Perspectives on the CAP Theorem

A distributed data store can never simultaneously provide all three guarantee guarantees concurrently, which is what is known as the CAP theorem. This is extended to be Consistency, Availability, and Partition Tolerance.

Following are the properties of CAP theorem:

* By using a server response object, every request received from a client is correctly handled. Depending on the nature of the service, the consistency varies. Also, the varying consistency can be subdivided into trivial services, weekly consistent services, simple services, and complicated services. This is the property related to Consistency
* When we consider the availability aspect of the CAP theorem, we can be sure that the request object gets a response from the server
* The partition tolerance is the underlying property of CAP theorem. It is because of this property the servers are partitioned into multiple groups which otherwise would have been not possible.

In this paper the authors give the reader an insight about the practical implications of the distributed service system. One can build such a system by overcoming the hurdles put forth by CAP theorem. One can make sure of the best effort availability, by guaranteeing the consistency, being as responsive for given network conditions as possible or by sacrificing consistency which will guarantee responsiveness. So one has to decide between the trade off between the consistency for availability.

The paper in further sections dives deep into how the CAP theorem can be utilized in the future systems by going over the issues of scalability, mobile wireless networks and attack tolerance.