

DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer insert-data-offer-100 insert-data-offer-1000 insert-data-offer-4000 insert-data-offer-8000 insert-data-offer-13000 insert-data-offer-32000 insert-data-offer-64000

System under test

Details

Caliper report

Summary of performance metrics

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|-----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer | 950 | 0 | 15.4 | 1.56 | 0.13 | 0.41 | 15.3 |
| insert-data-offer- 100 | 2685 | 0 | 50.9 | 2.21 | 0.16 | 0.67 | 49.0 |
| insert-data-offer- 1000 | 2545 | 0 | 47.8 | 2.20 | 0.13 | 0.81 | 46.1 |
| insert-data-offer- 4000 | 2396 | 0 | 45.0 | 2.25 | 0.15 | 0.99 | 43.5 |
| insert-data-offer- 8000 | 2430 | 0 | 45.2 | 2.90 | 0.20 | 1.18 | 45.0 |
| insert-data-offer- 13000 | 2377 | 0 | 44.3 | 2.99 | 0.17 | 1.29 | 43.0 |
| insert-data-offer- 32000 | 2265 | 0 | 41.8 | 3.39 | 0.21 | 2.03 | 40.8 |
| insert-data-offer- 64000 | 2382 | 0 | 43.1 | 3.40 | 0.14 | 1.68 | 41.7 |

Benchmark round: insert-data-offer

Benchmarking the InsertHistoricalDataHash function with specific parameters.

txDuration: 60
rateControl:
 type: fixed-rate
 opts:
 tps: 15

Performance metrics for insert-data-offer

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|-----------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data- offer | 950 | 0 | 15.4 | 1.56 | 0.13 | 0.41 | 15.3 |

Resource utilization for insert-data-offer

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | |

Hyperledger Caliper Report



Basic information

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insert-data-offer insert-data-offer-100 insert-data-offer-4000 insert-data-offer-8000 insert-data-offer-13000 insert-data-offer-32000

System under test

insert-data-offer-64000

<u>Details</u>

| Hyperledger Call | per Report |
|---|--|
| | couchdb0 |
| | couchdb1 |
| | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | orderer.example.com |
| | peer0.org1.example.com |
| | peer0.org2.example.com |
| sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | couchdb0 |
| | couchdb1 |
| | orderer.example.com |
| | peer0.org1.example.com |
| | peer0.org2.example.com |
| sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | couchdb0 |
| | couchdb1 |
| | orderer.example.com |
| | peer0.org1.example.com |
| | peer0.org2.example.com |
| | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) sum(rate(container_fs_reads_bytes_total{name=~".+"} |

Benchmark round: insert-data-offer-100

Test InsertHistoricalDataHash function with data hash size 100 bytes

txDuration: 60
rateControl:
 type: fixed-load
 opts:
 transactionLoad: 10
 startingTps: 1

Performance metrics for insert-data-offer-100

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|---------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data- offer-100 | 2685 | 0 | 50.9 | 2.21 | 0.16 | 0.67 | 49.0 |

Resource utilization for insert-data-offer-100

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | |

Hyperledger Caliper Report



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insert-data-offer insert-data-offer-100 insert-data-offer-1000

insert-data-offer-4000

insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000 insert-data-offer-64000

System under test

Details

| | riyperieuger canp | or report |
|-----------------------|---|---|
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Write (MB) | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Read (MB) | sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |

Benchmark round: insert-data-offer-1000

 $Test\ Insert Historical Data Hash\ function\ with\ data\ hash\ size\ 1000\ bytes$

txDuration: 60
rateControl:
 type: fixed-load
 opts:

opts:
 transactionLoad: 20
 startingTps: 1

Performance metrics for insert-data-offer-1000

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer- 1000 | 2545 | 0 | 47.8 | 2.20 | 0.13 | 0.81 | 46.1 |

