

Remote iPython Notebooks*

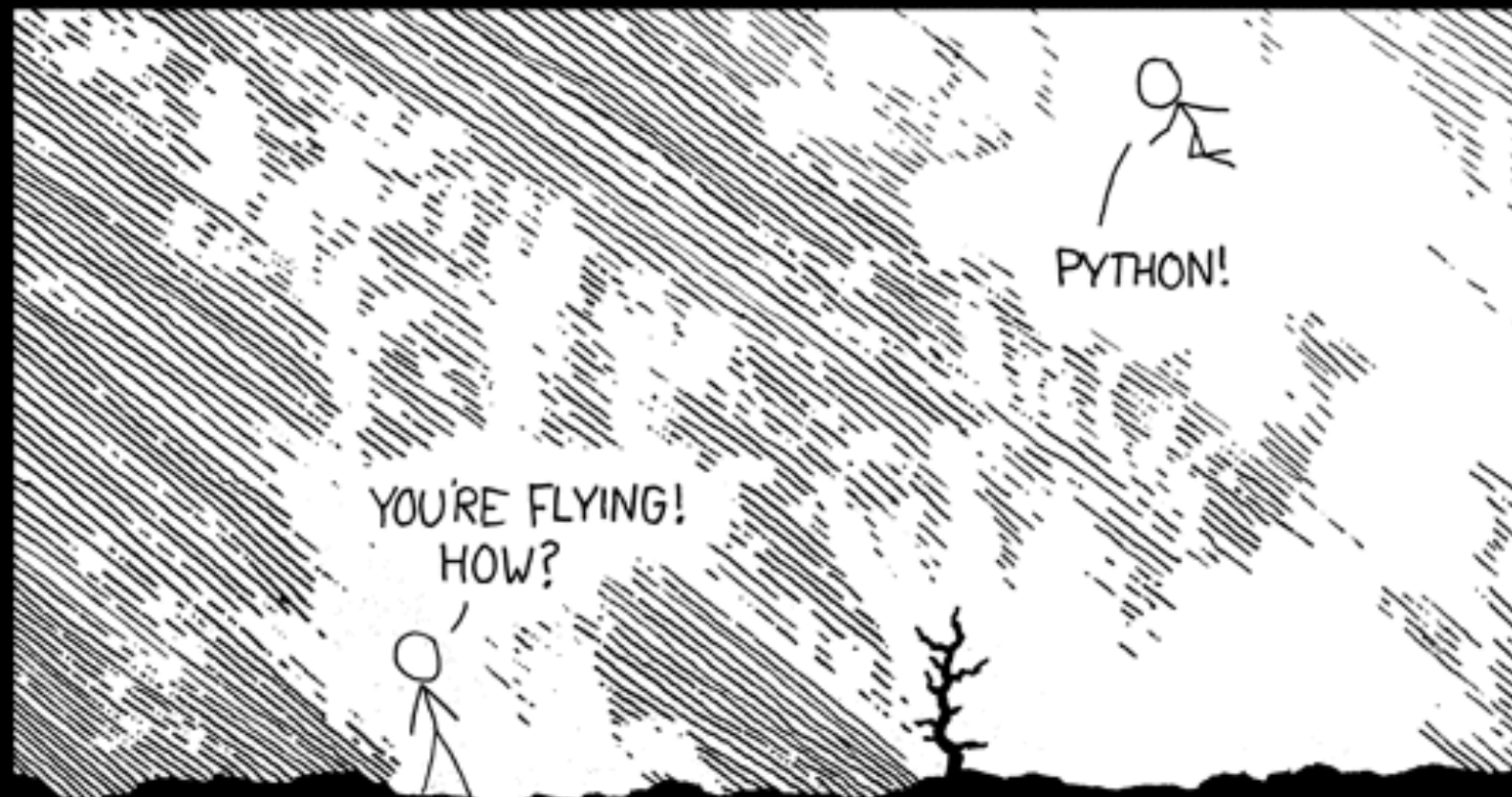
Brendan Griffen

this talk primarily useful if you do science using
more than just your laptop

*and improving your workflow

Survey

Do you do science using more than just your laptop?
(i.e. any other remote computing resources)



I LEARNED IT LAST NIGHT! EVERYTHING IS SO SIMPLE!
HELLO WORLD IS JUST
print "Hello, world!"

I DUNNO...
DYNAMIC TYPING?
WHITESPACE?

