



DARE TO
TRANSFORM



ANITA
B.ORG 21
GRACE HOPPER CELEBRATION

Make Money and Rewards in Open Source

Chris Miyachi
Software Development Manager, Nuance
Communications

Agenda

Here are the ways you can reap the rewards of open source:

- Enhancing your career – get a better paying job
- Creating/Maintaining a Project
- Getting Hard Cold Cash
- Giving Back

Hands On Activities: Prizes

Use Twitter and the following hash tags:

#opensource

#womenwhocode

#OSD2021

#opensourcerewards

Winners will get a \$25 gift card to Amazon that I will email you!



Getting a Job and Open Source

How your contributions can matter

DARE TO...

Open Source License Types

- Copyleft
 - require redistributed copies and derivative works to be under the same license
 - GNU General Public License (GPL)
 - GNU Affero Public License (AGPL)
- Non-copyleft
 - guarantees the freedoms to use, modify, and redistribute
 - permits proprietary derivative works
 - BSD license
 - MIT license

Hands On Exercise

- Pick an open source project and tweet what its license type is.
 - Let's walk through an example with Kubernetes
 - Put the link to the license file and the list the license type on Twitter.
 - Tweet:
 - Project Name,
 - Link to Project,
 - License Name,
 - Is it CopyLeft?
- #opensource
#womenwhocode
#GraceHopperOSD
#opensourcerewards1

Why Do Companies Make/Contribute to Open Source?

- \$100 million - \$1 billion companies that make money off of open source technology.
 - RedHat, Cloudera, MongoDB
 - And others that make code they developed into open source
 - Kubernetes was given as a seed open source project to the Cloud Native Computing Foundation (CNCF) in 2014.

Why Do Companies Make/Contribute to Open Source?

- Builds a larger developer community
 - Brand improvement by building transparency
 - Developers often are also users
- Fosters Innovation
 - Crowd intelligence and contributions not restricted by location
 - Company can still provide the main workforce for the code

Can You Get a Job By Contributing to Open Source?

Think of all the projects developers rely on today.

- Vue
- Log4j
- Kubernetes
- VSCode
- Typescript

Associated Companies

- Facebook
- Google (from Angular ideas)
- Apache
- Kubernetes distributors like Red Hat
- Microsoft

Open Source and Your Career

- Most recruiters ask if you have contributed to an open source project
 - After OSD you will be able to say “yes” ☺
- Even during managerial interviews, you are asked about this.
 - Managers need to understand how to code and how open source projects works

Internships/ Competitions

- Many companies offer paid internships to develop open source.
- Google Summer of Code:
<https://summerofcode.withgoogle.com/about/>
- Hyperledger Mentorship Program:
<https://wiki.hyperledger.org/display/INTERN/Hyperledger+Mentorship+Program>
- Data Driven Competition:
<https://www.drivendata.org/competitions/>
- Linux Kernel Mentorship Program:
<https://wiki.linuxfoundation.org/lkmp>
- Reinforcement Learning Open Source Fest:
<https://www.microsoft.com/en-us/research/academic-program/rl-open-source-fest/>

Find Your Own Internship or Competition

- Tweet a link of an open source internship with hashtags
#opensource
#womenwhocode
#GraceHopperOSD
#opensourcerewards2
- I'll randomly choose a winner in 2 minutes



Creating / Maintaining A Project

Start or inherit a project!

DARE TO...

 / ANITA
B.ORG 21
GRACE HOPPER CELEBRATION

Maintainer/Creator Opportunities

- Charge for Support
- Dual Licensing for your OSS
- Create certification and charge for it
- SaaS (Software as a Service)

Charge for Support

- Historically the most widely used method
- Many who want to use open source lack the expertise to install, use it, and develop it.
- If you have experience you can:
 - Assist with installation
 - Add new features and fix bugs
 - Write documentation

Example: Red Hat Enterprise Linux

- Dual Licensing for your OSS
 - RHEL costs money
 - Fedora Linux is free and community-supported
 - Upstream source for RHEL
- Charge for Support
- RHEL Server
 - Self-support (1 year) \$349
 - Standard (1 year) \$799
 - Premium (1 year) \$1,299

Example: Red Hat Enterprise Linux

- Create certification and charge for it
 - Red Hat Certified System Administrator (RHCSA®)
 - Red Hat Certified Engineer (RHCE®)
- SAAS/PAAS
 - Red Hat Hybrid Cloud Console



Dual Licensing Example

- If you understand the project, you can create and sell enhancements
- Example: Sidekiq
 - open-source background-job framework for the Ruby programming language.
 - Provides extra functionalities and support levels to paying customers, such as Sidekiq Pro and Sidekiq Enterprise.
- Provide other content like tutorials, books, and sponsored blog posts

Hands On

- Find an open source project that has one or more of the following:
 - Charge for Support
 - Dual Licensing for your OSS
 - Create certification and charge for it
 - SaaS
 - Enhancements

Tweet about it using:

#opensource

#womenwhocode

#GraceHopperOSD

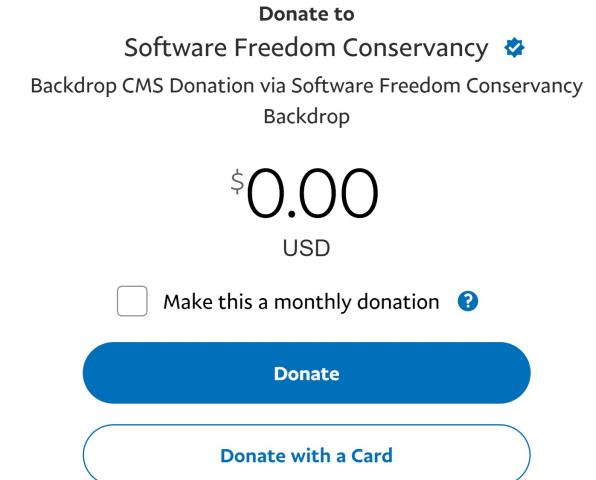
#opensourcerewards3

DARE TO...



