Beyond the Network: The Business Value of Zero

Eating your own dog food. Tasting your own cooking. Drinking your own champagne. Whichever metaphor you prefer, companies have been using their own products for probably as long as their have been companies. This is especially true for the technology industry. The benefits are obvious – accumulating real-world experience for a solution while simultaneously endorsing its value.

One company is implementing this approach in a broad and innovative new way that is both improving the experience of their customers and transforming the role of IT. Doug Alger explores what it means to be customer zero, as we go Beyond the Network.

For years Cisco's enterprise IT organization touted itself as the company's first and best customer. Cisco IT used Cisco solutions early and often to optimize its processes, improve productivity, and lower costs. Their employees would then share with customers – often in an unvarnished way – what they learned while deploying and using their own products and services.

Cisco IT began to evolve its "first and best customer" strategy in 2018 into a new approach they call customer zero.

BEN IRVING: "What's new here I think – and this focus came from our leadership based on what Cisco's trying to accomplish – is a focus, a unique focus right now on how the customer experience works from an ordering process perspective, to look at our role as customer zero as not just something we that we do in terms of deploying products but that to be a group that could improve the ease-of-doing-business-with aspect of Cisco."

Ben Irving is responsible for new technology strategy for Cisco IT's Global Infrastructure Services organization. He's helping drive the customer zero effort for Cisco IT.

BEN: "The things that differentiate what we did before, which is what we called 'first, best customer,' was one to be even more focused on value – the IT value of the Cisco products – and to focus in on some of the things that we didn't do as well on historically, like we ordered things but we didn't always follow the ordering process because we had methods available that other customers might not. So, being far more rigorous around our participation as a first customer around ordering things in exactly the same way that customers would, always making sure that we're giving feedback and participating in all the standard support channels like things, the Technical Assistance Center and the TAC, and being very authentic in doing that in the same way that another customer would. And then also being a bigger participant in the consumption of services from CX and also in helping them define their product in moving customers through the racetrack lifecycle."

CX is Cisco's Customer Experience organization, and racetrack is their term for the multiple interactions – or touch points – that a customer has with the company over time. Whether a customer is evaluating, purchasing, deploying or getting ongoing support for a product, Cisco wants the experience to be a positive one.

Being customer zero means Cisco IT chooses a product before it's released to the public and goes through as many of those touch points as possible. They order the product, deploy it in a production environment, and use it for months on a large scale. This real-world usage unlocks the value of a solution, uncovering its strengths and shortcomings – how a product can provide the most business benefit and how it can be made better. Cisco IT meanwhile partners with groups across the company to improve the experience for later customers. That means working with Engineering to address bugs or develop new features, working with Ordering to simplify the buying

process, and working with Sales and support teams to ensure they can address customer questions or challenges. It's a broader and deeper commitment than a company simply using its own product.

Guillermo Diaz Jr. was Cisco's CIO from 2015 to 2019 and is now senior vice president of its new Customer Transformation group. He sees customer zero changing the role of IT.

GUILLERMO DIAZ: "I think it's really pushing the boundaries of what IT means to a company. I think there's not a better time to be in IT, because if you think about where industry is going everything is becoming digital. If you're becoming digital, technology is foundational to everything digital. So what organization in any company has the technology background is IT. So you can easily sit behind the scenes and be the order taker or you can start to move up the stack and add value to the digitization or the digital transformation of your company. In our case we happen to be a technology company that is consuming technology and many of our customers come to us and say 'Well, wait, if you're asking us to drive this digital transformation what are you doing inside? How are you driving that, you know, speed? How are you taking this data driven approach and creating action from the insights? How are you looking at this thing called API enablement? And what does that mean to us?'

