Enabling Telco Transformation

How real-time decisioning helps Telecommunication providers
in their digital transactions

Contents

The Telco Industry is Changing:
More Users, Devices, Data, & Traffic

Within the next five years, more than 5.5 billion people will be using mobile devices. Mobile traffic is projected to grow seven-fold, and will account for 20% of all Internet data traffic. With video contributing 75% of mobile traffic volume, the average data volume per user, per month, is estimated to increase from 5GB to 30GB.

At the same time, Internet of Things (IoT) devices are proliferating exponentially. The US Census Bureau projects there will be 26 billion IoT devices in use by 2021. Telco Service Providers (SPs) are hence rebuilding their market positions and reimagining their business systems to drive efficiencies and foster innovation.

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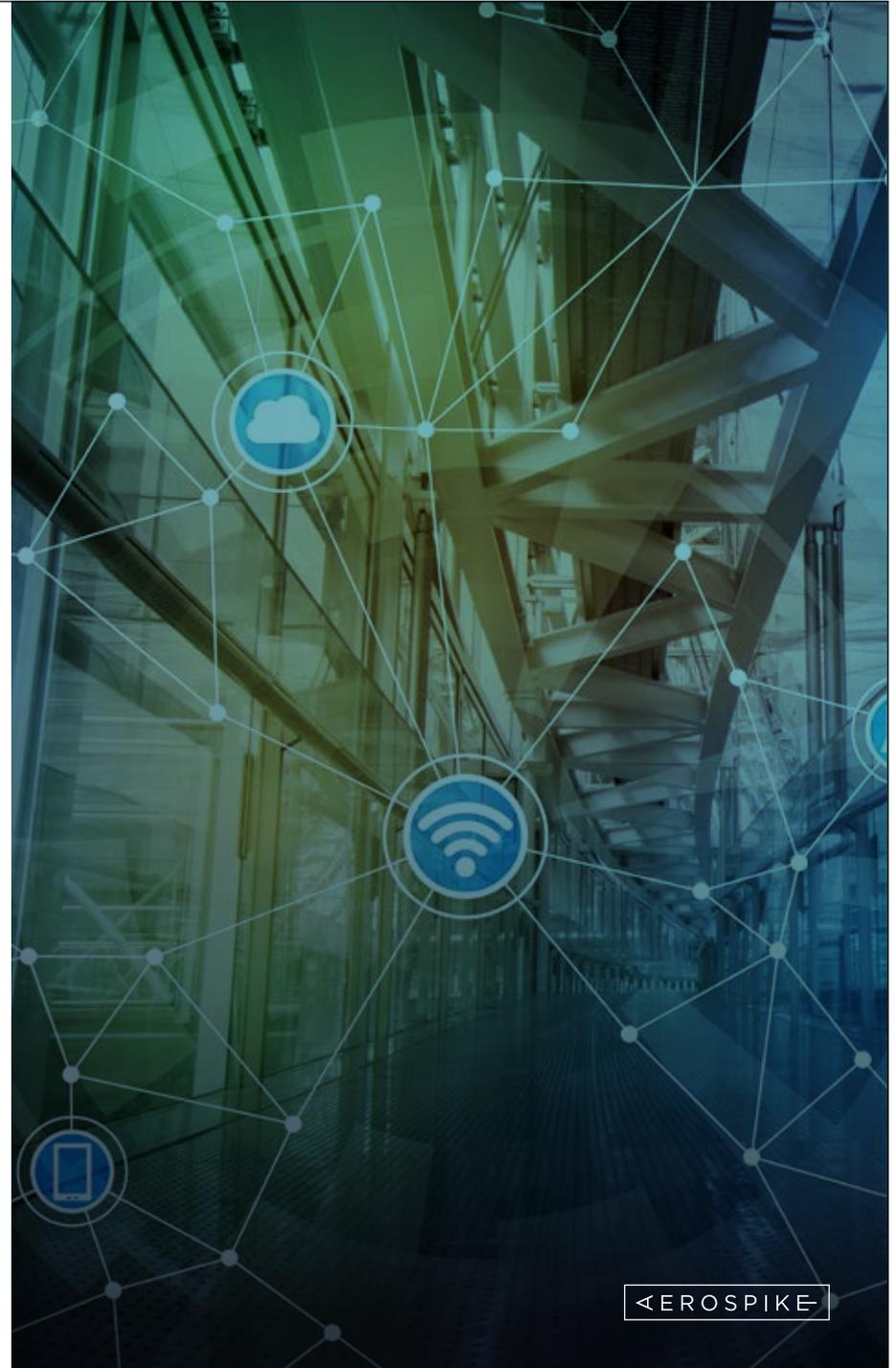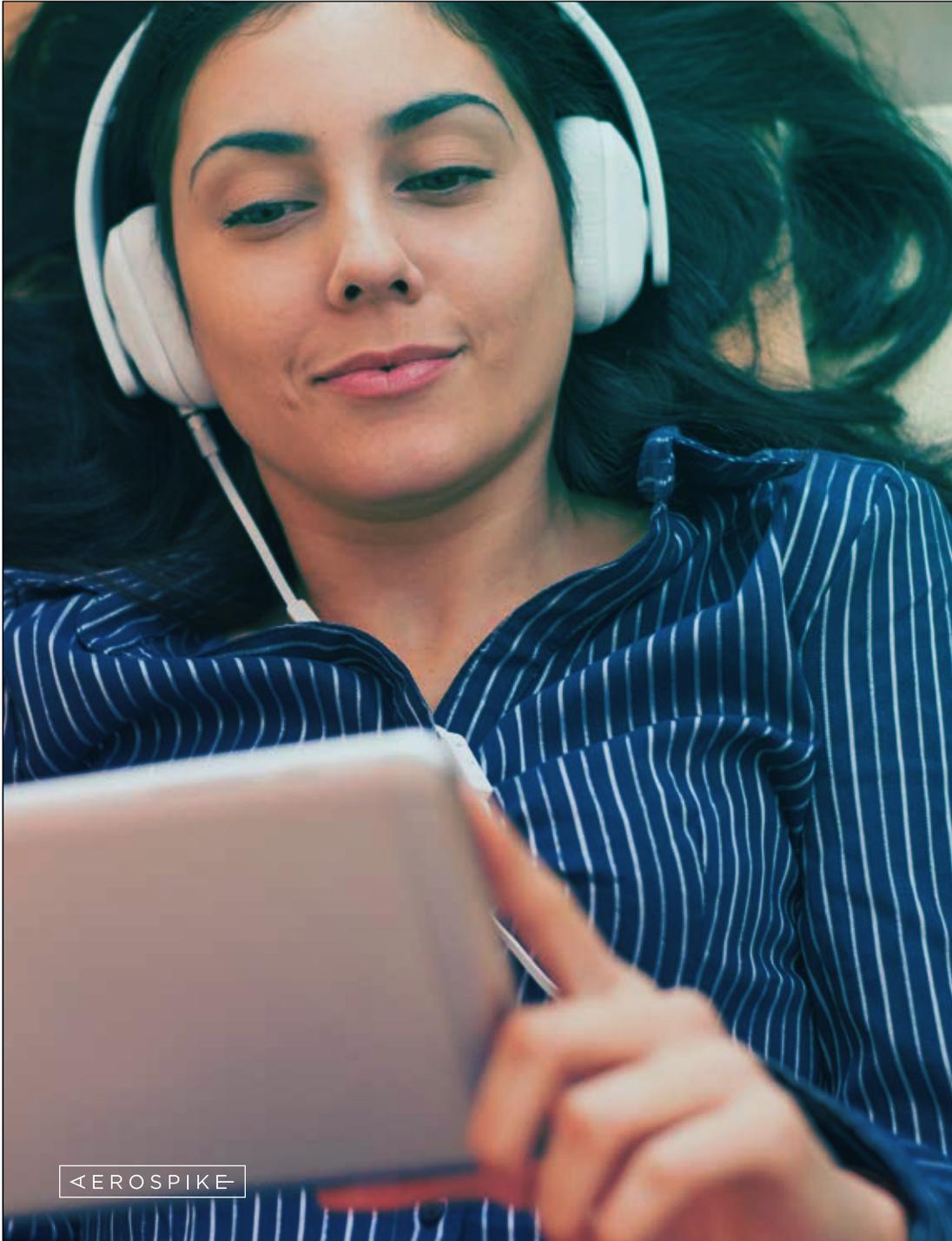
Confluence of Forces Are Driving Change

