

# Sharing Big Buck Bunny in XIA

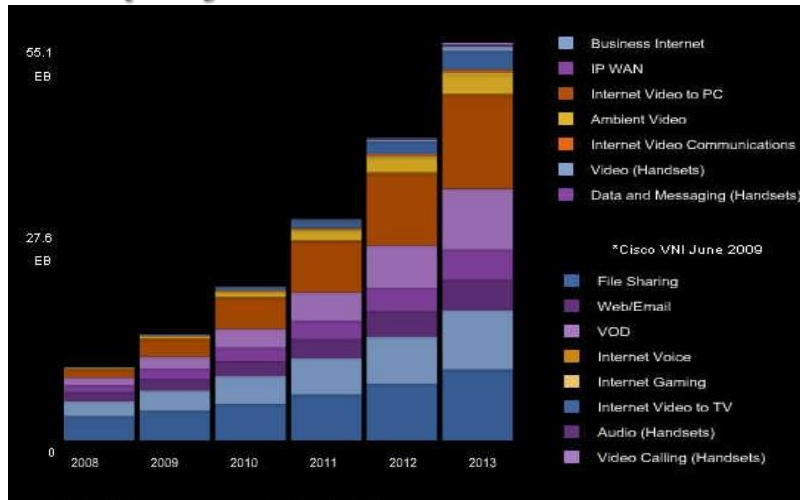
By Stephen Brown and Ben Bramble



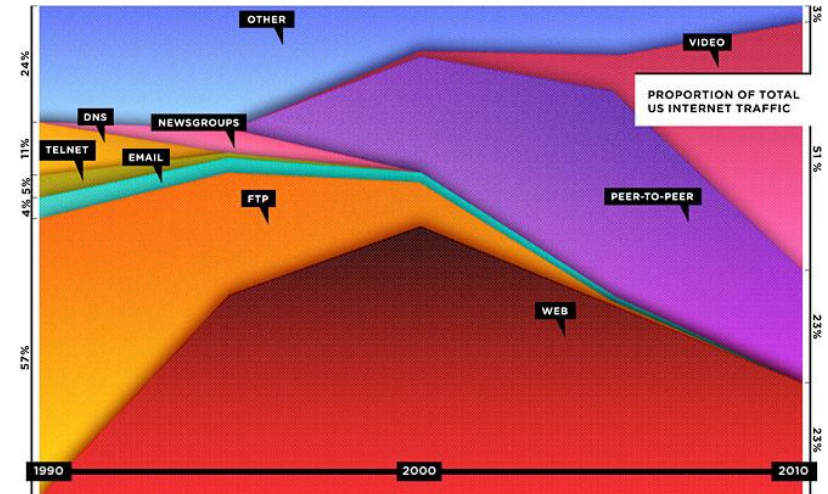


# PROBLEM

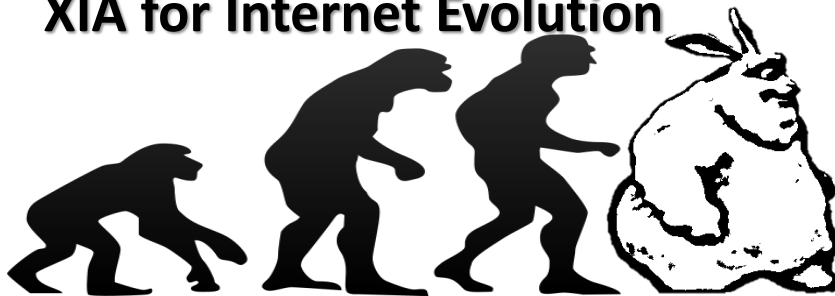
## Video projected to dominate traffic



## Current IP based off Old Demands



## XIA for Internet Evolution



Our goal: Create a video streaming app which leverages Xia's strengths (failover, content oriented, intrinsic security of CIDs) to create a product that surpasses what can be done in IP today.

