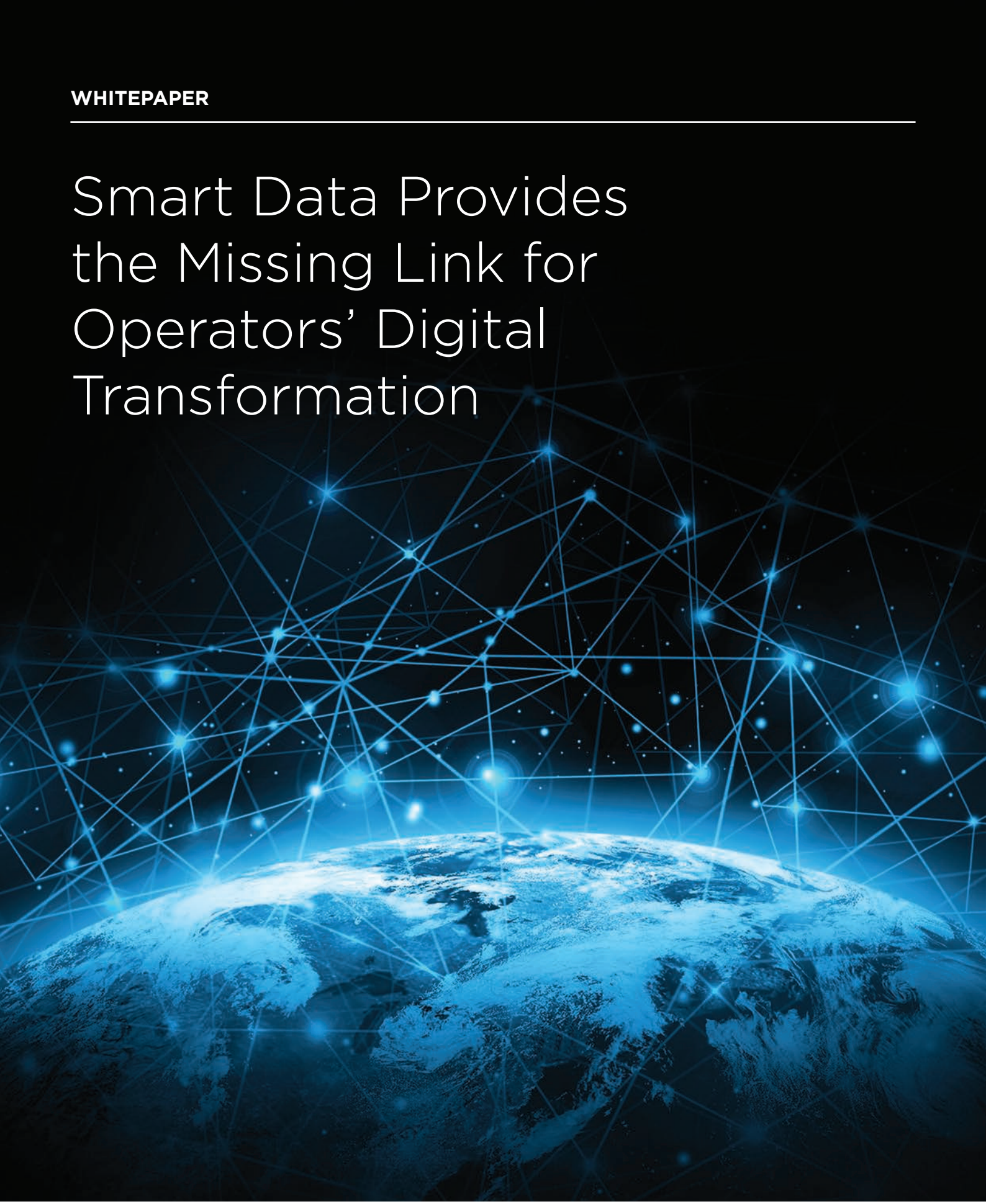
WHITEPAPER

Smart Data Provides the Missing Link for Operators' Digital Transformation



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MOBILE WORLD LIVE

EXECUTIVE SUMMARY

Communications service providers (CSPs) did not make money out of the first wave of digital services from native digital companies, which were designed for consumers. Now they have the chance to capitalize on a much bigger opportunity – digital services for business.

