Huawei Cloud Storage:
Recovery after powering off a chassis

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Openlab Minor Review Meeting
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HUAWEI

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DSS

- Huawei setup: How to power off a chassis
- The test used
- First results
  - Normal performance
  - 1 Client
  - 5 Clients
  - Summary

- Conclusions
- Future chassis test plans
- Questions

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Huawei setup

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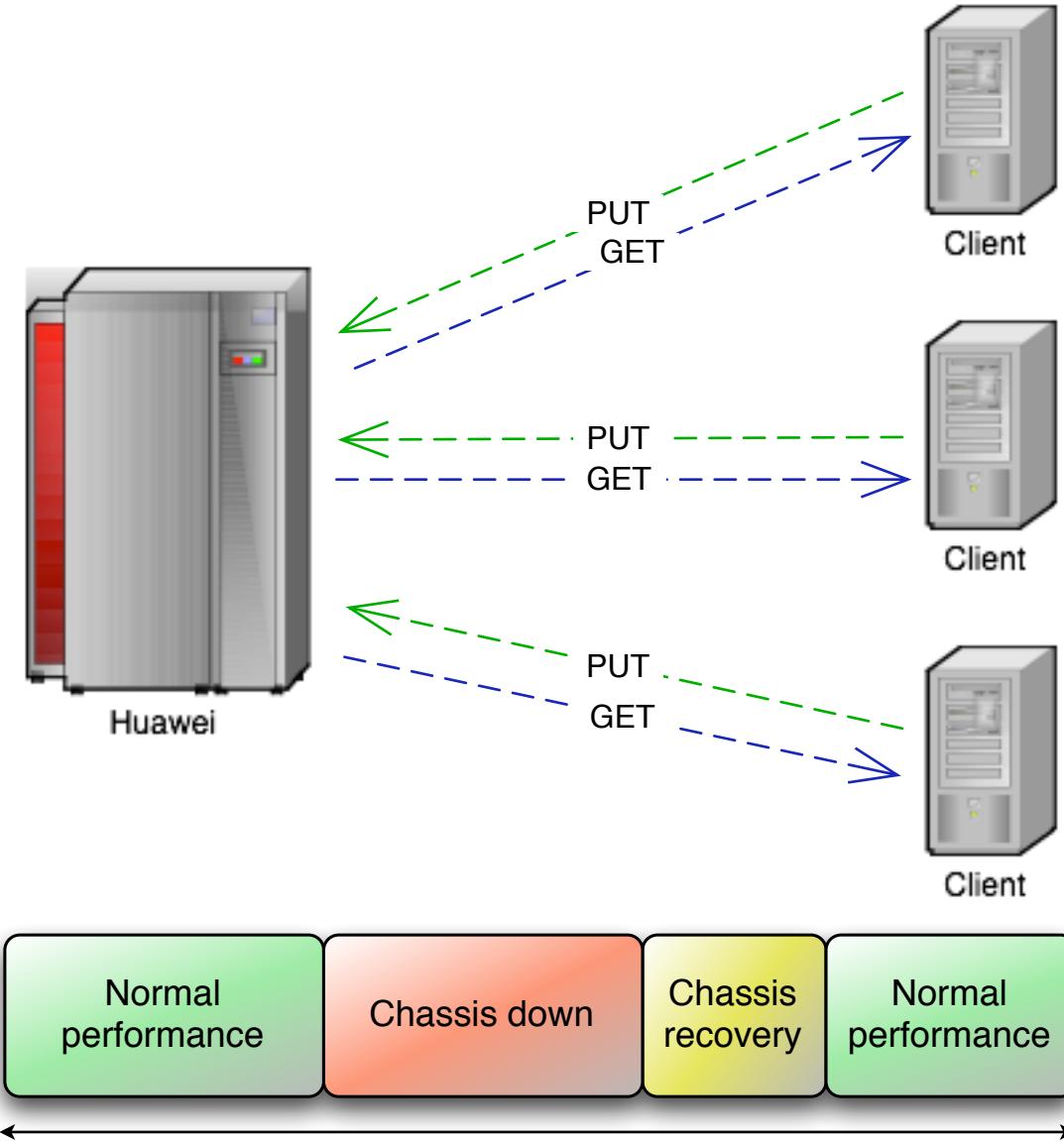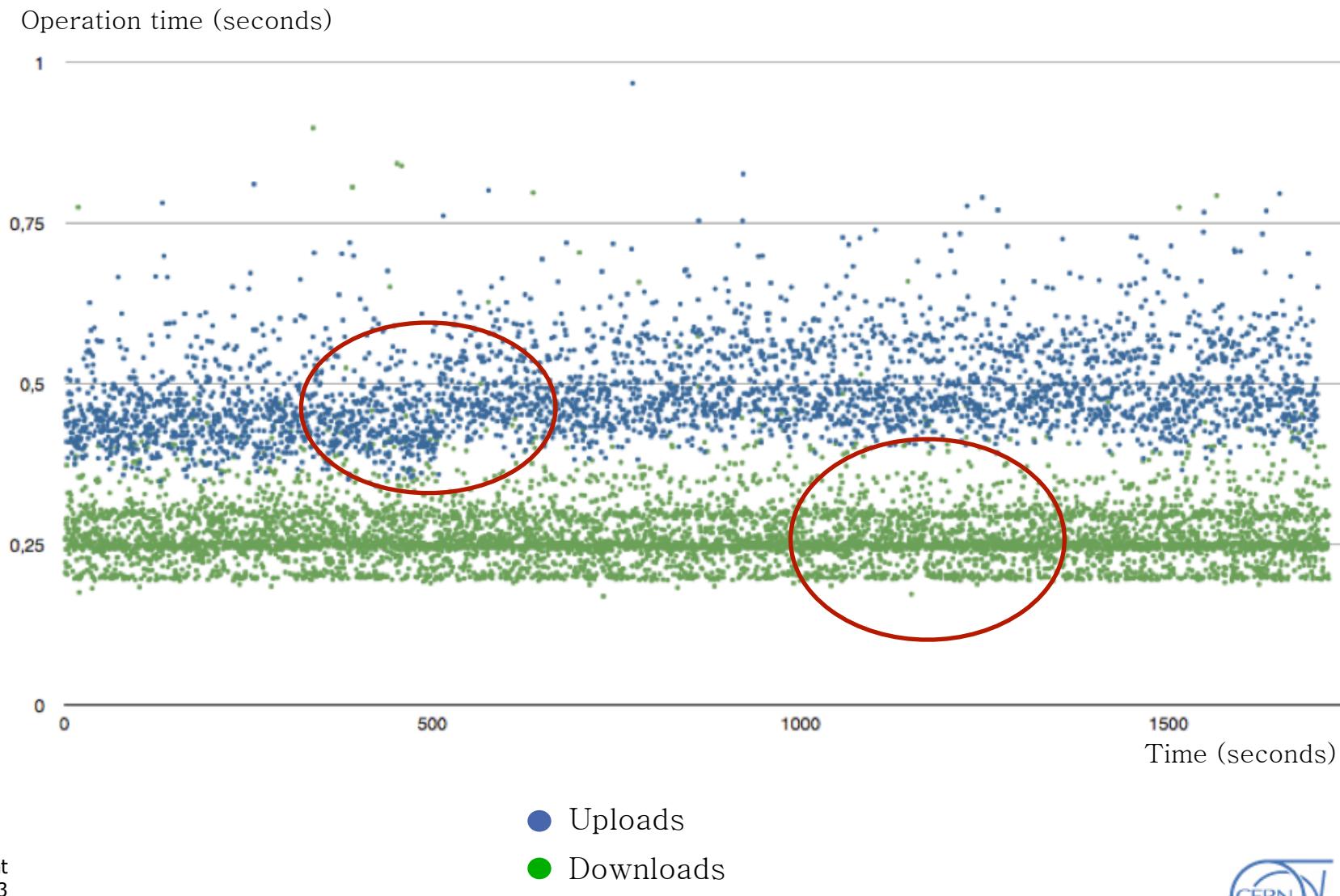
- Use of Python Script

