Context Appropriate Performance Testing:

From Simple to Rocket Science

Created for:

By:

Scott Barber

Chief Technologist

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"Let's face the truth, performance testing

****IS* rocket science."***

--Dawn Haynes

… but even rocket science involves

****SOME* easy stuff.***

--Addendum added by: *Scott Barber*

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From Simple to Rocket Science

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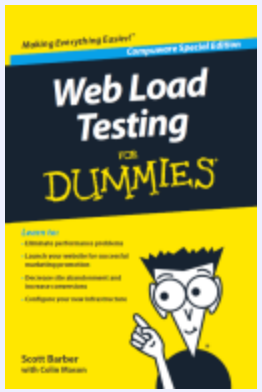
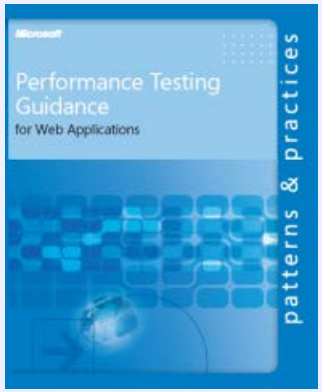
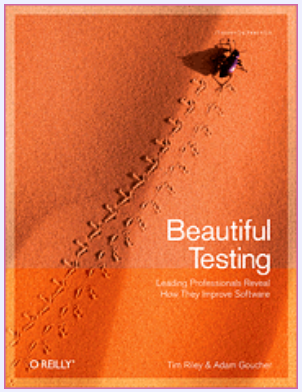
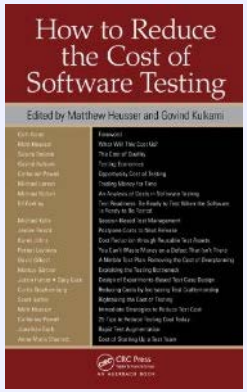


Co-Author:



Contributing Author:





Books: www.perftestplus.com/pubs

About me: about.me/scott.barber

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Let's Get Organized…

Introductions:

Who are you?

What do you do?

Performance experience?

Desired outcome?

Team Formation:

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Let's Start with an Exercise

As a team, come up with one answer each to:

What is "Performance"?

What is "Performance Testing"?

Who is responsible for Testing Performance?

How do you know if Performance is good or bad?

De-Brief & Discuss:

My Answers:

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What is Performance?

System or application characteristics related to:

Speed:
- responsiveness
- user experience

Scalability:
- capacity
- load
- volume

Stability
- consistency
- reliability
- stress

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What is Performance Testing?

What mom tells people:

I help people make websites go fast.

What I tell people:

I help and/or teach individuals and organizations to *optimize software systems* by balancing:

- Cost
- Time to market
- Capacity

while remaining focused on the *quality of service to system users.*

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Who is Responsible?

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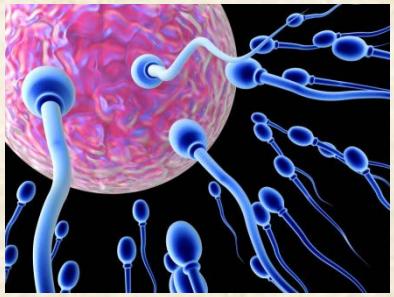
The Performance Lifecycle is:

Conception to Headstone



Not

Cradle to Grave

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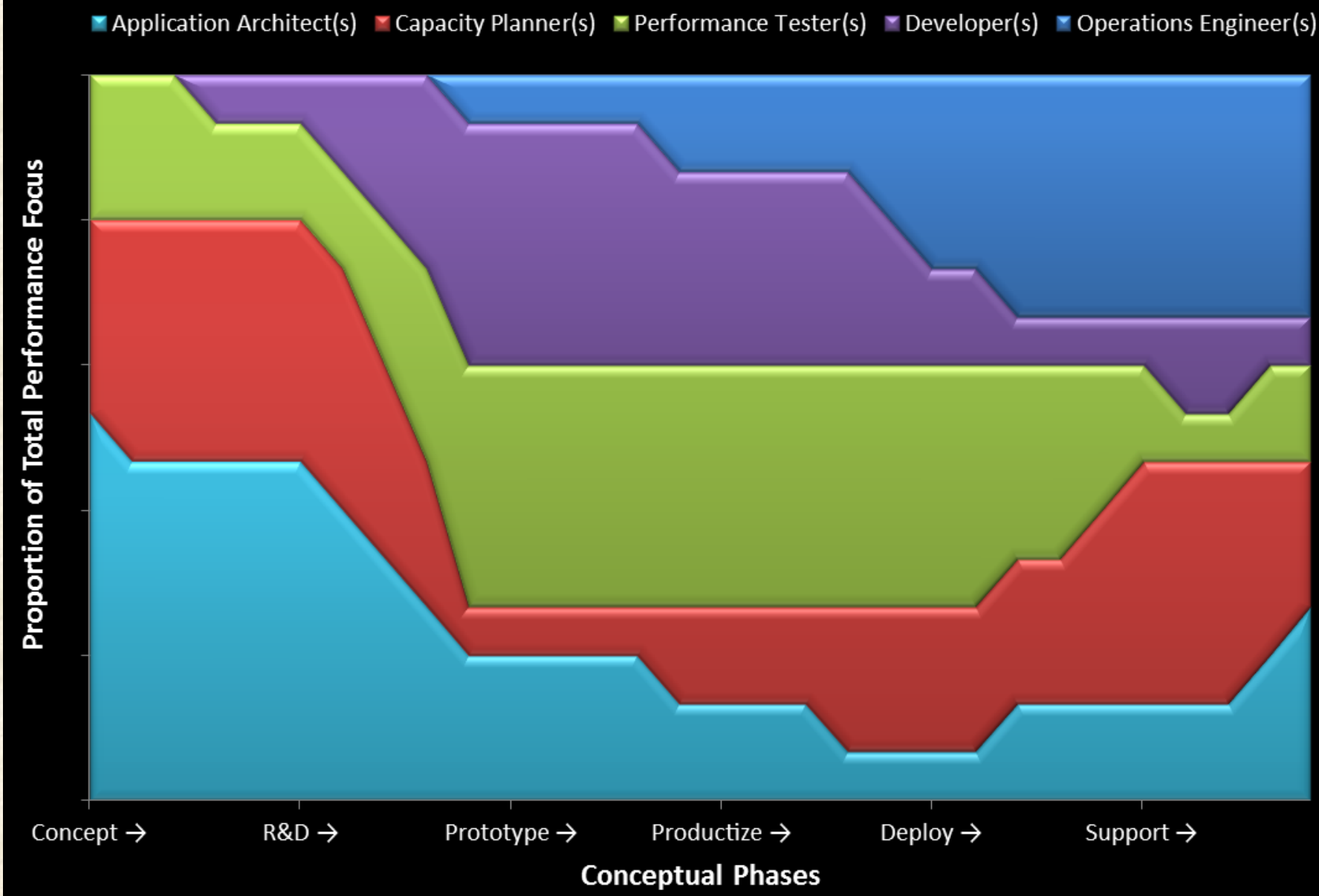
Distribution of Responsibility for System Performance



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Good/bad, How Do You Know?

