



Performance testing

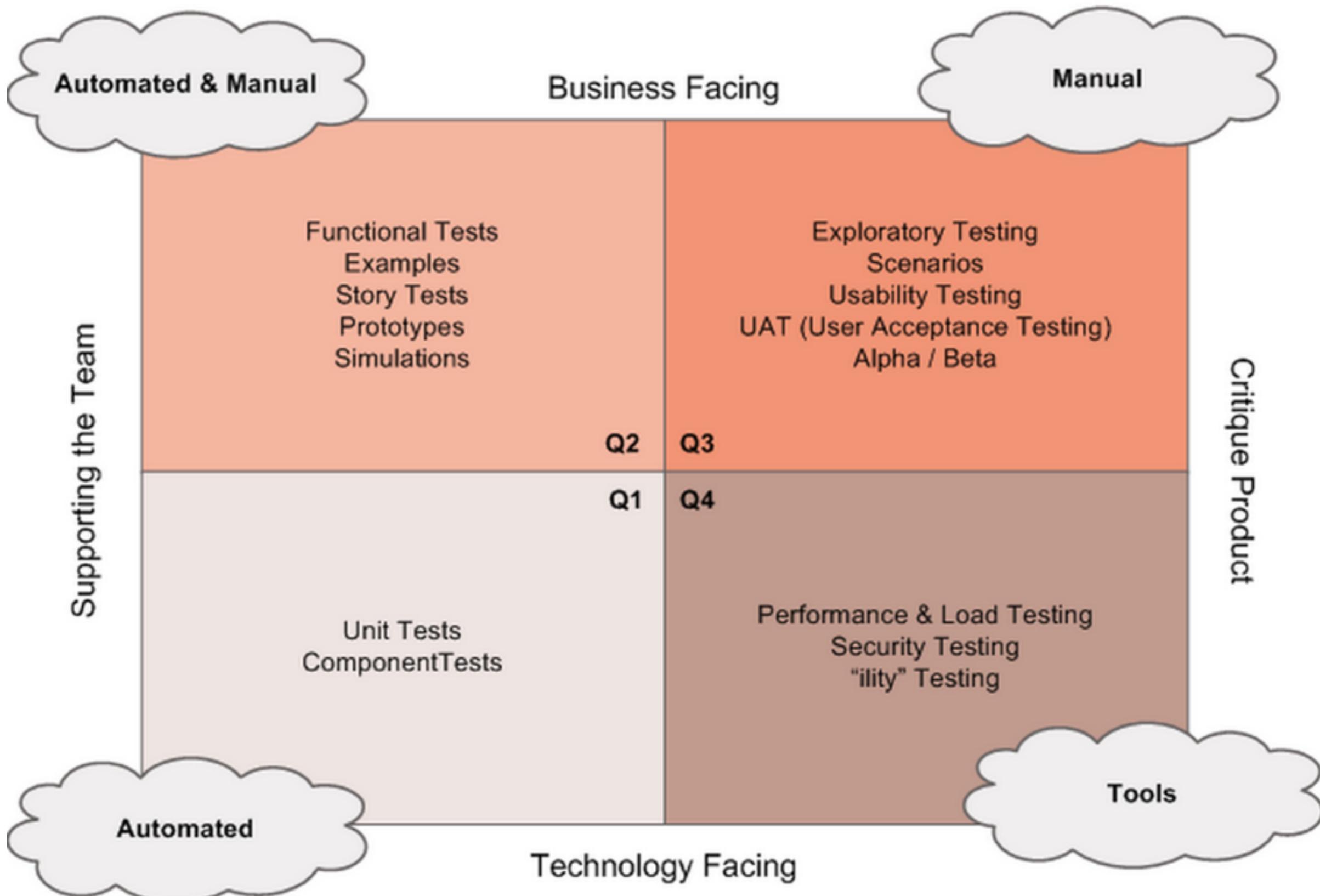
สมเกียรติ ปุยสูงเนิน

somkiat.cc

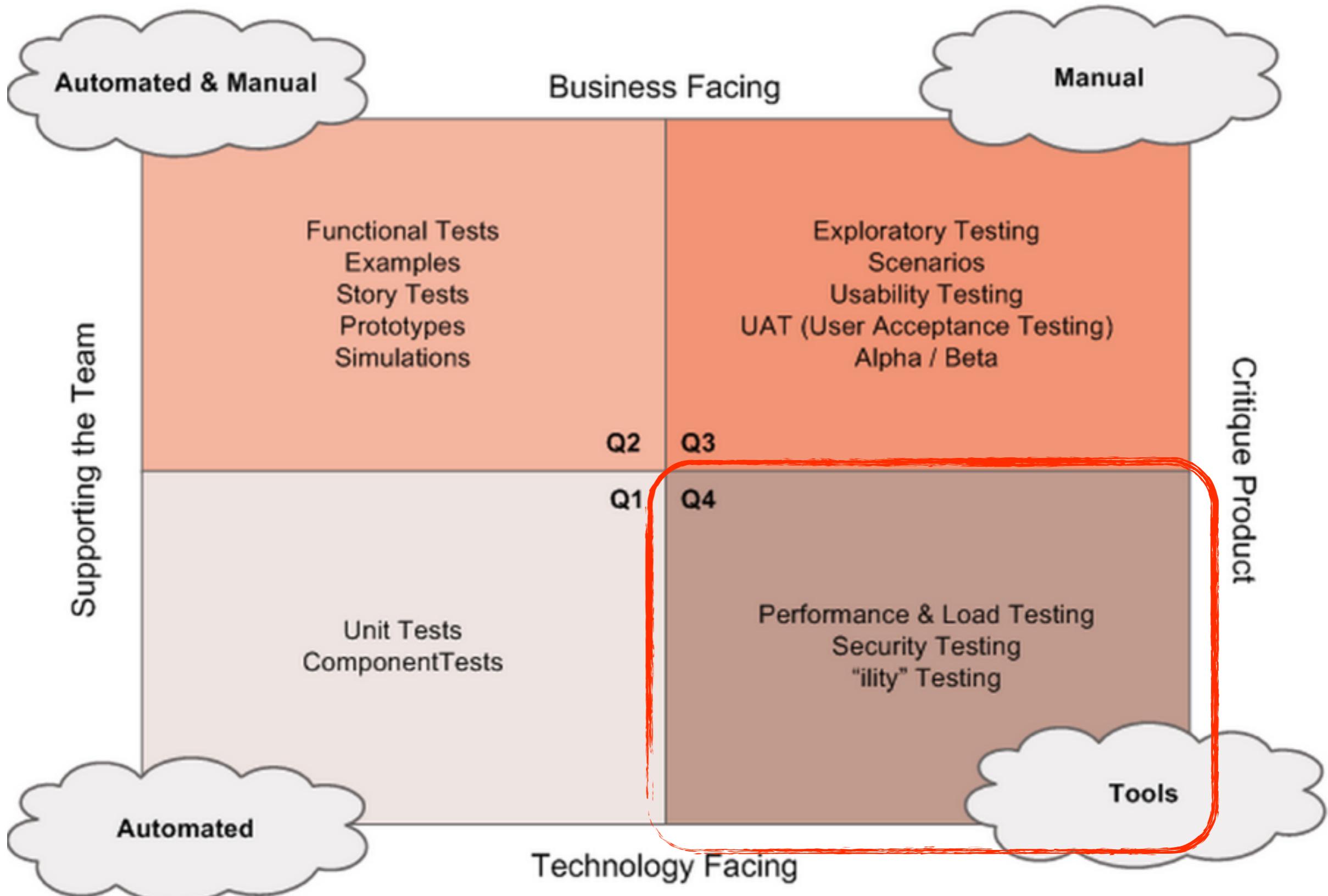
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Agile Testing Quadrants



Agile Testing Quadrants



Performance testing ?

