

INTERDYNAMIX VALIDATES FRAMEWORK FOR VNF ONBOARDING CAPABILITY

Interdynamix (IDX) provides behind the scenes infrastructure solutions that empower services like connected cars, virtual reality, smart cities, and many other applications. IDX deployed their newly designed NFV framework on CENGN's infrastructure to test how their solution will operate under different customer scenarios.

IDX is made up of top-of-the-line engineers that offer consulting, planning, and managed services to ease the infrastructure configuration process. With the assistance of the technical team at CENGN, IDX created an NFV framework with a Virtual Network Function (VNF) onboarding capability. This framework provides a solution to the complex task of integrating and testing a VNF with an underlying infrastructure. IDX then took their framework and deployed it on the CENGN infrastructure to test how their solution will perform in a customer-like situation.

CHALLENGES TRANSITIONING TO NFV

Simply put, Network Function Virtualization (NFV) is the process of taking a physical network function achieved by hardware and making it virtual. Advantages of NFV architectures include automated processes, reduced time to market, and less investment in equipment if the infrastructure can be efficiently configured and operated. NFV has gained momentum in recent years, but there are still barriers such as the configuration and maintenance of an NFV architecture that is blocking mainstream adoption. For example, the transition from physical networks to Software-Defined Networking and NFV has outdated traditional troubleshooting techniques and tools. Depending on the NFV architecture platform, these difficulties can be compounded. Take transitioning to an OpenStack architecture for example. OpenStack is not a turn key operation, but instead has many vendors contributing to it. This makes its use bittersweet as OpenStack's strength is its variety of flavours and capabilities, but piecing together the infrastructure from multiple vendors can make the integration process complex.

Even with an operational NFV infrastructure, Communications Service Providers (CSPs) still have to overcome hurdles when onboarding VNFs. For a CSP to successfully provide virtualized services, their VNFs need to be tied together and communicate with the infrastructure properly. This requires a high degree of complexity and that's where IDX comes in.

SMOOTHING OUT THE ONBOARDING PROCESS

IDX specializes in piecing together infrastructure so their clients save on hardware and operational costs. IDX is developing a VNF onboarding architecture that will allow CSPs to test for compatibility, reliability, performance, and security. Their VNF onboarding framework combined with their proof-of-concept testing facility, IDX labs, will allow CSPs to test their VNFs before deploying on their own production server. IDX also offers the technical help of integrating the VNF with the infrastructure and tying VNFs to a Management and Orchestration (MANO) system. They also test functionality, scalability, life cycle, and VNF grouping.





PROJECT

IDX carried out VNF onboarding on the CENGN Testbed with full and solitary access to the Wind River Titanium Edge Cloud for resource intensive testing. Wind River's Titanium Edge gives businesses like IDX access to an entire cloud with admin tenancy. Additionally, the VNF tenancy was configured by CENGN for the IDX team. The focus of IDX's CENGN project was to use different customer scenarios to validate their solution's data plane benchmarking and data plane dimensioning.

RESULTS

Test Case 1: Data Plane Validation Benchmark

Benchmarking is testing the performance of a VNF with a fixed level of NFVi resources. In this test scenario, "the vendor" of the VNF has provided a benchmark guideline on the performance of a single instance on the VNF. This test validated the suggested metrics from the vendor. In this customer scenario, performance of a single instance on the VNF surpassed the overall customer requirement of 40000 Queries per Second (QpS). The vendor would receive this result and know the performance level for the VNF.

Test Case 2: Data Plane Dimensioning

Dimensioning is the opposite of benchmarking, it entails fixing the VNF performance and solving for the NFVi resources. This requires determining the NFVi resources required to meet a business demand. In this test case, "the customer" required a VNF that ran at 80000 QpS; a single instance of the VNF surpassed this requirement in the testing. With this information, the customer would know that their infrastructure could handle the strain of implementing the VNF.

THE CENGN ADVANTAGE

IDX was able to take advantage of the technical expertise and infrastructure resources at CENGN to bring their VNF onboarding capability one step closer to market. CENGN was able to provide assistance in developing their NFV framework by delivering expertise in global communications standards, technical direction, and an NFV infrastructure to carry out benchmarking and dimensioning. This CENGN project has given IDX the results and documentation necessary for repeatable VNF onboarding and sets the foundation for the VNF onboarding services they will offer to CSPs and other enterprises.



Rick Penwarden, Marketing Manager rick.penwarden@cengn.ca cengn.ca/projects Wray Steedsman, VP of Engineering wray@interdynamix.com http://www.interdynamix.com/

