

# Training the Next Generation of Network Engineers

“Or Plumbers”

Jose Santos  
University of Colorado @ Boulder

# What is the definition of a Perfect Network Engineer

- Understands the operation of network protocols
- Understands the limitations of network protocols
- Master of CLI
- Master of Automation / Scripting
- Software Developer
- Unix Guru
- Virtualization Aware
- Wireless and Security (well rounded)
- Data Mining Expert
- Not-so-old totally-old
- The works: social, self driven, professional, works in teams, able to rationalize in critical situations)

# Basic Networking Toolkit

- MPLS
- IP 4/6
- IPSEC/SSL
- BGP
- OSPF
- LAG
- Ethernet
- Optical
- Load Balancing
- High Availability
- NAS/SAN
- Troubleshooting

# These persons do not exist by accident:

- Education
- Skill
- Training
- Experience / Exposure
- Suitable Learning Work Environment

# Our challenge

- 2 year masters program
  - Not enough time to build a complete skillset
    - Unless they are CS undergrads (SDN)
    - Unless they are EE undergrads (IOT)
    - What about other backgrounds / professionals reinventing themselves? (CLI)

# Our Challenges

- 5 year program
  - Are students ready to commit to our career path that early
  - Will they have the patience to remain on track given other short-term high-reward markets.

# How can you help

- Each one of you has a unique career path
  - Could you share some of the building blocks that made you the expert of today?
  - What was their sequence?
  - What would you do differently if you had the time?
  - What could you do in 2 years? How about 5?

# How can you help

- College Immersion Program
  - Only works on network engineers
- Influence Academia at an earlier time
  - New generation needs to understand the complexity of networking
  - Taken for granted



# How can you help

- Senior and Junior Projects
  - 2 term / 8 month courses
  - Students write a paper/technical solution to solve a problem
    - Network modeling
    - Limited coding
    - Design review
    - Legal economical feasibility

# How can you help

- Tech Talks
  - Visit a school, share your excitement
  - Personal and corporate goals
- Internships
  - 1 year cycle
    - Seniors after graduation
  - 2 year cycle
    - A year before graduation
    - Influence their specialization

# Please Spam Us!

- [Jose.santos@colorado.edu](mailto:Jose.santos@colorado.edu)
  - Senior Instructor/Lab Director
- [Terese.manley@colorado.edu](mailto:Terese.manley@colorado.edu)
  - Industry/recruitment liaison

<http://telecom.colorado.edu>

<http://itp.colorado.edu>