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BQConf

BETTER QUALITY Conference 2017

中国软件质量大会

软件质量关注者的分享和交流平台

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BQConf

中国软件质量大会

PERFORMANCE IS A FEATURE

陈锋

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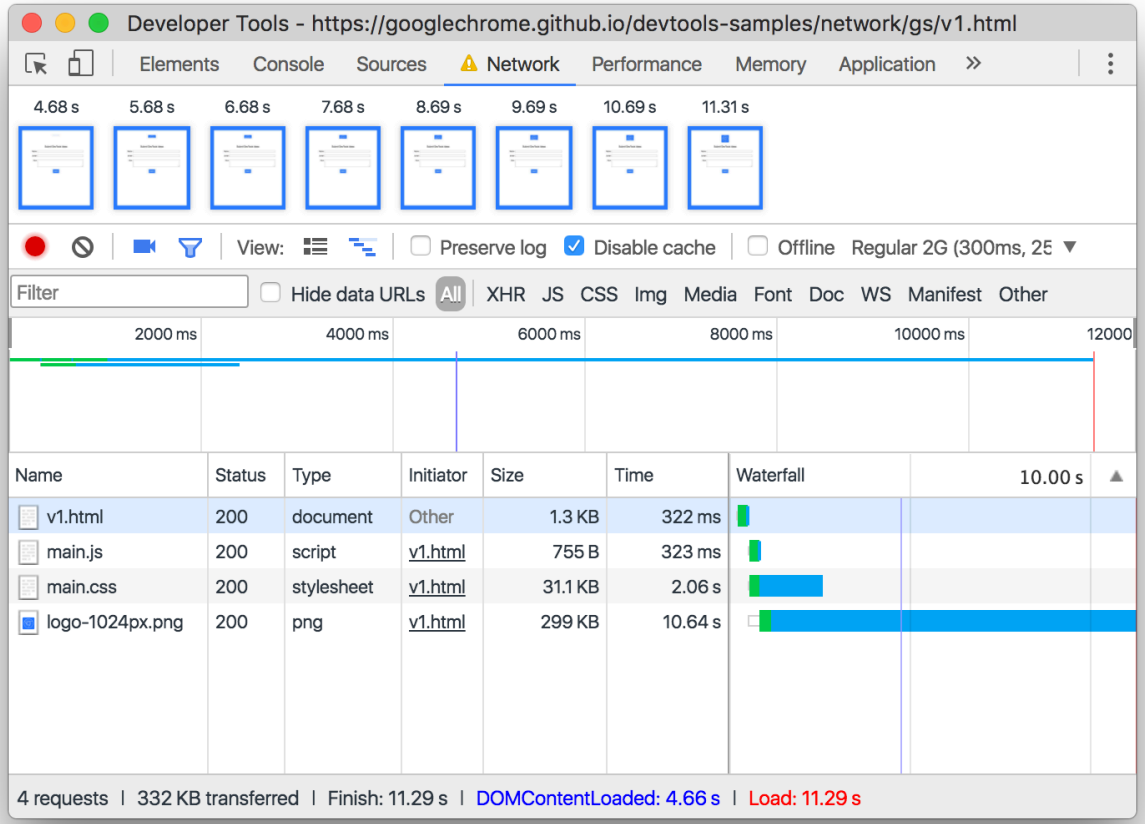
WHAT IS PERFORMANCE

TIME

WEB APPLICATION



BQConf

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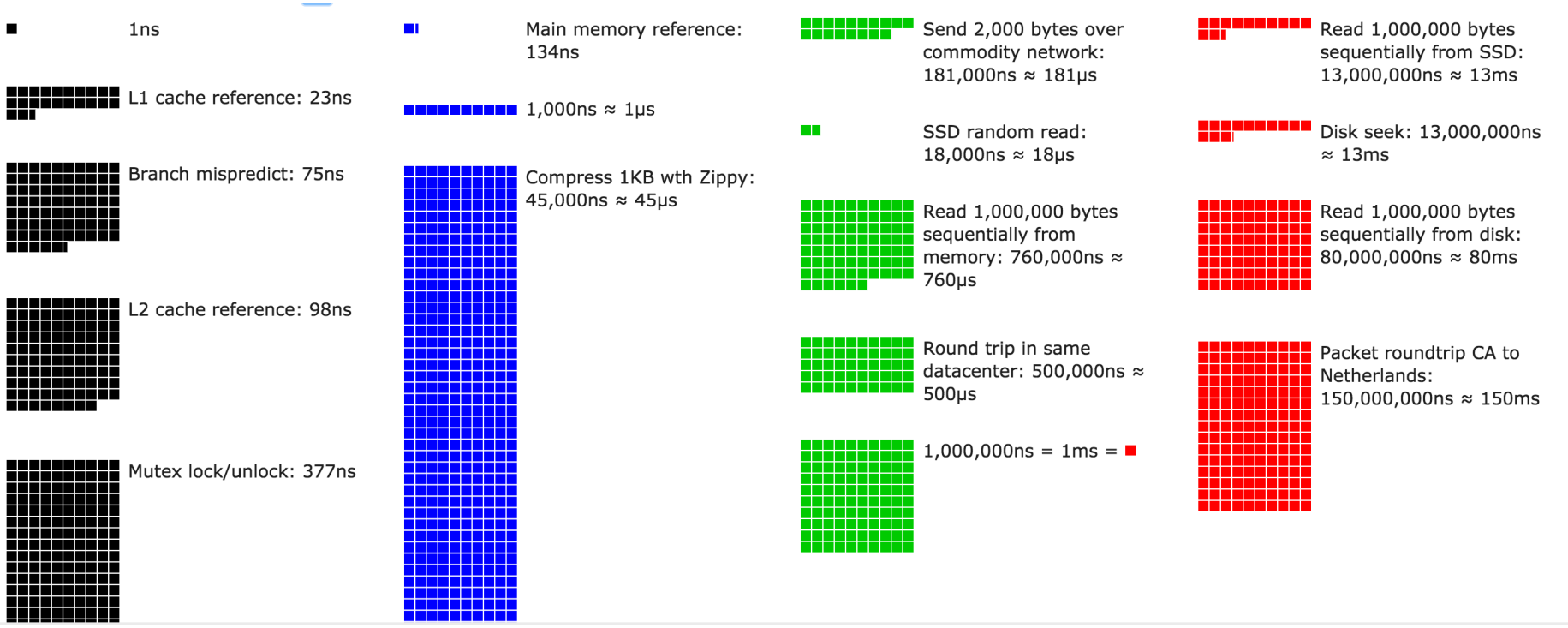
1997