Resource utilization for insert-data-offer-1000

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |



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System under test

Details

| dev-peer0.org2.example.com-basic_1.0- | | , | · 1 |
|--|-------|---|---|
| | | | orderer.example.com |
| CPU (%) sumfrate(container_cpu_usage_seconds_total{name==",+"} a_a_orderer ca_orderer Image: container_cpu_usage_seconds_total{name==",+"} a_a_orderer couchdb0 Image: container_cpu_usage_seconds_total{name==",+"} a_a_orderer couchdb0 Image: container_cpu_usage_seconds_total{name==",+"} a_a_orderer couchdb0 Image: container_spu_usage_seconds_total{name==0,+ a_a_orderer} a_a_orderer dev-peer0.org1.example.com-basic_1.0-6379908e08b257332d955d5b7eadeat70c68a9499b6070bb44fcd268872657 Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer peer0.org2.example.com Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer peer0.org2.example.com Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer couchdb0 Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer peer0.org2.example.com Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer peer0.org2.example.com Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer peer0.org2.example.com Image: container_spu_usage_seconds_total{name=0,+ a_a_orderer} a_a_orderer ca_orderer Image: container_spu_usage_seconds_total_name=0,+ a_a_orderer ca_orderer Image: container_spu_usage_spu_usage_sconds_total_name=0,+ a_a_orderer ca_orderer </td <td></td> <td></td> <td>peer0.org1.example.com</td> | | | peer0.org1.example.com |
| (%) [Im]) by (name) ca_orderer couchdb0 couchdb1 couchdb1 dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d57eadeac170c68a9499b6070bb44fcd268872657 dev-peer0.org2.example.com-basic_1.0-637b908e00b257332d955d57eadeac170c68a9499b6070bb44fcd268872657 dev-peer0.org2.example.com mercer.example.com peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com couchdb0 mercer.example.com couchdb1 mercer.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com peer0.org2.example.com mercer.example.com ca_orderer mercer.example.com couchdb0 mercer.example.com couchdb1 mercer.example.com orderer.example.com | | | peer0.org2.example.com |
| Couchdb1 | | | ca_orderer |
| dev-peer0.org1.example.com-basic_1.0- dev-peer0.org2.example.com-basic_1.0- dev- | | | couchdb0 |
| G37b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726574 dev-per0.org2.example.com-basic_1.0-G37b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726574 dev-per0.org2.example.com | | | couchdb1 |
| G37b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 Orderer.example.com Orderer.example.com Peer0.org1.example.com Peer0.org2.example.com Peer0.or | | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer ca_orderer ca_orderer couchdb0 couchdb1 ordere.example.com peer0.org1.example.com couchdb1 ordere.example.com peer0.org1.example.com couchdb1 orderer.example.com peer0.org1.example.com couchdb1 couchdb1 couchdb1 peer0.org1.example.com peer0.org2.example.com couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 orderer.example.com peer0.org1.example.com | | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| Disc Write (Im)) by (name) Sum(rate(container_fs_writes_bytes_total{name=~".+"} ca_orderer Couchdb0 Couchdb1 Couchdb1 Couchdb1 Peer0.org1.example.com Peer0.org2.example.com Disc Read (MB) Sum(rate(container_fs_reads_bytes_total{name=~".+"} ca_orderer Couchdb1 Couchdb1 Couchdb1 Couchdb0 Couchdb1 Couch | | | orderer.example.com |
| Disc Read (MB) Sum(rate(container_fs_writes_bytes_total{name=~".+"}} ca_orderer couchdb0 couchdb1 orderer.example.com peer0.org1.example.com couchdb1 ca_orderer ca_orderer couchdb1 orderer.example.com peer0.org2.example.com couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 ca_orderer ca_orderer ca_orderer ca_orderer couchdb0 couchdb0 couchdb0 couchdb0 couchdb0 couchdb0 couchdb0 couchdb1 orderer.example.com peer0.org1.example.com peer0.org1.example.com | | | peer0.org1.example.com |
| Write (MB) sun(rate(container_is_writes_bytes_total{name=~".+"}} ca_orderer couchdb0 couchdb1 couchdb1 orderer.example.com peer0.org1.example.com peer0.org2.example.com Disc Read (MB) sum(rate(container_is_reads_bytes_total{name=~".+"}} ca_orderer Couchdb0 couchdb0 Couchdb1 couchdb1 orderer.example.com orderer.example.com peer0.org1.example.com peer0.org1.example.com | | | peer0.org2.example.com |
| couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 peer0.org1.example.com peer0.org2.example.com Disc Read (MB) cum(rate(container_fs_reads_bytes_total{name=~".+"}} ca_orderer couchdb0 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 peer0.org1.example.com | Write | | ca_orderer |
| orderer.example.com peer0.org1.example.com peer0.org2.example.com Disc Read (MB) | | | couchdb0 |
| peer0.org1.example.com Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~".+"} ca_orderer Couchdb0 Couchdb1 Couchdb1 Orderer.example.com peer0.org1.example.com | | | couchdb1 |
| Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~".+"} ca_orderer Couchdb0 couchdb1 | | | orderer.example.com |
| Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~".+"} ca_orderer couchdb0 couchdb1 couchdb1 orderer.example.com peer0.org1.example.com | | | peer0.org1.example.com |
| Read (MB) sum(rate(container_is_reads_bytes_total{name=~".+"} ca_orderer ca_orderer ca_orderer ca_orderer couchdb0 couchdb1 orderer.example.com peer0.org1.example.com | | | peer0.org2.example.com |
| couchdb1 orderer.example.com peer0.org1.example.com | Read | | ca_orderer |
| orderer.example.com peer0.org1.example.com | | | couchdb0 |
| peer0.org1.example.com | | | couchdb1 |
| | | | orderer.example.com |
| peer0.org2.example.com | | | peer0.org1.example.com |
| | | | peer0.org2.example.com |