COME JOIN US!
PROGRAMMING
IS FUN AGAIN!
IT'S A WHOLE
NEW WORLD
UP HERE!




BUT HOW ARE
YOU FLYING?

I JUST TYPED
import antigravity

THAT'S IT?

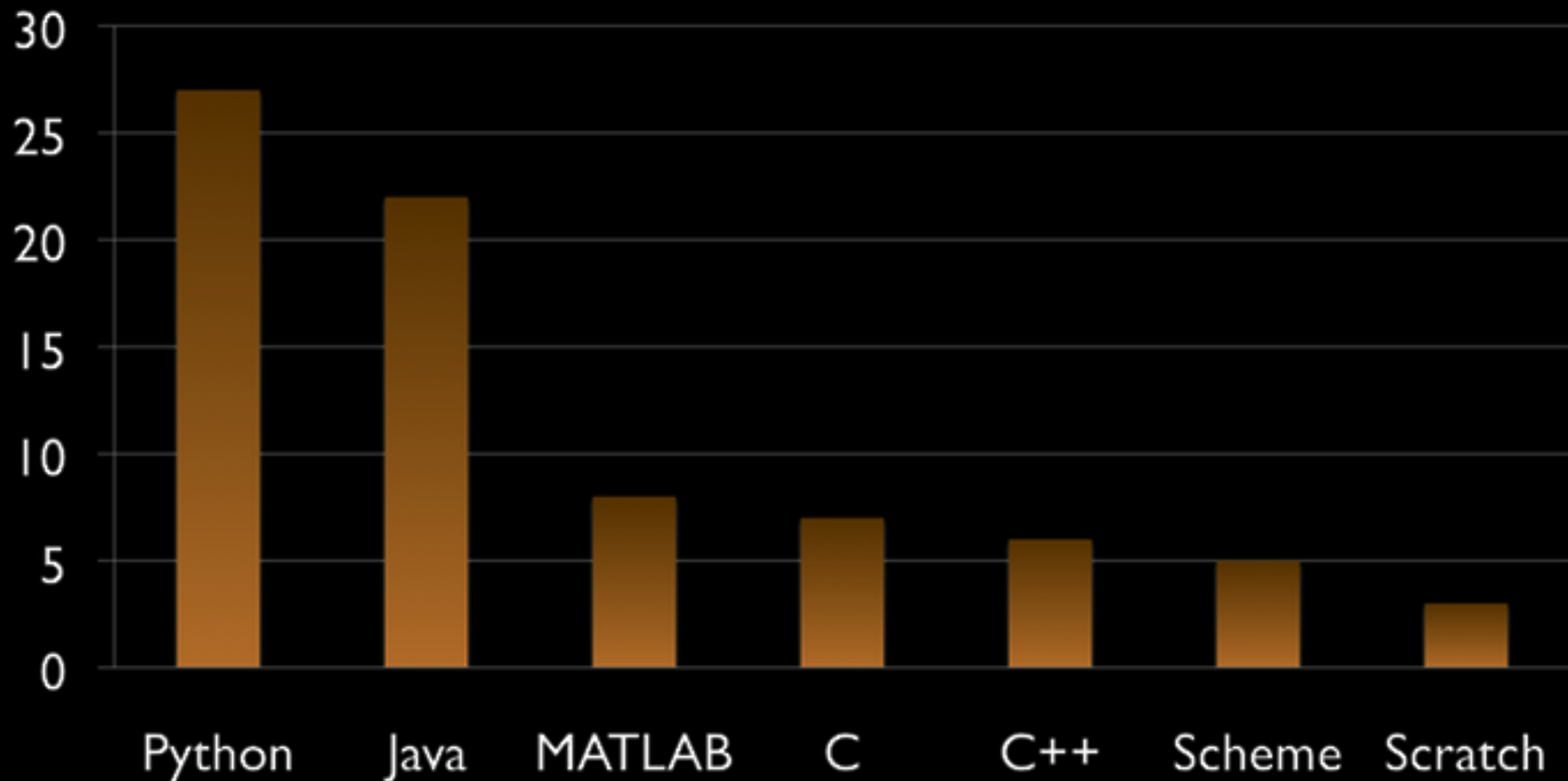
... I ALSO SAMPLED
EVERYTHING IN THE
MEDICINE CABINET
FOR COMPARISON.



BUT I THINK THIS
IS THE PYTHON.