It means scale. It means being able to scale out to the ecosystem and create new channels, new opportunities, new partners for a business. And then obviously the one important thing that keeps at least one eye open every night is security. And how do I manage risk inside of my company. And being able to then not only take the technology piece of that but then translate it into those factors. Because a lot of times we in IT we want to go 'Oh, look at the switching platform and the digital API transformation that we're driving' and the business looks at you like what are you talking about? I know we need to do this API thing but I don't know what it means. But you can start to go 'Well, wait, IT is there. Now we're evolving or actually we're pushing the boundaries of our own skills. Because we talk about, it's not just an evolution but we're taking this thing called software-driven everything or software-defined everything – well what does that mean? It means programmability. Ok, but what does that mean? It means speed. And that's what the business cares about. And if you could translate that software-defined into speed, and now I'm going from hours or days or weeks of implementation to minutes or seconds that is an impact. And you could start to define this, well wait, the data driven mindset. It's ability to take action. So If, I can take that data that's being traversed and turn it into action then I'm making decisions as a business. And I'm driving business value."

How did Cisco IT start preparing to be customer zero? Ben, the technology strategist, explains.

BEN: "There's a couple different aspects to this. One is that the earlier you're involved in technology, there's a combination of risk and inefficiencies and things like that that you have to absorb. So, one is to start to make some changes to our environment that would be able to create some compartmentalization that we can basically break our environment up into different risk pools so that we can be more aggressive in some areas. Whether this risk pooling be the acknowledgement that a branch office is a safer place to do experimentation than the data center or that certain aspects of the data center may be better, to doing, making technical changes that would, for example, do some separation in the way that we do our routing protocols or access list controls so that we can take more risk there.

From there it's also creating more of a real CI/CD (Continuous Improvement/Continuous Delivery) pipeline for infrastructure so that we can move through different software releases faster in terms of building a pipeline from the testing and qualification of new products to the staging to the deployment of those. And that's something that's both a methodology that we're working on but also some of Cisco's newer technologies are meant to do things like what we call SWIM, which is Software Image Management Automation. So it's a combination of things we're doing and taking advantage of some of the IT lifecycle automation that some of the newer products are bringing to bear as well."

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Cisco IT has acted as customer zero for several products, including Cisco DNA Center, its network management solution; Cisco Intersight, its cloud-based management platform, and SD-WAN, its software-defined approach to managing wide-area networks. Although the Customer Zero program is lead by IT, the mindset spans departments. For instance, when the company's facilities organization rennovated multiple office buildings at Cisco's San Jose, California headquarters with Cisco Connected Workplaces – that is, activity-based workspaces and integrated technology – they incorporated several new technologies such as Cisco Workplace Analytics. The solution lets them understand where employees are working in a building and what types of rooms are in greatest demand."

Not everything gets the customer zero treatment, though. One task of the program is figuring out which solutions should get this kind of engagement.

BEN: "A couple challenges we have that are fun are one, we want to do more Cisco product but we can't do it all. I mean, Cisco's in so many businesses, so many products. Some of them don't fit well with us, some of them fit well but aren't ready yet, so making the portfolio decisions and driving that investment is a fun difficulty. And then making sure that we're managing risk in an intelligent way and making sure that as we're moving forward quickly we're creating authentic IT value from that, because customers don't just want to know that we deployed something, they want to know what problem we solved or what opportunity we achieved or whether that's cost optimization or that's time-to-capability or that's a user experience or we're finding outages or risk that we wouldn't have before or before we would have. We have to be really laser focused on creating value and not just doing something. And I think as IT operators we have a lot of expertise in the technology and especially when you're dealing with new technology it's very easy to create a lot of enthusiasm around the technology, but integrating the business aspect of 'we have to solve problems with this' with 'we have to move quickly,' bringing all of that together at the same time has been a fun challenge to work on."

So, how do they decide which solutions to be customer zero for?

BEN: "There's no really super simple answer to that but there's probably three things that we try to focus on. One, solving our own problems like I talked about. Two, things that are the most important to the company. It doesn't mean that we won't use a lot of the other technologies to solve problems for us but the things that are the most important to Cisco, those we know we have to make a large contribution to. So it's a combination of the readiness of the product and our readiness for it, the ability to use this to solve our own legitimate problems and just making sure that we're participating and giving strong feedback on the architectures and solutions that are the most important to Cisco as a whole. So kind of those three factors come together to drive our portfolio decisions. And then I guess the fourth one I didn't touch on too much is affordability. Some things are important and not that expensive and some things are important and they're extremely expensive to deploy or implement."