Several disruptive forces are rapidly changing the Telco industry landscape. Consumer behavior, technology, industry standards, and business models are evolving at light-speed. These shifting industry dynamics present SPs with new challenges as well as new opportunities.

Consumers: Smart phones, tablets, wearables, and other mobile devices are ubiquitous among consumers today. A never-ending flood of new applications and devices are making it easier than ever for people to: create and share multi-media content via social media, stream music and videos, play games, shop, and stay connected anywhere. The data-intensive nature of these applications will increase even more as the emergence of Augmented Reality (AR) becomes integrated with consumer applications.

Technology: SPs are embracing fifth generation mobile networks (5G), that will provide more capacity and a higher density of mobile broadband. SPs are also moving to architectures based on Software-Defined Networking (SDN), and Network Function Virtualization (NFV) combined with hybrid operating models.

Industry Standards: 5G, LTE-A, LTE-M, and LTE-U are being driven primarily to increase capacity. At the same time, the industry is facing significant regulatory changes pertaining to issues such as net neutrality, data protection (GDPR), spectrum frameworks, as well as roaming and termination rules.

Business Models: SPs are also shifting their focus from boosting pure speed to improving their ability to handle many connections concurrently within the same cell while maintaining low latency. Other business drivers include zero rating data plans and location-based mobile advertising.

Data Resides at the Core of Telco Transformation

Telco subscribers constantly connect to their networks through voice, text, and other smartphone interactions, generating vast amounts of data. This can be strategically leveraged with big data architectures and advanced analytics capabilities. SPs have traditionally relied on data to drive operational decisions focused on availability, redundancy, and scale. With modern architectures, SPs can extend their analytic capabilities to improve customer loyalty and develop new revenue streams.

Data-driven transformation is impactful in every area of Telco business:

1. **Network Infrastructure:** network speed, latency type, signaling information, location information, faults and outages, traffic and congestion, and cell tower information.

2. **Usage:** voice call information, data and SMS usage, application behavior and use, types of devices in the network, type of operating systems, congestion information, and bandwidth.

3. **Customer:** demographics information such as age, income, preferences, broader subscriber profile, location, billing and payment information, and renewals.

4. **Billing:** call detail records (CDR), event data records (EDR), tariff plans, usage, adoption, pricing buckets, discounts, promotions and adoptions, and marketing data.

5. **Support:** network issues, support calls, orders, contracts, fault information, fraud and anomalies.

Real-Time Decisioning Spearheads the Transformation

By leveraging real-time decision analysis into transactions, SPs are achieving transformation across three core areas.

1. **Network Transformation:** Dynamically manage and optimize network resources to deliver the best user experience at the lowest cost.

2. **Customer-centricity:** Keep the customer at the core to reduce churn, provide the best support, market the right products, and foster revenue.

