Level up your workflow

A PRESENTATION ABOUT THE TOOLS YOU CAN USE IN THE I-ASK CENTER TO MAKE YOURSELF AN UNSTOPPABLE PROBLEM-SOLVING MACHINE

Table of Contents

- Expert SSH Clients
- Virtualization Tools
- Software Tools/User-level package managers
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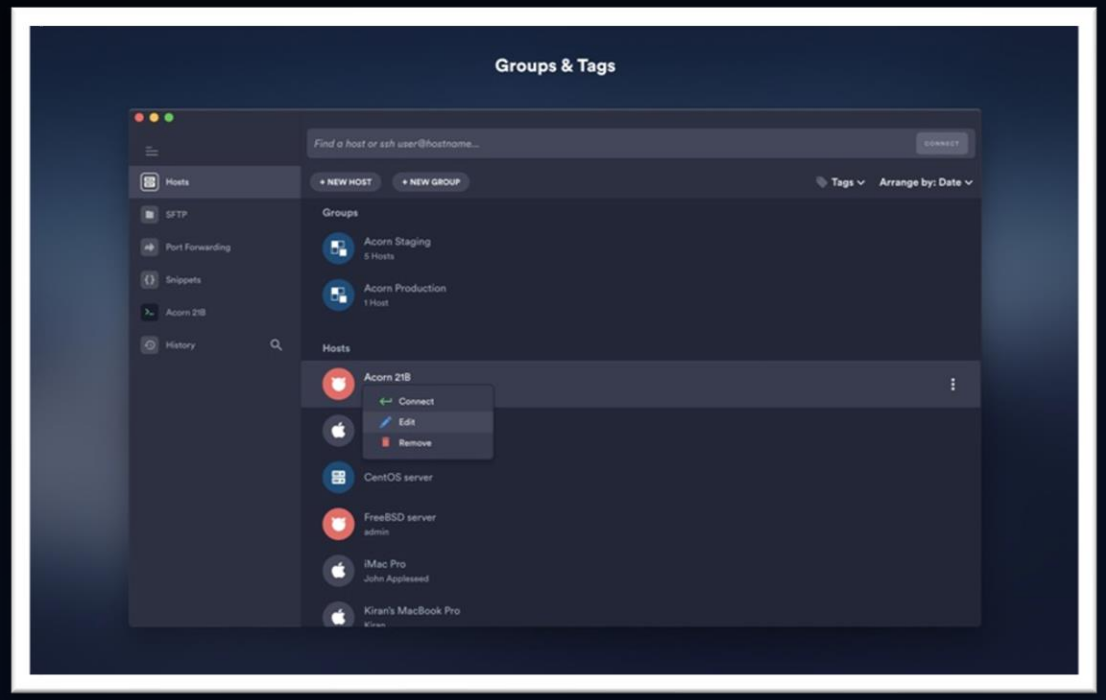
Expert SSH Clients

Termius


Groups & Tags
Find a host or ssh user@hostname...
CONNECT
Hosts
SFTP
Port Forwarding
Snippets
Acorn 21B
History
+ NEW HOST
+ NEW GROUP
Tags
Arrange by: Date
Groups
Acorn Staging
5 Hosts
Acorn Production
1 Host
Hosts
Acorn 21B
Connect
Edit
Remove
CentOS server
FreeBSD server
admin
iMac Pro
John Appleseed
Kiran's MacBook Pro