Streaming Video in Xia

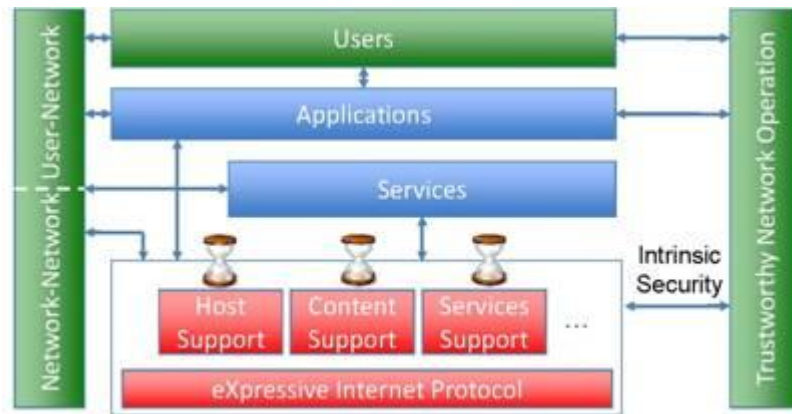
## Framework Exists, Limited Apps



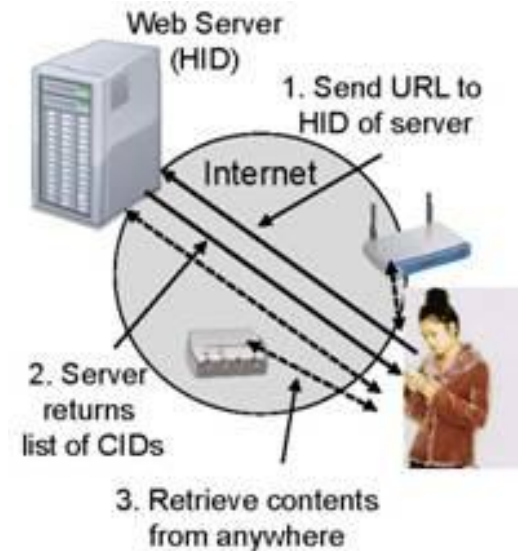


# RELATED WORK

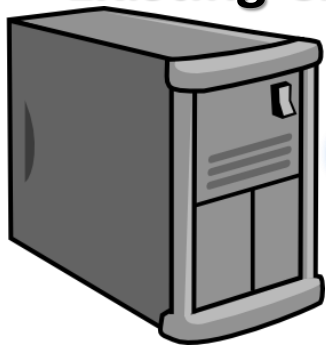
## XIA



## Content Centric Architecture



## Existing Client/Server & Video Server Apps



Chunk



Streaming Video in XIA





# APPROACH

- Create a new network to offer richer scenarios
- Find the means to play a video
- Adapting existing XIA applications such chunk server and video server.
- Add functionality (failover, multithreading)
- Test in a variety of situations