BQConf

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2007

1ns

L1 cache reference: 1ns

Branch mispredict: 3ns

L2 cache reference: 4ns

Mutex lock/unlock: 17ns

100ns = ■

Main memory reference: 100ns

1,000ns ≈ 1µs

Compress 1KB wth Zippy: 2,000ns ≈ 2µs

10,000ns ≈ 10µs = ■

Send 2,000 bytes over commodity network: 4,000ns ≈ 4µs

SSD random read: 17,000ns ≈ 17µs

Read 1,000,000 bytes sequentially from memory: 60,000ns ≈ 60µs

Round trip in same datacenter: 500,000ns ≈ 500µs

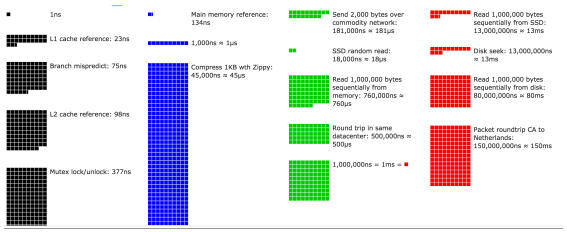
1,000,000ns = 1ms = ■

Read 1,000,000 bytes sequentially from SSD: 987,000ns ≈ 987µs

Disk seek: 6,000,000ns ≈ 6ms

Read 1,000,000 bytes sequentially from disk: 5,000,000ns ≈ 5ms

Packet roundtrip CA to Netherlands: 150,000,000ns ≈ 150ms



BQConf

2017

1ns

L1 cache reference: 1ns

Branch mispredict: 3ns

L2 cache reference: 4ns

Mutex lock/unlock: 17ns

100ns = ■

Main memory reference: 100ns

1,000ns ≈ 1µs

Compress 1KB wth Zippy: 2,000ns ≈ 2µs

10,000ns ≈ 10µs = ■

Send 2,000 bytes over commodity network: 125ns

SSD random read: 16,000ns ≈ 16µs

Read 1,000,000 bytes sequentially from memory: 6,000ns ≈ 6µs

Round trip in same datacenter: 500,000ns ≈ 500µs

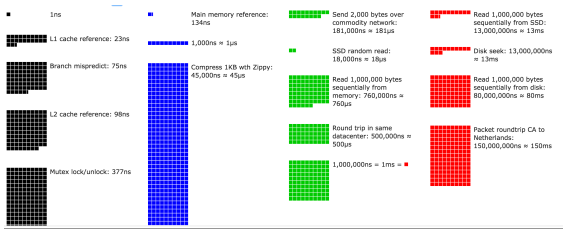
1,000,000ns = 1ms = ■

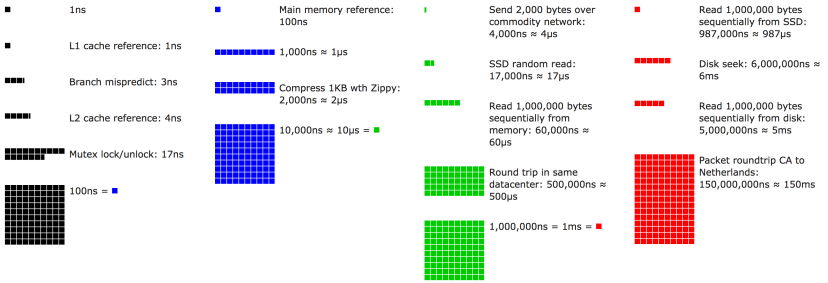
Read 1,000,000 bytes sequentially from SSD: 98,000ns ≈ 98µs

