

# My awesome journey with Open Source

Adam Sitnik

# About myself



Open Source:

- BenchmarkDotNet (contributor => maintainer)
- Awesome .NET Performance (maintainer)
- Core CLR (contributor)
- corefxlab (contributor)
- & more: Exceptionless.Net, ImageProcessor, protobuf-net, SignalR, Autofac, ServiceStack.Redis, LinqOptimizer

# Agenda

- State of the .NET OSS
- How to start?
- The Advantages
- The Disadvantages
- The Best Moments

# The History of Open Source

You can make your own history!

# Open your eyes!



Adam Sitnik @SitnikAdam · 23.07.2015



to me this was an eye-opening post

**.NET/FRINGE/** @dotnetfringe

This post also explains why, even though Microsoft is hard core OSS these days, they're still not very present [bit.ly/1gQCnGU](http://bit.ly/1gQCnGU)

# What small startup did for .NET OSS to develop a single app?

- Added full CQL3 collisions support to FluentCasandra
- Invented **Helios**, a high performance **server-side socket** library
- **Ported Akka to .NET**
- Implemented Marmur3 and HyperLogLog algorithms in C#

# Some good questions

*„in the ~15 year history of .NET, no one built **a reactive, server-side socket library that's actively maintained?**”*

*(it was 2014)*

*„Why in the hell did it fall on one developer working at a startup in LA and one independent developer in Sweden to port one of the major, major cornerstones of distributed computing to .NET?”*

*(it was before Orleans)*

# We are capable of so much more than this

*„The shortcomings of .NET’s open source ecosystem **are your fault and my fault, not Microsoft’s**”*

*„the truth is that it’s **our own intellectual laziness** that created a ghetto of our OSS ecosystem”*

*„There are brilliant developers like the Akka.NET contributors, the Mono team, Chris Patterson, and others who work on solving hard problems with .NET. **YOU CAN BE ONE OF THEM.**”*

*„You don’t need Ruby, Node.JS, or even Java to build amazing products. You can do it in .NET.”*



Are you using any OSS?

xUnit  
Dapper  
Autofac  
JSON.NET  
NHibernate  
Quartz.NET  
Ninject  
SignalR  
Serilog  
NLog

# Have you ever...

- Maintained OSS project?
- Implemented a new feature?
- Fixed a bug?
- Improved the performance?
- Improved the docs?
- Reported a bug? with a nice repro case?
- Or maybe introduced a bug ?

# Summary: State of the .NET OSS

- Everybody is using Open Source Software
- Very few .NET developers contribute
- Microsoft is not responsible for that
- Our own intellectual laziness is!
- We are capable of so much more than this!
- You can make your own history of OSS!

# At this point of time

- I was anonymous .NET developer
- I knew I wanted to contribute to make a difference
- I had no idea how to start
- I did not know any contributors
- I was burning out as a developer
- I wasn't even dreaming about speaking at the Big Conferences...
- Not to speak about drinking a beer with my Gurus!

# When your Guru starts a new project..



Joe Duffy @xjoeduffyx · 15.07.2015

Slice: a type for dealing with buffers inspired by building systems in C#. [github.com/joeduffy/slice](https://github.com/joeduffy/slice)... A work in progress but the gist is there.

🌐 Przetłumacz z języka: angielski



[joeduffy/slice.net](https://github.com/joeduffy/slice)

slice.net - A simple C# type for working with contiguous buffers.

[github.com](https://github.com)



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25



32

# My first contribution: what it was

- Build the benchmark in the Release mode
- Perform the Jit Warmup
- Cleanup the memory after every iteration
- One micro optimization

# Follow the coding standards (CONTRIBUTING.md)



joeduffy commented on `src/Slice.cs` in a97bb49 on 19 Jul 2015

Style nitpick, indentation looks off; maybe a tabs vs. spaces issue?



joeduffy commented on `src/Slice.cs` in a97bb49 on 19 Jul 2015

Style nitpick, errant spaces.

