UMBRACOSPARK #SPARKQA

# Modern Web (Umbraco) Performance Testing

by @zajkowskimarcin

zajkowskimarcin

zajkowskimarcin

zajkowskimarcin

Crumpled Dog MENTOR WATTLE UMBRELLA GIBE Rock Solid Knowledge umbraco

# Marcin Zajkowski

CTO @ **Cogworks**

CTO / CKO @ **WOW School**

Marcin @ **umbraCoffee** (Friday's 11:30 on YT)

Blogger @ **udfnd.pl** 0

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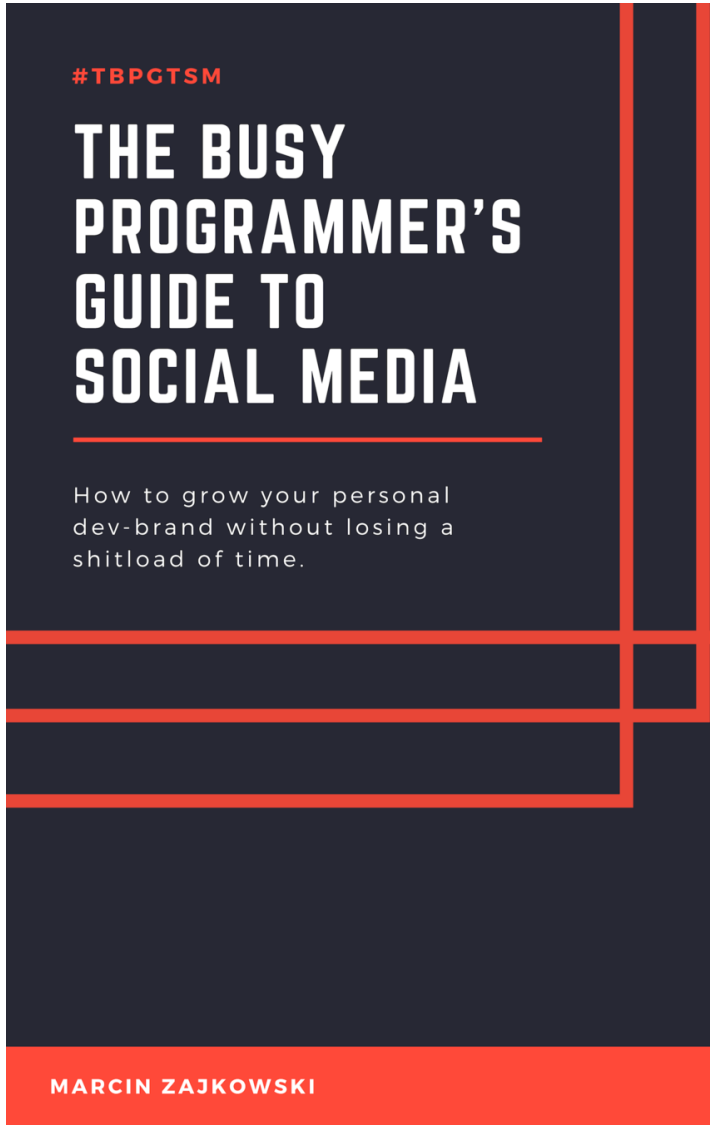


**tbpgtsm.com**

zajkowskimarcin

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mzajkowski

"Downtime is better for a B2C web service than slowness. Slowness makes you hate the service. Downtime you just try again later."

- Lenny Rachitsky, Product Manager, Airbnb

#perfmatters

# Retaining users

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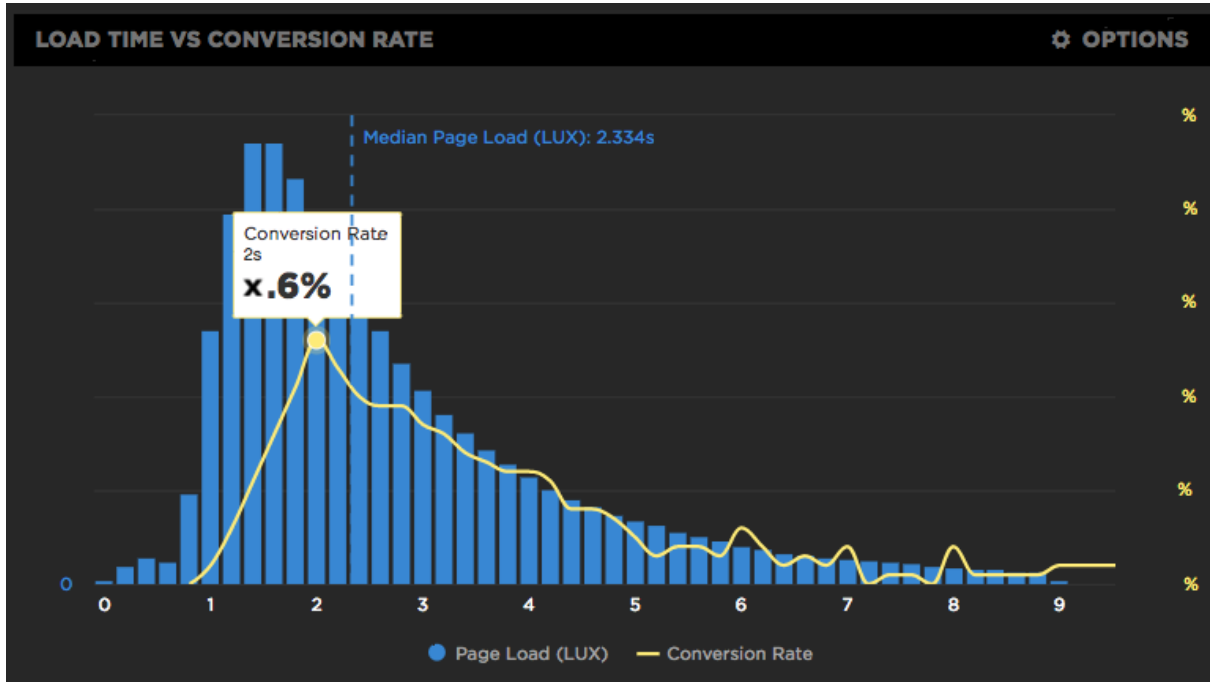
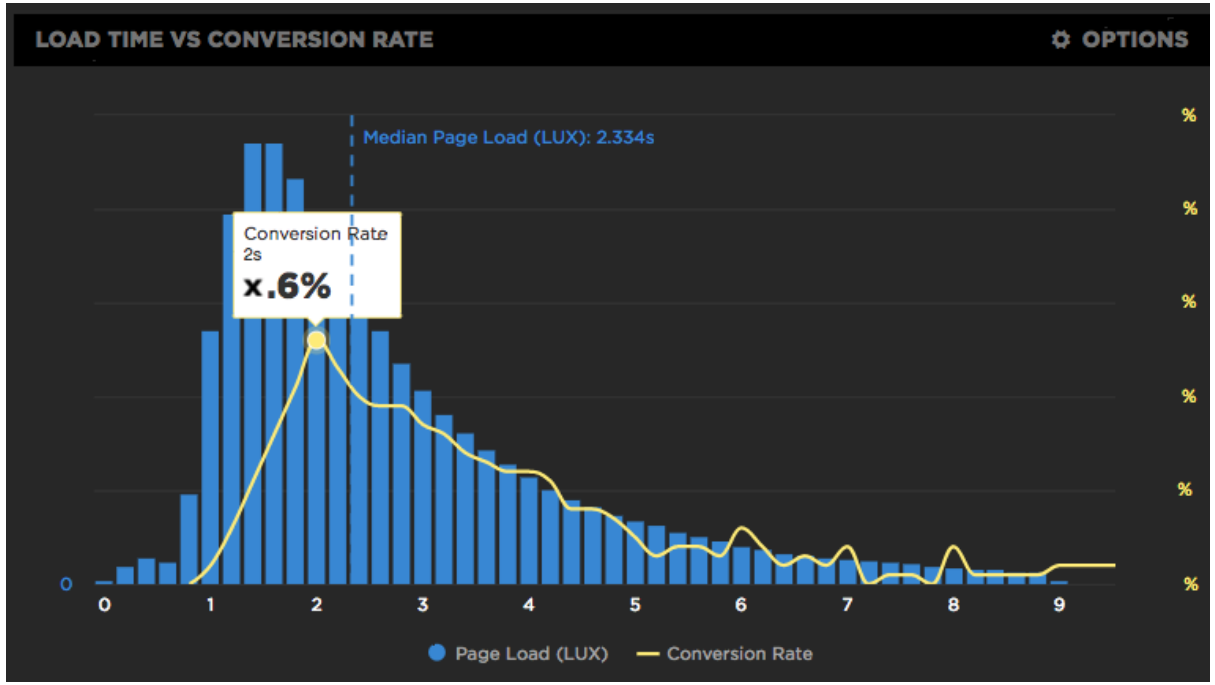
DoubleClick by Google found **53% of mobile site visits were abandoned** if a page took longer than 3 seconds to load.

# Improving conversion



# Improving conversion

E-commerce studies: 2 seconds delay during checkout **increases the abandonment rate by up to 30%**.



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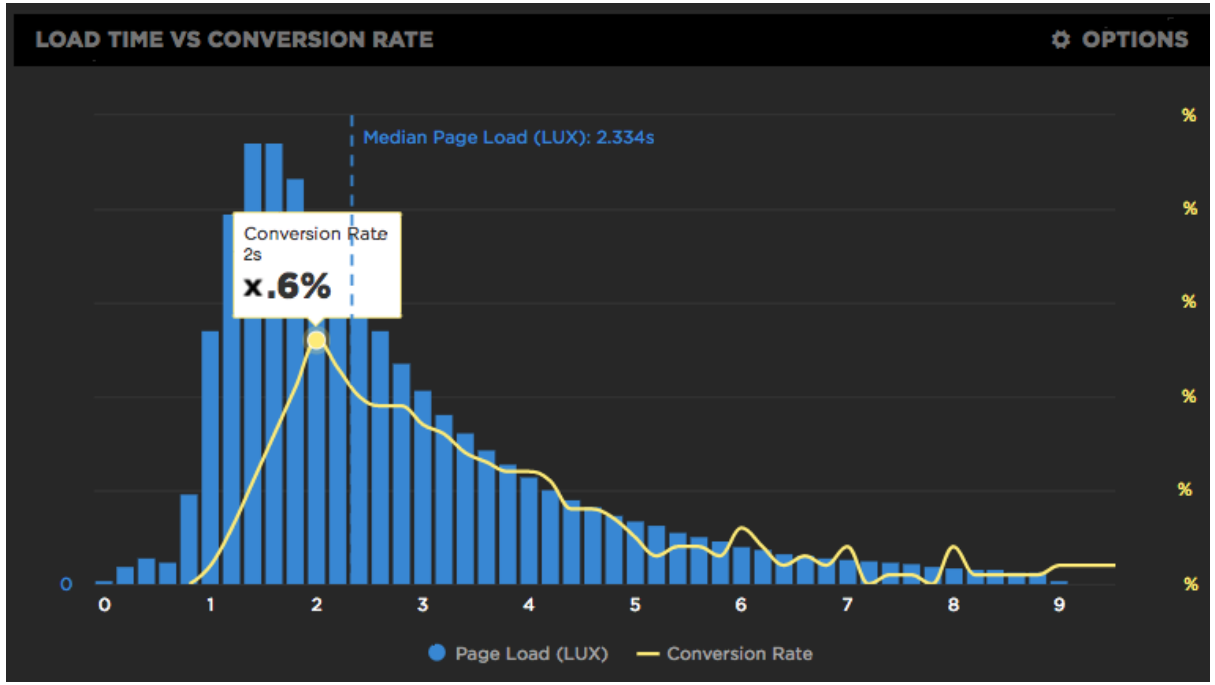
Amazon (and Walmart) Found Every **100ms of Latency Cost them 1%** in Sales.



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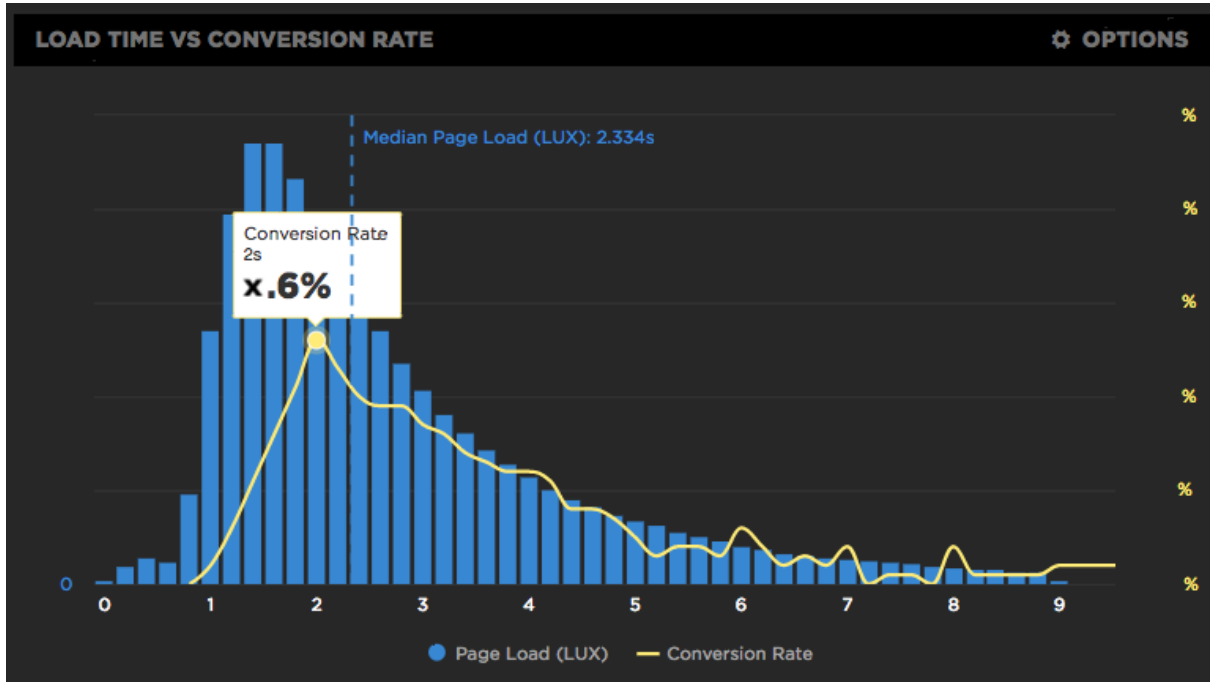
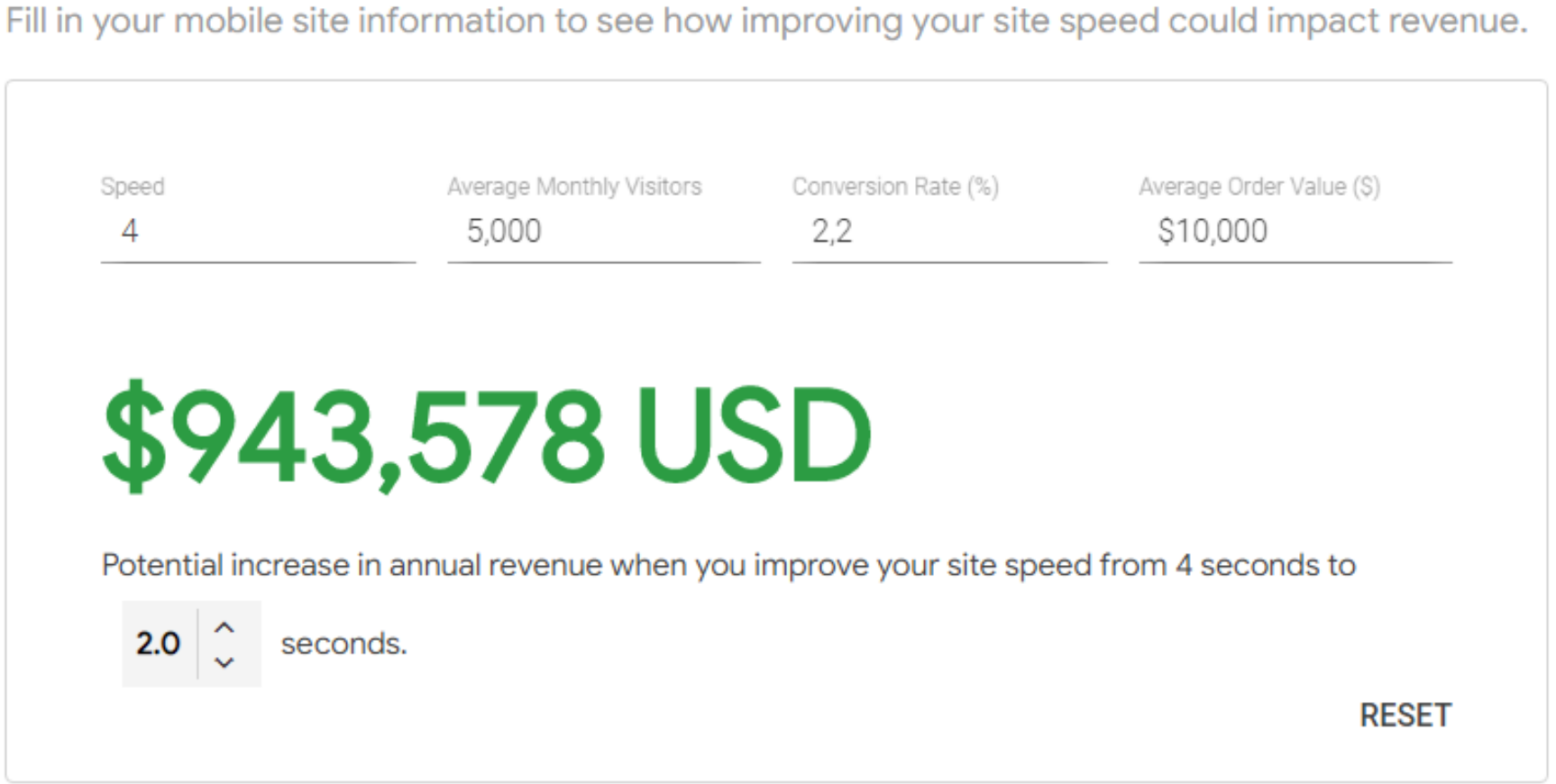
Amazon (and Walmart) Found Every **100ms of Latency Cost them 1%** in Sales.

DoubleClick found publishers whose sites loaded within five seconds earned **up to twice as much** ad revenue than sites loading within 19 seconds.



Evaluate the impact a faster site can have on your business.




https://www.thinkwithgoogle.com/feature/testmysite/

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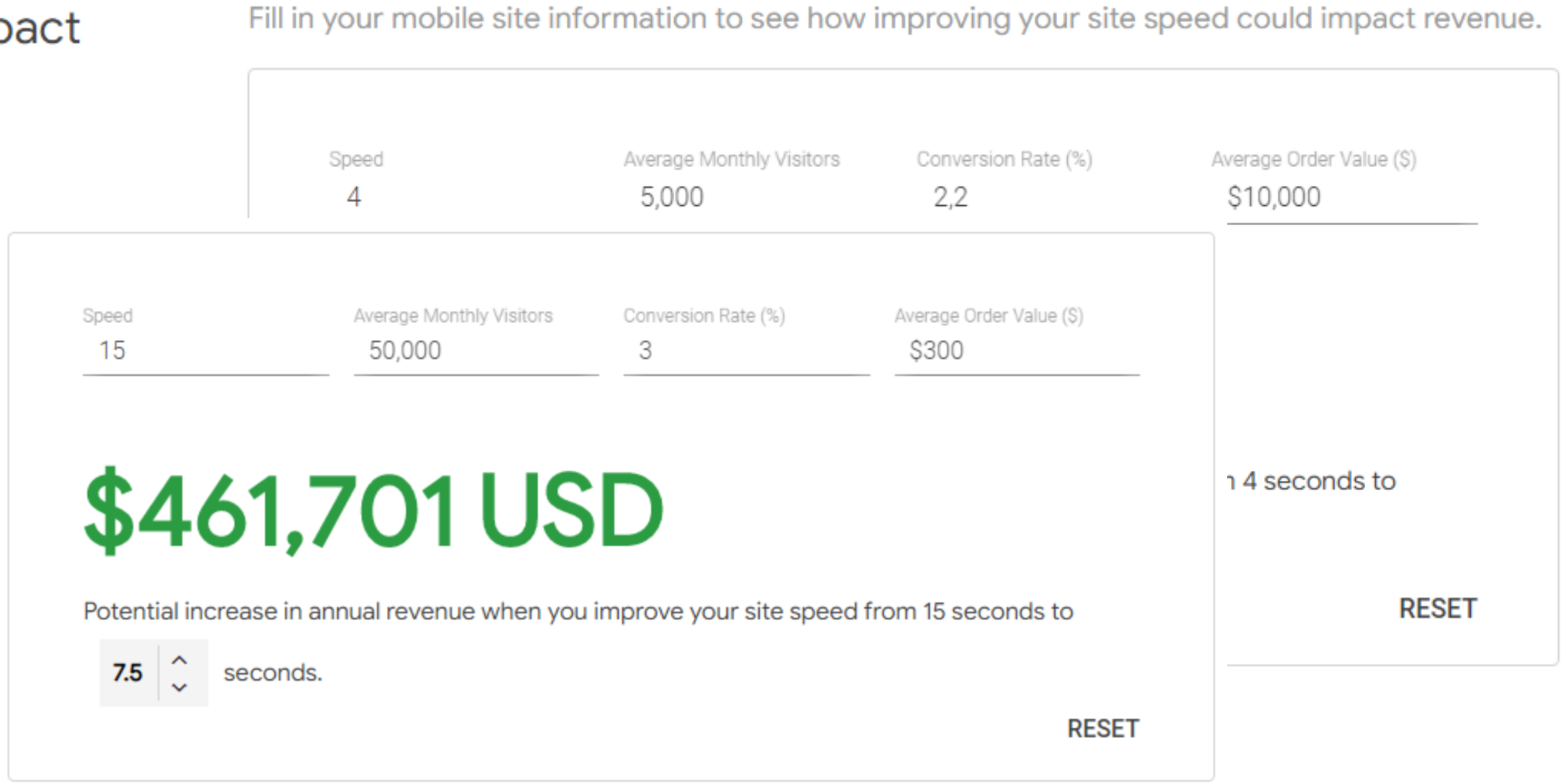


