



Meeting the Technology Opportunities of a Fast-Changing Telecommunications Industry



7 ways

Operators can Improve Operational Agility

Evolving to a New Telecommunications Industry—at Digital Speed

New market opportunities, customer expectations, and operational models are driving change throughout the telecommunications industry.

Accelerating 5G adoption

No theme dominates today's telecommunications industry agenda more than 5G. Greater bandwidth, faster speed, and lower latency will allow businesses to reshape their operations with new types of applications and operating models.

Changing operational models and requirements

To ensure the low latency required for a new generation of 5G-enabled services, operators are shifting to a new multi-access edge compute (MEC) delivery model. Cloud resources will be critical for elastic 5G deployments.

New market opportunities and challenges

Fixed-mobile convergence (FMC) provides the convenience and simplicity customers demand with seamless broadband, land line, and cellular service interconnectivity.

Rising customer expectations

Operators are increasingly expected to present a single face to customers, offering access to integrated services from anywhere. This will depend on the ability to make an agile response to changing customer needs, regulations, and technology.

Growing risk

Security and privacy now represent both an opportunity and a threat. Operators must strengthen their defenses against cyberattacks and protect and manage the increasing volume of data collected from core services and big data.

Nik Willetts, CEO, TM Forum, agreed that CSPs that don't evolve their core connectivity products are opening themselves up to disintermediation.

“You've got to remember the same customer who's buying your connectivity product is very happily buying a hyperscale cloud product, and the difference in experience, ease of access and elastic pricing of the whole offering makes telco offerings feel like the Dark Ages.”





7 Ways Operators Can Improve Operational Agility While Ensuring Security and Compliance

To succeed in the new telecommunications industry, operators need to transform network operations and support new business and service offerings. However, the constraints of outdated operations and business support system (OSS/BSS) environments impede these goals, making it difficult to align management, maintenance, and planning with business priorities. This siloed and inefficient technology environment impedes a more fluid and unified, customer-centric approach to management across services.

There's a solution. The adoption of modern ITSM best practices and tools can transform the way your IT services team delivers support. The following are seven ways operators can improve operational agility while ensuring security and compliance.

1. Enable Transformation with the Autonomous Digital Enterprise

To succeed in the transforming telecommunications industry, operators must evolve their current siloed technology environment into an integrated platform where insights guide action and human effort is augmented with intelligent automation. This is the vision for the Autonomous Digital Enterprise (ADE), a future-state business framework that's applicable across multiple industries.

An ADE comprises intelligent, interconnected, technology-enabled, value-creating systems that operate with minimal human involvement across every facet of the organization and its ecosystem of partners. It offers new ways for operators to deliver value and drive competitive differentiation through agility, customer centricity, and actionable insights. By providing the right information and insight to the right staff members at the right time, operators can improve decision-making, resolve problems faster, and respond better to customer needs. Shifting mundane tasks to automated systems also allows staff members to instead focus on core business functions that require critical thinking.

To support the evolution to an ADE, operators will need to adopt a next-generation business model, embrace new approaches to talent management, evolve their technology organizations, work across the value stream with an ecosystem of business partners, and optimize technology buying, across the following five areas:

- **Transcendent Customer Experience:** Present the unified experiences customers expect with customer-centric and service-centric technologies.
- **Automation Everywhere:** Implement hyperautomation across network operations and service management with advanced technologies such as artificial intelligence (AI) and machine learning (ML).
- **Enterprise DevOps:** Extend development processes organization-wide for greater speed, flexibility, and a frictionless environment.
- **Data-Driven Business:** Leverage organizational and business data sources as the enablers of AI- and ML-driven predictive insights.
- **Adaptive Cybersecurity:** Sense, detect, and remediate threats automatically, with a future vision of a combined DevSecOps function.

By following this roadmap, operators can more effectively address their current challenges and thrive in the future.

“Through 2025, the number of CSPs investing in artificial intelligence (AI) technologies for improving their infrastructure planning, operation and products will rise from 30% in 2020 to 70%.”

— Gartner Predicts 2021: CSP Technology and Operations Strategy, November 2020



2. Increase Deployment Speed and Agility

To capture emerging market opportunities and respond to rapidly shifting customer demands, operators must achieve greater operational speed and agility. The adoption of cloud-native, open source technologies, higher levels of automation, and an everything-as-software operating model delivers flexibility and elasticity and prioritizes the strategic importance of software development. Traditional, siloed approaches and development and operations teams can't meet these demands, so the concept of an Enterprise DevOps function has emerged as the definitive development methodology for telecommunications, and other modern digital businesses. Enterprise DevOps includes continuous application integration, delivery and testing to achieve the operational speed and agility that businesses demand.