(But mostly, you don't until it's "too late")

(Yet we can know if our Performance Testing is adding value via…)

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Performance Testing Objectives

What we actually hope to gain by testing performance

Are sometimes completely unrelated to stated requirements, goals, thresholds, or constraints

Should be the main drivers behind performance test design and planning

Usually indicate the performance-related priorities of project stakeholders

Will frequently override good/bad in “go-live” decisions

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"With an order of magnitude fewer variables performance testing could be a science, but for now,

performance testing is at best a scientific art."

--*Scott Barber*

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Fact:

As an activity, performance testing is widely misunderstood, particularly by executives and managers.

This misunderstanding can lead to a variety of difficulties -- including *outright project failure.*

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Fact:

Managers and executives *do not* need to understand the technical details of performance testing to make good decisions or effectively manage performance testing projects.

They *do* need to understand what performance testing is, what it is not and what value it adds.

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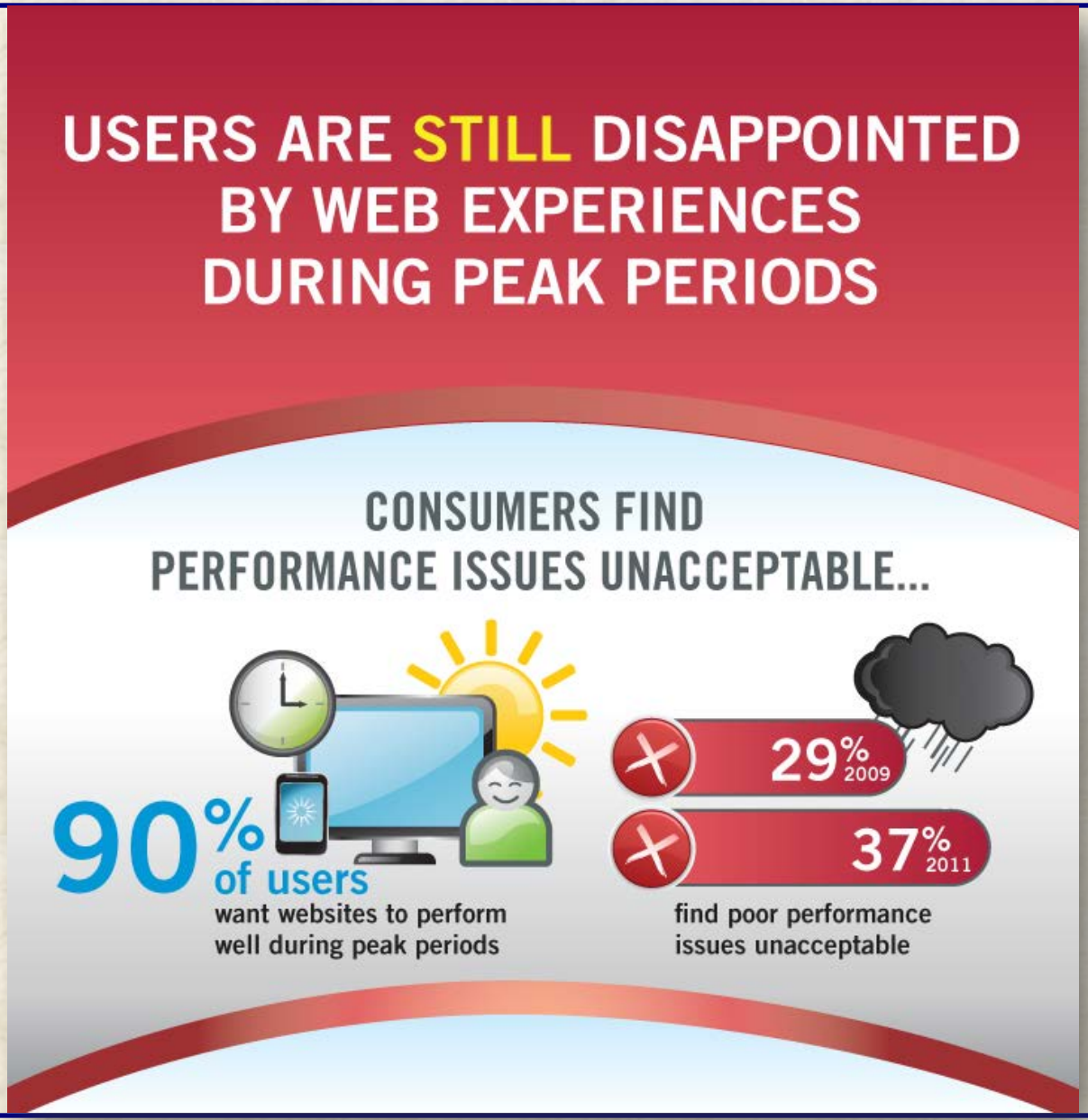
Fact:



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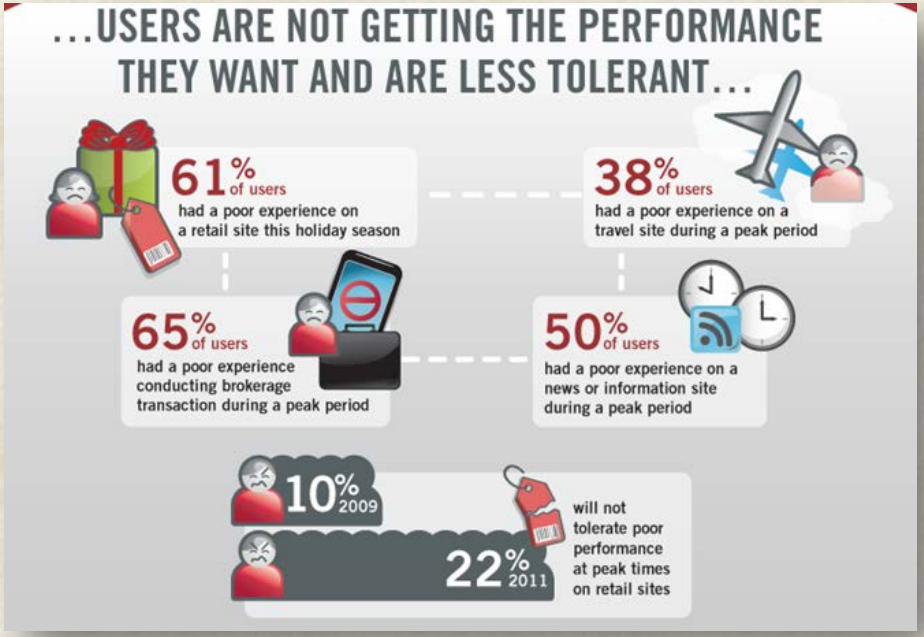
Fact:



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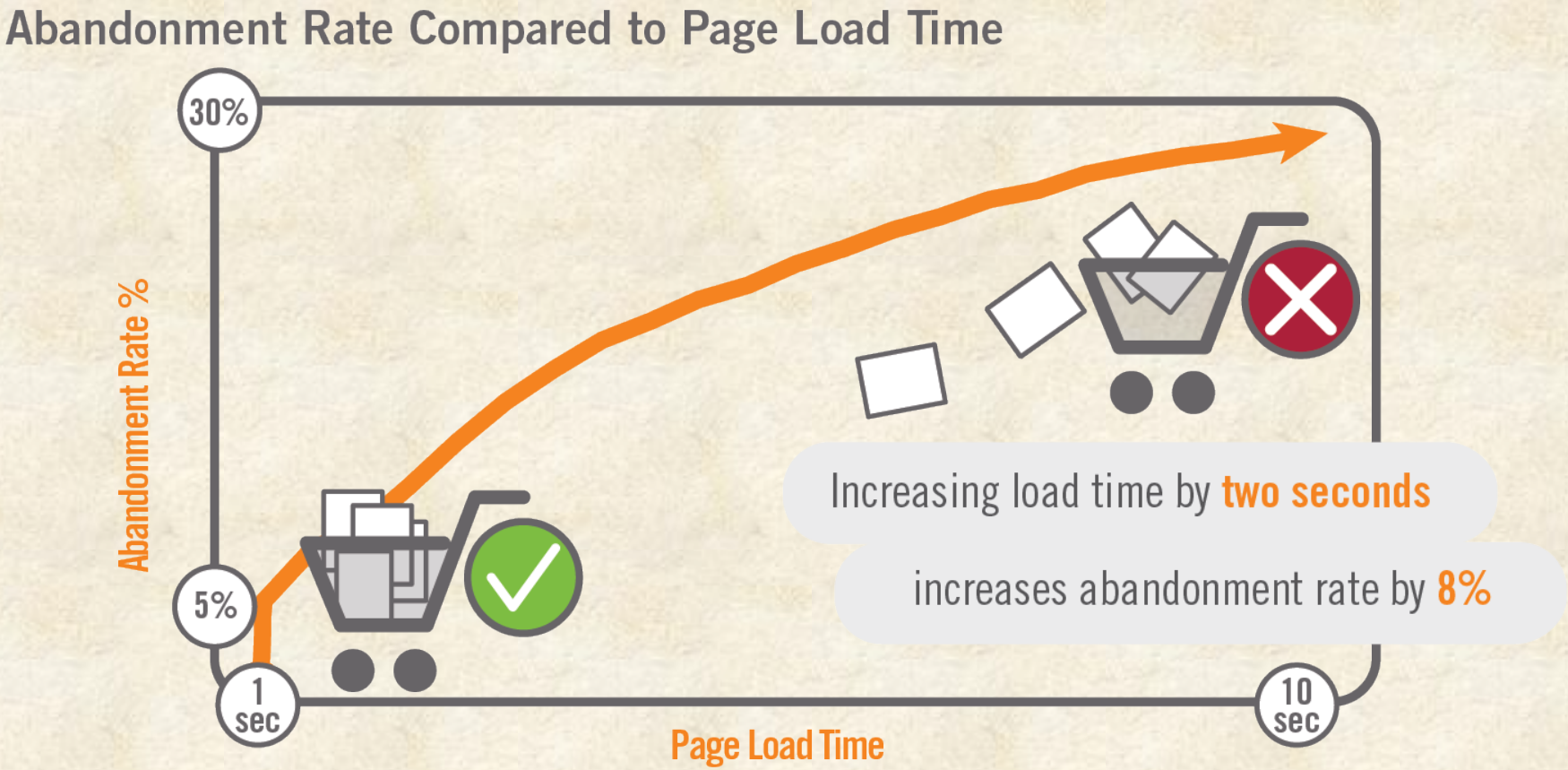
Fact:

Poor Performance is Bad for Business



Source: Gomez Real-User Monitoring
- 250+ customers
- 100,000,000+ page measurements

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Fact:

One *does not need* to be
a performance testing rock star
to have a significant positive impact
on performance…

…and thus add significant business-value…

…quickly and simply.

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"There is no such thing as a 'junior performance tester'…

but there are people who are new to performance testing."

--Scott Barber

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So then, its hopeless?

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Simple Item #1

Make Performance a:

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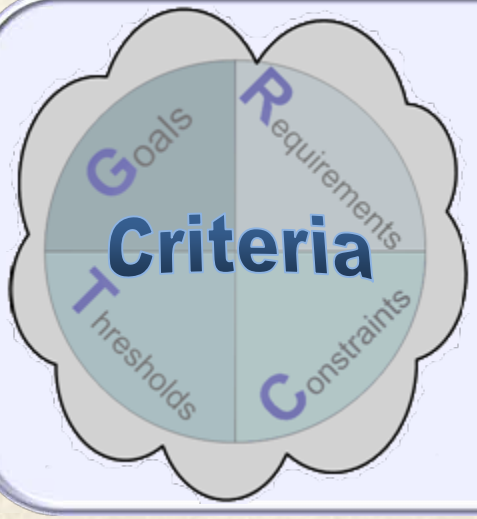
Thoughts on Priority

Focusing on performance adds value and mitigates risk from “bar napkin to delete key”.

Get performance in the dev, test, & delivery plans.

Don’t let performance fall off the plate.

Be the advocate, even if it makes you “annoying”.



