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The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

Crypto Currency Security and Performance on Large Data

by

Mr. Dave LIU

CTO of MacroSQL Technology, CA, USA

Abstract

Block chains are linear, PKI is slow and consume CPU. Block chains are slow in aggregation, statistics, search, classification, large data....etc. The two biggest pain points of Bitcoin are performance (600 sec for transaction to finish) and security. As the chain size grows over 100 GB, and shopping transactions surge, this problem gets worse each day. A hard-fork can divide the traffic but creates a competitor; Segwit and Segwit2 increase the block size but also has increased latency. These problems are inherent to the current block chain design where the hash of packing transactions are stored in the block header; and the whole block hash is then stored in the next block to create strong dependency and immutability, which entails sequential processing.

This topic will try to explore the trade-off between existing security architecture of block-chain and their limitation on performance and parallel processing and possible alternative which has better performance. Will compare a broad range of industrial and open source projects that attempt to solve either or both performance and security issues of blockchain. This talk can be serve as general overview of design on performance and security of current blockchain eco-system.

Speaker's Bio:

Dave Liu (CTO of MacroSQL Technology, CA, USA). Dave was performance architect at Intel and Oracle. He has performance tuning experience in every layer of data center at Cycle-accurate (3x10⁻¹⁰ sec). Dave specialized in exhausting all hardware and soft-ware technologies to make transaction processing fast. He had worked on transaction processing at 20msec and worked on perfecting performance of PostgreSQL, Oracle and MarkLogic cluster database. He has a Master in computer science with straight As from Rensselaer Polytechnic Institute at Troy, NY. LinkedIn.

Date: Tuesday, 7 November 2017

Time: 10:30a.m. – 11:30a.m.

***Venue: Room 1504, Academic Building
(near Lifts 25 & 26), HKUST***

All are welcome!