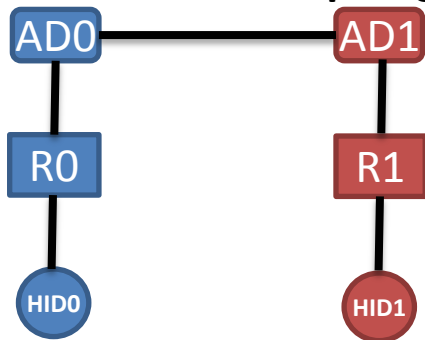




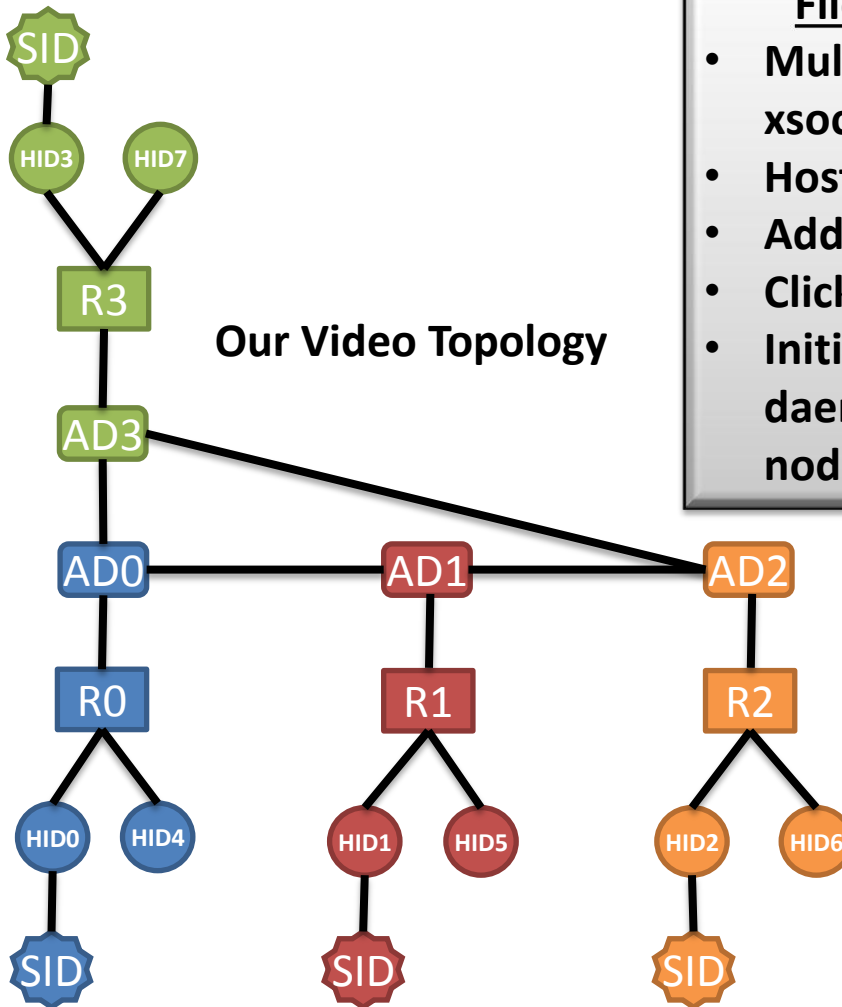


# IMPLEMENTATION 1- NETWORKING

Default XIA Topology



Our Video Topology



