Market Pulse Research Report

Navigating
Multi-Access Edge Computing
to **Advance Your Business**

Special insights for
manufacturing, retail, and healthcare

Presented by **AT&T** Business   **Google** Cloud

MULTI-ACCESS EDGE COMPUTING (MEC) is an emerging technology and a hot topic of discussion among CIOs, especially as they work to accelerate their digital transformation. The pandemic has lit a fire underneath enterprise IT and according to McKinsey, caused large organizations to speed up their digital transformation projects *by three to four years*. Now enterprises are faced with escalating inflation and pressure on the business further exacerbating the need for efficiency and insights.

The advancement of edge computing gives enterprises the flexibility to control where computing occurs, whether that is a data center, or at a specific location, reducing latency and making next-gen use cases a reality.

MEC is much more than high-speed connectivity in a local network that takes advantage of giant carrier networks to span geographies. Computing resources can be housed on-premises or nearby to reduce the distance that information must travel back-and-forth from processing to the end users. After all, information can't travel faster than the speed of light, and large regional cloud data centers won't be located everywhere. Deployment of small more nimble clouds will serve to extend the benefits of massive data centers enabling applications and tasks to be performed with extremely low latency requirements and with greater privacy and security.

Edge computing enables enterprises to adopt new use cases (required by industry 4.0) that require more predictable performance, low latency, and reduced jitter, to generate improved business outcomes. In addition to the fundamental infrastructure shift, edge computing also enables cloud computing via a hyperscaler's network edge, an operator's network edge, or an enterprise's on-premises location to enable real time environments.

There are many different use cases across multiple industries for MEC. Retail, for example, is eager to improve supply chain management and the customer experience. Real-time video analysis using an autonomous robot that moves through aisles can provide real-time information on stock levels throughout a store by sending alerts when items are low. This helps ensure when looking for an item, customers don't find empty shelves. To enable this low latency use case, a company will need MEC to enable real-time analysis of images, while also keeping this data behind the enterprise firewall. Data can also be aggregated in the cloud for more complex, long-term analysis and to derive further insights.

Market Pulse A joint AT&T Google Cloud and IDG survey of senior IT decision-makers recently sought to better understand the current state of MEC within the enterprise, expectations for the technology, and the challenges IT leaders anticipate in its deployment and usage. They focused on the retail, manufacturing, and healthcare sectors. The survey revealed that expectations are very high, with 95% of respondents saying that MEC will have a significant or transformational impact on their business. In fact, more than half (51%) said the effect would be transformational. But the three industries surveyed offered significantly different answers with regard to which MEC benefits they prioritize most.

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Retail
All about the customer

In retail, the key themes were building a better story for the customer experience and the need to move products in and out of the distribution center faster to reach store shelves sooner. Specifically, the top two priority benefits for MEC were better use of data, such as real-time analysis (51% ranked it in the top three), and improvement of the customer experience (48%). Surprisingly, only 33% ranked enhanced security and privacy in the top three priorities for MEC. And given how central IT security is to all industries right now, that's quite a testament to the expectations retail IT leaders have for MEC and its possible impact on the customer experience.

In fact, the top three retail use cases for MEC were all aimed at the customer: increased mobile interactions, such as QR code use (47%); AR, VR, or mixed reality, as in virtual try-on (35%); and location technology to serve in-store customers with relevant information and offers (31%).

