

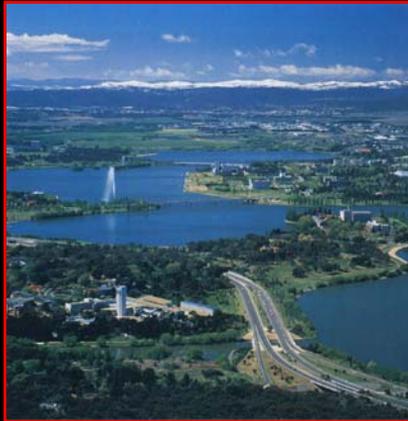
# Remote control of AG hardware

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Virtual Environment Production  
Australian National University Supercomputer Facility  
VIZLAB



Perth

Adelaide

Melbourne

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Australia

# Australian National University

- Founded in 1946 as a research-only university
- now 1000 academic staff, 8000 students



THE AUSTRALIAN NATIONAL UNIVERSITY

Why?

# Motivation #1

- Using prosumer hardware leads to remote control wars

The  
Ideal □ □



The Reality □ □



# Motivation #2

- People least likely to frame the scene optimally are those actually on camera.
- Open it up, let someone “out there” take control.



The Ideal □ □

The Reality □ □

# Motivation #3

- Did I turn off the display wall?
- Check from home ...

Lamp hours: 1500:32

suggest change bulb

# Motivation #4

- Remote operation of multiple nodes (pipe dream?)



# Motivation #5

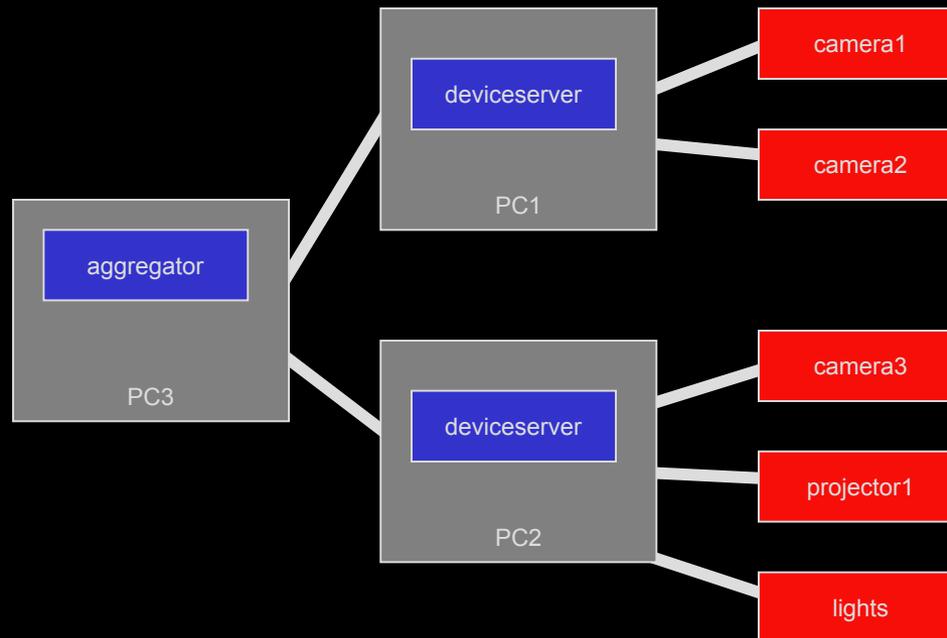
- Commercial solutions are (up-front) expensive