- Amazon AWS Python Library (awspylib)

- Integrated with a C++ framework for spawning clients

- Read and write operations

- Single client and multi-client

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The test

PUT
GET

Client

PUT
GET

Client

PUT
GET

Client

Huawei

| Normal performance | Chassis down | Chassis recovery | Normal performance |

30 minutes

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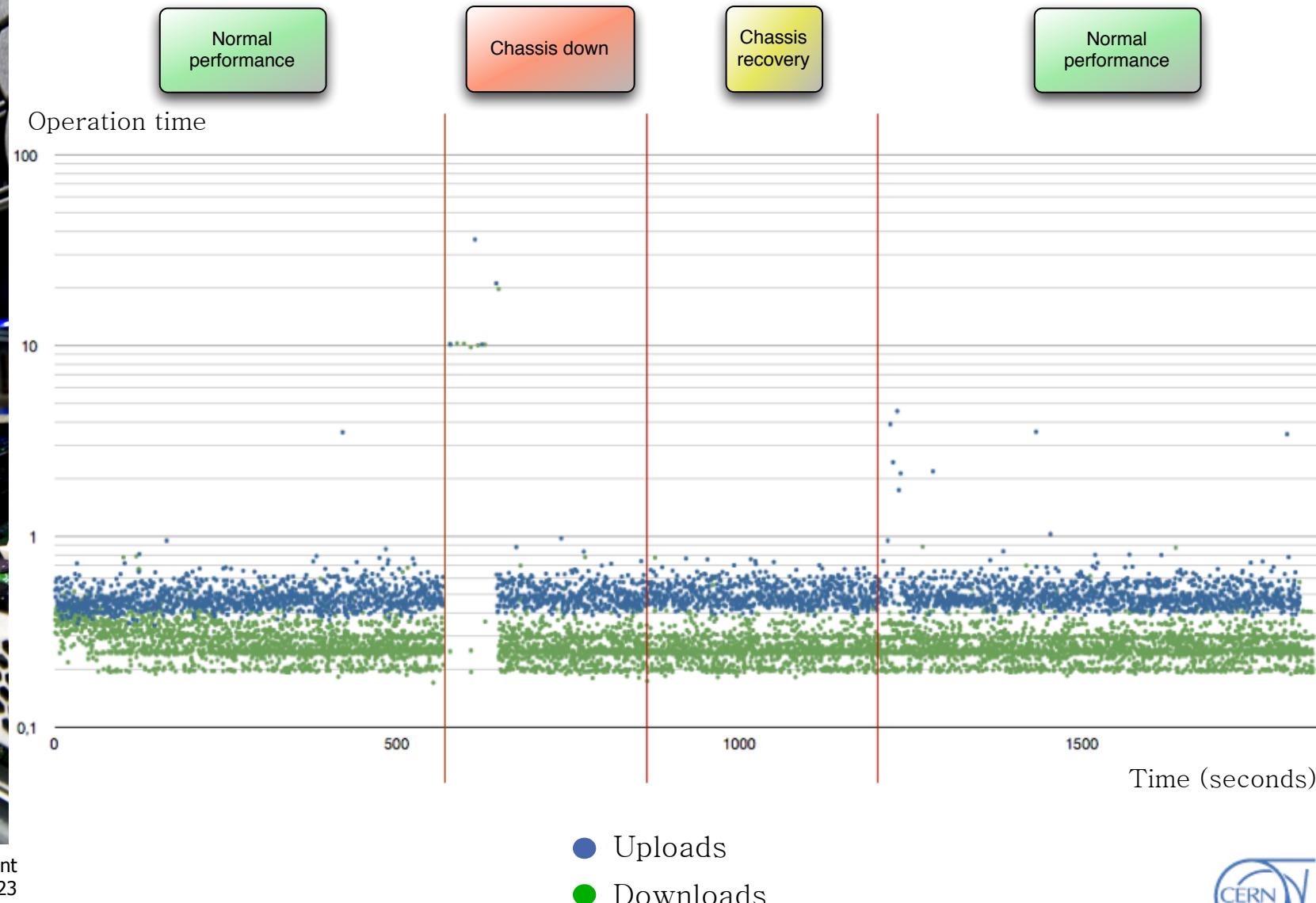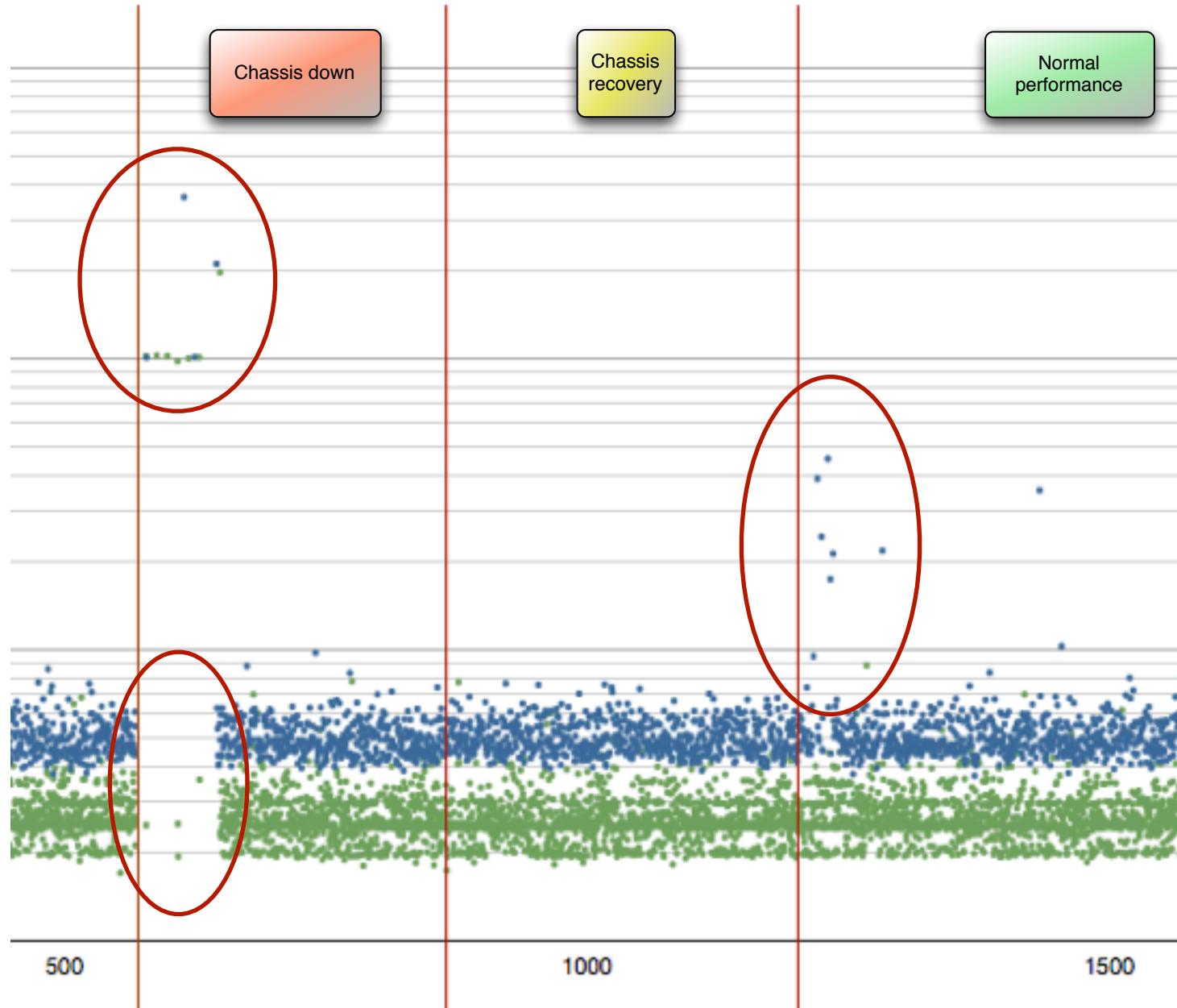
- Two anomalies:
  - Uploads
    - Little operation time variation after 500 seconds
    - When there are about 1100 items in the bucket
    - Operation time slightly slower