Naturally, it comes with considerable challenges – how are CSPs to manage networks to assure services and excellent customer experience in the face of virtualization, automation, the Internet of Things and the continuing boom in traffic caused by soaring consumption of consumer digital services?

Mining static data – information about customers and transactions – provides no context or insight into experience. The only thing that does that is the data about the progress of traffic across the network, which can be acted on in real-time to improve service outcomes, revenues, customer retention, better use of network assets and much more.

However, raw network traffic comes in tremendous volume and varying formats to present a morass of detail. The trick is choosing the right, affordable solution to turn this into smart, immediately actionable data that reaps benefits straight away and puts CSPs in a strong position to exploit future developments in the market, technology and operations.

INTRODUCTION:
Digital Transformation – Impact and Opportunities

Digitization is having a massive impact on every industry around the world. Companies that were not born digital are transforming to become digital, so that they can fundamentally change how they operate and deliver value to customers and compete more effectively. This transformation moves enterprises from being process-oriented to data-driven, and from being product-focused to customer-centric.

For communication service providers (CSPs), digital transformation's major enablers (such as virtualization and automation) and drivers (booming over the top services and the Internet of Things) means they are dealing with ever greater levels of interconnectivity and service inter-dependencies. This brings terrific challenges, as well as opportunities.

The critical importance of customer experience

The first, immense wave of digital services is about business-to-consumer (B2C) interaction, with digital natives such as Amazon, Alibaba, Facebook, Apple, Netflix and Google leading the charge. All of these companies have been built around their customers and end-users, hence the unprecedented focus on customer experience by those undergoing digital transformation.

Customers' experience of using native digital services means they expect to complete all interactions with companies quickly and easily (with self-service), regardless of their location, the device they are using and the time of day. Their CSP is always first in the line of fire when something goes wrong, no matter where the fault lies, and whether the services are provided by the CSP (phone calls, say) or are simply riding over the top (OTT) of the network (such as streaming music or video).

OTT soars still higher

This first wave of digital services is still rising, as shown by these snapshots:

- The Nielsen Total Audience Report, published in November 2017, found Netflix had over 109 million subscribers worldwide and Spotify about 50 million paying customers with millions more using the service free of charge. Over 87% of viewers use a second screen when watching TV.

- In January 2018, Transparency Market Research reckoned demand for global OTT services will have a compound annual growth rate of 16.4% from 2017 to 2025. The market's value is expected to reach $3,538.04 million, up from $925.87 million in 2016.

