps believe that a successful integration of their products has the potential to create an even greater and more robust edge cloud solution for enterprises in the telecommunications domain.

CENGN
CENTRE OF EXCELLENCE IN NEXT GENERATION NETWORKS

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