

Evolving

Load and
Performance
testing



- QE Studio
- Load & Performance Practice
- Some history
- The big changes and How was performance testing affected?
- Early testing & CI-CD
- User experience
- Jmeter
- Frontend
 - Webpage test
 - Speed page of
 - Yslow
 - Google tools
- APMs





QUALITY
ENGINEERING

QUALITY ENGINEERING STUDIO

We provide comprehensive testing services with proven experience on distributed teams. Our flexible working model easily adapts to the different customer's methodologies and engagements. We offer the most effective and diversified testing strategies.



PRACTICES



Functional
Testing



Load &
Performance
Testing



Mobile
Testing



Test
Automation



Accessibility
Testing



Game
Testing

FACTS

1200+
ENGINEERS

35+
DEVELOPMENT
CENTERS

400+
ACTIVE
PROJECTS

RELEVANT CLIENTS

Southwest  **AEP ENERGY** 



 NATIONAL
GEOGRAPHIC

 LATAM
AIRLINES

 RoyalCaribbean
INTERNATIONAL

 Globant
we are ready

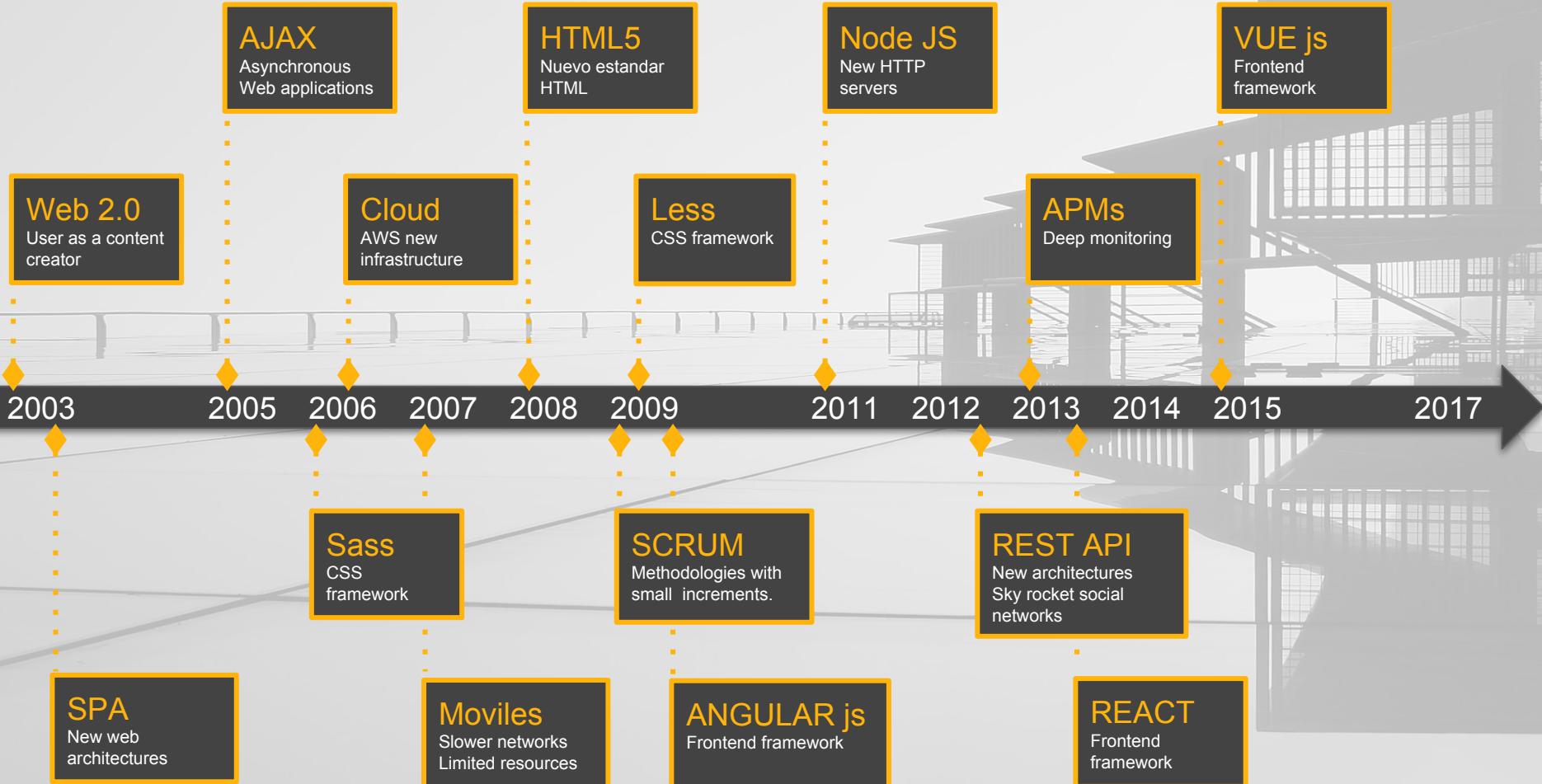
We have the ability and experience to test, validate, suggest and help development teams to evolve applications into better performing solutions, looking to reduce costs and increase reliability during operation

We are a small team, 25 PTEs (Performance Test Engineers) located in 7 offices in 6 countries.