  - Downloads
   - Three line pattern that appears in the plot

Chassis down

Chassis recovery

Normal performance

500   1000   1500

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Chassis down

UPLOAD	DOWNLOAD
10,09 secs	10,2 secs
35,92 secs	0,24 secs
10,12 secs	10,25 secs
21,19 secs	10,21 secs
	9,8 secs
	0,25 secs
	0,19 secs
	10,02 secs
	10,1 secs
	0,35 secs
	9,78 secs

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Chassis recovery

UPLOAD	DOWNLOAD
3,88 secs	0,31 secs
0,54 secs	0,19 secs
0,5 secs	0,44 secs
0,48 secs	0,24 secs
2,44 secs	0,29 secs
0,45 secs	0,34 secs
0,58 secs	0,3 secs
0,44 secs	0,35 secs
4,52 secs	0,31 secs
0,63 secs	0,24 secs
1,75 secs	0,34 secs
0,44 secs	0,29 secs
2,13 secs	0,24 secs

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Chassis down
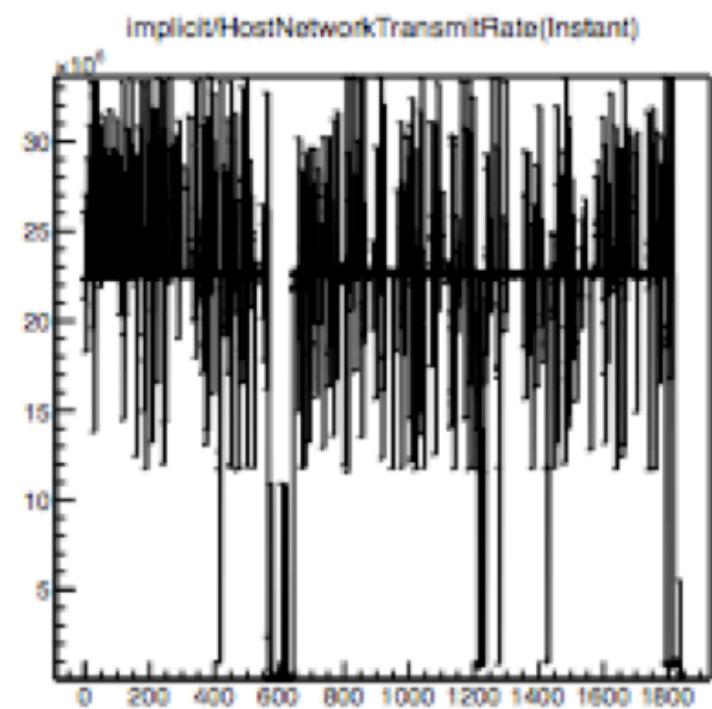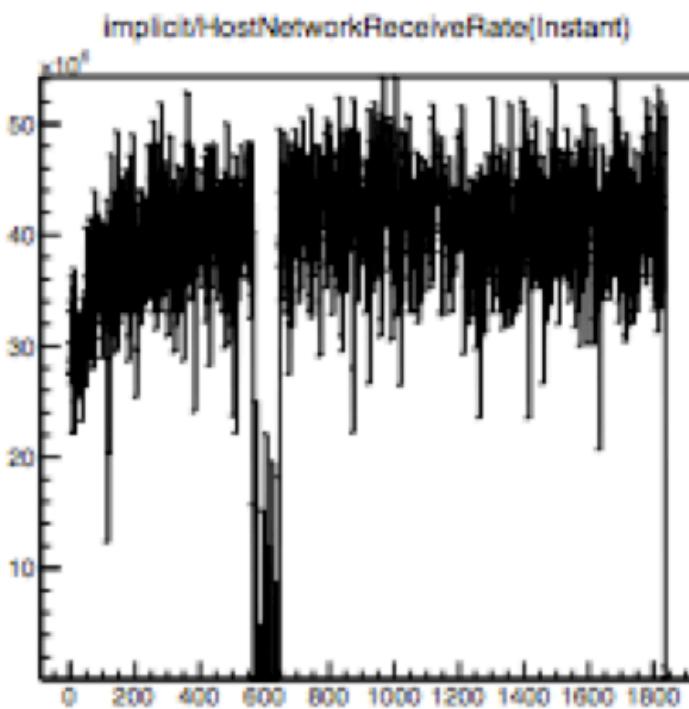
- Plot in a logarithmic scale on the "y" axis