Benchmark round: insert-data-offer-4000

Test InsertHistoricalDataHash function with data hash size 4000 bytes

txDuration: 60 rateControl:
type: fixed-load
opts:
transactionLoad: 30 startingTps: 1

Performance metrics for insert-data-offer-4000

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer- 4000 | 2396 | 0 | 45.0 | 2.25 | 0.15 | 0.99 | 43.5 |

Resource utilization for insert-data-offer-4000

| Metric | Prometheus Query | Name |
|-----------------------|---|------------|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | |



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Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer

insert-data-offer-100

insert-data-offer-1000

insert-data-offer-4000 insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000 insert-data-offer-64000

System under test

Details

| | Hyperledger Calip | per Report |
|-----------------------|---|---|
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Write (MB) | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Read (MB) | sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| | · · · · · · · · · · · · · · · · · · · | |

Benchmark round: insert-data-offer-8000

Test InsertHistoricalDataHash function with data hash size 8000 bytes

txDuration: 60
rateControl:
 type: fixed-load opts: transactionLoad: 50 startingTps: 1

Performance metrics for insert-data-offer-8000

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer- 8000 | 2430 | 0 | 45.2 | 2.90 | 0.20 | 1.18 | 45.0 |

Resource utilization for insert-data-offer-8000

| Metric | Prometheus Query | Name |
|---------------|---|------------|
| Avg Memory | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| (MB) | | |



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insert-data-offer

insert-data-offer-100 insert-data-offer-1000

insert-data-offer-4000

insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000 insert-data-offer-64000

