Seminar

on

Edge Computing

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EDGE COMPUTING

You need to move from Cloud computing to Edge computing!

- Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user.

- To leverage 5G wireless technology and artificial intelligence to enable faster response time, lower latency(ability to produce high volumes of data with minimal delay), and simplified maintenance in computing.

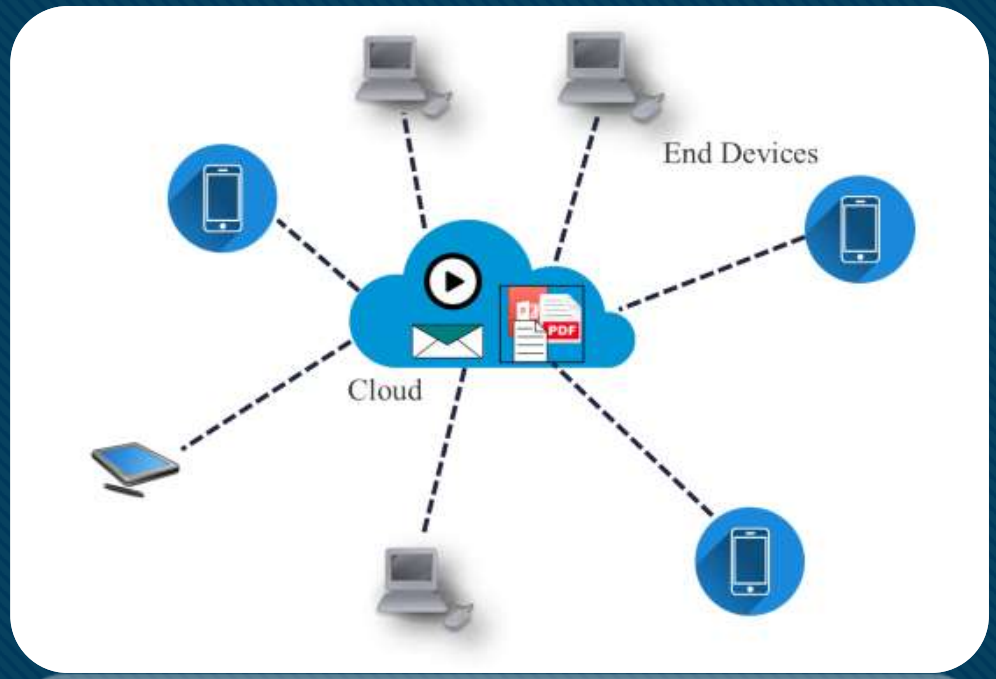


Fig: Cloud Computing

What is Edge Computing?

- "Edge Computing is a distributed computing paradigm which brings computer data storage closer to the location where it is needed".
- The idea is to analyze data locally, closer to where it is stored, in real-time without latency, rather than send it far away to a centralized data centre.