Goals: Soft Boundaries (User Satisfaction)

Requirements: Firm Boundaries (Business or Legal)

Thresholds: Hard Boundaries (Laws of Physics)

Constraints: Arbitrary Boundaries (Budget or Timeline)

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Simple Item #2

Give Performance:

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On Visibility

Acceptance criteria

Ask questions

Priority setting

Jessica's Story

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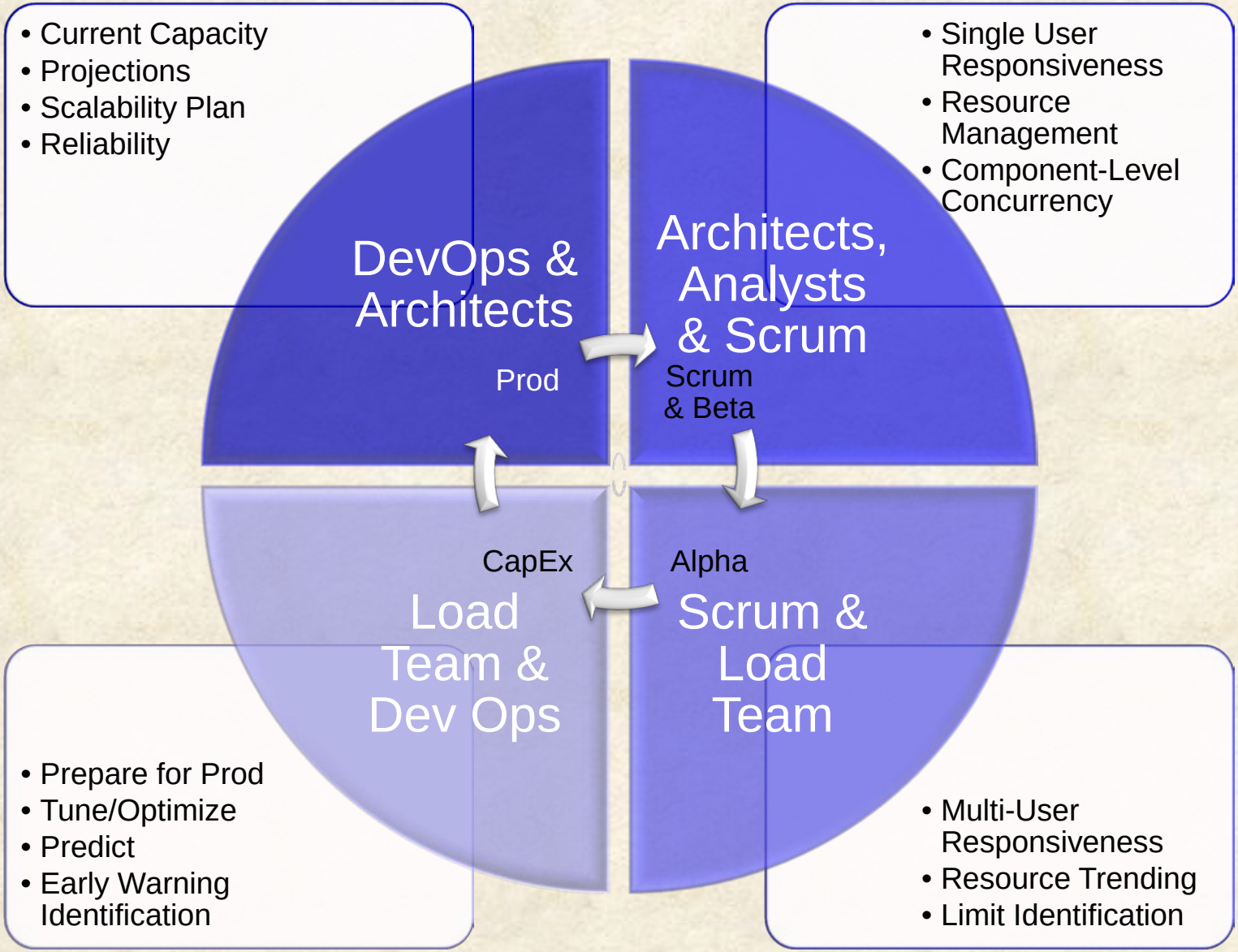
Executive Visibility



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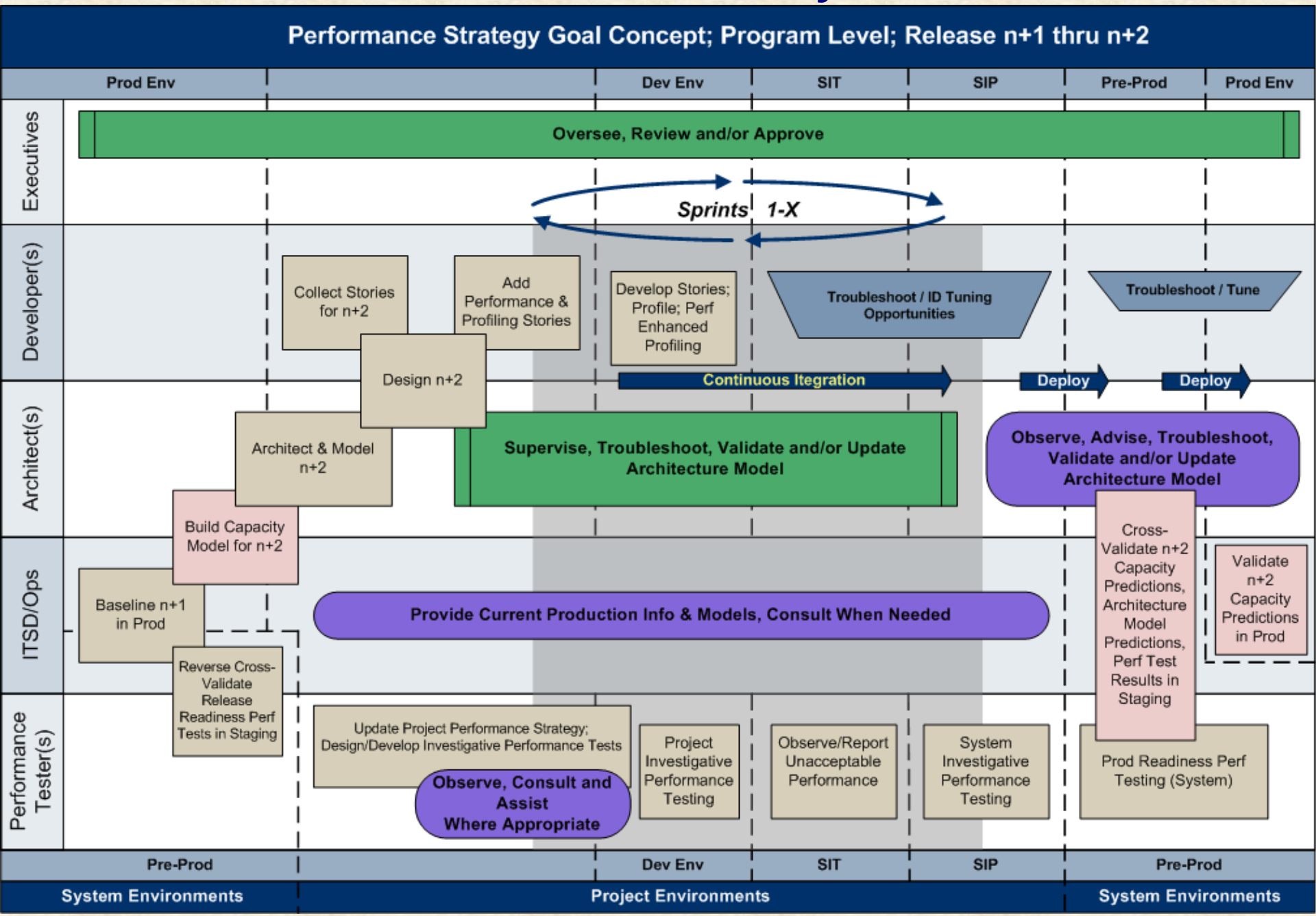
Process Visibility



Simple to Rocket Science

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Simple Item #3

Ask lots of:

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Thoughts on Questions

How is the performance today?

