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.

Meeting Agendas

All Meeting Agendas

Meeting Notes

- 2019 Meeting Notes
- 2017-2018 Meeting Notes

All Meeting Notes

Links to Ongoing Work

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

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
- 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)
### 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>
</tr>
<tr>
<td>Vipin Bharathan</td>
<td>dlt.nyc: <a href="mailto:vip@dlt.nyc">vip@dlt.nyc</a> Vipin Bharathan</td>
</tr>
</tbody>
</table>

### Recent space activity

- **Kamesh Palani**
  - 2019 Meeting Notes commented Jun 19, 2019

- **Mark Wagner**
  - 2019 Meeting Recordings created Mar 19, 2019

- **Tracy Kuhrt**
  - Performance and Scale Working Group updated Feb 04, 2019 • view change

- **Vipin Bharathan**
  - 2019-01-22 created Jan 25, 2019
  - 2019 Meeting Notes created Jan 25, 2019

### Space contributors

- Mark Wagner (457 days ago)
- Tracy Kuhrt (500 days ago)
- Vipin Bharathan (510 days ago)
- Harish (527 days ago)
- Mark Simpson (527 days ago)
  - ...

---

**NOTE:** The image includes a table with Active Members, recent space activity, and space contributors. However, the text representation focuses on extracting the key information as described above.