

## CAP Theorem:

The CAP theorem states that distributed database system can only guarantee two out of these three characteristics:

- Consistency,
- Availability, and
- Partition Tolerance.

### consistency

A system is said to be consistent if all nodes see the same data at the same time, if we perform a read operation on a consistent system, it should return the value of the most recent write operation. This means that, the read should cause all nodes to return the same data, i.e., the value of the most recent write.

### Availability:

Availability in a distributed system ensures that the system remains operational 100 percent of the time. Every request is felt available at any time in the system.

### Partition Tolerance:

This tells that systems do not fail even in the case of message are dropped and delayed between nodes in the system. hThis is achieved by replicating the files in different servers.