



Time lines  
and  
Network Security

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22 September 2017

CHARA Futures Meeting, Mount Wilson

# CHARA AO Timelines

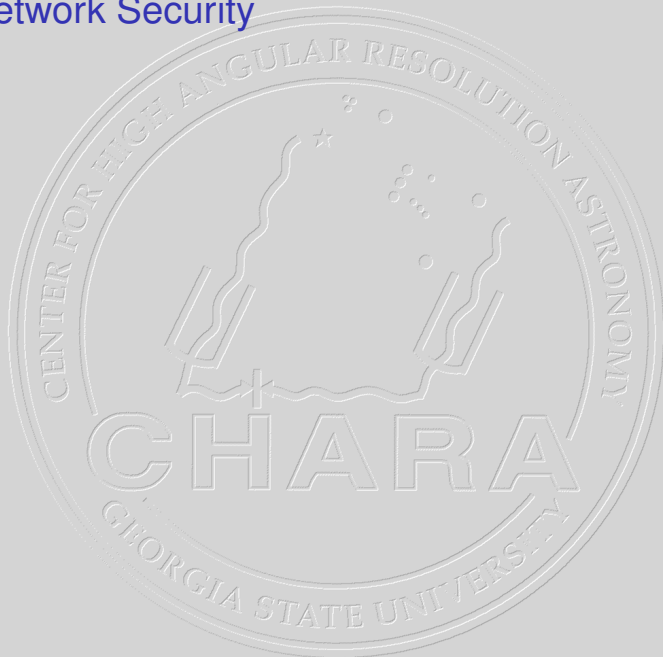
... with the help of Matt Anderson

- ▶ Phase 1
  - ▶ Optics already installed and aligned at all telescopes
  - ▶ Get the Andor cameras to operate on Linux 4.x kernels
- ▶ Phase 2
  - ▶ Develop software to control ALPAO mirror
  - ▶ Design for DM mount done; needs shop time
  - ▶ Design for DM calibration light source done soon; needs shop time
  - ▶ DM arrival
  - ▶ General code development and system integration

# Automation Timelines

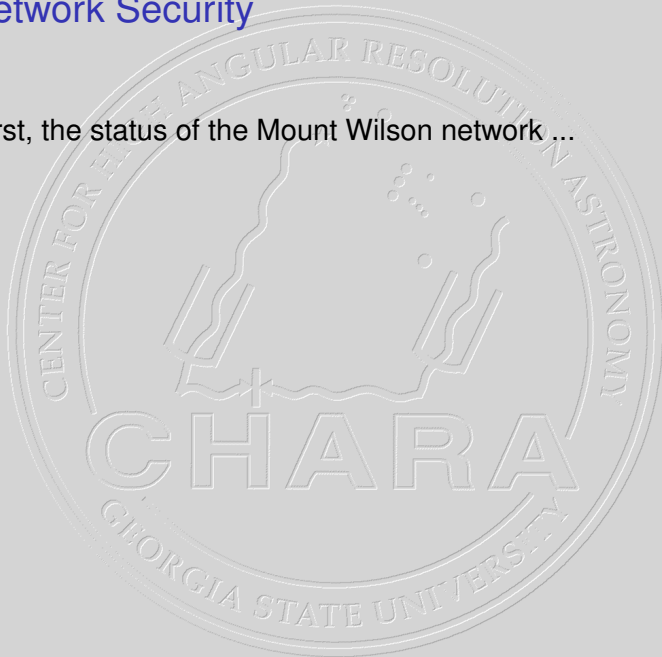
- ▶ Completion of Ubuntu upgrade
- ▶ Hardware azimuth limit switches
- ▶ Adaptive telescope drive tuning
- ▶ Cylinder enclosure reliability improvements
- ▶ Heat mitigation in enclosures
- ▶ Master system GUI

# Network Security



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- ▶ Upgrade includes a managed router (with backup) and managed switches