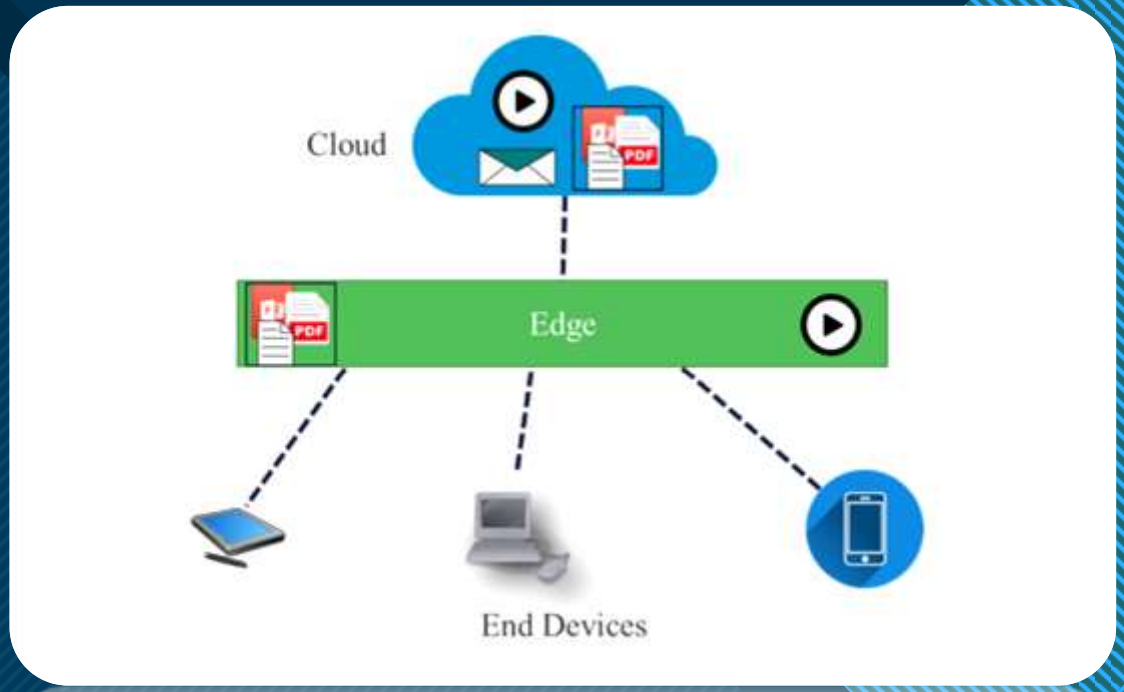
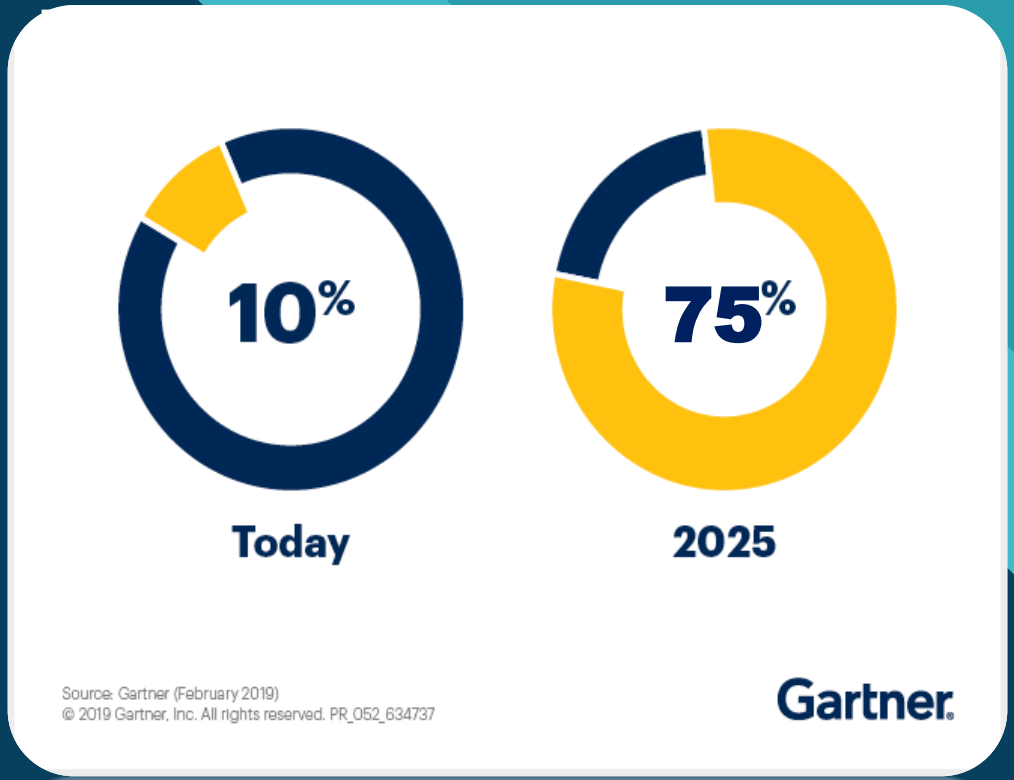


