PI Webcam Server

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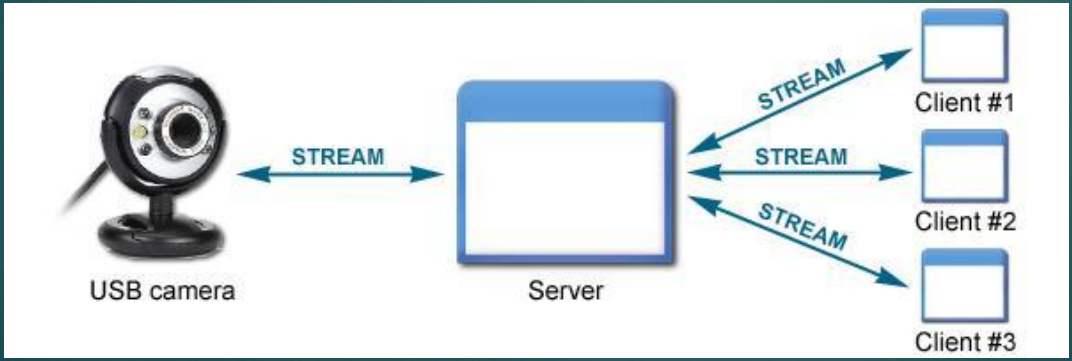
Purpose/Concept

- Have a Webcam that would provide constant images of an area
- Cost efficient
- Easy Installation
- Usages
  - Security
  - Baby Monitor
  - Plant Monitor

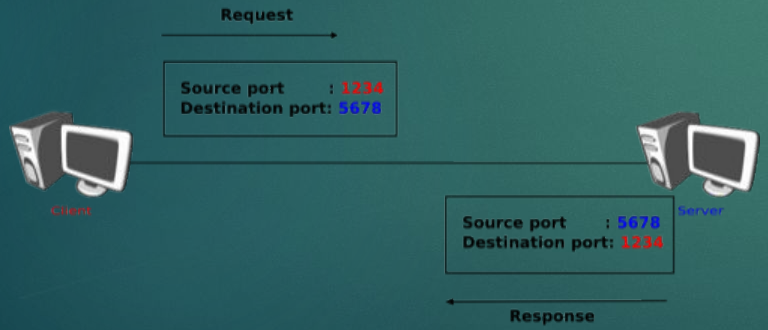
Functionality

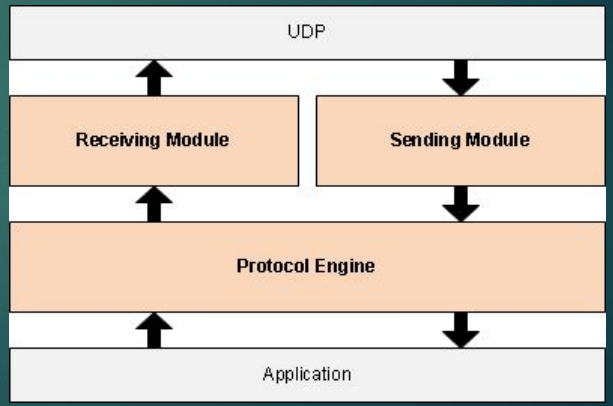
- Camera will be taking constant images
  - Images will be uploaded to a server
  - From any computer a live view can be seen of area



Protocol

- Our design uses UDP Protocol
  - Simple file transfer to remote host
  - Unreliable but faster
  - Can deliver to more than one client





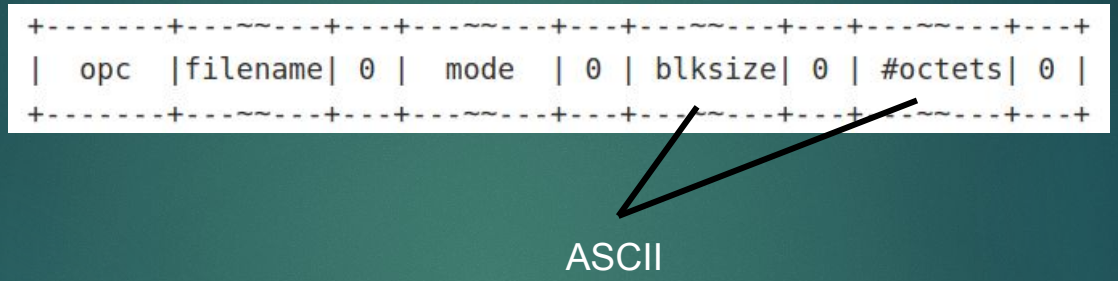
Protocol (cont.)