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- ▶ With the help of David Attias, upgrading Mount Wilson network to gigabit
- ▶ Upgrade includes a managed router (with backup) and managed switches
- ▶ Management allows use of network flow analysis tools

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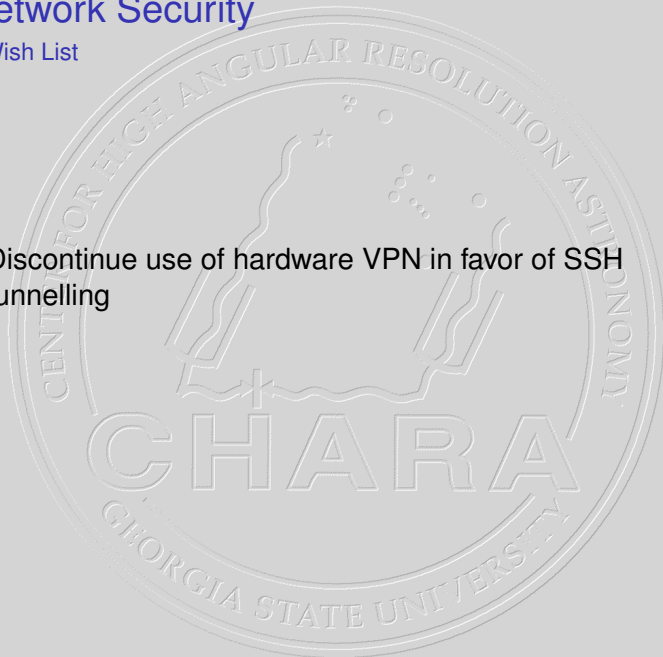


- ▶ With the help of David Attias, upgrading Mount Wilson network to gigabit
- ▶ Upgrade includes a managed router (with backup) and managed switches
- ▶ Management allows use of network flow analysis tools
- ▶ We have managed switches in most locations within the Array

# Network Security

## Wish List

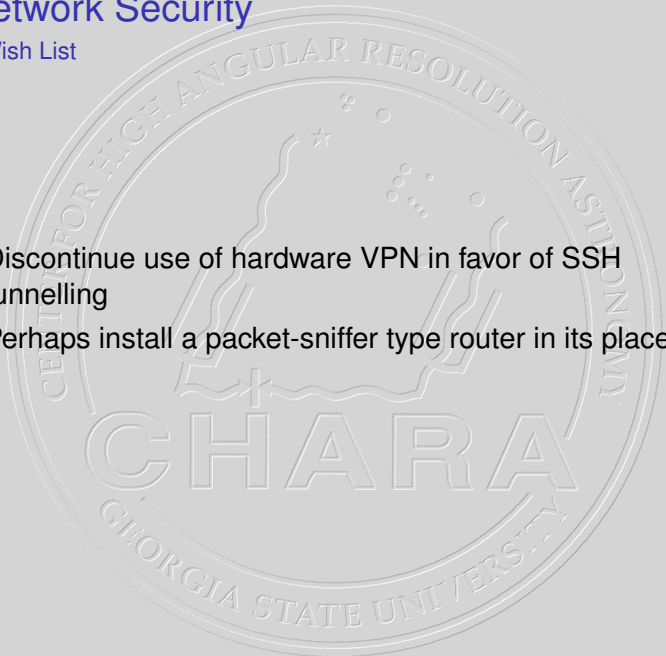
- ▶ Discontinue use of hardware VPN in favor of SSH tunnelling



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## Wish List

- ▶ Discontinue use of hardware VPN in favor of SSH tunnelling
- ▶ Perhaps install a packet-sniffer type router in its place



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## Wish List

- ▶ Discontinue use of hardware VPN in favor of SSH tunnelling
- ▶ Perhaps install a packet-sniffer type router in its place – maybe something like pfSense (Brian Kloppenborg recommendation)