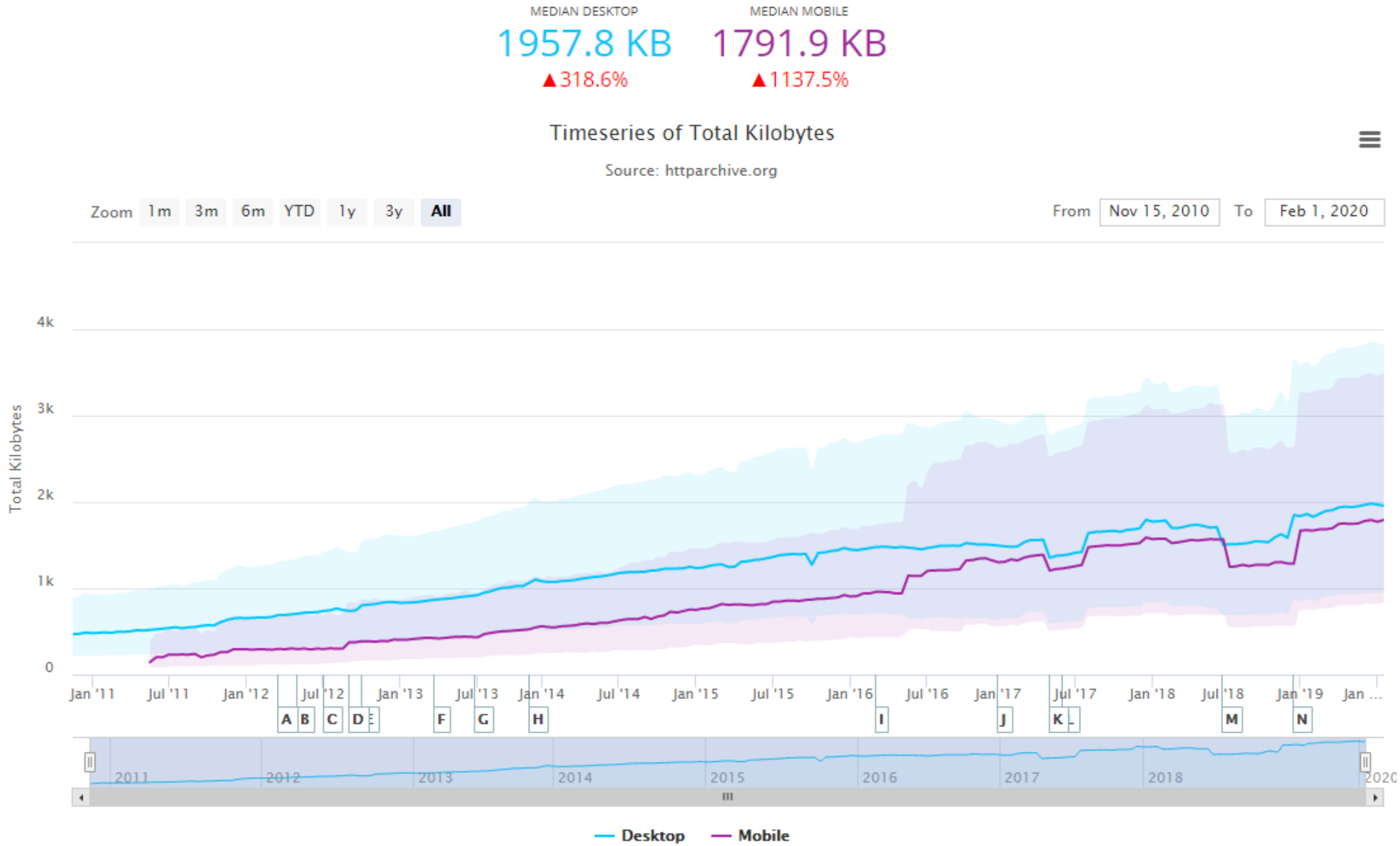

https://www.thinkwithgoogle.com/feature/testmysite/

# User Experience & People

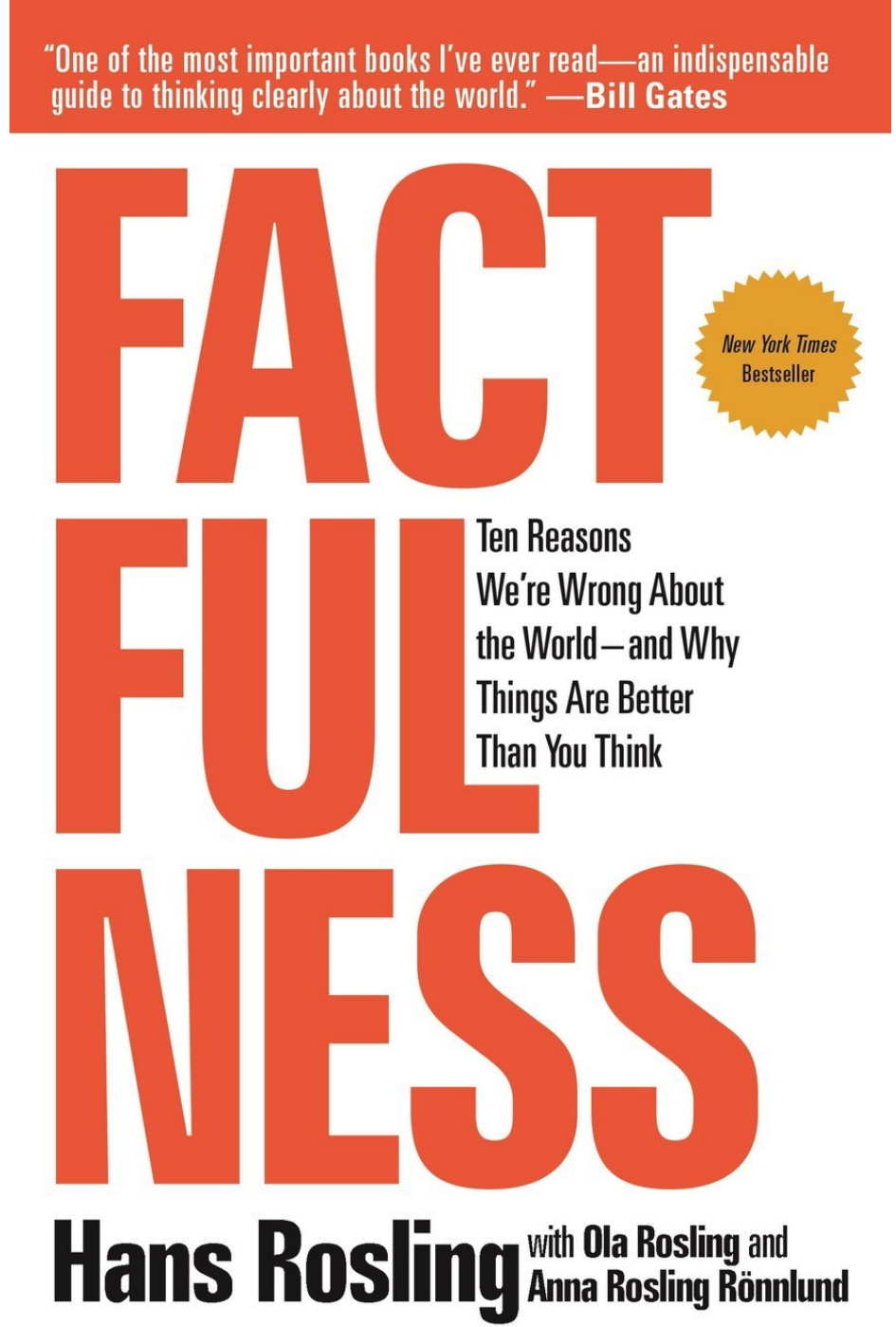
# Total Kilobytes

The sum of transfer size kilobytes of all resources requested by the page.

*See also: Page Weight*



If you're reading
this, you can read.


"One of the most important books I've ever read—an indispensable guide to thinking clearly about the world." —Bill Gates
FACTFULNESS
New York Times Bestseller
Ten Reasons We're Wrong About the World—and Why Things Are Better Than You Think
Hans Rosling with Ola Rosling and Anna Rosling Rönnlund

# Let's switch the narration...

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Dear Customer / Stakeholder:

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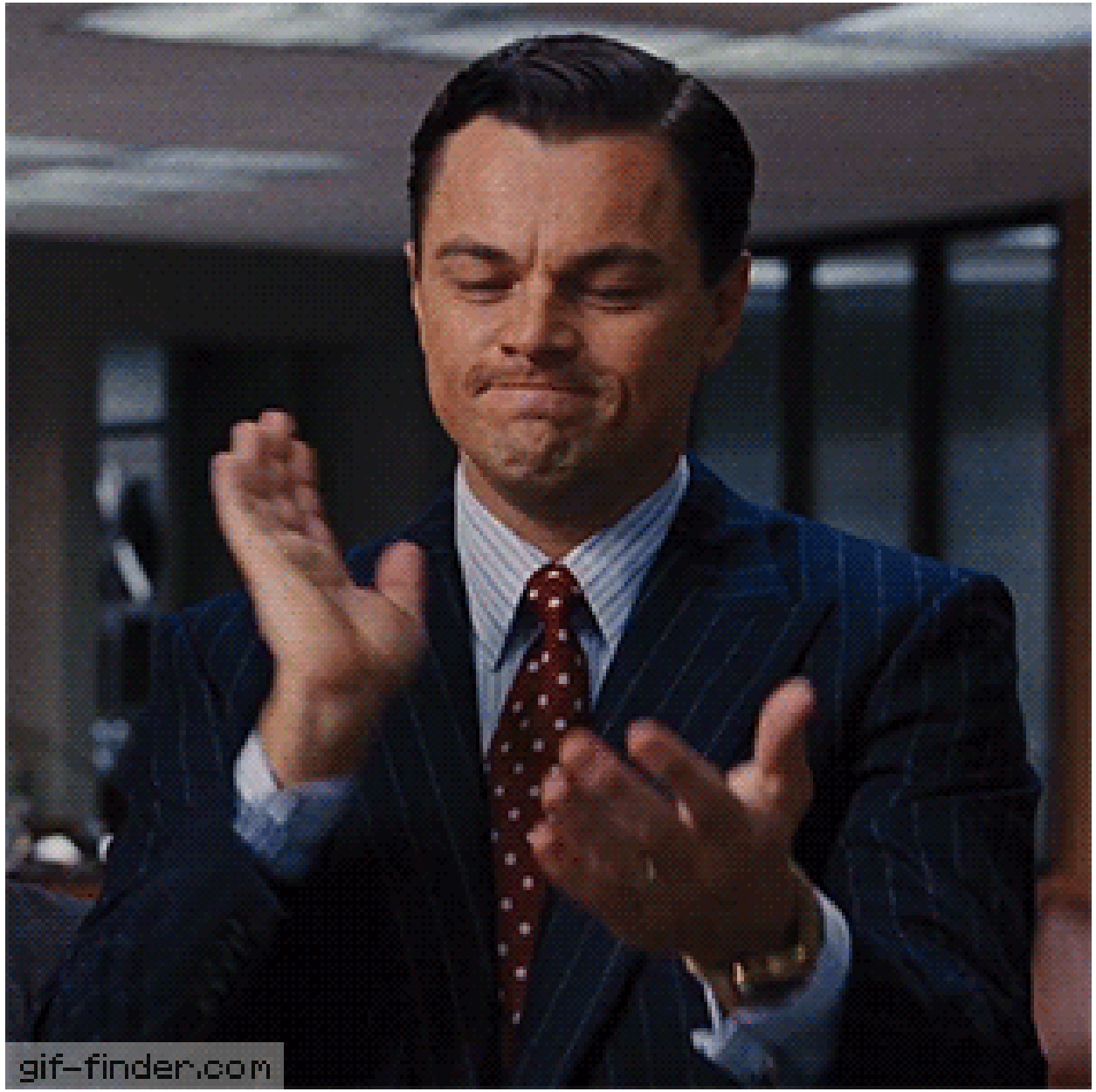
- we've just caused your **bounce rate to increase by 20%**, congrats!



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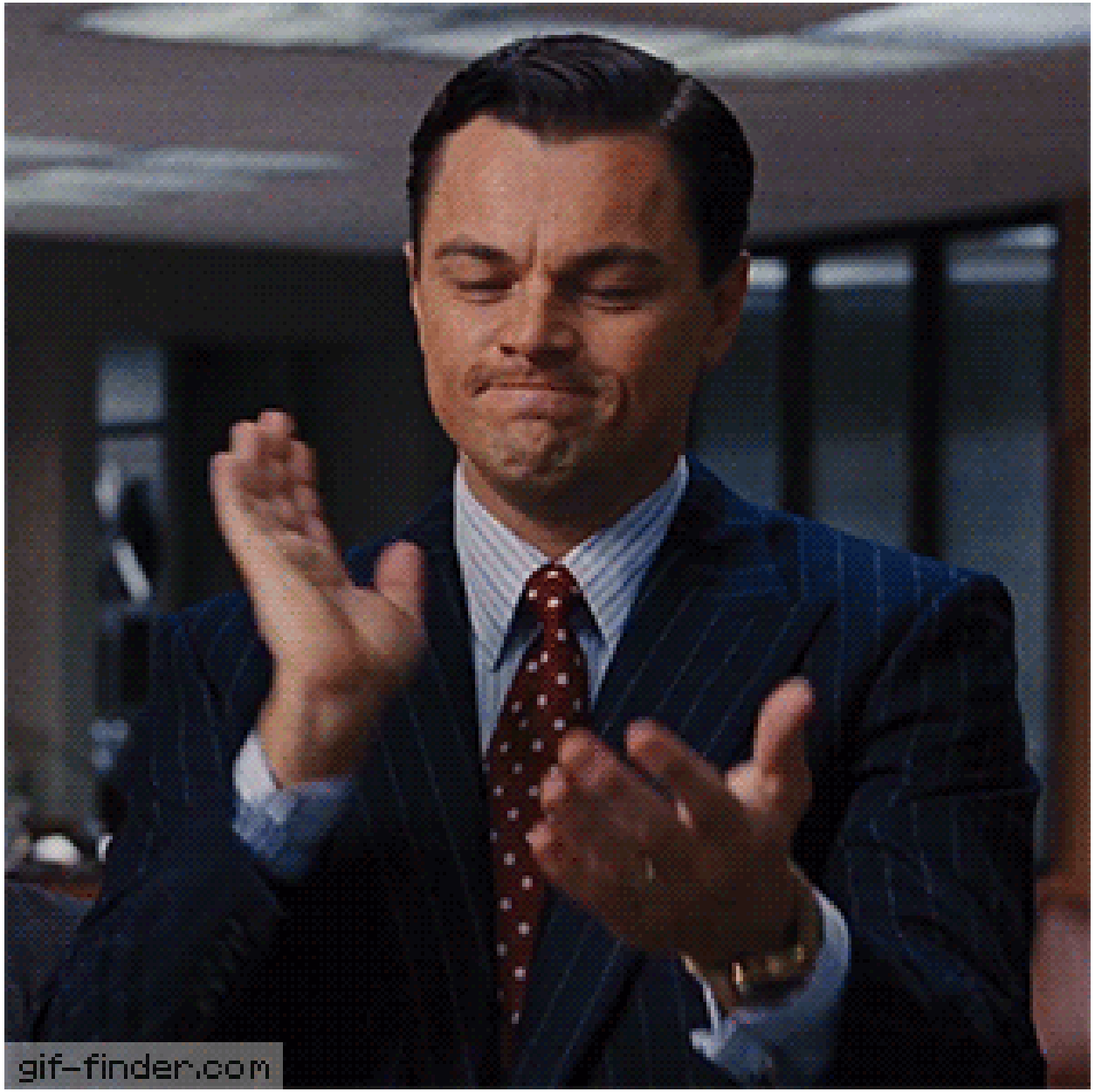

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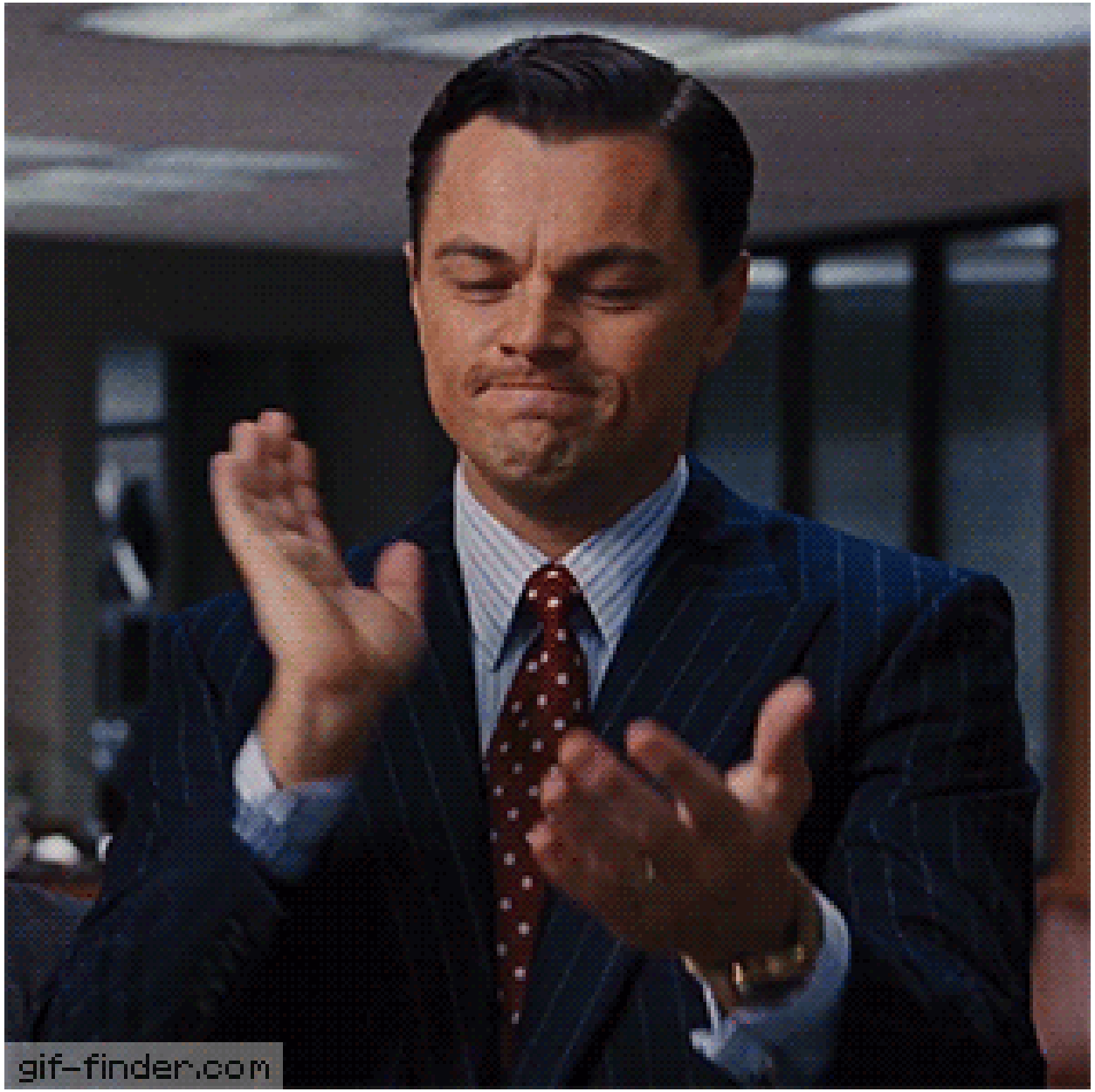
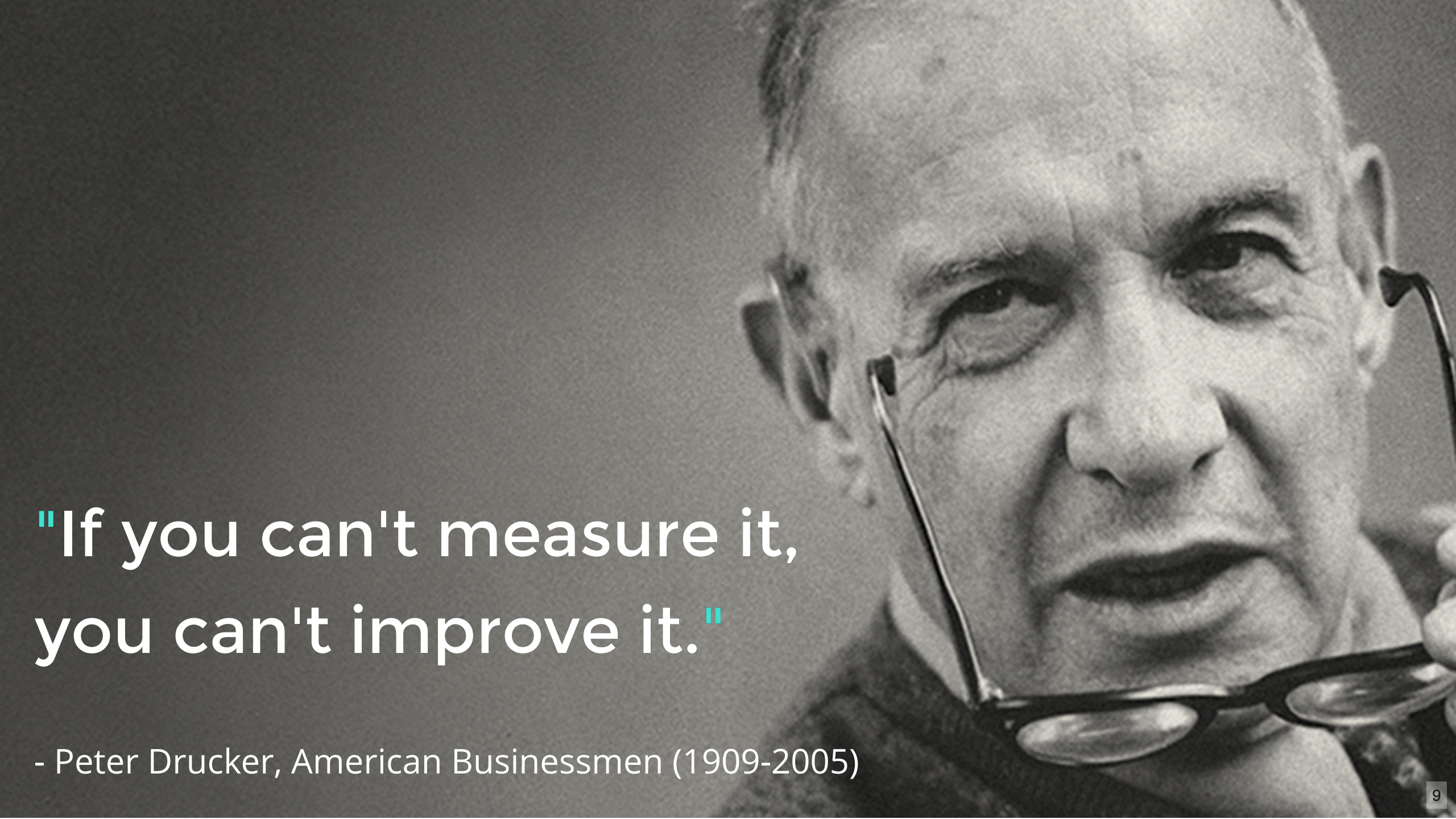
Dear Customer / Stakeholder:

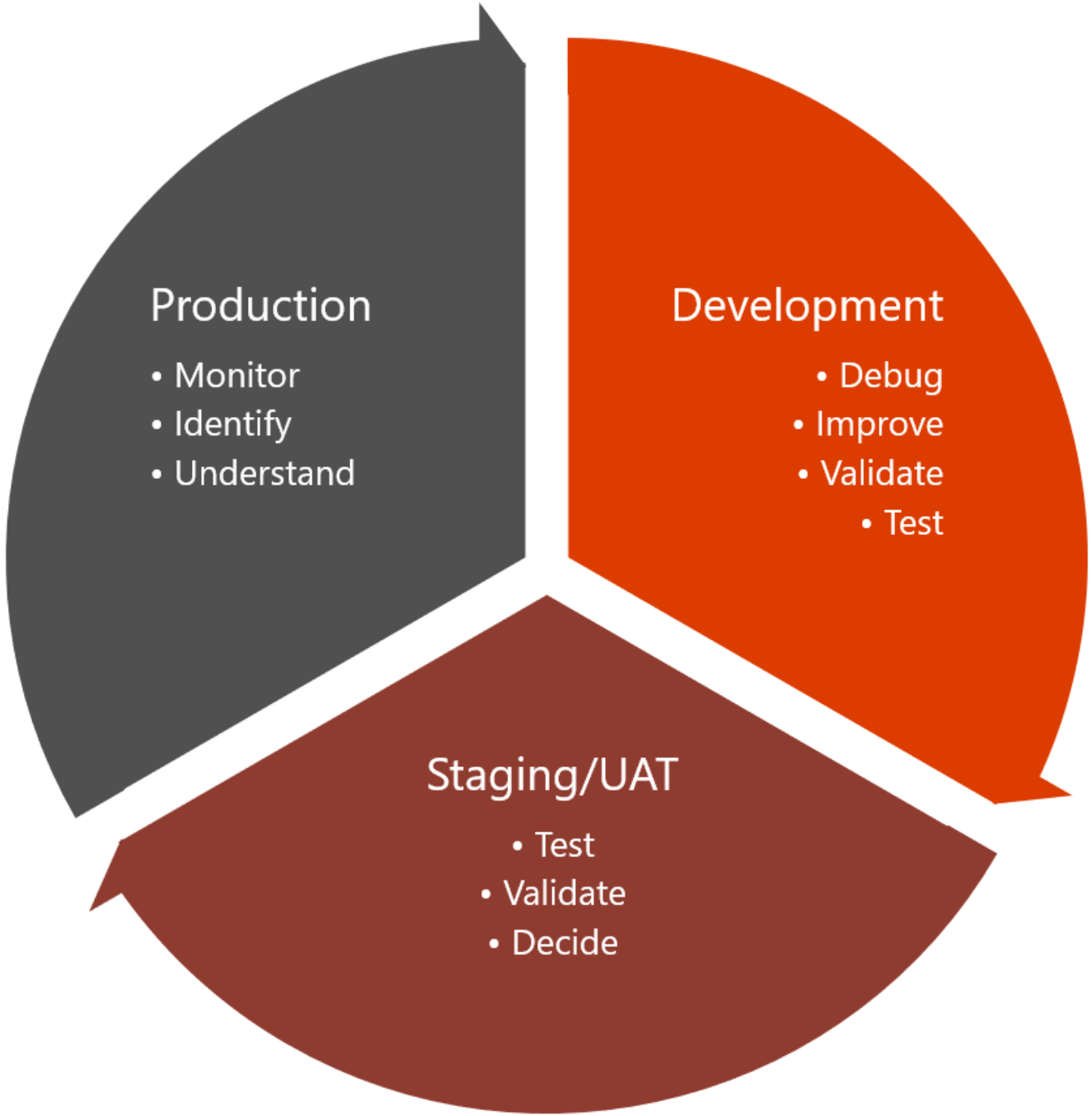
- with the next release, you'll **start losing $350k per month** because of the performance degradation of our newly delivered feature
- we've just caused your **bounce rate to increase by 20%**, congrats!
- **we don't know** if our website will handle this traffic, let's see...
- it must be issue with your machine / browser / {name_it}