Disk seek: 3,000,000ns ≈ 3ms

Read 1,000,000 bytes sequentially from disk: 1,000,000ns ≈ 1ms

Packet roundtrip CA to Netherlands: 150,000,000ns ≈ 150ms





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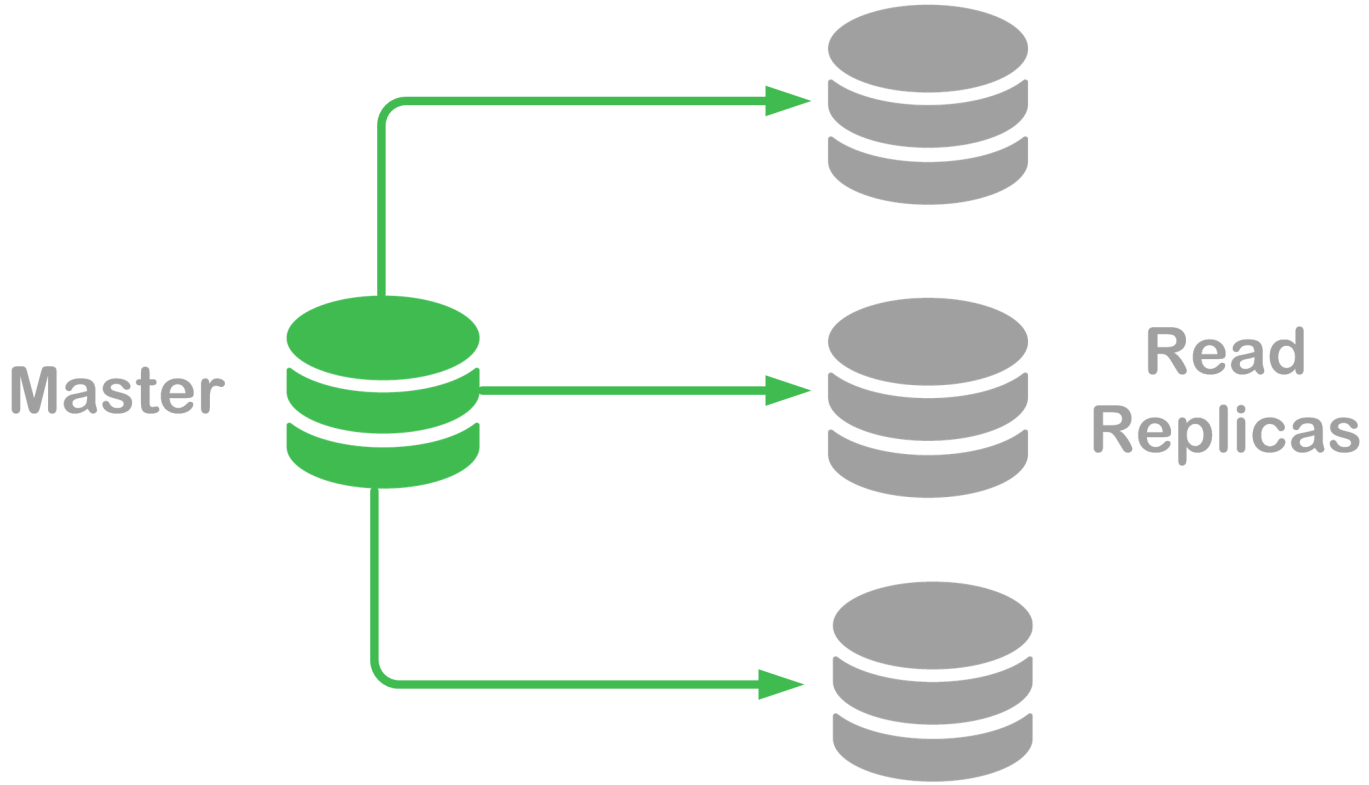
CQRS



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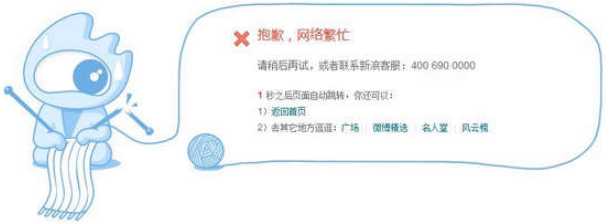
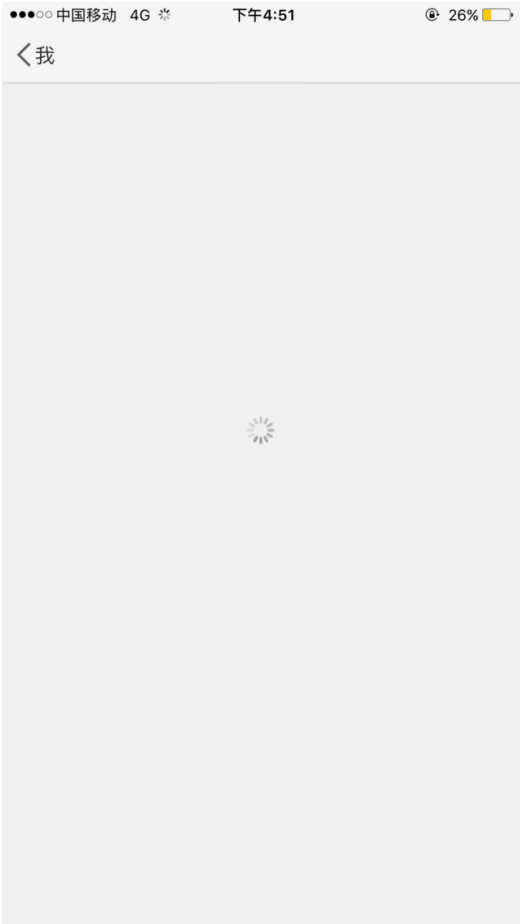
CONCURRENCY ISSUES