John Manville is senior vice president for Cisco's Global Infrastructure Services where the Customer Zero program resides.

JOHN MANVILLE: "So we're trying to focus on the areas where it's going to have the biggest impact for the most customers of Cisco. And so a lot of these are in emerging, software-defined areas around ACI inside the Data Center or application centric infrastructure or in the enterprise networking space around software-defined WAN, and around, generally, intent-based networking. Basically in areas that we think are going to have, again, many of our customers use and therefore are going to have the biggest impact."

Like any other IT organization, Cisco's has finite resources. Its leaders have to balance the demands of being customer zero with those of running the organization overall.

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JOHN: "It's not like we can do this all the time, but we're trying to make both of those congruent with each other. So, yes, managing the business, providing a network to a hundred-or-so thousand people inside Cisco as an example, we're trying to make that be part of customer zero as well.

So there are some buildings for example in Bangalore and in San Jose, other areas in Europe as well, where we've changed these buildings over to what we're calling customer zero buildings, where the wireless in there for example is in fact the newest technology both from a hardware and a software point of view, where SDA has been implemented. And so, yes, in those buildings, sometimes, because maybe there's more bugs in there, as an example, or it's some management feature that we want, it's a little bit harder to address some issues that users in that building have or maybe we're upgrading the code on a much more repeatable basis to test out different versions of code. So in those buildings maybe the SLAs we're giving to internal users are slightly lower. However, most of those buildings the employees in there are very happy to let us do this because they feel as though they're making the products better. And also we try and choose buildings where maybe the engineering teams who actually are developing that technology actually sit in there, so they actually see how their technology is being used and works in real life. And therefore if they see some issue that's not quite right they're motivated to fix that as soon as possible."

Loghs Srinivasan is a director for Cisco Engineering's Enterprise Solutions group, which validates products to be deployed in customer networks. Members were quick to see the program's value.

LOGHS SRINIVASAN: "We have actually made Customer Zero as an integral part of Cisco's test strategy, so apart from all the different phases of testing which we have – unit testing, feature testing, system testing, solution testing – we have made alpha testing as well as Customer Zero as one of the integral parts of Cisco's enterprise test strategy, which I believe is super important for delivering high quality products and products which can be used by our customer from Day One and which can change the user experience and give a tremendous user experience for the customers as they deploy it in the field."

Loghs has been involved with the deployment of Cisco DNA Center – or Cisco Digital Network Architecture – one of the solutions mentioned earlier. It's one of several from Cisco that offer what's known as Intent-Based Networking. That means the network understands and implements business policies, configures infrastructure, and uses analytics to learn and adapt. This improves efficiency and security.

LOGHS: "In Cisco's IBN strategy, we are changing – reinventing – the way we are doing networking, and particularly for the enterprise segment. And for us to do that we have to harness the power of Cisco's enterprise. And that is a key reason why we used Customer Zero as the center of our strategy, for us to deploy our products and solutions in Customer Zero network so that we can harness the power of Cisco's enterprise network, which is used for internal end users at Cisco, and get that experience and harden our products and solutions in Customer Zero network so that when we give the product out to the customers it is solid, it's already tested, proven and it works, and it is a super-easy experience for them to deploy.

We made Customer Zero as an integral part of every release process. Whenever we have a early field trial image ready we would put it into the Customer Zero network so that we can soak it in for at least two weeks before we give it to our customers, even for early field trial. Which means we would uncover quite a significant number of bugs internally in the Customer Zero network before we give it to the customer. So we increased the efficiency as well as reduce the bugs which are going out to the field by putting them in the Customer Zero network.

I actually reside in one of the Customer Zero buildings and whenever I actually talk to the engineers in the building I would actually say 'if you're able to find one issue and if you are able to find it in-house before we actually put it into the field then it means it's the right thing to do.'"

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The team found it particularly useful being able to correlate issues reported by users with what Cisco DNA Center showed.

