Performance and Scale Working Group

> ⚠️ The Hyperledger Performance and Scale Working Group is not currently active. If you're interested in the topic of performance and scale with blockchain networks, check out Hyperledger Caliper and the two performance related mentorship projects in our 2023 Mentorship program.

Description	Performance and scalability are two key characteristics of any platform. In terms of most of the Hyperledger projects, both will directly relate to end user satisfaction and ultimately adoption of a project. For instance, if a code base consumes too many system resources or does not complete an action in a reasonable time with respect to other solutions, it may not succeed. Similarly, if a product does not scale well (horizontally and or vertically), it may not succeed. The purpose of the Performance and Scalability Working Group (PSWG) is to discuss, research, and identify key metrics that relate to the performance and scalability of a blockchain and blockchain related technologies.

Charter

Please see Charter for the full text of the charter.

Scope

PSWG serves as a cross project forum for architects and technologists from the Distributed Ledger Technology (DLT) community to exchange ideas and explore the performance and scalability aspects of the DLT projects. PSWG will help review incoming performance project proposals and make recommendations to the TSC. The PSWG may work with the other working groups, especially in the areas of architecture and requirements.

Links to Completed Work

- Metrics White Paper(Metrics White Paper Chinese Translations,)

Links to Ongoing Work

- DRAFT Metrics Definition Proposal
- DRAFT Performance Considerations in a DLT/Blockchain World
- DRAFT Fault load
- PerformanceSandBox

Links to External Resources

- Hyperledger Caliper Proposal
- BLOCKBENCH: A Framework for Analyzing Private Blockchains
- BLOCKBENCH source repository
- Bitcoin-NG: A Scalable Blockchain Protocol - A Usenix Paper
- Hyperledger Fabric: A Distributed Operating System for Permissioned Blockchains Includes some preliminary performance test results for fabric v1.0 with the Bitcoin-like (UTXO-based) "fabcoin" smart contract
- Performance Characterization of Hyperledger Fabric Appears in the First Crypto Valley Conference on Blockchain Technology (CVCBT 2018)
- Performance Evaluation of the Quorum Blockchain Platform
- Gauge - Performance Benchmarking Tool for Hyperledger Fabric and Quorum based on original version of Huawei Caliper with some new features, plugin for the Quorum blockchain platform, and support for micro-benchmarks and scaling experiments.
- Performance Modeling of Hyperledger Fabric - Developed analytical models to estimate various performance measures (throughput, latency, mean queue length) = f(system, application configuration). Published at IEEE NCA conference, Nov. 2018
- Performance Modeling and Analysis of Hyperledger Fabric - Modeled and analyzed Fabric v0.6 and V1 from performance perspective. Ph.D. Thesis. (in press)
- Accelerator - Designed to improve the performance of a blockchain network, e.g. Hyperledger Fabric, in terms of transaction throughput.
- Fabric Machine: Accelerating Hyperledger Fabric Using FPGAs

Active Members

Name	Company
Haris Javaid, WG Chair	Xilinx

Communication Channels

These are the mechanisms that this working group uses to communicate. You are invited to join the conversation.

Mailing List

perf-and-scale-wg@lists.hyperledger.org

- Subscribe
- Archives

Chat Channel

#performance-and-scale-wg

Meetings

The Performance and Scale Working Group meets weekly on Tuesdays at 9:00 AM US/Eastern time. See the Calendar of Public Meetings for the next meeting and dial in details.

TSC Working Group Updates

- September 2018
- June 2018
- April 2018

New TSC Working Group Update

Yi (Sam) Yuan	IBM
Mark Wagner	Red Hat
Todd Little	Oracle
Mark Simpson	Chorum
Harish Sukhwani	Duke University (graduated)
Vipin Bharathan	dlt.nyc: vip@dlt.nyc Vipin Bharathan

Recent space activity

David Boswell
Performance and Scale Working Group updated May 16, 2023 view change

Haris Javaid
PSWG 2022: Activities and Goals updated Mar 27, 2023 view change
PSWG Jan 10, 2023 created Jan 09, 2023
2023 Meetings created Jan 09, 2023

Yi Yuan
PSWG Nov 15, 2022 updated Nov 15, 2022 view change

Space contributors

- David Boswell (342 days ago)
- Haris Javaid (393 days ago)
- Yi Yuan (525 days ago)
- Vikram Sharma (694 days ago)
- Sundararajarao Mohan (945 days ago)
- ...