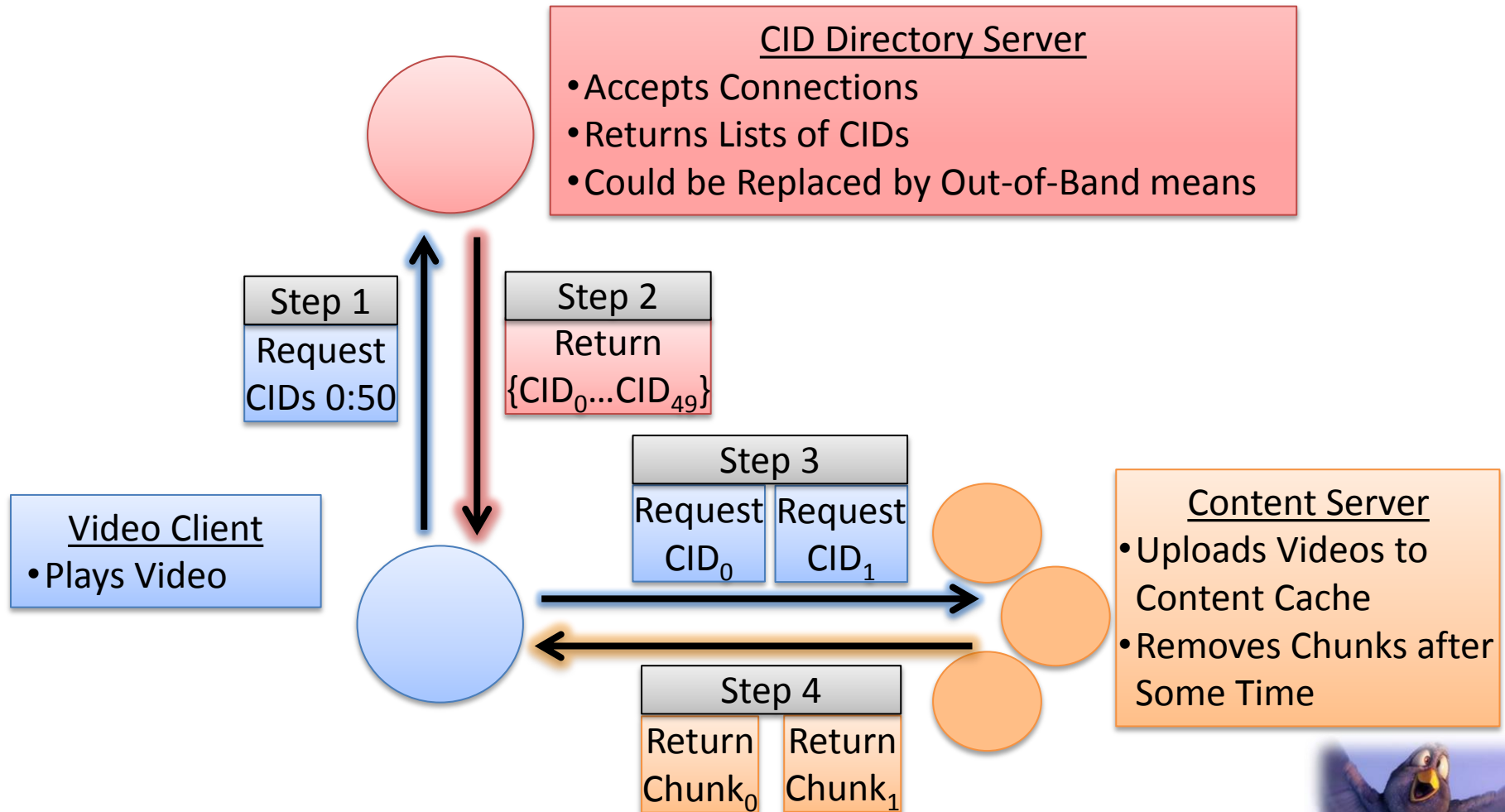
## Files to change

- Multiple xsockconf.ini
- Hosts.allow
- Address file
- Click Topology
- Initiate different daemons for each node