Termius Pros and Cons

THE PROS ☺

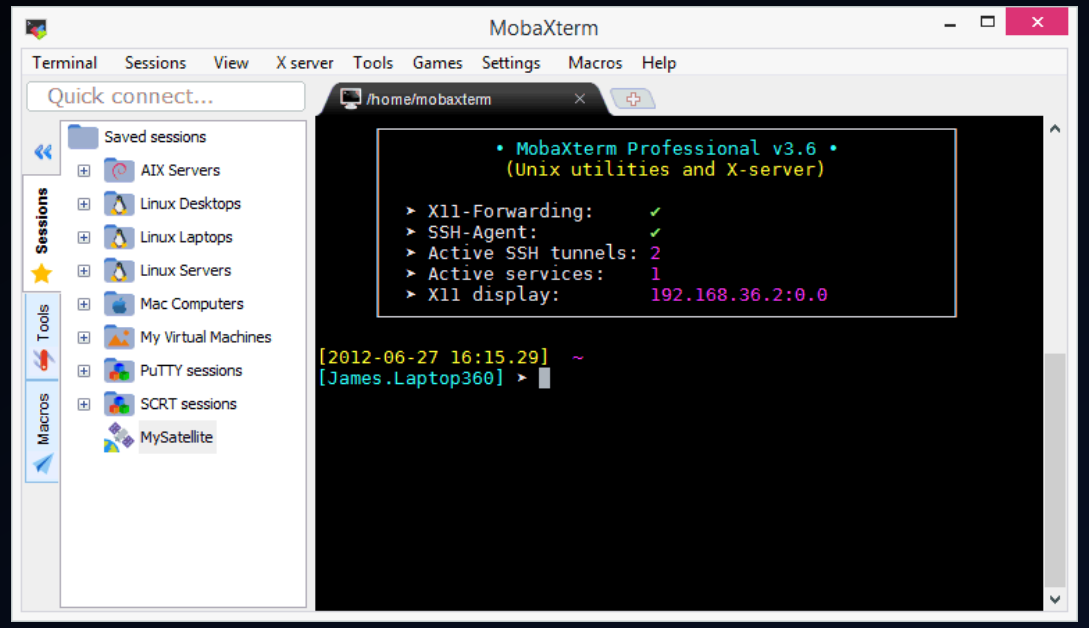
- Cross-Platform
  - Your account settings travel with you
- Save and run code snippets
- Easy to use built-in SFTP client
- Free Basic Plan
- Ad Free

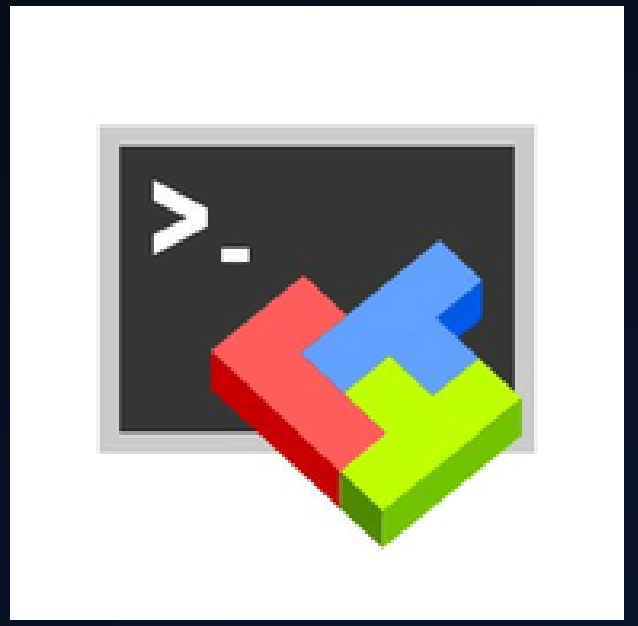
THE CONS ☹

- Premium plan with all the cool features costs money
  - Free with GitHub Student
- Doesn’t have all the bells and whistles of other professional SSH clients
- No X11 forwarding capability

Termius in Action!

MobaXterm


MobaXterm
Terminal Sessions View X server Tools Games Settings Macros Help
Quick connect...
/home/mobaxterm
Saved sessions
AIX Servers
Linux Desktops
Linux Laptops
Linux Servers
Mac Computers
My Virtual Machines
PuTTY sessions
SCRT sessions
MySatellite
Sessions
Tools
Macros
• MobaXterm Professional v3.6 •
(Unix utilities and X-server)
➤ X11-Forwarding: ✔
➤ SSH-Agent: ✔
➤ Active SSH tunnels: 2
➤ Active services: 1
➤ X11 display: 192.168.36.2:0.0
[2012-06-27 16:15.29] ~
[James.Laptop360] ➤



