Performance and Scale Working Group

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

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
- Gauge - Performance Benchmarking Tool for Hyperledger Fabric
- 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 Characterization of Hyperledger Fabric
- 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.

Active Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
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<tbody>
<tr>
<td>Haris Javaid, WG Chair</td>
<td>Xilinx</td>
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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

- **Yi Yuan**
  - PSWG March 8th, 2022 updated Mar 08, 2022 • view change
  - Performance and Scale Working Group updated Feb 09, 2022 • view change

- **Hans Javaid**
  - PSWG February 8, 2022 updated Feb 09, 2022 • view change

- **Yi Yuan**
  - PSWG February 8, 2022 commented Feb 08, 2022

- **Hans Javaid**
  - PSWG January 11, 2022 updated Jan 12, 2022 • view change

Space contributors

- Yi Yuan (8 days ago)
- Haris Javaid (36 days ago)
- David Boswell (100 days ago)
- Sundararajara Mohan (177 days ago)
- Yang Cheng (391 days ago)
- ...