How will this [change] effect performance?

Go to dev, test, & management meetings – and ask those questions.

Advocate performance through questions.

Earning the “annoying” label for asking questions is ok, but becoming “annoying” via your response to their answers isn’t.

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Simple Item #4

Research the

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How are “leaders” doing?

Keynote Systems
http://www.keynote.com/keynote_competitive_research/

Gomez Benchmarks
http://www.gomez.com/benchmarks/

WebMetrics
http://www.webmetrics.com/resources/

The eService Index
http://www.vertain.com/?pesi

Others??

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"Ok, that stuff is 'simple'

and I can see the value,

*but what about the *testing*?!*

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Testing Item #1

Am I Annoyed?

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Thoughts on Annoyance

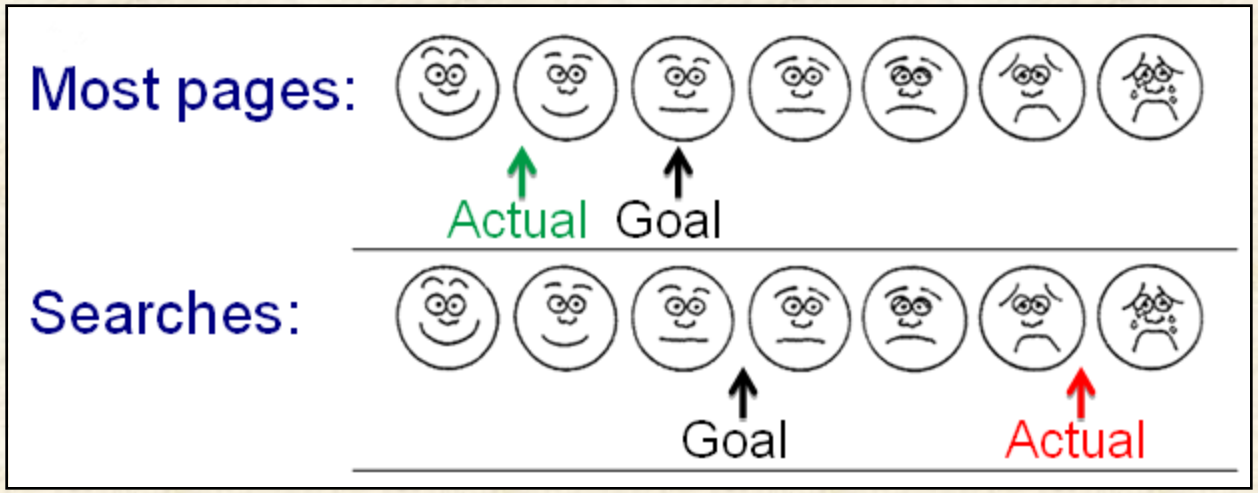
Why am I annoyed?

How annoyed am I?

Does this annoy me all the time, or just sometimes?

What impact is this likely to have on product value?

Advocate something better.



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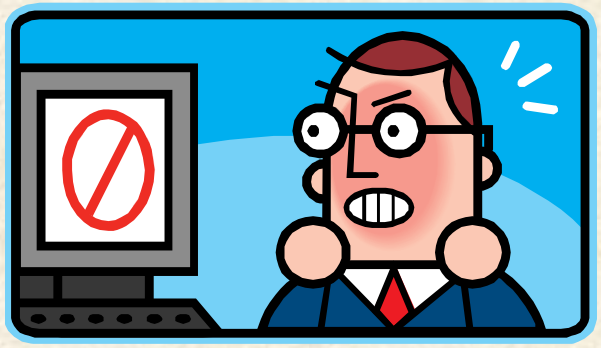
Testing Item #2

Who else is annoyed?



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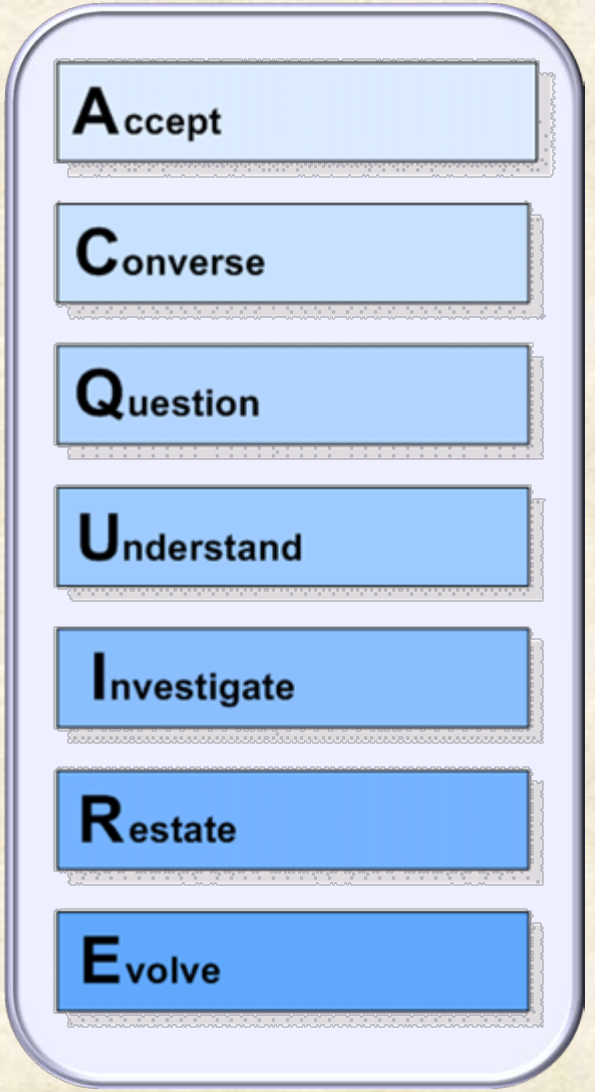
More Thoughts on Annoyance

Who matters?

How do I get their feedback?

Are they annoyed with performance, or workflow, or, or, or…?

