

MOJATATU NETWORKS VALIDATES AND LOAD TESTS THEIR SDN SOLUTION IN A SIMULATED 5G ENVIRONMENT

Mojatatu Networks has developed an SDN controller designed for IoT and 5G networks. They completed a CENGN project using bare metal and cloud services to ensure their solution can scale to the demands of large customers using a Kubernetes environment.

Mojatatu Networks is an Ottawa based company that leads the sector in Linux Native Software Defined Networking (SDN). Their flagship product, MojaNET, is a networking operating system featuring the first commercially available SDN controller based on IETF ForCES standards. Over the years, Mojatatu has expanded their product offering to control network applications and services and related infrastructure. Mojatatu completed a CENGN project to validate the ability of MojaNET Analytics Infrastructure (MAI) to elastically handle large scale telemetry deployed with Kubernetes.

OPTIMIZING NETWORK OPERATION WITH MICROSERVICES

MojaNET control is designed to work well in a microservice environment, allowing specialized extensions to be written as applications and auto-scaled based on policy and available resources.

MojaNET operators have the ability to deploy new services and applications quickly and gain complete end-to-end control of their network. Being able to scale is absolutely essential for their customer base of network operators.

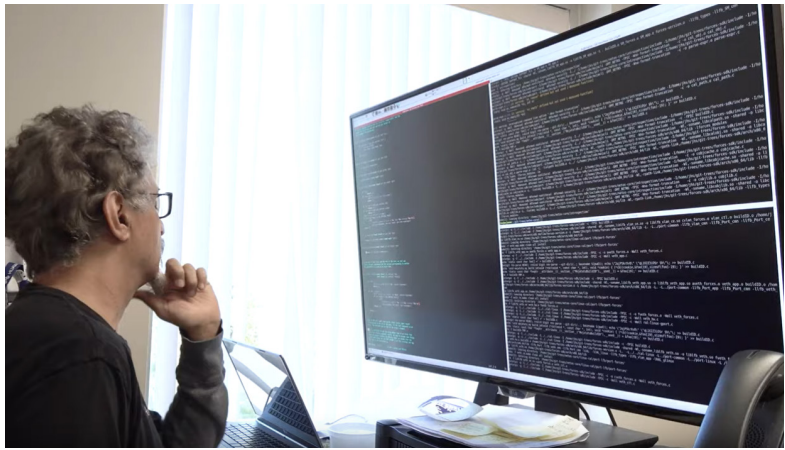
With the oncoming requirements for mass IoT and 5G networks, the need for elastic scalability will only amplify. Mojatatu's CENGN project verified the extent of their MAI solution's scalability, setting out to ensure that as the load increased, MAI adapted with sturdy scaling behaviour.

SIMULATING A 5G EDGE

Having a proper testing environment is essential to the integrity of validation. With large telecom service providers as target customers, Mojatatu requires access to a 5G networking environment that is commercial grade. They have taken advantage of CENGN's offerings to simulate an actual 5G edge network in order to verify their solution can support large scale analytics.

To simulate a 5G EPC (Evolved Packet Core), CENGN provisioned Mojatatu with a cloud tenancy and 16 bare metal servers. MojaNET control and applications were deployed on bare metal in a microservice Kubernetes environment, giving them the framework needed to enable automatic scaling functions and the orchestration of containers.

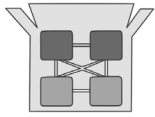
The MojaNET data plane engine was based on TCP flow splitting which is a well known technique for optimizing link utilization when bridging between wireless and wired networks. Details on the individual flows were collected to generate the telemetry consumed by MAI. Up to a million active user flows utilizing the Linux kernel TCP infrastructure were used to simulate the source of the telemetry.



The experiments were designed to emulate 5G edge control capable of handling, elastically, anywhere from a few users to a very large deployment with a million concurrent flows. Overall, the resources used for this project were quite large, adding up to a total of 582 cores and 6,208 GB of RAM, but this should come as no surprise when simulating the traffic flow of a 5G edge setup.