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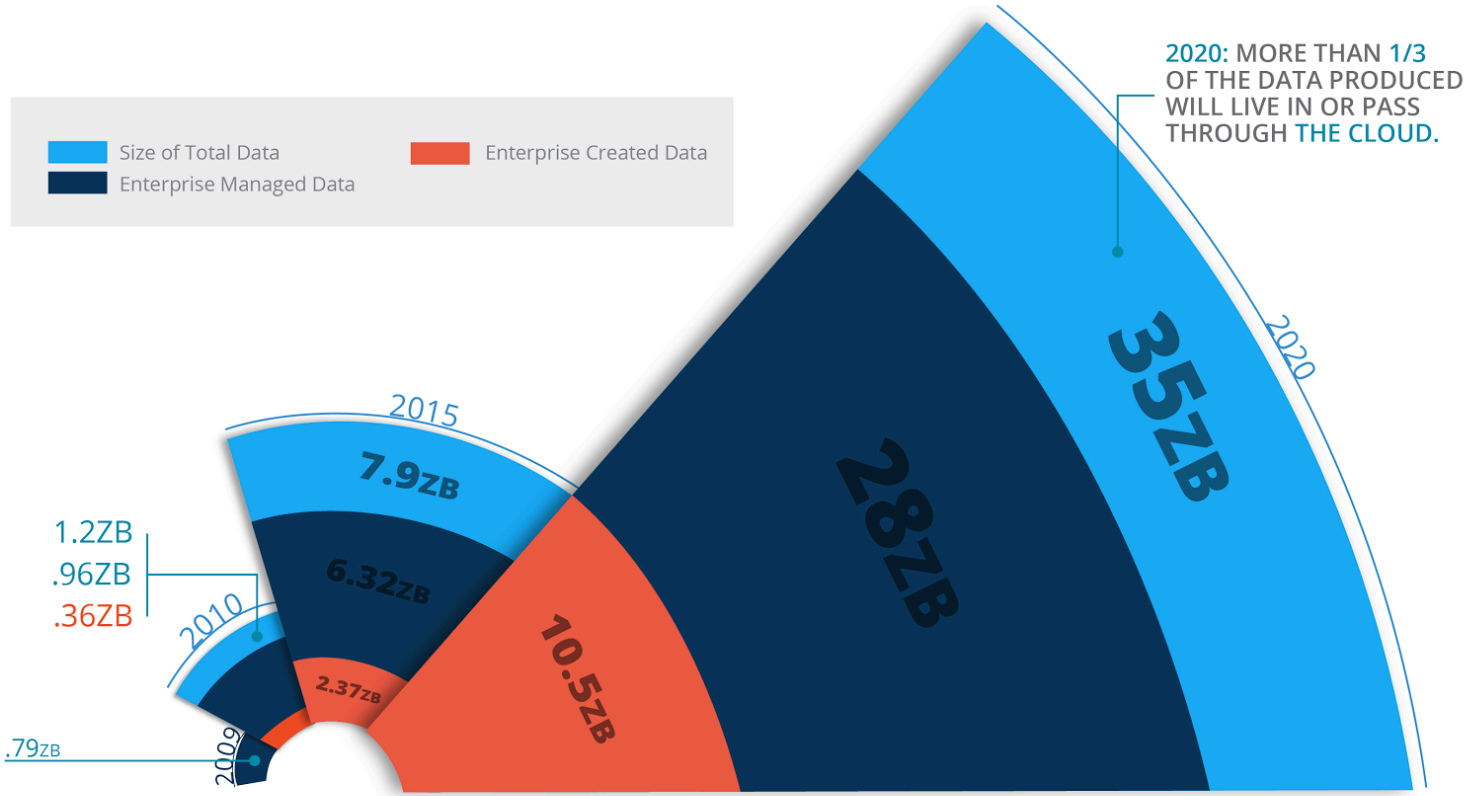
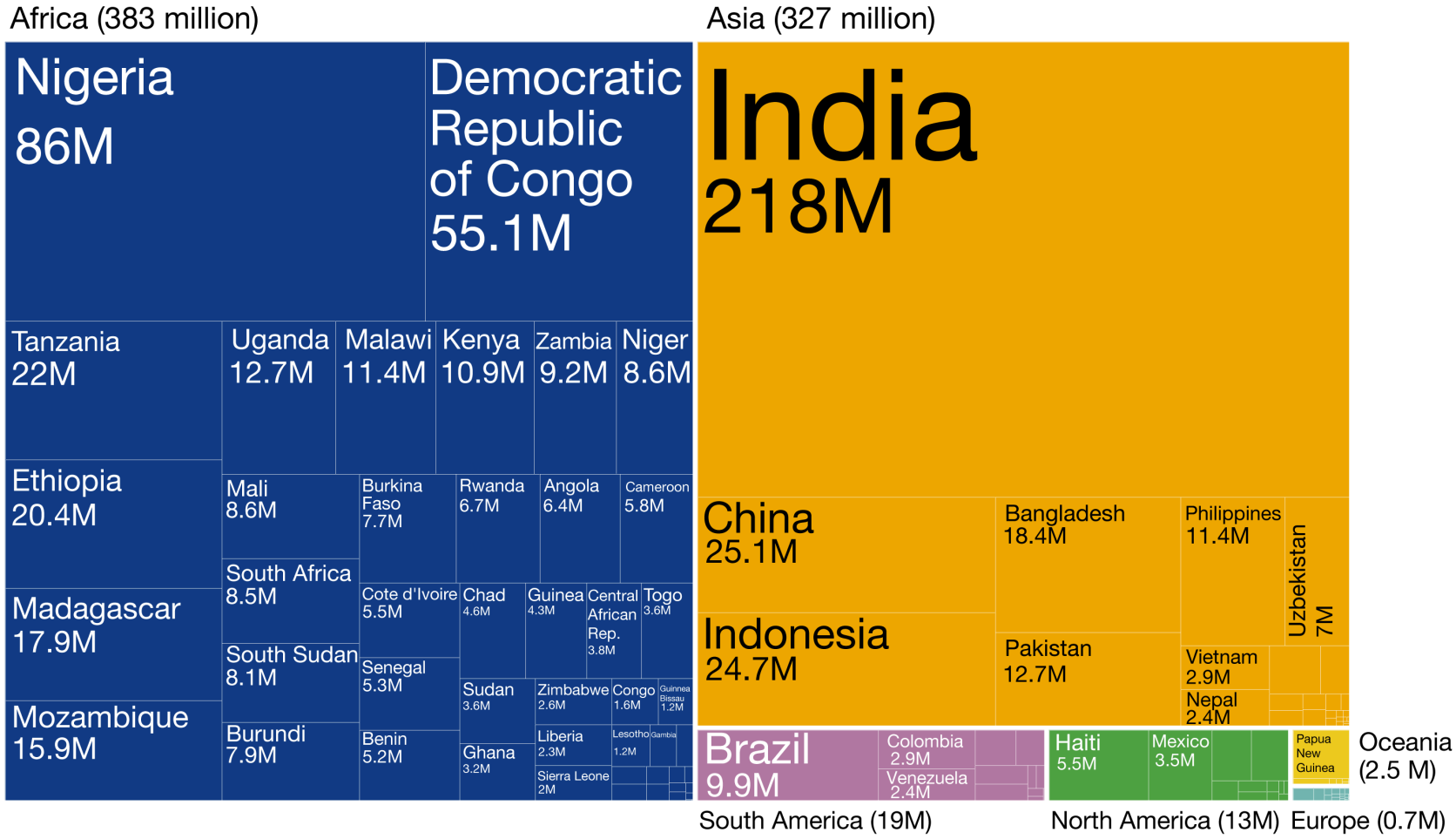
REPRODUCE