Strong team
with great talent to
improve software
performance.



SOME HISTORY



Users with limited connection and resources

Agile Methodologies (Scrum)

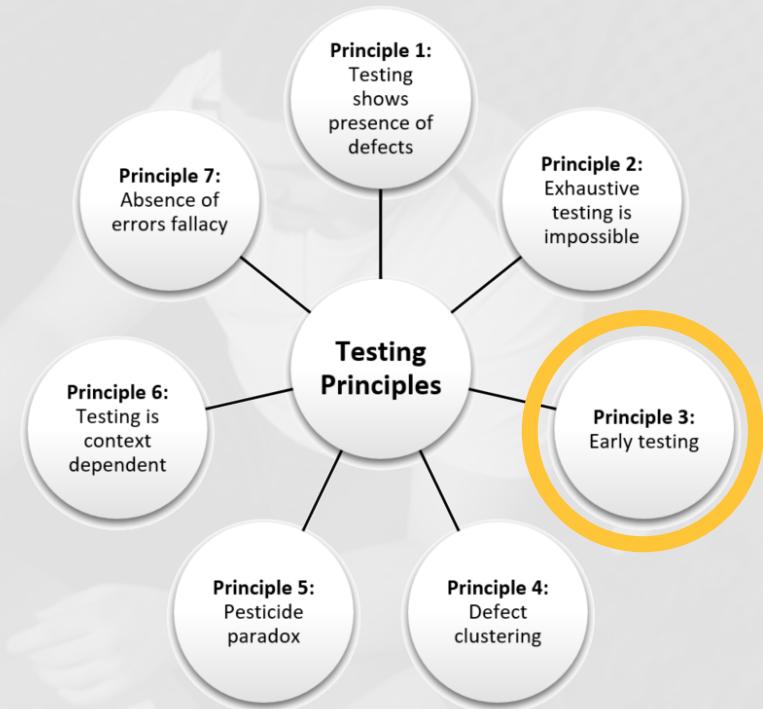
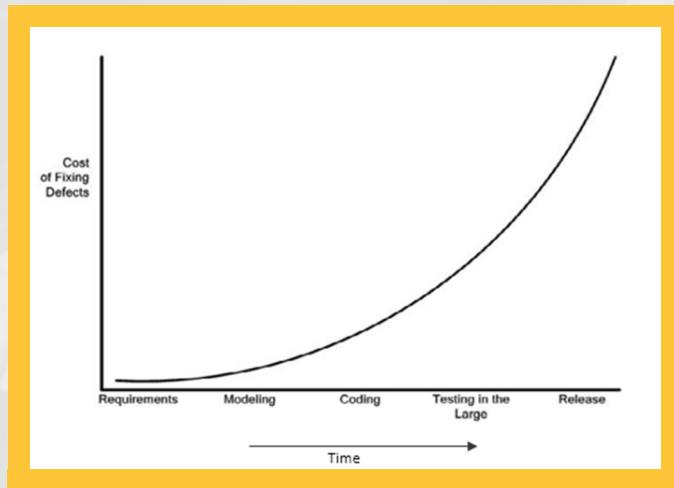
Big frontend frameworks

More interactive pages

Deeper monitoring and new infrastructures (Cloud)

Here is the current challenge
What will come next?

- Methodologies: Agile (Scrum/Kanban/Scrumban)
- Architectures:
 - Microservices
 - REST APIs
 - Lambdas



- Risk Mitigation
- Increase Coverage
- Automated Reports
- Automated results comparison
- Reduced Overhead
- Consistency of Build Process

CI servers



AWS CodePipeline



Jenkins

Concurrency

- Response times
- Throughput
- Workload model (usage patterns)

Server Metrics

- Memory
- CPU
- Hard drives
- Network
- Connection pool
- Threads

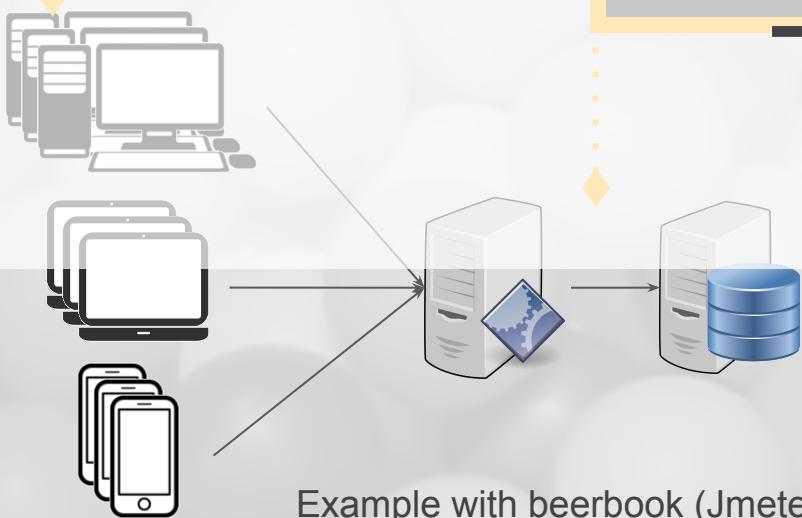
Types

- Load
- Stress
- Soak
- Spike

Tools



DEMO
TIME



Example with beerbook (Jmeter)

IMPACT

"1 second of load lag time would cost Amazon \$1.6 billion in sales per year"
- Amazon

"A broker could lose \$4 million in revenues per millisecond if their electronic trading platform is 5 milliseconds behind the competition."