- Server runs on updated version of our TFTP implementation
  - Supports **RFC 2348** (variable blocksize) & **RFC 1782** (*OACK* packet)
  - Desktop app specifies blocksize (**8000-byte**) in RRQ
  - Server responds with OACK (option acknowledgement)
  - Port Number is always 15213, hidden from users

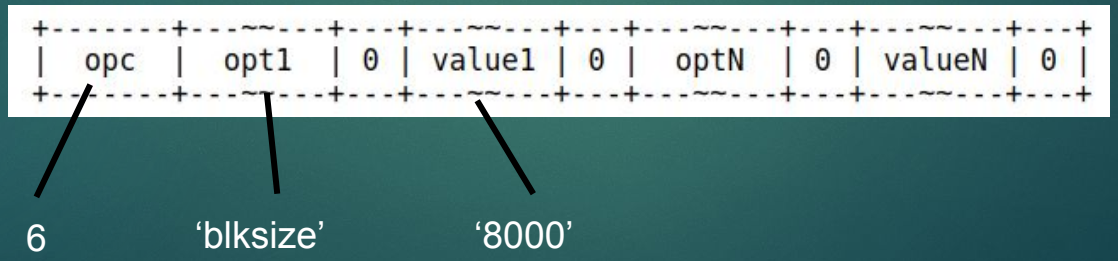
- Desktop app (client) uses **Tftpy** (Python library)

```
client = tftpy.TftpClient("ip address","port number",options={'blksize':8000})
client.download("frame.png","frame.png",timeout=0.2)
```

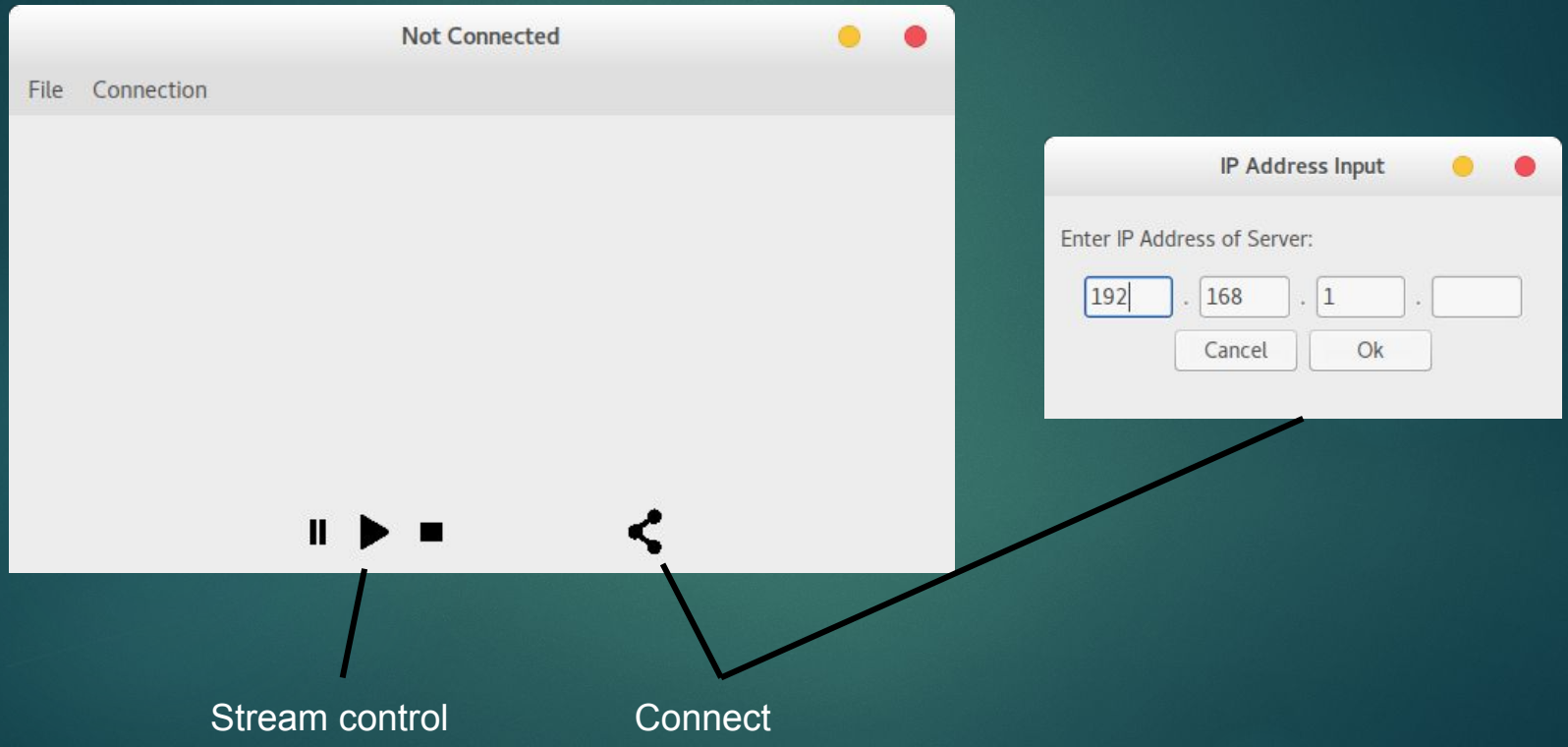
RFC 2348 modified RRQ/WRQ packet



RFC 1782 Option Acknowledgement (OACK) packet



Desktop User Interface



Improvements

- Speed
- For larger sized images speed is an issue
- Make viewing on mobile possible