**You can get a code review from your Guru!!!**

# Choose the right Project

- Look for something that excites you!
- Prefer tools that you are familiar with
- Make sure they are looking for help!
- Make sure it's active!
- Make sure you are ok with the license!
- Your own? Make sure you don't duplicate successful project!



# How to grab an issue?

Filters  Labels Milestones

☒ Clear current search query, filters, and sorts

☐ 15 Open ✓ 0 Closed

Author ▾ Labels ▾ Milestones ▾

☐ Simple API for path customization of Benchmark **up-for-grabs**  
#377 opened 18 days ago by AndreyAkinshin

☐ [Minor bug] Benchmark switcher: incorrect me  
#365 opened 28 days ago by ig-sinicyn v0.10.x

☐ Benchmark just stops (Antivirus problem) **bug**  
#364 opened 28 days ago by Konklaw

Filter by label

Unlabeled

☒ up-for-grabs

# Common GIT mistakes: Working without branches

adamsitnik wants to merge 15 commits into joeduffy:master from adamsitnik:master

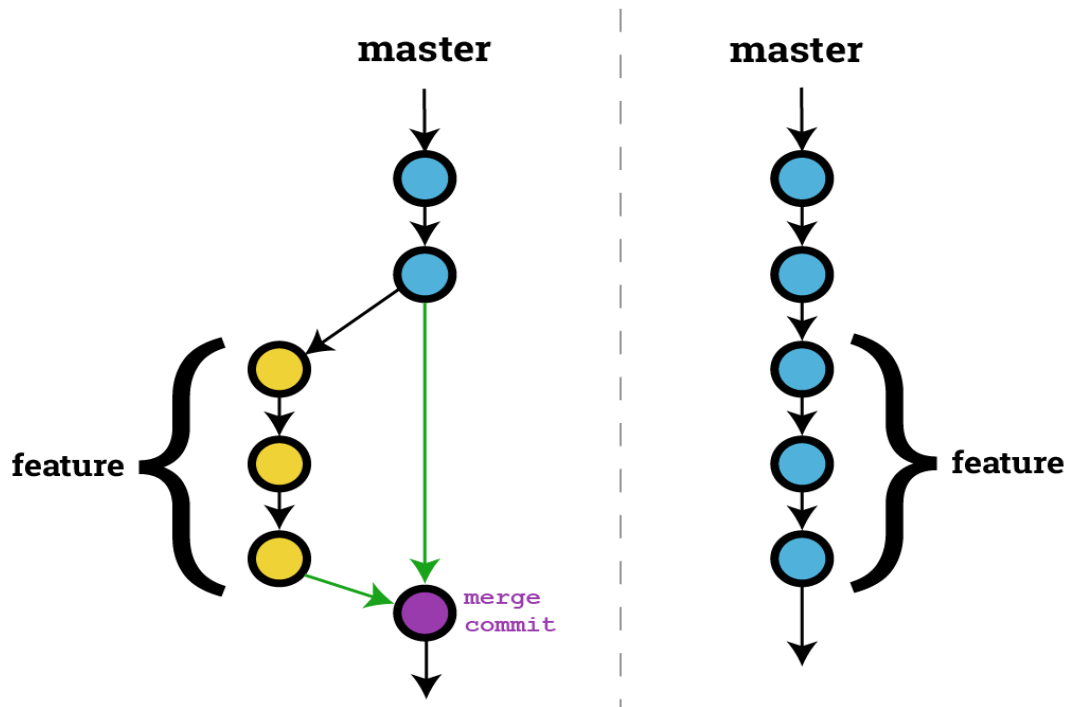


Image from <http://stackoverflow.com/a/21717431/5852046>

# Common GIT mistakes: Wrong email address

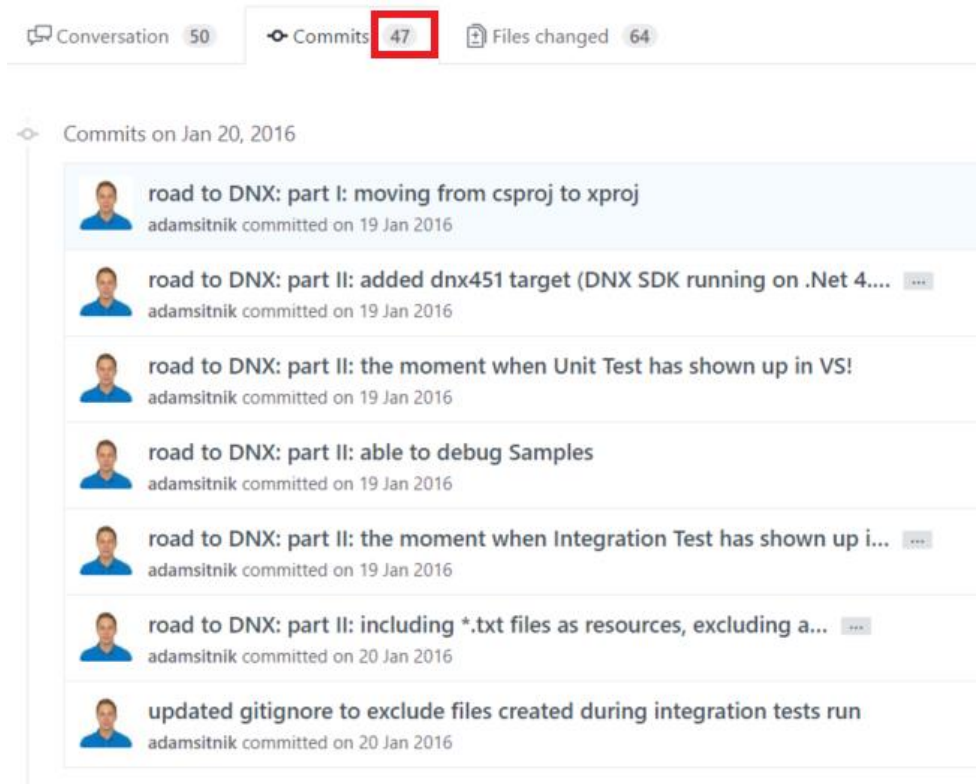
```
$ git config user.email your@github.email
```

Personal settings
<a href="#">Profile</a>
<a href="#">Account</a>
<b>Emails</b>
<a href="#">Notifications</a>

## Email

adam.sitnik@gmail.com	Primary	Public
adam.sitnik@powel.com		








