GREATER PROFITABILITY AT THE EDGE

The Combined Power of Edge Computing and the Cloud

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INTRODUCTION

Businesses are increasingly turning to innovative solutions to enhance their operations and boost profitability. Two powerful forces driving this transformation are edge computing and cloud computing. Individually, these technologies have proven their value in streamlining processes and handling vast amounts of data. However, when combined, they can unlock even greater levels of profitability.

From manufacturing floors to healthcare institutions, retail environments, agricultural landscapes, and smart cities, there are numerous use cases where a combined cloud and edge approach has yielded greater efficiency, agility, and profitability.

UNDERSTANDING THE BENEFITS OF EDGE AND CLOUD INTEGRATION

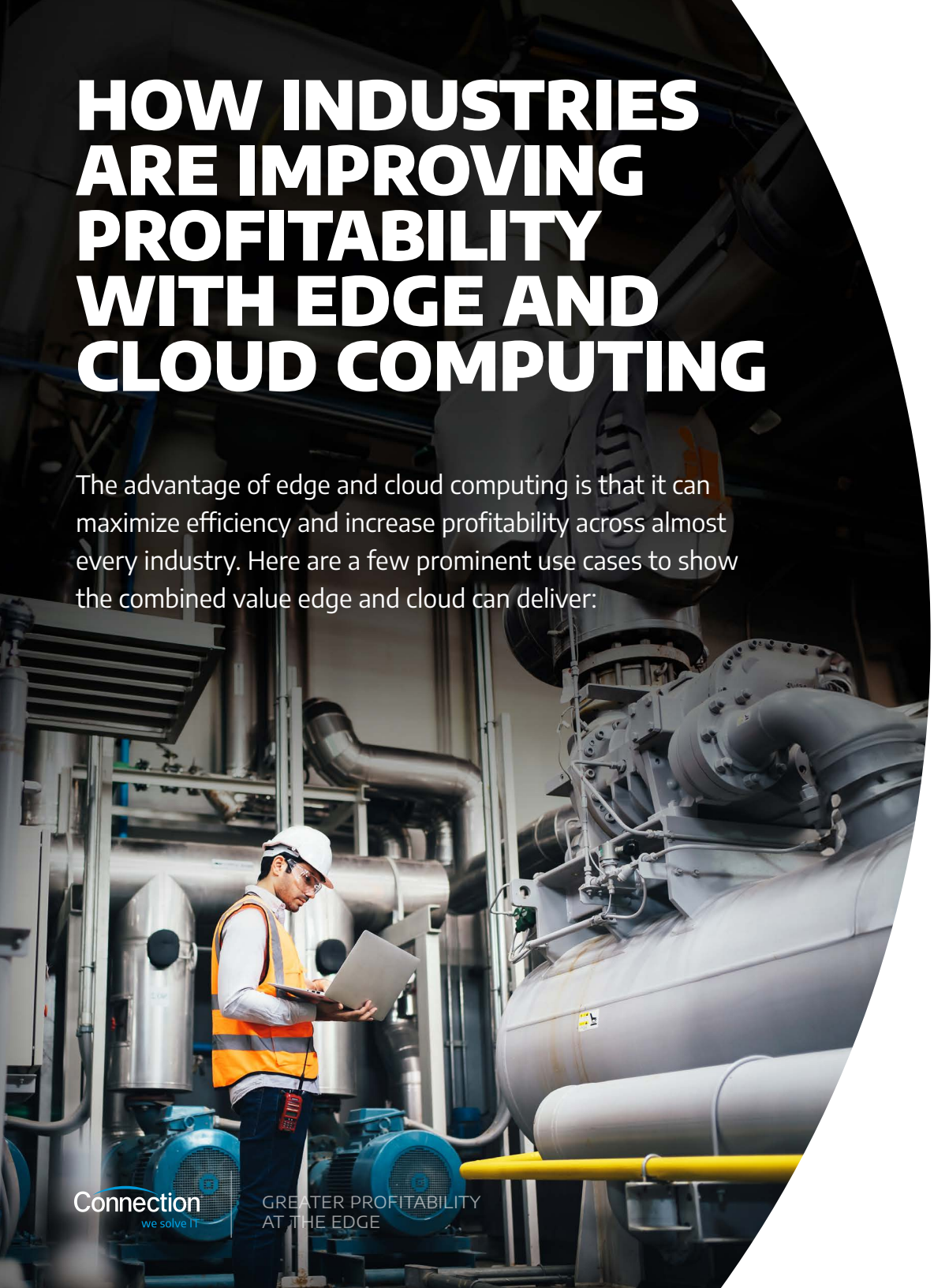
The integration of edge and cloud computing combines the strengths of localized processing with the vast capabilities of cloud infrastructure. At its core, edge computing involves processing data closer to the source of generation, often on devices at the network's edge, reducing latency and enhancing real-time decision-making. Cloud computing, on the other hand, provides scalability, storage, and computational power, ensuring the efficient handling of massive datasets and complex algorithms.

