Transcript:

Jason Lopez: The sound you're hearing is in the room at a press conference on IT sustainability, which was done at .NEXT in Chicago in 2023. You're listening to the Tech Barometer podcast. This was a gathering of journalists in a round table setting, sitting elbow to elbow with subject matter experts, Chris Kanaracus, Research Director of Cloud and Edge Services at IDC, Steve McDowell, Principal Analyst with NAND Research, Harmail Chatha, who oversees data centers at Nutanix, and Steen Dalgas, who at the time of this recording was a London-based cloud economist for Nutanix. This session wasn't necessarily closed door, but it wasn't being recorded, and we thought we'd step in just as it started with a Zoom recorder to capture it. It starts off with Steen talking about the focus on frequent hardware upgrades to boost business productivity. He says it's short-sighted. Instead, he sees a major shift toward software-driven innovation, which extends the life of hardware and scales to meet growing demands and growing sustainability strategies.

Steen Dalgas: I looked at the car industry. They're much more mature in terms of their sustainability dialogue than we are in the IT industry. So the topic there was embedded emissions, which is the emissions in the manufacturing process. This whole area in the IT industry is not being actively considered. I mean, I used to work at IBM. So you think about the business model of all the big vendors, their hardware vendors. They have this sort of strict end of life, and it's all about trying to effectively force customers, if you want innovation, to buy new hardware. And the Nutanix approach is completely different. So we come up with the approach where actually the hardware piece is commodity, and all the innovation should come from the software layer. And that's more sustainable by design. So what that means is every six months, our customers get new features to deliver through the software, and we make the upgrade process really simple. And actually what happens is when we deliver a new upgrade, often the hardware performance improves as a result of the software design. I personally don't believe the numbers I'm seeing from the hardware vendors in terms of embedded emissions. They're saying it's like 10% of the life cycle. I don't believe those numbers because I've seen other evidence that it's actually a lot higher.

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So the embedded emissions are the emissions from manufacturing, assembly, and then shipping. And that can often happen. The assembly can be in a different country. So you're shipping to two different countries. And if you're talking about three-tier architecture, the server is made in one country, the storage, the networking, and they all have to be assembled together. You've got emissions every time you refresh.So the obvious answer is to extend out the life of hardware and deliver innovation through software. So this wasn't a Nutanix designing this to be sustainable. This was a smarter way, because we want to get away from this forcing customers to buy new hardware every five years and actually extending out the life of hardware. And we know that the hyperscalers are going down the same route. They're looking to extend out the life of assets up to six, seven, eight years. And I'm working hard with our internal folks. The one issue that we have in Nutanix is you've got to test that the software works on the hardware. So we're actually going beyond end of life. And we can see, so the future is that hardware life will be extended out. And the hardware vendors don't really want to hear that, but I think that's, I think, where the industry should be going.

Steve McDowell: Yeah, so I agree with everything you said, right? And I look at it from the bottom up. Technology is intrinsically dirty. Data centers consume something like one and a half

percent of the world's energy. I saw a statistic when I was preparing for this that it generates almost 1% of the CO2 every year in modern times. We're not going to get off that train, right? We need this technology. We just need less of it. And the way you get less of it is to optimize its usage, with cloud I'm sharing a CPU among X number of instances. With technologies like Nutanix delivers, I'm optimizing my workloads and consolidating them. And that's a sustainability play. And it's not a save the planet play necessarily, because industry's motivated by profit. But there's regulation in the EU, there's regulation emerging in the US. 89% of institutional investors look at ESG stories when they invest in technology companies. Yes, they'll save the environment, but there's also a huge profit motive to do the right thing. And the way you do the right thing is to efficiently manage your resources.

Harmail Chatha: Well, I feel like we've been trying to tackle edge community for like 10 plus years now. That's still a very hot topic. Everyone's creating these edge data centers and what does that really mean?

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Jason Lopez: Harmal Chautha illustrates that the world of IT is evolving rapidly. As data center hubs connect with more dispersed computer resources, such as branch offices, franchise stores, warehouses, or manufacturing plants powered with robots and thousands of connected devices.

Harmail Chatha: Prior to the last couple of years, it was a few hundred kilowatts was your edge. And now we're pushing it to a megawatt plus is becoming your edge. We conducted our enterprise cloud index study with over 1500 IT decision makers globally and 92% are saying their top of my initiative is corporate sustainability and how do they tackle that? And I think the same conversation holds up. How do you optimize your infrastructure, reduce your footprint, even if it's at the edge or it's at your core data center? How do you get away from this three-tier architecture? Consolidate the infrastructure, eliminate the waste and the over-provisioning that happens in a typical three-tier architecture. You're definitely going to over-provision on compute, you'll over-provision on network and storage. So how do you eliminate that? You should only be deploying what you need, not over-extending. With the Nutanix infrastructure, even if it's at the edges, you buy what you initially need, then you scale out. And you maximize that utilization of it and you can build metrics at one point, do you expand the cluster or not? And that inherently will reduce your carbon footprint as well because you'll be consuming less power and less resources. So wherever the play is, whether it's in the edge or primary or robo-offices, just this notion of consolidation is tremendous. And going to, again, to Steve's point is, optimizing at the software tier and then extending the life of the hardware.