# Common GIT mistakes: Too many/few commits



The screenshot shows the top navigation bar of a GitHub repository. It includes three tabs: 'Conversation' with 50 items, 'Commits' with 47 items (highlighted with a red box), and 'Files changed' with 64 items. Below the navigation bar, a filter is set to 'Commits on Jan 20, 2016'. A list of seven commits is displayed, all by user 'adamsitnik'. The first six commits are dated Jan 19, 2016, and the last one is dated Jan 20, 2016. Each commit entry includes a profile picture, the commit message, and the date.

Conversation 50 Commits 47 Files changed 64

Commits on Jan 20, 2016

-  road to DNX: part I: moving from csproj to xproj  
adamsitnik committed on 19 Jan 2016
-  road to DNX: part II: added dnx451 target (DNX SDK running on .Net 4....  
adamsitnik committed on 19 Jan 2016
-  road to DNX: part II: the moment when Unit Test has shown up in VS!  
adamsitnik committed on 19 Jan 2016
-  road to DNX: part II: able to debug Samples  
adamsitnik committed on 19 Jan 2016
-  road to DNX: part II: the moment when Integration Test has shown up i...  
adamsitnik committed on 19 Jan 2016
-  road to DNX: part II: including \*.txt files as resources, excluding a...  
adamsitnik committed on 20 Jan 2016
-  updated gitignore to exclude files created during integration tests run  
adamsitnik committed on 20 Jan 2016

# Part of a daily job routine

## **Found a bug in OSS library?**

- Report it!
- **Provide a repro case!**
- Is it blocking your job?
- If so, can you fix it?

