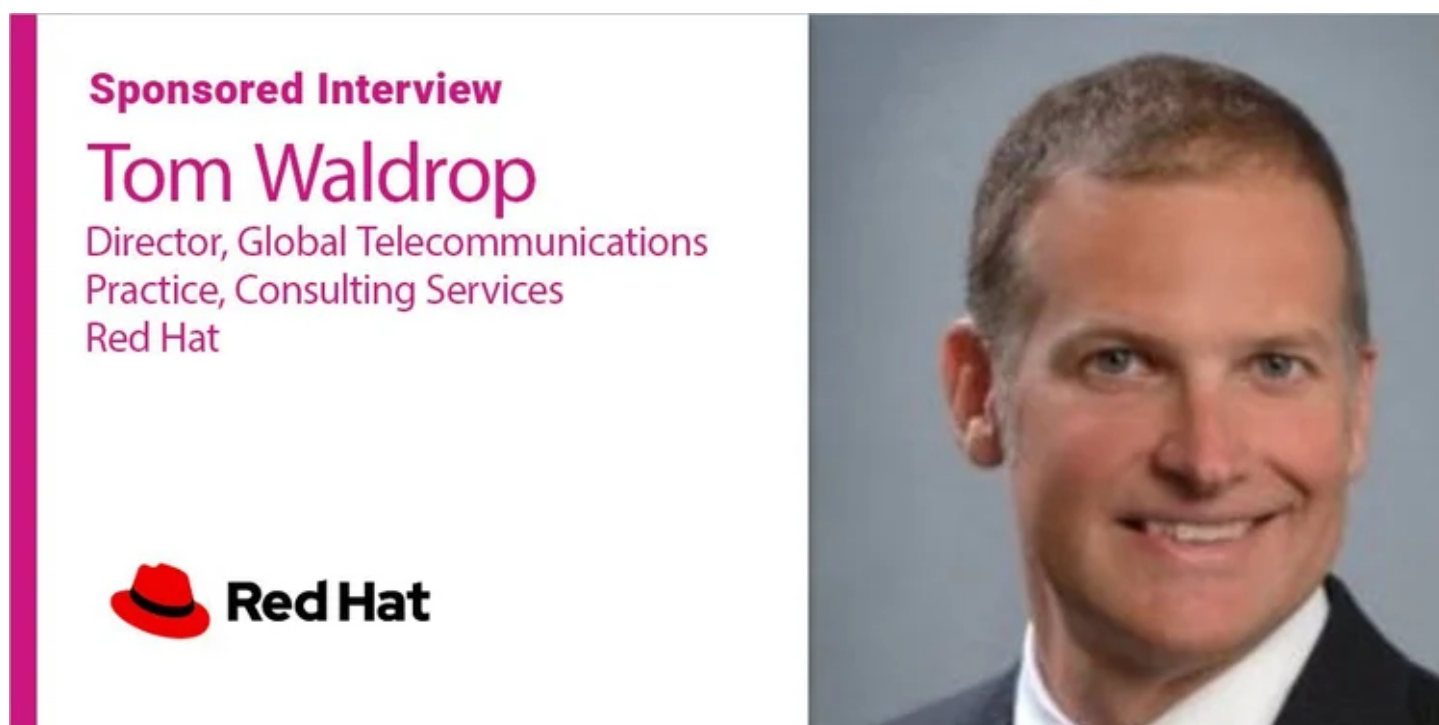# Red Hat's Tom Waldrop: In the Era of COVID-19, 'Automate Everything.'

Marlese Lessing | Studios Editor June 25, 2020 11:45 AM

Sponsored Interview

Tom Waldrop

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COVID-19 has changed the landscape of 5G and communication as we know it — and in some ways for the better, says Tom Waldrop.

Waldrop leads Red Hat's global verticals and telecommunications services division, working with senior architects around the world to support telecoms as they deploy NFV, modernize their OSS/BSS and develop edge computing. This is his fourth year at Red Hat, after working with Cisco for 17 years in global cloud transformation. Here are his thoughts on 5G, automation, containers, and innovation in the new landscape.

Why and when should digital service providers run network functions in containers?

Right now. If a network function can run in a container, it's easier to maintain the lifecycle of it. Architecturally, the industry is moving toward Kubernetes-managed clouds. They're easier to manage, and they use a smaller footprint than some of the options that we've been using up until now. Now as telecoms are moving to software and virtualization, they're relying on VMs and OpenStack as a starting point.

The challenge we have is down to the suppliers. The various suppliers for network functions never really caught up with containerization in the first place, and just as they made it to virtualized platforms, we're all pivoting to containers. So we're in kind of a mixed world at the moment.

How are you remediating that gap?

Side by side environments are one of the best ways at the moment, connecting everything at the MANO layer.

The refactoring and the retesting process is substantial for every vendor on the market, and then there's the fact that for years, the Kubernetes community saw what the telco community did to open source, and they resisted anything in their upstream that looked like it was telco influenced — there was a lot of politics going on. As well, there are a number of performance acceleration capabilities that needed to be upstream that really only recently arrived in the last 12 to 14 months.