MobaXterm Pros and Cons

THE PROS ☺

- Can save hosts
- Embedded X server
  - Has X11-Forwarding capability
- Highly configurable with plugins
- Graphical SFTP browser

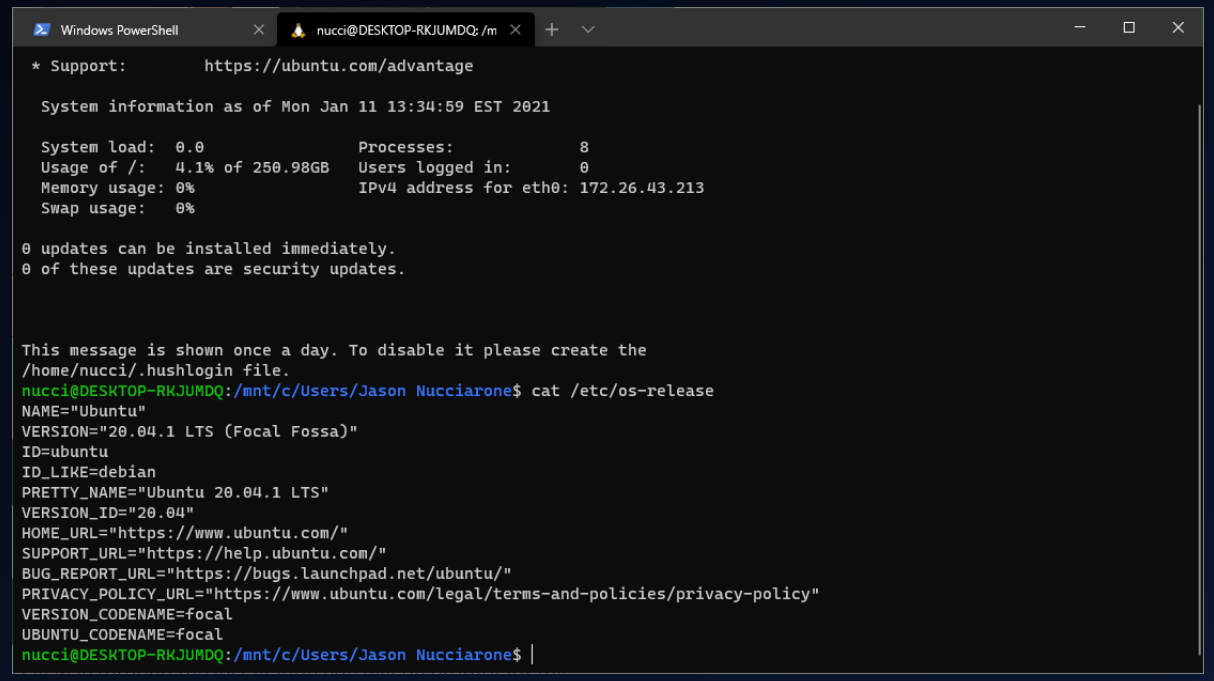
THE CONS ☹

- Ads come with Home edition
- Featuritis
  - Many features are outside the scope of what i-ASK techs do. More geared towards SysAdmins like Chad Franklin
- Windows-Only

Virtualization Tools

Windows-Subsystem Linux 2 (WSL2)

