

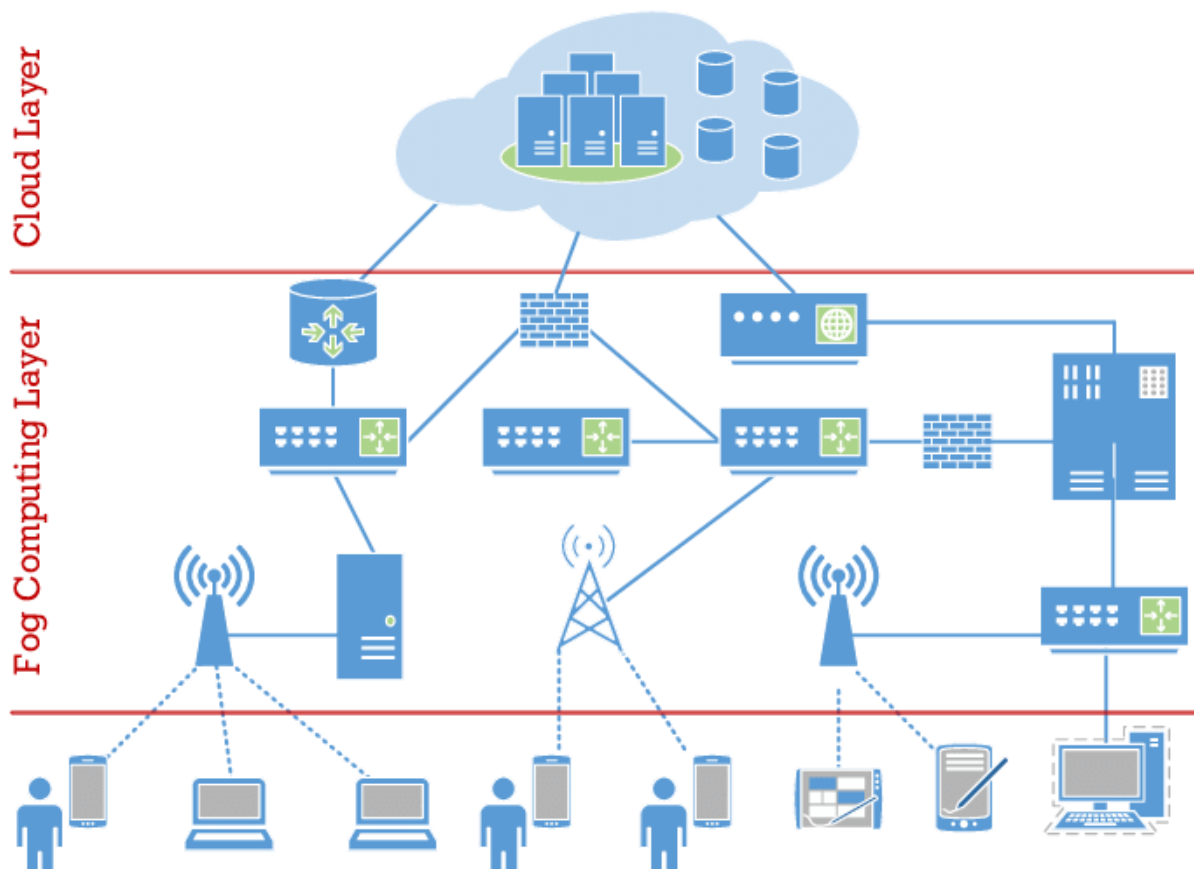
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## Fog Computing

### Introduction of Fog Computing:

Fog computing is a distributed computing paradigm that enables the processing of data at the edge of the network, closer to the devices that generate it, rather than in centralized cloud data centers. It is an extension of cloud computing that addresses the limitations of cloud computing in terms of latency, bandwidth, and network congestion. By bringing computing resources closer to the edge, fog computing provides faster response times, improves data privacy and security, and reduces network traffic.

### Architecture of Fog Computing:



## **Comparing Fog and Cloud Computing:**

Fog computing and cloud computing have several differences. While cloud computing is centralized, fog computing is decentralized. Cloud computing relies on a centralized data center, while fog computing distributes the processing power across a network of fog nodes. Cloud computing provides scalability, while fog computing provides low latency and high bandwidth. In cloud computing, the data is stored in a centralized location, while in fog computing, the data can be stored locally on the fog nodes.

## **Benefits of Fog Computing:**

One case study of fog computing is in the transportation industry. Autonomous vehicles generate large amounts of data that require fast processing to ensure safety and improve efficiency. Fog computing provides a solution to this problem by enabling the processing of data at the edge of the network, closer to the vehicles.

## **Benefits of Fog Computing:**

**Low latency:** Fog computing can process data in real-time, reducing the response time and improving safety.

**Bandwidth optimization:** By processing data locally, fog computing reduces the amount of data that needs to be sent to the cloud, optimizing the network bandwidth.

**Data privacy:** Fog computing can provide better data privacy by processing data locally, rather than sending it to a centralized data center.

**Cost-effectiveness:** Fog computing can reduce the cost of data processing by utilizing the resources of the fog nodes, which are typically low-cost devices.

**Conclusion:-** Fog computing is a distributed computing paradigm that provides several benefits over cloud computing, including low latency, bandwidth optimization, and improved data privacy. It is a promising technology that can be applied in various industries, including transportation, healthcare, and manufacturing.