Non-functional testing

Determine the system **responsiveness**

Speed



<http://freeseostudio.com/>

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Throughput



**3 Trucks
3 Gas Pumps**

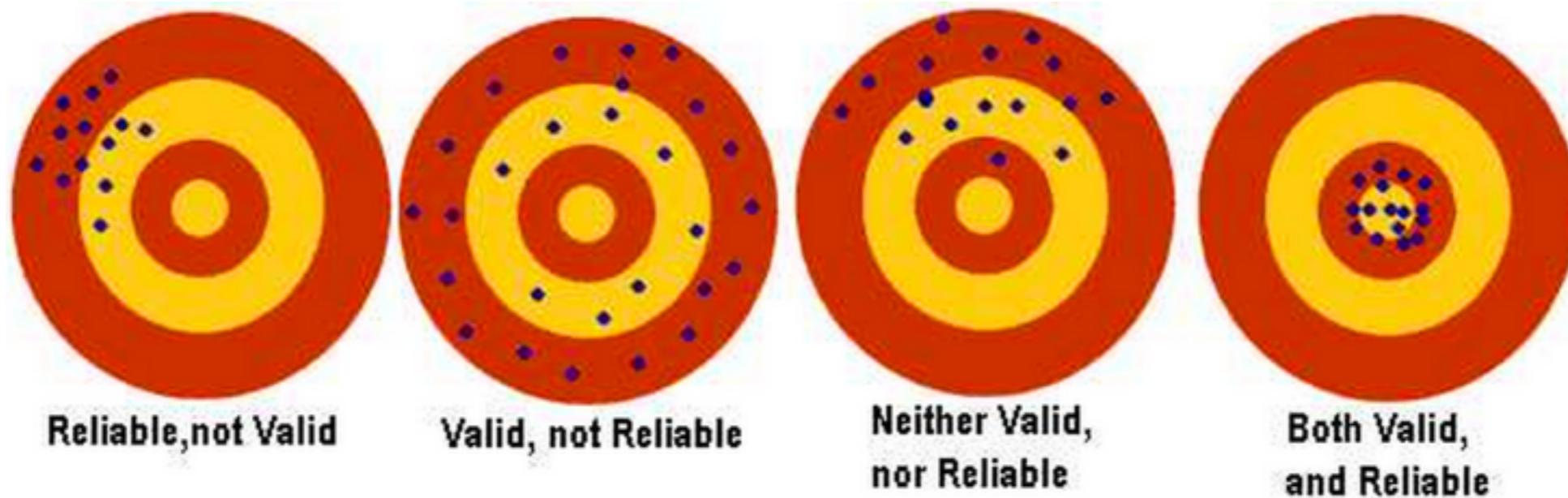
**Throughput = 3 / minute
(no waiting)**

<http://www.joecolantonio.com/2011/07/05/performance-testing-what-is-throughput/>

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Reliability



http://www.documentingexcellence.com/stat_tool/reliabilityvalidity.htm

Scalability



CRAZY-FRANKENSTEIN.COM

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Purpose ?