Advocate something better.



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"I guess that counts as 'testing'

and yes, there is value,

*but what about testing *performance*?!*

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Performance Testing Item #1

Determine:

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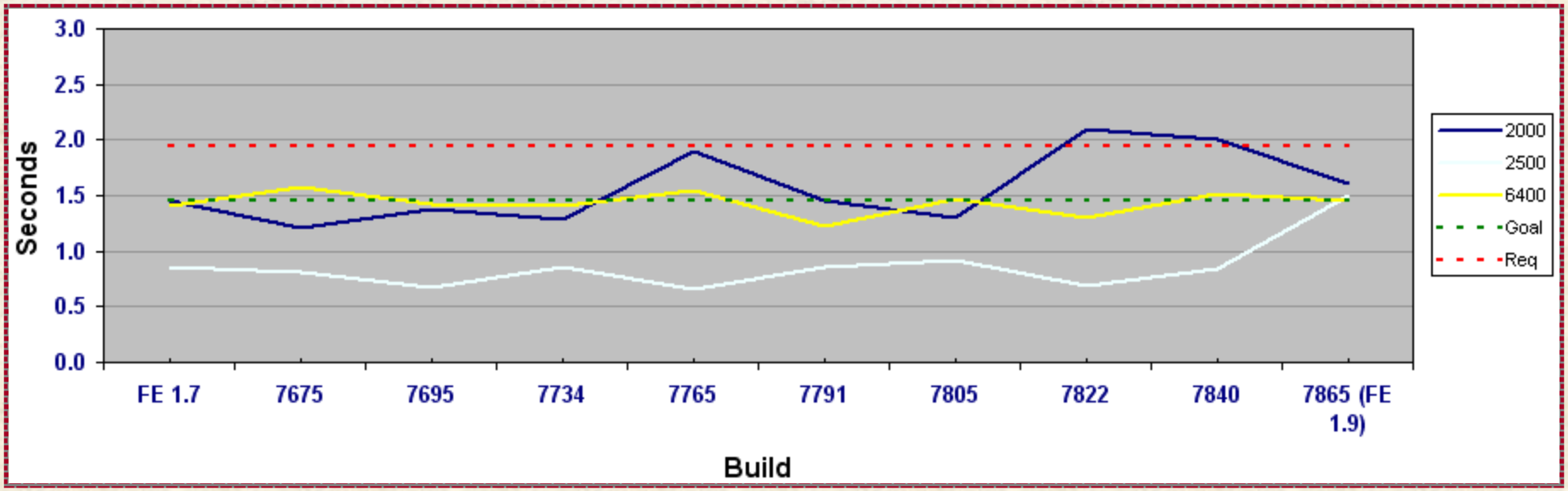
Speedy Speed Collection

http://www.websiteoptimization.com/services/analyze/

http://www.websitepulse.com/help/tools.php

http://webwait.com/



If you don't have speed targets, don't fret...

Trends are trendy!

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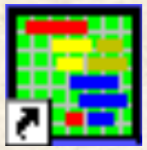
Speedy Speed Collection (and more)

Visual Round Trip Analyzer



Microsoft Visual Round Trip Analyzer.lnk

IBM Page Detailer

IBM Page Detailer Basic.lnk

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Performance Testing Item #2

Make use of:

Performance Snapshots

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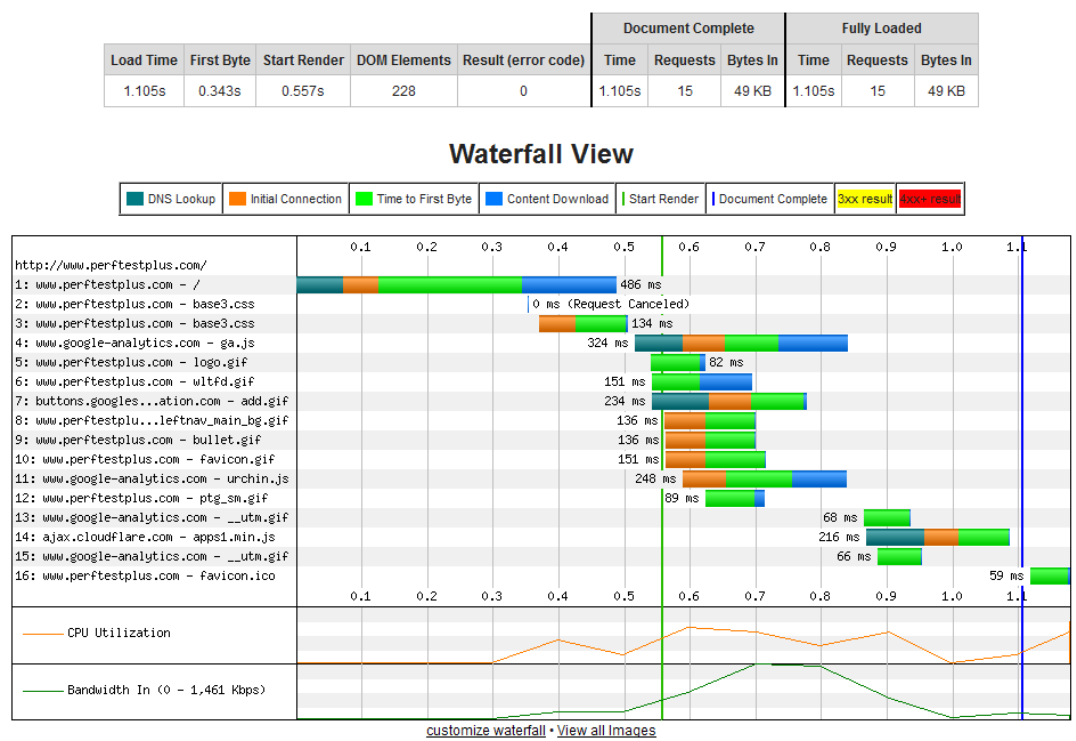
On Taking Snapshots

http://www.webpagetest.org/
https://developers.google.com/pagespeed/
http://www.softwareqatest.com/qatweb1.html



					Document Complete			Fully Loaded		
Load Time	First Byte	Start Render	DOM Elements	Result (error code)	Time	Requests	Bytes In	Time	Requests	Bytes In
1.105s	0.343s	0.557s	228	0	1.105s	15	49 KB	1.105s	15	49 KB

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Performance Testing Item #3

Test the Front-End with

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What is SCORN, anyway?

Size

Media, HTML, styles & scripts – compress & minify.

Caching

The end-user's browser cache can be your best friend, or your worst nightmare, use it wisely.

Order

Get the load order of your scripts and styles wrong, and you'll lose your users every time – even though response time hasn't changed!