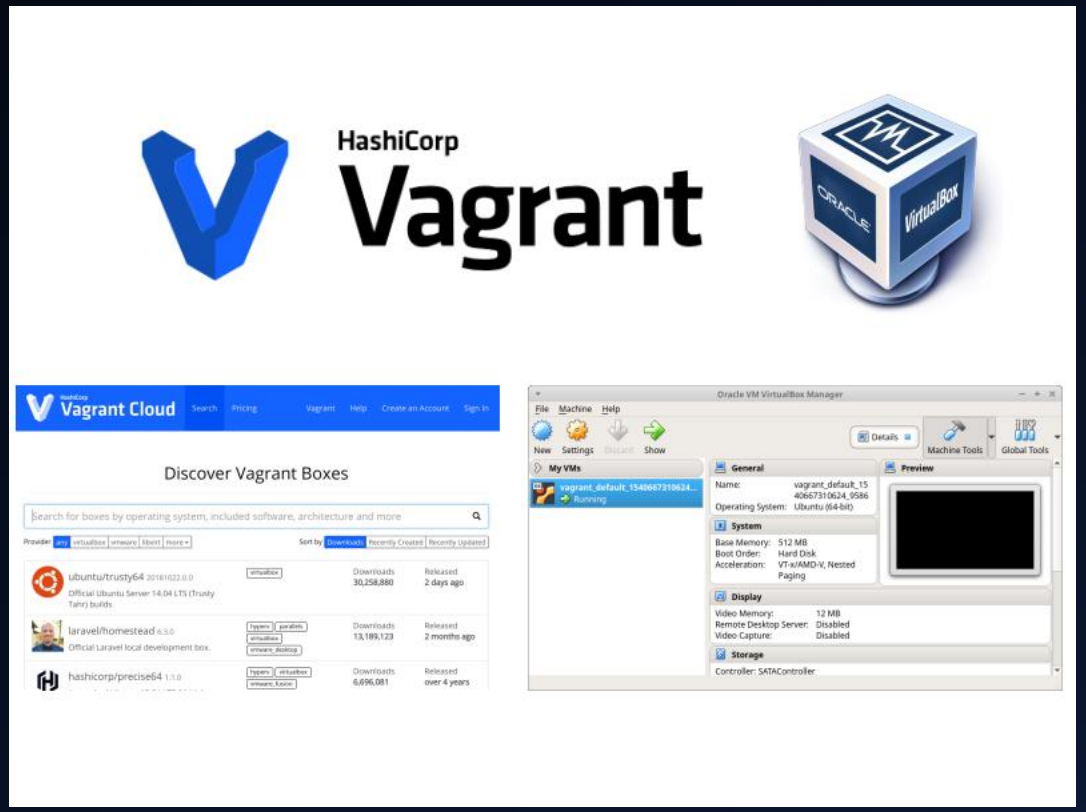
- Light-weight virtualization platform
- Run Linux Distros from the Windows command prompt
  - Can download distros from Windows Store
- Can run Singularity*
- Run Docker back-end
- Can run graphical Linux/Unix Apps



WSL2 in Action!

Vagrant

- Another light-weight virtualization tool
  - Doesn't mount hard drive like WSL2
- Have more distros to choose from
- Uses Oracle VirtualBox or VMWare to run VMs
- Can run graphical Linux/Unix apps