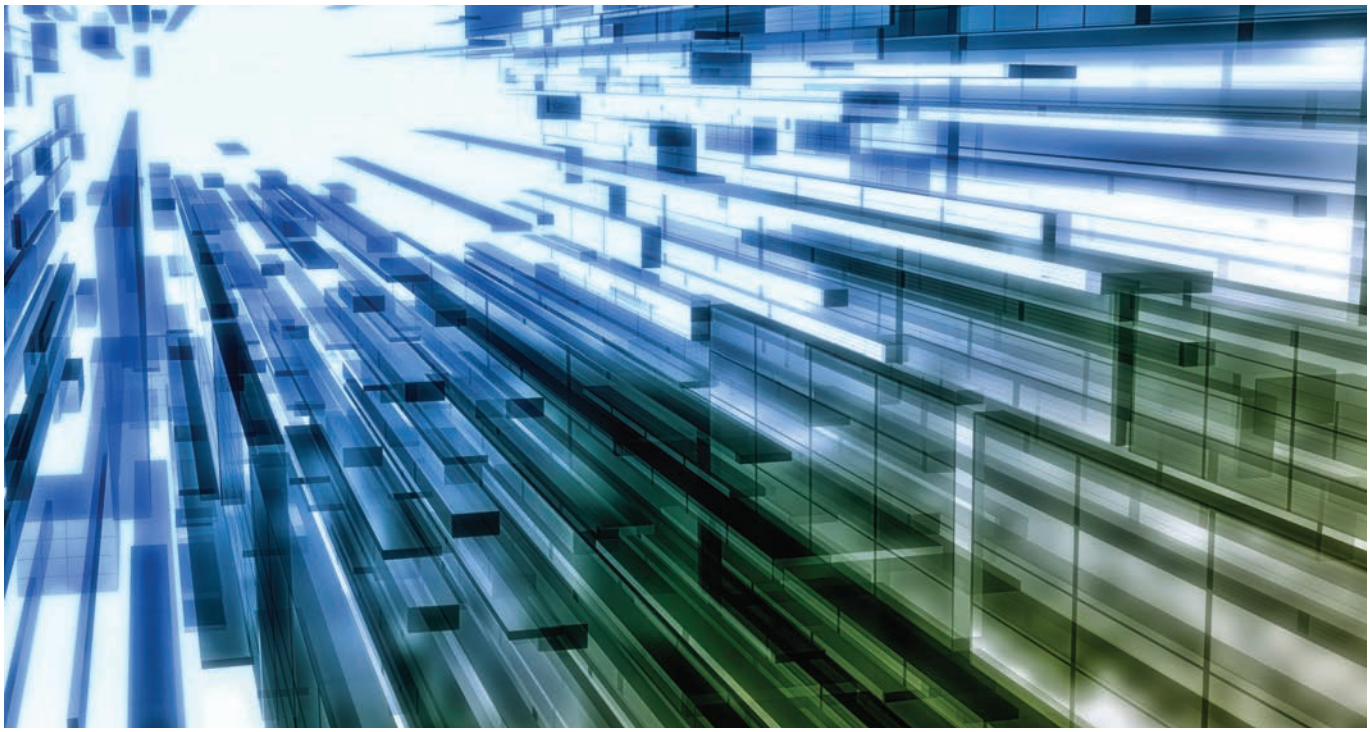
CSPs have been hard pushed to keep up with the increased demand for bandwidth, coverage and speed by the still-growing first wave of services, but the scale and scope of IoT – for applications like smart home, e-health, connected cars and much more – will dwarf the consumer market in the next decade. In addition to maintaining network performance, CSPs should be looking to mine the data from IoT devices and services to understand their behavior and impact on the network, as well as to understand the business opportunities. Further, service providers must ensure the security of their network, which is exposed to a myriad of IoT vulnerabilities.

The impact of machine-to-machine communications

Analysis published by IHS Markit in October 2017 predicted the number of connected IoT devices worldwide will on average jump 12 percent annually, from nearly 27 billion in 2017 to 125 billion in 2030. It also forecast global data transmissions will increase from 20% to 25% annually to 50% per year, on average, in the next 15 years.

In addition to fueling demand for connectivity, this second wave is of huge significance to CSPs for another reason. Although they failed to profit from the first wave of consumer services, they have even bigger opportunity looming in the emerging digital business-to-business (B2B) sector. According to McKinsey, telcos are well placed to "position themselves as the backbone of fast-growing digital ecosystems, especially around IoT, security, and Industry 4.0.

"This position spans the categories of network, product, and services and offers telcos the possibility of taking leading (sometimes exclusive) roles in, for example, intelligent networks, solutions in information and communications technology (ICT), cloud services, analytics, IoT platforms and security solutions, billing, and customer relationship management."



Virtualize this

Networks are becoming virtualized to enable and accelerate the delivery of new kinds of services and business models, as well as to cut operational costs and improve efficiency. These software-defined, logical, virtual networks are not tightly integrated with the underlying hardware, but instead transient 'microservices' run independently over the infrastructure. This makes better use of network resources and avoids the expense of building massive capacity to deal with peak loads, which stands idle most of the time.

Virtualization also blends physical and virtual assets (which can include private, hybrid and public clouds) to leverage CSPs' huge sunk investment in their infrastructure and associated systems. It also gives them access to new technologies, now and in the future.

As hybrid networks will be the norm for some time to come, services will utilize legacy infrastructure as well as virtualized infrastructure, increasing the complexity of service delivery.

The power of automation

Automation has helped make the most successful native digital companies become some of the world's largest and most profitable enterprises in the last decade; their automated, platform-based business and operational models give customers access to self-service and self-care anywhere, any time. Deployed intelligently, automation reduces costs while greatly increasing customers' satisfaction.