Response Codes

3, 4, & 5xx series response codes on individual objects are bad things.

Number

When it comes to performance, less is more (usually).

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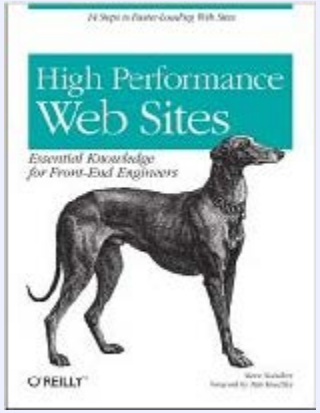
SCORN References

- *High Performance Web Sites: Essential Knowledge for Front-End Engineers*, by Steve Souders, O'Reilly, 2007.
- *Yahoo! YSlow for Firebug*
- *Page Speed*
- *Right Click -> View Source and other Tips for Performance Testing the Front End*, by Scott Barber, for AST Update, 2007.

High Performance Web Sites: Essential Knowledge for Front-End Engineers



www.amazon.com/dp/0596529309

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Performance Testing Item #3

Proceed with caution,
the following is only easy for hard-core

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Easy Stuff for Geeks

Firefox Performance Tester's Pack
https://addons.mozilla.org/en-US/firefox/collection/performance

Web Site Test Tools and Site Management Tools
http://www.softwareqatest.com/qatweb1.html

Fiddler
http://www.fiddler2.com/fiddler2/version.asp

Web Development Helper
http://projects.nikhilk.net/WebDevHelper

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“Alright, that covers ‘performance testing’

and value,

but you said something about
**rocket science*?!*

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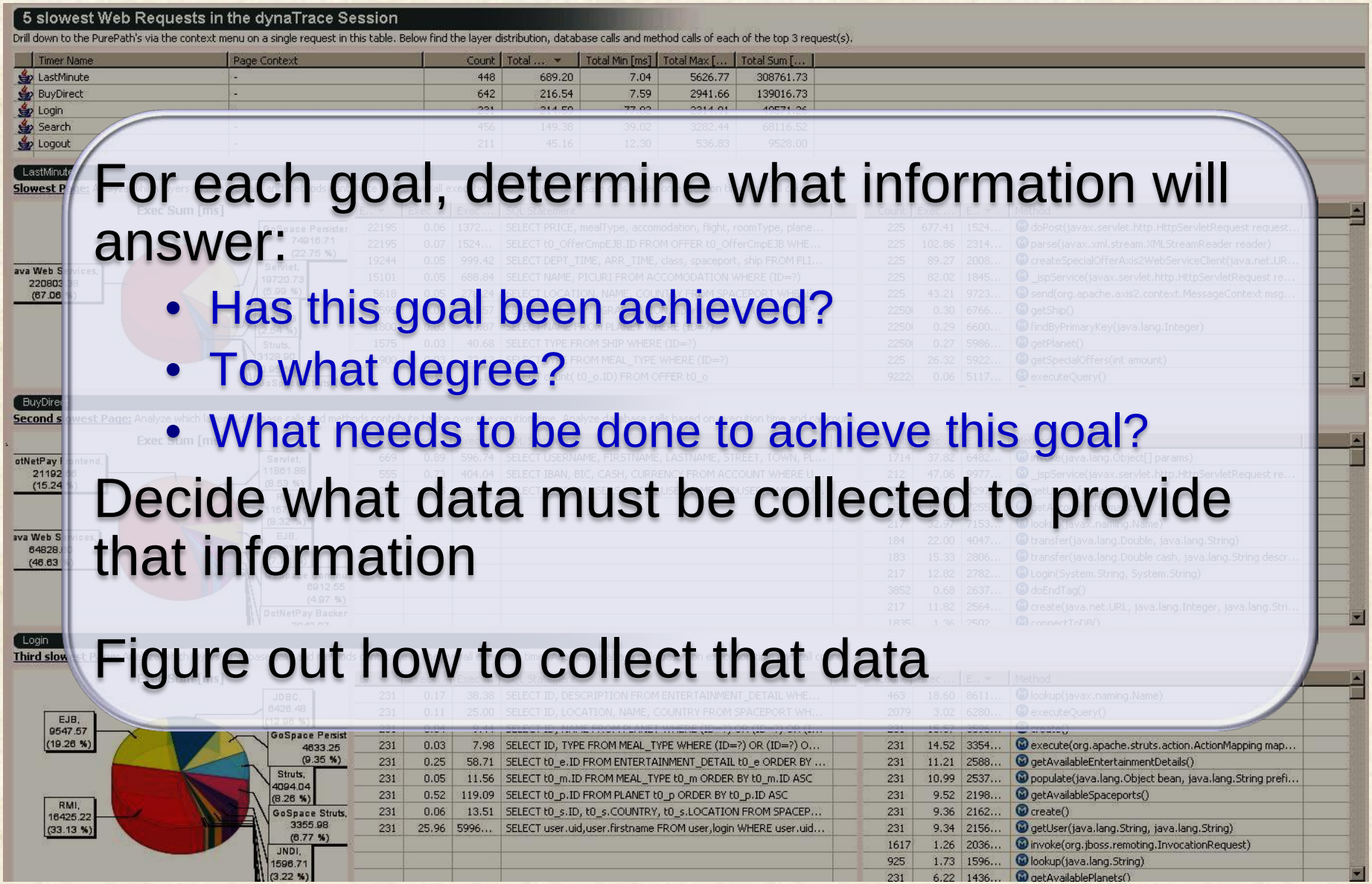
Measurements and Metrics



For each goal, determine what information will answer:

- Has this goal been achieved?
- To what degree?
- What needs to be done to achieve this goal?