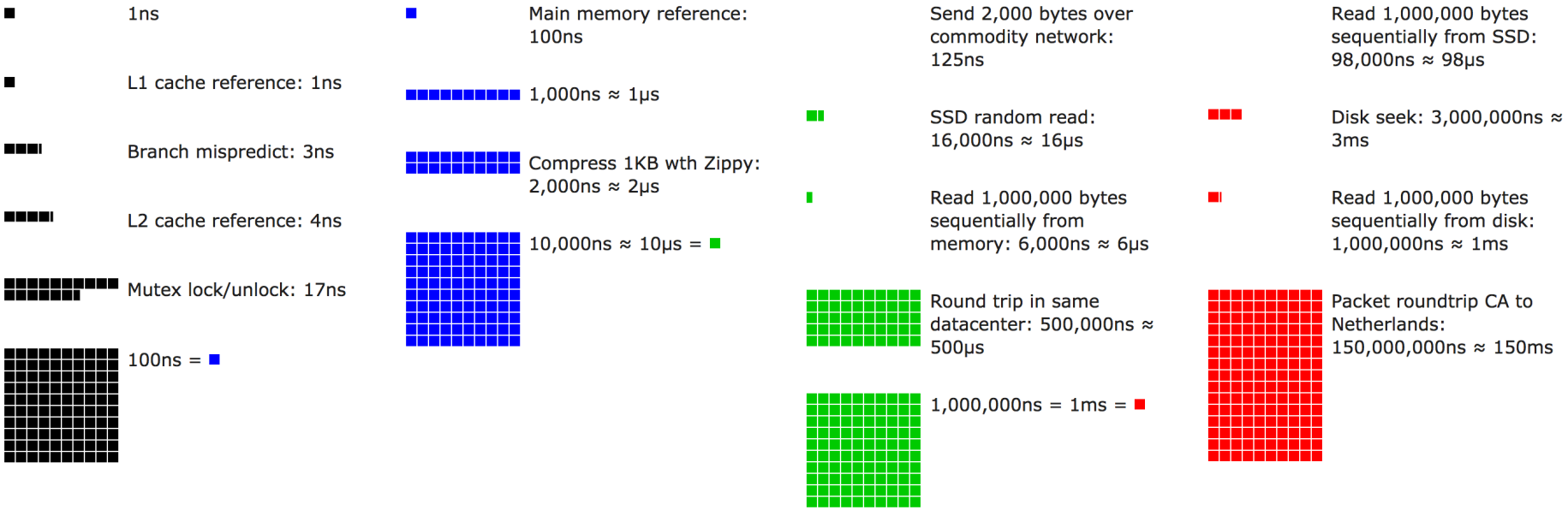
DATA VOLUME


Size of Total Data
Enterprise Managed Data
Enterprise Created Data
2020: MORE THAN 1/3 OF THE DATA PRODUCED WILL LIVE IN OR PASS THROUGH THE CLOUD.
2020
35ZB
28ZB
10.5ZB
2015
7.9ZB
6.32ZB
2.37ZB
2010
1.2ZB
.96ZB
.36ZB
2009
.79ZB

DATA DISTRIBUTION



LATENCY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Read 1,000,000 bytes sequentially from SSD: 98,000ns ≈ 98µs
Disk seek: 3,000,000ns ≈ 3ms
Read 1,000,000 bytes sequentially from disk: 1,000,000ns ≈ 1ms
Packet roundtrip CA to Netherlands: 150,000,000ns ≈ 150ms