- Performance stopped working during 1-2 minutes

- No errors during this period

- Current operations took longer

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Chassis recovery
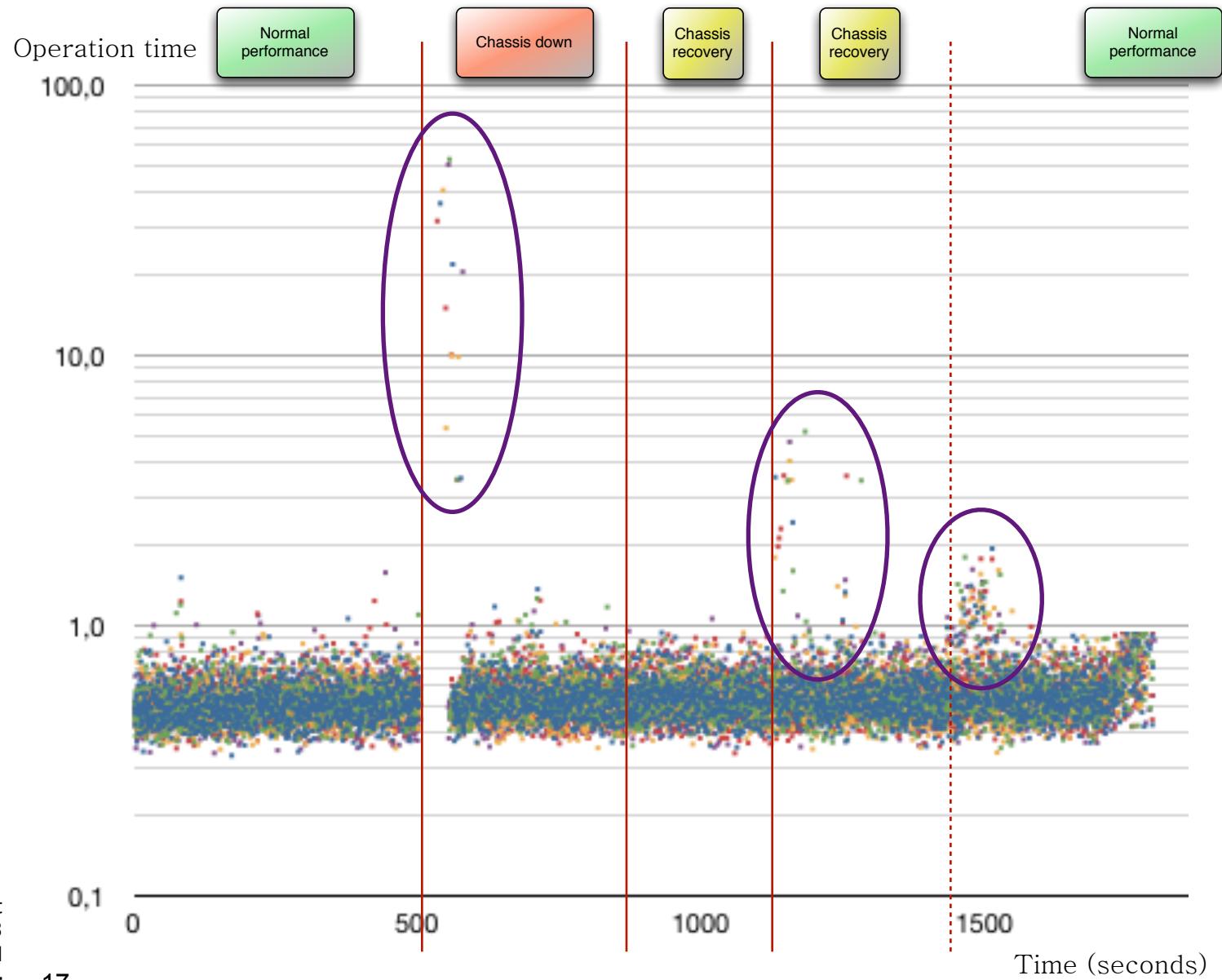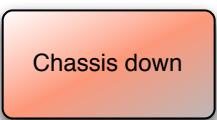
- After plugged back, needed around 7 minutes for the nodes to be available again.