## **Need new feature?**

- The existing code base saved your company a LOT of time.
- So why don't you extend it?

**Just do it!**

Eventually apologize later ;)

Don't give up!



Ben Adams contributions to Kestrel HTTP Server (as of 2017-05-20 13:30)



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109



115

# Summary: How to Start?

- Choose exciting, active and truly open Project
- Pick one of the issues marked as „up-for-grabs”
- Or wait until something bites you at work
- Or just wait for the right moment!
- Avoid common GIT mistakes
- Follow the coding standards (CONTRIBUTING.md)
- You will get rejected. Don't give up!

Use the tools that are free for the Contributors



Travis CI





# Writing libraries for other developers

- Backward compatibility
- Supporting .NET/Mono/.NET Core
- Supporting Linux/macOS
- Versioning
- Release notes
- Docs. Good docs ;)

# Challenge yourself!

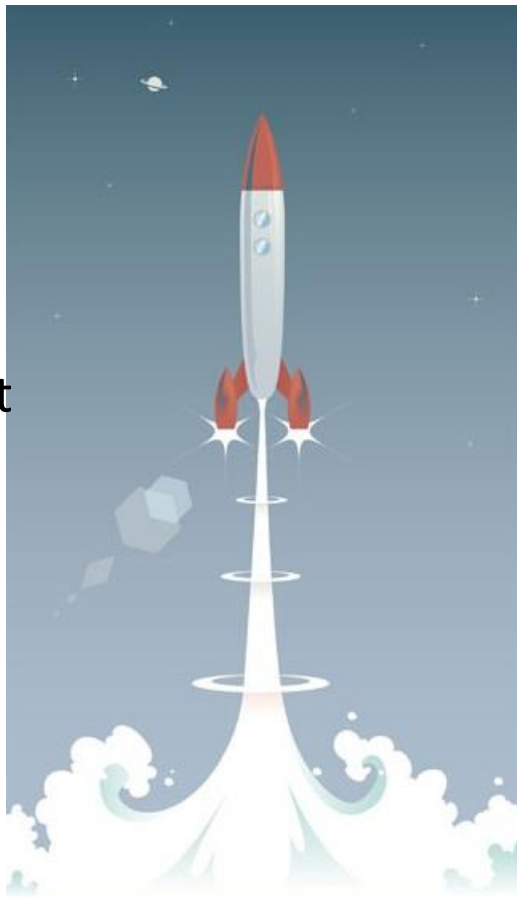
- I ported BenchmarkDotNet to .NET Core
  - At the beginning I had no idea what .NET Core really was
  - I had to become dnx/dotnet cli/MS build expert
  - There was literally no resources available
- Contributing to Core CLR
  - How to build the Virtual Machine?
  - Use C++ to generate CIL to make C# better language ;)
  - How to debug CLR?
  - How to build .NET program that uses local CLR build?

# Be the Worst!

I had the pleasure to learn from:

- Joe Duffy – Concurrency Guru
- Vladimir Sadv – Core Engineer at Roslyn team
- Krzysztof Cwalina – Principal Architect at Microsoft
- Andrey Akinshin – Software Engineer at JetBrains
- Jan Kotas – Core Engineer at CLR team
- & more!

What if you are the average of the five people you spend the most time with?



# Believe in yourself

- How do you know if you are good or not?
- Would you like to get a dream job?
- Fork a project of your dream job company
- Pick up an issue
- Just solve it!
- Create PR
- Or compare your solution with what regular employee got

# You get invited to speak at Conferences



Adam Sitnik <adam.sitnik@gmail.com>

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**You have been selected to speak at NDC Oslo 2017**

2 messages

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**NDC Oslo** <info@ndcoslo.com>

2 March 2017 at 16:26

Reply-To: NDC Oslo <info@ndcoslo.com>

Yes, You still get rejected ;)

# Pair programming with the best



cesarbs on 28 Jan Member

@adamsitnik Would be glad to collaborate with you to get this more generalized and into BenchmarkDotNet 😊



1



adamsitnik on 28 Jan

This week I am in Redmond for the MS LEAP, so we can even meet in person and talk about it ;) btw were you able to run this auto-generated dll? When I tried similar approach (to execute



cesarbs on 30 Jan • edited Member

Awesome! I'll send you an email so we can arrange when and where to meet.