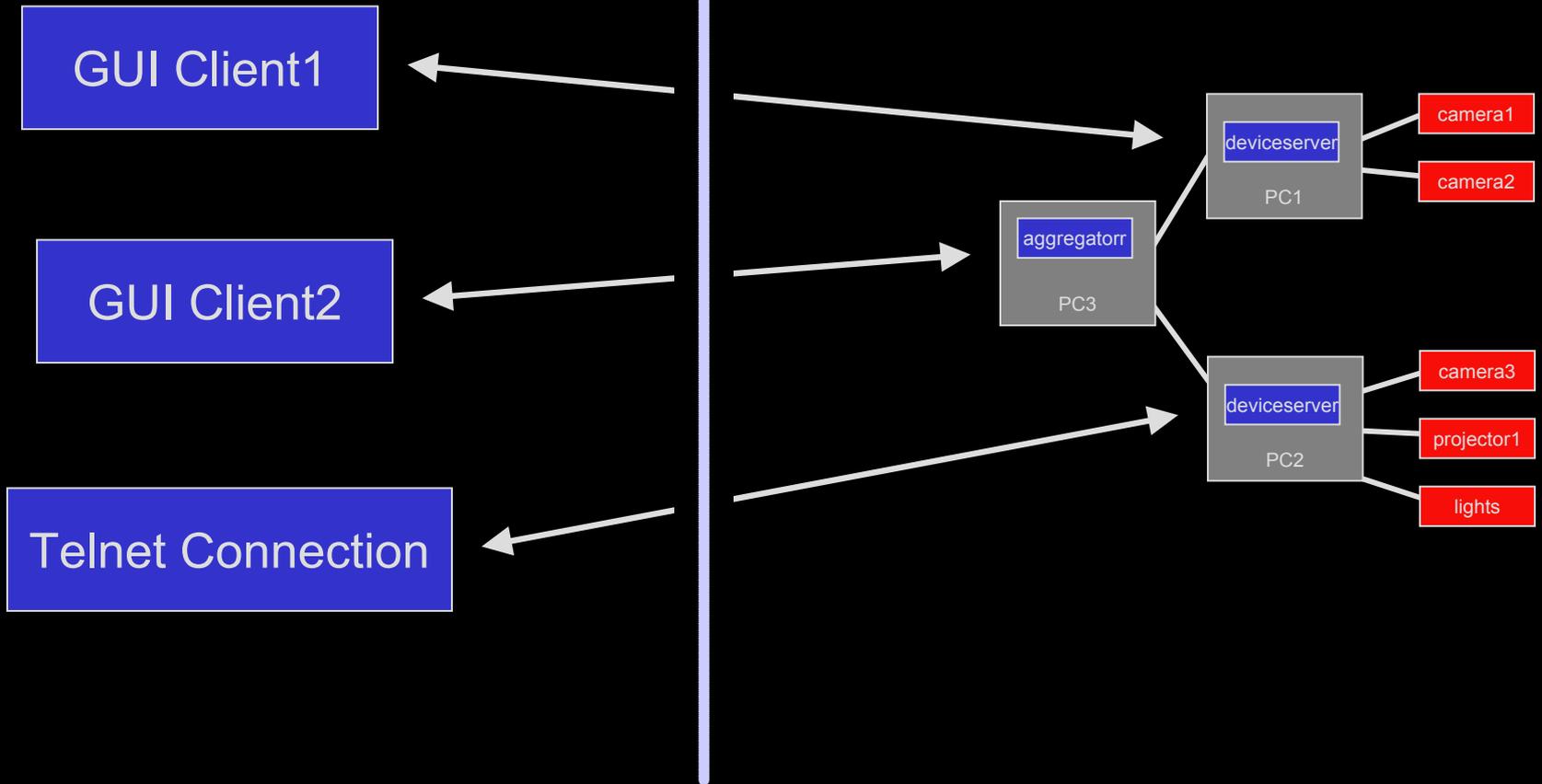
# AGDeviceControl (V.1)