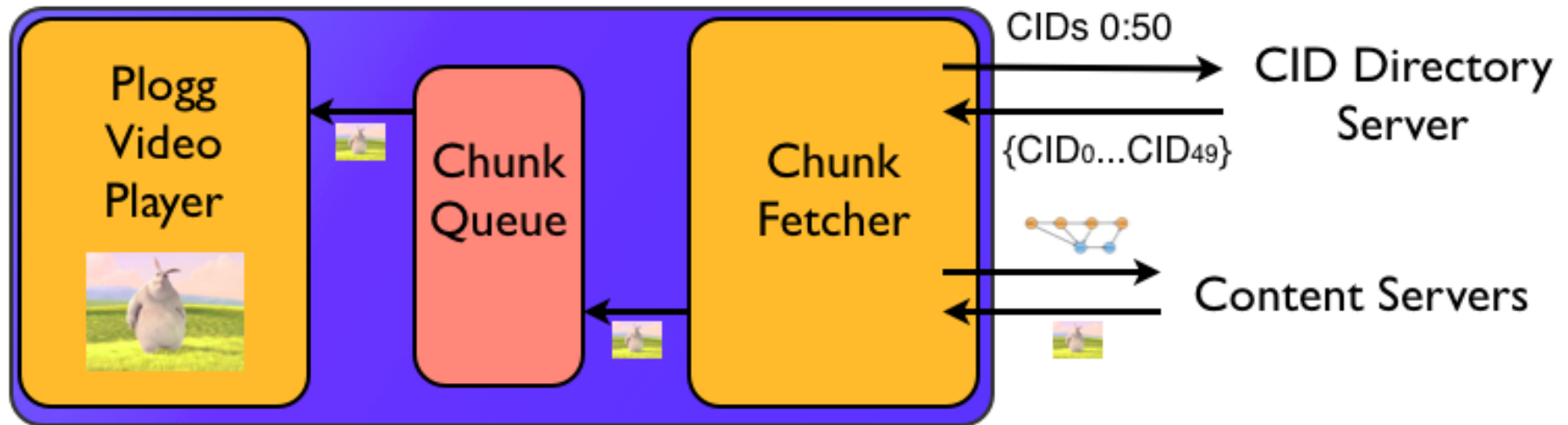


# APPLICATION ARCHITECTURE





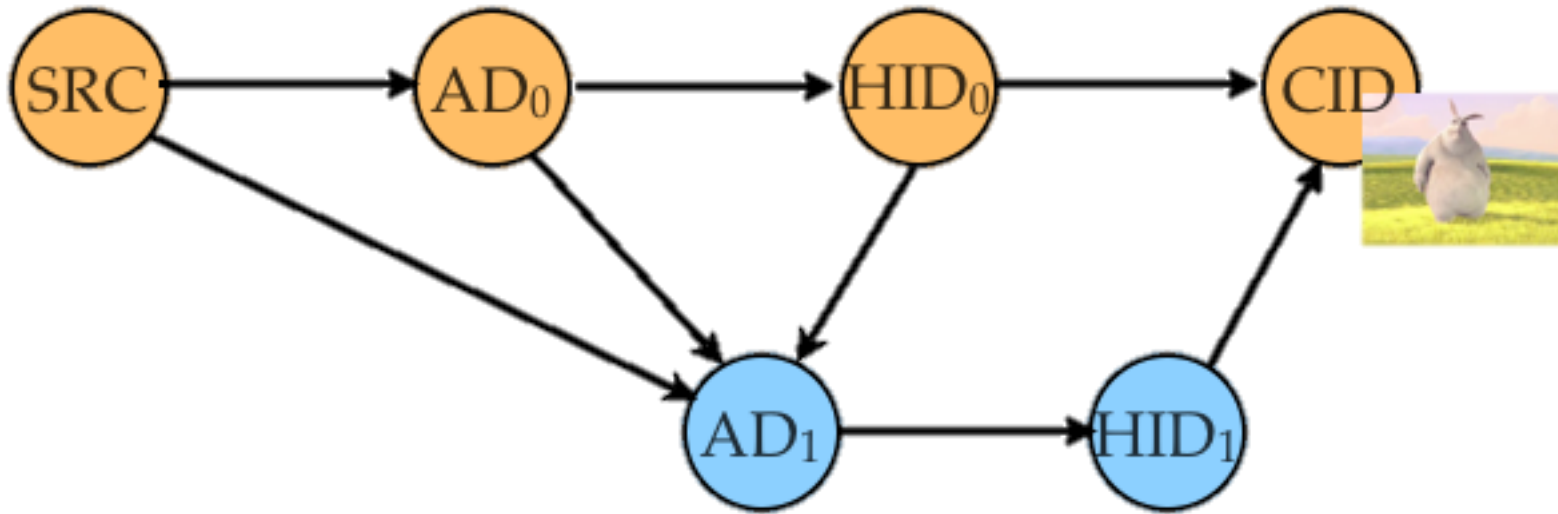
# VIDEO CLIENT





# ACCOMMODATING FAILOVER

- Seamless failover between Content Servers



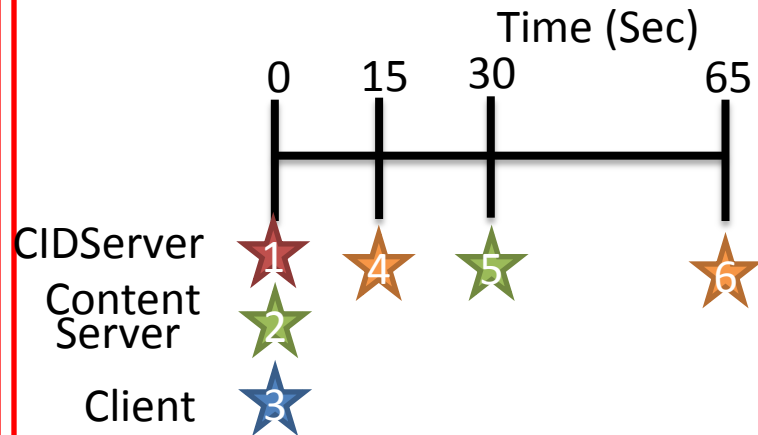
- Application-level failover also supported
- Client Migration not yet supported