System under test

Details

| dev-peer0.org2.example.com | | Hyperledger Calip | per Report |
|--|-------|-------------------|---|
| dev-peer0.org1.example.com-basic_1.0- G379808e08b257332d955d557-eadeac170c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com-basic_1.0- G379908e08b257332d955d557-eadeac170c68a9499b6070bb44fcd26887265 orderer_cample.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer couchdb0 | | | couchdb0 |
| 637b0060002573324955c5b7eadeact70c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com orderer.example.com peer0.org1.example.com peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer couchdb0 | | | couchdb1 |
| G57b00bc98b257332d955d5b7eadeac170c68a9499b6070bb44fcd268872656 G77b00bc98b257332d955d5b7eadeac170c68a9499b6070bb44fcd268872656 Ga_orderer G | | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| Perfl. org2.example.com | | | orderer.example.com |
| CPU (%) | | | peer0.org1.example.com |
| (%) [Im]) by (name) ca_outered couchdb0 couchdb1 couchdb1 dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com um(rate(container_fs_writes_bytes_total{name=~",+"}} ca_orderer (MB) couchdb0 couchdb1 couchdb1 couchdb1 orderer.example.com peer0.org1.example.com peer0.org2.example.com Disc Write (miner_fs_reads_bytes_total{name=~",+"} ca_orderer couchdb1 couchdb1 couchdb0 couchdb0 couchdb1 couchdb0 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 orderer.example.com | | | peer0.org2.example.com |
| Couchdb1 Couchdb1 Couchdb1 Couchdb1 Couchdb2 Couchdb3 Couchdb4 Couchdb4 | | | ca_orderer |
| dev-peer0.org1.example.com-basic_1.0-637998e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 dev-peer0.org2.example.com ordere.example.com peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer (Im)) by (name) couchdb0 couchdb1 ordere.example.com peer0.org2.example.com ordere.example.com couchdb1 ordere.example.com peer0.org2.example.com couchdb1 ordere.example.com peer0.org2.example.com couchdb1 ordere.example.com couchdb1 ordere.example.com couchdb1 ordere.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ordere.example.com peer0.org2.example.com ordere.example.com couchdb0 couchdb1 ordere.example.com couchdb0 couchdb1 ordere.example.com ordere.example.com couchdb0 ordere.example.com couchdb1 ordere.example.com ordere.example.com | | | couchdb0 |
| 637b908e08b257332d955d5b7eadeat170c68a9499b6070bb44fcd26887263 dev-peer0.org2.example.com | | | couchdb1 |
| 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd26887265 roderer.example.com peer0.org1.example.com peer0.org2.example.com sum(rate(container_fs_writes_bytes_total{name=~".+"}} ca_orderer couchdb0 couchdb1 roderer.example.com peer0.org1.example.com couchdb1 roderer.example.com peer0.org1.example.com peer0.org1.example.com peer0.org1.example.com peer0.org2.example.com ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer peer0.org1.example.com peer0.org2.example.com ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer couchdb0 couchdb0 couchdb0 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 orderer.example.com peer0.org1.example.com peer0.org1.example.com | | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer ca_orderer couchdb0 couchdb1 ordere.example.com peer0.org1.example.com peer0.org1.example.com couchdb1 ordere.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer ca_orderer ca_orderer peer0.org1.example.com peer0.org2.example.com peer0.org3.example.com peer0.org3.example.com peer0.org3.example.com peer0.org3.example.com | | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| Disc Write (MB) sum(rate(container_fs_writes_bytes_total{name=~".+"} ca_orderer | | | orderer.example.com |
| Disc Read (MB) Sum(rate(container_fs_writes_bytes_total{name=~",+"} ca_orderer couchdb0 couchdb1 ordere.example.com peer0.org1.example.com Disc Read (MB) Sum(rate(container_fs_reads_bytes_total{name=~",+"} [Im])) by (name) ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer couchdb0 couchdb0 couchdb1 ordere.example.com peer0.org1.example.com peer0.org2.example.com | | | peer0.org1.example.com |
| Write (MB) Sum(rate(container_is_writes_bytes_total{name=~".+"} ca_orderer | | | peer0.org2.example.com |
| couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer ca_orderer couchdb0 couchdb1 couchdb1 couchdb1 couchdb1 couchdb1 peer0.org1.example.com peer0.org2.example.com | Write | | ca_orderer |
| orderer.example.com peer0.org1.example.com peer0.org2.example.com peer0.org2.example.com peer0.org2.example.com ca_orderer ca_orderer couchdb0 couchdb1 orderer.example.com peer0.org1.example.com peer0.org2.example.com | | | couchdb0 |
| peer0.org1.example.com Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~",+"} ca_orderer Couchdb0 couchdb1 Couchdb1 ordere.example.com peer0.org1.example.com | | | couchdb1 |
| Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~",+"} ca_orderer couchdb0 couchdb1 ordere.example.com peer0.org1.example.com | | | orderer.example.com |
| Disc Read (MB) sum(rate(container_fs_reads_bytes_total{name=~".+"} ca_orderer couchdb0 couchdb1 couchdb1 ordere.example.com peer0.org1.example.com | | | peer0.org1.example.com |
| Read (MB) sum(rate(container_is_reads_bytes_total{name=~".+"} ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer ca_orderer | | | peer0.org2.example.com |
| couchdb1 orderer.example.com peer0.org1.example.com | Read | | ca_orderer |
| orderer.example.com peer0.org1.example.com | | | couchdb0 |
| peer0.org1.example.com | | | couchdb1 |
| | | | orderer.example.com |
| | | | peer0.org1.example.com |
| peer0.org2.example.com | | | peer0.org2.example.com |