LOGHS: "Typically in an enterprise deployment if I have a user and they are connecting to the network and if there is a connectivity issue, it's extremely hard for anyone to find out 'why is it I'm not able to connect?' Is it because they have a DHCP server issue or am I, like, too far from the AP, or did I authenticate wrong? There could be multiple reasons for which I am not able to connect."

That's where Cisco DNA Center came in.

LOGHS: "It can tell you, like, this user was connected at this time and the reason why this person was not able to connect at this time was because either he was too far away from the AP or, like, authentication failure or DHCP failure. It just helps you understand and troubleshoot what is there, what is the reason an issue happened in the network. And also you can time travel, saying like, ok, this person was able to connect at 5 am, this was connected and with a health score of 10 at 5 pm and somehow for some reason at 5:30 they were not able to connect because RSSI issue or it could be a radio issue or whatever the reason is.

Assimilating real-time environment issues is very difficult. Customer Zero is the right way for us to identify these issues because it's a live network and you have a building full of users who are doing real traffic, real work, as how things are done in the enterprise network. You are finding real issues and you'll have real problems, which are either that we identified or not. So it kind of helps you build your product, not only helps you not only gives you the data that is needed for you to build the project, also gives you the checkpoints which will enable you to say like yes you are able to uncover the issues which are happening in a real network."

There are about 1,500 field deployments of Cisco DNA Center as of this recording and a target of 10,000 by the end of the 2019 fiscal year. Loghs credits the customer zero approach for leading to several improvements before its release.

LOGHS: "Because of Customer Zero we had multiple benefits. Not only we hardened the product in a way that, like, it's ready for it to be deployed in the field, we also were able to, based on the deployments which we had on the internal networks, enhance the product much better. A few examples I could say are… we have thousands of users in the building and you will be able to see that this user had a connectivity issue at a particular point of time, which is sometimes good but at the same time we value privacy. And this was one of the first things which came in from the deployment, so we have to bring in anomilization as one of the feature, which will anomalize the data but at the same time you will be able to say that the network has an issue at this part of the network without saying the user identity out. And that anomalization was super critical because we're all users and privacy is super important.

And the second aspect, we had a significant amount of security improvements which we had done based on the deployments which we had within the Customer Zero network as well. As an example, RBAC, different user profiles for you to log in, someone can do read-only access, someone will have admin access – all those different segments, some of the categorizations of different user levels and privileges which we have today, have been customized based on the deployments which we had done in Customer Zero deployments."

Anand Oswal, senior vice president for Cisco's Enterprise Networking Business, says the Customer Zero program influenced his engineering organization tremendously, providing valuable customer perspective.

ANAND OSWAL: "We got a lot more understanding of the right use cases that customers want to solve. I mean, as you know, networks today have become complex. If you roll back 30 years ago networks were simple. You had a bunch of computers that you wanted to make sure they connected. And Cisco IT's job was to ensure that these can scale, you can add more machines. Then we had the laptop era and the mobile phone era, where people were now accessing resources from Cisco IT from home. And Cisco IT's job was to ensure how do you ensure the right person accesses the network through the VPN technology. So security was still at the DMZ. But clearly the

world is very different with IoT, with bring-your-own-devices. You're now having to manage wired devices, wireless devices, VPN devices, contractors coming from all over the world, and you want to have a unified policy. And that's a journey we started with Cisco IT when we rolled out our new solutions for intent-based networking, where we have a control-driven paradigm. How do you ensure you have automation? How do you ensure you have segmentation for security? How do you ensure you have the right visibility and analytics that it helps you drive the business outcomes as a customer? And it was a journey that we learned a lot tremendously on all the issues that our customers face, but also helped us tremendously build a lot more customer context within our team. So now when we build products and solutions we're very well aligned and aware of how our customers use it, what are their care points, what they really worry about. And it's not about just adding more features but how can they consume those features with simplicity and ease."

He sees that customer point of view and real-world feedback as particularly helpful for engineers.

