CONNECTED EXPERIENCES

Enable Businesses to Meet the Demands of the Future

WHITE PAPER

Prepared by
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ABOUT THE AUTHOR

Zeus Kerravala is the founder and principal analyst with ZK Research. Kerravala provides tactical advice and strategic guidance to help his clients in both the current business climate and the long term. He delivers research and insight to the following constituents: end-user IT and network managers; vendors of IT hardware, software and services; and members of the financial community looking to invest in the companies that he covers.

INTRODUCTION: A DIGITAL PERFECT STORM IS ON IT'S HORIZON

The term "perfect storm" describes a situation where several forces come together to create a single, mega-force. Perfect storms happen in the technology landscape every generation or so, making us rethink how we consume technology and changing the very nature of the way we live. Such an event happened when the internet era began, and it involved the coming together of high-speed networks, home broadband, cheap PCs, the internet browser and other factors.

Today, another perfect storm is on the horizon—digital transformation. Defined as the application of technology to create new business processes, digital transformation leads to lowered IT spend, improved customer service and increased employee productivity. Organizations have been experimenting with digital initiatives for the past few years but have accelerated their plans as the business landscape has grown increasingly competitive.

The key trends that have ushered in the digital era are as follows:

Remote access: Anecdotal research indicates that before the COVID-19 pandemic, about 10% to 15% of employees typically worked from home or another remote location. But now, many businesses are re-evaluating their workplace strategy. The challenge with remote working is maintaining a high-quality user experience.

Wi-Fi 6: Every version of Wi-Fi prior to Wi-Fi 6 was designed to be a network of convenience, with high-performance applications using the wired network. Wi-Fi 6 was designed with the idea that we live in a world where almost everything is connected, with many devices using Wi-Fi. Wi-Fi 6 offers better performance, higher speeds and less congestion than Wi-Fi 5 and earlier versions, leading to a mobile experience that is as good as the experience when using a wired network.

5G cellular: The next evolution of cellular service is 5G. Like Wi-Fi 6, 5G has been redesigned from 4G to address new use cases. The higher speeds and lower latency of 5G make it ideal for applications such as virtual reality and the Internet of Things (IoT).

Software-as-a-service (SaaS) applications: SaaS-based applications have been steadily on the rise for the past decade but have seen a significant boost from employees working from home. SaaS apps are easy to deploy, have a low up-front cost and are ubiquitously available. ZK Research forecasts that SaaS applications will grow at an 18% compound annual growth rate (CAGR) in the next five years, as the cloud experience is on par with or often superior than the experience delivered by on-premises applications.

Software-defined wireless area networks WANs (SD-WANs): Legacy WANs are rigid, inflexible and optimized for client/server computing. SD-WANs decouple the control of the

network from the underlying hardware, making it easier and faster to implement configuration changes. ZK Research has found that it takes enterprises an average of four months to make changes network wide on a legacy WAN. In contrast, with an SD-WAN, the same changes can be made in a few hours. This is why ZK Research forecasts that the SD-WAN market will grow from $4 billion in 2019 to $14.9 billion in 2023 (Exhibit 1).

Internet of Things: Historically, the connection of "things" was limited to a handful of operational technology (OT) endpoints. Today, IT has taken ownership of or at least works with OT to connect a myriad of new endpoints such as facilities equipment, security endpoints and vertical industry equipment. The IoT experience enables people to interact with things and vice versa, creating a wide range of new use cases.

Artificial intelligence (AI): Competitive advantage today is based on being able to make the best decisions as quickly as possible. The challenge for most businesses is that there is far too much data to analyze manually. ZK Research estimates that 90% of all data ever created has been generated in the past two years, which highlights how fast the amount of data is growing. AI algorithms can draw key insights from data faster and more accurately than people can.

