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 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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