Speed is product feature number one

The criticality of performance testing for today's applications

Paola Rossaro, PhD, CTO and co-founder at Nouvola
Something about me

✓ PhD Computer Science (performance)
✓ 20+ years high-tech
✓ CTO and Co-founder Nouvola
✓ And a mom!
Why Performance?

You should know speed is product feature number 1

- Larry Page, Google founder, quoted by Urs Hölzle at Velocity conference 2010

People will visit a Web site less often if it is slower than a close competitor by more than 250 milliseconds


Sources:
http://www.bookofspeed.com/chapter1.html
http://www.nytimes.com/2012/03/01/technology/impatient-web-users-flee-slow-loading-sites.html?pagewanted=all
WHY?

- Increase visibility
- Revenue growth
- Brand loyalty
- Resource optimization
- Costs reduction
- Higher conversion rate
Visibility

✔ SEO search ranking

✔ The faster the higher on the list

Google: 4/10 of a sec delay

8 Million searches lost/day

Source: https://blog.kissmetrics.com/loading-time/
Conversion rates

For each 1 sec delay there is 7% loss in conversion.

1 SEC = 7% LOSS

Sources:
http://www.forbes.com/sites/rogerdooley/2012/12/04/fast-sites
Increase revenue

✓ Amazon: 1 second lost could cost $1.6 billion in sales each year

✓ OR: if you make $100,000 a day, 1 second faster can increase your revenue to $2.5 MILLION

Sources:
https://blog.kissmetrics.com/loading-time/
Cost savings

Where is your site on the curve?
Brand Loyalty

Obamacare Website Suffers issues on Last Day of Enrollment

- Time, 2014

Apple’s live stream its iPhone reveal buckled under traffic

- Business Insider, 2014

Sources:
http://time.com/43569/obamacare-website-suffers-outages-on-last-day-of-enrollment/
Who knew?

The Knee Defender.
The gizmo’s website crashed today after traffic surged...

*Bloomberg, Aug 2014*

The Biggest Bar Exam Disaster Ever? ExamSoft Makes Everyone’s Life Hard

It’s certainly the most serious bar disaster I’ve ever covered in the eight years since I started Above the Law.

*Above the Law, Jul 2014*

Aaron Paul likes breaking things. The *Breaking Bad* actor just caused his wife's website to break by mentioning it in his heartfelt Emmy speech.

*Mashable, Aug 2014*
DevOps and performance

✓ Cloud complexity
✓ Software stack
✓ Cloud infrastructure
DevOps

“To make error is human. To propagate error to all servers in automatic ways is devops.” - DevOps Borat
DevOps and performance

- Make it part of the cloud challenge
- Focus on non-functional testing
Tools or...

Deploy and Pray?
Think different

- Each application has unique configuration
- Different Clouds, high complexity
- Dynamic problem space
- Monitoring is not enough
- No solution that fits all
What you can do

- Test
- Measure
- Make the right decisions
- Optimize
- Iterate
Test & Measure

Test > Measure > Deploy

Repeat

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Performance testing

load testing

Helps understand the behavior of the system under a specific expected load.

stress testing

Helps understand the upper limits of capacity within a system.

Helps understand the performance of a system under different loads and conditions.
What to test

✓ Realistic scenarios
✓ Any load, any device, any geo
✓ User experience
✓ Application behavior

GOAL: detect issues before it is too late
What to measure

- User performance metrics
- End to End metrics
  - Throughput
  - Error rate
- System logs

GOAL: Resolve issues before deployment
When do you test?

Test > Measure > Deploy

Repeat
When do you test?

Performance Degradation!!

Page load time, [sec]

Deployment Date

2/7/14
2/14/14
2/21/14
2/28/14
3/7/14
3/14/14
3/21/14
3/28/14

Total response time
Server response time
Not just then!

Online interest in the Amazon Kindle
(Weekly traffic to pages on Amazon.com)

Oprah features the Kindle

Thanksgiving week

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MEET LISA:
She has a problem
This time, Lisa wants:

1 second

Expected traffic of 100,000 concurrent users
With performance testing tools, Lisa discovers:

3-4 seconds
WHAT CAN SHE DO?

✓ She runs some tests
✓ She makes some adjustments: the load balancer is not working well.
✓ She runs more tests
✓ She makes more adjustments: Caching of the DB helps too.
✓ She iterates
Test & Measure

Test > Measure > Deploy

Repeat

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After this, Lisa gets: 

.6 seconds!
Summary

✓ Speed is product feature number 1

✓ Performance is critical for any application

✓ Performance testing is a MUST HAVE in the development life cycle

✓ Performance testing should be part of your continuous integration process

✓ Be proactive and not reactive!
Thank You!

Predictive Cloud Scalability And Reliability

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