



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON

Load Testing

Why, When, How²

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Intro/WhoAmI?

- UW-Madison 12 years as a webserver technologist
- 10 years doing testing engagements with the Software And Load Testing (SALT) Team
- Love breaking things, putting them back together & making them better



Outline

- Why Load Test?
- When to do Load Testing?
- How to do Load Testing?
- How to think about Load Testing?



Why Do Load Testing?

- Prove performance and capacity
- Avoid outages & calls during peak usage times of the academic year
- Better sleep & Lower blood pressure
- To know what happens when your application fails



Don't have this happen

Error 503 Backend fetch failed

Backend fetch failed

Guru Meditation:


XID: 360650

Varnish cache server



Don't have this happen, either

← → ↻ ⓘ secure.mtolympuspark.com/payticketupgradecc13x.asp?adult=7&firstname=Philip&la... ☆ ABP ⋮



ERROR

The requested URL could not be retrieved

The following error was encountered while trying to retrieve the URL:
<http://secure.mtolympuspark.com/payticketupgradecc13x.asp?adult=7&firstname=Philip&lastname=Jochimsen&ticket=10>

Read Error

The system returned: (104) *Connection reset by peer*

An error condition occurred while reading data from the network. Please retry your request.

Your cache administrator is webmaster@wayport.net.

Generated Wed, 21 Jun 2017 13:14:27 GMT by localhost (squid/3.1.20)

Elements Console Sources Network Performance Memory Application Security Audits >> 2 ✕

Overview

Main Origin

- <http://secure.mtolympuspark.com>

Security Overview

🔒 ⓘ ⚠️

This page is not secure.



When to do Load Testing?

- New application with large user base
- Major change or refactoring of existing system
- Slow single user load times
- When system failure would be a high profile incident
- **DO NOT LOAD TEST EVERYTHING**



How to do Load Testing?

- Use whatever tools you can, ex:
 - Browser developer tools are free
 - Apache Benchmark (ab) is free
 - Jmeter is free
 - Paid products often have 50 VU's free (ex: Load Runner)
 - Unlimited VU's with Visual Studio Enterprise



How to do Load Testing?

- Start small (1 VU w/ browser tools)
- Move up (thousands of VU's with Apache Bench)
- Maximize information (Load testing with a ramp up gives you response time data at various levels of concurrent users)



How to think about Load Testing?

Golden Rules:

- Every system has a bottleneck
- You will not know until you test
- Only one bottleneck can be resolved at a time (theory of constraints)
- Throughput & Capacity are limited by Compute, Memory/Disk, & Network



How to think about Load Testing?

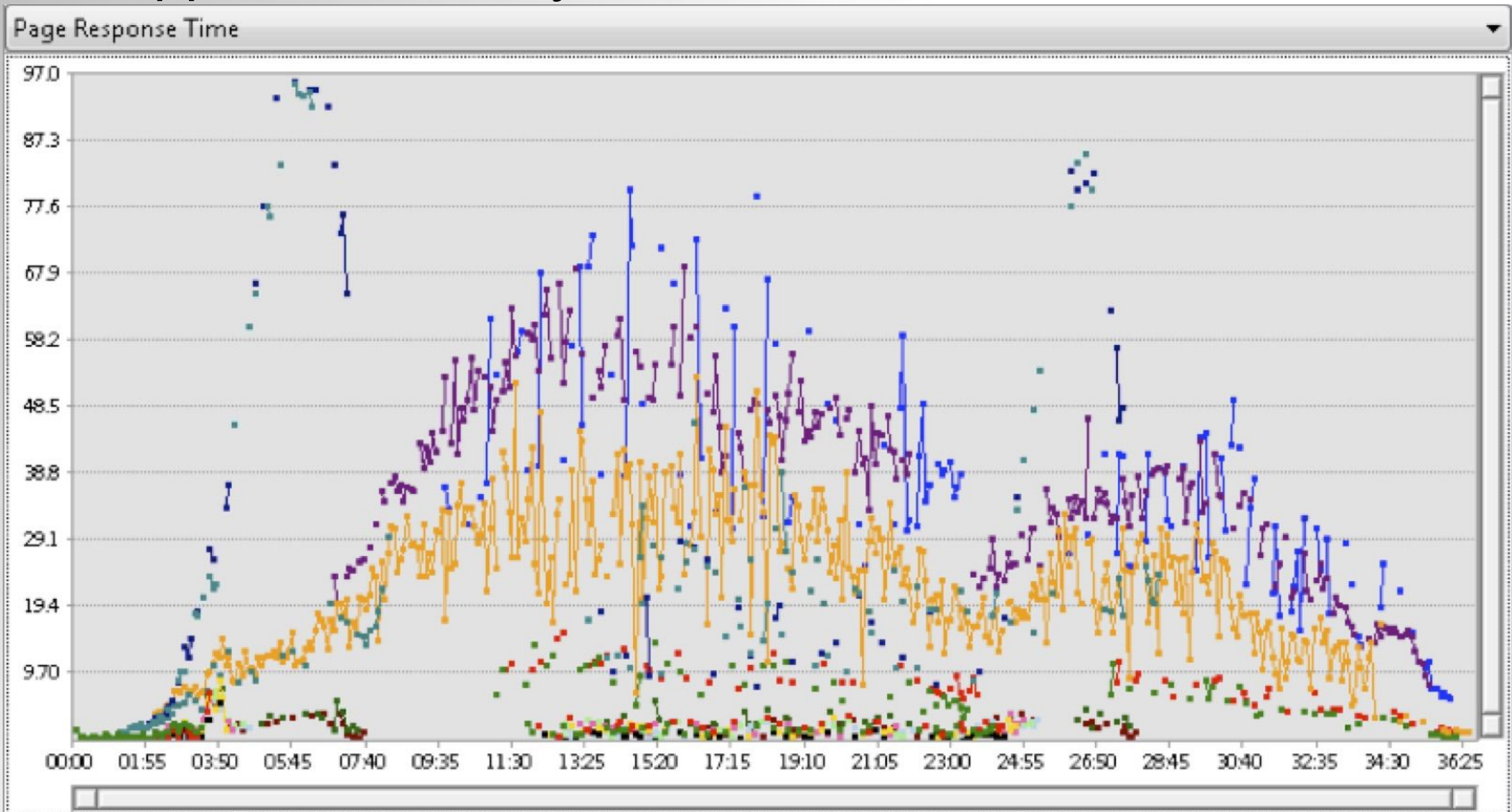
Additional ideas:

- Estimate number of concurrent visitors with existing weblogs
- Find out total possible visitor population
- Break down peak day of traffic into peak hour, peak minute
- Caching cheats capacity limitations



How to think about Load Testing?

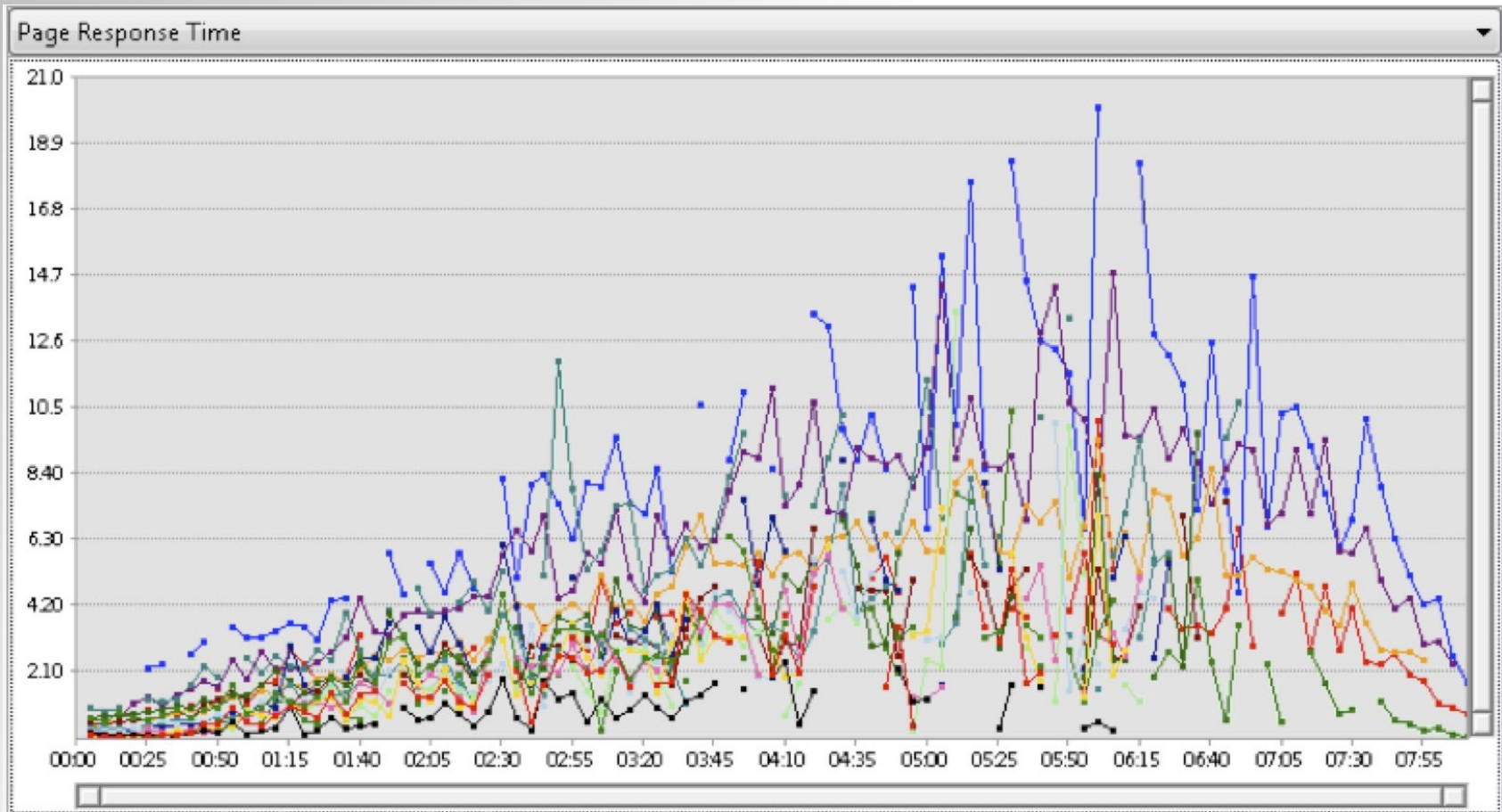
Apply.wisconsin.edu Madison only, 40 concurrent users, 80 total applications, early 2014





How to think about Load Testing?

Apply.wisconsin.edu Madison only, 50 concurrent users, 100 total applications, Mid-2014





How to think about Load Testing?

www.wisc.edu and alerts.wisc.edu Late 2014





Thanks!

Want to talk performance and testing?
Drop me an email or give me a call!

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