"If you can't measure it,
you can't improve it."
- Peter Drucker, American Businessmen (1909-2005)

# Stop guessing.

# Treat performance as feature.


Production
• Monitor
• Identify
• Understand
Development
• Debug
• Improve
• Validate
• Test
Staging/UAT
• Test
• Validate
• Decide

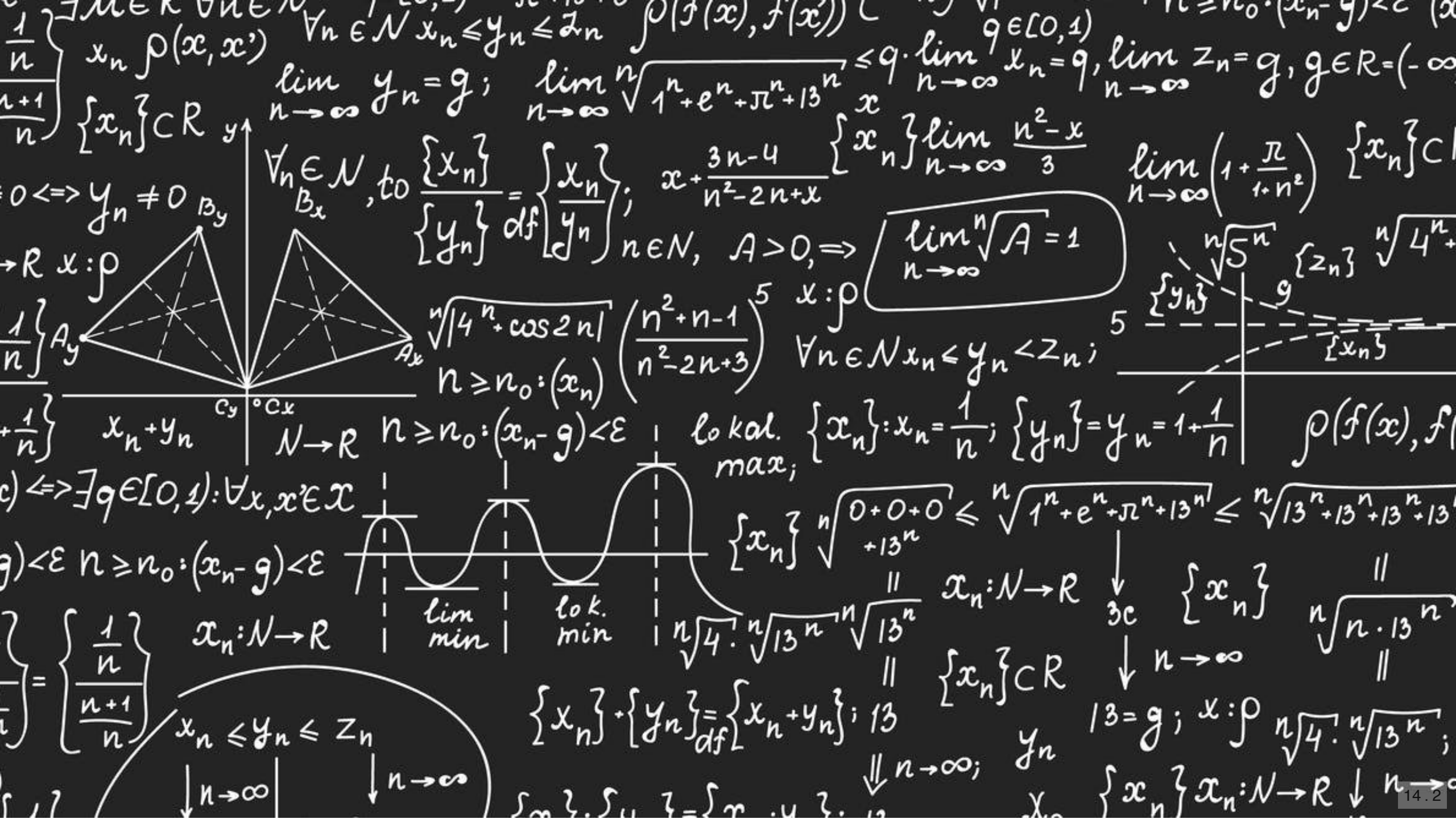
Build.

Measure.

Optimise.

Monitor.

WHY?



$\forall n \in N\ x_n \le y_n \le z_n$
$\lim_{n\to\infty} y_n = g$; $\lim_{n\to\infty} \sqrt[n]{1^n+e^n+\pi^n+13^n} \le q \cdot \lim_{n\to\infty} x_n = q$, $\lim_{n\to\infty} z_n = g$, $g \in R = (-\infty$
$\{x_n\} \subset R$
$\forall n \in N$, to $\frac{\{x_n\}}{\{y_n\}} \underset{df}{=} \left\{\frac{x_n}{y_n}\right\}$; $x + \frac{3n-4}{n^2-2n+x}$
$\{x_n\} \lim_{n\to\infty} \frac{n^2-x}{3}$
$\lim_{n\to\infty}\left(1+\frac{\pi}{1+n^2}\right)$
$\lim_{n\to\infty} \sqrt[n]{A} = 1$
$n \in N$, $A > 0 \Rightarrow$
$\sqrt[n]{|4^n + \cos 2n|}$ $\left(\frac{n^2+n-1}{n^2-2n+3}\right)^5$
$\forall n \in N\ x_n \le y_n < z_n$;
$n \ge n_0 : (x_n)$
$x_n + y_n$
$N \to R$
$n \ge n_0 : (x_n - g) < \varepsilon$
lokal. max;
$\{x_n\} : x_n = \frac{1}{n}$; $\{y_n\} = y_n = 1 + \frac{1}{n}$
$\rho(f(x), f($
$\Leftrightarrow \exists q \in [0,1) : \forall x, x' \in X$
$n \ge n_0 : (x_n - g) < \varepsilon$
lim min
lok. min
$x_n : N \to R$
$\{x_n\}$ $\sqrt[n]{0+0+0+13^n} \le \sqrt[n]{1^n+e^n+\pi^n+13^n} \le \sqrt[n]{13^n+13^n+13^n+13}$
$\sqrt[n]{4} \cdot \sqrt[n]{13^n}$
$\sqrt[n]{13^n}$
$\{x_n\} \subset R$
$\{x_n\} + \{y_n\} \underset{df}{=} \{x_n + y_n\}$; 13
$\Downarrow n \to \infty$;
$x_n : N \to R$
$\{x_n\}$
$3c$
$n \to \infty$
$13 = g$; $x : \rho$
$\sqrt[n]{n \cdot 13^n}$
$\sqrt[n]{4} \cdot \sqrt[n]{13^n}$;
$x_n \le y_n \le z_n$
$n \to \infty$
$\{x_n\}$ $x_n : N \to R$

Jira

THIS IS FINE.

# Solution(s).

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- Be pragmatic and set the correct "focus"

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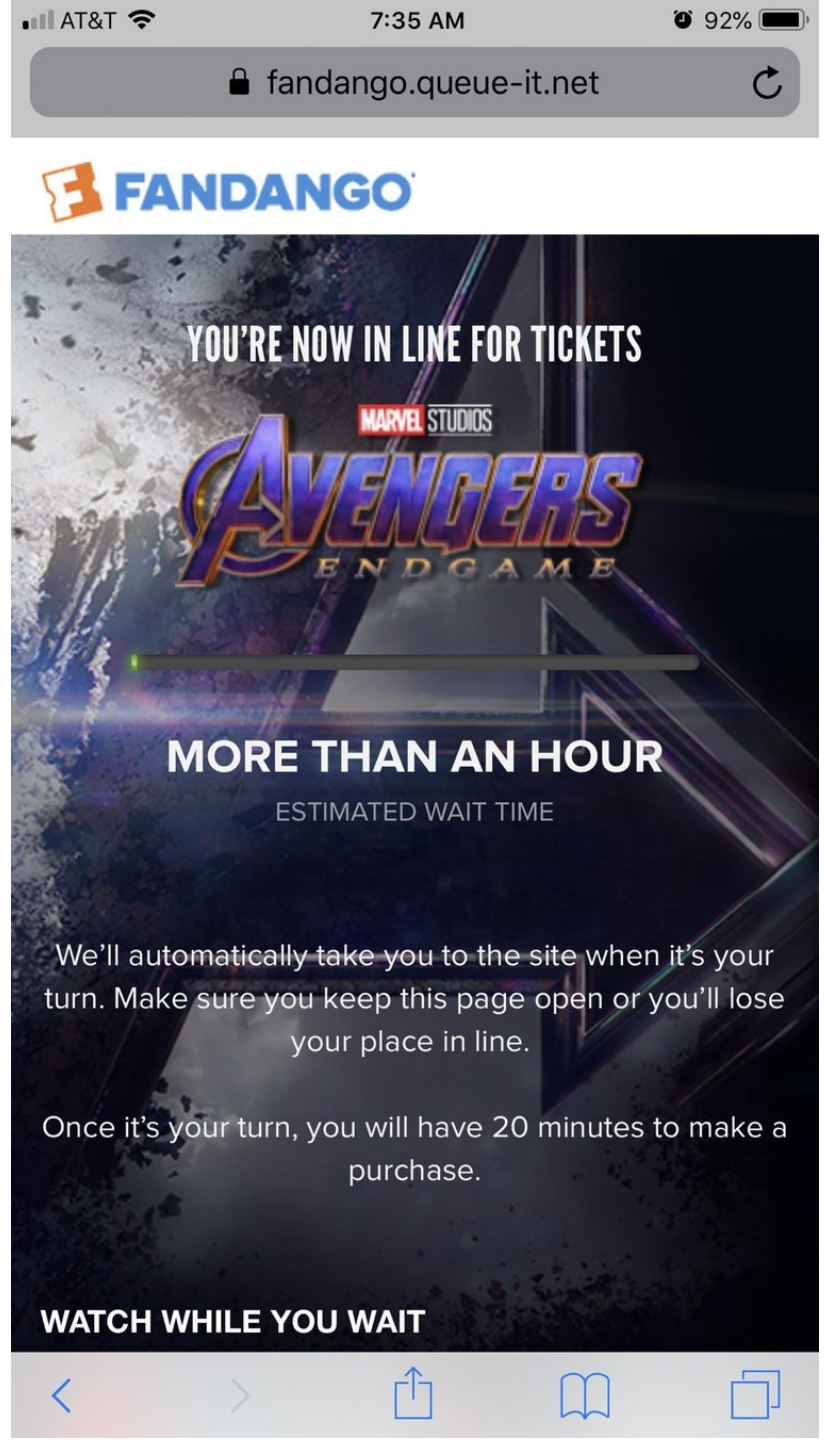
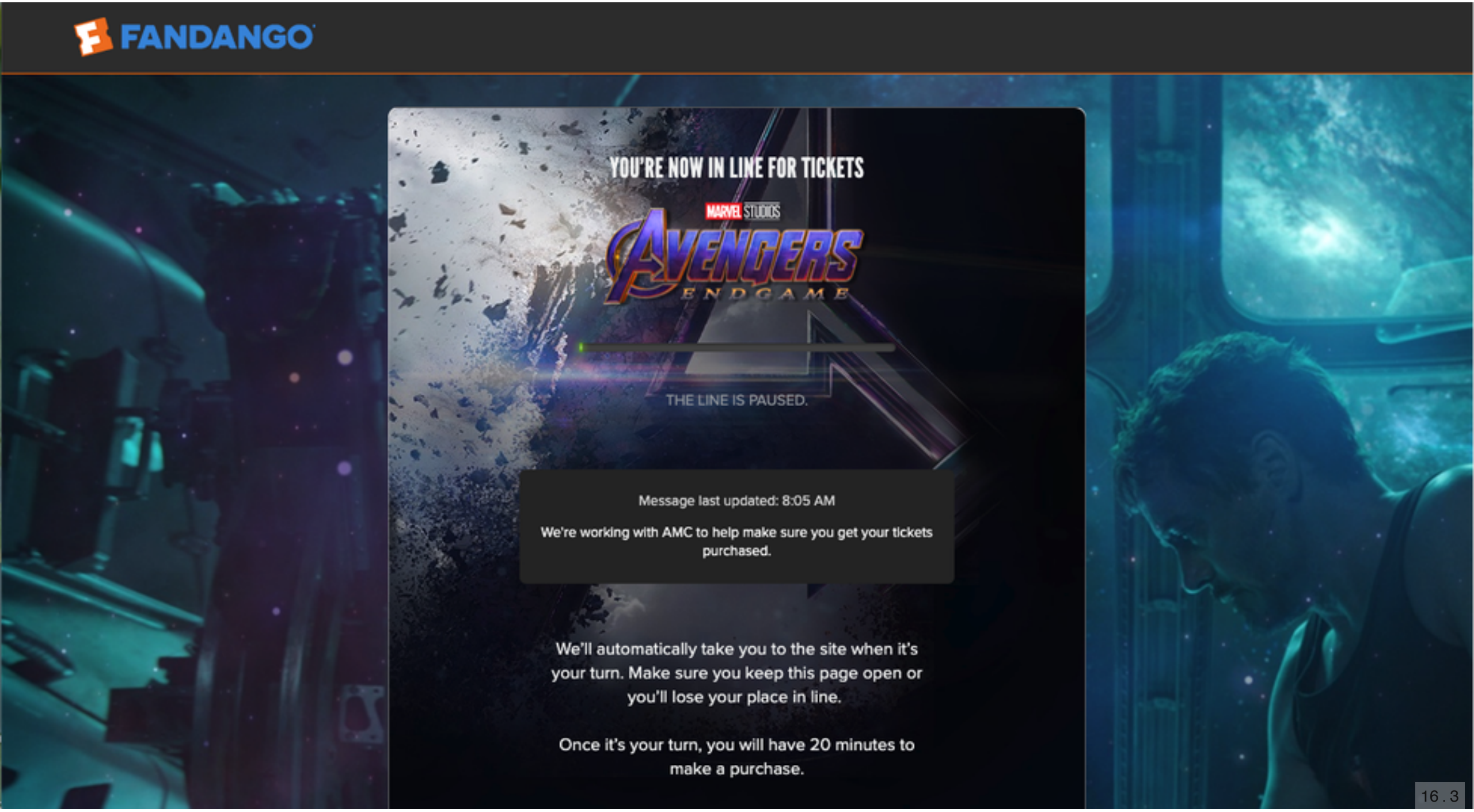
- "Enough"
- Devs vs. Business
- Prevent > Solve (think about it as an insurance and trust fund with your client)


AT&T
7:35 AM
92%
fandango.queue-it.net
FANDANGO
YOU'RE NOW IN LINE FOR TICKETS
MARVEL STUDIOS
AVENGERS
ENDGAME
MORE THAN AN HOUR
ESTIMATED WAIT TIME
We'll automatically take you to the site when it's your turn. Make sure you keep this page open or you'll lose your place in line.
Once it's your turn, you will have 20 minutes to make a purchase.
WATCH WHILE YOU WAIT


FANDANGO
YOU'RE NOW IN LINE FOR TICKETS
MARVEL STUDIOS
AVENGERS
ENDGAME
THE LINE IS PAUSED.
Message last updated: 8:05 AM
We're working with AMC to help make sure you get your tickets purchased.
We'll automatically take you to the site when it's your turn. Make sure you keep this page open or you'll lose your place in line.
Once it's your turn, you will have 20 minutes to make a purchase.

**Joi Childs** @jumpedforjoi · Apr 2, 2019

Replying to @jumpedforjoi

I've gotten as close to selecting seats then...error. I'm so frustrated.

3 3

**Joi Childs** @jumpedforjoi · Apr 2, 2019

The Fandango line is now paused

# Conclusions

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- Be prepared

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- Define performance scenarios / hot paths ahead in time

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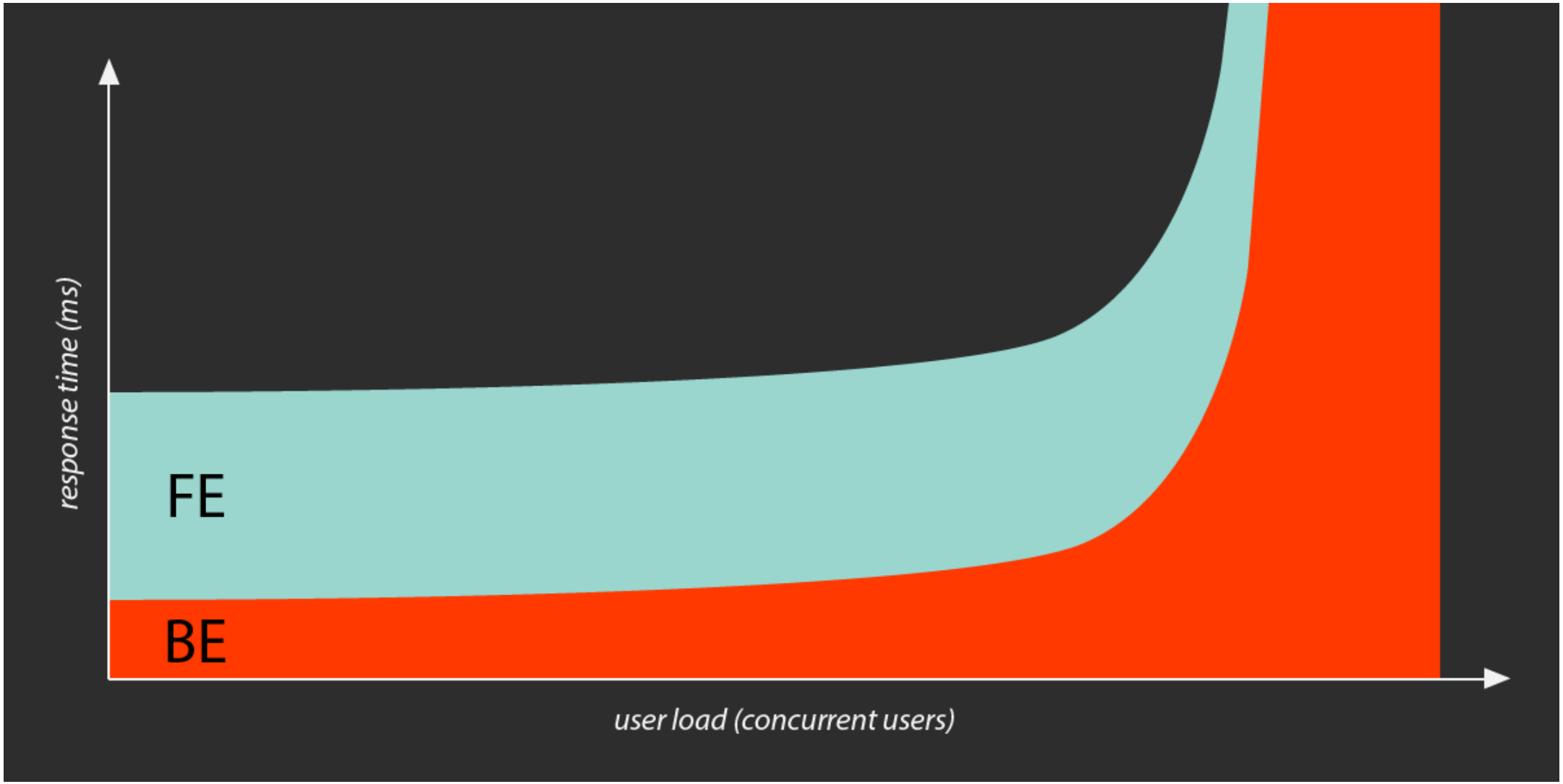
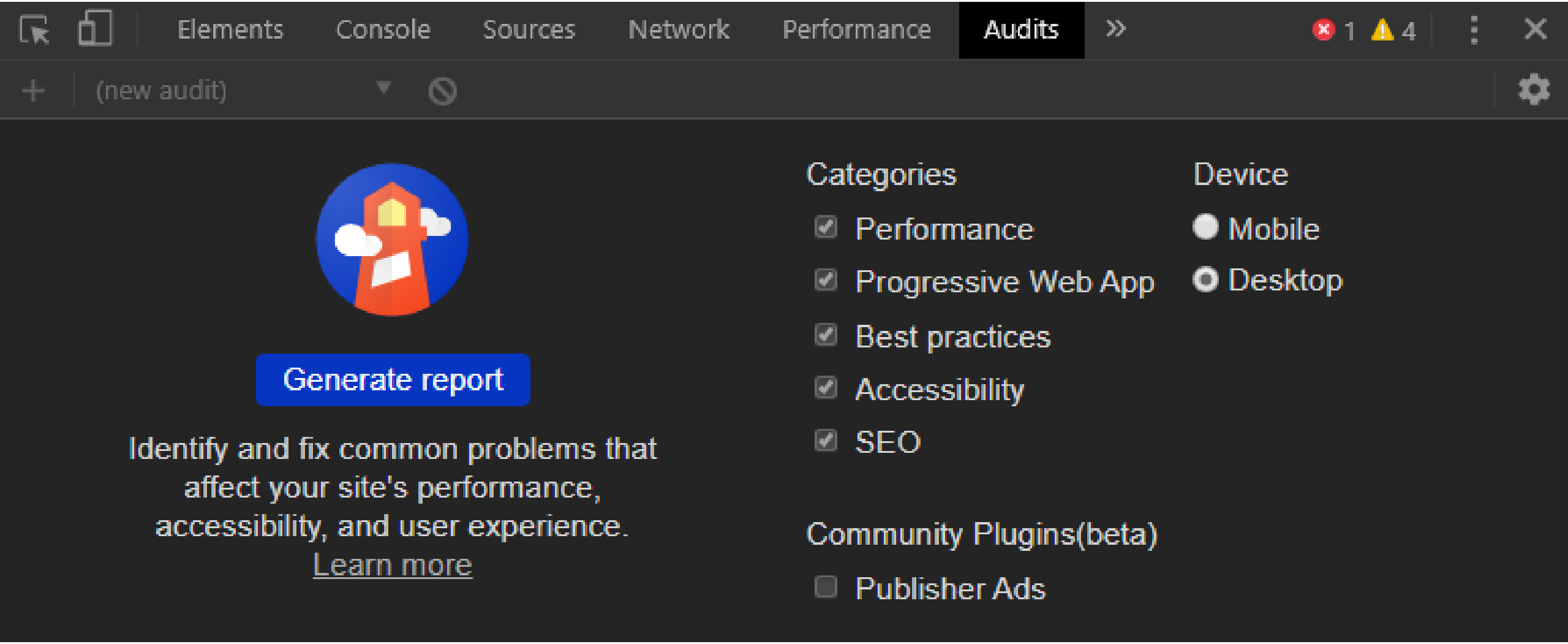
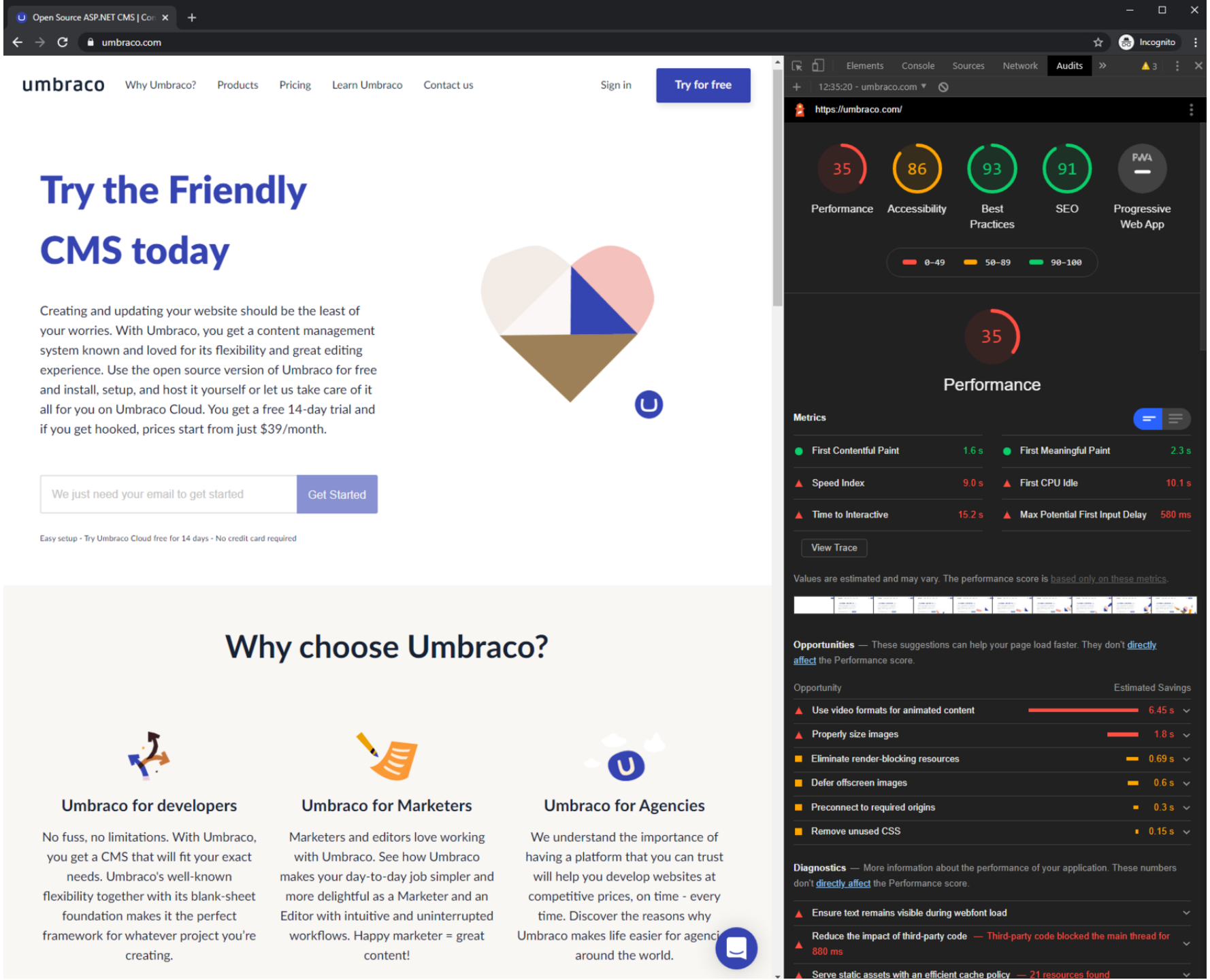
- Be prepared
- Define performance scenarios / hot paths ahead in time
- Test & verify your assumptions