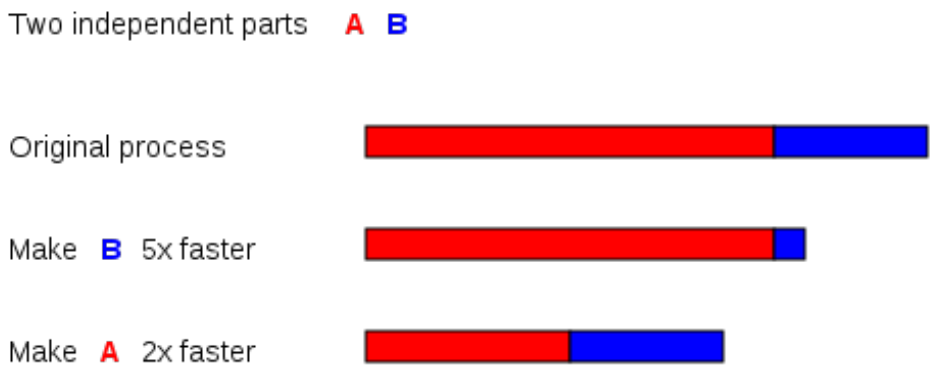
RESOLVE

AMDAHL'S LAW

$$S_N = \frac{1}{(1-P) + \frac{P}{N}}$$

AMDAHL'S LAW

$$S_N = \frac{1}{(1-P) + \frac{P}{N}}$$



STRATEGY

- Preload
- Lazy Load
- Batch

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REGRESSION

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CODE REVIEW

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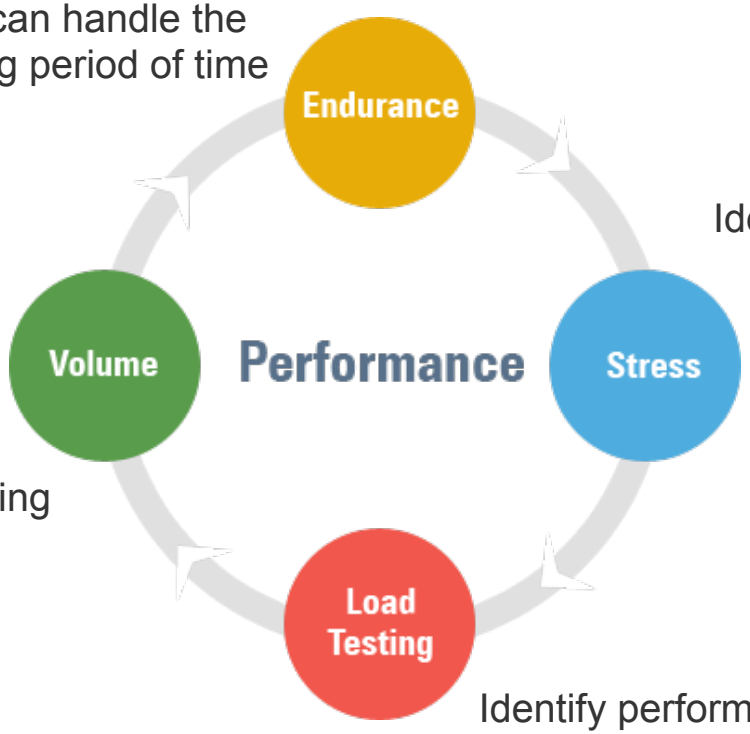
STRATEGY

Make sure the software can handle the expected load over a long period of time



Identify breaking point of an application

Check performance under varying data volumes

Identify performance bottlenecks

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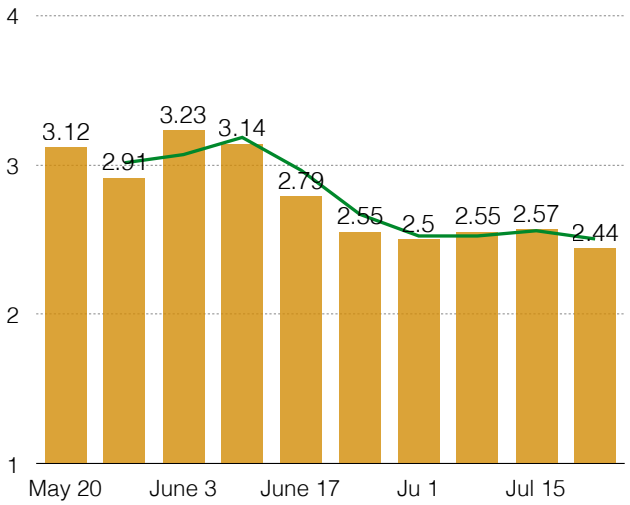
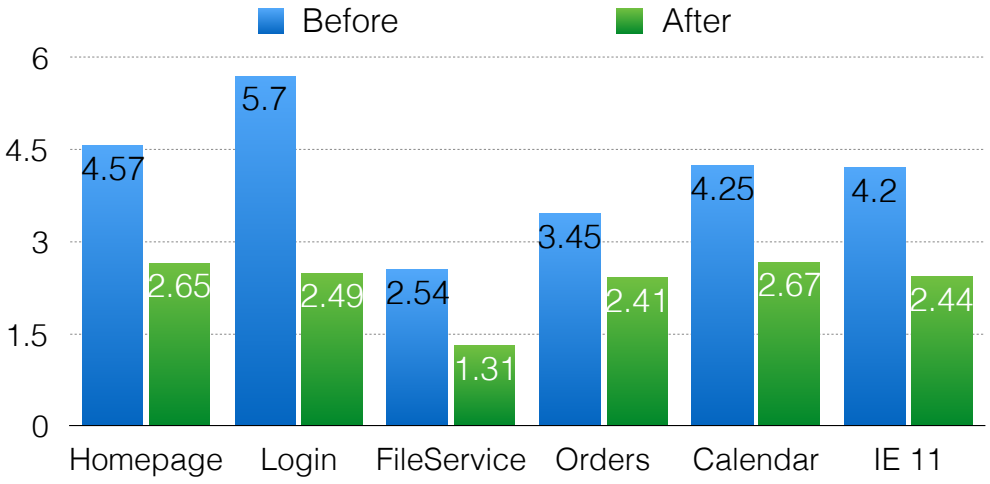
MONITORING