By combining these two technologies, organizations gain:

- **Enhanced performance:** Edge computing reduces latency by processing data locally, ensuring faster response times critical for time-sensitive applications, while cloud infrastructure complements edge capabilities by handling resource-intensive tasks to ensure optimal performance.
- **Scalability and flexibility:** Cloud resources enable seamless scalability, accommodating varying workloads and adapting to changing business needs, while edge devices contribute to flexibility by allowing for distributed processing and scaling capabilities beyond traditional data centers.
- **Cost optimization:** Edge computing minimizes the need for extensive data transfers, reducing bandwidth costs and optimizing network usage, while cloud resources facilitate efficient resource allocation and offer cost-effective solutions for storage, processing, and data analysis.
- **Reliability and redundancy:** Edge devices contribute to enhanced reliability, ensuring continuous operation even in the face of network disruptions, while cloud infrastructure provides redundancy and backup capabilities, reinforcing the overall system's reliability.
- **Data security and privacy:** Edge computing allows sensitive data to be processed locally, mitigating security risks associated with transmitting data over networks, while cloud providers implement robust security measures, ensuring data integrity and compliance with industry regulations.

HOW INDUSTRIES ARE IMPROVING PROFITABILITY WITH EDGE AND CLOUD COMPUTING

The advantage of edge and cloud computing is that it can maximize efficiency and increase profitability across almost every industry. Here are a few prominent use cases to show the combined value edge and cloud can deliver:



MANUFACTURING

Real-time Monitoring of Production Processes

Manufacturers relying on manually-produced reports, according to one study, were only able to use at most 40% of their production capacity. However, with the use of real-time monitoring of production metrics such as equipment health, efficiency, and quality control through edge devices embedded in manufacturing equipment and cloud infrastructure that can process the data, manufacturers can optimize production workflows, reduce downtime, increase production capacity, and enhance overall efficiency.

Predictive Maintenance

Edge sensors on machinery collect and analyze performance data in real-time, detecting anomalies and potential faults, while cloud-based predictive analytics utilize machine learning algorithms to forecast maintenance needs. This combination of edge and cloud computing can prevent costly breakdowns and extend equipment lifespan, saving manufacturers significantly in the long run.

HOW INDUSTRIES ARE IMPROVING PROFITABILITY WITH EDGE AND CLOUD COMPUTING

(CONTINUED)

HEALTHCARE

Remote Patient Monitoring

Edge devices at patients' homes capture vital signs and health data in real-time while cloud-based healthcare platforms process and analyze this data. Remote patient monitoring (RPM) has provided an average annual revenue per chronic condition of approximately $100, or $144,000 to $160,000 per physician. In addition, RPM also reduces operational costs, including staff workload and administrative costs.

Efficient Data Processing for Medical Imaging

Edge computing in medical imaging devices accelerates the processing of high-resolution images while cloud storage and analysis enable healthcare providers to access and collaborate on diagnostic images. This leads to faster and more accurate diagnoses and streamlines the workflow of radiologists and other healthcare professionals involved in medical imaging.

HOW INDUSTRIES ARE IMPROVING PROFITABILITY WITH EDGE AND CLOUD COMPUTING

(CONTINUED)

RETAIL

Personalized Customer Experiences

Edge devices in retail stores capture customer behavior data, such as preferences and shopping patterns, while cloud-based analytics process this information to enable retailers to offer personalized recommendations, enhance customer engagement, and optimize inventory management. According to McKinsey, being able to provide these types of personalized customer experiences can reduce customer acquisition costs by as much as 50%, lift revenues by 5% to 15%, and increase marketing ROI by 10% to 30%.

Inventory Management and Supply Chain Optimization

Edge sensors in warehouses monitor inventory levels and conditions in real-time, while cloud-based systems leverage this data to optimize supply chain logistics, reduce excess inventory, and enhance overall supply chain efficiency.

HOW INDUSTRIES ARE IMPROVING PROFITABILITY WITH EDGE AND CLOUD COMPUTING

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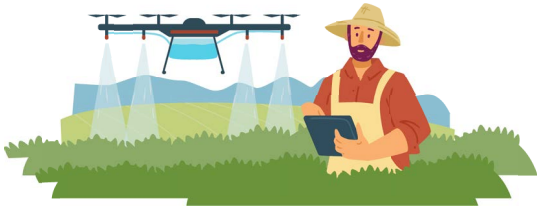

AGRICULTURE

Precision Farming

Edge sensors on agricultural machinery collect data on soil conditions, crop health, and weather patterns in real-time while cloud-based analytics process this data to provide farmers with insights for precision farming. This allows farmers to optimize crop yield and resource utilization, which increases yield amounts and quality while reducing the use of fertilizers and pesticides. Often, small farmers can reduce fertilizer or pesticide use by 80%, decreasing costs and improving profits significantly.

Crop Management Analytics

Edge devices on the field capture important data points while cloud analytics provide comprehensive insights into crop health, disease detection, and yield prediction. This collaboration enables data-driven decision-making for farmers, contributing to sustainable and efficient agricultural practices that can improve overall profitability.

HOW INDUSTRIES ARE IMPROVING PROFITABILITY WITH EDGE AND CLOUD COMPUTING

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SMART CITIES

Traffic Management Optimization

Edge devices in traffic signals and cameras monitor real-time traffic conditions, while cloud-based traffic management systems analyze this data to optimize traffic signal timings, reduce congestion, and enhance overall transportation efficiency.

Public Safety and Surveillance

Edge devices in public spaces capture video feeds and sensor data for immediate analysis, while cloud-based analytics provide law enforcement agencies with real-time insights, improving response times and enhancing public safety.

GAIN A COMPETITIVE ADVANTAGE WITH EDGE AND CLOUD COMPUTING

Whether it's revolutionizing production processes, improving patient care in healthcare, or creating personalized customer experiences in retail, the combination of edge and cloud computing is reshaping industries and unlocking new avenues for profitability—don't get left behind.

COTACT CONNECTION

If you need help getting started with an edge computing strategy or implementation, reach out to your Account Team or contact us for more information.

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