3. **Digital Innovation:** Promote new business models through hyper-personalization and manage data in real-time across a multitude of channels.
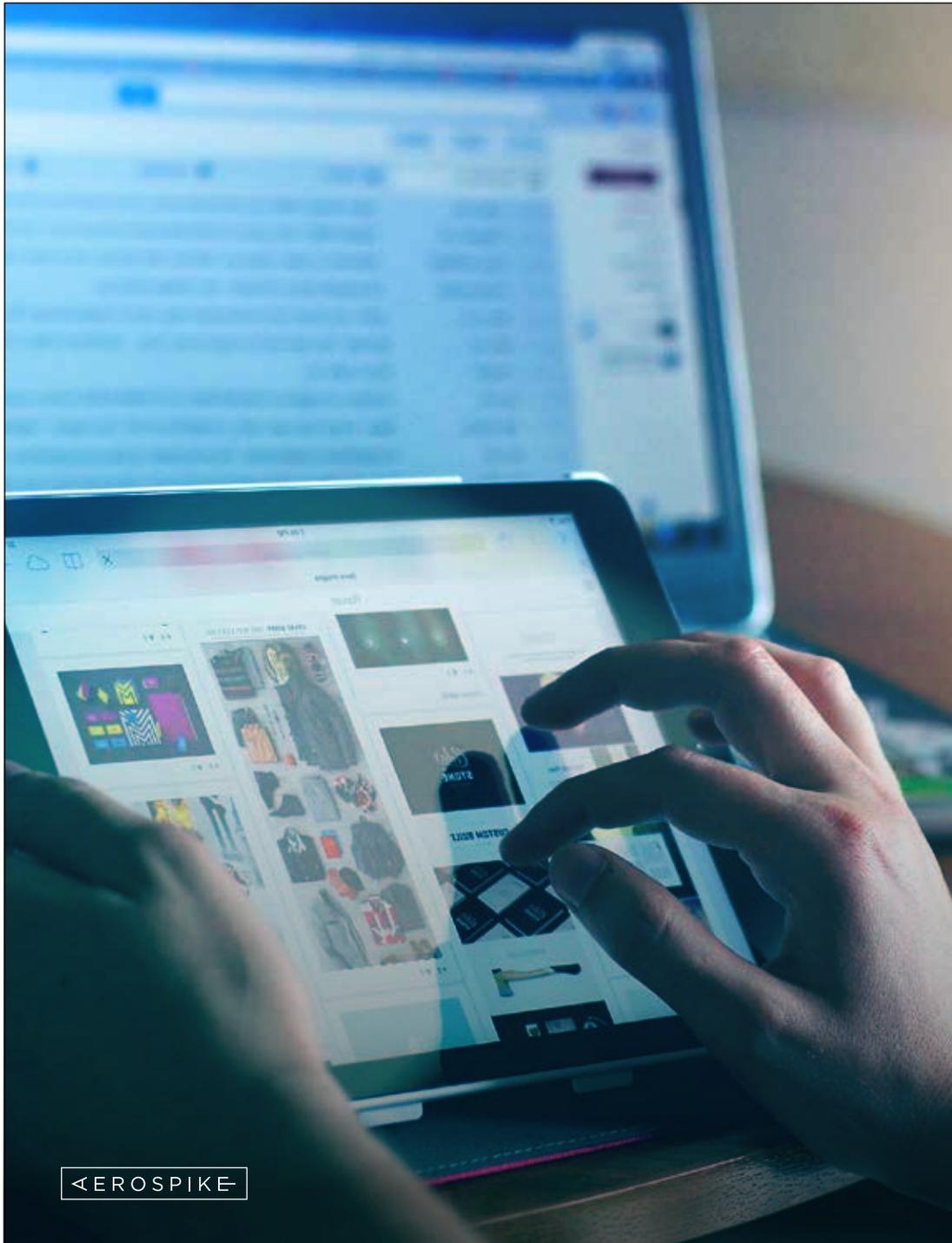
Transactional Analytics Enables Real-Time Decisioning

Historically, transactional systems and analytics systems have been deployed and maintained in separate silos. Advances in artificial intelligence, machine learning, and database architectures are enabling these technologies to converge. Analytics can now be integrated with transactional processes to foster real-time decisioning.