- Performance stable during this time.

- When nodes begin to be available again, current upload operations took longer

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implicit/HostNetworkReceiveRate(Instant)

implicit/HostNetworkTransmitRate(Instant)

Operation time

Normal performance | Chassis down | Chassis recovery | Chassis recovery | Normal performance

Time (seconds)

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Chassis down	Chassis recovery	Chassis recovery
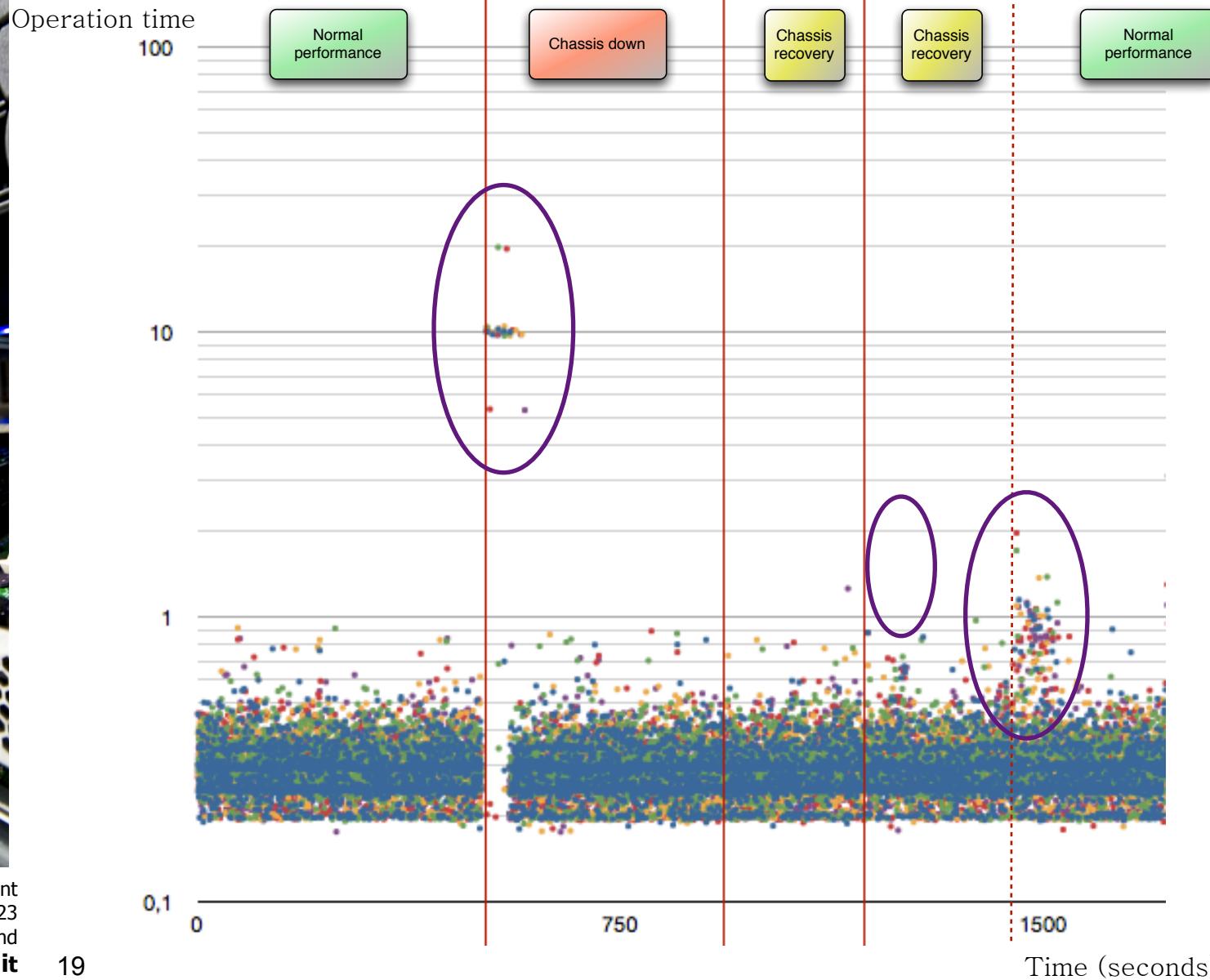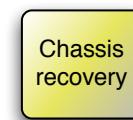
Chassis powered off	Nodes begin back	Nodes end been back
61,21 secs	8,22 secs	0,42 secs
	4,93 secs	1,28 secs
	2,89 secs	1,34 secs
	0,57 secs	0,53 secs
	0,47 secs	1,05 secs
	3,07 secs	0,62 secs
	0,54 secs	0,51 secs
	3,08 secs	1,45 secs
	0,43 secs	1,37 secs

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| Chassis down | Chassis recovery | Chassis recovery |

Chassis powered off	Nodes begin back	Nodes end been back
9,86 secs	0,28 secs	0,2 secs
10,22 secs	0,36 secs	2,28 secs
9,92 secs	0,26 secs	1,34 secs
9,87 secs	0,24 secs	0,32 secs
9,99 secs	0,26 secs	0,2 secs
	0,3 secs	1,62 secs
	0,32 secs	2,41 secs
	0,31 secs	1,45 secs
		0,37 secs

- Plot in a logarithmic scale on the "y" axis.

- 3 line pattern can also be distinguised

- Same behaviour as single client test

- More clear the system recovery process
  - Possible to difference when the disks start recovering and when all of them are back

- Test has been a success, due to the transfer of data continued normally even without a chassis properly working.

- The rebalance worked, and the active nodes took care of the data in the nodes down, with no failure in any operation.

- The nodes that were down, need around 7 minutes to come back, and another 5 to be fully operative again.

- Less impact in the download performance, than in the upload performance.

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- Repeat the test with more clients

- Repeat the test when system stressed

- Repeat the test with files from different size

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