

Jason Lopez:

When we started discussing a story about technology trends here at the Forecast, a story to be produced as a podcast for Tech Barometer, we wanted to avoid the typical listical of tech predictions like, what's going to happen with 5G or I, OT, or the cloud? We all know what's going to happen. There will be more adoption as technologies are developed and they mature. The question is, what are the dimensions? What are businesses, customers, and users facing? This is the baseline for this podcast. This is Tech Barometer. I'm Jason Lopez. We spoke with experts, Lee Caswell of Nutanix and Scott Steinberg, a world renowned futurist and consultant who's authored books on digital transformation and cybersecurity

Scott Steinberg:

Cloud everywhere, anywhere, virtually anytime on demand.

Jason Lopez:

If there's one technology insight we've heard from many interviewees over the past 12 months, Scott Steinberg says it here.

Scott Steinberg:

Everything's going to be connected and talking to one another going forward. You're talking billions and billions of devices, and by the way, the cloud brains behind them are going to be essential to help these devices all coordinate, share information and really become more self-sufficient.

Jason Lopez:

The data collection is overwhelming. Take the case of autonomous vehicles. Each car produces millions of data points, and you have to feed in all sorts of sources from the road in real time, the terrain ahead, pedestrians in the road, stop lights and stop sign data, not to mention traffic.

Scott Steinberg:

All of that is going to be powered by the cloud. And that's before you start to think about the impact of 5G and other technologies.

Jason Lopez:

Steinberg isn't making a prediction about autonomous vehicles per se. He's talking about what's happening under the hood, how cars are emblematic of a world that is rapidly becoming a different place, different because of how much data the coming world will operate on, and how much data the world will produce. Autonomous vehicles are an immediate example of this. Another of his examples is VR.

Scott Steinberg:

Whether you believe that the metaverse is going to be a thing or the next big thing or the future of the internet, it's too big to ignore at this point. So, so many companies are investing in it. So many technology players, and even so many everyday brick and mortar businesses at this point, from the Walmarts to the CVSs of the world, that we're going to see much more happening with mixed reality, artificial intelligence, augmented reality, VR, virtual reality, and the like.

Jason Lopez:

A metaverse with billions of people participating. How to manage all that data, not just from VR and cars, but in manufacturing, medicine, education and so on. It would be nice to think there will be an army of engineers to handle it all, but Steinberg says the reality is there will be overworked IT teams and the need for tools that don't require high level tech skills, that means no-code and low-code solutions.

Scott Steinberg:

So one of the big tech trends I think you're going to see is more solutions being put into the hands of everyday folks like you and me who maybe aren't software engineers that allows us to create our own solutions on the fly.

Jason Lopez:

The future will be less about building from scratch and more about smaller teams leveraging open source and other tools like advanced AI routines that companies can use to adapt or create their own custom solutions.

Scott Steinberg:

One of the other things I think that you're going to look at going forward, we know that cybersecurity is going to be a rising topic of interest, but maybe what people haven't grasped so much is that your digital ID, your identity online really is the new security perimeter. Because we're dealing with issues of security versus friction, aka user experience, making sure that things are fast, fun and simple to utilize.

Jason Lopez:

That means you'll have an online identity which ports rapidly between clouds, platforms and apps. It's part of the coming solutions to data complexity and volume. He says, we're grappling with 10,000 times more information we're collecting than we can analyze.

Scott Steinberg:

And at the same time, you have to think about who in the organization could benefit from having access to that data. What potential sources could you tap into? How are you going to manage the sheer volume of information that's being shared, and what do you need to do to safely protect and store it all while trying to be efficient and insightful about the ways in which you use data? Because data-driven experiences are going to be the way forward. It's really going to give you the real-time insights and updates that you need to make, workflows, processes, and applications much more capable and much more self-aware.

Jason Lopez:

But inside and outside organizations, people are trying to respond to the pace of application growth. It used to be that applications didn't change that rapidly.

Lee Caswell:

Technology advances, particularly in hardware, have gotten so fast in terms of compute and flash memory, for example, and even network speeds that all of a sudden, what's possible now is to have infrastructure that can go and respond to changing application needs really fast, and that's server-based systems.