Exhibit 1: SD-WANs Are Set to Explode
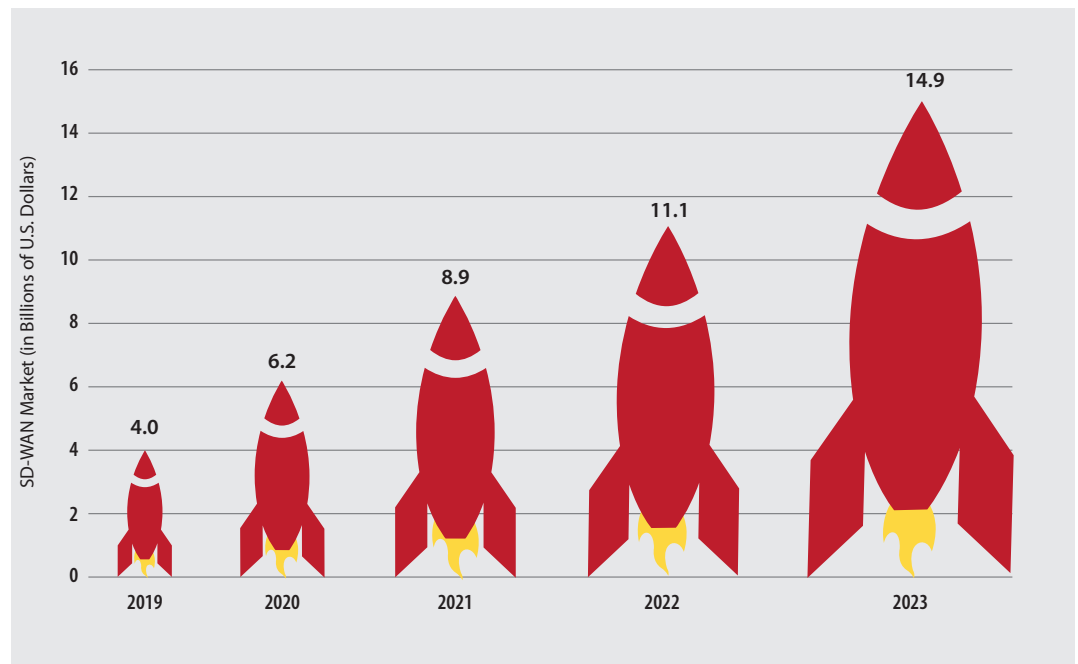
ZK Research, 2020

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These technologies and trends have transformative capabilities on their own, leading organizations to plan strategies around each of them. However, when combined, they create a perfect storm that will reshape the future. Make no mistake—the digital transformation era has arrived, and technology is the key to digital success.

Digital transformation has had a significant impact on today's IT leaders. In fact, it's fair to say that the role of the CIO has changed more than any other position in the business world. Historically, IT executives were focused on running technology and were measured on how effectively they "kept the lights on." Now, CIOs are being tasked with driving innovation that enables business transformation.

Two of the top areas of focus for IT leaders are improving employee productivity and improving the customer experience. Consequently, organizations have adopted a wide range of new applications such as collaboration tools, video and omnichannel contact centers. However, a poor user experience results in unhappy workers or dissatisfied customers, both of which have a negative impact on the company. The user experience in customer-facing applications is now the top brand differentiator—outweighing price and even product quality. In fact, according to interviews conducted by ZK Research in 2019, two-thirds of millennials changed loyalties to a brand because of a single bad experience. Therefore, it's clear that even one negative experience can lose a customer, while a good experience will drive loyalty and capture more share of wallet.

The digital perfect storm is here, enabling organizations to do things they could never do before—and ultimately raising productivity and customer service to new heights. But technology has been deployed in silos, leading to the lack of integration across applications and devices. Users have become accustomed to a mobile experience or an IoT experience, but the perfect storm will bring all experiences together and create a single, connected experience. To maximize value from the digital perfect storm, business and IT leaders must rethink IT and create connected experiences that are enabled by the network.

