Building democratized networks

The lockdown has led to a surge in data usage. Here is what TSPs can do to improve their legacy networks so that it can better cope up with the ever-increasing demand

BY PRAVIN S BHANDARKAR

The networking industry is going through an evolution leading to desegregation—hardware can be bought from one location and software from another, much like the Android ecosystem where one can buy hardware and software separately.

So what have we done? We have developed a new way of building networks, using cloud and internet native principles in networking and focusing on access, the network piece that is used to connect from the internet to home and small office users.

In this digital era, we see a lot of traffic being generated by OTTs and the likes of AWS for business applications. The networks are engineered in a way that they can scale up horizontally as the content increases. On the other side, we have the service providers that are becoming big pipes. They don't have their top-line growth, but then they have to invest in the customer experience and to grow their networks.

This growth is asymmetric as they use incumbent or integrated systems. Instead, they should build a small grid at every location. This is like taking cloud in infrastructure down to central offices, and one can build as many of such small grids as they want. One just needs to buy a rack unit and put our software on top of it. This helps because our price point presents a viable business option.

Let's say you're servicing 300 customers and the customer base increases to 5,000 and then to 10,000. You just need to keep adding units while the software takes care of managing all these units, connecting it, and provisioning for redundancy since all these capabilities are integrated as the services unit. This also means that an organization's price point goes down drastically from a

> On the Edge, there is a pressure to deliver the services and enhance user experience. This is where we start to see the disruption.

capex perspective. Then, because of software automation, we use tools like DevOps. We leverage the Linux toolchain and bring in the internet native technology to the telcos.

This is, what we call, a distributed SDN.

While the SDN still has a centralized controller, we firmly believe that networks have to be distributed, because data networks were built to overcome nuclear attacks. It's a packet-based network. So we think it's going to be hybrid. At a certain point, one needs distribution elements like redundancy, resiliency and grid-like behaviour. But when one has to deliver services, it can be done from a centralized location.

Sitting on the access layer

A network has the core where traffic is carried from point "A" to point "B". Then there's the Edge, where the services are deployed. Finally there's the access, where they connect to users. So we are in the access network and one can connect to public, private, or hybrid clouds. We reduce costs for the providers of this access services. One of the drivers is that networks are moving from older copper-based systems to optic fibre, which is coming to the home. We simply build software on top of the new systems.

The biggest advantage is that one can turn on the services really fast. If they don't work turn it off. We want to democratize the network and give control of what one is doing. It is also important that the user should know how to use it in the best way, and we provide tools that enable them.

Moving disruption to the core

On the Edge, there is a pressure to deliver the services and enhance user experience. This is where we start to see the disruption. When we started off, we just went with the place where we were going to earn revenue. We said if we are doing something of value someone is paying us, which means we are doing it right, rather than looking at what is the coolest problem to solve. We think it will start from access/Edge and eventually move to the core. That's how the network will change. We are probably the slowest 4G network in the world and one of the reasons is that managing the congestion, as well as user experience, is a challenge. Our solution from day one has been to build Hierarchical Quality of Service (HQoS) which can help prioritize.

Optimised composable software

From a networking standpoint, the monolithic software built on integrated systems worked from 1999 to 2010. After that we have the cloud and software-defined networking. A lot of components are now available in the market, either in open source or through GitHub communities. But there is a limited readiness, at least in the networking world to adopt since there is some cost associated with maintaining businesses. So we built it from ground up.

We factored in a million transactions per second. We have composable software. If one has a particular protocol, one can just run that particular protocol. It is just plug and play. An organization can use two protocols or stick with a "keep-alive protocol". That reduces the memory footprint, execution footprint, and the size of the package. So it is really optimized.

The Internet of Things

There is an explosion of the Internet of Things (IoT) devices. So, one, how do we address those devices? Two, there are a lot of proprietary technologies with which this has started off. Right now worldwide it is all getting unified on IP, and we think it will be IPv6-enabled because it allows addressability.

IPv6 has a huge space so they can address trillions of devices. It depends on what kind of services one wants. Let's say there is a windmill farm with IoT devices to measure certain parameters. They will generate a lot of data, which will eventually become Big Data. Hence, some pre-compute is needed at an intermediate point, which is the IoT-Edge compute. This is where one can go back to the back-end, process this data and use business analytics.

The author Pravin S Bhandarkar is the Founder and CEO of RtBricks

As told to Sunil Rajguru

sunilr@cybermedia.co.in