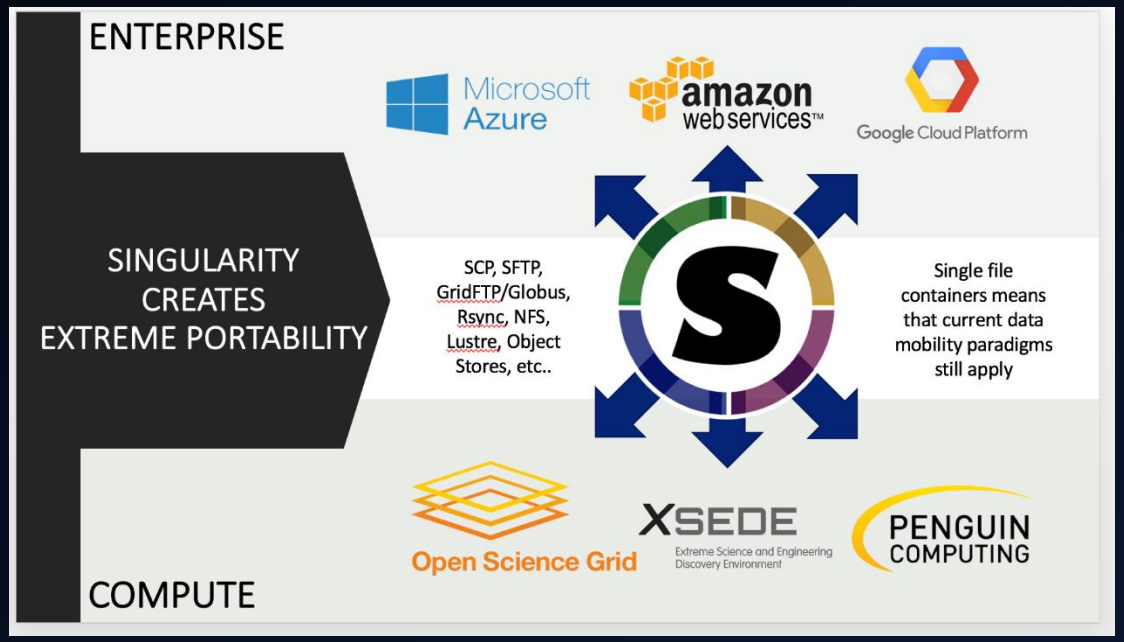


Vagrant in Action!

Software Tools/
User-level package managers

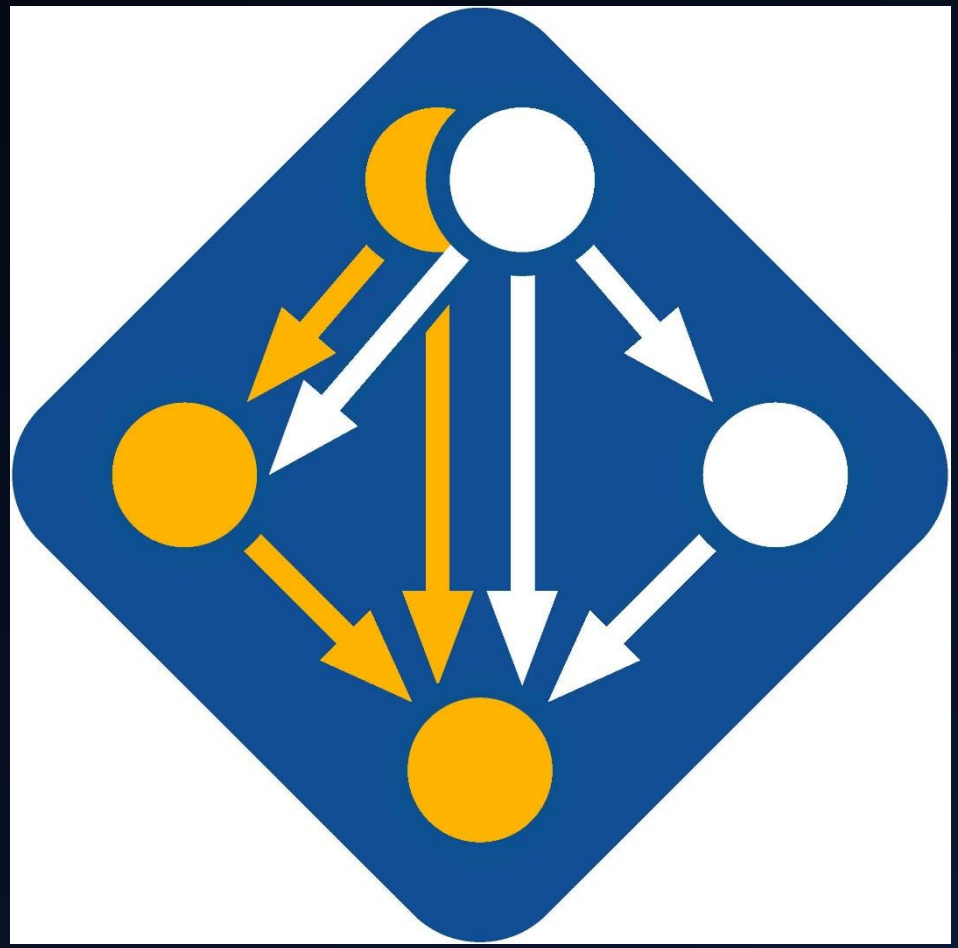
Singularity

- The gold-standard for containerization on HPC clusters
- Like Docker but more secure
  - The same person inside the container as you are outside of it
- Great for managing system-level dependencies
- Example of Build Definition Files



Spack: A Flexible package manager for HPC

- New tool on the block
  - Main software stack is deployed using spack
- Thousands of packages available!
- Can find more documentation here
- Example of Spack in use on the cluster (GitHub Repo still a work in progress)



