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## The Modern Data Center of Today

### IT Goes From Supporting the Business to Being the Business

Today, information technology is integrated; IT isn't just part of the business – it is the business. The traditional concept of the data center is long gone, as are the basic customer demands of the past. Data centers must operate as the gateway to compute and assume the role of an outsourced operations team simultaneously. The traditional, siloed data center model doesn't apply anymore.

Virtually every business has moved, or is moving to, a more elastic compute type of infrastructure. The public cloud comes into play when ephemeral workloads are necessary, while the private cloud or colocation environment provides the base platform itself. Data centers are commonly providing businesses with the resources they need and the wherewithal to eliminate them when they're no longer necessary.

- “Worldwide end-user spending on public cloud services is forecast to grow 18.4% in 2021 to total \$304.9 billion, up from \$257.5 billion in 2020.”  
-Gartner, Gartner Forecasts Worldwide Public Cloud End-User Spending to Grow 18% in 2021<sup>1</sup>
- At the same time, the enterprise data center is alive and well. While many critical loads are being migrated to the public cloud, more than half of workloads are expected to remain in on-premises data centers in 2022 (Uptime Institute).<sup>2</sup>

Furthermore, compliance remains important, coupled with the need for governance. There are significant costs associated with spinning up machines on demand, therefore the self-service access businesses need must be offered alongside governance and control mechanisms while maintaining user freedom.

In addition, the role of software is incontrovertible. Creating software-driven services around backups, IP address management, IaaS, PaaS – essentially any service you can conceive of, is a major component of modern data center infrastructure. Ultimately, the interface between the business and the data center will be software driven.

### Technology Outcomes of the COVID-19 Pandemic

Finally, there are the implications of the COVID-19 pandemic to consider:

- The COVID-19 crisis accelerated transitions to the cloud. In fact, cloud spending rose 37% to \$29 billion during the first quarter of 2020. It's likely that this trend will continue as virtual work reinforces the need for off-premises technology services that are scalable, secure, reliable, and cost-effective (PWC).<sup>3</sup>
- The unprecedented increase in remote work exacerbated the need for faster access to data. As a result, there's a greater focus on network equipment and communications the IT industry hasn't seen before. 5G network deployments and 5G equipment adoption are fast-tracking (Deloitte).<sup>4</sup>

It's impossible to take a closer look at the modern data center without considering how the COVID-19 crisis has impacted the technology sector. The pandemic resulted in a near-overnight transition to almost entirely remote workforces, as well as a massive uptick in BYOD devices. Security and software-defined solutions were adopted with intensified frequency. As organizations have progressively used the network in ways it wasn't planned for, the world of information technology was reminded of its critical importance.

- Data Centers Critical to Business Operations, North American Data Center Report H1 2020, CBRE Research<sup>5</sup>

**“The increase in remote working due to COVID-19 reinforced the importance and reliability of data centers and the networks that support them.”**



## Causes and Consequences of Downtime in Today's Digitally Driven Business Climate

### The Simple Mistakes That Lead to Downtime

Possibly the most glaring connection between the overall health of the data center and network monitoring is the potential for downtime. With any data center comes the risk of an unplanned event which leads to an outage. The truth of the matter is that outages do happen. Even with the most advanced technology and built-in redundancy, IT is still working with imperfect systems.

More often than not, downtime is caused by relatively simple mistakes:

- Lack of network documentation
- Limited information on network configurations
- Ineffective means for identifying and tracking devices on the network
- Inability to identify ISP connections
- Lack of visibility into performance
- Inability to identify root causes

**“The failure is going to occur, the downtime's going to happen, but what you do next is what defines whether it was a big downtime or a blip.”**

- Jordan MacPherson, Enterprise Operations Center Program Manager, Park Place Technologies



### Prices to Pay for Service Interruptions

Ultimately, the greatest consequence of downtime in today's digitally driven climate is the inability to recover as a business, although the impetus can vary. Perhaps an organization lost employees due to the inability to pay staff on time because IT systems were down. Or maybe the service offered wasn't delivered in time because systems aren't available or performant. Other consequences include but are not limited to loss of productivity, lost revenue, and costs that cannot be quantified such as abandoned IT initiatives, damaged IT morale, and lost opportunities in the market (Mission Critical Magazine).<sup>6</sup>

- According to a report from the Federal Emergency Management Agency (FEMA), 40% of businesses do not reopen following a disaster. On top of that, another 25% fail within one year.<sup>7</sup>
- The United States Small Business Administration found that over 90% of companies fail within two years of being struck by a disaster.<sup>8</sup>
- According to an ITIC study, an overwhelming majority (98%) of organizations report that a single hour of downtime costs them \$100,000 or more, and 81% state that the hourly cost is \$300,000 or more.<sup>9</sup>



### Why Every Business Needs Network Monitoring

#### Increasing Complexity in the Data Center Means Increasing Complexity on the Network

As the data center has evolved, so too has network monitoring. Today, software rules the data center; there's software-defined routers, switches, networking, etc. IT teams are tasked with measuring and managing widespread, disparate network activities. The multi-layered IT environments organizations rely on introduce a new level of complexity to network monitoring, impacting how network administrators oversee things like latency, performance, and other critical network details.

