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EDGE COMPUTING

DEPARTMENT OF COMPUTER APPLICATIONS

What is Edge Computing and why does it matter?

Rather than sending all data collected by Internet of things (IoT) sensors directly to the cloud, edge computing processes this data within the network, and only relevant data, or information data conveniently bundled, is sent; reducing latency issues.

When was Edge Computing invented?

In 1990s

The origin of edge computing can be traced back to the 1990s, when Akamai launched its content delivery network (CDN). The idea back then was to introduce nodes at locations geographically closer to the end user for the delivery of cached content such as images and videos.
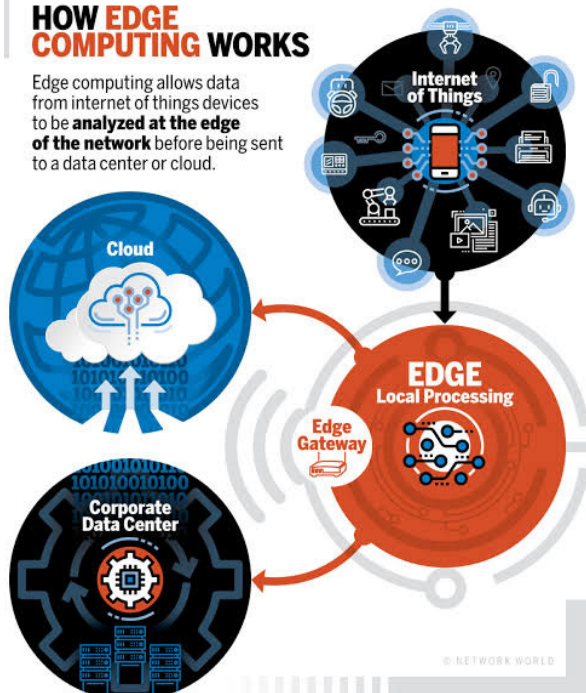
What does Edge Computing do?

Edge computing enables data stream acceleration, including real-time data processing without latency. It allows smart applications and devices to respond to data almost instantaneously as it's being created, eliminating lag time.

What are the security impacts of Edge Computing?

The combination of cloud and edge computing introduces fresh concerns that businesses will end up surrendering control over their connected devices to third parties and potentially putting customer data at risk. Also, hackers who gain access to the device via the cloud may be able to steal the data stored on them.
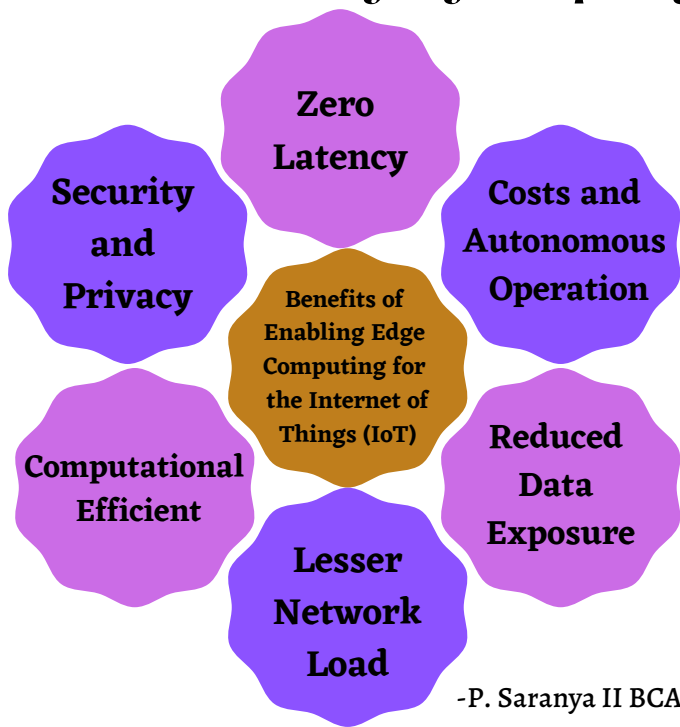
-L . Shanmuga Priya III BCA

EDGE COMPUTING. VS CLOUD COMPUTING

• The term "Edge computing" refers to computing as a distributed paradigm. It brings data storage and compute power closer to the device or data source where it's most needed.

