



OPPORTUNITY

27

SCOPE **VISIONARY**

UNCERTAINTIES

Technology, Systems

MEGATRENDS

Boundless Multidimensional Data

TRENDS

Advanced Computing
Data Protection & Privacy
Edge Computing
Mobilising Innovation

SECTORS IMPACTED

Agriculture & Food
Automotive, Aerospace & Aviation
Communication Technologies & Systems
Cyber & Information Security
Data Science, AI & Machine Learning
Energy, Oil, Gas & Renewables
Government Services
Immersive Technologies
Logistics, Shipping & Freight
Art, Media & Entertainment
Professional Services
Real Estate
Sports
Travel & Tourism
Utilities

What if mobile edge computing (MEC) made data centres obsolete?

ZERO MARGIN

Mobile/multi-access edge computing (MEC) and the internet of things (IoT) merge to accelerate signal and data processing, enhancing real-time decision-making and enabling seamless, latency-free digital services across various sectors making centralised data centres obsolete.





WHY IT MATTERS TODAY

Introduced in 2014,⁶¹¹ MEC decentralises cloud computing by placing computing and storage closer to the user or data source, at the ‘edge’ of the network.⁶¹² This shift enhances the flexibility and reliability of data processing, offering faster real-time responses⁶¹³ and in some cases helping to meet data privacy and residency regulations that mandate storing certain data types closer to their origin.⁶¹⁴ The IoT generates vast amounts of data and MEC can efficiently process these data locally, reducing latency and improving decision-making.⁶¹⁵

5G technology has already started to pave the way for diverse opportunities where it has been implemented, optimising service delivery and enhancing user experiences.⁶¹⁶ It is projected to contribute \$13.2 trillion to the global economy by 2035 and create 22.3 million jobs.⁶¹⁷

5G applications could add significant value across various sectors by 2030: \$330 billion in global smart utilities, \$15 billion in US industrial manufacturing, and \$44 billion in Chinese healthcare.⁶¹⁸ Looking ahead, 6G will bring even higher speeds and bandwidth, fostering a fully integrated virtual metaverse and a wider range of smart devices.⁶¹⁹ It is expected that there will be an increase in internet-connected devices from 43 billion devices in 2020 to an estimated 51.9 billion devices in 2025.⁶²⁰ Telecommunication companies can expect a 10% to 20% revenue increase from developing 5G-enabled connections and business-to-business use cases.⁶²¹



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A combination of MEC and the IoT, powered by advanced machine intelligence at the ‘edge’, significantly enhances data processing speeds. This transformation improves everyday life for both individuals and organisations by enabling immersive experiences and informing decisions in real time.⁶²² From transportation and agriculture to manufacturing, smart cities, environmental monitoring, and financial services, access to digital services becomes seamless and latency free.⁶²³

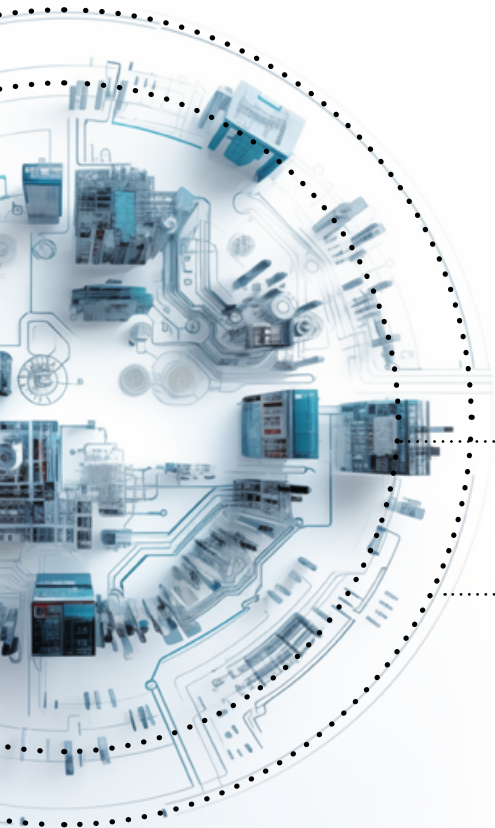
By shifting computing processes to the ‘edge’ and using device-to-device communication, multiple edge networks⁶²⁴ connect and interact directly with each other to form an ‘edge computing network’. This approach overcomes the need for hybrid clouds,⁶²⁵ further reducing latency by bypassing the need for data centres entirely.

BENEFITS

Direct access to raw and processed data in real time increases opportunities for innovation in organisations and better day-to-day decision-making for individuals. Data privacy and security is improved.

RISKS

Edge networks may lack the robust physical security measures typically found in centralised data centres. This makes edge networks more susceptible to hacking and misuse.



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