Regardless of industry, every organization needs visibility into the network and actionable intelligence to make appropriate decisions with fast response time. In essence, IT is built on top of the network; everything requires network connectivity to function. In the absence of network visibility, performance management, or analytics, there's no way make connections between the network and everything it's connected to. Network administrators need visibility into the network through network monitoring to make a variety of tactical and strategic decisions. Resource planning, performance adjustments, and security measures are all consequential safeguards against downtime. For instance, if a company plans to add resources such as a new productivity application, anticipating the appropriate amount of bandwidth the application will demand is extremely difficult. This kind of delay in such a fast-paced, customer-first business environment can severely limit an organization's growth and agility potential.

However, with the right network monitoring system, it becomes possible to effectively monitor resources and performance, from applications to services, ultimately supporting the operations of the data center as a whole.

#### How Network Monitoring Converts Reactivity into Proactivity

**"When I go through my day as a network administrator, I'm responsible for supporting the end user. If someone gets on their laptop and can't connect to an application or a website, the problem swiftly makes its way to my desk. With network monitoring, I can find the root of that problem quickly and easily."**

-Eric Felton, Network Administrator, Park Place Technologies

Whether a server goes down, a database isn't copying over, or an engineer discovers an issue, the network is often suspected first. Users commonly look to network administrators for help, and of course network administrators probably wish they could say "Yes, and we've got giant neon blinking signs that point right to the problem." Unfortunately, problem resolution typically calls for analysis from the ground up such as logging into a particular router or the device connecting the end user and the application in question and investigating.

With a network monitoring solution, admins have access to humanly readable, comprehensive dashboards that provide insights into network events. While network devices are good at collecting data, they're imperfect when it comes to displaying it. Network monitoring makes data into alerts that are useful, readable, and relevant.

Consider the following example, particularly relevant in the wake of the pandemic's beginning: Many businesses were forced to reply on VPNs as the workforce became abruptly remote. The problem with VPNs is their limitations: once they're full, they're full. Without a network monitoring software, in this scenario a user will likely submit a ticket or reach out to IT directly because they're unable to connect to the VPN. An unarmed help desk admin would have to identify the VPN in question, error messages, etc., partly relying on the end user to investigate. Network monitoring allows administrators to proactively solve issues; in this case, by triggering an alert that the VPN is 90% full, for example, enabling admins to start moving connections to a different VPN before it's an issue.

This is one of potentially hundreds of cases in which a network monitoring solution takes the network team from reactionary to proactive. Life is better for end users and network administrators, ultimately resulting in better service delivery to the business and a healthier data center for the organization and its customers.





### Protecting the Health of the Data Center with Network Monitoring

Consider the critical practice of data protection. When discussing network monitoring, the topic of data protection doesn't often arise – but perhaps it should. The network plays a part in data protection when it comes to tasks like ensuring there's bandwidth available to allow off-site backups to occur successfully, or making sure networking is in place if a disaster recovery activity needs to happen and IT must cut over to a secondary location, for example. While not necessarily an obvious link, network monitoring is very much supportive of data protection, and by extension, the data center. If the IT team doesn't have a comprehensive view of the network or an understanding of how it works, data protection efforts are essentially rendered useless because the network may not be available to drive them.

Connectivity and communication are the heart of IT, and the network is the facilitator. Without a network, there's no visibility into storage, for example, or facilities – and without a strong network monitoring practice, the IT team won't have the information necessary to demonstrate that network monitoring has protected the data center and prevented potential disruption.

**“Without the network, there is no data center.  
The network is its building block.”**

-Jordan MacPherson, Enterprise Operations Center Program Manager  
Park Place Technologies



#### References

1. <https://www.gartner.com/en/newsroom/press-releases/2020-11-17-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-grow-18-percent-in-2021>
2. <https://uptimeinstitute.com/2020-data-center-industry-survey-results>
3. <https://www.pwc.com/us/en/industries/tmt/library/covid19-cloud-infrastructure.html>
4. <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/covid-19-understanding-covid-19-s-impact-on-the-technology-sector.html>
5. <https://www.cbre.us/research-and-reports/North-America-Data-Center-Report-H1-2020>
6. <https://www.missioncriticalmagazine.com/articles/92664-what-unanticipated-downtime-means-for-your-business>
7. <https://www.fema.gov>
8. <https://www.sba.gov>
9. <https://itic-corp.com/blog/2016/08/cost-of-hourly-downtime-soars-81-of-enterprises-say-it-exceeds-300k-on-average>