As well, there's tremendous pressure coming from the telcos because of COVID. It's interesting that everyone else slowed down but telcos are actually accelerating. I've never seen so many RFPs [from telcos] in my life, and a number of them are centered around the 5G core.

Everyone who was waiting for 5G to arrive has decided to stop waiting, and that is creating energy. It's creating opportunities. It's creating a market. It's driving all of us to accelerate. Any plans we might have had to get to a containerized environment are accelerating and are largely driven by 5G and edge.

Looking at network functions and containers, what processes and tasks should service providers automate?

Everything.

Everything, anything that can be automated, they should automate. We're in a containerized world, we haven't changed the rules from what we were trying to do with virtualization. We're decomposing network functions that used to be application-based and recomposing them with their component parts.

Trying to drive additional granularity and lower costs and all of those things is wonderful. But you end up, as a telco, taking on unintended responsibility for interoperability testing, because everyone's constructing their stacks differently and then the lifecycle management is a burden on telecoms.

You used to buy appliances, and your business case would account for a seven-year duty cycle from a capex point of view, and maybe a three-year maintenance cycle. So you would plan on maybe two software upgrades, and otherwise, you'd be happy to just let it run.

Not anymore. Now you're buying part of the functionality that you'll need in three years, and you're assuming you're going to push and update more than the annual release cycle. And if you don't automate that lifecycle management — the updates, the changes, the configuration drift, analytics, the initial deployment, and all of the functions that you want around assurance — you don't get any of the benefits. In fact, it's worse.

What are some of the current limitations of automation? What can't be automated?

Generally nowadays, everything can be automated. The issue is that you don't necessarily get to see that automation from a single-pane-of-glass – one management system.

When you start thinking about business services, and when you start thinking about chaining of services, as wonderful as the architectural concepts around stateless computing are, they fall apart because provisioning steps and upgrade steps have dependencies on each other. Something has to manage them. You have to be aware of the automation state, and there are MANO solutions that actually do work and solve some of these problems.

I think what's ultimately going to be necessary is solving the MANO problem. We really have no choice, and it's worse if you're standing in a container environment next to a virtualized environment and throwing in bare metal as well. We need to be able to manage all three of those in order to chain together a business service.

What are some of the other benefits of automation besides just saving time and reducing human error?

In the end, it's down to money and quality. Automation reduces costs and time to market and gives you the ability to change more quickly through lifecycle management, which breaks the annual engineering cycle. In the end, that's the Holy Grail.

I firmly believe that there's no benefit to virtualization or containerization at all without basic automation for testing and lifecycle management. If you are just doing the same work and just having the same people do different work than they did yesterday, if anything, that's more expensive.

But the true long-term benefit is business services being able to do things more quickly. If you have a 5G network, you're able to slice it and launch a new targeted private 5G service at a vertical segment around edge use cases that were created by COVID.

Imagine a telco introducing innovation within two and a half to three-month period of time in response to a pandemic — you wouldn't have thought that that would ever be a thing. But that's what they're trying to do now.

What advice do you typically give your service provider clients for starting or ramping up their automation?

Build it in the architecture from day one and start with test automation. When you do your VNF onboarding, make test automation part of your VNF onboarding process as well. Don't manually validate that everything works; build automation around all of your test cases so that you can rerun them over and over and over again. It's relatively easy — it only takes a little bit more time and attention than any given project that you're usually spending capex on, and it creates tremendous opex savings on the back end if you do it right.

And if you do it right, so that you can run it over and over again, and then you end up with a regression test. But on day one, you end up building a toolset and building a CI/CD pipeline. At the end of the day, it's a tool architecture and a set of policies and practices around how you intend to use those tools. The sooner you start it, the happier you'll be.

What kind of use cases have emerged as more urgent in today's new environment?

We're starting to see a realization that there's more to the 5G use cases than just wider pipes. There is a real market for private 5G, and the notion of cross-industry partnerships may be the way for telcos to accelerate and start to see a return on their investment in 5G in the first place.

There have been some interesting things happening that COVID has accelerated. Now you can say to an auto manufacturer, "this network piece is yours, we'll work with you to automate the analytics engine that you're using to make changes to your supply chain inventory management," which is pretty compelling. Telcos and businesses are starting to see those ideas look real, and it's accelerating the desire and the need to get the investment.

Any final thoughts?

In this space, we talk a lot about edge, and we talk a lot about 5G. I think this notion of new business to business relationships and new business to business to customer relationships is going to be where the real innovation happens.

We're already starting to see some of it come to life — look at telcos and what they're doing with telehealth. They're offering a platform for companies that want to provide remote health services, and I expect that we're going to start seeing them enabling medical devices through that platform very soon. They were doing that before COVID, and COVID just makes it more interesting now. There are some things going on with the automatic features right now, with real-time analytics based on what's happening in operating vehicles, that I just think are interesting.

These use cases are coming to life through partnerships and consortiums. These innovations aren't happening from single entities. In every one of those situations, there is a communications provider in the mix. They're involved, and that's how they're getting to innovate.