SECTION II: THE DIGITAL PERFECT STORM RESHAPES IT

The current operating model for IT has been in place for decades—and hasn't fundamentally changed in decades. IT was designed around the concept of infrastructure silos, where different groups within the larger IT department were responsible for a particular technology. Examples of the silos are server, storage and network operations as well as desktops, applications and other technology. This has never been ideal but was sufficient when applications were built within silos.
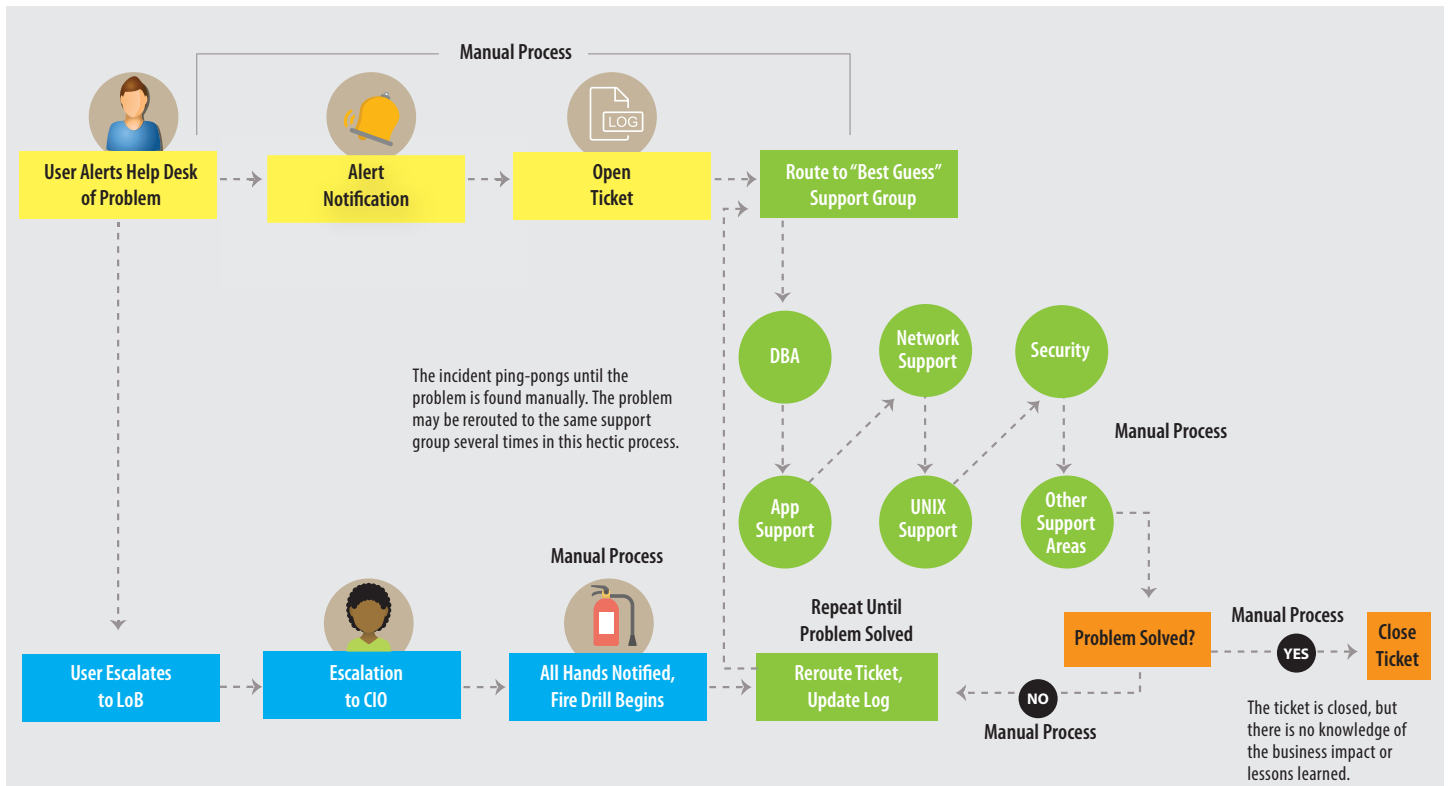
In this siloed design, application 1 would have its own dedicated storage, servers and network infrastructure, as would applications 2, 3 and so on. If the storage in application 1 needed upgrading, the storage admin would add to it without impacting the other applications. Today, the specific application components have become shared, virtual or containerized and are used by multiple applications, which means that making a change to one infrastructure component can have ripple effects in applications across the entire organization. This has led to an issue known as "resolution ping-pong" (Exhibit 2). In this situation, when a user calls with a problem, the ticket is passed off between the in-

frastructure silos until the problem is solved. At best, this is an annoyance for workers, and at worst, it impacts a company's revenues and profits.