Performance is a feature, not a luxury.

# Start simple.


response time (ms)
FE
BE
user load (concurrent users)


Elements
Console
Sources
Network
Performance
Audits
1
4
(new audit)
Generate report
Identify and fix common problems that affect your site's performance, accessibility, and user experience.
Learn more
Categories
Performance
Progressive Web App
Best practices
Accessibility
SEO
Device
Mobile
Desktop
Community Plugins(beta)
Publisher Ads


Open Source ASP.NET CMS | Con
umbraco.com
Incognito
umbraco
Why Umbraco?
Products
Pricing
Learn Umbraco
Contact us
Sign in
Try for free
Try the Friendly CMS today
Creating and updating your website should be the least of your worries. With Umbraco, you get a content management system known and loved for its flexibility and great editing experience. Use the open source version of Umbraco for free and install, setup, and host it yourself or let us take care of it all for you on Umbraco Cloud. You get a free 14-day trial and if you get hooked, prices start from just $39/month.
We just need your email to get started
Get Started
Easy setup - Try Umbraco Cloud free for 14 days - No credit card required
Why choose Umbraco?
Umbraco for developers
No fuss, no limitations. With Umbraco, you get a CMS that will fit your exact needs. Umbraco's well-known flexibility together with its blank-sheet foundation makes it the perfect framework for whatever project you're creating.
Umbraco for Marketers
Marketers and editors love working with Umbraco. See how Umbraco makes your day-to-day job simpler and more delightful as a Marketer and an Editor with intuitive and uninterrupted workflows. Happy marketer = great content!
Umbraco for Agencies
We understand the importance of having a platform that you can trust will help you develop websites at competitive prices, on time - every time. Discover the reasons why Umbraco makes life easier for agenci around the world.
Elements
Console
Sources
Network
Audits
12:35:20 - umbraco.com
https://umbraco.com/
35
Performance
86
Accessibility
93
Best Practices
91
SEO
PWA
Progressive Web App
0–49
50–89
90–100
35
Performance
Metrics
First Contentful Paint 1.6 s
First Meaningful Paint 2.3 s
Speed Index 9.0 s
First CPU Idle 10.1 s
Time to Interactive 15.2 s
Max Potential First Input Delay 580 ms
View Trace
Values are estimated and may vary. The performance score is based only on these metrics.
Opportunities — These suggestions can help your page load faster. They don't directly affect the Performance score.
Opportunity
Estimated Savings
Use video formats for animated content 6.45 s
Properly size images 1.8 s
Eliminate render-blocking resources 0.69 s
Defer offscreen images 0.6 s
Preconnect to required origins 0.3 s
Remove unused CSS 0.15 s
Diagnostics — More information about the performance of your application. These numbers don't directly affect the Performance score.
Ensure text remains visible during webfont load
Reduce the impact of third-party code — Third-party code blocked the main thread for 880 ms
Serve static assets with an efficient cache policy — 21 resources found

## Metrics

- First Contentful Paint — 2.3 s
  First Contentful Paint marks the time at which the first text or image is painted. Learn more.
- First Meaningful Paint — 2.6 s
  First Meaningful Paint measures when the primary content of a page is visible. Learn more.
- Speed Index — 7.8 s
  Speed Index shows how quickly the contents of a page are visibly populated. Learn more.
- First CPU Idle — 11.0 s
  First CPU Idle marks the first time at which the page's main thread is quiet enough to handle input. Learn more.
- Time to Interactive — 16.1 s
  Time to interactive is the amount of time it takes for the page to become fully interactive. Learn more.
- Max Potential First Input Delay — 730 ms
  The maximum potential First Input Delay that your users could experience is the duration, in milliseconds, of the longest task. Learn more.

View Trace

Default/ModulePage
DESKTOP-IQH6D2I on Thu, 26 Apr 2018 20:47:12 GMT
28.7 ms
duration (ms)
from start (ms)
http://cog0041-0763.local.tcwdigital.co.uk:80...
3.2
+0.0
RazorView.Render: /Areas/cogworks-toolkit-...
6.0
+3.4
[DocTypeGridEditorHelper] ConvertVal...
5.3
+5.0
RazorView.Render: ~/Views/Partials/Share...
2.2
+12.9
RazorView.Render: ~/Views/Partials/Theme...
3.0
+25.0
show time with children
client event
duration (ms)
from start (ms)
Response
4.0
+36.0
Dom Content Loaded Event
102.0
+716.0
Load Event
8.0
+1101.0
Dom Complete
+1101.0
share
show trivial

# Improve your code.

Good performance starts with good code.

Error List

Entire Solution | 53 Errors | 0 of 446 Warnings | 8 Messages | Build + IntelliSense | Search Error List

| Code | Description | Project | File | Line | Supp... |
|---|---|---|---|---|---|
| | File on disk is not included in project | Application.Web | android-icon-48x48.png | 0 | |
| | File on disk is not included in project | Application.Web | android-icon-72x72.png | 0 | |
| | File on disk is not included in project | Application.Web | android-icon-96x96.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-114x114.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-120x120.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-144x144.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-152x152.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-180x180.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-57x57.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-60x60.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-72x72.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-76x76.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon-precomposed.png | 0 | |
| | File on disk is not included in project | Application.Web | apple-icon.png | 0 | |
| | File on disk is not included in project | Application.Web | date.svg | 0 | |
| | File on disk is not included in project | Application.Web | favicon-16x16.png | 0 | |
| | File on disk is not included in project | Application.Web | favicon-32x32.png | 0 | |
| | File on disk is not included in project | Application.Web | favicon-96x96.png | 0 | |
| | File on disk is not included in project | Application.Web | favicon.ico | 0 | |
| | File on disk is not included in project | Application.Web | location.svg | 0 | |
| | File on disk is not included in project | Application.Web | ms-icon-144x144.png | 0 | |
| | File on disk is not included in project | Application.Web | ms-icon-150x150.png | 0 | |
| | File on disk is not included in project | Application.Web | ms-icon-310x310.png | 0 | |
| | File on disk is not included in project | Application.Web | ms-icon-70x70.png | 0 | |
| | File on disk is not included in project | Application.Web | rm-bars.svg | 0 | |
| | File on disk is not included in project | Application.Web | T4MVC.tt.hooks.t4 | 0 | |
| CA1062 | In externally visible method 'SchemaBuilder.SchemaBuilder(IContentHelper contentHelper)', validate parameter 'contentHelper' is non-null before using it. If appropriate, throw an ArgumentNullException when the argument is null or add a Code Contract precondition asserting non-null argument. | Application.Core | SchemaBuilder.cs | 27 | Active |
| CA1062 | In externally visible method 'string AdvertHelper.GetAdvertItemContentPagesPropertyTypeAlias(IContent content)', validate parameter 'content' is non-null before using it. If appropriate, throw an ArgumentNullException when the argument is null or add a Code Contract precondition asserting non-null argument. | Application.Core | AdvertHelper.cs | 22 | Active |
| CA1822 | Member GetCountryCode does not access instance data and can be marked as static (Shared in VisualBasic) | Application.Core | SchemaBuilder.cs | 200 | Active |
| CA1822 | Member GetImage does not access instance data and can be marked as static (Shared in VisualBasic) | Application.Core | SchemaBuilder.cs | 259 | Active |
| CA1822 | Member GetVenue does not access instance data and can be marked as static (Shared in VisualBasic) | Application.Core | SchemaBuilder.cs | 205 | Active |
| CA1801 | Parameter peopleProfile of method GetSocialMediaUrlsAsArray is never used. Remove the parameter or use it in the method body. | Application.Core | SchemaBuilder.cs | 164 | Active |
| CA1305 | The behavior of 'int.ToString()' could vary based on the current user's locale settings. Replace this call in 'EventSearchEvents.AddSortOrderField(IndexingNodeDataEventArgs, IPublishedContent)' with a call to 'int.ToString(IFormatProvider)'. | Application.Core | EventSearchEvents.cs | 53 | Active |
| CA1307 | The behavior of 'string.StartsWith(string)' could vary based on the current user's locale settings. Replace this call in 'Application.Core.Extensions.HtmlHelperExtensions.GetCachableUrl(string)' with a call to 'string.StartsWith(string, System.StringComparison)'. | Application.Core | HtmlHelperExtensions.cs | 27 | Active |
| CA1307 | The behavior of 'string.StartsWith(string)' could vary based on the current user's locale settings. Replace this call in 'Application.Core.Extensions.HtmlHelperExtensions.GetCachableUrl(string)' with a call to 'string.StartsWith(string, System.StringComparison)'. | Application.Core | HtmlHelperExtensions.cs | 27 | Active |
| CS8019 | Unnecessary using directive. | Application.Core | HtmlHelperExtensions.cs | 4 | Active |

# Our solution

# Our solution

- Ryslyn Analyser (FxCopAnalyzers)

# Our solution

- Ryslyn Analyser (FxCopAnalyzers)
- StyleCopAnalyzers

# Our solution

- Ryslyn Analyser (FxCopAnalyzers)
- StyleCopAnalyzers
- EditorConfig

In csproj:

```
<Import Project="..\editorconfig.props" Condition="Exists('..\editorconfig.props')" />
```

Props file:

```
<Project DefaultTargets="Build" xmlns="http://schemas.microsoft.com/developer/msbuild/2003">
  <PropertyGroup>
    <SkipDefaultEditorConfigAsAdditionalFile>true</SkipDefaultEditorConfigAsAdditionalFile>
  </PropertyGroup>
  <ItemGroup Condition="Exists('.editorconfig')" >
    <AdditionalFiles Include=".editorconfig" />
  </ItemGroup>
</Project>
```

Add *.ruleset and stylecop.json to csproj as fallowing:

```
<PropertyGroup>
    <CodeAnalysisRuleSet>$(SolutionDir)\cogworks.ruleset</CodeAnalysisRuleSet>
    <Features>IOperation</Features>
    <NoWarn>
    </NoWarn>
</PropertyGroup>
<ItemGroup>
    <AdditionalFiles Include="$(SolutionDir)\stylecop.json" Link="stylecop.json" />
</ItemGroup>
```

thecogworks / **cog-codestyle-be-standards** Private

Unwatch 4 | Star 0 | Fork 0

Code | Issues 0 | Pull requests 0 | Actions | Projects 0 | Wiki | Security | Insights | Settings

Branch: develop | **cog-codestyle-be-standards** / src / **configs** / | Create new file | Upload files | Find file | History

This branch is 8 commits ahead of master. | Pull request | Compare

**aochmann** fix: fixed issue with wrong including props to csproj — Latest commit `d9cac0b` 20 days ago

..

| | | |
|---|---|---|
| .editorconfig | feat: updated editorconfig | 28 days ago |
| cogworks.ruleset | feat: added code style configurations | last month |
| stylecop.json | feat: added code style configurations | last month |

```
@if (futureEvents.Any())
{
    <!-- == fu
    <h2 class=
    <ul id="future-events" class="events-list">
        @foreach (var ev in futureEvents)
        {
            <!-- event -->
            <li>...</li>
            <!-- /event -->
        }
    </ul>
    <!-- /events list -->
}
```

(local variable) IEnumerable<Event> futureEvents

Possible multiple enumeration of IEnumerable

Editor

# Heap Allocations Viewer

★★★★★

Alexander Shvedov

Overview Versions

Highlights local object allocations, boxing, delegates and closure creations points.

```
@foreach (var ev in futureEvents)
{
    <!-- event -->
    <li>
        <!-- Left -->
        <div class="left-event-block">
            <div class="date-event">
                <div class="day-event">@ev.DAte.Day</div>
                <div class="month-year-event">
                    <div class="month-event">@ev.D
                    <div class="year-event">@ev.DA
                </div>
            </div>
```

int DateTime.Day { get; }
Gets the day of the month represented by this instance.

Boxing allocation: conversion from value type 'int' to reference type 'object'

ZERO ALLOC ALL THE THINGS!

**Nick Craver** ✓
@Nick_Craver

Following

A daily screenshot from the Stack Overflow codebase (checking strings for tokens without allocations). #StackCode

```
/// <summary>
/// Checks whether the *entire* token exists, correctly handing separators
/// (optional at start and end) so: "Foo;Bar" contains "Bar", but
/// "Foo;FooBar;Whatever" does not
/// </summary>
9 references | Marc Gravell, Less than 5 minutes ago | 2 authors, 2 changes
public static bool ContainsToken(string value, string token, char delimiter = ';')
{
    if (string.IsNullOrEmpty(token)) return false;
    if (string.IsNullOrEmpty(value)) return false;

    int lastIndex = -1, idx, endIndex = value.Length - token.Length, tokenLength = token.Length;
    while ((idx = value.IndexOf(token, lastIndex + 1)) > lastIndex)
    {
        lastIndex = idx;
        if ((idx == 0 || (value[idx - 1] == delimiter))
            && (idx == endIndex || (value[idx + tokenLength] == delimiter)))
        {
            return true;
        }
    }
    return false;
}
```

12:58 PM - 20 Apr 2016

**7** Retweets **26** Likes

5 7 26

dotnet / csharplang

Watch 477 Star 2,694 Fork 265

Code Issues 994 Pull requests 9 Projects 1 Wiki Insights

# Feature suggestion: zero-allocation "params" via Span<T> / ReadOnlySpan<T> #535

New issue

Open **mgravell** opened this issue on 4 May 2017 · 51 comments

**mgravell** commented on 4 May 2017 • edited

This is broadly related to #178 and #179

C# has the `params` keyword that allows convenient varadic signatures, for example:

```
var tokens = line.Split(',',':');
```

Here, the signature is `string[] string.Split(params char[] separator)`.

This usage is awkward because the compiler emits a `new char[]` every time it is invoked; this *might* be GEN-0 collected if you get lucky, but it still has overhead.

**Assignees**

No one assigned

**Labels**

None yet

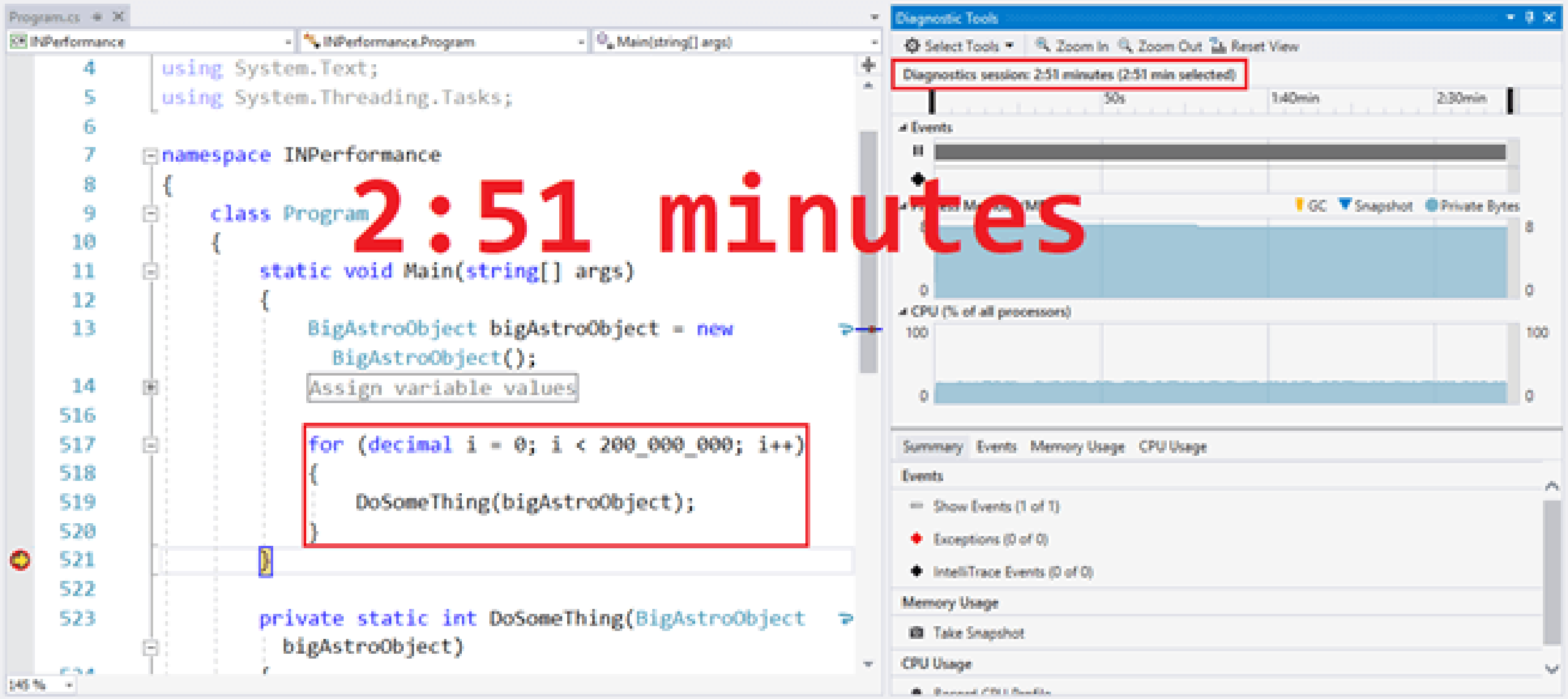
**Projects**

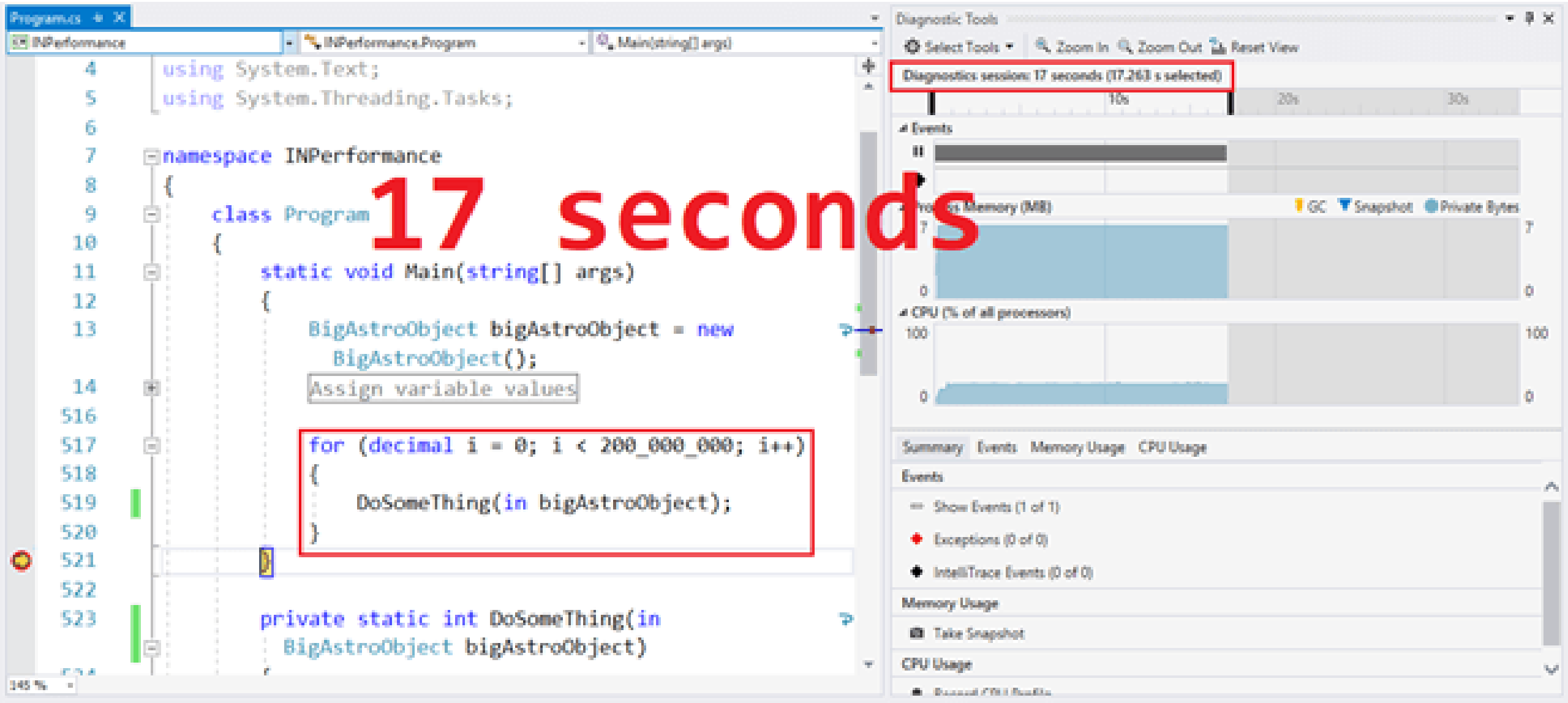
None yet

**Milestone**

No milestone

struct, in, ref, Span<T>...


