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**Yongge Wang\*** (yonwang@uncc.edu), Matthews, NC 28105. *Byzantine Fault Tolerance Based Consensus for Blockchains*. Preliminary report.

The Internet communication channel can be considered as a partial synchronous network. The problem of Byzantine Fault Tolerance (BFT) in partial synchronous or asynchronous networks has received a lot of attention in the last 30 years. Our analysis shows that most existing (widely deployed) BFT protocols for blockchains (e.g., Tendermint BFT, Ethereum Casper FFG etc) may not achieve their goals in the open networks such as Internet. Based on these analysis, we introduce BDLS protocol which is the BFT protocol BDLS which, up to our knowledge, is the most efficient BFT protocol for open networks. Furthermore, we will briefly discuss the algebraic description based BFT protocol Casper CBC (Correct by Construction) for Ethereum 2.0 by Ethereum research lab and point out the potential challenges there. (Received August 05, 2020)