Top use cases multi-access edge computing can enable for Retail*

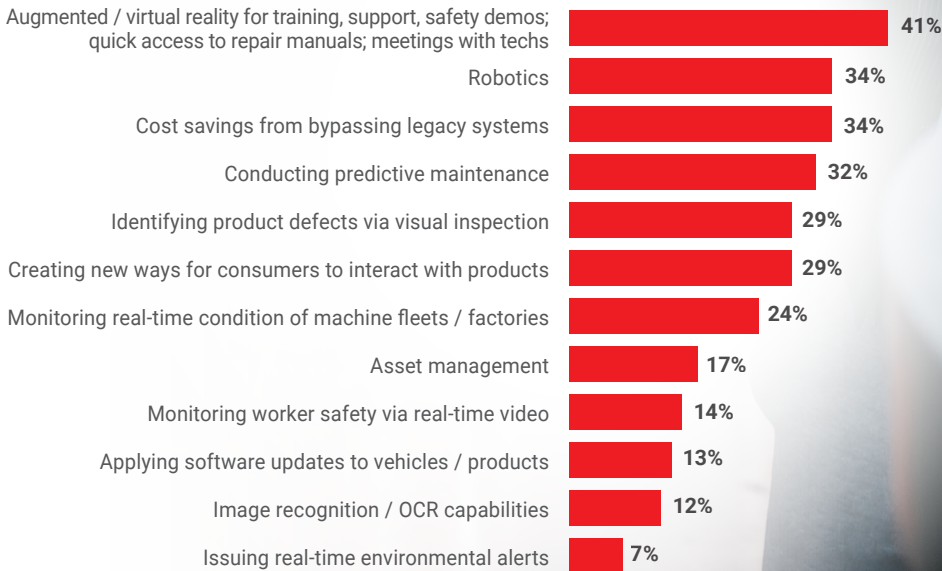| Use case	%
Increasing mobile interactions	47%
Augmented, virtual, or mixed reality	35%
Leveraging location technology to serve in-store customers relevant info / offers	31%
Training store associates	30%
Using wearable and voice devices to build online orders and grocery shopping lists	20%
Frictionless self-service / touchless checkouts	17%
Condensing hardware into a single unit	17%
Controling and monitoring equipment energy use	16%
Security surveillance	16%
Biometric / cashless payments	14%
Monitoring shrink / theft using cameras	11%
Monitoring shelf inventory with cameras	10%
Leveraging cameras and edge devices to auto receive merchandise	7%

Manufacturing

Cost savings and improving the employee experience

The manufacturing sector has a different focus, with a particular emphasis on improving the employee experience. Specifically, manufacturing IT leaders are looking for IT cost savings (44%); improvement in the employee experience, such as enhanced health and safety (41%); better use of data (40%); and operational efficiencies (39%).

The focus on employees isn't surprising, given the current labor challenges the manufacturing industry faces. As highly skilled and experienced manufacturing employees retire, there aren't enough qualified recruits available to replace them. In fact, there will be **2.1 million unfilled manufacturing positions by 2030**, according to Deloitte and the Manufacturing Institute. Manufacturers want to make the workplace safer. MEC can enable situational-awareness applications that can help identify if a worker takes off a safety mask or helmet, provides faster response to safety breaches via sensors, and enables video analytics to trigger communications—all helping to make the employees safer.

The top use cases for MEC in manufacturing were to enable AR / VR for training, support, or safety demos (41%); robotics, such as collaborative robots (cobots) and automated guided vehicles (AGVs) to hand off tasks and transport materials (34%); bypassing legacy systems with MEC to reduce costs (34%); and predictive maintenance (32%).

Top use cases multi-access edge computing can enable for Manufacturing[*]

Use case	%
Augmented / virtual reality for training, support, safety demos; quick access to repair manuals; meetings with techs	41%
Robotics	34%
Cost savings from bypassing legacy systems	34%
Conducting predictive maintenance	32%
Identifying product defects via visual inspection	29%
Creating new ways for consumers to interact with products	29%
Monitoring real-time condition of machine fleets / factories	24%
Asset management	17%
Monitoring worker safety via real-time video	14%
Applying software updates to vehicles / products	13%
Image recognition / OCR capabilities	12%
Issuing real-time environmental alerts	7%

