RADIO IP SCALE TESTS THEIR NEW MVPN SOLUTION FOR MOBILE WORKFORCES

Radio IP has developed their fourth generation mobile VPN solution, Armada, that keeps first responders connected. The company came to CENGN to ensure that their solution could support thousands of clients at a time with high availability, and understand the resources required to efficiently run Armada at scale.

Radio IP is a longstanding developer of mobile virtual private network (MVPN) solutions and is a well-established leader in Mission Critical solutions software. Hailing from Longueil, Quebec and founded in 1998, Radio IP now supports over 250 Public Safety agencies and utilities through their solutions.

Their CENGN project revolved around their latest and greatest MVPN solution, Armada, as they sought to validate its scalability and functionality using CENGN resources.

Figure 1: Radio IP GUI

PROVIDING A USER-FRIENDLY MOBILE VPN FOR FIRST-RESPONDERS

The communication technology required to suit the needs of First Responders and the Public Safety sectors are rapidly advancing. The industry is beginning to move towards Android and Apple products, which requires a unique approach to securing data transactions. Unlike most work forces, first responders are constantly on the move. This means that they need to switch between many different network types, depending on where they are. The constant switching can cause connectivity issues, which makes it difficult for first responders to have reliable access to their headquarters' private network.

BUILDING VPNS FOR A MOBILE WORKFORCE

Radio IP has made a name for itself by creating MVPNs that provide mobile workforces and remote workers with secure, real-time access to a variety of applications and networks in a user-friendly, cost-effective, software-based form. Radio IP is currently testing Armada, the company's 4th generation of MVPNs.

The Armada solution is specifically designed for first responders, keeping the user-friendly platform Radio IP is known for, but adding in a key differentiator in compatibility. Armada is not only compatible with speedy LTE networks, but also 5G, Legacy Cellular, and Wi-Fi networks, being able to switch between the four without breaking. This versatility will allow for a much more reliable network of communication for first responders, no matter where the emergency.

Armada provides an opportunity for Radio IP to develop a B2B approach to the commercial market through its capability to support the High Availability standards needed to give an efficient service to its many users. With these new features, the company is confident it can appeal to a wider variety of markets, and fuel long-term market growth. But there is one more major advantage that is coming with the introduction of Armada.

ARMADA ON OPEN STANDARDS

With Armada, Radio IP has left its mobile VPN reliance on Windows and has introduced their solution built on open standards. The VPN platform is still compatible to connect both Windows and non-Windows mobile devices but has shed its dependence on any one network environment. This new product compatibility feature has opened new potential markets to new clients and has given its customers more flexibility in the networks they choose.

Beyond this, moving to open standards granted the product the added benefits of the open source world. For example, Armada users now have access to cloud services, like AWS Marketplace, which provides the High Availability standards that are necessary to give seamless service to a very large number of mobile users.

Before bringing Armada to market, Radio IP completed a CENGN Project to validate that Armada and its open standard platform can work to scale.

PROJECT SETUP

The CENGN project included two bare metal servers and 20 virtual machines (VMs).

The bare metal servers hosted two VPN gateways, one running an ESXi hypervisor and the other running a KVM. Beyond being able to test Armada's performance on both types of hypervisors, having two hypervisors allowed Radio IP to determine high availability through fail over time, measuring the time it took Armada to move clients from one gateway to another when one hypervisor went down.

10 VMs ran the client simulators, while the other 10 hosted the application server. Radio IP made use of this setup to test how many clients Armada could host and the speeds at which they could operate with different amounts of clients.

OPTIMIZING ARMADA

Through this CENGN Project, Radio IP was able to validate the robustness and high performance of their solution. They confirmed that Armada can connect 10,000 clients, within 25 seconds with a 2 core CPU, and within 20 seconds with 4 and 8 core CPUs. Radio IP was also able to determine their average connection rate at 200 users per second.

In terms of traffic throughput, Radio IP validated that Armada can sustain 2.5GBps with a 2 core CPU, 3.775Gbps with a 4 core CPU, and 5.58Gbps with an 8 core CPU. Armada even managed to keep latency very low, even during IPsec traffic flow, which often times slows connectivity due to high encryption standards.
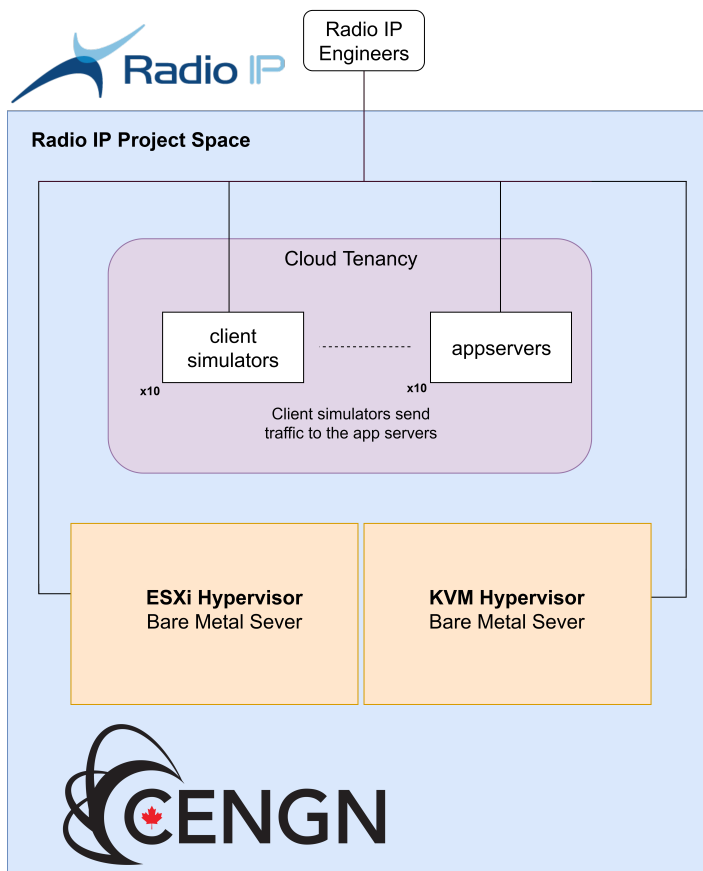

Figure 2: Radio IP platform setup at CENGN

Both in terms of throughput and overall performance, the ESXi hypervisor produced better results. This, along with other optimization information are key metrics that will prove useful for Radio IP as they will be recommending hardware for clients who have performance specifications.

Armada's fail over time was 15 seconds, which confirmed that the solution does have high availability, confirming that it is working as intended, and is as robust as promised.

THE CENGN ADVANTAGE

For growing Canadian businesses, the costs of running a testing infrastructure are quite prohibitive. For this reason, CENGN provides resources and services to companies at no cost in order to accelerate their commercialization. Radio IP took advantage of these offerings to validate their solution's scalability and high availability.

The project allowed Radio IP to simulate their required number of clients, test their solution on multiple servers, understand the resources that will optimize Armada's performance, and put their focus towards critical growth functions. With all this information, and the confirmation they needed, Radio IP are one step closer to bringing the new and improved Armada MVPN to mobile workforces.