The term "transactional analytics" is often used to describe this capability. By applying transactional analytics, each individual transaction can result in a better business outcome. Personalized products and services, more engaging customer experiences, threat detection, and fraud prevention are among the transactional outcomes that can ultimately grow revenues, increase customer loyalty, and reduce risk.

Systems of Engagement and Systems of Record

To fulfill the promise of leveraging transactional analytics to achieve better business outcomes, an entirely new model is required — one that combines the virtues of transactional systems of record and analytics systems.

Noted business author and strategist Geoffrey Moore has coined the term System of Engagement (SoE) to describe a new generation of dynamic, personalized, interactive applications. In contrast to traditional systems of record, SoEs are ubiquitous, contextual, mobile, location-aware, and embedded in the way businesses interact.

These new systems focus on subscribers and services, not processes, and harness a perfect storm of mobile, social, cloud, and big data innovation. The user experience is delivered in the context of end user experience and network behavior.

Subscribers

Network

Partners

Apps/Device

TRANSACTIONAL T A ANALYTICS

IN MILLISECONDS

TELCO ENTERPRISE
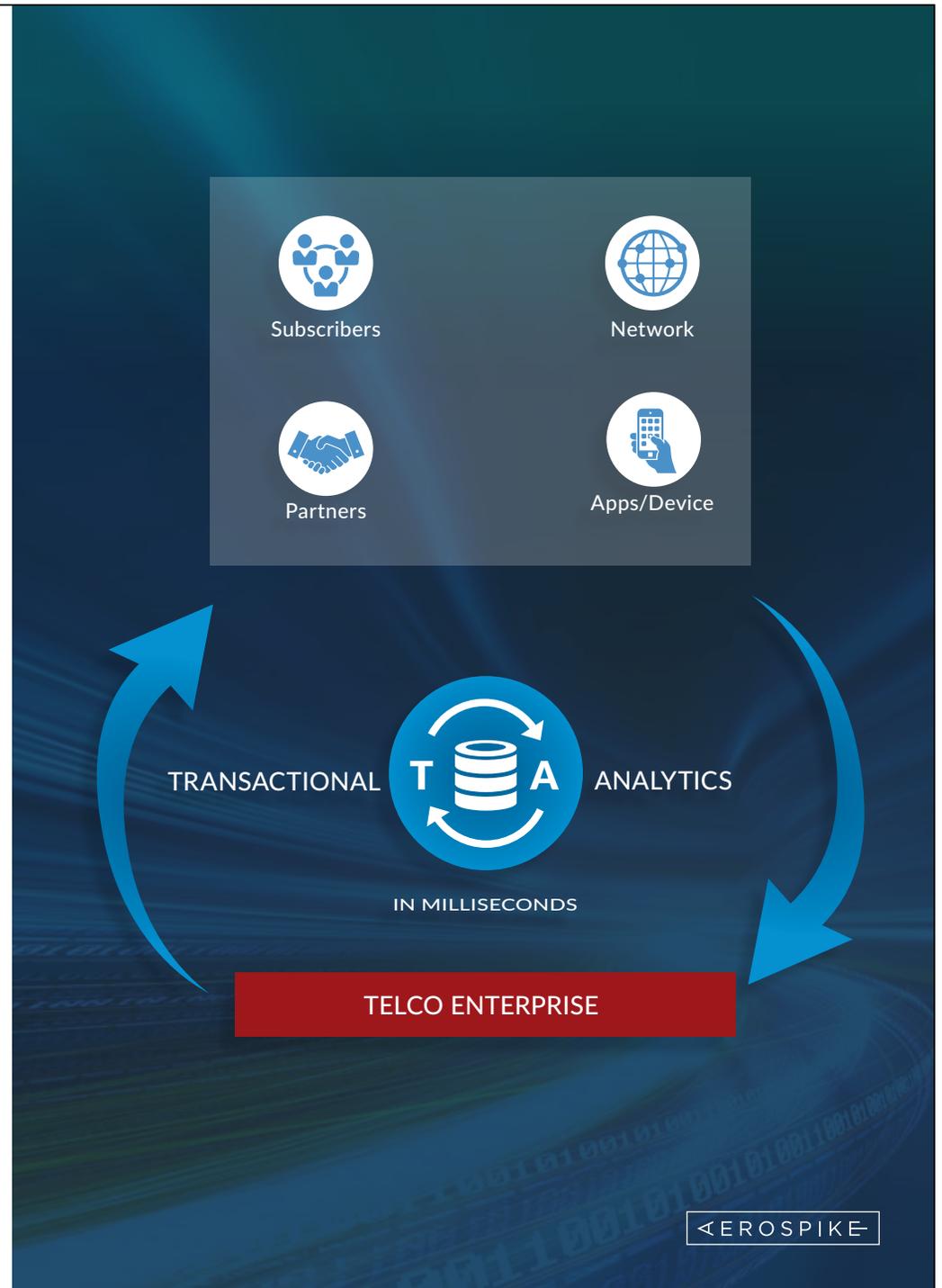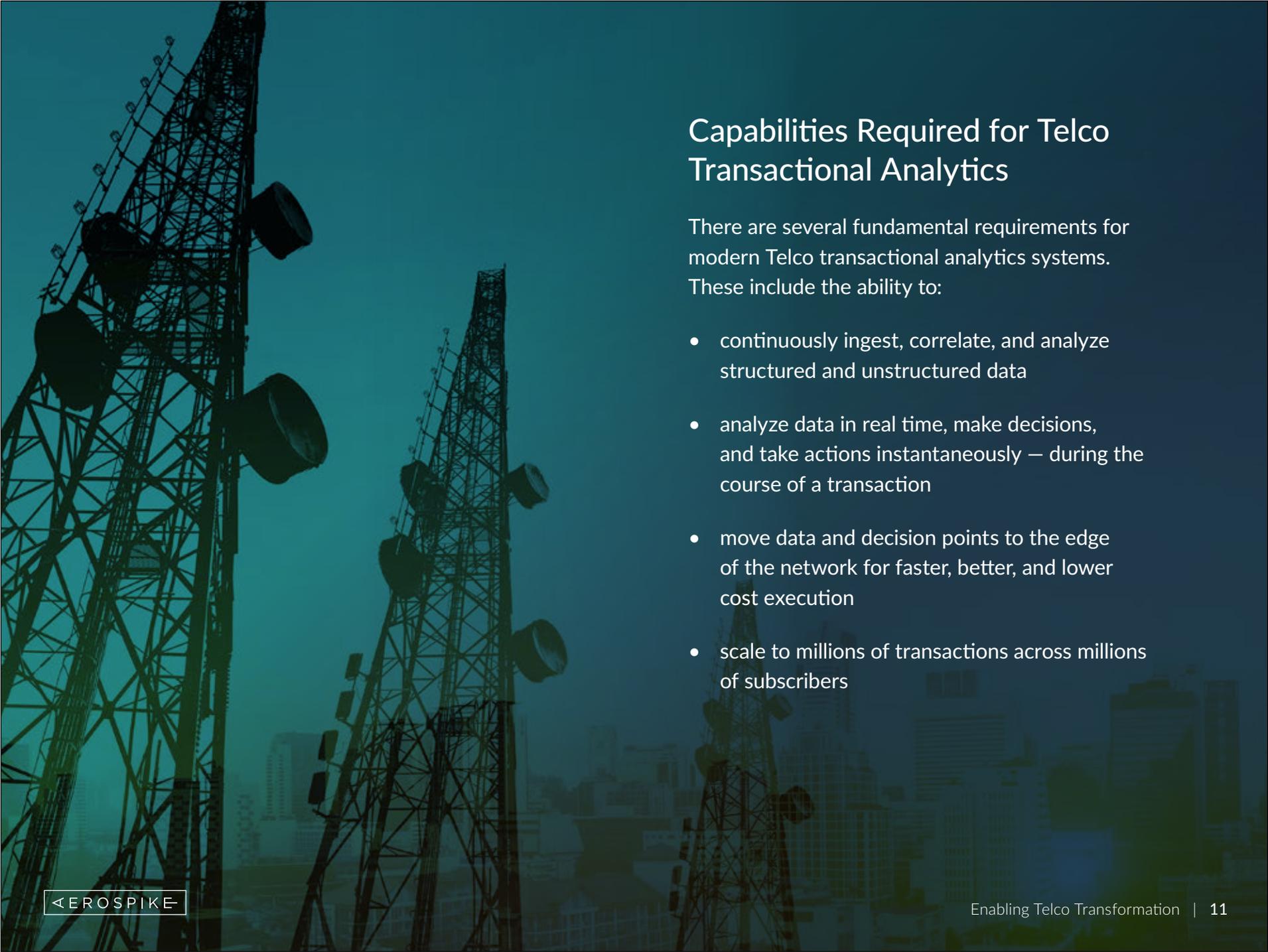
Capabilities Required for Telco Transactional Analytics