Jason Lopez: It's becoming more important, the shift to software-defined IT strategies, which leverage hybrid multi-cloud resources. Chatha says the mindset today is centered around maximizing resource efficiency in the face of growing demands for more powerful computing resources.

Harmail Chatha: We're testing GPUs in our environment with our software. And of course, they're very power-hungry, they're very intensive. But it goes back to that same point again, is how do you make use of consolidation versus just expanding horizontally? We have this notion in our data centers when we designed them in 2018, they're optimized for vertical growth rather than horizontal growth. We recognize a 68% reduction in OpEx, CapEx by optimizing vertically versus horizontally. The IT initiative has to be optimization rather than playing it safe and buying

so much hardware, so much compute, storage and network, and over-provisioning. And that inherently has been the go-to model in IT versus now IT is having to refocus and say, okay, how do we optimize within the stack rather than horizontally at the hardware tier?

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Steen Dalgas: I've just been working on a case for the last three weeks on an edge case in partnership with a data center company. And what that highlights is Nutanix doesn't have all the answers, the data center companies don't have all the answers. It's all about how you can leverage the best team and each individual player brings their best foot forward. So on the data center side, we've started working with a, in the UK, a company that's come up with a pod-like design. So traditionally, if you go to a co-location data center, you're limited to five KBAs, that's pretty industry standard. What that does is it limits the design because you only fill the rack a quarter full. But this company's come up with a design of 20, so 20 KBAs, so we can actually fill out the whole rack. It's a two-part design, so you have a rack of servers, HCI servers, and then a rack of all the data center infrastructure. That would be really well-designed for edge AI-type cases. And it can just sit in a car park. And from a cooling perspective, it's incredibly efficient. So with air cooling, they're at 1.3 PUE, but you could potentially put liquid cooling into this, which would bring it down further. So this is the type of innovation partnerships where the HCI form factor of our software, our design, plus a really good data center, innovative partner, could create a brilliant solution. And if you compare that to traditionally, you're going to be looking at racks and racks to fit within the normal rules. So this is how we need to go out to the market, find the best partners, and then bring these solutions to our customers.

Steve McDowell: And the hardware guys are not ignoring this either. As Steve just said, we're pushing liquid cooling to the edge. I'm involved in a project now that's using two-phase emerging cooling, where we're putting a megawatt and a half into a rack about the size of a freezer in your garage. So we're driving that down. And to put a number on it, 20 to 25% of data center IT is for heating and cooling. So while we're driving consolidation with intelligence software, we also need to solve the cooling problem. And we're pushing on that from a different direction.

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Steen Dalgas: We have a huge problem globally with legacy IT. It's incredibly inefficient. So if you went from a legacy infrastructure to an HCI in a new data sensor, you're going to see a 80% reduction is pretty normal. Can we get companies out there to make that plunge?

Harmail Chatha: Well, I think the other thing is, hardware providers, software companies like us can continue to push the envelope, but are the data centers keeping up well? Some of these legacy data centers don't have enough power to support vertical growth in the rack, and don't have enough cooling to support that. So then you're stuck at single-digit KBAs, whereas companies now are definitely going to liquid cooling and pushing the envelope even further, but then data center providers have to do their part.

Jason Lopez: The conversation moved to environmental responsibility, and how it's becoming a crucial component of business strategies. There's the rising cost of energy. There's the increasing cost of maintaining legacy hardware inside data centers, which can hamper sustainability efforts.

Harmail Chatha: All of the European data center providers are definitely pushing the envelope on this. They're a lot more ahead of the game, I feel, than the U.S. data centers, as far as just innovative technologies, innovative design. For them, sustainability is very top of mind, versus in the U.S., we personally seek out data center providers and partners that want to minimize the environmental impact, that have innovative solutions like water reclamation, that are offering renewable energy options. And I feel like the U.S. market just hasn't caught up, besides a couple of top-tier providers that we work with, versus the rest of the, well, especially Europe. I don't think AsiaPAC is definitely there.