Ensure your application work under real load
before your customers find out

Real load

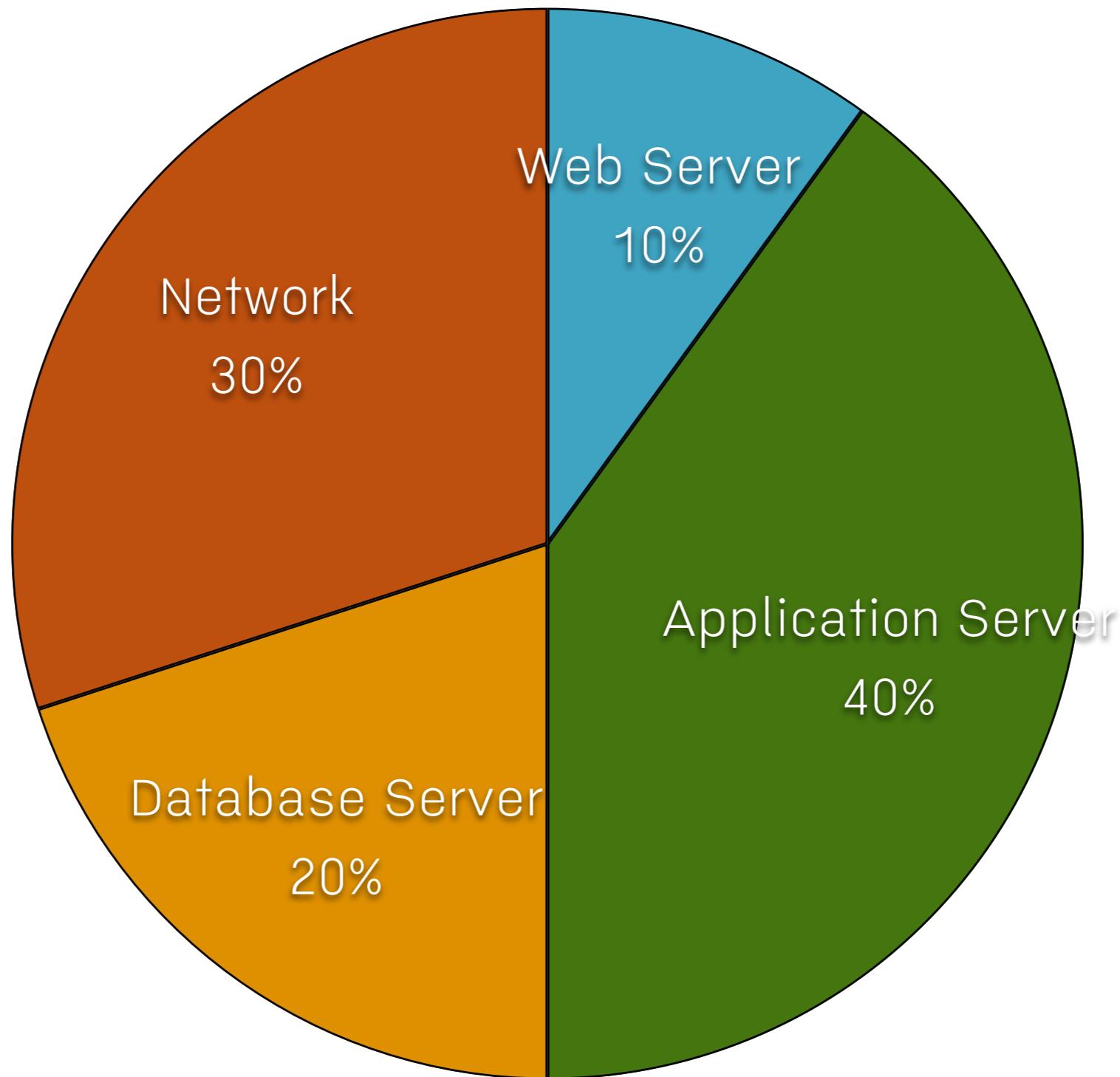


Find the bottle neck



<http://collider.com/bottleneck-gallery-gizmos-and-gadgets-posters/>

Bottle neck in system



Type of Performance testing ?

Load testing

Stress testing

Volume testing

Capacity testing

Endurance/Soak testing

Spike testing

Load testing

Focus on “**Respond time**”



Endurance/Soak testing

Focus on “**Memory**”



My Phenom Fitness

Stress testing

Focus on “**Respond time**” & “**Throughput**”



Spike testing

Focus on “**Respond time**” in peak volume



Volume testing

Focus on “**Respond time**” with data



Type of testing in which the system is tested
on large data volumes

Capacity testing

Focus on “**Respond time**” for future load



Goal ?