Another issue for IT is that the tight control it once had over the environment is now gone. A decade ago, IT determined where people could work, what device they could use, where data could be accessed and what applications were used. Today, lines of business are purchasing their own cloud applications and users are bringing in their own devices, which limits IT's control.
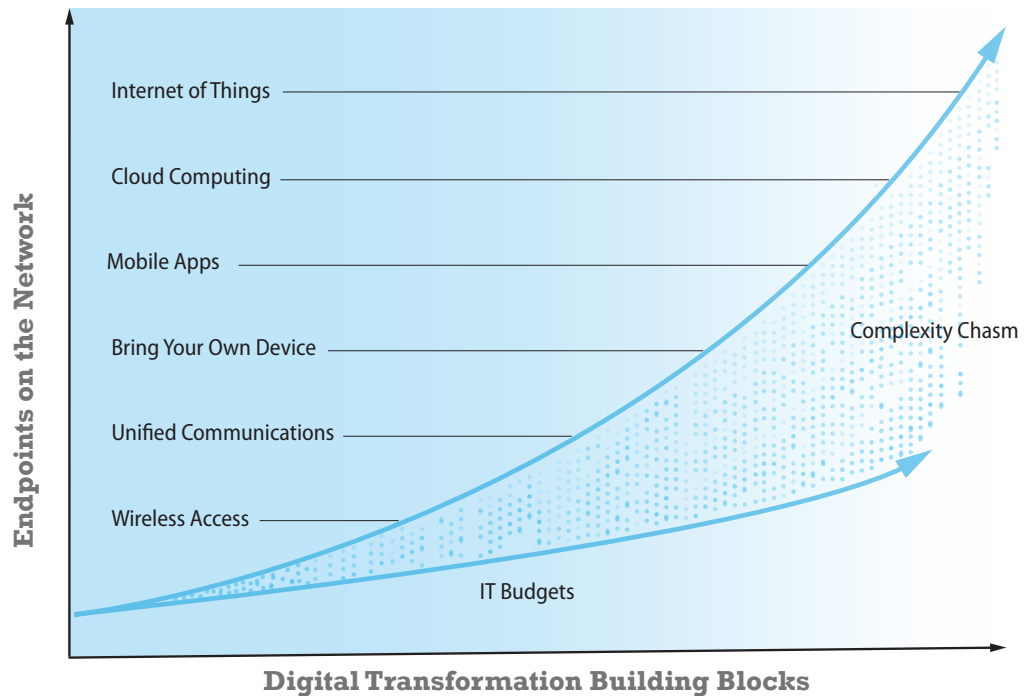
Also, as IT has become increasingly virtual, cloud driven and disaggregated, the complexity of running the infrastructure has increased exponentially (Exhibit 3). The management tools currently in use are not well suited to the new reality, as they are aligned with specific silos. For example, network management tools manage the network, storage management looks at storage and so on. Consequently, there is no "single source of truth" for IT to rely on, which exacerbates the problems. This is why a staggering 75% of application problems are reported by end users and not the IT department, according to the ZK Research 2019 Network Purchase Intention Study. And even when a problem is identified, 90% of the time taken to solve the problem is related to simply identifying the source of the issue.