Python is widely used

Number of top 39 U.S. computer science departments that use each language to teach introductory courses



Analysis done by Philip Guo (www.pgbovine.net) in July 2014, last updated 2014-07-29

Python Notebooks

- interactive
- rich text
- math enabled
- ancillary media
- “story telling” approach to code
- Examples
 - <http://nb.bianp.net/sort/views/>
 - <https://github.com/ipython/ipython/wiki/A-gallery-of-interesting-IPython-Notebooks>

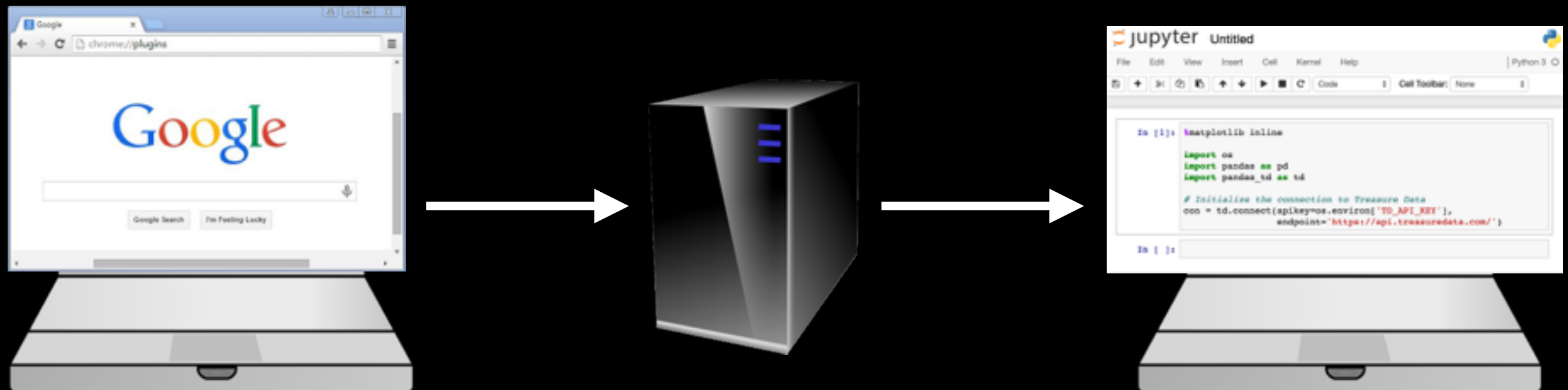
The Location Problem(s)

- you produce data elsewhere
- your laptop has insufficient resources (e.g. RAM, speed, cores)
- you have multiple computing accounts
 - x.server.edu: fast computer for running code (e.g. overseas)
 - y.serve.edu: storage node at institute
 - z.server.edu: some random analysis code you need now

A Solution

<http://mynotebook.server.edu>

Remote Notebooks



Talk In One Slide

- login to remote machine

```
jupyter notebook --generate-config  
from notebook.auth import passwd  
passwd()
```

- copy the `sha1:` line

- vi ~/.jupyter/jupyter_notebook_config.py
c = get_config()
c.NotebookApp.ip='*'
c.NotebookApp.password={paste!}
c.NotebookApp.open_browser = False
c.NotebookApp.port = 9999 # or whatever

- start notebook: jupyter notebook

- if firewall allows it: http://address_of_remote:9999

- if not, make an ssh-tunnel; ssh username@address_of_remote -L127.0.0.1:3129:127.0.0.1:9999

- now you can access the notebook on localhost:3129

- or ssh username@address_of_remote -L3129:localhost:999 "jupyter notebook"

- tips: c.InteractiveShellApp.matplotlib = 'inline'

Other Tips

“I use Python, but notebooks aren’t for me.”

- Do you have copied of files in different locations?
- Do you constantly copy files from servers back to your laptop?
- Try: Dropbox!
- Install on all of your clusters/servers.
- Put all of your code on your laptop Dropbox folder
- It appears on all clusters —> immediate figure/data extraction.

“I want any system to contain my work environment.”

Part II: Exploring ADS

- Publication profiles of Hubble, Einstein, Sagan fellows.
- Mapping astronomy publications.
- Making the ADS Job Register more user friendly.
- Historical review; the top cited astronomers.
- What is popular on the arXiv? Can we make a digest.

www.brendangriffin.com

Fellowship Holders In ADS

- How many fellowship holders are there over time?
- What is the ratio of male-to-female fellowship holders over time?
- How many papers on average to each type have?
- Is there any difference between men and women?
- Do men or women have more co-authors?
- How do fellowship holder stats compare to later in their careers?