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Steen Dalgas: We've had the energy crisis in Europe, so we've seen the cost of energy go up almost five times. Really focuses the mind to suddenly, so I do total cost of ownership models. Energy is now the single biggest expense item now in the IT budget when we're looking at infrastructure. So it's cost-driven, yeah. So another thing that we've seen in Europe, which is all around the same area, so climate risks are now becoming a business resilience issue. So in the U.K., you're designed to run at a certain temperature range, based on the sort of standardized models of climate. And those climate models don't apply anymore. So it's been broken in the U.K. So we had a 42-degree day. The impact of that was, so Google's data center in the south of England went down, which took down one of the Challenger banks. It also had impacts in other regions as well. And one of the big hospitals in London had a failure of its production and DR data centers. And the impact for them was, they were on paper records for two months. So you can imagine the stress it puts on the staff and the impact on the patients. And there was a big cost impact as well. And that's because that's a legacy design data center. And the more infrastructure you have, the bigger the physical footprint you have, the more cooling you need. Those are the types of data centers that are more susceptible. So this whole sustainability piece I'm trying to highlight is a business resiliency issue.

Jason Lopez: Next, transforming IT infrastructure with a Nutanix customer in India. Harmail Chatha outlines how HCI technology reduces costs, emissions, and complexity.

Harmail Chatha: In working with Nutanix, they're able to reduce their cost by 43% over five years versus traditional three-tier. They're able to reduce their data center emissions by 80%. And they're able to reduce their data backup management by 100%. So what's happening is, IT just needs to rethink and refocus and modernize of getting off the traditional three-tier and moving to something that's more efficient like HCI models. And with HCI, you don't have just the option to reduce your physical footprint on-prem, but you have so many options, whether it's your private data center or your colo or even public clouds. For us, I mean, the ecosystem has evolved so much now. You can get away from that traditional DR strategy of having something remote in a different data center versus now we have a product called NC2. You can offload your critical VMs right back to the public cloud and have them in a hybrid mode there, sitting there versus just running infrastructure that's doing nothing, literally sitting idle on-prem. So I think it just needs to be a refocus of not focusing too much on, this is the way we've always done things and this is the way we're going to continue to do things and really go out and seek innovation and opportunities to improve. Sustainability is a great starting point, but really it's just our entire world runs on apps and data. And when you have issues like Steve was describing in the UK where the hospital's offline for two months, that's very critical.

Steen Dalgas: There's a story just to illustrate that. So in the UK, one of our customers is the 999 service. So if you have an emergency, you ring them up. And they did things the wrong way

around. So they decided to modernize their data center and then once they did that, they then decided to choose their IT partner. They then built this great, huge new data center room, went to Nutanix and we were a one rack solution. So you have a huge data center with a one rack. And this is what I mean is that you're bringing a legacy mindset to solve a problem that you're not taking advantage of the modern innovation. You have to do it in reverse. So think about what you're going to have in a rack and then the data center and do that together, not separately.

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Steve McDowell: But there's also a trend, too, of thinking less about the infrastructure as an IT guy. Cloud is driving this, right? We all think about cloud as someplace we can park resources. But we're also seeing the emergence of things like HP GreenLake and Lenovo TrueScale, consumption based, where it's in their interest, the technology providers to keep your technology current.

Chris Kanaracus: Cloud cost optimization and sustainability are linked topics, but I kind of look at it from the optimization side a little bit differently. I look at more from the IT buyer perspective of cloud services they're buying and how they can buy them and where they can buy them. It's a reward in a really new era. I think if the first era of cloud was about speed of adoption and using that scale and so forth, then you had all the waste and you had people finding out, ooh, I'm not using the cloud efficiently. I really think we're in an era of cloud cost optimization really in the forefront. There's a lot going on and I'll give a couple of examples. One of the big pushbacks that customers have made, and we always hear from them, is from egress fees from the cloud providers. They hate paying data egress fees. Every single customer call I take, if this comes up, and have you guys heard of the Bandwidth Alliance? This is a group of companies that work with CDN providers and they kind of agree to waive or deeply discount egress fees to their joint customers, and that's really good, and AWS is holding out. They kind of have not gone that direction yet. They need their margins to stay high and so forth, but that's one example, but a more recent example is just more density in options for running your workloads around the world. It isn't the big three anymore. I don't know, Equinix on bare metal with VMC, that's one example. Oracle's trying to do, and it's very new with Alloy, where they're licensing their cloud whole stack to partners around the world, and they can rebrand it, white label it, and you own the customer relationship. Is it going to be cheaper? Possibly, because when you have more options to run your workloads, like any market, things have to go down. There's much more work on portability. It's just we're in a good place for that. The problem isn't solved, but we're in a good era where we've built out this universe of cloud computing, but now people are really starting to and are able to optimize it for real.

Jason Lopez: Chris Kanaracus is Research Director of Cloud and Edge Services at IDC. Harmail Chatha is Senior Director of Global Cloud Operations at Nutanix. Steve McDowell is Principal Analyst with NAND Research, and Steen Dalgas is with Nutanix, and at the time of this recording, he served as Cloud Economist for the company. This is the Tech Barometer Podcast, produced by The Forecast. I'm Jason Lopez, thank you for listening. For more stories on sustainability or on technology in general, you can check us out at theforecastbynutanix.com. That's www.theforecastbynutanix.com.