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.

Meetings

All Hyperledger meetings are run covered by the following Antitrust Policy.

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.

Communication Channels

These are the mechanisms that this working group uses to communicate.

Mailing List

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

• Subscribe
• Archives

Chat Channel

#performance-and-scale-wg

Links to Ongoing Work

• DRAFT Metrics Definition Proposal
• DRAFT Performance Considerations in a DLT/Blockchain World
• DRAFT Fault load
• Metrics White Paper Chinese Translations

Links to Completed Work

• Metrics White Paper

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
• 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark Wagner, WG Chair</td>
<td>Red Hat</td>
</tr>
<tr>
<td>Todd Little</td>
<td>Oracle</td>
</tr>
<tr>
<td>Mark Simpson</td>
<td>Chorum</td>
</tr>
<tr>
<td>Harish Sukhwani</td>
<td>Duke University (graduated)</td>
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<tr>
<td>Vipin Bharathan</td>
<td>dlt.nyc: <a href="mailto:vip@dlt.nyc">vip@dlt.nyc</a> Vipin Bharathan</td>
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</tbody>
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Recent space activity

Yang Cheng
Performance and Scale Working Group updated Feb 18, 2021 • view change

Hans Javaid
Performance and Scale Working Group updated Jul 24, 2020 • view change

David Liu
Performance and Scale Working Group updated Jul 09, 2020 • view change

Kamesh Palani
2019 Meeting Notes commented Jun 19, 2019

Mark Wagner
2019 Meeting Recordings created Mar 19, 2019

Space contributors

• Yang Cheng (17 days ago)
• Haris Javaid (226 days ago)
• David Liu (241 days ago)
• Mark Wagner (718 days ago)
• Tracy Kuht (762 days ago)
• ...