Networking and Storage

After completing this episode, you should be able to:

- Discuss optimizing workloads through the use of networking and storage innovations in the cloud

Description: In this episode, you will learn about the ability to optimize workloads in the cloud through innovations in networking and storage technologies.

Networking and Storage

Network latency - network latency is the time delay experienced in the transmission of data over a network, encompassing the time it takes for a data packet to travel from its source to its destination and back again. This delay can be influenced by various factors including the physical distance between the source and destination, the speed and quality of the transmission medium, the number of intermediary devices like routers and switches, and the overall network congestion. High latency can result in slower data transfer rates and noticeable lag in real-time applications like video conferencing and online gaming, impacting the user experience significantly. Reducing latency involves optimizing the network infrastructure, minimizing the number of hops, and enhancing data routing efficiency.

Throughput - network throughput refers to the rate at which data is successfully transmitted and received over a network in a given time period, typically measured in bits per second (bps). It indicates the actual data transfer performance of a network, as opposed to the theoretical maximum capacity. Throughput is influenced by factors such as network bandwidth, latency, packet loss, and protocol overhead. High throughput is crucial for efficient network performance, enabling faster data exchange and smoother operation of applications and services. Notice that throughput is also used in the storage discipline. In that context, it refers to the rate at which data is successfully written to and read from storage media.

IOPS - IOPS (Input/Output Operations Per Second) is a performance measurement used in IT storage to quantify the number of read and write operations a storage device or system can handle per second. It is a critical metric for assessing the efficiency and speed of storage solutions, particularly in environments with high transaction rates like databases and enterprise applications. Higher IOPS values indicate better performance, enabling quicker data access and processing. Factors affecting IOPS include the type of storage media (e.g., HDDs, SSDs), the workload pattern, and the storage system's configuration and optimization.

Additional resources

- What is Network Latency: https://aws.amazon.com/what-is/latency/ (https://aws.amazon.com/what-is/latency/)