• Cloud computing revolves around large, centralized servers stored in data centers.

-A. Bagyalashmi II BCA

Benefits Of Enabling Edge Computing

Zero Latency

Security and Privacy

Costs and Autonomous Operation

Benefits of Enabling Edge Computing for the Internet of Things (IoT)

Computational Efficient

Reduced Data Exposure

Lesser Network Load

-P. Saranya II BCA

Service providers are in a great position to capture the edge opportunity

Today's service providers are ideally positioned to deliver intelligent traffic routing from the mobile network to the optimal location of the enterprise application, in addition to having people on the ground and expert knowledge of network topology, network efficiency, device management and more.

The evolution to cloud native network functions and distributed cloud computing enables service providers to move beyond traditional connectivity-service models and opens new doors to adjacent industries.

CAPTURING THE EDGE OPPORTUNITY WILL TAKE PLACE IN THREE PHASES:

TODAY

- Focus on dedicated deployments on-premise.
- Explore on-network deployments at Packet Core sites.
- Integrate service orchestration with 5G Core.
- Establish partnerships with cloud providers.

TOMORROW

- Provide end-to-end service with defined service level agreements, in a self-service, automated way.
- Enable applications to interact with the network in advanced ways via orchestration and network exposure and easy to consume APIs.

FUTURE

- Deep integration of compute in the network, blurring the line between the device, the edge of the network and the cloud.
- A single unified, integrated execution environment for distributed applications, including both network functions and third-party applications.

INFLUENTIAL PERSON IN EDGE COMPUTING
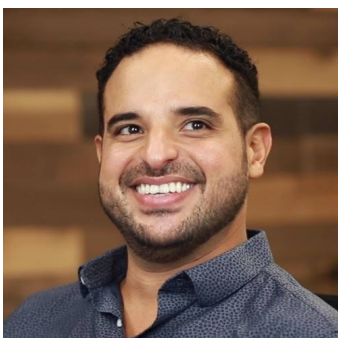
Managing Director, Edgepoint, Compass Datacenters
Fotouh, an ex-Googler, is the founder of EdgePoint Systems, which is now part of Compass Datacenters. Fotouh is responsible for the company's edge data center solutions as part of Compass Datacenters' comprehensive core-to-the-edge offering to customers. He is recognized across both the information technology and the data center industries as one of the preeminent experts on edge computing. He has more than 10 years of tenure leading large data center and technology teams, including founding and leading Google Fiber's national network facilities and deployment engineering program.

SHARIF FOTOUH

-S. SHAMEEM II BCA

TOP 10 COMPANIES IN EDGE COMPUTING MARKET

- Microsoft Corporation.
- Amazon.
- IBM Corporation.
- General Electric Company.
- Huawei Technologies Co., Ltd.
- Dell Technologies, Inc.
- Hewlett-Packard Company.
- Juniper Networks, Inc.
- Cisco Systems, Inc.
- Google LLC.

Some Important And Crucial Facts About Edge Computing!
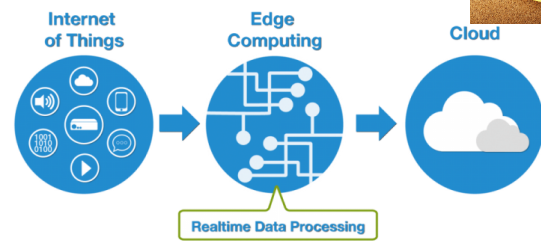
Due to quick data processing needs in several big organizations, the process of organizing data in local devices has started. The biggest advantage in this process is that the stored data always remains close to the network and can be fetched and seen in real time. The process is simply called edge computing where a group of small data networks collects the data locally and then transfer it to the main data center or various cloud storages.