Benchmark round: insert-data-offer-13000

Test InsertHistoricalDataHash function with data hash size 13000 bytes

txDuration: 60
rateControl:
 type: fixed-load
 opts:
 transactionLoad: 70
 startingTps: 1

Performance metrics for insert-data-offer-13000

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|-----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer- 13000 | 2377 | 0 | 44.3 | 2.99 | 0.17 | 1.29 | 43.0 |

Resource utilization for insert-data-offer-13000

Resource monitor: prometheus

file:///home/rahma/Desktop/Caliper/HyperledgerCaliper/report.html



DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer insert-data-offer-100

insert-data-offer-1000 insert-data-offer-4000

insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000 insert-data-offer-64000

System under test

Details

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Write (MB) | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Read (MB) | sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |

Benchmark round: insert-data-offer-32000

Test InsertHistoricalDataHash function with data hash size 32000 bytes

txDuration: 60
rateControl:
 type: fixed-load
 opts:
 transactionLoad: 90
 startingTps: 1

Performance metrics for insert-data-offer-32000

| Name | Succ | Fail | Send Rate (TPS) | Max Latency (s) | Min Latency (s) | Avg Latency (s) | Throughput (TPS) |
|-----------------------------|------|------|--------------------|--------------------|--------------------|--------------------|---------------------|
| insert-data-offer- 32000 | 2265 | 0 | 41.8 | 3.39 | 0.21 | 2.03 | 40.8 |



DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer insert-data-offer-100

insert-data-offer-1000

insert-data-offer-4000 insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000 insert-data-offer-64000

System under test

<u>Details</u>

Resource utilization for insert-data-offer-32000

Resource monitor: prometheus

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0-637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Write (MB) | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Read (MB) | sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| | | |

Benchmark round: insert-data-offer-64000

Test InsertHistoricalDataHash function with data hash size 64000 bytes

txDuration: 60
rateControl:
 type: fixed-load
 opts:
 transactionLoad: 100
 startingTps: 1

Performance metrics for insert-data-offer-64000

Hyperledger Caliper Report



| | | | (TPS) | Latency (s) | Latency (s) | Latency (s) | (TPS) |
|-----------------------------|------|---|-------|-------------|-------------|-------------|-------|
| insert-data-offer- 64000 | 2382 | 0 | 43.1 | 3.40 | 0.14 | 1.68 | 41.7 |

Basic information

DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer insert-data-offer-100 insert-data-offer-1000 insert-data-offer-4000 insert-data-offer-8000 insert-data-offer-13000 insert-data-offer-32000 insert-data-offer-64000

System under test

<u>Details</u>

Resource utilization for insert-data-offer-64000

Resource monitor: prometheus

| Metric | Prometheus Query | Name |
|-----------------------|---|---|
| Avg Memory (MB) | sum(container_memory_rss{name=~".+"}) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| CPU (%) | sum(rate(container_cpu_usage_seconds_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | dev-peer0.org1.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | dev-peer0.org2.example.com-basic_1.0- 637b908e08b257332d955d5b7eadeac170c68a9499b6070bb44fcd2688726576 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Write (MB) | sum(rate(container_fs_writes_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | peer0.org2.example.com |
| Disc Read (MB) | sum(rate(container_fs_reads_bytes_total{name=~".+"} [1m])) by (name) | ca_orderer |
| | | couchdb0 |
| | | couchdb1 |
| | | orderer.example.com |
| | | peer0.org1.example.com |
| | | |