Ask For Donations

- There are many donation platforms that assist in collecting money
- Patreon
 - I subscribed to a C++ expert that publishes books, blog posts, and code
- Github has a sponsorship platform
<https://github.com/sponsors>
- Example: Backdrop has a donate button
<https://backdropcms.org/contribute> that links to the Software Freedom Conservancy donation paypal page.
- List of many other methods:
- <https://itsfoss.com/open-source-funding-platforms/>





Donations: The Value of Open Source

Hint – it's undervalued

DARE TO...

Value and Sustainability in Open Source

- “Sustainable open source projects are ones that spawn sustainable businesses.”
[\(https://aaronstannard.com/sustainable-open-source-software/\)](https://aaronstannard.com/sustainable-open-source-software/)
- Example of sustainable project:
 - Kubernetes
 - Cloud providers have implementations like Azure Kuberntes Service
 - Other companies bundle distributions based on different areas like Ubuntu Linux.

Value and Sustainability in Open Source

- Example of a non-sustainable project:
 - the “Heartbleed” vulnerability in OpenSSL
 - Before the bug was discovered, they received about US\$2000 a year in donations
 - After the vulnerability, they received about US\$9000 in donations.
 - Cost of the vulnerability is estimated to be as high as \$500 million



Getting Cash For Your Contribution

Get \$\$\$ directly

DARE TO...

ANITA
B.ORG 21
GRACE HOPPER CELEBRATION

Bounties

- Mozilla: <https://www.mozilla.org/en-US/security/bug-bounty/>
 - software \$10,000
 - websites \$5,000
- Google Android:
<https://www.google.com/about/appsecurity/android-rewards/>
 - \$150,000 dollars for the most critical problems found and solved
- Large list of bug bounty programs
 - <https://hackerone.com/bug-bounty-programs>



Let's Study a Famous Bug Type in Open Source

Buffer Overruns

DARE TO...

Buffer Overrun in C

```
#include <stdio.h>
#include <string.h>

int main(void)
{
    char buff[15];
    int pass = 0;

    printf ("\n Enter the password : \n");
    gets(buff);

    if(strcmp(buff, "thegeekstuff"))
    {
        printf ("\n Wrong Password \n");
    }
}
```

From [https://www.thegeekstuff.com/2013/06\(buffer-overflow/](https://www.thegeekstuff.com/2013/06(buffer-overflow/)

Buffer Overrun in C

```
else
{
    printf ("\n Correct Password \n");
    pass = 1;
}

if(pass)
{
    /* Now Give root or admin rights to
user*/
    printf ("\n Root privileges given to
the user\n");
}
return 0;
```

From <https://www.thegeekstuff.com/2013/06/buffer-overflow/>

Java Example

(<https://cisserv1.towson.edu/~cssecinj/modules/cs0/buffer-overflow-cs0-java/>)

```
public class Overflow
{
    public static
<String> void
main(String[] args)
{
    int importantData =1;
    int[] buffer = new
int[10];
```

```
for (int i =0; i < 15;
i++)
    buffer[i] = 7;

System.out.println("afte
r buffer overflow ");

System.out.println("Impo
rtant data =
"+importantData);
}
```

Exception in thread "main"

java.lang.ArrayIndexOutOfBoundsException

Let's Find a Bugs

- **Buffer Overrun Bug in Python**

```
buffer=[None]*10
```

```
for i in range(0,14):  
    buffer[i]=7
```

- In the code above, buffer has 10 elements but the loop attempts to writes through 15 elements, which results in an error.

Hands On

- Find a buffer overrun example in a language of your choice

Tweet about it using:

#opensource

#womenwhocode

#GraceHopperOSD

#opensourcerewards4

I'll gather the answers and randomly pick a winner!



Buffer Overruns in Open Source: Heartbleed

Let's look at the bug

DARE TO...

 / ANITA
B.ORG 21
GRACE HOPPER CELEBRATION

Buffer Overrun of the HeartBleed Bug

- <https://git.openssl.org/gitweb/?p=openssl.git;a=commitdiff;h=96db902>
- We've been talking about buffer overruns – let's look at this famous open source bug.
- These are kinds of bugs that are valuable to fix (bounties are often available).

Getting Paid Directly to Develop

- Some companies pay their developers cash to develop open source
 - Formidable pays \$20/hour
<https://formidable.com/blog/2019/sauce-program/>
- If your company gives you volunteer hours, consider donating your time to an open source project
 - AI is a field that requires contributors from all over the world to work correctly:
<https://github.com/openai>
 - <https://www.firsttimersonly.com/>



The Reward of Giving

Develop Open Source for Bettering the World

DARE TO...



Donate Your Time, Better the World

- Most companies have volunteer programs. Get your company to sponsor donating time to an open source project: <https://spiceprogram.org/>
- <https://www.codetriage.com/>
- Contribute to Open Source foundations
 - <https://www.cncf.io/>
 - <https://sfconservancy.org/>
 - <https://opensource.com/resources/organizations>
 - This is a master list
- <https://opensource.com/resources/organizations>
- Get involved with Open Source Day 2022!

Final Words

- Working in open source has a variety of rewards. While you can make cash, the rewards span is much greater.



Thank You

DARE TO...



@cmiyachi

<https://www.linkedin.com/in/chris-miyachi-a31835/>