# .NET Foundation #dotnetlovesme



# You get behind the closed doors



Adam Sitnik <adam.sitnik@gmail.com>

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## Design discussions for Span<T>

1 message

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**Immo Landwerth**

18 October 2016 at 00:02

To: Ben Adams  
<adam.sitnik@gmail.com>, OmariO

, Marc Gravell

, Adam Sitnik

Cc: Krzysztof Cwalina

Hey guys,

Krzysztof told me that you're important for helping us shape the design for Span<T> 😊

We'd like to provide a bit more structure to our design discussions and concluded that GitHub comments just don't cut it. That's why a great deal of our design discussions happen behind closed doors on our internal email server. Clearly, that is conflicting with our desire to open up .NET design discussion to the public. Long story short: we're moving to a public mailing list.

We'd love to keep in touch with you so please join our [runtime-dev mailing list](#)!



# Advantages for the employer

- You learn new things all the time
- You use new things at work to do better job
- You build a network which helps you when you are in need
- You can promote your company by doing great things in public



# Summary: The Advantages



- You constantly learn a LOT
- You step out of your comfort zone
- You challenge yourself
- You start to believe in yourself
- You are building a HUGE Network
- You can have a beer with your Guru(s)!

# When you become the maintainer

- Never be an asshole
- Respond fast
- Fix the bugs first
- Write the docs
- Don't forget about the release notes

# The bad part of being the maintainer

- Expectations
- Responsibility
- Eventual failures are public
- The „special” users

 Notifications	 Watching
Unread	403
Participating	23
All notifications	

When's the last time you had a decent night's sleep?



# Afraid To Ask

- Do contributors lose motivation for the boring tasks?
- Do contributors do OSS at work?
- Do contributors get a lot of job offers?
- Will it be easier to get a better job?
- Will you get a MVP award?
- Will you get paid for OSS?

# Summary: The Disadvantages

- It consumes a lot of free time
- People have huge expectations
- You do this for free
- You have to write docs and the release notes ;)

# Getting the write access to your favorite tool



Adam Sitnik <adam.sitnik@gmail.com>

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## AndreyAkinshin added you to BenchmarkDotNet

1 message

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**Andrey Akinshin** <noreply@github.com>  
To: Adam Sitnik <adam.sitnik@gmail.com>

20 January 2016 at 11:22

You can now push to this repository.

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View it on GitHub:

<https://github.com/PerfDotNet/BenchmarkDotNet>



# When Guru use the feature you implemented

## DOTNEXT

Москва  
9 декабря


DotNext Moscow 2016 #dotnext | @goldshn <https://s.sashag.net/dnmoscow2>

### Vectorization: strstr

```
// Simple, no-frills approach:
return haystack.Contains(needle);

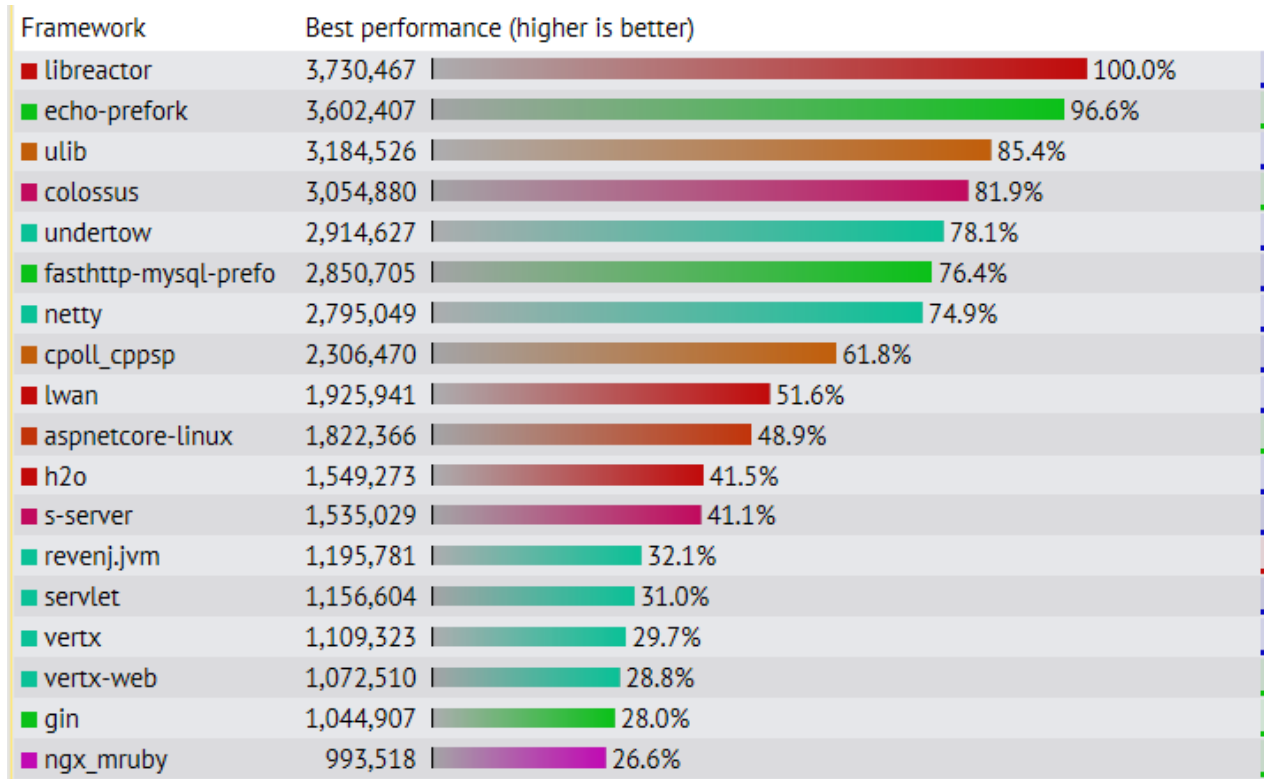
// Vectorized version:
__m256i first = _mm256_set1_epi8(needle[0]);
__m256i last = _mm256_set1_epi8(needle[ns-1]);
for (int i = 0; i < hs; i += 32) {
    __m256i block_first = _mm256_loadu_si256(&haystack + i);
    __m256i block_last = _mm256_loadu_si256(&haystack + i + ns - 1);
    __m256i eq_first = _mm256_cmpeq_epi8(first, block_first);
    __m256i eq_last = _mm256_cmpeq_epi8(last, block_last);
    unsigned mask = _mm256_movemask_epi8(_mm256_and_si256(eq_first, eq_last));
    while (mask != 0) { ... memcmp(haystack + i + first_bit_set_pos + 1, ... )
}
```

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# Seeing your Big Impact



# Summary

- Plan minimum: report well described bugs.
- Contribute to something exciting at least once.
- Contributing should be a part of your daily job routine.
- Everybody gets rejected, so will you.
- You can benefit a LOT!
- You can sky rocket your experience and knowledge!
- You are not going to get paid for it.

# Sources

- [The Profound Weakness of the .NET OSS Ecosystem](#)
- [Free Services & Tools for Open Source .NET Projects](#)
- [All Pull Requests by Ben Adams to Kestrel](#)
- [What it feels like to be an open-source maintainer](#)
- [up-for-grabs.net](#)

# Questions?

Contact:

@SitnikAdam

[Adam.Sitnik@gmail.com](mailto:Adam.Sitnik@gmail.com)

<https://github.com/adamsitnik>