ANAND: "Yeah, I think some of the interesting lessons for us in engineering is it's always interesting to see how customers use our products and what are the operational challenges that they face in rolling out new technologies, because sometimes it may not be easy for the engineers who are writing the code or testing it to really appreciate the complexity of the operation rollout. For example, when we did a rollout for the first IPv6 campus in the world with Cisco IT in our campus in Milpitas we found a lot of operational issues. How do you manage lab networks which are hidden? How do you manage desktop endpoints, mobile phones, because those may not be things that we develop software for but we need to make sure that they all integrate seamlessly. And how do you ensure that security is not compromised? So we learned a lot on how our customers will use our products, how will they take into account operational challenges in getting this in mass production.

You know, I think sometimes we underestimate the effort it takes in terms of making sure all the processes from the operational standpoint view are executed, right? Because a lot of times in engineering we think 'Ok, we have the software, the hardware. It's running. So you should be able to go live tomorrow, right? Why is it taking you…' You have to do testing. Because running a live network, but also you are looking to scale. It's not about one building. Cisco IT has hundreds of buildings in so many different countries, and you're looking for commonality that you can do a mass rollout. And how you want to automate all of those practices. How to make sure that you have the analytics and the visibility to ensure that you can run the network holistically. So we probably learned a lot. Not surprising completely but we're always learning new things."

Everyone interviewed for this episode referenced the relationship between Cisco's IT and engineering departments, and how the customer zero approach benefited their organizations as well as customers. Beneficial doesn't always mean easy, though.

ANAND: "Cisco IT is a very demanding customer. And they should be. They're one of the largest Fortune companies in the world. So when we want to roll out things it's not like we have an easy pass just because it's Cisco on Cisco. They still expect us to have the highest quality. They're still tough on us in terms of what they expect and what time frame they expect and how they want reliability and high availability across all of the portfolio. But the most important part for us is that, what we learned a lot is that – because Cisco is a very large customer – how to ensure that this rollout is seamless across a large campus-wide network in so many different countries. And that's where the commonality, the template-driven appraoch that Cisco IT has and how you don't reinvent the wheel every time. IT's always operating on a thin budget, everybody's having pressures on OpEx. And how do you ensure you're able to not compromise security at the same time still meet the demands – I would say an overdemand – from employees. They always want more. People expecting more and more from IT."

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Expecting more from IT. That's a common message nowadays across every industry. Businesses want more from their IT organizations. Guillermo, head of Cisco's customer transformation group, believes the customer zero mindset could be relevant to many of them.

GUILLERMO: "Well, I think we're on sort of the blazing trails of it, but I do believe that, you know, I get a chance to talk to my peers all the time. In our case we're technology company, but if you think about – let's just take retail. If you take a retail company, they're packaging up products. Well, how do you package that up into sort of a digital technology in a digital delivery model? They're actually taking technology and using it in a different way to build their own products or to take their products to market. So how can they do that at speed, at scale – being able to get the actionable insights to continually improve and to make sure it's secure? So, I think we're on the edge but I do believe our IT brethren and sisters out there, they're actually working on 'How do I take my product, how do I commercialize that digitally and then how do I take that out to market and then how do I continually improve it?' So I think we're blazing some trails but I do believe IT can become Customer Zero or Customer .5 in this whole process.

Technology's foundational to our company. And we hear it in our own company. We hear it in the oil and gas industry. We hear it in retail. We hear it in finance. So technology is foundation. So we are at a point in IT to be able to help solve that problem with the business.

Number two is we need to continually look at our skills. And if we are going to be able to provide that value customer zero becomes a key differentiator. We happen to be customer zero inside of a technology company but if you're in the technology team and you're being asked to drive a digital transformation you could be customer zero in retail or in oil and gas because you could be the first one – or, you know, customer zero – to be able to try all your own capabilities, which requires new skills. Which requires stepping out of the box and the comfort zone, which leads to the cultural shift. So when you think about digital, digital's about technology, but transformation is about culture. And I think when you can start to influence and show the value of what customer zero can do then your business starts to go 'Hey, we need to go talk to IT.'

You start to influence in a whole different way and then being able to thread that across the different BUs or business groups in your company, that creates a ton of value because one of the things I continually hear is 'Hey, how do I influence my business?' Well, you influence them through showing continual results and continual transformation and I think that's one of the things we've been able to do."

