Enhancing CX with Digital Experience Observability

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Customer experience may be a familiar term—but depending on the context and who is using it, the exact definition may differ. Communication service providers (CSPs) have focused on customer experience, with complete teams and processes assigned to properly evaluate and maintain specific levels of service. This article focuses on areas in which additional value can be provided that will have an immediate impact on customer experience, primarily through self-service mechanisms. The concept is illustrated through new use cases that resulted in changes to the way people work and live, and the new cloud architectures afforded by multi-access edge compute.

It's not new, but it's worth repeating: the pandemic has changed the way we interact human to human, as well as with content, online learning, and shopping. Whether or not this is the new normal, digital interactions are here to stay. Generally, CSPs were well-prepared for the dramatic shift of traffic from the traffic-engineered private enterprise infrastructure to the consumer networks, a shift that happened virtually overnight in early 2020. Companies have struggled to move to the cloud for years, but in a matter of days the private enterprise access network became the public Internet.

As a result of this sudden reliance on the public consumer network, many customers had to become their own IT staff. With the lack of visibility of the public Internet, enterprise IT is unable to assist with even the most basic issues, and because most of the issues are intermittent, employees no longer complain and simply wait for the issue to resolve itself.

Elevating the digital experience

Digital interactions require a new focus on performance. We know from sitting in endless online meetings that poor or inconsistent Internet performance can make for a very painful experience. What can CSPs do to help their customers who rely on their network most? The answer is to enhance self-service capabilities with the equivalent of Internet weather. Here, the term "Internet weather" describes an experiential or health score from individual markets to major services that represent how good the experience is based on the performance of the service. While services like Netflix and YouTube are obvious ones to highlight, as everyone is working from home, why not add Salesforce or Office365, all displayed within a self-service portal or mobile application?

It may be stating the obvious, but the interaction between the consumer (customer or employee) and producer (shopping site or business application) is far more complex than it appears. We all know this, but a single web page such as Pinterest opens hundreds if not thousands of connections, and these connections are not all served from the same system. One web page, thousands of connections with content served from different locations, and different components from various vendors all play a role in making all this work—we call this the Digital Delivery Chain.

Identifying the digital experience for these services from each market sounds like a cakewalk, doesn't it? Are these complexities necessary? If our devices weren't so smart, the screens so good, and the content so engaging, the answer would be a resounding no, but this is not the case. To compensate for latency, loosely defined as the length of time it takes to deliver content from the origin to the destination, content is distributed in proximity to those markets where the content is consumed. The result is that some of the content is filled from a distributed source via a Content Delivery Network (CDN), with the remainder served from the origin. While the digital delivery chain is far more complex, the CDN allows for higher resolution and more engaging content to be delivered without the penalty associated with distance, and since the majority of the content (measured in bytes) is cached locally, there is a significant benefit to the available capacity of backbone networks. Digital experience observability solutions account for all this complexity and provide a simple answer to a complex question: is the service available, reliable, and performing to expectations from the local market? With the increase in reliance on digital interactions, customers care more and more about their digital experience.

Enabling digital experience observability

As noted previously, the pandemic created a work-from-home dilemma. Enterprises went from tens or hundreds of office locations to thousands, overnight. The millions of dollars spent on performance monitoring solutions quickly became useless as employees were no longer using the enterprise private network, but rather the Internet. Without the ability to peer into the Internet, enterprise IT staff is left blind and unable to determine the cause of issues with the web conferencing solution or the SaaS application. The employee is left to figure out issues on their

own. While supplementing the self-service portal with common business applications as mentioned above is a good start, there are opportunities to provide additional services driving enhanced customer experience. CSPs with an existing enterprise sales team may want to offer a solution to the enterprise, providing IT staff with digital experience observability for all their employees, independent of their location. For employees with service on the CSP's network, enhanced services can be offered. This is particularly attractive for leveraging mobile broadband and 5G networks. Even without an enterprise sales team, however, the CSP can offer the customer enhanced service, providing them with a customized monitoring service.

Providing enhanced digital experience observability services either to the consumer or to the enterprise is an immediate way to drive additional value and improve the customer experience. Developing a competency to support these complex digital interactions, however, is even more critical as we move slightly forward into the future of multi-access edge compute (MEC). While CDN vendors currently provide not only edge caching but also edge compute, MEC will drive many interesting use cases. And as before, the use cases are driven by advances in technology: interactive technologies like Augmented Reality (AR) and Virtual Reality (VR) as well as Internet of Things (IoT). In fact, some of the MEC use cases are quite simple. Instead of hosting servers in a business facility where physical security is an issue, the compute can be located at the access edge, affording excellent performance. Multiple businesses within the local market, such as a chain of gas stations, can leverage the same MEC facilities, further optimizing costs. Human-to-human digital interaction both as an employee and as a consumer are interesting use cases; however, what about machine to machine? As we saw with employees working from home, they stopped complaining about IT issues, and simply waited for the issues to resolve themselves. Machines are far less likely to complain than humans.

Additionally, services such as Network Time Protocol (NTP) are critical for many IoT applications, as is Domain Name Service (DNS). What happens when these services are not available and the IoT devices experience time drift? Potentially it is the equivalent of workers going on strike: they may stop working. Or perhaps DNS directs IoT devices to communicate inefficiently. One of the compelling requirements for MEC is as a locally available, low latency compute resource. A simple DNS misconfiguration could completely cripple the application. These services I've mentioned represent a small number of services that comprise the Digital Delivery Chain.

Even more interesting are the applications themselves that reside on the MEC platforms. These applications are containerized and are often multi-tier applications in which one component (container) of the application communicates with another. This is accomplished via a standard set of application programming interfaces (APIs). It is possible to exercise all aspects of the application by simply leveraging a proactive observability node to continually test the API. This can be accomplished throughout the entire lifecycle of the application, including during development testing (devtest) in pre-production. MEC is further complicated, as the compute itself is often provided by a CSP partner such as a hyperscaler, whereas the network in front of and behind the MEC is provided by the CSP. Additionally, it is likely that some of the services that comprise the Digital Delivery Chain are provided by the CSP (NTP and DNS) while other services are provided by the hyperscaler. With these complex applications and architectures oftentimes

supporting time-sensitive and perhaps mission-critical use cases, it is imperative that a comprehensive digital experience observability solution is offered.

Delivering exceptional digital interactions

The past several years have changed so many behaviors, from how and where we work to how we shop, learn and much more. The investments the CSPs have made in infrastructure over the past decade allowed these changes to occur with minimal disruption. Competition in the access network is increasing and will continue to do so. Applications will become ever more complex as new smart city, AR and VR, and other MEC and IoT use cases are deployed. Cloud architectures are now multi-tier and the relationship between partners is central to delivering comprehensive solutions to customers.

CSPs concerned about enhancing customer experience and providing increased value will embrace the opportunity to offer a digital experience observability solution. Starting with focused offerings that allow customers to help themselves, the CSP will continue to build competency in delivering exceptional digital interactions. This is critically important as the pandemic accelerated the makings of a digital society. While none of us want all our interactions to be digital, when we do engage digitally, we want the experience to be exceptional.