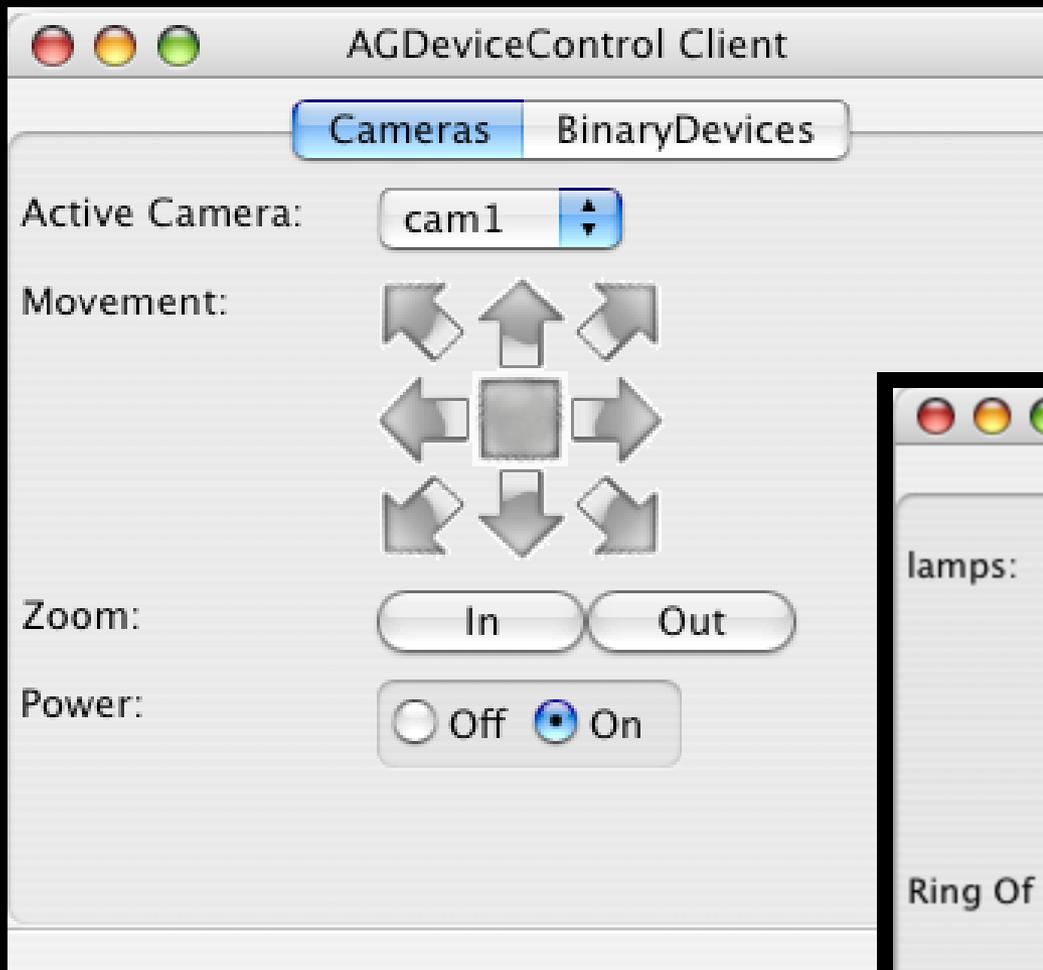
- Extensible Python framework
- Uses Twisted, an asynchronous networking framework
- Each device is a separate Python module
- Communicate with server via a simple telnet protocol (great for testing)
- Supports Canon VC-C4 camera, BenQ DX660 projector, x10 devices and several custom virtual devices

- Physical devices connected to one or more machines, each running a “DeviceServer”
- Devices can be real (cameras, projectors) or virtual (software)
- Can connect directly, or use an “Aggregator” which lumps DeviceServers



internet





# V.2 Integration with AGTk

## Node Service

- Familiar examples are vic and rat
- Exist in every venue
- No AGTk means of communicating with other Node Services

OR

## Shared App

- Tied to a specific venue
- Not automatically started
- Can communicate with other instances of the Shared App

# Painful but ... it's a node service, dammit

- Start an Aggregator upon entering a venue
- Configuration info is:
  - multicast host/port for this “stream”
  - local DevServers to aggregate
- Populate GUI via `Aggregator.getDeviceList()`

# Node Service Communication

- Why? So our Aggregator can discover other Aggregators
- Use heartbeat/beacon on the multicast channel allocated for this PRODUCER
- If we hear the lonely far-off bling of another Aggregator, we can add its devices to our GUI

Live Demo and/or Video

# Future

- Grow software based on user feedback
- Add more devices
- Authentication (currently “security by multicast”)



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# VEI LAB

For more info:

<http://anusf.anu.edu.au/ag>