Program.cs
INPerformance
INPerformance.Program
Main(string[] args)
using System.Text;
using System.Threading.Tasks;
namespace INPerformance
{
class Program
{
static void Main(string[] args)
{
BigAstroObject bigAstroObject = new
BigAstroObject();
Assign variable values
for (decimal i = 0; i < 200_000_000; i++)
{
DoSomeThing(bigAstroObject);
}
}
private static int DoSomeThing(BigAstroObject
bigAstroObject)
2:51 minutes
Diagnostic Tools
Select Tools
Zoom In
Zoom Out
Reset View
Diagnostics session: 2:51 minutes (2:51 min selected)
50s
1:40min
2:30min
Events
GC
Snapshot
Private Bytes
CPU (% of all processors)
100
0
Summary
Events
Memory Usage
CPU Usage
Show Events (1 of 1)
Exceptions (0 of 0)
IntelliTrace Events (0 of 0)
Take Snapshot


Program.cs
INPerformance
INPerformance.Program
Main(string[] args)
using System.Text;
using System.Threading.Tasks;
namespace INPerformance
{
class Program
{
static void Main(string[] args)
{
BigAstroObject bigAstroObject = new
BigAstroObject();
Assign variable values
for (decimal i = 0; i < 200_000_000; i++)
{
DoSomeThing(in bigAstroObject);
}
}
private static int DoSomeThing(in
BigAstroObject bigAstroObject)
17 seconds
Diagnostic Tools
Select Tools
Zoom In
Zoom Out
Reset View
Diagnostics session: 17 seconds (17.263 s selected)
10s
20s
30s
Events
GC
Snapshot
Private Bytes
CPU (% of all processors)
Summary
Events
Memory Usage
CPU Usage
Show Events (1 of 1)
Exceptions (0 of 0)
IntelliTrace Events (0 of 0)
Take Snapshot
145 %

# Measure.

# Go deeper.

# APM

# Changes to load test functionality in Visual Studio and cloud load testing in Azure DevOps

01/18/2019 • 4 minutes to read • +3

**Azure Test Plans**

Web performance and load test functionality in Visual Studio is deprecated. Visual Studio 2019 will be the last version of Visual Studio containing web performance and load test features (more details).

Cloud load testing (CLT) functionality in Azure DevOps is deprecated. The changes to cloud load testing functionality in Azure DevOps include all entry points for the load testing service:

Search your environment...

Last 7 days

1

## Quick overview

### Problems

1/313

### Hosts

1/31

### Web checks

All fine 12

### Applications

All fine 21

### Services

All fine 115

### Databases

All fine 10

### Smartscape

204 Processes

## Cloud & infrastructure

### AWS account

demo environment

| 1 | 1 | 12 |
|---|---|---|
| RDS instances | Load balancers | EC2 instances |

### VMware vCenter

emea-gdn-vc002

| | Last Mon | Today | |
|---|---|---|---|
| Migrations | 2 | 2 – | 2 ESXi hosts |
| Guests | 11 | 11 – | |

### Database

easyTravelBusiness (Derby Client)

| 112 /min | 845 /min | 1 ms |
|---|---|---|
| Transactions | Statements | Response time |

### Docker

3 Docker hosts

| | last Mon | now |
|---|---|---|
| Containers | 24 | 24 |
| Images | 5 | 5 |

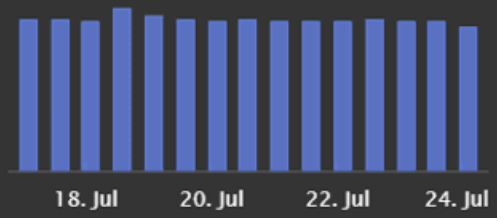
## Application health

### Action duration

www.easytravel.com

### Services

| 104 | 1 | 6 |
|---|---|---|
| Web | Messaging | RMI/Custom |

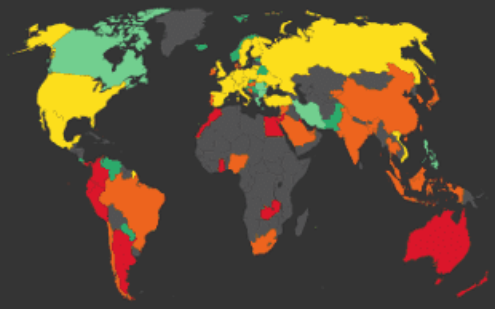



| | |
|---|---|
| Monitored requests | 22.3k/min |
| Calls to Internet | 5/min |
| Calls to unmonitored hosts | 0/min |

## User experience

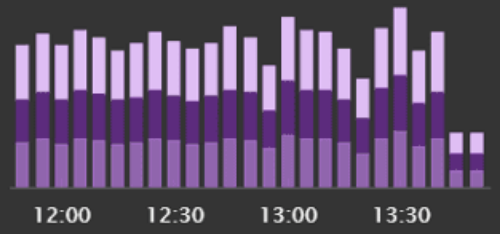
### Apdex

www.easytravel.com

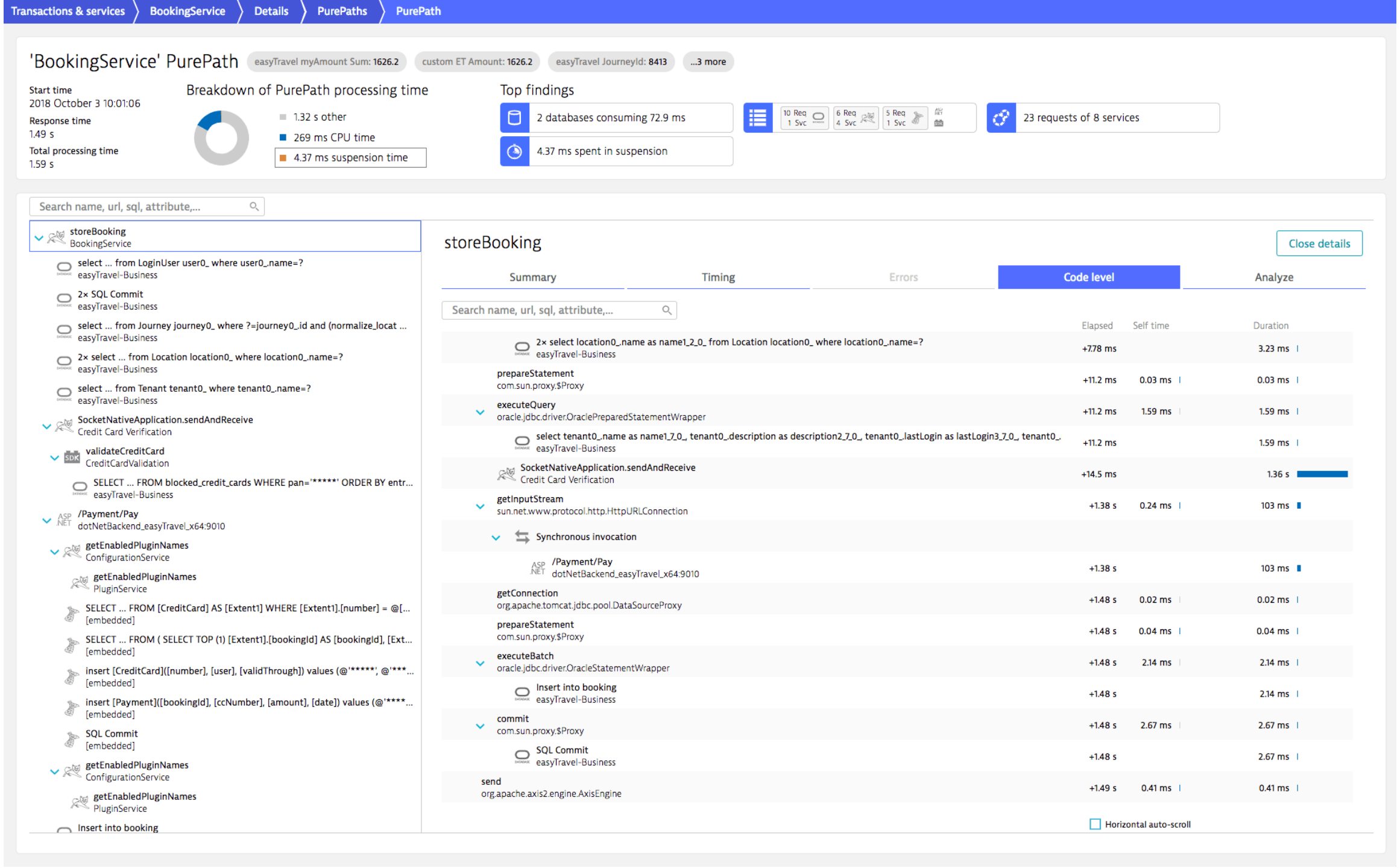


### Most used 3rd party providers

www.easytravel.com



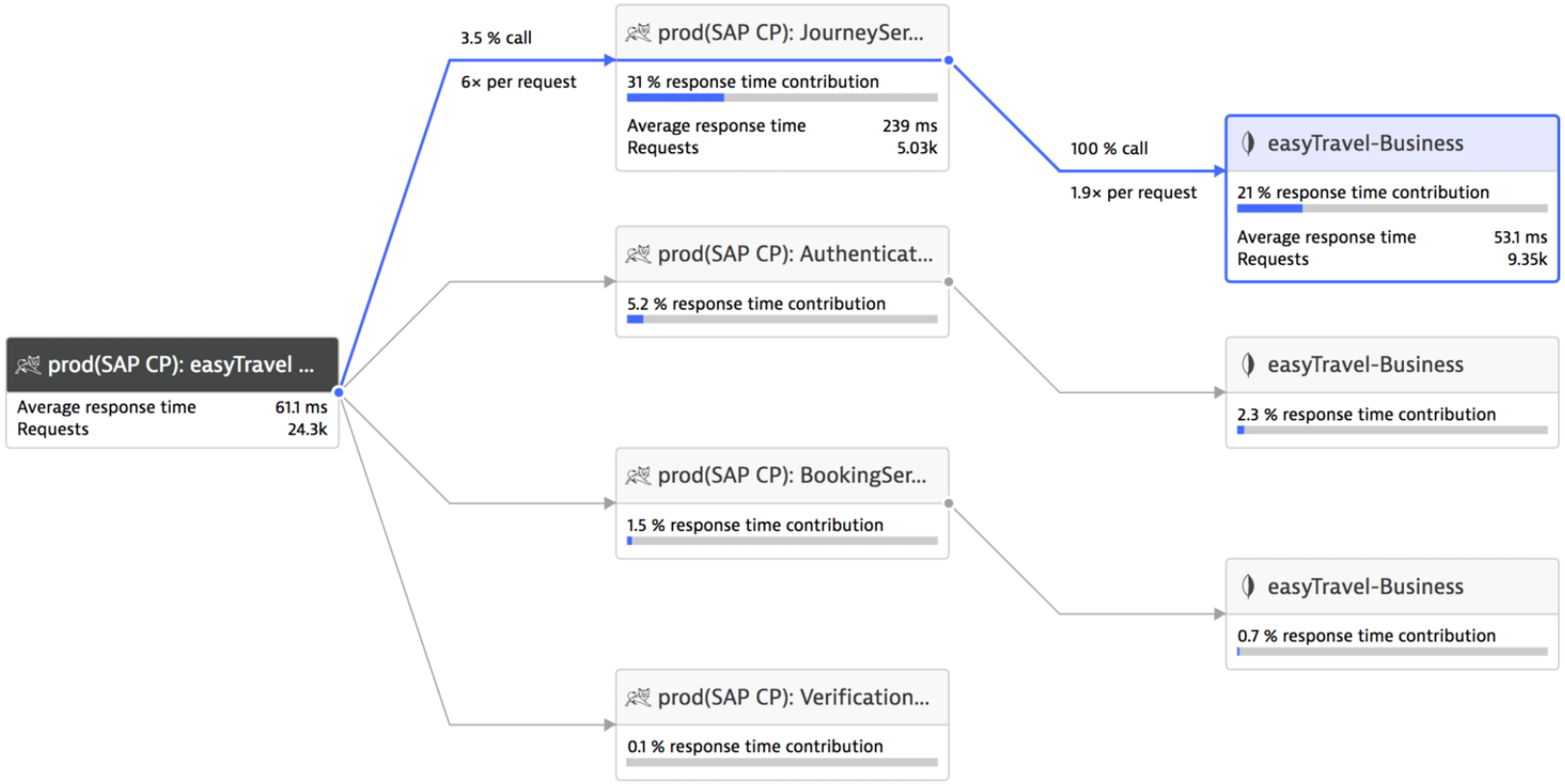

| | |
|---|---|
| cfapps.io | 88.9 /min |
| dynatrace.com | 74.1 /min |
| google.com | 73.4 /min |


Transactions & services
BookingService
Details
PurePaths
PurePath
'BookingService' PurePath
easyTravel myAmount Sum: 1626.2
custom ET Amount: 1626.2
easyTravel JourneyId: 8413
...3 more
Start time
2018 October 3 10:01:06
Response time
1.49 s
Total processing time
1.59 s
Breakdown of PurePath processing time
1.32 s other
269 ms CPU time
4.37 ms suspension time
Top findings
2 databases consuming 72.9 ms
10 Req 1 Svc
6 Req 4 Svc
5 Req 1 Svc
23 requests of 8 services
4.37 ms spent in suspension
Search name, url, sql, attribute,...
storeBooking
BookingService
select ... from LoginUser user0_ where user0_.name=?
easyTravel-Business
2× SQL Commit
easyTravel-Business
select ... from Journey journey0_ where ?=journey0_.id and (normalize_locat ...
easyTravel-Business
2× select ... from Location location0_ where location0_.name=?
easyTravel-Business
select ... from Tenant tenant0_ where tenant0_.name=?
easyTravel-Business
SocketNativeApplication.sendAndReceive
Credit Card Verification
validateCreditCard
CreditCardValidation
SELECT ... FROM blocked_credit_cards WHERE pan='*****' ORDER BY entr...
easyTravel-Business
/Payment/Pay
dotNetBackend_easyTravel_x64:9010
getEnabledPluginNames
ConfigurationService
getEnabledPluginNames
PluginService
SELECT ... FROM [CreditCard] AS [Extent1] WHERE [Extent1].[number] = @[...
[embedded]
SELECT ... FROM ( SELECT TOP (1) [Extent1].[bookingId] AS [bookingId], [Ext...
[embedded]
insert [CreditCard]([number], [user], [validThrough]) values (@'*****', @'***...
[embedded]
insert [Payment]([bookingId], [ccNumber], [amount], [date]) values (@'****...
[embedded]
SQL Commit
[embedded]
getEnabledPluginNames
ConfigurationService
getEnabledPluginNames
PluginService
Insert into booking
storeBooking
Close details
Summary
Timing
Errors
Code level
Analyze
Search name, url, sql, attribute,...
Elapsed
Self time
Duration
2× select location0_.name as name1_2_0_ from Location location0_ where location0_.name=?
easyTravel-Business
+7.78 ms
3.23 ms
prepareStatement
com.sun.proxy.$Proxy
+11.2 ms
0.03 ms
0.03 ms
executeQuery
oracle.jdbc.driver.OraclePreparedStatementWrapper
+11.2 ms
1.59 ms
1.59 ms
select tenant0_.name as name1_7_0_, tenant0_.description as description2_7_0_, tenant0_.lastLogin as lastLogin3_7_0_, tenant0_.
easyTravel-Business
+11.2 ms
1.59 ms
SocketNativeApplication.sendAndReceive
Credit Card Verification
+14.5 ms
1.36 s
getInputStream
sun.net.www.protocol.http.HttpURLConnection
+1.38 s
0.24 ms
103 ms
Synchronous invocation
/Payment/Pay
dotNetBackend_easyTravel_x64:9010
+1.38 s
103 ms
getConnection
org.apache.tomcat.jdbc.pool.DataSourceProxy
+1.48 s
0.02 ms
0.02 ms
prepareStatement
com.sun.proxy.$Proxy
+1.48 s
0.04 ms
0.04 ms
executeBatch
oracle.jdbc.driver.OracleStatementWrapper
+1.48 s
2.14 ms
2.14 ms
Insert into booking
easyTravel-Business
+1.48 s
2.14 ms
commit
com.sun.proxy.$Proxy
+1.48 s
2.67 ms
2.67 ms
SQL Commit
easyTravel-Business
+1.48 s
2.67 ms
send
org.apache.axis2.engine.AxisEngine
+1.49 s
0.41 ms
0.41 ms
Horizontal auto-scroll

# Showing service flow of requests to 'prod(SAP CP): easyTravel Customer Frontend - tomcat easytravel-frontend'

Today, 13:49 - 15:49 (2 Hours) | Apply

Add filter




## prod(SAP CP): easyTravel Customer Frontend - tomcat easytravel-frontend

Requests 828 of 24.3k
Failed requests 0 of 24.3k

Filter service flow to show only those transactions that contain the current call chain

Filter service flow

See every single request in PurePath view

View PurePaths

show more

prod(SAP CP): JourneyService - tomcat easytravel-backend

## easyTravel-Business

Requests calling easyTravel-Business via 1 other service

Avg. response time 53.1 ms
Avg. time spent in called services 0 ms
Requests 9.35k
Failed requests 0

See every single request in PurePath view

View PurePaths

show more

# Database statements 14:56 - 15:26

Sort by response time

**select** comment_id **from** wp_et_commentmeta **where** meta_key = '******' **and** meta_value < '******' — 0.03 /min — 195 ms

| Current | |
|---|---|
| Executions | 0.03 /min |
| Total time | 6.5 ms/min |
| Response time | 195 ms |
| Slowest 10 % | 195 ms |
| Rows returned / execution | 0 |
| Fetches / execution | 1 |
| Failure rate | 0 % |

| Called by | |
|---|---|
| EasyTravelWebserver:8079 | 0.03 /min |

**select** post_id **from** wp_et_postmeta **where** meta_key = '******' **and** meta_value < '******' — 0.03 /min — 68.8 ms

**select** COUNT(NULLIF(`meta_value` **like** '%"administrator"%', **false**)), COUNT(NULLIF(`meta_value` **like** '%"editor"%', **false**)), COUNT(NULLIF(`meta_value` **like** '%"author"%', **false**)), COUNT(NULLIF(`meta_value` **like** '%"contributor"%', **false**)), COUNT(NULLIF(`meta_value` **like** '%"subscriber"%', **false**)), COUNT(*) **from** wp_et_usermeta **where** meta_key = '******' — 0.07 /min — 52.9 ms

**select** option_value **from** wp_et_options **where** option_name = '******' **limit** 1 — 135 /min — 3.02 ms

**select** post_id, meta_key, meta_value **from** wp_et_postmeta **where** post_id **in** ('******') — 73.9 /min — 2.53 ms

**select** wp_et_posts.* **from** wp_et_posts **where** '******'='******' **and** wp_et_posts.post_parent = '******' **and** (wp_et_posts.post_mime_type = '******' **or** wp_et_posts.post_mime_type = '******' **or** wp_et_posts.post_mime_type = '******' **or** wp_et_posts.post_mime_type = '******') **and** wp_et_posts.post_type = '******' **and** (wp_et_posts.post_status = '******') **order by** wp_et_posts.menu_order ASC — 35.2 /min — 2.5 ms

**select** SQL_CALC_FOUND_ROWS wp_et_posts.ID **from** wp_et_posts **where** '******'='******' **and** wp_et_posts.post_type = '******' **and** (wp_et_posts.post_status = '******') **order by** RAND() DESC **limit** 0, 1 — 14.1 /min — 2.25 ms

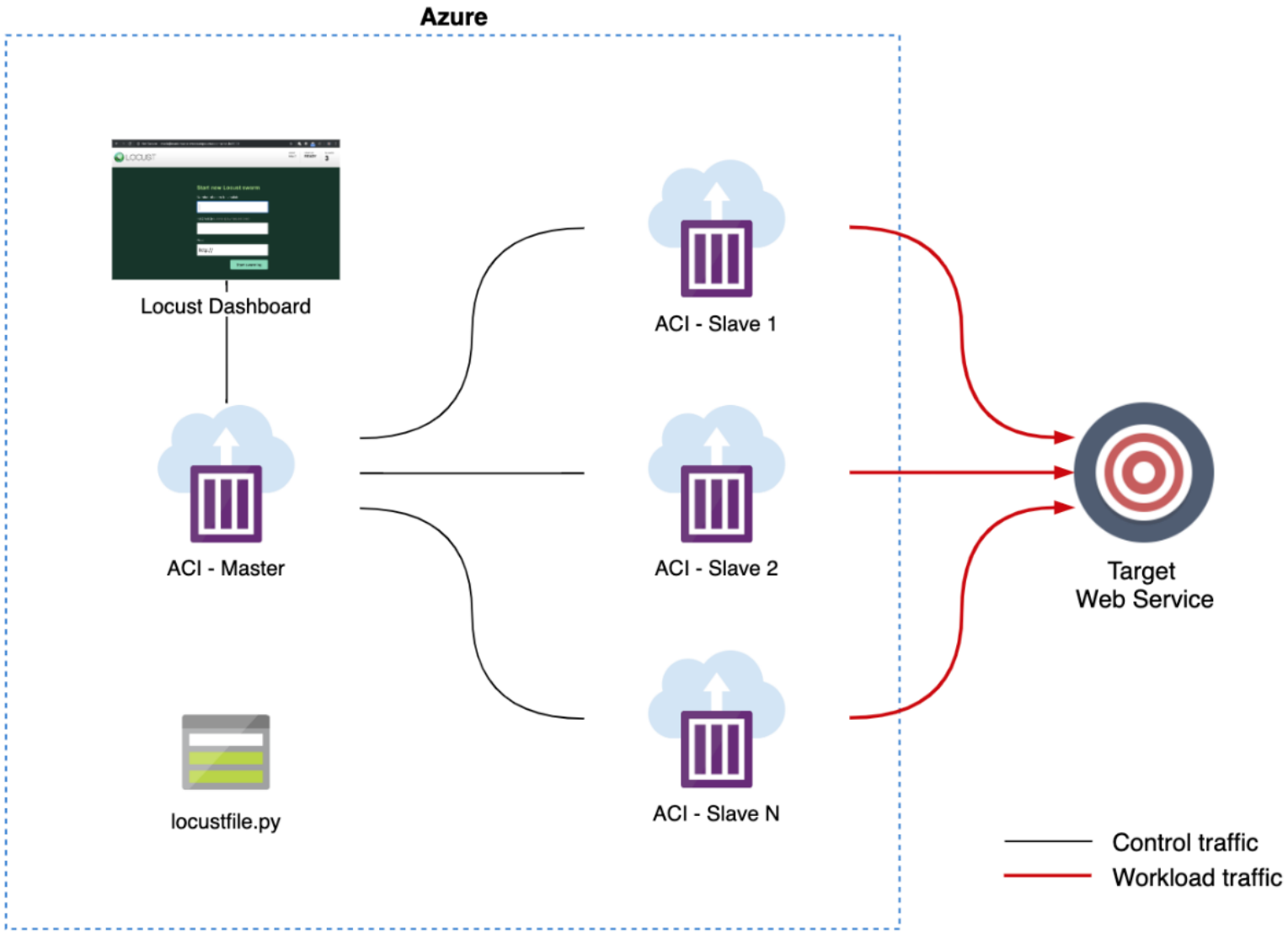
**select** option_name, option_value **from** wp_et_options **where** autoload = '******' — 24.7 /min — 2.23 ms

**select** wp_et_posts.* **from** wp_et_posts **where** ID **in** ('******') — 21.1 /min — 2.04 ms

#cebula

# Azure Locust

Run distributed Locust load tests on *Azure Container Instances*. It's quick, cheap and scalable! Using 20 slaves you can achive ~12 000 req/s!