Decide what data must be collected to provide that information

Figure out how to collect that data

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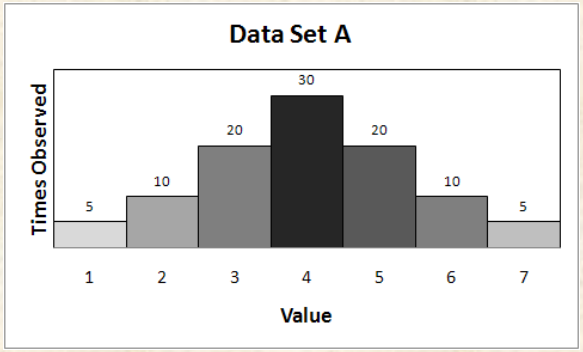
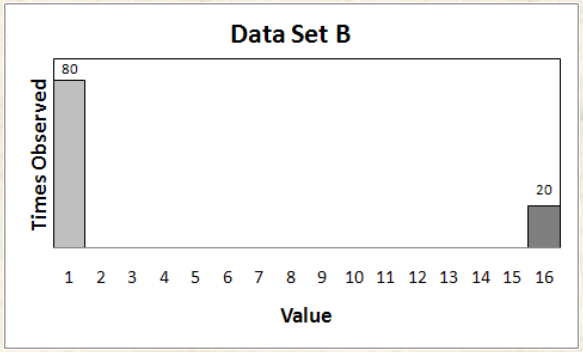
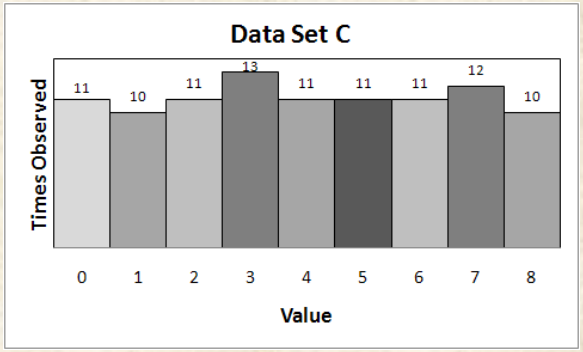
Analysis







	Sample Size	Minimum	Maximum	Average	Median	Normal	Mode	95th Percentile	Standard Deviation
Data Set A	100	1	7	4	4	4	4	6	1.5
Data Set B	100	1	16	4	1	3	1	16	6.0
Data Set C	100	0	8	4	4	1	3	8	2.6

All three have an average of 4.

Which has the “best” performance”?

How do you know?

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"Only performance testing at the conclusion of system or functional testing

is like

ordering a diagnostic blood test after the patient is dead."

--Scott Barber

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Which Transactions to Test

Frequent	Common activities (get from logs)
Intensive	e.g. Resource hogs (get from developers/admins)
Business Critical	Even if these activities are both rare and not risky
Legal or Contract	SLA's, Contracts and other stuff that will get you sued
Obvious	What the users will see and are mostly likely to complain about. What is likely to earn you bad press
Technically Risky	New technologies, old technologies, places where it's failed before, previously under-tested areas
Stakeholder Mandate	Don't argue with the boss (too much)

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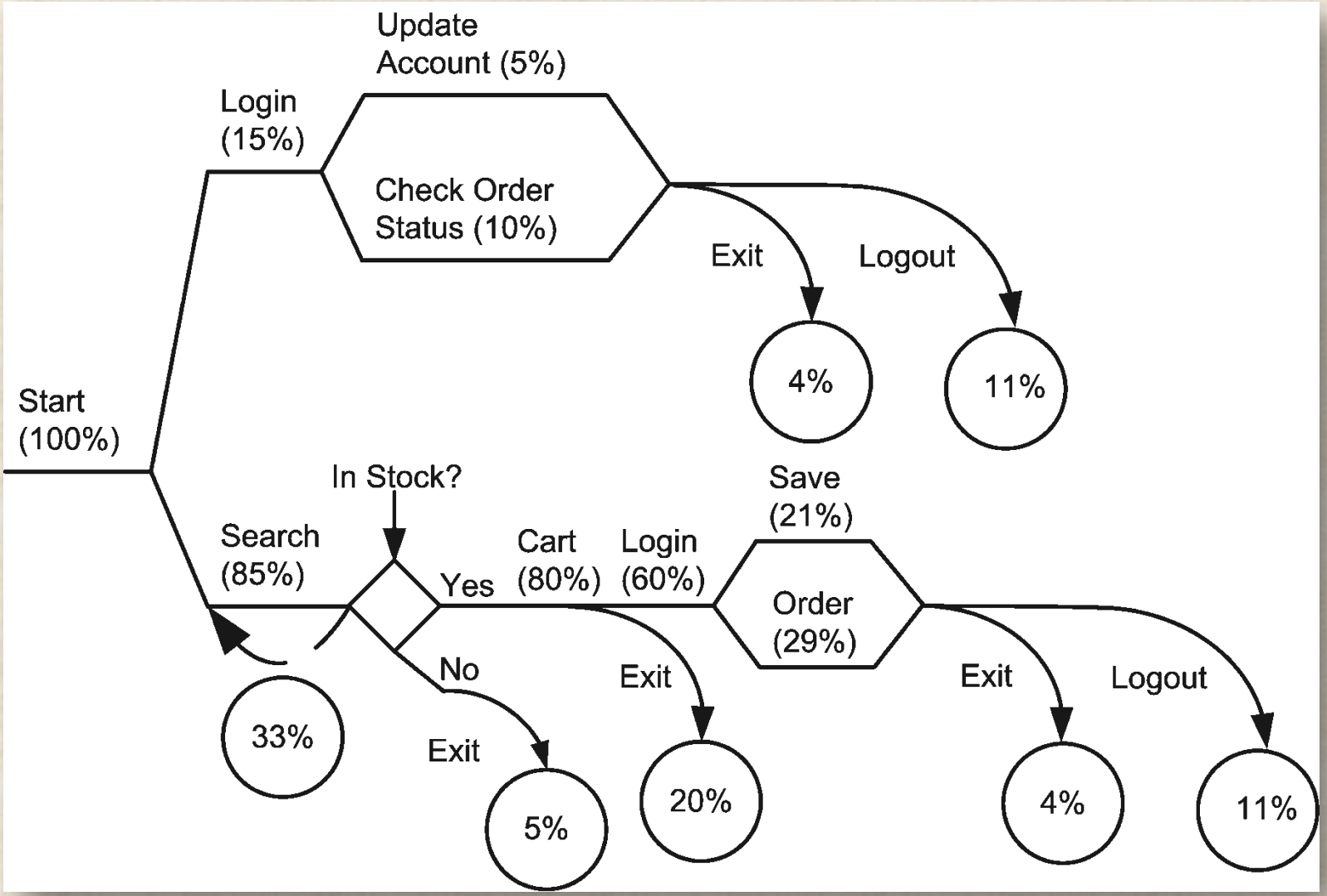
Which Transactions to Test



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"Linear extrapolation of performance test results is, at best, black magic.

Don't do it (unless your name is Connie Smith, PhD. or Daniel Menasce, PhD.)"

--Scott Barber

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Reporting

Inspired by “ET”:

Edward Tufte, Ph.D., Professor Emeritus of political science, computer science and statistics, and graphic design at Yale.

According to ET:

Power Corrupts...

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Reporting

PowerPoint Corrupts Absolutely.

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So, what is Performance Testing?

In effect:

Performance testing helps ***stakeholders***

make ***decisions*** regarding product ***value*** and project ***risk***; Specifically ***value*** and ***risk*** related to ***speed***, ***scalability***, and ***stability*** attributes of a ***system*** and it's ***components*** throughout the ***product life-cycle***.

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Review & Questions

Did we learn anything?

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