

DevOps for University Students

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About me

OSU Open Source Lab Director

Systems Admin background

Been at OSL since 2007

Experienced in:

- Virtualization (Ganeti/OpenStack)

- Chef, CFengine, Puppet

- Mentoring students

- Open source project hosting

Session Overview

Current Learning Environment

OSL Student Experience

Devops Bootcamp

Next Steps

Current Learning Environment

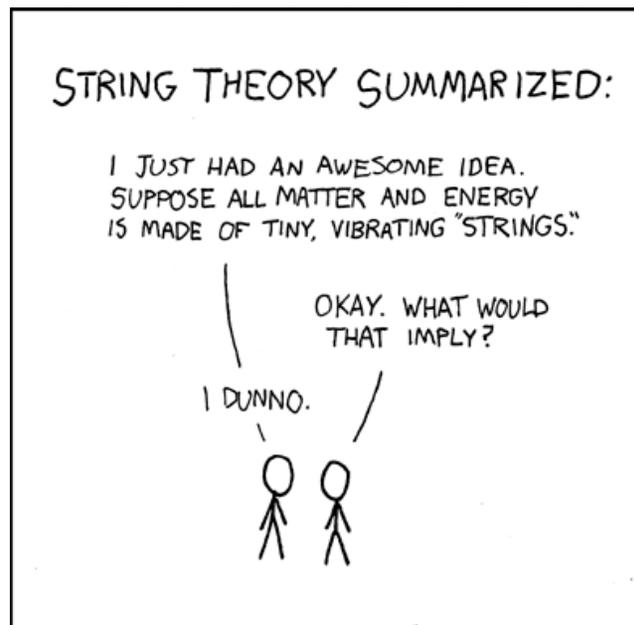
There be dragons!

Theory vs. Applied

More focus on theory than applied

Classwork rarely mimics real-world

Difficult to apply theory



Student Jobs

Finding experience on campus

Limited roles and access

Limited availability

No structure



Insufficient Mentoring

No dedicated staff/faculty

LUG's help, but not the solution

No centralized program

Need a place for advanced students to excel more

Also need an environment for *"newbies"*

OSL Student Experience

Giving students real-world experience and mentorship

OSL Overview

Provide hosting for FOSS projects

Services we provide

- Co/Location

- Virtualization (Cloud)

- Managed/Unmanaged hosting

- Email, DNS, mailing list, etc

Development focused on supporting hosting

Media communications team

OSL NOC



OSL Student Experience

Given full *"root"*

Spend six months mentoring

Mix of full-timer and senior student mentorships

Work on support tickets and customers

Interact with people internationally

Ownership of a project

Treated like a full-timer

Scaling problem

Balancing FTE to Student ratios

A lot of time and resource is put in mentoring

Represent less than 1% of total OSU CS population

Budget and staff constraints on hiring more students

DevOps Bootcamp

Expanding DevOps beyond the OSL...

<http://devopsbootcamp.osuosl.org>

Portland State *"Braindump"*

Weekly meet up to teach being sysadmin

In-depth teaching on specific topics (DNS, Apache, etc)

Graduated system

- Start out with helpdesk support

- Get "non-root" access to systems

- "Rooter"

Year long program

- Starts out with 60+ end up with ~10 solid recruits

Adapt PSU's Braindump

Making it work for the OSL and OSU .. and DevOps
Bootcamp was born!

Goals:

- Teach basic system administration skills

- Introduce FOSS development

- Discuss modern technologies

- Publicize all the content

- Eventually integrate into EECS program

Program Structure

Weekly/Bi-Weekly meet ups about a specific topic

Weekly content planning meetings

Simple *homework* each week

Both lecture and hands on

Communication

Mailing list

IRC

LUG



Tools

Vagrant

CentOS/Debian VMs

OpenStack

Github

Sphinx-doc and Read The Docs

Hieroglyph for slides

Google Hangouts Live (for recording)

Curriculum

Linux fundamentals

Editors, Git and Github

Simple scripting

Web applications

Linux boot process and filesystem hierarchy

Databases

Security & Authentication

Networking overview

DNS

Curriculum (continued)

Development tools and debuggers

Contributing to open source

Configuration management

Continuous integration

Web application frameworks

Testing and development

Containers

Roots in CS312 Sysadmin class

Previously taught in 2009, more recently in 2015

Content was retooled this year with a DevOps focus

More advanced, modern and focused topics than
DevOps Bootcamp

Approved to be taught in Winter 2016 term

Content Creative Commons Licensed and available on
Github:

<http://cs312.osuosl.org>

<https://github.com/osuosl/cs312>

DevOps DayCamp

Dual-tracked day-long conference: October 3, 2015

Second year running

Beginners track

- Hands-on Linux Basics training

Advanced track

- Similar to DevOps Days content

Roughly 100 in attendance

Submit your CFP for the advanced track at DayCamp!

<http://devopsbootcamp.osuosl.org/daycamp/>

What we've learned two years in

Attendance ranges from 30 at the start and dwindles towards 15 near the year end

Weekly meetings are a bit too much for many students

Creating quality content takes time and practice

Learn to be flexible with the schedule and topics

SSH Keys, Vagrant and VirtualBox are a PITA for beginners

OpenStack is a great tool, but Horizon isn't the right frontend for beginners

Next Steps

Plans

Continue to build more content (*and tweak it*)

Develop new curriculum in EECS program

Create a side track focused on DevOps and open source

Integrate into eCampus EECS post-bac program

Invite more outside speakers from the industry

Invite more contributions from external sources

Because, FOSS!

Questions?

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