Home > Custom deployment

# Custom deployment

Deploy from a custom template

## TEMPLATE

Customized template

5 resources

Edit template | Edit paramet... | Learn more

## BASICS

Subscription *

Resource group *

(New) myTestRg

Create new

Location *

(Europe) North Europe

## SETTINGS

Instances

3

Prefix

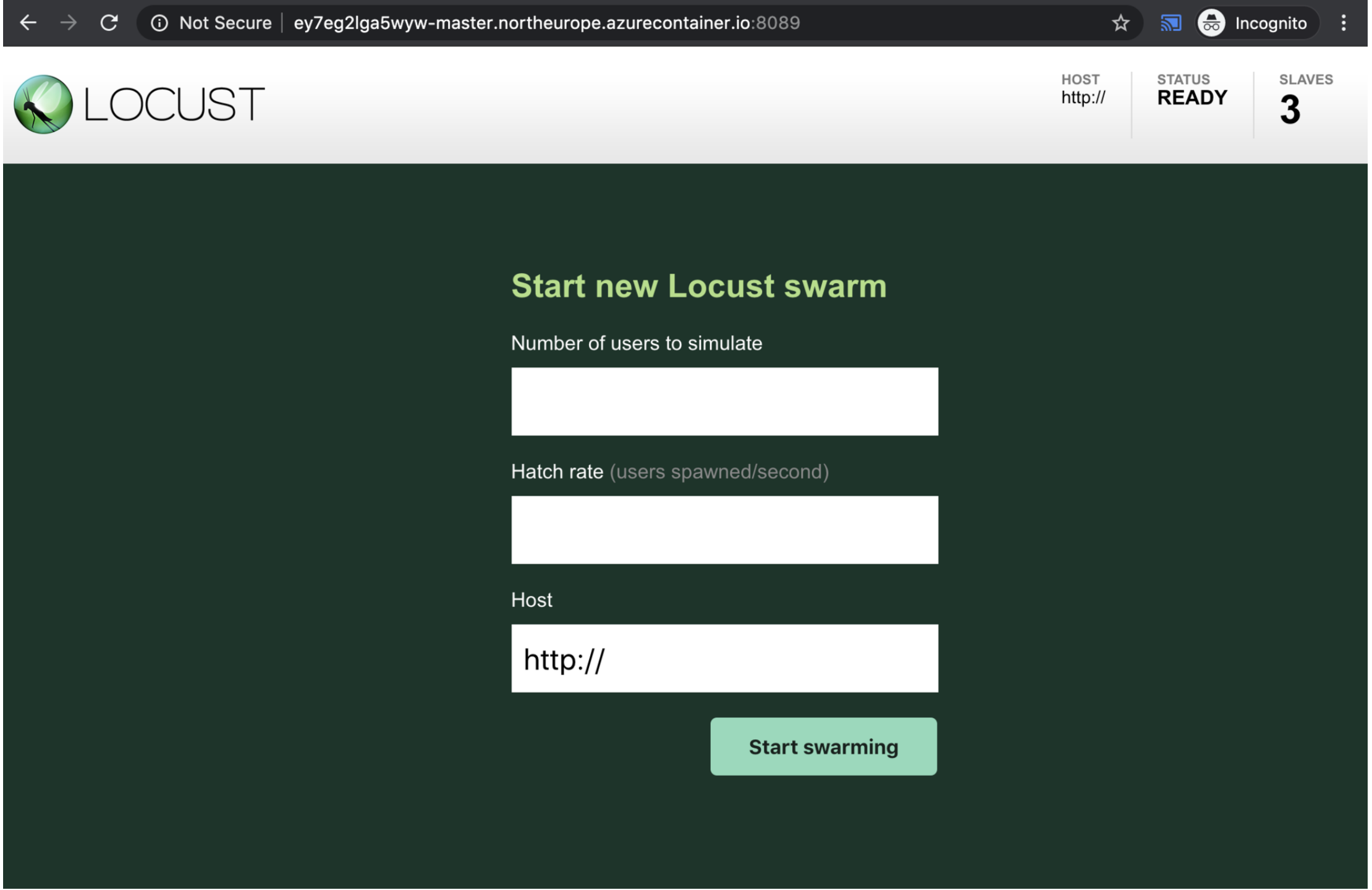
## TERMS AND CONDITIONS

Azure Marketplace Terms | Azure Marketplace

By clicking "Purchase," I (a) agree to the applicable legal terms associated with the offering; (b) authorize Microsoft to charge or bill my current payment method for the fees associated the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s); and (c) agree that, if the deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

I agree to the terms and conditions stated above

Purchase


Not Secure | ey7eg2lga5wyw-master.northeurope.azurecontainer.io:8089
Incognito
LOCUST
HOST
http://
STATUS
READY
SLAVES
3
Start new Locust swarm
Number of users to simulate
Hatch rate (users spawned/second)
Host
http://
Start swarming

Home > myTestRg

# myTestRg

Resource group

Search (Cmd+/)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Events

**Settings**

- Quickstart
- Deployments
- Policies
- Properties
- Locks
- Export template

**Cost Management**

Add | Edit columns | Delete resource group | Refresh | Move | Export to CSV | Assign tags | Delete | Export template | Feedback

Subscription (change) : [redacted]

Subscription ID : [redacted]

Tags (change) : Click here to add tags

Deployments : 1 Succeeded

Filter by name... | Type == all | Location == all | Add filter

Showing 1 to 6 of 6 records. Show hidden types

| Name | Type | Location |
|---|---|---|
| ey7eg2lga5wyw | Storage account | North Europe |
| ey7eg2lga5wyw-master | Container instances | North Europe |
| ey7eg2lga5wyw-provisioner | Container instances | North Europe |
| ey7eg2lga5wyw-slave-0 | Container instances | North Europe |
| ey7eg2lga5wyw-slave-1 | Container instances | North Europe |
| ey7eg2lga5wyw-slave-2 | Container instances | North Europe |

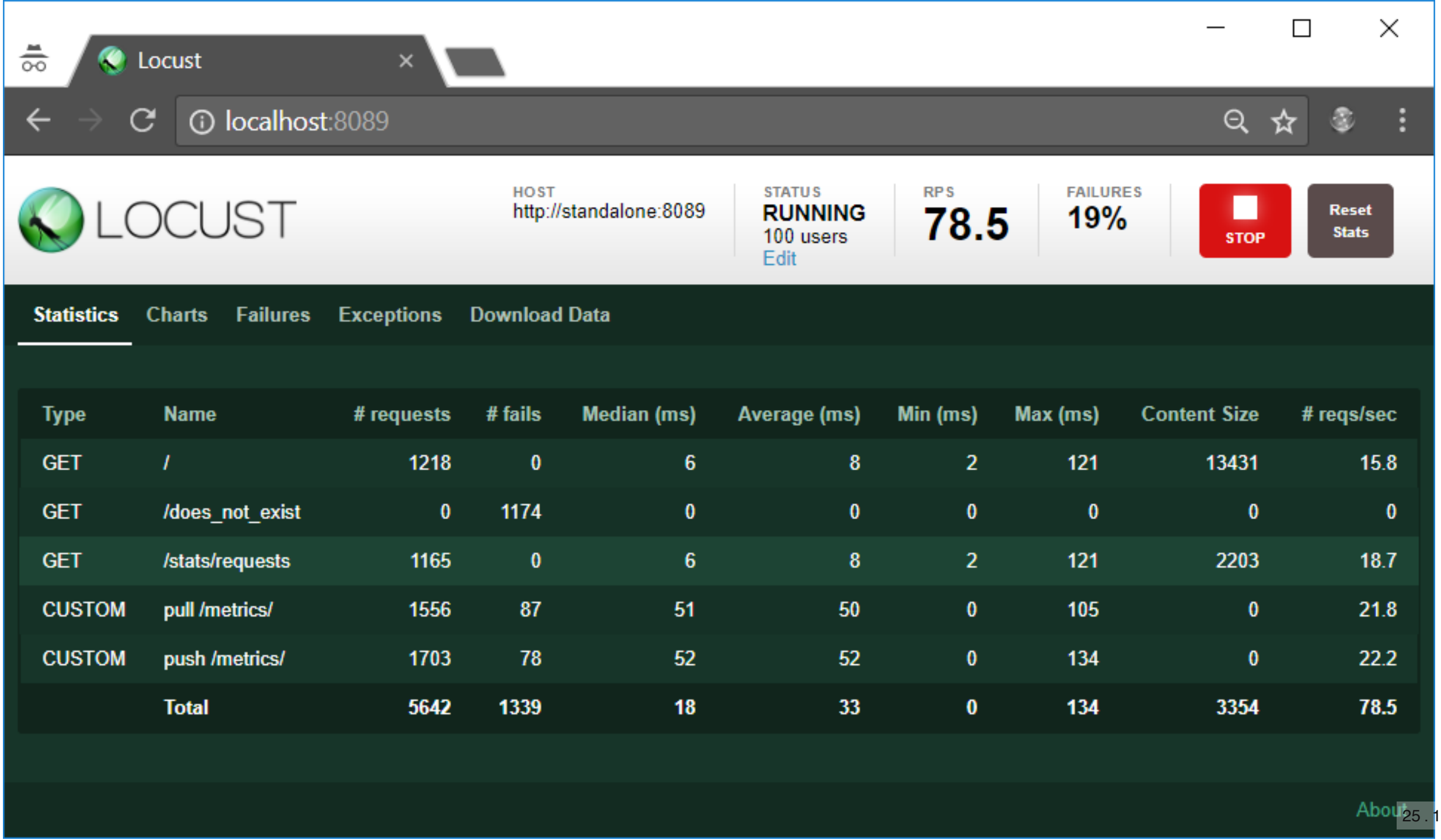
Home > myTestRg > ey7eg2lga5wyw - File shares > scripts > locustfile.py

# locustfile.py

scripts/

Save  Discard changes  Download

```
1   from locust import HttpLocust, TaskSet, between
2
3   def index(l):
4       l.client.get("/abc=123")
5
6   class UserBehavior(TaskSet):
7       tasks = {index: 1}
8
9   class WebsiteUser(HttpLocust):
10      task_set = UserBehavior
11      wait_time = between(0.0, 1.0)
```


Locust
localhost:8089
LOCUST
HOST
http://standalone:8089
STATUS
RUNNING
100 users
Edit
RPS
78.5
FAILURES
19%
STOP
Reset Stats
Statistics
Charts
Failures
Exceptions
Download Data
Type Name # requests # fails Median (ms) Average (ms) Min (ms) Max (ms) Content Size # reqs/sec
GET / 1218 0 6 8 2 121 13431 15.8
GET /does_not_exist 0 1174 0 0 0 0 0 0
GET /stats/requests 1165 0 6 8 2 121 2203 18.7
CUSTOM pull /metrics/ 1556 87 51 50 0 105 0 21.8
CUSTOM push /metrics/ 1703 78 52 52 0 134 0 22.2
Total 5642 1339 18 33 0 134 3354 78.5
About

# Microbenchmarking / Benchmark.Net, NBench

# BenchmarkDotNet

Powerful .NET library for benchmarking

NBench

```
[OrderProvider(SummaryOrderPolicy.FastestToSlowest)]
[RyuJitX64Job, LegacyJitX86Job]
[MemoryDiagnoser]
public class ForeachVsLinq
{
    [Params(10, 1000, 10000)]
    public static int Size { get; set; }

    private static int[] _items;

    [GlobalSetup]
    public void GlobalSetup()
    {
        _items = Enumerable.Range(0, Size).ToArray();
    }

    [Benchmark(Baseline = true)]
    public int Iterative()
    {
        // ...
    }

    [Benchmark]
    public int Linq()
    {
        // ...
    }
}
```

```
[Benchmark(Baseline = true)]
public int Iterative()
{
    var counter = 0;

    foreach (var item in _items)
    {
        if (item % 10 == 0)
            counter += item;
    }

    return counter;
}

[Benchmark]
public int Linq()
{
    return _items.Where(i => i % 10 == 0).Count();
}
```

```
BenchmarkDotNet=v0.10.14, OS=Windows 10.0.16299.431 (1709/FallCreatorsUpdate/Redstone3)
Intel Core i7-6600U CPU 2.60GHz (Skylake), 1 CPU, 4 logical and 2 physical cores
Frequency=2742183 Hz, Resolution=364.6730 ns, Timer=TSC
  [Host]       : .NET Framework 4.7.1 (CLR 4.0.30319.42000), 32bit LegacyJIT-v4.7.2650.0
  LegacyJitX86 : .NET Framework 4.7.1 (CLR 4.0.30319.42000), 32bit LegacyJIT-v4.7.2650.0
  RyuJitX64    : .NET Framework 4.7.1 (CLR 4.0.30319.42000), 64bit RyuJIT-v4.7.2650.0

Runtime=Clr
```

| Method | Job | Jit | Platform | Size | Mean | Error | StdDev | Median | Scaled | ScaledSD | Gen 0 | Allocated |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Iterative | LegacyJitX86 | LegacyJit | X86 | 10 | 42.91 ns | 1.592 ns | 4.542 ns | 42.66 ns | 1.00 | 0.00 | - | 0 B |
| Linq | LegacyJitX86 | LegacyJit | X86 | 10 | 179.58 ns | 13.237 ns | 38.823 ns | 168.38 ns | **4.23** | 1.01 | 0.0150 | 32 B |
| Iterative | RyuJitX64 | RyuJit | X64 | 10000 | 19,407.73 ns | 814.021 ns | 2,400.158 ns | 18,426.55 ns | 1.00 | 0.00 | - | 0 B |
| Linq | RyuJitX64 | RyuJit | X64 | 10000 | 48,015.54 ns | 2,102.197 ns | 6,165.379 ns | 46,447.25 ns | **2.51** | 0.43 | - | 48 B |

umbraco / **Umbraco-CMS**

Watch 248 | Unstar 2.9k | Fork 2k

Code | Issues 476 | Pull requests 159 | Actions | Projects 0 | Security | Insights

Branch: v8/contrib | **Umbraco-CMS** / src / **Umbraco.Tests.Benchmarks** / | Create new file | Upload files | Find file | History

**zpqrtbnk** Fix temporal coupling — Latest commit `27e145f` on 2 Apr 2019

..

| | | |
|---|---|---|
| Config | Recreate benchmark project and update deps Fix #3561 | 16 months ago |
| Properties | Recreate benchmark project and update deps Fix #3561 | 16 months ago |
| BulkInsertBenchmarks.cs | Fixing all the TODO, FIXME & HACK comments so they all follow the sam... | 13 months ago |
| CombineGuidBenchmarks.cs | Optimize Guid.Combine and HexString generation. | 16 months ago |
| ConcurrentDictionaryBenchmarks.cs | Port v7@2aa0dfb2c5 - WIP | 2 years ago |
| CtorInvokeBenchmarks.cs | Merge branch origin/temp8 into temp8-di2690 | 15 months ago |
| EnumeratorBenchmarks.cs | Misc cleanup and renaming | 15 months ago |

# Get low / PerfView, ANTS, windbg etc.

# Sidebar: It's All In The Visualization

CPU Stacks(3,594 metric) cpu

File Diff Help Stack View Help (F1) Understanding Perf Data

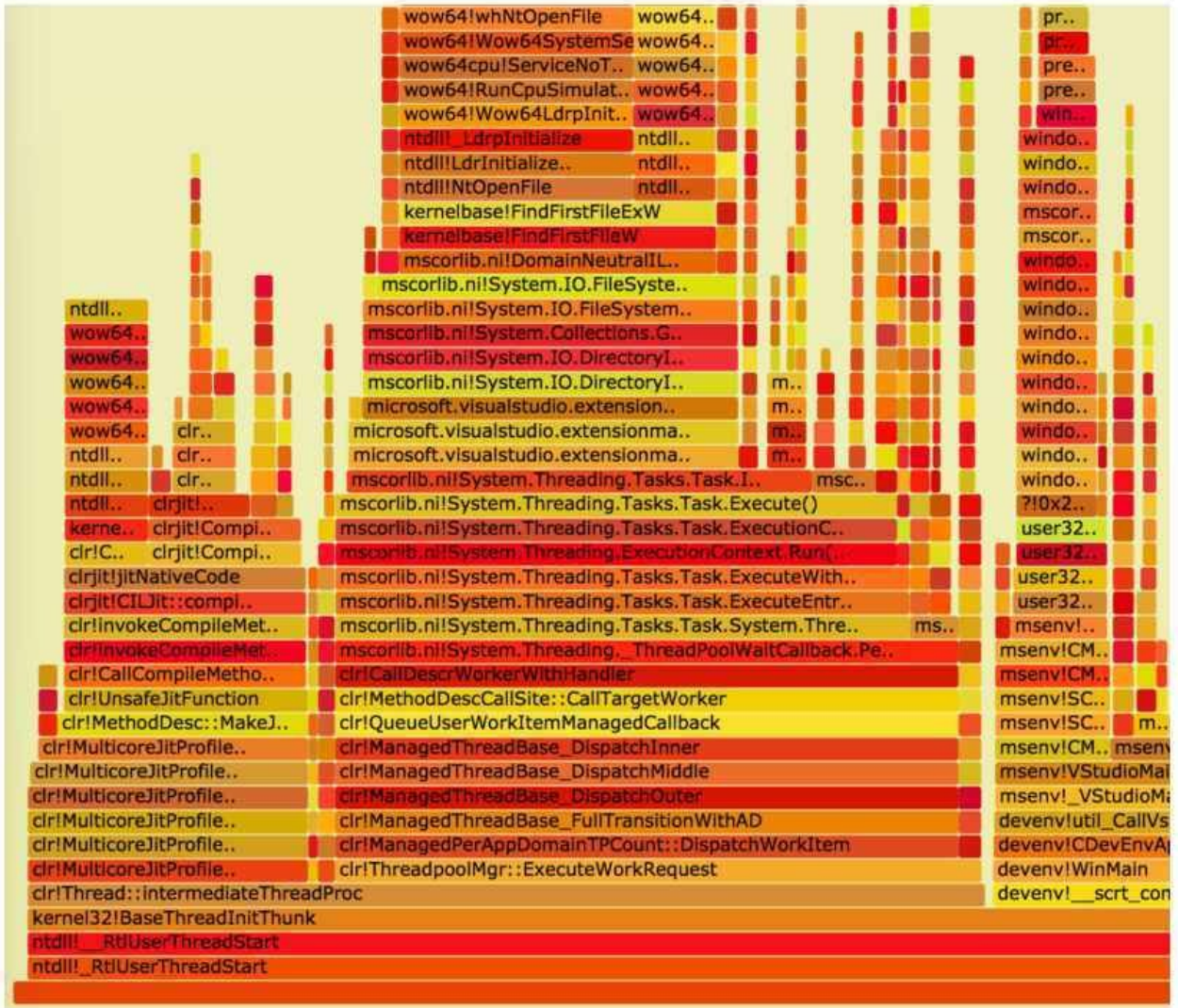
Update Back Forward Totals Metric: 3,594.0 Count: 3,594.0 First: 1,362.255ms Last: 16,4

Start: 0.000 End: 21,411.435 Find:

GroupPats: [Just my app] \System32\ Fold%: 1 FoldPats: ntoskrnl!%Se

By Name ? | Caller-Callee ? | CallTree ? | Callers ? | Callees ? | Notes ?

| Name ? | Inc % ? | Inc ? |
|---|---|---|
| ROOT | 100.0 | 3,594.0 |
| + Process64 conhost (8576) | 100.0 | 3,594.0 |
| + Thread (8488) CPU=3464ms | 96.4 | 3,464.0 |
| + ntdll!RtlUserThreadStart | 96.2 | 3,457.0 |
| + kernel32!BaseThreadInitThunk | 96.2 | 3,457.0 |
| + conhost!ConsoleIoThread | 96.2 | 3,457.0 |
| + conhost!SrvWriteConsole | 79.2 | 2,848.0 |
| + conhost!SB_DoSrvWriteConsole | 77.3 | 2,777.0 |
| + conhost!SB_WriteRegionToScreen | 43.4 | 1,561.0 |
| + conhost!SB_ConsolePolyTextOut | 43.4 | 1,560.0 |
| + gdi32!PolyTextOutW | 41.6 | 1,496.0 |
| + gdi32!GdiFlush | 1.0 | 35.0 |
| + conhost!StreamScrollRegion | 18.3 | 658.0 |
| + conhost!SB_WriteChars | 14.5 | 522.0 |
| + ntoskrnl!? | 0.1 | 2.0 |



# Automate.

sitespeed.io | Start | Documentation | Support | Examples | Blog | Videos | Search

# Welcome to the wonderful world of Web Performance

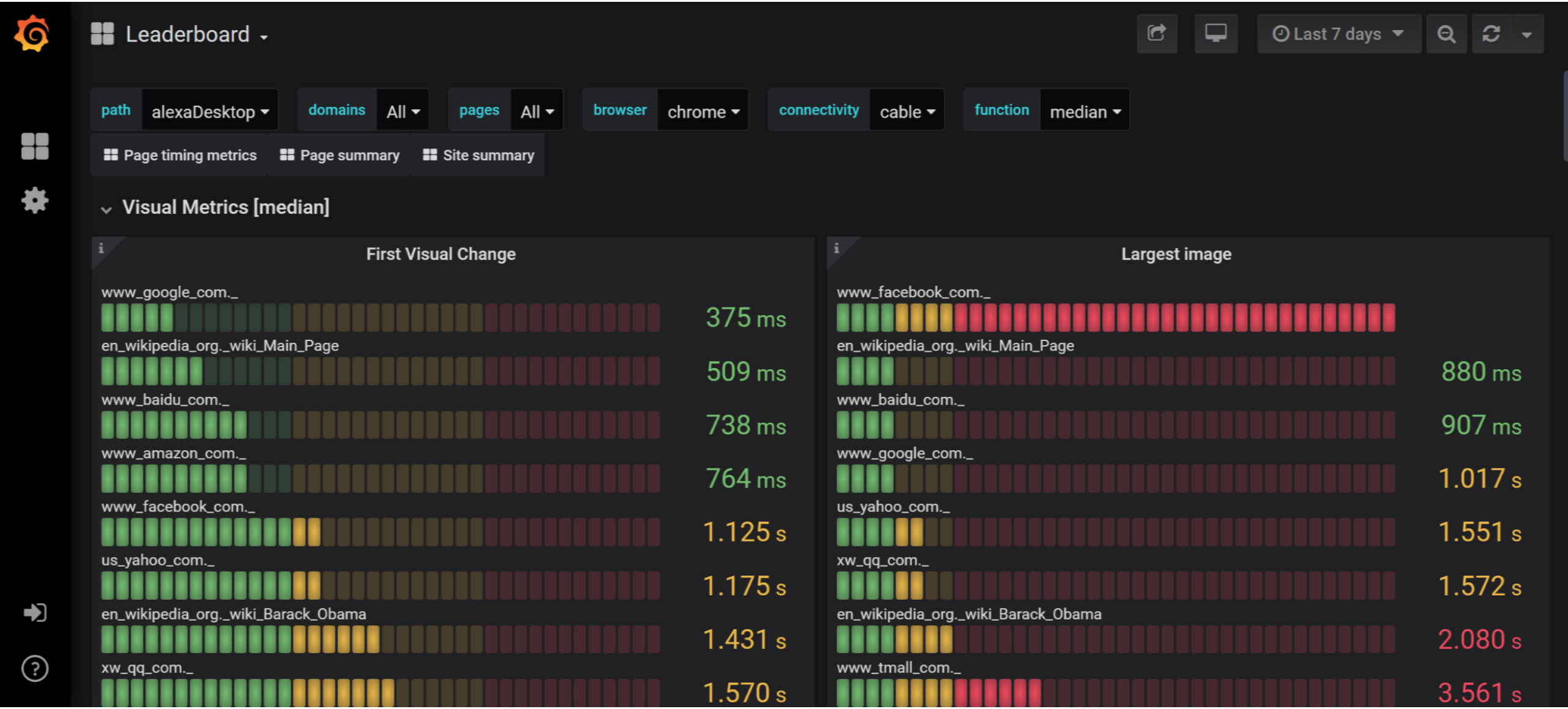
Sitespeed.io is a set of Open Source tools that makes it easy to monitor and measure the performance of your web site.