*Q4: Think about the types of data that your organization processes or will process at the edge. What are the top 3 business use cases that multi-access edge compute can enable at your organization?
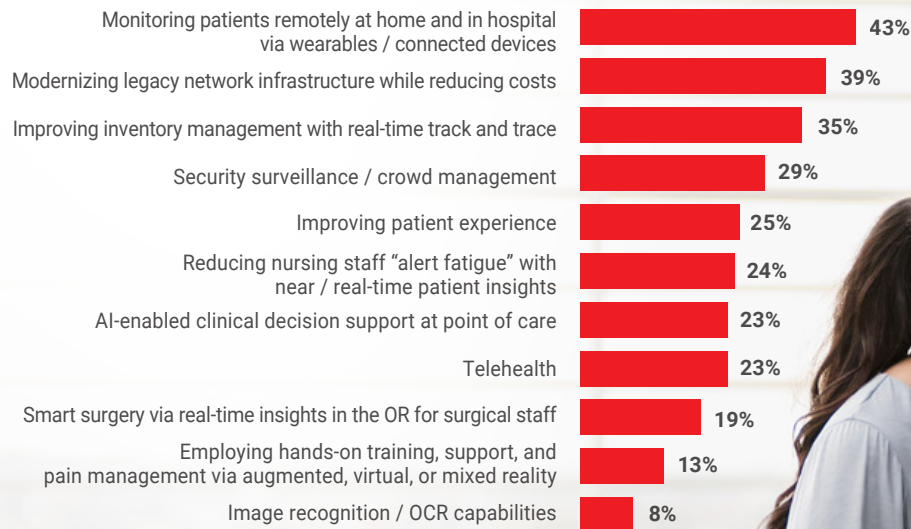
Healthcare
Security and privacy for patient data

While enhancing security and privacy was certainly not a low priority for retail and manufacturing at 33% and 37% respectively in their top three, it was the top choice in healthcare, with 51% ranking it as a top three priority. Also, senior IT decision-makers in healthcare are interested in operational efficiency (47%).

Healthcare's focus on privacy and the security of patient data is undoubtedly a response to operating under strict regulatory schemas such as HIPAA, which provides stiff penalties for non-compliance. The top use cases for MEC are operational, with improving patient care coming out on top.

Specifically, healthcare IT leaders want to use MEC to enable remote patient monitoring both in-hospital and at home (43%); modernize legacy infrastructure such as on-premise servers while reducing costs (39%); and improve medical inventory management with real-time track and trace (35%).

Top use cases multi-access edge computing can enable for Healthcare / Life Sciences*

Use case	Percentage
Monitoring patients remotely at home and in hospital via wearables / connected devices	43%
Modernizing legacy network infrastructure while reducing costs	39%
Improving inventory management with real-time track and trace	35%
Security surveillance / crowd management	29%
Improving patient experience	25%
Reducing nursing staff "alert fatigue" with near / real-time patient insights	24%
AI-enabled clinical decision support at point of care	23%
Telehealth	23%
Smart surgery via real-time insights in the OR for surgical staff	19%
Employing hands-on training, support, and pain management via augmented, virtual, or mixed reality	13%
Image recognition / OCR capabilities	8%

*Q4: Think about the types of data that your organization processes or will process at the edge. What are the top 3 business use cases that multi-access edge compute can enable at your organization?

Perceived challenges for MEC

Across all sectors, the top perceived organizational challenge to deploying MEC and achieving KPIs is technology (53%). It's ranked far ahead of concerns about budget (29%), planning (25%), and resources (19%), the next three top concerns. This is not a surprising result for a technology that is so early in its development cycle.

"Shifting business models and customer expectations are driving enterprises to accelerate their digital transformation with a focus on delivering more efficiency and improved customer engagements", said Brian Kracik, head of telecom industry marketing at Google Cloud. "5G and edge computing are emerging as powerful new tools to catapult enterprises to the next level of digital engagement and deliver on the need for flexible tools that support agility, enrich knowledge, and reduce risk across public and private environments."

Says Gerry Myers, product development director at AT&T, "MEC is a disruptive technology that is transforming the workplace as we know it. Although we are still in the early stages, we are already seeing significant interest from the healthcare, retail, and manufacturing verticals who are looking to speed up their supply chain, provide improved patient care, or reduce downtime. We are just at the beginning of seeing the benefits of this technology."