"Google found an extra 0.5 secs in search page generation time dropped traffic by 20%."
- Google

"When load times jump from 1 seconds to 4 seconds, conversions decline sharply. For every 1 second of improvement, we experience a 2% conversion increase"

- Walmart

In 1993 Nielsen define 3 limits

- 0.1 sec: reacting instantaneously
 - 1.0 sec: the limit for the user's flow of thought
 - 10 secs: the limit for keeping the user's attention
- Nielsen Norman Group

Before

- Response time
- Concurrent users
- Throughput
- Server resources

Now

- Response time
- Concurrent users
- Throughput
- Server resources
- + User experience
- + Usable (interact)
- + Render time
- + Auto-scalable

WHY?

"In 2000, research by Microsoft placed the average human attention span at 12 seconds. By 2015, the same study found that number had fallen to just 8 seconds"
- Microsoft

LOAD PHASES

- First Byte: First server response
- Start Render: First visual
- Load Time: beginning of the window load event (onload).
- Fully Loaded: no network activity after Document Complete

MOBILE

JavaScript Processing time for cnn.com

- Desktop 2.061 sec
 - Laptop 2.891 sec
 - High-end Phone 3.967 sec
 - AVG Phone 13.355 sec
 - Cheap phones 36.284 sec
- Addy Osmani (Google Engineer)

- Web page test: <http://www.webpagetest.org/>
- Sitespeed.io: <https://www.sitespeed.io/>
- GT Metrix: <http://gtmetrix.com>
- Yslow: <http://yslow.org/>
- Google insights:
<https://developers.google.com/speed/pagespeed/insights/>
- Google lighthouse:
<https://developers.google.com/web/tools/lighthouse/>

Tools





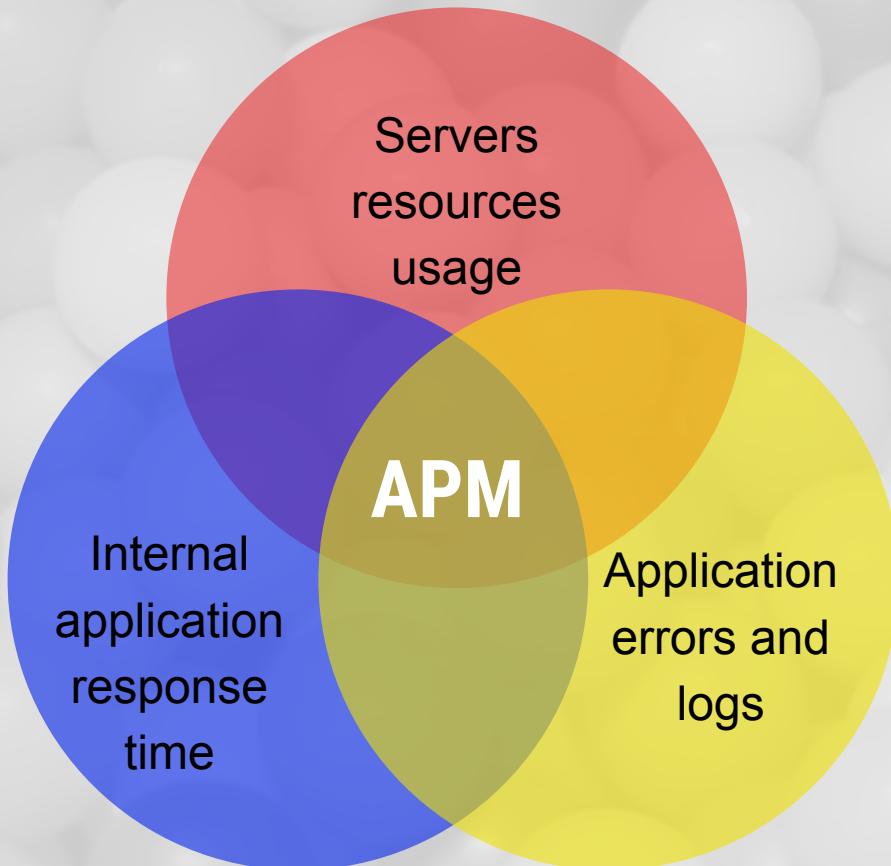
DEMO

TIME

Some configurations

- Browsers: firefox, chrome
- Network: 3g, 3gfast, 3gslow, 3gem, 2g, cable, native, custom
- Number of runs
- Latency
- Authentication
- Proxy





APMs



New Relic®



APPDYNAMICS



dynatrace



Tivoli® software



Thank you!

Nov, 2018

