Abstract

In today's technical world, we are witnessing a strong and increasing desire to scale systems to successfully complete workloads in a reasonable time frame. As a result of this scaling, an additional penalty of complexity is incurred in the system. In this paper, we have explained the tradeoffs that have to be taken into consideration while designing databases using CAP theorem and the consequences of this tradeoff. Problems of the CAP theorem itself and its limitations are discussed. CAP theorem which was able to meet the demands, back when it was proposed, can't catch up to the current requirements. The problem lies in the open-ended definitions of CAP which are subject to interpretations. PACELC is an alternative to CAP and is able to overcome some of its current problems. PACELC builds on the CAP theorem and it goes one step ahead of CAP by stating that a trade-off also exists, this time between latency and consistency, provides a more complete portrayal of the potential consistency tradeoffs for distributed systems.
5. Chao Kong, Ming Gao, Weining Qian, Rong Zhang*, Minqi Zhou, Xueqing Gong and Aoying Zhou, 2015, ACID Encountering the CAP Theorem.
7. Balla Wade Diack, Samba Ndiaye and Yahya Slimani, 2013, CAP Theorem between Claims and Misunderstandings: What is to be sacrificed?

**Index Terms**

Computer Science

Algorithms

**Keywords**

Consistency, Availability, Partition tolerance, Latency, Tradeoff.