Automation will become more important too in the running of networks in a world with billions of connected devices (which will have hugely varying communications' needs from zero latency to periodic batch transmissions) and when maybe 3 million people want to replay a sports moment on the same mobile network at the same time. Automation is the only option because the volume and speed required will exceed the human Operations and Engineering team's ability to manage them. This will be even more the case when 5G goes mainstream and supports microservices, in about two years' time.

HOW COMMUNICATION SERVICE PROVIDERS CAN ACCELERATE THEIR DIGITAL JOURNEY

Sales and marketing teams within CSPs are not short of data; they are awash with it. Terabytes of data are produced by cameras, telemetry devices, software logs, routers, mobile apps and the IoT at the network edge. It is also captured from activity related to many various web, mobile and enterprise applications.

In addition to the unmanageable volume, the data is of different kinds – structured, unstructured and semi-structured – and presented in many formats, including graphs, log files, SQL queries, relational databases, JSON and more.

To add to their difficulties, marketers and sales professionals receive floods of data from their own apps and tools. Also, analytics and database vendors design tools to collect, integrate, process and utilize this data to generate ideas and opportunities for greater efficiency, competitive insights, marketing and sales opportunities and optimization. Unfortunately, they tend to be complicated and too slow. For instance, machine logging is an option, but it introduces the possibilities of both latency and errors, and only provides macro-level visibility into the performance of the machine.

Static Data Doesn't Tell the Whole Story

When we talk about releasing insights and value from data, we tend to think about mining and analyzing static raw data, which has been collected and dumped into data lakes. Static data includes things like account holders' personal details and transactions. Yet a record of a completed transaction tells us little about how well the service performed. For example, how many attempts did it take to log in/authenticate a user? Were there problems due to the authentication process or the network? Static data doesn't provide context or clues about the service experience or people's behavior with an application.

Likewise, billing data is simply a monthly aggregation of usage without the detail; it doesn't tell us what customers did, when and how, their experience of using services or how they feel about them. It doesn't reveal when they watch YouTube and on what device, or show when they send email, from where and which device they prefer.

What Can We Learn from Traffic Data?

Keeping customers happy is fundamental to the success of any service provider and a hallmark of those who have been super-successful as digital companies, where the customer is at the heart of everything they do.

The real-life statistics below are excellent illustrations of how performance impacts customers' behavior and the potential effects on engagement and revenues. They are drawn from Conviva's report, OTT Streaming Market Year in Review 2017. The company says its report covers almost 60% of the internet population and measures 7 out of the top 10 streaming video-on-demand providers in the US, as well as many other OTT providers globally.

- During 2017, Conviva saw a total of 47.1 billion attempted video plays of which 38.8 billion were successfully launched. The rest (17.7%) failed to start or the consumer exited before the video began. This equates to 8.3 billion times a consumer attempted to watch a video and failed.

- Conviva found a correlation between buffering rates and engagement. In 2017, a 0.2% increase in the re-buffering ratio could reduce play duration by nearly eight minutes. Furthermore, consequent increases of the re-buffering rate continue to drive down engagement by more than 50%.

CSPs need to gain immediate and much greater insight into what impacts customers' behavior and preferences. By understanding performance based on real-time traffic they are able to address issues immediately, which can address churn, and improve target marketing, pricing, new product introduction and other opportunities. The challenge is that using real-time traffic data can be very difficult because of the sheer volume of information, the number of nodes and devices on the network.

What is Smart Data?

To process the volume of data when using real-time, traffic data, we need a method to extract the key metadata from the traffic data – we call this smart data. This real-time metadata is gained by the continuous, end-to-end monitoring and analysis of the traffic data flowing over the entire communications infrastructure, virtual or physical, and across cloud environments or within an enterprise. Traffic data is the only data source that yields the unadulterated truth about the quality and nature of service – data, video, email, voice and other traffic – by looking at actual network sessions.

However, the real magic of NETSCOUT's smart data and analytic technologies is that they reduce the bewildering mass of detail to light, rich, scalable data that can be applied immediately. The tools provide a smart data solution on-premises, at a software-defined data center (SDDC) or within hybrid cloud environments.