“The edge computing market will be worth more than \$20 billion by 2024 and more than \$60 billion by 2027”

— TM Forum, *How to Build and Operate at the Edge*

3. Support New Business Models and Service Offerings

Enterprise and vertical markets

One business case for the current, massive investment in 5G includes network slicing—using a single 5G network to provide segregated services for multiple vertical markets or enterprise customers. Within the enterprise space, operators can use network slicing to deliver a private network to a corporate customer, reducing the need for a proprietary internal network. Vertical market opportunities range from mining and agriculture to remote surgery to large-scale digital transformation around smart factories and cities, mixed reality, autonomous vehicles, and more. These use cases can be addressed directly or through a platform approach in which the operator provides a foundation for other companies to build on.

Edge computing

Evolving in tandem with 5G, Multi-Access Edge Computing (MEC) leverages it to shift compute from traditional, centralized data centers to servers in micro-datacenters deployed at the network edge. This allows companies to deliver the ultra-low latency required for time-critical use cases such as autonomous vehicles, remote surgery, and computer games.

As operators face pressure to provide a better customer experience, synchronizing operations across services allows them to present a single face to the customer, and adopting AI-driven tools like chatbots empowers them to provide quick, self-service issue resolution versus forcing customers to queue to speak to an agent.

4. Unlock the Value of Big Data Analytics



AI and big data analytics help operators effectively leverage the data they have to increase revenue and customer retention while staying ahead of the competition. The solutions improve customer touchpoint visibility, enable widespread automation, enhance the customer experience, and reduce operating costs. Use cases include network performance and monitoring, credit risk analysis, fraud detection, automated issue remediation, and the creation of zero-touch network and service operations centers.

While telecommunications companies generate vast amounts of data, they face several operational and architectural challenges in consuming it. Decades-old, patchwork, legacy systems have resulted in non-integrated data silos, delaying AI and analytics initiatives. To appropriately leverage big data for better business operations and customer service, operators must build better data pipelines that can deliver insights and fuel automation throughout their environment.

To truly become a Data-Driven Business, operators must focus on.

- **Data acquisition:** Bring data from operational and business sources together in a unified environment where it can be used more easily and effectively throughout the organization.
- **Data operations:** Automate the development, maintenance, support, transport, and storage of data to maximize its value to the operator.
- **Data delivery and insights:** Extract and deliver data insights for network operations and business personnel to help them make better business decisions, improve service quality, and provide a better experience for customers.
- **Data-enabled automation:** Use data analytics to increase automation across the environment.

By following this roadmap, operators can more effectively address their current challenges and thrive in the future.

5. Evolve Operations and Services in the Cloud

More workloads and OSS/BSS systems are moving to cloud environments, which improve elasticity and enable a higher level of automation at scale while supporting AI, analytics, and edge computing initiatives. Cloud resources also make it possible to increase the speed and agility of 5G rollouts by providing compute and storage capacity as a service, helping operators adapt quickly and cost-efficiently to shifts in customer demand. Fast, efficient scalability is equally critical to helping operators make effective use of AI-powered automation and data analytics. Moving compute out of the traditional data center and closer to the customer can help reduce latency for vertical industry applications.

By evolving to an ADE, operators can more effectively manage, optimize, and secure their public cloud resources through:

- **Cloud automation:** Simplify and accelerate cloud migration initiatives with automated, cloud-based infrastructure management, and reduce vulnerability and regulatory risk across cloud environments with automated cloud remediation and compliance.
- **App-centric cloud security:** Ensure business continuity, data privacy, and the integrity of business-critical data by automatically sensing, detecting, and remediating threats across cloud environments and applications.



6. Leverage the Flexibility of Cloud-Native Technologies



A new generation of more open, software-defined, and autonomous technologies are capitalizing on the transition to the cloud. Software-defined networking (SDN) allows operators to orchestrate network services through a centralized, programmable control. Cloud network functions (CNF) are building on predecessor virtualization by containerizing network functionality to lower cost, speed development, and increase resiliency. Open Network Automation Platform (ONAP), an open source initiative for fully autonomous networking, enables real-time, policy-driven orchestration and automation of physical and virtual network functions. OpenRAN is a vendor-neutral approach to radio access network (RAN) solutions that drives rapid evolution at the network edge.