Exhibit 2: Resolution Ping-Pong Plagues IT Departments

ZK Research, 2020

Exhibit 3: **Network Complexity Is on the Rise**

Internet of Things

Cloud Computing

Mobile Apps

Bring Your Own Device

Unified Communications

Wireless Access

Complexity Chasm

IT Budgets

Endpoints on the Network

Digital Transformation Building Blocks

ZK Research, 2020

It's clear that the way infrastructure is deployed, operated and managed needs to change. If IT no longer owns endpoints and applications, it needs to shift control to a resource that it does own. Therefore, IT needs to shift the control points into the network.

SECTION III: WHY A NETWORK-CENTRIC APPROACH IS CRITICAL TO THE SUCCESS OF CONNECTED EXPERIENCES

It's fair to say that the network historically has not had the level of CIO and business leader attention as other parts of IT, which makes sense because technology was computing and application centric. This has changed over the past several years, as all the building blocks of digital transformation (such as IoT, cloud, mobility and 5G) are network-centric—meaning the network will play a significant role in the success or failure of digital initiatives.

Today's businesses are becoming increasingly dynamic and distributed. The COVID-19 pandemic has pushed workers into their homes, and that trend is here to stay and will become a core part of an organization's strategy. As things return to "normal," workers will function from their homes, the office and remote locations. The network is the fabric that ties applications to users to endpoints to things regardless of where they are located or how the applications are accessed.

Wi-Fi 6 in particular will create entirely new experiences. Older versions of Wi-Fi were incrementally faster and improved a few experiences. For example, Wi-Fi 4 (802.11n) gave rise to wireless game consoles, and Wi-Fi 5 (802.11ac) ushered in the era of streaming entertainment, such as

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Netflix. However, Wi-Fi 6 will impact almost every consumer market in ways we can't even imagine yet, which further increases the value of the network.

The network is also the only "single source of truth" for management and security, and it is the IT resource that is foundational to delivering a truly connected experience. All application and user traffic traverses the network, and anomalies can be a predictor of problems or an indicator of a security breach. For example, if a network baseline is conducted, the level of video traffic will be set at a certain amount. If, over time, the level continues to increase and consumes more bandwidth, IT can predict that a problem will occur before it becomes business critical and take action to fix the issue.

To understand the security implications of a network-centric approach, consider an IoT device that communicates with a specific cloud resource daily to provide a status update. If the network traffic changes and the IoT device attempts to access the accounting servers, that could indicate a breach, and the endpoint would be quarantined for further examination. This can greatly reduce the time to breach identification. ZK Research has found that the current time to locate a breach is about 100 days—during which a threat actor could cause considerable damage. Looking for network anomalies can shrink that time down to just a few days.

However, delivering connected experiences requires a rethink of the network and how it is managed. Organizations have a wireless network, a WAN, a campus network as well as a data center and a cloud network. But instead of managing this network in silos, just like the broader IT department, the end-to-end network must look like a single entity. Why? Because when a user accesses an application, it might traverse the cloud, Wi-Fi, the data center and campus. This is the reality of connected experiences. A performance or availability problem could originate from any one of these domains. Therefore, an end-to-end view can help quickly focus on the cause of the issue.

One of the biggest benefits of treating a network that spans the various domains as a single entity is data can be aggregated and AI can be used to look for key insights. In data science, there is an axiom that good data leads to good insights. However, the opposite is true as well, where bad data leads to bad insights, and in addition, partial data creates partial insights that then need to be manually correlated. The ability to apply AI to network data mandates that the network be managed as a single entity.

Once insights are discovered, automation can be applied to speed up the process of managing a network. ZK Research has found that it takes an enterprise an average of four months to make a change network wide, which is far too slow for digital businesses. Automation can bring that number down to mere minutes and eventually lead to an intent-based network that runs and secures itself.

Business and IT leaders need to consider the network a strategic resource that creates competitive differentiation. To accomplish this, the network must span every domain and be secured and managed as a single entity. Only this way can it be as connected as the connected experiences that it seeks to enable.

IT and business leaders need to rethink the way infrastructure is deployed. As organizational leaders move forward with digital transformation, they should consider the following:

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Leverage the network for experience and security. We now live in a world where everything is connected, and this has changed the role of the network. Business leaders should look to leverage the network to monitor and optimize the application experience as well as provide the necessary levels of security to protect companies and employees.