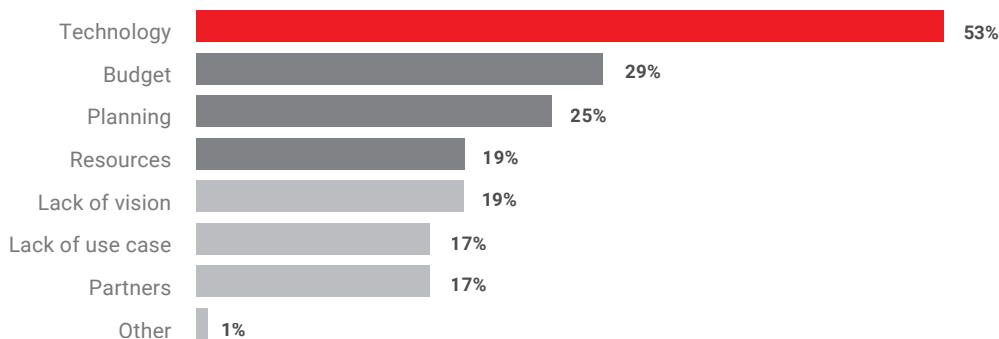When it comes to the primary challenges IT leaders currently face regarding their current MEC initiatives, cyber-security (38% in the top 3; 15% as most important concern) is essentially tied with legacy IT infrastructure (37% and 15%, respectively) as the biggest challenges to moving MEC initiatives forward. This is a common finding when asking about challenges in making progress with emerging technology initiatives.

> **Cybersecurity is essentially tied with legacy IT infrastructure as the biggest challenges to moving MEC initiatives forward.**

Challenges ranked third and fourth are a lack of collaboration between lines of business and IT (33% ranked in top 3 and 9% considered most important) and skills/talent gaps (33% and 11%). Cybersecurity is more often cited as an obstacle by those in the heavily regulated healthcare industry (49% put it in their top three), while legacy infrastructure is the top concern for manufacturing (46%).

"Cybersecurity is often a concern with a new technology that IT is just getting to know, so even though MEC is highly secure, there's an awareness gap," Gabriele Di Piazza, Sr. Director Product Management Telecom and Edge, Google Cloud said. "The concerns about skills and collaboration point to a major benefit of MEC — migrating customers from legacy technology to a fully managed service addresses those issues -- and that is something we can do with AT&T."

Challenges in deploying multi-access edge computing and achieving KPIs[*]

Category	Value
Technology	53%
Budget	29%
Planning	25%
Resources	19%
Lack of vision	19%
Lack of use case	17%
Partners	17%
Other	1%

*Q11: What are your organizations challenges in deploying multi-access edge and achieving KPIs around ultra-fast speeds and low latency?

How AT&T and Google Cloud are working with key verticals

As enterprises shift their digital transformation efforts into fifth gear, they're pushing existing technology to its limits. MEC provides IT with a means to further advance digital transformation to take advantage of cloud compute and platform as a service for use cases that are latency-sensitive or involve truly massive amounts of data.

AT&T is collaborating with Google Cloud to provide an on-premises private cellular edge computing solution that uses the AT&T 5G network and Google Distributed Cloud Edge. This solution is specifically aimed at industrial enterprises—retailers, the healthcare industry, and manufacturers—enabling them to power new customer experiences and improve operational efficiencies. It means enterprises can transform their business operations, create efficiencies with real time analysis, and streamline how their business runs.

The Google Cloud and AT&T relationship is complimentary as AT&T provides the network enablement and the connection to the hyperscaler, which enables a wide range of use cases, starting with a connected site and connected workers.

As a result, enterprises can create and run advanced, compute-intensive applications close to end-users, including core Google Cloud capabilities such as AI / ML, data analytics, Kubernetes, and a wide array of applications from Google's edge ISV ecosystem partners. Enterprises can

deploy applications at the Google network edge, the customer premise, or AT&T's network edge, 5G, and fiber networks.

> **The AT&T and Google Cloud collaboration means enterprises can transform their business operations, create efficiencies with real time analysis, and streamline how their business runs.**

We're only at the beginning, but the emergence of MEC within the enterprise is rapidly developing. Download our survey below to find out more about how AT&T and Google Cloud can help your business enable next-generation applications and services with MEC.

Get the whole picture ... download the entire survey

MarketPulse Research
Multi-Access Edge Compute: Use Cases and Benefits

Google

CIO   On behalf of AT&T and Google Cloud
AT&T Business   Google Cloud

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