Production readiness

Compare 2 platforms with same software

Compare performance of configuration

Evaluate system

Discover poor parts under conditions

Finding bottleneck

Tuning system

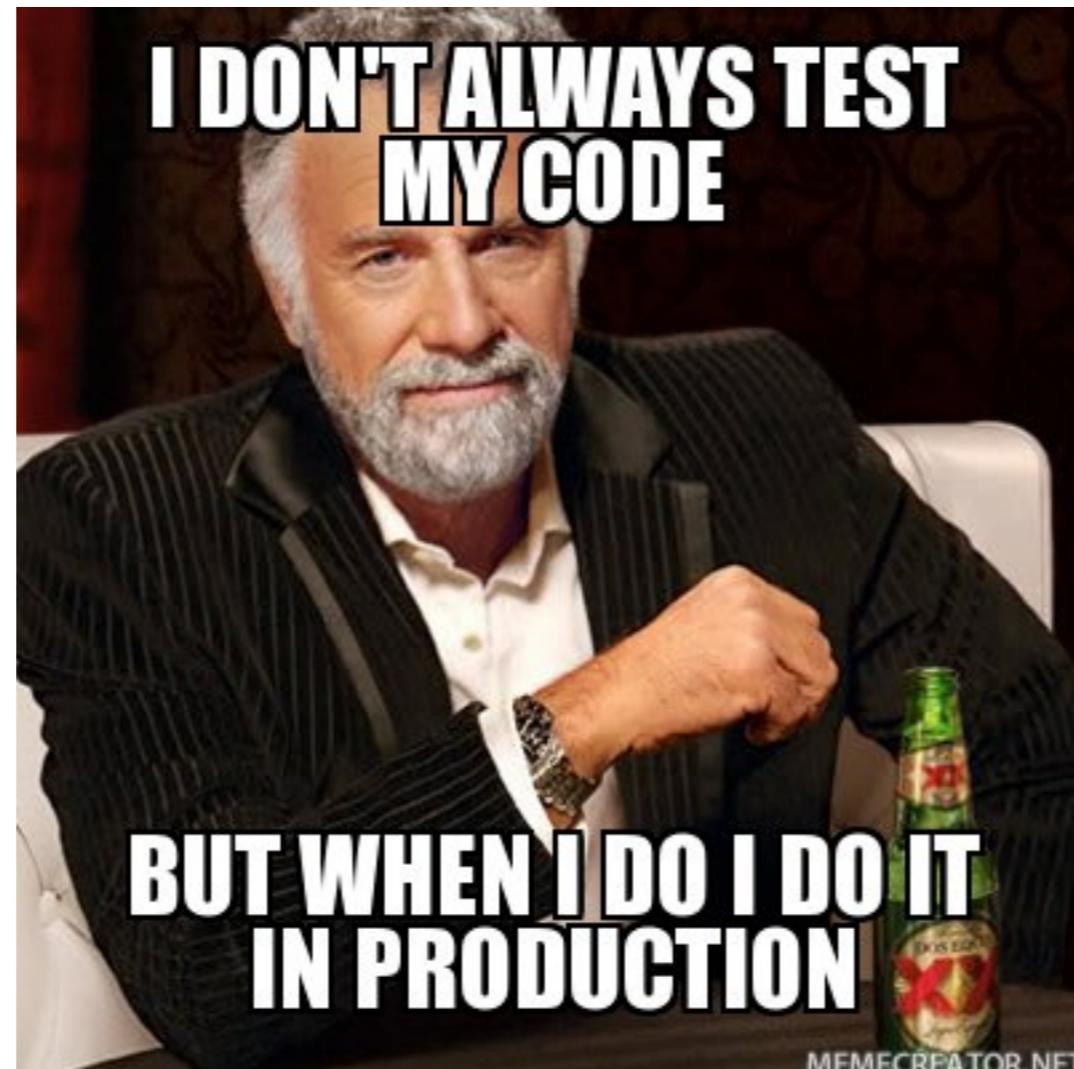
Before start !!



1. Environment

Dedicated environment

Similar to production



2. Testing plan

Performance testing plan development

Test data preparation

Requirement gathering

Acceptance criteria



3. Information

Application architecture
Server information
Application usage



Approach ?



When you start Testing ?



How to test when you **not** have Production-class resource ?



What do you do when you **not** have data usage ?



Do you have performance testing in Continuous integration process ?



How do you report test results when “realism” is not present ?



Approach ?





KEEP
CALM
BE
PROACTIVE
not REACTIVE

Testing is not a phase !!



Life cycle ?



Life cycle

1. Test objective
2. Prepare test environment
3. Create/modify scripts
4. Execute
5. Monitoring impact on server/database
6. Analyze results
7. Tuning system
8. Repeat step 4
9. Deploy with confidence !!!

We need testing tools ?

We need testing tools ?



We need testing tools ?



We need testing tools ?



Tools



Performance symptom

High response time (user & server)

Memory leak

High CPU usage

Too many open connection

Database deadlock

Return error data

HTTP error

Page not found/available

Length queue for request

Issue of application server

Poor database tuning

Poor cache management

Poor session management

Issue of web server

Poor server design

Poor configuration

Issue of database server

Insufficient indexing

Fragment database

Single of failure (SoF)

Issue of network

Firewall throughput

Load balance

Gateway

Router

Bandwidth

How to fix ?

1. Improve app design

Algorithm

Caching

Database call

Memory use

2. Upgrade hardware

RAM

CPU

Network bandwidth

3. Upgrade software

**Operating system
Application server
Web server
Database server**

4. Upgrade architecture

2-tiers, 3-tiers, N-tiers

Load balance

HTTP proxy

Database proxy

Static server

Let's start