Demand simplicity from vendors. Technology that is simple to deploy and manage is much harder to build than complicated technology. Vendors must do the work to make their solutions simple in order to mask the complexity of the underlying solutions. If not, vendors are offloading that hard work onto their customers. IT decision makers should no longer accept solutions that are manually intensive.

Focus on the employee and customer experience. The customer experience is now the top brand differentiator for almost all businesses in all industries. However, delivering market-leading customer experiences requires more than just well-trained contact center agents. All customer-facing employees must have access to fully modernized contact center and collaboration tools to ensure they can access the right information when they need it.

SECTION IV: CISCO DELIVERS CONNECTED EXPERIENCES

Cisco is the market leader in many technologies including networking, security and collaboration. Consequently, it's not uncommon to find customers purchasing multiple products from Cisco to meet the needs of a particular business outcome. For example, setting up users to work from home requires products such as Cisco AnyConnect for VPN, Webex for collaboration and SD-WAN for network connectivity.

Although having the ability to source multiple products from a single vendor is a benefit, it can often be complicated to ensure all the parts are assembled correctly and the user experience is optimized. If not done correctly, it can lead to user frustration, high volumes of help desk calls and a significant amount of IT time spent troubleshooting the problems. To combat this issue, Cisco has created Connected Experiences software, which is designed to remove the complexity of deploying technology that spans multiple silos. These experiences leverage technologies from all of Cisco's product lines but are tied together with automation capabilities, which leads to more of a turnkey approach.

For example, remote working was once the exception but has become the norm, and it will stay that way for the foreseeable future. Based on interviews with CIOs, ZK Research estimates that businesses will see a 30% permanent uptick in post-pandemic remote working. This will require businesses to scale remote access from about 20% of employees to the entire company. However, there is no "Easy Button" for remote connectivity, as IT must address several issues—including a new heightened awareness of security driven by some highly publicized online meetings that were hijacked by outsiders. To make the process easier, Cisco has created a Connected Experience around remote access.

Exhibit 4 shows the scope of all the Cisco products that enable a user to work from home. Instead of having to procure Webex, Duo, AMP for Endpoints and other products, Cisco has streamlined this process and automates all of the repetitive tasks required to deploy these at scale.

By greatly simplifying the IT process, Cisco Connected Experiences are aligned well with current industry trends. The ZK Research 2020 Network Purchase Intention Study found that 74% of an organization's IT budget is dedicated the maintaining the status quo, leaving only 26% for innovation. Cisco Connected Experiences software greatly simplifies operations and support and enables companies to shift more budget to driving innovation and digital transformation.

Also, the automation capabilities of Cisco's Connected Experiences ensure that all the components work together out of the box, eliminating the weeks or sometimes months of tweaking and tuning required to get services to work optimally. The turnkey nature of Cisco's Connected