Test Environment

benchmark config

name: insert-data-offer-benchmark
description: > Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash
function
workers:
 number: 50



DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

Summary

insert-data-offer

insert-data-offer-100

insert-data-offer-1000

insert-data-offer-4000

insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000

insert-data-offer-64000

System under test

Details

```
rounds:
    label: insert-data-offer
     description: >-
Benchmarking the InsertHistoricalDataHash function with specific
       parameters.
     chaincodeID: basic txDuration: 60
     rateControl:
       type: fixed-rate opts:
          tps: 15
     workload:
       module: benchmarks/datamanagement/workloads/insert-data-offer.is
       arguments:
          chaincodeID: basic
    label: insert-data-offer-100
description: Test InsertHistoricalDataHash function with data hash size 100
bytes
     chaincodeID: basic
     txDuration: 60
     rateControl:
       type: fixed-load
opts:
          transactionLoad: 10
startingTps: 1
     workload:
       module: benchmarks/datamanagement/workloads/insert-data-offer.is
       arguments:
          chaincodeID: basic
          byteSize: 100
    label: insert-data-offer-1000
description: Test InsertHistoricalDataHash function with data hash size 1000
bytes
chaincodeID: basic
     txDuration: 60
     rateControl:
       type: fixed-load
opts:
transactionLoad: 20
          startingTps: 1
     workload:
       module: benchmarks/datamanagement/workloads/insert-data-offer.js
       arguments:
          chaincodeID: basic
    byteSize: 1000
label: insert-data-offer-4000
     description: Test InsertHistoricalDataHash function with data hash size 4000
bytes
     chaincodeID: basic
     txDuration: 60
     rateControl:
       type: fixed-load opts:
          transactionLoad: 30
startingTps: 1
     workload:
   module: benchmarks/datamanagement/workloads/insert-data-offer.js
       arguments:
          chaincodeID: basic
    byteSize: 4000
label: insert-data-offer-8000
description: Test InsertHistoricalDataHash function with data hash size 8000
bytes
     chaincodeID: basic
     txDuration: 60 rateControl:
       type: fixed-load
       opts:
          transactionLoad: 50
          startingTps: 1
     workload:
       module: benchmarks/datamanagement/workloads/insert-data-offer.js
       arguments:
          chaincodeID: basic
     byteSize: 8000
label: insert-data-offer-13000
description: Test InsertHistoricalDataHash function with data hash size 13000
bytes
     chaincodeID: basic txDuration: 60
     rateControl:
type: fixed-load
opts:
          transactionLoad: 70 startingTps: 1
     workload:
  module: benchmarks/datamanagement/workloads/insert-data-offer.js
       arguments:
          chaincodeID: basic
    byteSize: 13000
label: insert-data-offer-32000
description: Test InsertHistoricalDataHash function with data hash size 32000
bvtes
     chaincodeID: basic
     txDuration: 60
     rateControl:
       type: fixed-load
       opts:
          transactionLoad: 90
          startingTps: 1
     workload:
       module: benchmarks/datamanagement/workloads/insert-data-offer.js
       arguments:
          chaincodeID: basic
    byteSize: 32000
label: insert-data-offer-64000
     description: Test InsertHistoricalDataHash function with data hash size 64000
bytes
     chaincodeID: basic
```



DLT: fabric

Name: insert-data-offer-

benchmark

Description: Benchmarking the Hyperledger Fabric network with the InsertHistoricalDataHash

function

Benchmark Rounds: 8

Details

Benchmark results

<u>Summary</u>

insert-data-offer

insert-data-offer-100

insert-data-offer-1000

insert-data-offer-4000

insert-data-offer-8000

insert-data-offer-13000

insert-data-offer-32000

insert-data-offer-64000

System under test

Details

```
txDuration: 60
rateControl:
  type: fixed-load
  opts:
    transactionLoad: 100
    startingTps: 1
workload:
  module: benchmarks/datamanagement/workloads/insert-data-offer.js
  arguments:
    chaincodeID: basic
  byteSize: 64000
```

SUT

not provided