Jason Lopez:

That's leak haswell, and he points out that's what the cloud deploys today. Modern infrastructures based on servers.

Lee Caswell:

Now, I have these almost seamlessly scalable systems that can be managed by generalists. Super important in these days because you're worried about how do I get people to actually be able to manage systems and the concept of infrastructure is changing from an infrastructure piece to a platform.

Jason Lopez:

And that begs the question, what exactly is a platform?

Lee Caswell:

Well, a platform is something that can go and extend to places. It means it can extend out to the edge, for example, to retail environments or a wind farm or an oil rig. It could be in your data center, it could be in public cloud presence. But in any event, right? What's the solve for this added complexity of new locations and new applications? Is a platform that's consistent across those and that platform, the way started thinking about it is it's delivered as a service. It's got APIs, so I can go on write to it and extend to it across different environments. As new applications are coming in, you're able to go and leverage one server-based platform for any applications, any location. That platform concept, I think is one that's gaining traction.

Jason Lopez:

Caswell says this about development teams in the past: when applications came to life more slowly, they were in the business of saying, no, but the cloud has changed this. New server-based systems have turned development teams into saying:

Lee Caswell:

Yes you can. And you get it with security and with compliance and with the opportunity to manage it over time. I bring these two together and you start thinking that the pace at which applications were being developed didn't lead them to be put in the optimal place.

Jason Lopez:

Caswell foresees apps in the future being developed with this kind of optionality, you might place things one way to get going and then come back later and place them differently.

Lee Caswell:

You'll move them around for three important reasons. Performance is one. I need to go and locate applications and data, and applications and data together, and I need to go and make sure they're close to my eventual customers. Or I'm ingesting data right from the edge and I want it to be locally contained and processed. There's also the idea of data of sovereignty. Who can subpoena that data? Who has access to it? Where is it replicated to? Does it cross geographic borders? Do I know where my data is?

Jason Lopez:

You might not know, but this is the beauty he says of platforms. Caswell predicts this opens the door for the practice of tagging data and providing attributes.

Lee Caswell:

Not only do you know where your data is, but you know who can access it. You want to have attributes where I can now start thinking about what does it mean to move data across the multi-cloud environment? When you start thinking about multi-cloud, you're thinking about multiple hyperscaler locations. I'm thinking about files, blocks, and objects. However, I want to write data, it's got to be accessible on any of those protocols. And I started thinking about snapshots because snapshots are a way of thinking about where can I restore my data. People talk about protecting data a lot, but really it's about restoring data. When you lose something, what you care about is, did I get it back? Not how I lost it. And the fact that we have snapshots that can be shared across the hybrid cloud, the multi-cloud, and back to the edge means you can start having attributes for these, right? And that is like a cloud data structure. It's a data-centric model and now you can start thinking about, yeah, I'll co-locate applications and data and move them over time so they're optimally located. I've got the controls that infrastructure people have built their careers on. I don't give those up just because I've got this spread of possible points of presence.

Jason Lopez:

Caswell says, as businesses rely more on cloud infrastructures and technologies to stay competitive... lowering costs, increasing capabilities, maintaining compliance requirements, just to name a few, there's another aspect of operations sustainability. Steinberg agrees and says, businesses are looking to the cloud, AI and other information technologies to reach their sustainability goals.

Scott Steinberg:

People are going to be more focused on the impact that they're having on the planet, their technology footprint, applying more green standards to the technologies that they're choosing to utilize, and their partners as well. So they're going to be holding external vendors to these standards as well. And of course, we're going to see more office buildings and more data centers. They're going to focus on, how can we self-manage energy use? What is our actual impact on the planet in terms of processing power and the amount of carbon that we're generating? So I think what you're going to see is more and more of the number crunching and the like is going to move to virtual versus physical locations.

Jason Lopez:

Scott Steinberg is a futurist who's written extensively about innovation and technology. Lee Caswell is the Senior Vice President of Product and Solutions Marketing at Nutanix. This is Tech Barometer produced by the Forecast. For more stories about technology and the people in tech, visit us at [theforecast.bynutanix.com](http://theforecast.bynutanix.com).