- QA or Test Env
- Setup Alert
- Generate Reporting





Comparison before / after the July release

TOOLS

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MONITORING

TESTING

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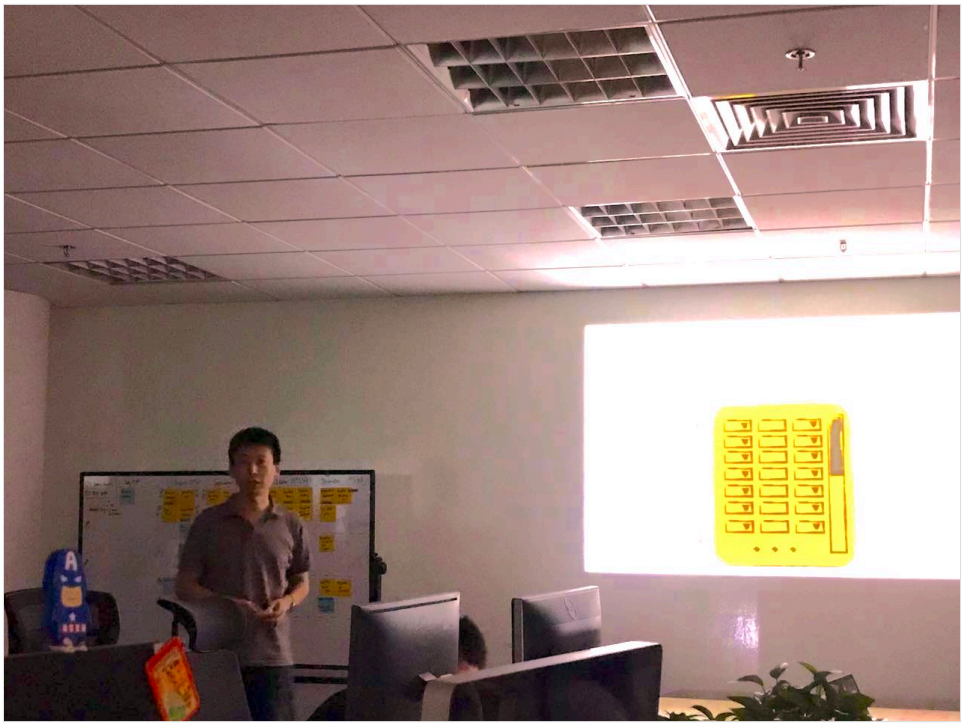
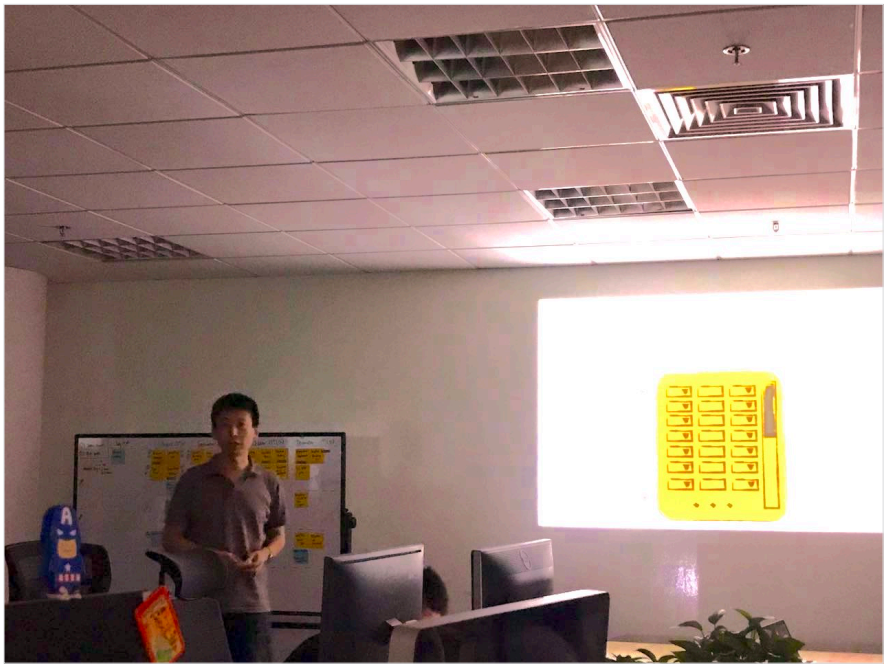
OUR PRACTICE