Smart data from NETSCOUT empowers CSPs with the most scalable, easy to consume, and affordable IP data available – all while providing even more network and service visibility.

> "Traffic data is the only data source that yields the unadulterated truth about the quality and nature of service…"

Opening up Many Possibilities

Correlating smart data with metrics about service delivery, operations and business, and static and other data creates many new possibilities. Smart data is the missing link between where service providers are on their digital transformation journey and where they want to get to because it:

- Enables automation and orchestration of software-defined and self-optimizing networks with real-time network and service performance data.
- Enables real-time target marketing intelligence from geolocation data for push notifications, micro-moments, mobile ads, analysis of customer experience and hyper-targeted messaging.
- Measures new products and services based on many parameters so operators can optimize their performance and see which features are popular, how they need to be tweaked or invent new ones etc.
- Identifies and blocks a Distributed Denial of Service attack in real-time, which prevents a data breach and is much better than even the best after-the-fact forensics.
- Creates churn profiles based on the combination of experience, billing and psychographics, a quantitative methodology used to describe consumers' psychological attributes such as personality, values, opinions, attitudes, interests and lifestyles.
- Supports modeling, 'what-if', data plans and new services based on customers' usage and preference data.
- Supports improved network planning with granular, comprehensive data drawn from the network end-to-end.
- Supports monetization of data to third parties, with in-built privacy protection and smarter, richer traffic data. The introduction of GDPR has made privacy a serious business issue in Europe and it's rising up the agenda in the US and elsewhere too. Being able to marry – but anonymize – personal and usage data is hugely valuable and provides great partnering opportunities.
- Attracts ecosystem partners (for IoT services, for instance). Smart data provides you and your partners with accurate information to validate service level agreements and look where improvements can be made that will have the greatest impact.
- Supports the design of a new generation of services. Until now, network operators needed a huge proportion of their customer base – typically millions of subscribers – to make a service viable. Using smart data, it might turn that a CSP could introduce a hugely lucrative service that is only used by a community of 500 or 1,000 people who work for a Fortune 100 company in just three cities.

> "Smart data is the missing link between where service providers are on their digital transformation journey and where they want to get to."

CONCLUSION

To date CSPs have not been able to exploit traffic data in a cost-effective manner. Capturing traffic data, correlating it to subscribers' sessions, and converting it into usable and accessible data cost effectively is the challenge. Raw traffic data is highly complex and detailed: Smart data allows you to crack it into digestible information ready to use – and the technology is ready to deploy now.

Smart data is forward-looking and will be more applicable as the business becomes increasingly digital and digital business evolves. This is because it enables every new element in the IT infrastructure that supports the digital value chain to be accounted for and aligned with the enterprise-wide digital transformation strategy.

When combined with other data sources, smart data gives service providers unprecedented insights into their customers and how their services are performing. This is the key to increasing revenue, retaining customers, attracting the best partners, reducing costs, and prioritizing investment. It is how to reap the greatest benefits from IoT and B2B opportunities, automation, OTT services and network virtualization.

This is why smart data is the missing link within digital transformation and how it can rapidly move operators from where they are now on their digital journey to much greater value and growth.

NETSCOUT

NETSCOUT SYSTEMS, INC. assures digital business services against disruptions in availability, performance, and security. Our market and technology leadership stems from combining our patented smart data technology with smart analytics. We provide real-time, pervasive visibility, and insights customers need to accelerate, and secure their digital transformation. Our approach transforms the way organizations plan, deliver, integrate, test, and deploy services and applications. Our nGenius service assurance solutions provide real-time, contextual analysis of service, network, and application performance. Arbor security solutions protect against DDoS attacks that threaten availability, and advanced threats that infiltrate networks to steal critical business assets. To learn more about improving service, network, and application performance in physical or virtual data centers, or in the cloud, and how NETSCOUT's performance and security solutions, powered by service intelligence can help you move forward with confidence, visit www.netscout.com or follow @NETSCOUT and @ArborNetworks on Twitter, Facebook, or LinkedIn.

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