There are several fundamental requirements for modern Telco transactional analytics systems. These include the ability to:

- continuously ingest, correlate, and analyze structured and unstructured data

- analyze data in real time, make decisions, and take actions instantaneously — during the course of a transaction

- move data and decision points to the edge of the network for faster, better, and lower cost execution

- scale to millions of transactions across millions of subscribers

Sustained Reliability at Scale is Essential

Prevailing relational and NoSQL databases with caching as well as RAM-based, in-memory databases often fail, particularly when unanticipated peak loads occur. Without warning, response times can become unacceptable, data can get lost, errors can occur, and systems can become unavailable.

What's needed is a modernized database architecture designed for real-time decision making that can power SoEs with predictable performance — at any scale, with a low total cost of ownership.
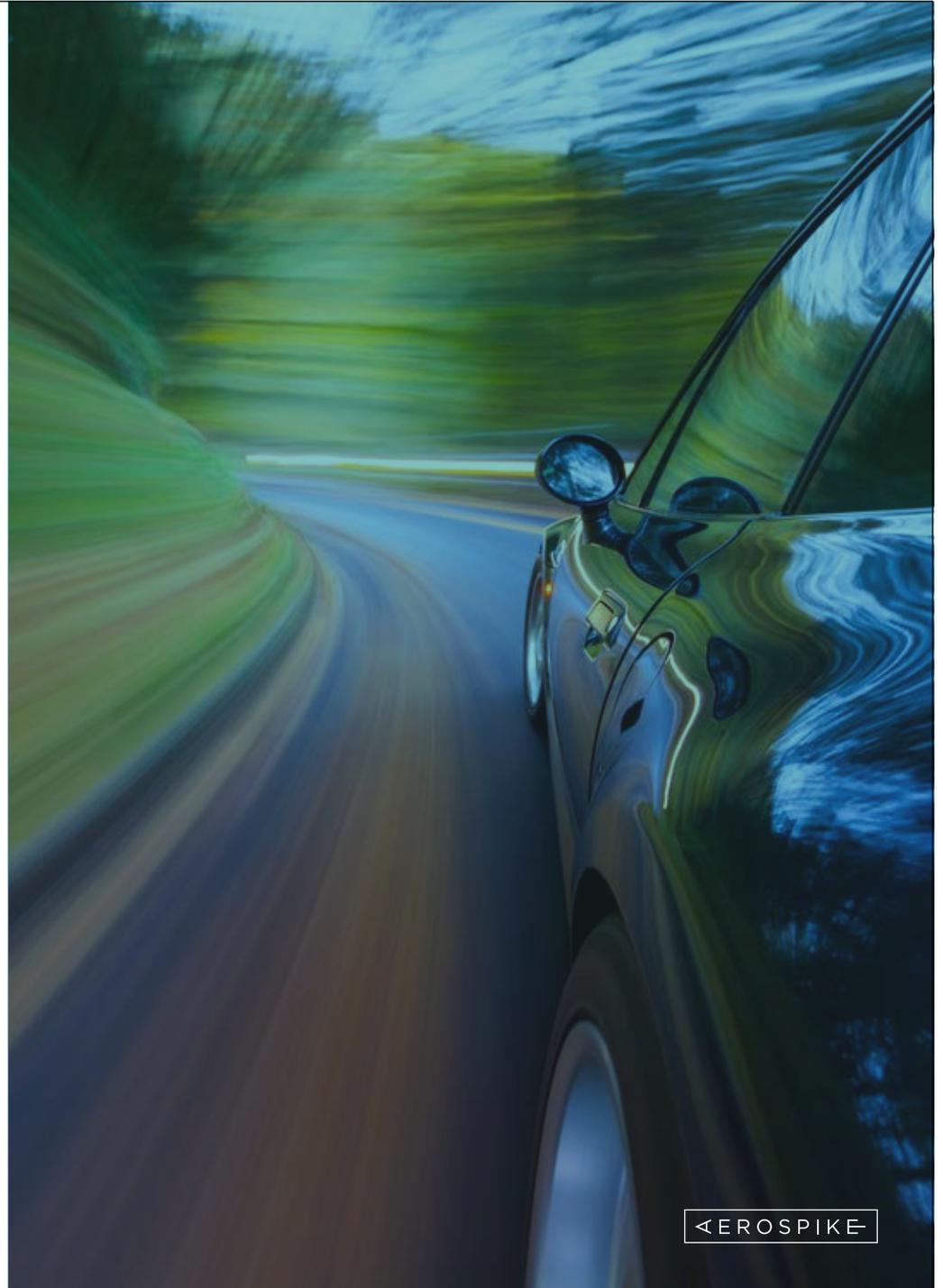
Breakthrough Innovation

Aerospike is the only database that can reliably handle the demands of transactional analytics processing: Internet-scale data volumes, decisions at millisecond speeds, and operational efficiency. Aerospike's Hybrid Memory Architecture (HMA) combines solid-state drive (SSD) and DRAM to achieve the sustained performance that SoEs require — with a significantly smaller footprint. Aerospike's Smart Client™ technology handles complex database management processes automatically so developers and operations staff can focus on the business, not administration.

Designed to power SoEs, the Aerospike database is successfully meeting the challenges of the most demanding digital economy players in Financial Services, Telecommunications, Retail, Manufacturing, Ad Tech, eCommerce, Gaming, Oil and Gas, Media, and Publishing.

How Real-Time Decisioning Will Transform the Telco Value Chain

The use of transactional analytics in the Telco industry is in its infancy, but its potential is unlimited. As adoption grows, use cases will proliferate across all facets of the Telco value chain.

Dynamic Network Control. By monitoring traffic patterns and incorporating machine learning, network resource allocation can be optimized to maximize speed, reliability, and cost efficiency.

Fraud Detection and Prevention. Real-time streaming analytics can raise fraud alerts to block suspicious transactions or trigger revenue assurance remediation options.

Pre-emptive Customer Support. SPs can use analytics to predict service bottlenecks, proactively prevent outages and performance degradation, and offer customers better service and billing plans as their usage patterns change.

Targeted Marketing Campaigns. Offers and promotions can be targeted with precision in real time by analyzing customer profiles, location, usage trends, social media activity, and demographic data.

New Products and Services. Deeper customer relationships yield greater insights into customer wants, needs, and preferences. Service Providers can leverage these insights to offer new products and services that generate new revenue streams.

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