KNOWLEDGE



Sharing Performance tuning Experience

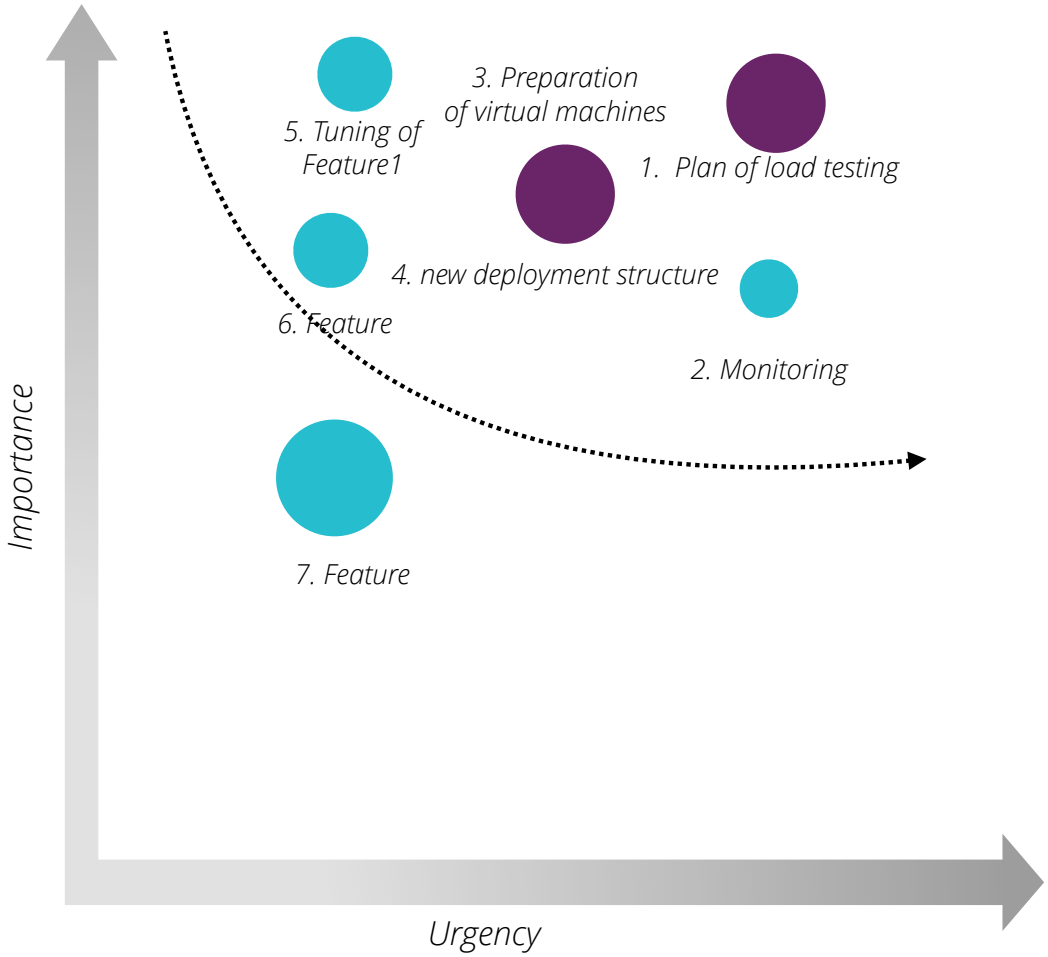
KNOWLEDGE



Sharing Performance tuning Experience

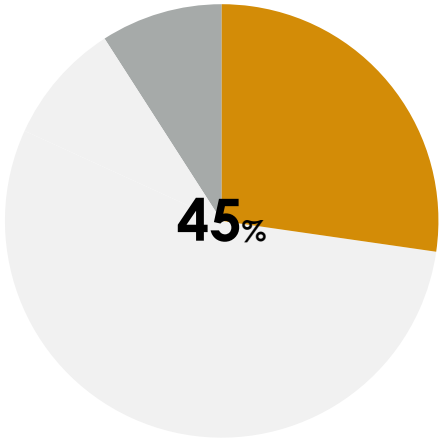
Loading Test Workshop

TASKING & PRIORITY



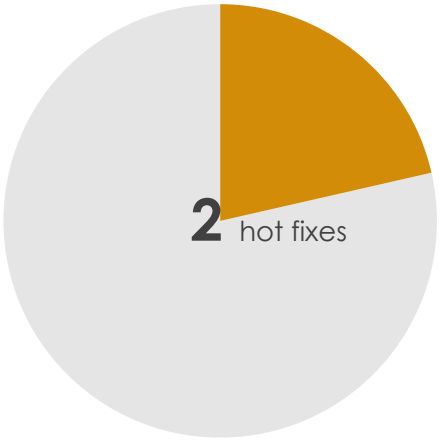
- Urgency: Severity of the task, eg. the perceived timing of end users
- Importance: The indicator of the usage of the scenarios / the output of the tasks
- Size: the relative effort to play the specific task
- Color Indicators: Blue -> Todo task, Purple -> Ongoing task

RESULTS



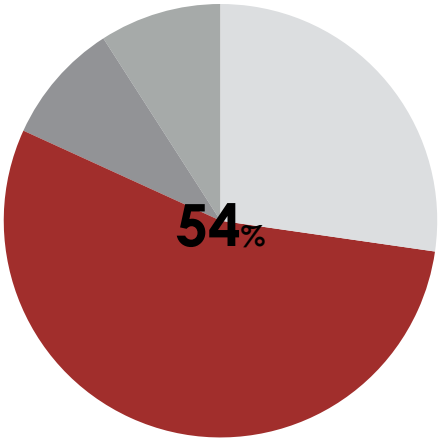
Issue detected
before QA environment

45% percentage of performance defects were detected from local / QA environment.



Monitor and eliminate
the critical ones at earlier

2 performance defects are deployed as hot fix. for the most of the performance enhancement (11) were deployed along with the specific release.



Most are related
to the volume and data distribution

The preparation of the large data set will be one of the main focuses.

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SECURITY

- XSS
- Data Leak
- Firewall Rule

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此处应该有掌声

Anything else?

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THANK YOU

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