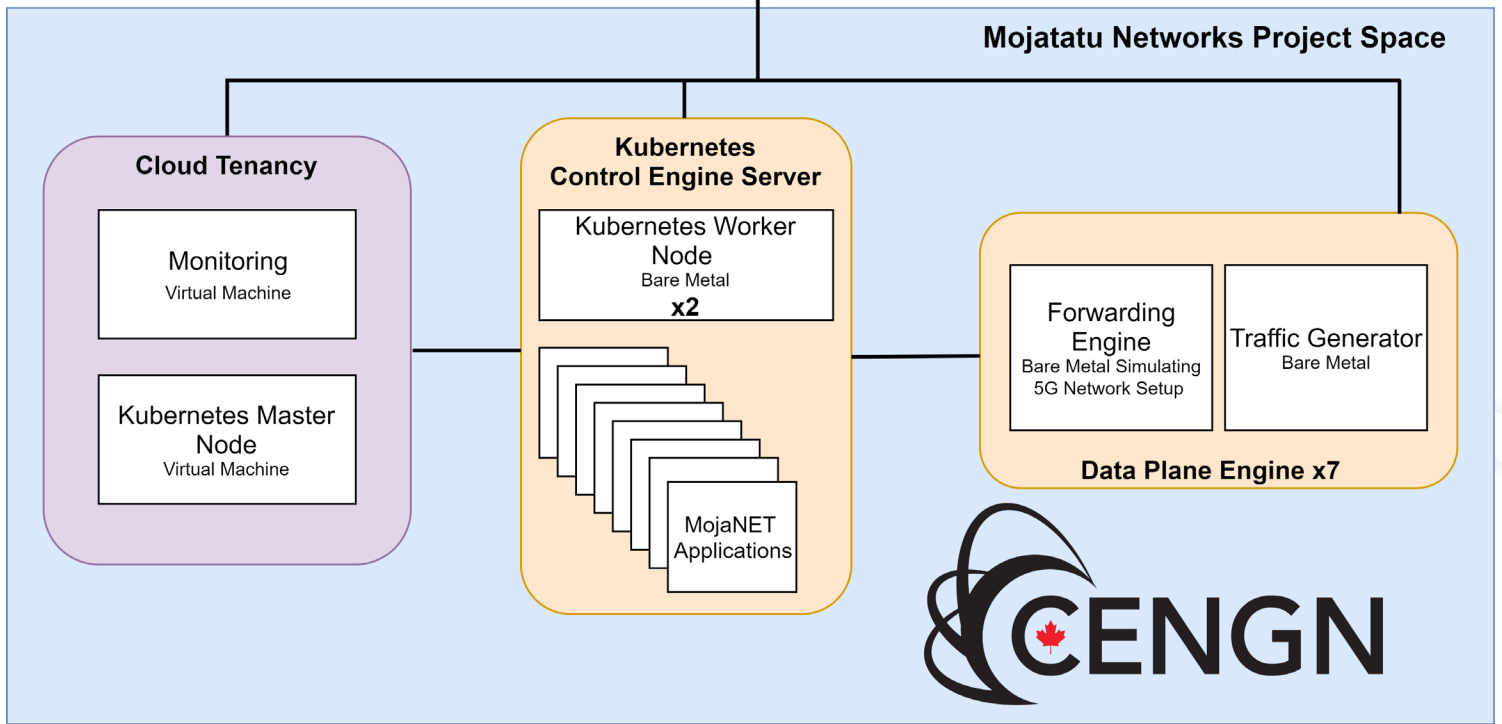
CENGN MEMBERS





Mojatatu Networks

Mojatatu Networks Engineers



Mojatatu Project Space on CENGN Infrastructure

MOJANET IS READY FOR MARKET

Upon completion of the project, Mojatatu was able to verify that MAI can elastically scale with increasing analytics demands, which confirmed Mojatatu's initial assumption. With heavy loads, Mojatatu was able to successfully validate that their platform can scale appropriately with no telemetry loss.

Mojatatu also verified that MojaNET's auto-scaling functions remained stable in the Kubernetes environment under various load sizes. Even with the client simulators running at maximum capacity, the platform's integrity remained sound.

The monitoring throughout the project provided Mojatatu with the knowledge that their current CPU and memory scheduling is sufficient and there are no in or out bound bottlenecks.

THE CENGN ADVANTAGE

Mojatatu's CENGN project was a great success! During this project, CENGN's customer solutions team advised Mojatatu, providing knowledge on traffic flow testing, developing a sound test plan, and sharing experience with the network architecture.

The project results have given Mojatatu the third-party validation required to market to large scale service providers. It has also armed the company with MojaNET's resource usage at different increments of traffic flow, allowing Mojatatu to give potential clients informed proposals on how their solution would operate within their network.



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