Exhibit 4: Cisco Simplifies Working from Home
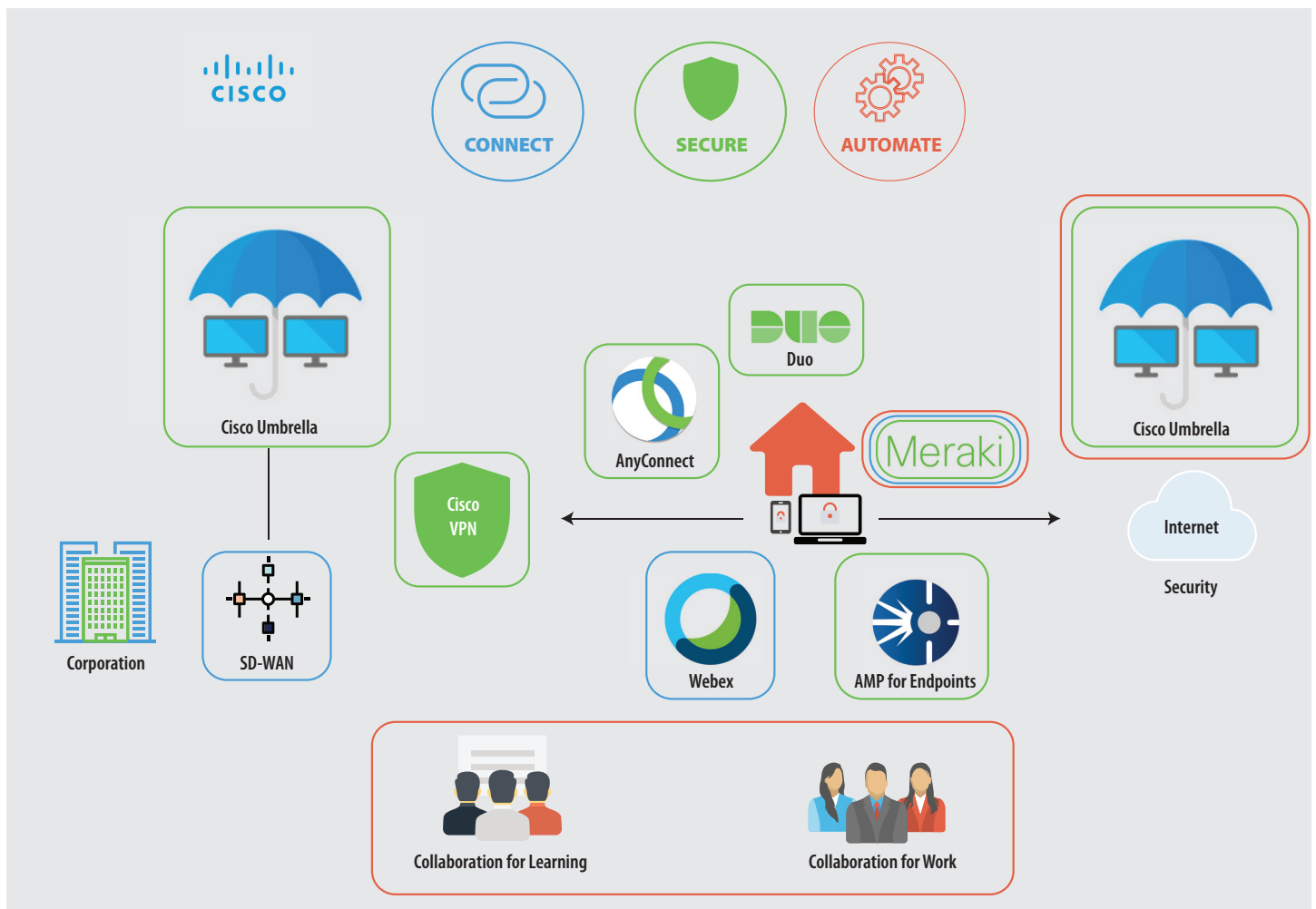
Cisco and ZK Research, 2020

Experiences eliminates the problems that occur from cobbling together point products, which can have a big impact on the user experience of both employees and customers—and therefore can be critical for businesses.

SECTION V: CONCLUSION

Digital transformation has been a powerful driving force for business evolution over the past five years. The COVID-19 pandemic has accelerated digital initiatives as companies look to maintain the highest levels of employee productivity and customer experience while remote working has skyrocketed. Consequently, businesses have adopted a wide range of new technologies such as remote access, wireless networking, SD-WANs and IoT.

Although these new technologies bring a new set of capabilities to businesses and drive innovation, they widen the already growing complexity chasm for IT pros. If businesses are to fully leverage the power of digital technologies, the deployment, management and operations of IT systems must be simplified.

Cisco's Connected Experiences solutions combine the vendor's broad portfolio of products with the business's infrastructure to connect employees simply and quickly. The solutions also secure the organization and its employees with open architectures and integrated trust while automating processes with closed-loop visibility, insights and action.

IT and business leaders need to rethink the way infrastructure is deployed and consider turnkey solutions, like Cisco's Connected Experiences, to maximize their digital opportunities.

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