NTT Communications

A PATH TOWARDS
END-TO-END SDN

AN EVER-RISING NEED TO AUTOMATE SERVICES IS DRIVING THE USE OF SOFTWARE-DEFINED NETWORKING. NTT COMMUNICATIONS DESCRIBES HOW IT IS MOVING TOWARDS A MORE END-TO-END SDN SERVICE, AIDED BY THE SYSTEM IT DEVELOPED IN-HOUSE OVER MANY YEARS.

An ever-rising need to automate services is driving the use of software-defined networking. NTT Communications describes how it is moving towards a more end-to-end SDN service, aided by the system it developed in-house over many years.

The rapid rise of the cloud and the Internet of Things means that automation is becoming ever-more important in the world of telecoms and the internet. For carriers, this signifies a need to become more agile and flexible, something that can be achieved by making more use of SDN throughout their networks.

One global carrier that is driving seriously in this direction is NTT Communications, propelled by the in-house SDN system that it started developing in the late 1990s. Shawn Morris, director of IP development for the company's global IP network, describes how important this transition is. "Five to 10 years from now, I just don't think you'll be able to compete as a network provider unless you are using automation to do your provisioning," he says.

Whereas in the past the focus was on using SDN to automate individual functions and services in the network, NTT Com is now seeking to piece this all together to create a more end-to-end system.

"We're very much focused on deploying this technology in the core of the network," says Morris, pointing out that many industry discussions on SDN have until now either been focused on the data centre or around the edge of the network rather than on fuller integration. For NTT Com, he says, "it's about configuring everything in the network, not just service provisioning."

And the company believes that its long-term development of the technology gives it a strong edge in this arena, putting SDN at the "heart" of its network. The key has been building up the system in incremental steps from the ground up over a long period of time, meaning NTT Com is now in a position to refine and tie the separate elements into a more end-to-end system.

In-house system
Morris explains that when the company started developing the technology, the only way to do it was by creating an in-house

Shawn Morris: NTT Com may add certain pieces to its own SDN system from vendors in the future

system because there was almost no support from network equipment vendors. "We've been talking about these concepts now for a number of years, but as far as actually putting out stuff into the field and getting software from vendors, it's still a very young space," he says.

Although this has changed significantly and there are now systems out there, NTT Com's development of its own infrastructure still puts it in a strong position, says Morris, because there is a need for each carrier to piece these systems together to fit with their own individual environments.

"I think if you're going to do this in any significant way as a large telecoms provider, you're not just going to be able to buy an off-the-shelf solution," he says. "There are things you can go out and buy, but you're also going to have to have your own software to glue the pieces together."

Morris says that NTT Com may add certain pieces to its own SDN system from vendors in the future because for certain challenges "other people may have better answers than we do", but the company's history will put it in a position to slot those effectively into its own infrastructure.

In the past couple of years, the company has bolstered its SDN system with tools to make it simpler and faster to provision infrastructure between its routers. This means that customers can now configure certain services using a single web page that may in the past have used, say, a dozen pages.

NTT Com has also sought to add functions to support migration planning, helping it to move customer ports around more quickly and with fewer errors as it adds and removes equipment and shifts it between facilities, and transitions to technologies such as 100G.

For NTT Com, says Morris, the main message is that the company has done a lot of the "heavy lifting" for SDN. "Now how can we leverage that even further and speed it up even more? To do anything at the scale we strive for, you just have to do it in an automated fashion."

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