Current Progress of Industrialization of Edge Computing

Edge computing was added to Gartner's Hype Cycle in 2015.

A wave of industrialization of edge computing has been set off. Various industrial organizations and commercial organizations are actively initiating and promoting research, standardization, and industrialization of edge computing. Representative activities include:

Academic research :

- In October 2016, the first IEEE/ACM Symposium on Edge Computing was hosted by IEEE and ACM.
- It gained academic, industrial, and government (National Science Foundation of the United States) recognition.
- This academic symposium focuses on the application values and research orientations of edge computing.

Standardization :

- IEC released the Vertical Edge Intelligence (VEI) White Paper in 2017. The white paper describes the values of edge computing to vertical industries such as manufacturing.
- ISO/IEC JTC 1/SC 41 established the edge computing research group to promote standardization of edge
- computing.

Industry consortium :

- In November 2016, the Edge Computing Consortium (ECC) was set up by organizations including Huawei, Shenyang Institute of Automation (SIA) of Chinese Academy of Sciences, China Academy of Information and Communications Technology (CAICT), Intel, ARM, and iSoftStone.
- In 2017, Industrial Internet Consortium (IIC), a global industrial organization, established the Edge Computing TG to also define the reference architecture of edge computing.

-S. SHAMEEM II BCA

Advantages Of Edge Computing:

- It offers high speed, reduced latency better reliability which allows for quicker data processing and content delivery.
- It offers better security by distributing processing, storage, and applications across a wide range of devices and data centers, which makes it difficult for any single disruption to take down the network.
- It offers a far less expensive route to scalability and versatility, allowing companies to expand their computing capacity through a combination of IoTdevices and edge data centers.

Disadvantages Of Edge Computing:

- It requires more storage capacity.
- Security challenges in edge computing is high due to huge amount of data.
- It only analyse the data.
- Cost of edge computing is very high.
- It requires advanced infrastructure.

-J.VIDHYA II BCA

WORD SEARCH

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G B Z X Q L E W T U R T N C H C N F M E O Z W Q
N R E T P G D C W C H Y L B L L E P J G B H P P
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K Q N U M X V D G E K O A L D L S W H V Y I W D
A Z T U J W Q I I E A F E L Y Y C Z U Y F P I Y
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WORDS TO BE FOUND :

- •ACCESS EDGE •BASE STATION •BRANCH OFFICE
- •CLOUD COMPUTING •CLOUDLET
- •CLOUD RADIO •CLOUD SERVICE •DATA CENTER
- •DEVICE EDGE •EDGE COMPUTING
- •EDGE DEVICE •FOG COMPUTING
- •GATEWAY SERVER •INTERNET OF THINGS
- •NETWORK HOP •REMOTE OFFICE
- •THROUGHPUT •USER EDGE

CONCLUSION :

- Edge computing is a vast term and includes so many devices like machines, equipment and computer devices which transmits data through local storage devices and after processing it send to centralized networks.

ACHIEVEMENTS

- G. RESHMA - I BCA, Second Prize, In Essay Contest, About "A Perspective On New Educational Policy", Organised By IQAC & Nakshatra Students Council, At Sri Kanyaka Parameswari Arts And Science College For Women.
- M. ANJALI Chauhan - I BCA, First Prize, In Solo Singing, Organised By IQAC & Kalaalaya Fine Arts Association, At Sri Kanyaka Parameswari Arts And Science College For Women.
- B. Vikaasini - II BCA, Second Prize, In PowerPoint Presentation, About "Effects And Defects Of Online Learning From Home", Organised By Department Of Computer Applications, At Sri Kanyaka Parameswari Arts And Science College For Women.

REFERENCES:

1. Service Providers : https://www.ericsson.com/en/edge-computing
2. Top 10 Companies In Edge Computing : https://meticulousblog.org/top-10-companies-in-edge-computing-market/
3. Current Progress : http://en.ecconsortium.net > filePDF Web results

-Design : S. Shameem II BCA