Anaconda (and Anaconda Cloud)

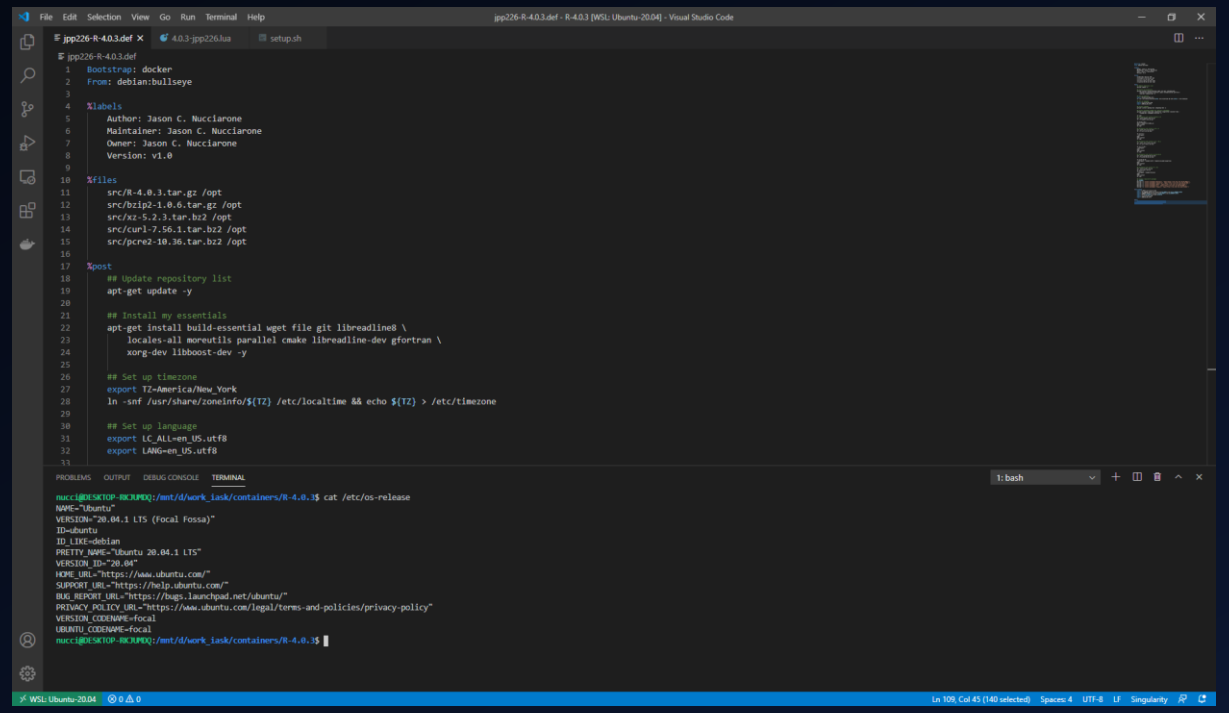
- Amazing for all things Python and R
  - Has packages for C/C++/Perl too!
- Packages are handled in the form of environments
- “Duct-tape of the cluster”
- Can use environments in Jupyter Notebook
- Environments are versatile thanks to YAML files

Anaconda in Action!

Source Code Editors

VSCode (or VSCodium)

- Awesome source code editor put out by Microsoft
- Highly configurable thanks to plugins
  - I have plugins for Git, GitLab, Singularity, Docker, etc.
- Built-in Markdown Previewer
  - Great for writing READMEs!
- Remote Development plugin allows for working in WSL2