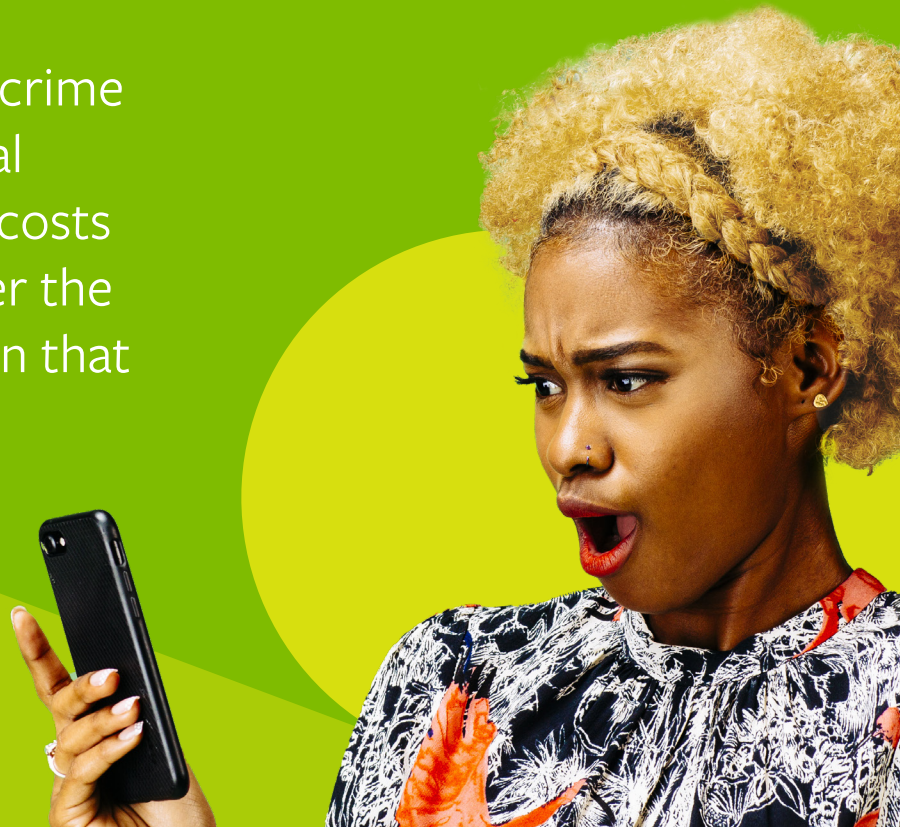
This everything-as-software evolution has sparked a new era of network automation, making it possible to use analytics to drive largely or fully automated networks. Operators are gaining the flexibility to change network parameters for specific customer-requested use cases, helping strengthen customer relationships and profitability. Since the shift to flexible open standards enabled by cloud and containers can also increase complexity, operators need to be able to use insights and automation effectively to keep development and network operations in sync and in compliance.

By evolving to an ADE, operators can better manage that complexity through:

- **Configuration automation:** Respond more quickly and efficiently to customer requests while ensuring control and governance.
- **Enterprise DevOps:** Accelerate transformation and take full advantage of everything-as-software models with a faster, more flexible development process.

“Europol’s European Cybercrime Centre estimates that global telecommunications fraud costs roughly \$33 billion, however the true cost likely exceeds even that grandiose figure”

— *TM Forum, Fraud in the Digital Experience*



7. Ensure Cybersecurity, Privacy, and Compliance

As operators broaden their collaboration with partners across the telecommunications ecosystem, those new opportunities often come at the cost of security and control, and cybersecurity mandates now extend across identity, API security, and connected devices—including the potential new security and privacy breaches from IoT devices. From direct cyberattacks, such as distributed denial of service (DDoS), to indirect threats such as malware, telecoms need to ensure that they have the technologies, skills, and processes to secure their evolving technology environments and support resiliency in case of attack.

The growing volume and velocity of big data has also brought about new global security and privacy regulations designed to protect consumer data and ensure compliance. As governments look to operators for assistance in law enforcement surveillance matters, telecommunications companies must be able to track, manage, and produce customer and service data with more speed and granularity.

By evolving to an ADE, operators can manage risk across their complex ecosystem, without limiting operational speed or flexibility. Adaptive Cybersecurity measures such as applications and network hardware can deliver real-time analysis of security events so they can quickly detect and respond to threats of all types as they arise.



For more information

To learn more about these best practices and becoming an Autonomous Digital Enterprise (ADE) Please visit www.bmc.com/

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