Fig: Edge Computing

Objectives

- Reduce Latency
- Bandwidth Use
- Spontaneous Response
- More Robustness



Features

- Geographically Distributed
- Low Latency
- Scalable
- Real-time Interactions

Working

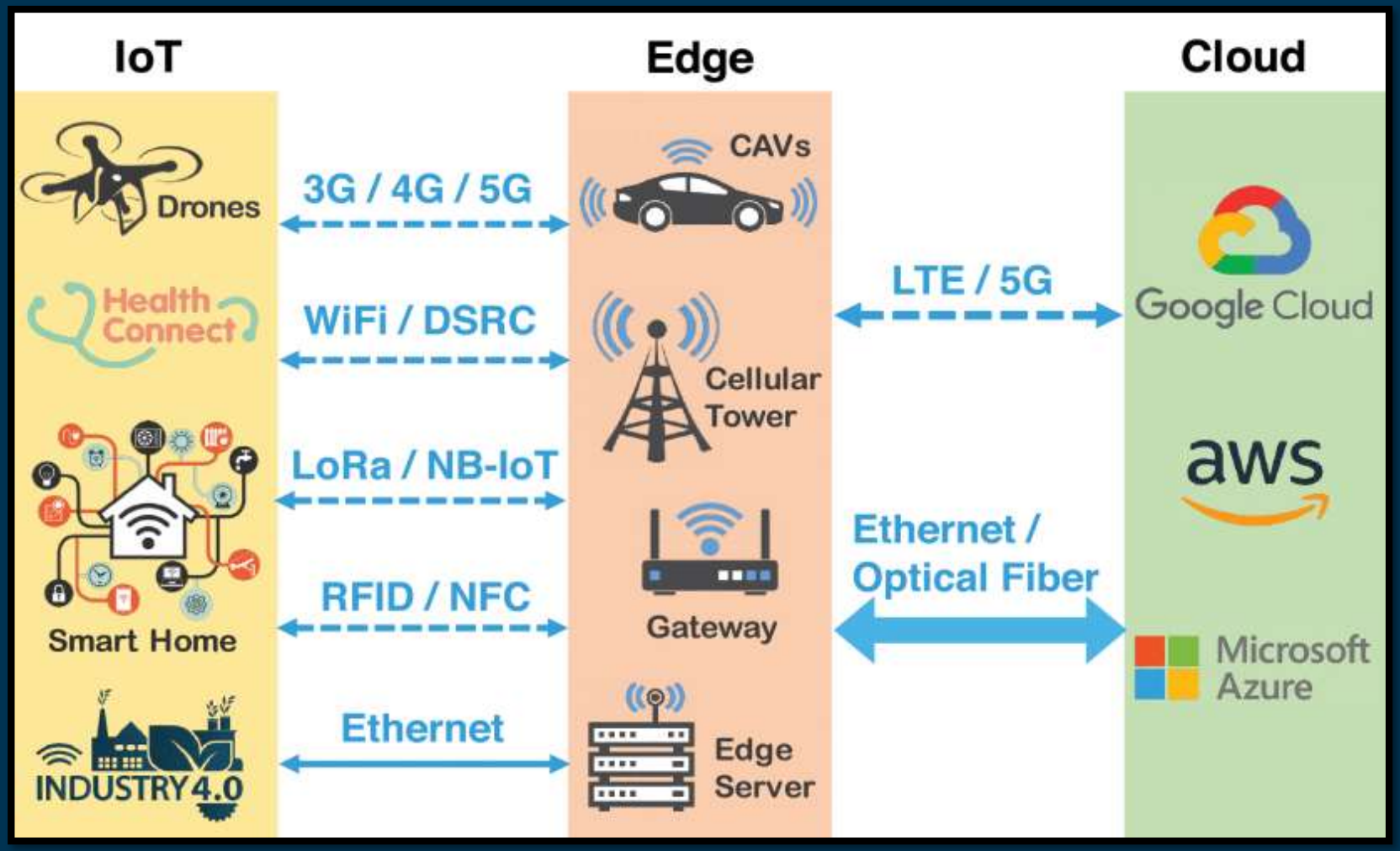


Fig: Three-tier edge computing model.

Advantages

Faster Response Time

Cost Effective Solutions

Reliable Operations even with loss of connectivity

Security

Rapid Scalability

Disadvantages

Incomplete Data

More Storage Space

Security

Investment Cost

Maintenance

Edge Computing Use Cases

- Autonomous Vehicles
- Healthcare Devices
- Security Solutions
- Smart Speakers
- Video Conferencing

Conclusion

Edge computing and cloud computing are different technologies and can't replace each other. It is true to say that edge technology has been accepted by many organizations due to it's overcome on minor issues of cloud computing. However, it is not substantiated as it is not the only solution to the obstacles faced by the IT vendors.

Future Scope

Edge computing is much more than simply redistributing data to the endpoints. There is no denying that it will enable businesses to perform advanced analytics in new ways. The time when you will be able to effortlessly stream an 8K video on your mobile phone, or step into an autonomous taxi for your ride home is no longer on the edge of our imagination. We still need data centers for many other use cases that require heavy computation, and for storage. However, until the next big shift, the edge is the future.

References

- An Overview on Edge Computing Research – IEEE Xplore
- Edge computing enabling the Internet of Things – IEEE Xplore
- Energy Efficient Task Caching and Offloading for Mobile Edge Computing – IEEE Xplore
- Edge of Things: The Big Picture on the Integration of Edge, IoT and the Cloud in a Distributed Computing Environment – IEEE Xplore

Thank
You