Measuring performance shouldn't be hard: you should be able to have full control of your metrics, own your own data and you should be able to do it without paying top dollars.

That's why we created sitespeed.io.

```
$ docker run --rm -v "$(pwd)":/sitespeed.io sitespeedio/sitespeed.io https://www.umbraco.com -b
firefox
```

```
$ npm install sitespeed.io -g
```


Leaderboard
Last 7 days
path alexaDesktop
domains All
pages All
browser chrome
connectivity cable
function median
Page timing metrics
Page summary
Site summary
Visual Metrics [median]
First Visual Change
www_google_com._ 375 ms
en_wikipedia_org._wiki_Main_Page 509 ms
www_baidu_com._ 738 ms
www_amazon_com._ 764 ms
www_facebook_com._ 1.125 s
us_yahoo_com._ 1.175 s
en_wikipedia_org._wiki_Barack_Obama 1.431 s
xw_qq_com._ 1.570 s
Largest image
www_facebook_com._
en_wikipedia_org._wiki_Main_Page 880 ms
www_baidu_com._ 907 ms
www_google_com._ 1.017 s
us_yahoo_com._ 1.551 s
xw_qq_com._ 1.572 s
en_wikipedia_org._wiki_Barack_Obama 2.080 s
www_tmall_com._ 3.561 s

## Starter

FREE

**50** Concurrent Users

**10** Tests

**25,000 API Calls** API Monitoring and Functional Testing

**1** Mock Service

Sign up for Free

## Basic

$99/mo

**1,000** Concurrent Users

**200** Tests/Year

**300,000 API Calls** API Monitoring and Functional Testing/Year

**3** Mock Services

Buy Now

Most Popular

## Pro

$499/mo

**5,000** Concurrent Users

**80,000** Virtual User Hours/Year

**300,000 API Calls** API Monitoring and Functional Testing/Year

**3** Mock Services

Buy Now

## Unleashed

sales@blazemeter.com

Volume Discounts

Fixed Cost (Unlimited) Plans

Dedicated IPs & On Premise Options

Priority Support

Schedule a Demo

BlazeMeter | Functional | Performance | Mock Services | API Monitoring | Frank Miller

Default project / DemoBlaze Item Navigation

DemoBlaze Item Navigation

Scenario: DemoBlaze Item Navigation

Location: US East (Virginia, AWS)

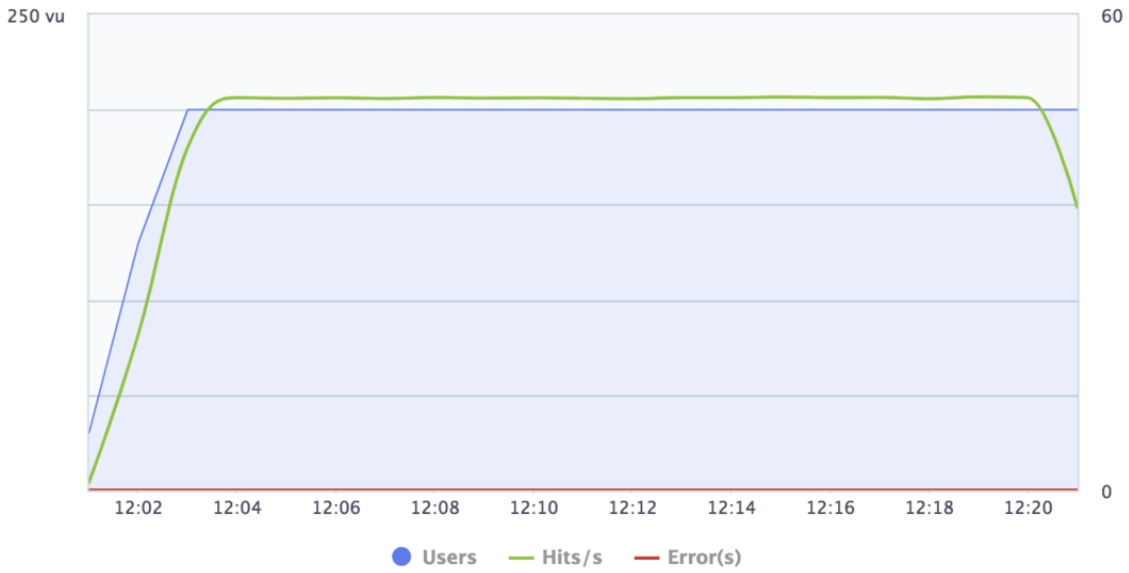
Summary | Timeline Report | Request Stats | Engine Health | Failure Criteria | Errors | Logs | Original Test Configuration | Labs | Debug

| 200 VU | 47.03 Hits/s | 0 % | 103.54 ms | 207 ms | 822.36 KiB/s |
|---|---|---|---|---|---|
| Max Users | Avg. Throughput | Errors | Avg. Response Time | 90% Response Time | Avg. Bandwidth |

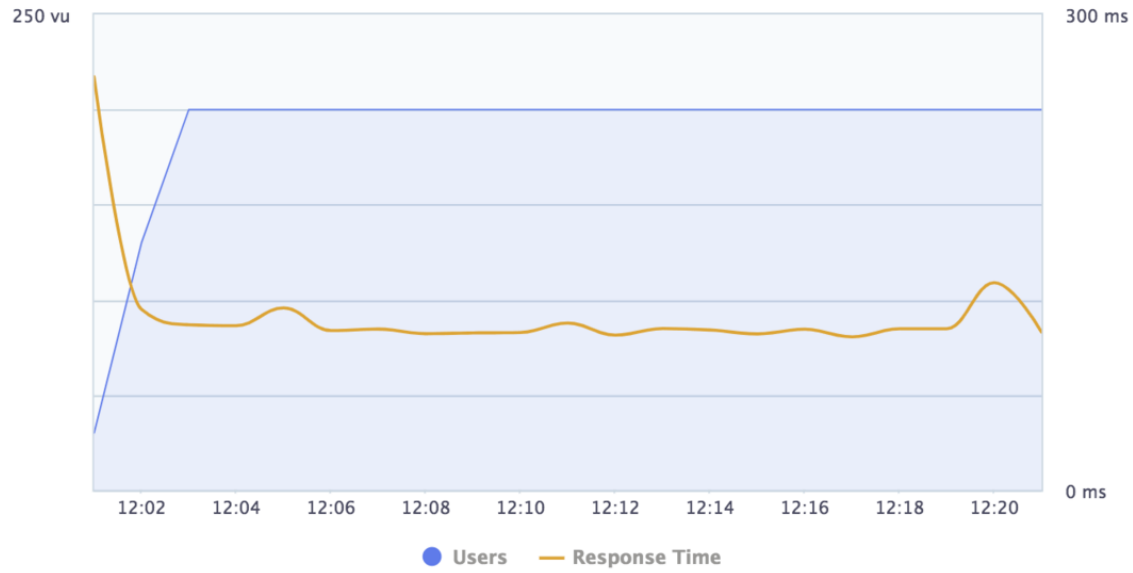
| | | | | | |
|---|---|---|---|---|---|
| Duration | 20 minutes | Test Type | JMeter | Notes: | Save Note |
| Started | Apr 10, 2019, 12:01:43 PM | Locations | US East (Virginia, AWS) | Enter report notes... | |
| Ended | Apr 10, 2019, 12:22:02 PM | Response Codes | 2xx | | |

HELP CENTER

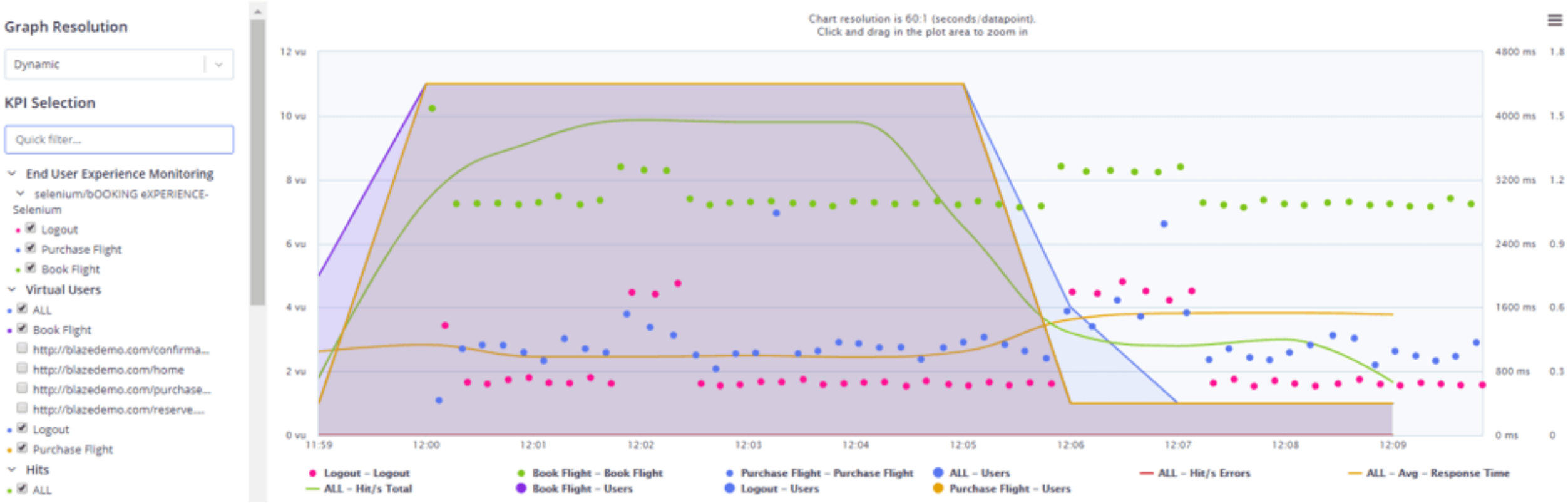
## Load

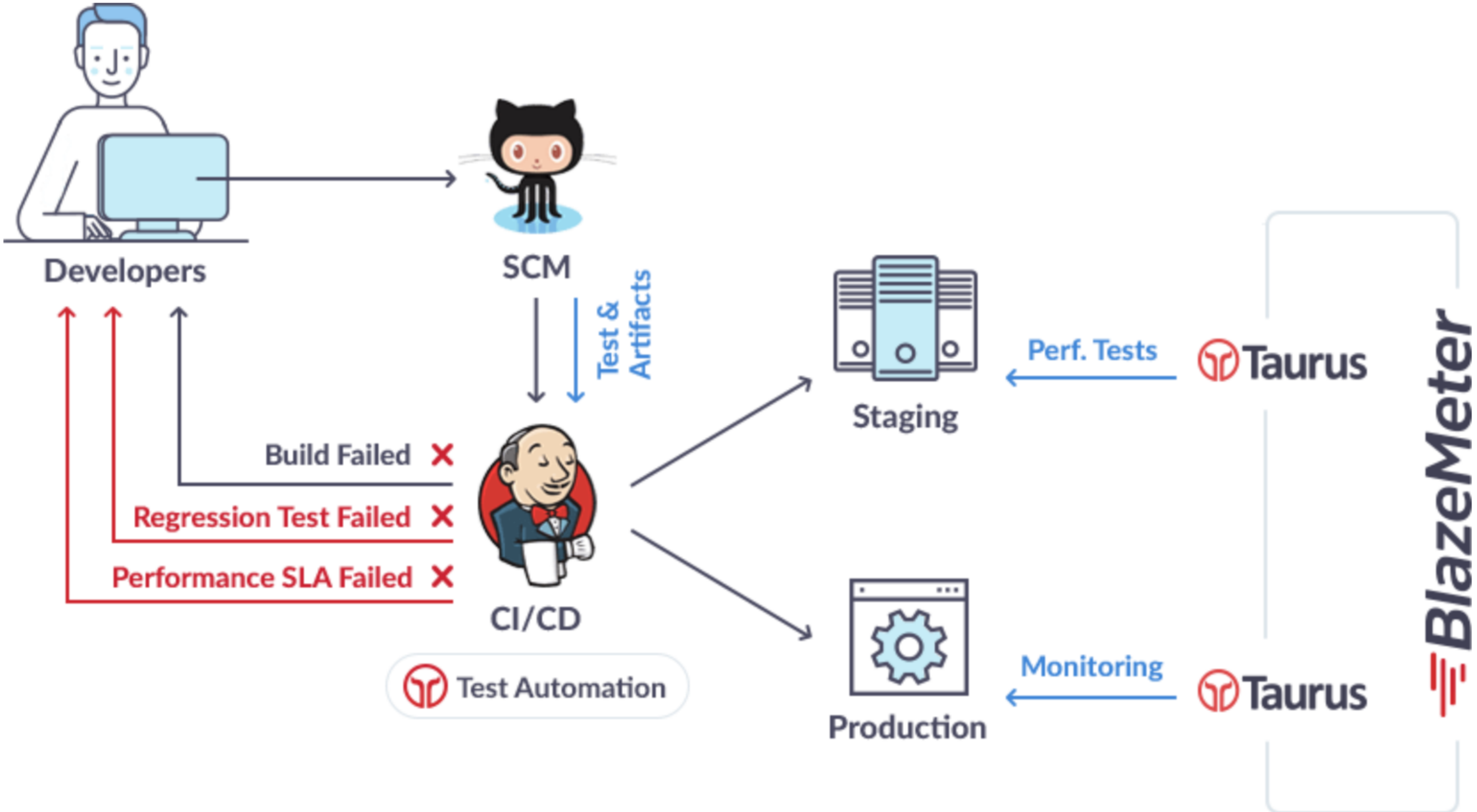



## Response Time



Summary | Timeline Report | End User Experience Monitoring | Request Stats | Engine Health | Errors | Logs | Original Test Configuration




Developers
SCM
Test & Artifacts
Build Failed
Regression Test Failed
Performance SLA Failed
CI/CD
Test Automation
Staging
Perf. Tests
Taurus
Production
Monitoring
Taurus
BlazeMeter

k6

```
1  import { sleep } from "k6";
2  import http from "k6/http";
3
4  // Test configuration
5  export let options = {
6      stages: [
7          { duration: "10s", target: 15 },
8          { duration: "20s", target: 15 },
9          { duration: "10s", target: 0 }
10     ],
11     thresholds: {
12         "http_req_duration": ["p(95)<250"]
13     }
14 };
15
16 export default function() {
17     let res = http.get("http://test.loadimpact.com/");
18     sleep(5);
19 };
```

```
# azure-pipelines.yml

pool:
  vmImage: 'ubuntu-18.04'

steps:
- script: |
    docker run -v `pwd`:/src -i loadimpact/k6 run /src/loadtest.js
  displayName: Run k6
```

```
export let options = {
    // ...
    ext: {
        loadimpact: {
            name: "test.loadimpact.com",
            distribution: {
                loadZoneLabel1: { loadZone: "amazon:ie:dublin", percent: 100 }
            }
        }
    }
};
```

```yaml
# azure-pipelines.yml

pool:
  vmImage: 'ubuntu-18.04'

steps:
- script: |
    docker pull loadimpact/k6
  displayName: Pull k6 image
- script: |
    docker run -i -e K6_CLOUD_TOKEN=$(k6cloud.token) -v `pwd`:/src loadimpact/k
  displayName: Run k6 cloud
```

k6-pipelines
Overview
Boards
Repos
Pipelines
Builds
Releases
Library
Task groups
Deployment groups
Test Plans
Artifacts

# #20191210.1: Set up CI with Azure Pipelines

Release | All logs

Triggered today at 4:07 pm for Rafael Muñoz Cárdenas k6-pipelines

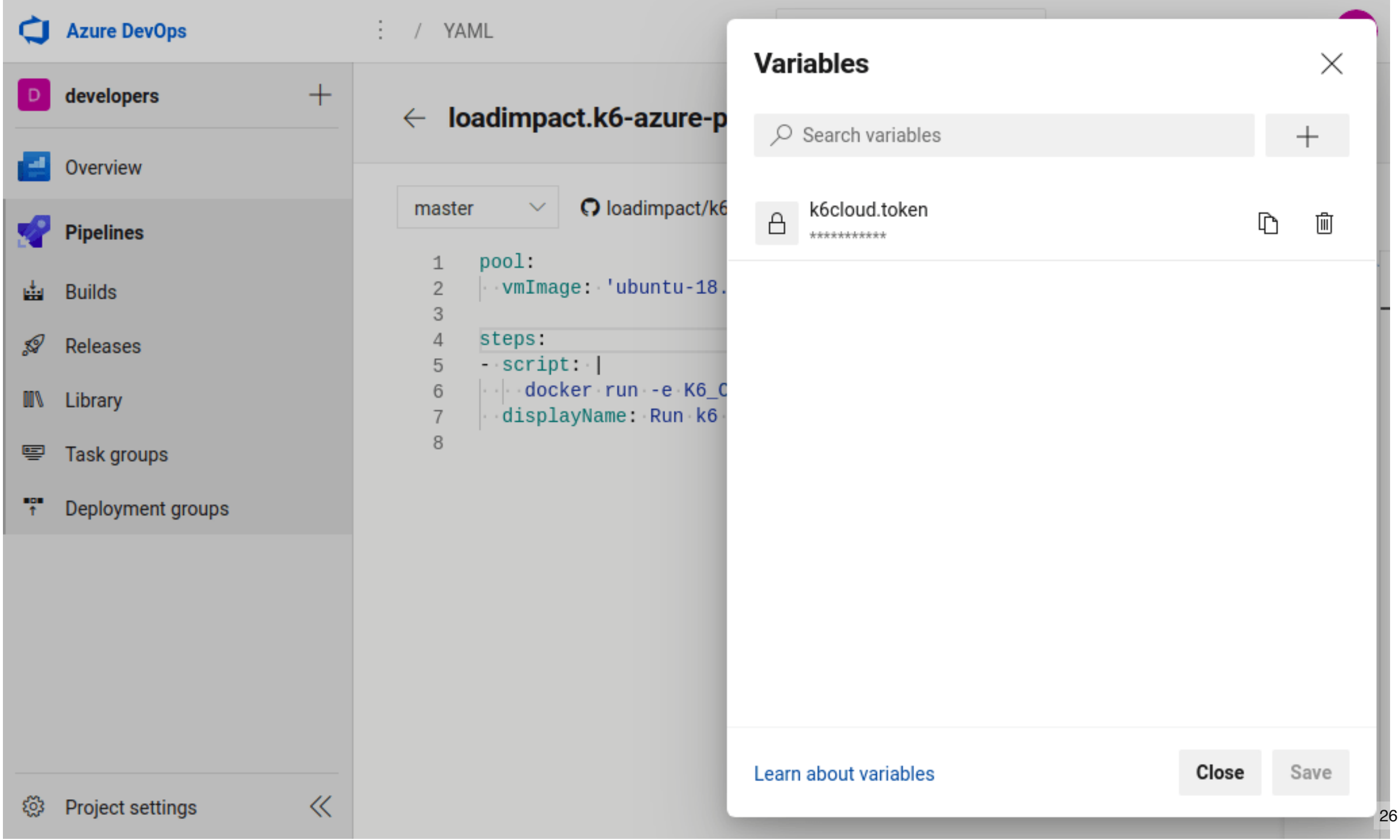
Logs | Summary | Tests

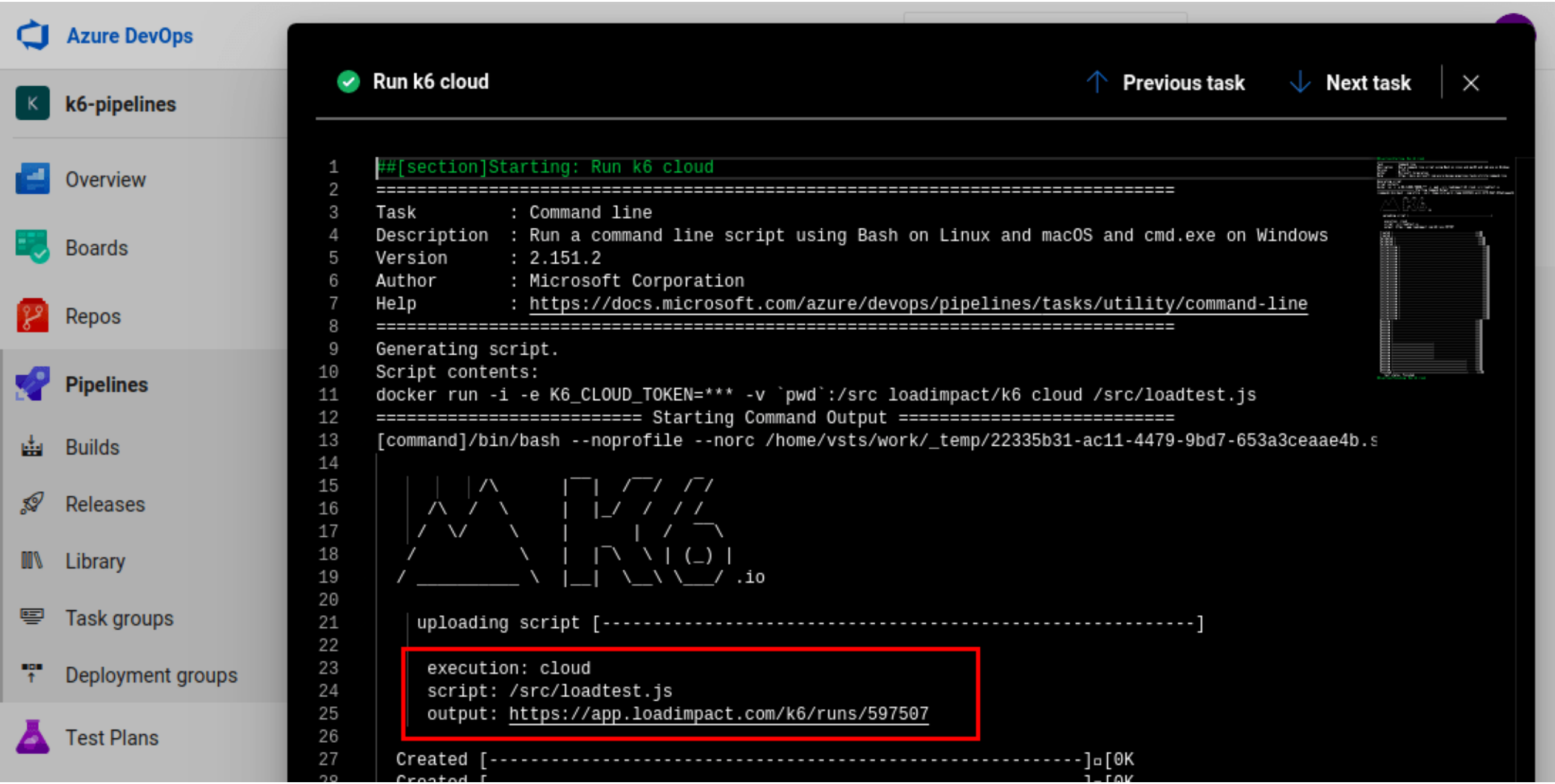
## Job

Started: 12/10/2019, 4:08:04 PM

Pool: Azure Pipelines · Agent: Hosted Agent ··· 16s

| | |
|---|---|
| Prepare job · succeeded | <1s |
| Initialize job · succeeded | <1s |
| Checkout · succeeded | 4s |
| Check if k6 is installed · succeeded | 10s |
| Post-job: Checkout · succeeded | <1s |
| Finalize Job · succeeded | <1s |
| Report build status · succeeded | <1s |


Azure DevOps
YAML
developers
Overview
Pipelines
Builds
Releases
Library
Task groups
Deployment groups
Project settings
loadimpact.k6-azure-p
master
loadimpact/k6
pool:
vmImage: 'ubuntu-18.
steps:
- script: |
docker run -e K6_C
displayName: Run k6
Variables
Search variables
k6cloud.token
**********
Learn about variables
Close
Save


Azure DevOps
k6-pipelines
Overview
Boards
Repos
Pipelines
Builds
Releases
Library
Task groups
Deployment groups
Test Plans
Run k6 cloud
Previous task
Next task
##[section]Starting: Run k6 cloud
Task : Command line
Description : Run a command line script using Bash on Linux and macOS and cmd.exe on Windows
Version : 2.151.2
Author : Microsoft Corporation
Help : https://docs.microsoft.com/azure/devops/pipelines/tasks/utility/command-line
Generating script.
Script contents:
docker run -i -e K6_CLOUD_TOKEN=*** -v `pwd`:/src loadimpact/k6 cloud /src/loadtest.js
========== Starting Command Output ==========
[command]/bin/bash --noprofile --norc /home/vsts/work/_temp/22335b31-ac11-4479-9bd7-653a3ceaae4b.s
uploading script [----------]
execution: cloud
script: /src/loadtest.js
output: https://app.loadimpact.com/k6/runs/597507
Created [----------]

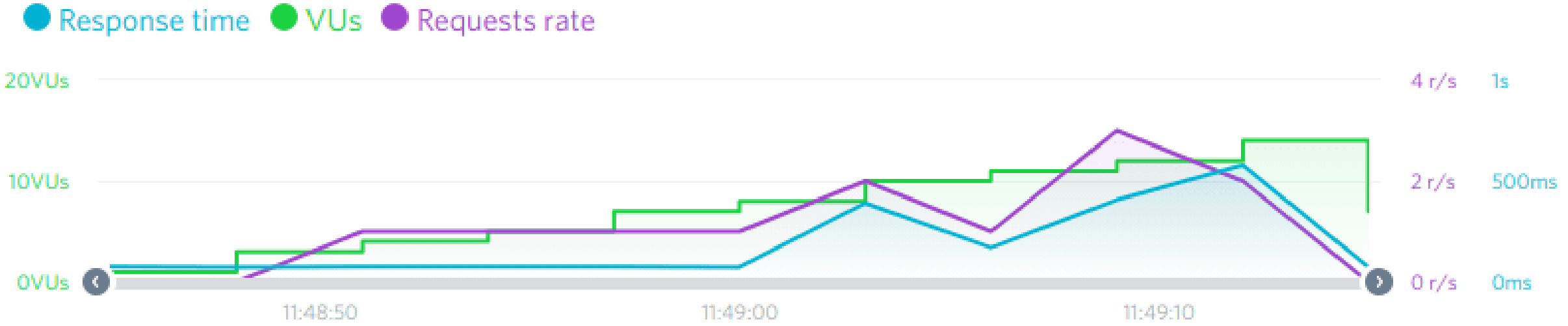
Tests > test.loadimpact.com > Dec 11 11:47

RE-RUN TEST

FINISHED | VUs: 15 | Duration: 27s | Ended: Dec 11 11:49 | Regions: Dublin

COMPARE CURRENT TEST RUN WITH: None

## Performance overview



GitHub Action

# Lighthouse CI Action

v2 Latest version

# Lighthouse CI Action

> Audit URLs using Lighthouse and test performance with Lighthouse CI.