Although IT organizations deal with technology issues, and part of Cisco IT being customer zero involves testing their technology-based products, Guillermo says the main obstacles to truly being customer zero and realizing its benefits aren't about technology at all.

GUILLERMO: "The biggest challenge in all of this is mindset and culture. When you come from, 'We've always done it this way. We're building scale. We do our order processing this way. We do our supply chain this way. We do our services this way.' Well, now we're talking about how do we shift that mindset to it's different. Now we're sitting there with engineers. We're sitting there side by side with engineering and we're co-developing or we're giving them feedback and it's not like, hey, we're just sending stuff over the wall. We're actually doing coding. We're providing code drops. We're doing that back and forth with our collaboration engineering teams or, you know, our network engineering teams that are building our products. It's a different mindset and it's a different kind of skillset. And if you think about you're taking that skillset a step further – I was recently at a Cisco Live in Mexico and I did a keynote presentation and afterward – I talked a lot about skills and the transformation – and the network engineers come to me and they say 'This is what I've been thinking about. I need to learn new software development skills. I need to be a full stack engineer. Today I'm working on routing and the network infrastructure but the reality is I need to understand orchestration. I need to understand how the applications connect to that network but also some of the applications I don't even own inside my own four walls anymore. There's a cloud

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provider that has to integrate with my data. And then I need to make sure now that I understand security and I understand the API connection out to that cloud provider. So now I'm learning new software skills.' And so it's a different mindset. It's a different culture. It's a different skillset.

And then on the other side is you have to influence the business. They want to know how are we going to go about getting speed? How are we going to make sure that we're secure? So we need to have those communication skills to be able to articulate that. So I think it's a mindset shift. Those are some of the key challenges. I think it's culture and it's, you know, you're going to have to step out of your comfort zone."

So customer zero isn't just leading to a better experience for Cisco customers, it's benefiting Cisco employees and organizations as well. Cisco IT and Engineering are working together more, IT is better connected to the company's overall business, and employees have a broader focus.

GUILLERMO: "Historically, you had the application teams that were working in separate silos. And then those applications teams working in separate silos worked with the infrastructure in those particular silos. And then we got better at that and we said, hey, we need to have applications working with a common foundation of infrastructure. So, yeah, we automated the environments, we automated our ability to provision and consume infrastructure. And now what where we're at, we're at a point where the application teams and the infrastructure teams, at some point there's no differentiation as I need to understand as an application owner what I need from the infrastructure, where do I need it, and what resiliency do I have? So I need to be able in a cloud native world, as an example, to be able to understand that all the way down. And as an infrastructure person I need to know why I'm here. I'm here because that application needs data. And I need it to solve a business problem and to resolve a business process.

The key thing and sort of the 'aha' over the course of this journey is the technologist that is becoming a digital technologist and I need to understand what goes on in that infrastructure because the infrastructure is not just the network anymore. It's about how it all comes together to be able to solve that business problem. And the network is the way I connect everything together. It's just the evolution of where we've come from."

What about other businesses, like yours? Should it adopt a customer zero approach? Ben Irving, the new technology strategist:

BEN: "Well, I think with just the amazing disruption that technology is making to business across the board, we know that every company has to have an innovation strategy. So to me it's not a question of would somebody else want to do something like this it's how do they do it, or this is a company that doesn't want to stay relevant.

I think it's very important for every IT shop to understand that change is not an option. And moving faster is not an option. So the question isn't whether you have an innovation strategy, it's how you do it. And how you remain relevant and grow your relevance within the business, so I think that's the key question everybody in IT is answering. And so my advice to my friends in the other IT shops around the world is, it doesn't necessarily have to be as focused on the product of your own company as ours is – we're fortunate to be working for Cisco – but that you have to have an innovation strategy."

You've gone Beyond the Network, with Cisco IT. Thanks to Arthur Woo for recording assistance. This episode was written and produced by Douglas Alger. Follow and like our podcast on SoundCloud or iTunes. Visit cisco.com/go/ciscoit for episode transcripts and related content.

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