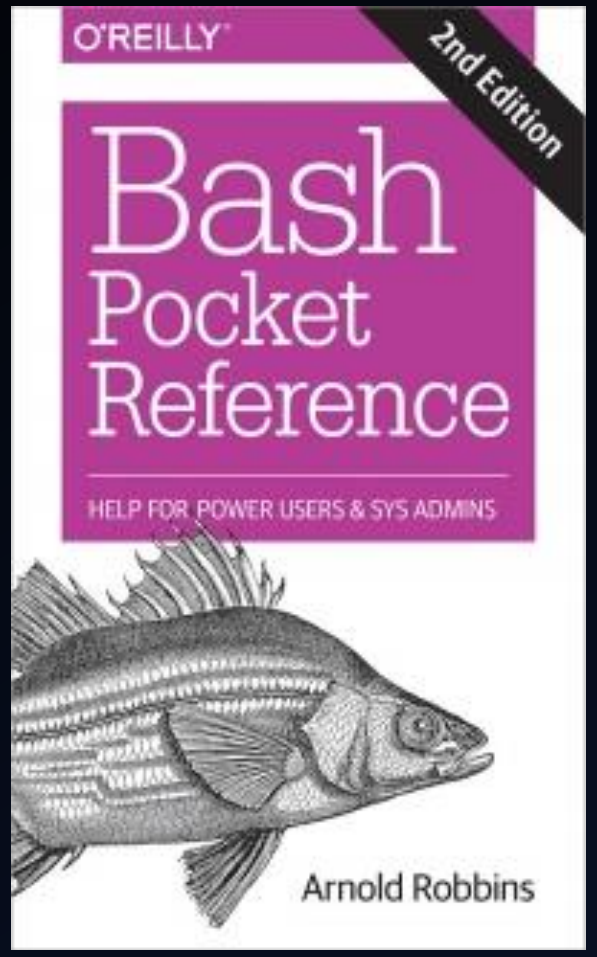
Online Resources

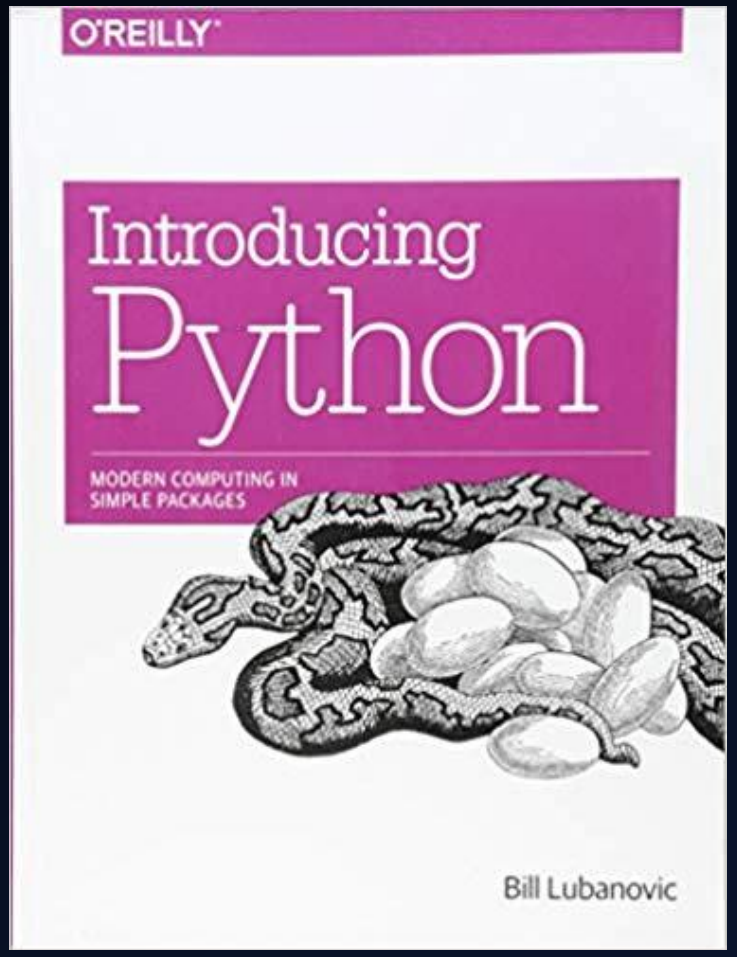
So Many Resources!

- Stack Overflow
- Tutorialspoint
  - Their shell scripting tutorial is very helpful
- Lmod Documentation
- i-ASK Center GitHub
- My own GitHub
  - And other projects

Some Good Books

My two favorites





That's all Folks!