**Features:**

- ✅ Audit URLs using Lighthouse
- 🎯 Test performance with Lighthouse CI (LHCI) assertions or performance budgets.
- 🚀 Fast action initialization
- ⚙️ Full control over Lighthouse & Lighthouse CI config
- 🔍 Detailed output for quick debug
- 💾 Upload data to LHCI server

```yaml
name: Lighthouse
on: push
jobs:
  lighthouse:
    runs-on: ubuntu-latest
    steps:
      - uses: actions/checkout@v1
      - name: Audit URLs using Lighthouse
        uses: treosh/lighthouse-ci-action@v2
        with:
          urls: |
            https://treo.sh/
            https://treo.sh/demo
      - name: Save results
        uses: actions/upload-artifact@v1
        with:
          name: lighthouse-results
          path: '.lighthouseci' # This will save the Lighthouse results as .json files
```

Add more commits by pushing to the **ebidel-patch-1** branch on **ebidel/chromium-dashboard**.

**All checks have passed**
2 successful checks

Hide all checks

✓ **Lighthouse** — Passed. New Lighthouse score would be 100/100. Details

✓ **continuous-integration/travis-ci/pr** — The Travis CI build passed Details

**This branch has no conflicts with the base branch**
Merging can be performed automatically.

**Merge pull request** ▾ You can also open this in GitHub Desktop or view command line instructions.

Write Preview AA B *i* " <> 🔗 ☰ 1. ☑ ↩ @ 🔖

LHCI-multiple-urls / **multiple-urls**
succeeded 1 minute ago in 1m 3s

Search logs

- ✓ **Set up job** 1s
- ✓ **Run actions/checkout@v1** 5s
- ✓ **Run Lighthouse on URLs and store results to temporary-public-storage.** 57s

```
1  ▶ Run ./
9  ▶ Action config
26 ▼ Collecting
27   Running Lighthouse 1 time(s) on https://treo.sh/
29   Running Lighthouse 1 time(s) on https://treo.sh/signup
31   Running Lighthouse 1 time(s) on https://treo.sh/demo
33   Done running Lighthouse!
34 ▼ Uploading
36   Open the report at https://storage.googleapis.com/lighthouse-infrastructure.appspot.com/reports/1573484684414-60370.report.html
38   Open the report at https://storage.googleapis.com/lighthouse-infrastructure.appspot.com/reports/1573484685470-87425.report.html
40   Open the report at https://storage.googleapis.com/lighthouse-infrastructure.appspot.com/reports/1573484686487-66505.report.html
41   No GitHub token set, skipping.
42 ::set-output name=resultsPath,::.lighthouserc
43 done in 56.578772892s
```

GitHub Action

# Lighthouse Check

v1.0.6 Latest version

# Lighthouse Check Action

> A GitHub Action for running Lighthouse audits automatically in a workflow with a rich set of extra features. Simple implementation or advanced customization including **Slack** notifications, **AWS S3** HTML report uploads, and more!

This project provides **two ways of running audits** - "locally" by default in a dockerized GitHub environment or remotely via Automated Lighthouse Check API. For basic usage, running locally will suffice, but if you'd like to maintain a historical record of Lighthouse audits and utilize other features, you can follow the steps and examples.

Test Lighthouse Check
on: push

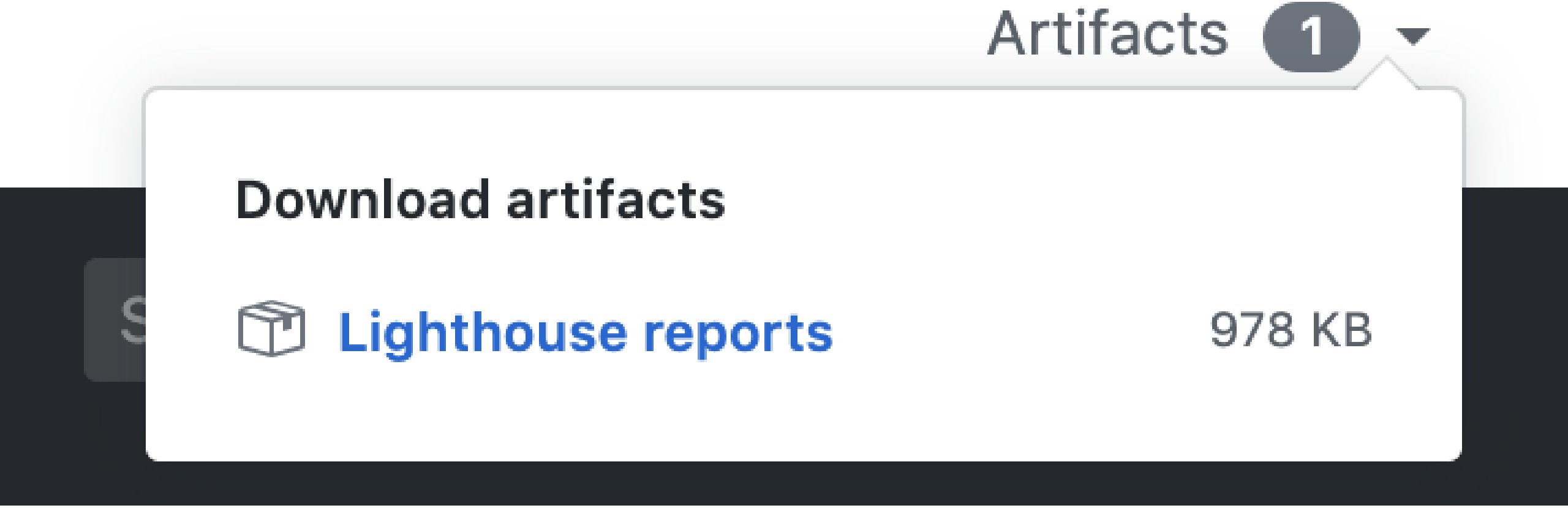
lighthouse-check

GitHub Actions / **lighthouse-check** successful 2 minutes ago in 47s

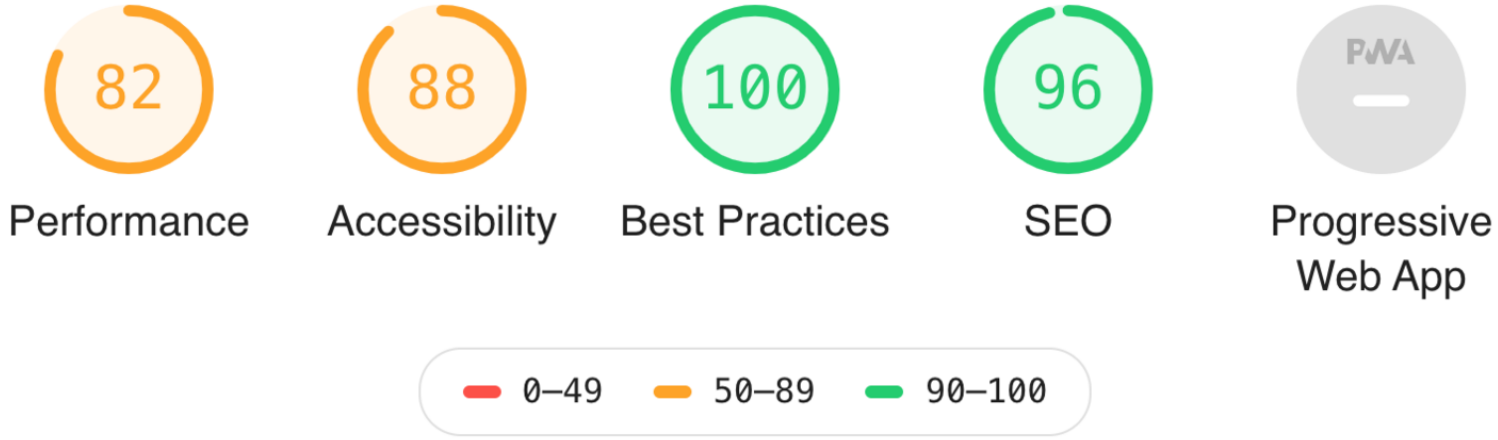
Search logs

- Set up job 2s
- Run actions/checkout@master 2s
- Run npm install 16s
- Run mkdir /tmp/artifacts 0s
- Run Lighthouse 26s

```
20
21 URL: https://www.foo.software
22 Report: https://***.s3.amazonaws.com/lighthouse-report-1569502314170.html
23 Local Report: /tmp/artifacts/lighthouse-report-1569502314441.html
24
25
26 +---------------+----------------+-------------+--------------------+-----+
27 | Accessibility | Best Practices | Performance | Progressive Web App | SEO |
28 |---------------|----------------|-------------|--------------------|-----|
29 | 88            | 100            | 82          | 59                 | 96  |
30 +---------------+----------------+-------------+--------------------+-----+
31
32
33
34 URL: https://www.foo.software/contact
35 Report: https://***.s3.amazonaws.com/lighthouse-report-1569502319531.html
36 Local Report: /tmp/artifacts/lighthouse-report-1569502319740.html
37
38
39 +---------------+----------------+-------------+--------------------+-----+
40 | Accessibility | Best Practices | Performance | Progressive Web App | SEO |
41 |---------------|----------------|-------------|--------------------|-----|
42 | 81            | 100            | 93          | 59                 | 94  |
43 +---------------+----------------+-------------+--------------------+-----+
44
```


Artifacts 1
Download artifacts
Lighthouse reports
978 KB

https://www.foo.software/



## Performance

**Metrics**

| | | | |
|---|---|---|---|
| First Contentful Paint | 1.6 s | First Meaningful Paint | 2.6 s |
| Speed Index | 3.6 s | First CPU Idle | 5.2 s |
| Time to Interactive | 5.3 s | Max Potential First Input Delay | 1,600 ms |

**lighthouse-bot** reviewed 21 hours ago

**lighthouse-bot** left a comment

## Lighthouse Audits

https://www.foo.software

| Audit | Score |
| --- | --- |
| Accessibility | 87 |
| Best Practices | 100 |
| Performance | 92 |
| Progressive Web App | 59 |
| SEO | 96 |

http://www.hensonism.com

| Audit | Score |
| --- | --- |
| Accessibility | 85 |
| Best Practices | 79 |

**Lighthouse** APP 1:17 PM

https://www.foo.software

Lighthouse audit change made in `refs/heads/master`.

by adamhenson in ee333174b5

**Accessibility**: 88

**Best Practices**: 100

**Performance**: 65

**Progressive Web App**: 59

**SEO**: 96

Observe.

# Have fun.

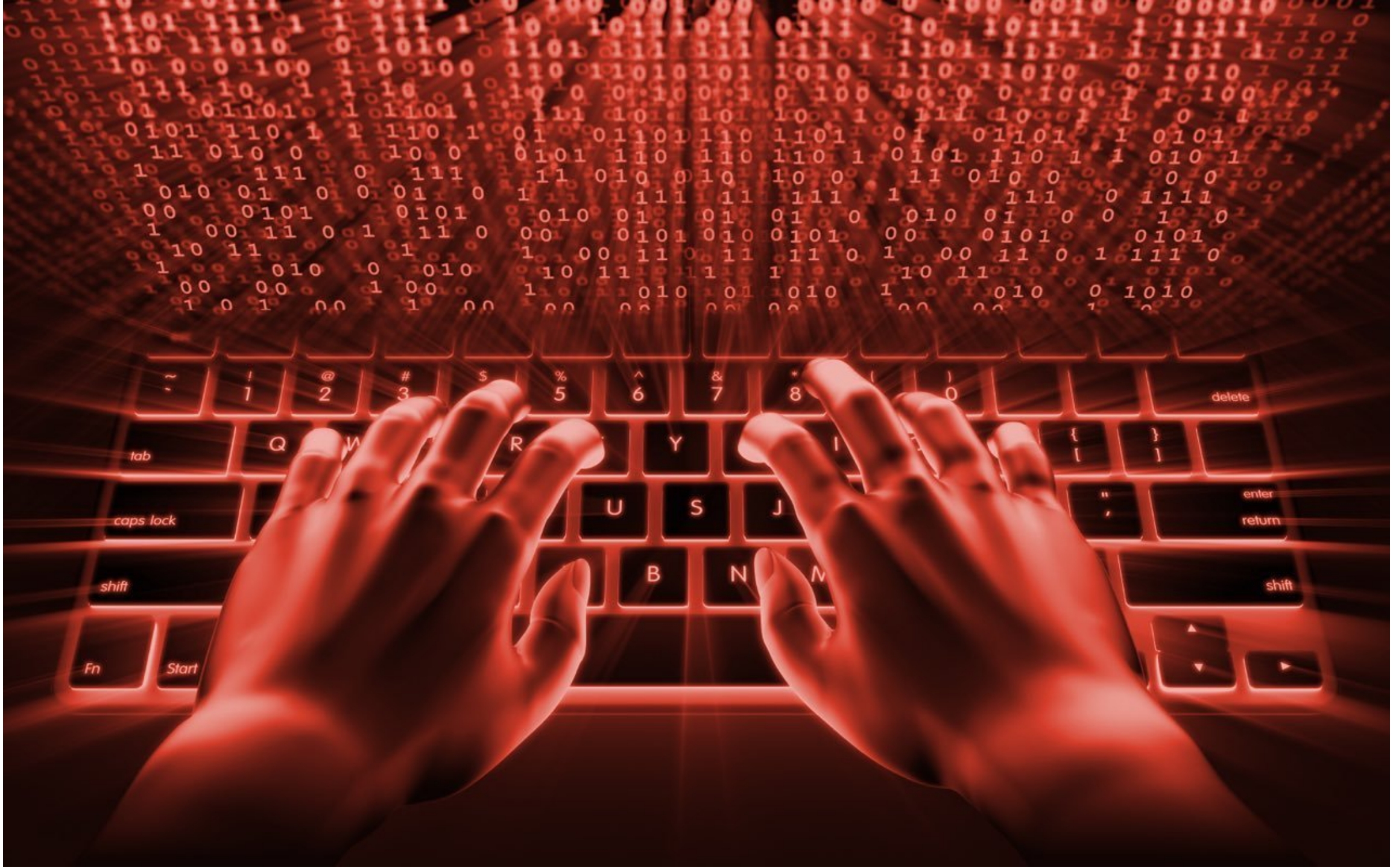
NETFLIX

oss lifecycle active | build passing | godoc reference | go report A+

Chaos Monkey randomly terminates virtual machine instances and containers that run inside of your production environment. Exposing engineers to failures more frequently incentivizes them to build resilient services.

See the documentation for info on how to use Chaos Monkey.

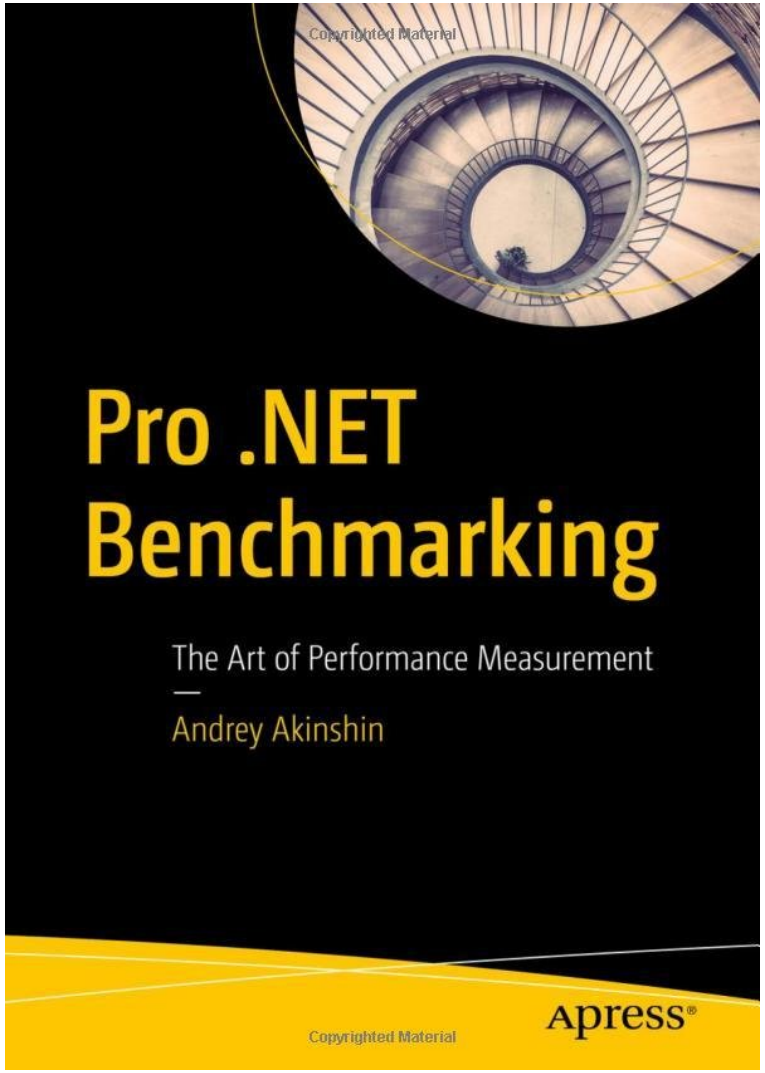
Chaos Monkey is an example of a tool that follows the Principles of Chaos Engineering.


delete
tab
caps lock
enter
return
shift
shift
Fn
Start

LIVING WITH LAG*
*when slow internet causes disruption or delay to the user
STIGA Privat Roller
Privat Roller STIGA

# Summary

1. Stop guessing.
2. Treat performance as a feature.
3. Start simple.
4. Always measure.
5. Automate, observe, have fun.
6. Learn. (not only from mistakes)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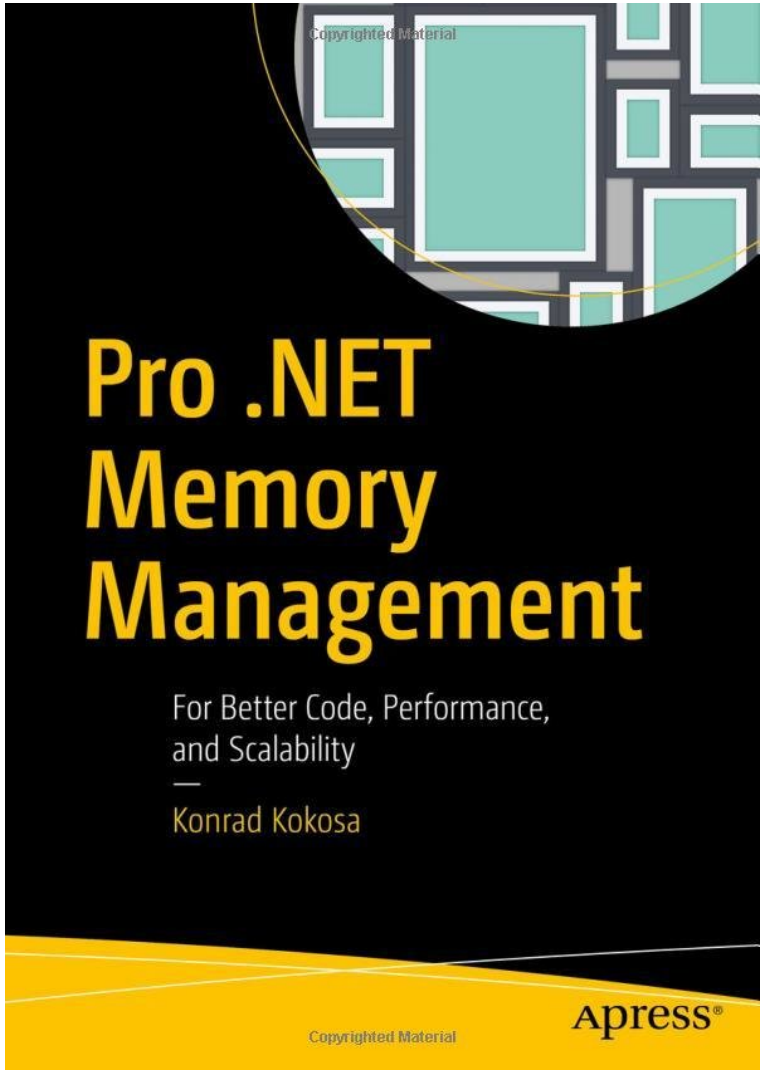
Pro .NET Benchmarking
The Art of Performance Measurement
Andrey Akinshin
Apress
Copyrighted Material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Pro .NET Memory Management
For Better Code, Performance, and Scalability
Konrad Kokosa
Apress
Copyrighted Material

# Thank you!

@zajkowskimarcin / marcin.zajkowski@wearecogworks.com

# Thank you!

@zajkowskimarcin / marcin.zajkowski@wearecogworks.com

# Questions?