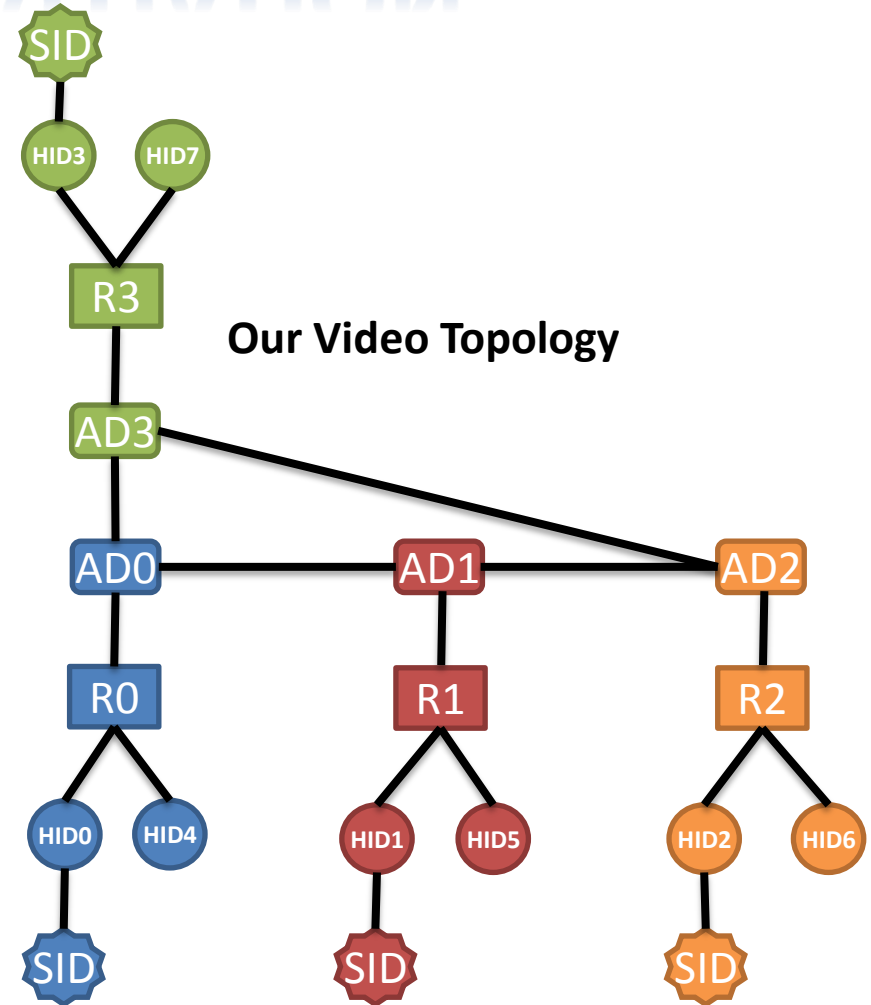


# EVALUATION



## Events

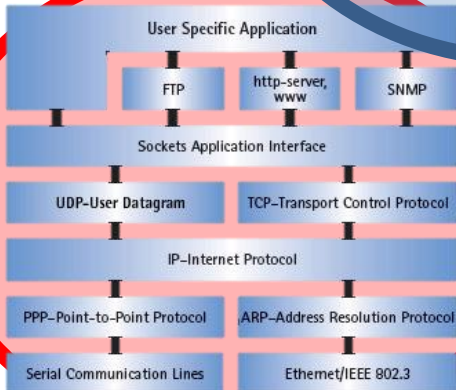
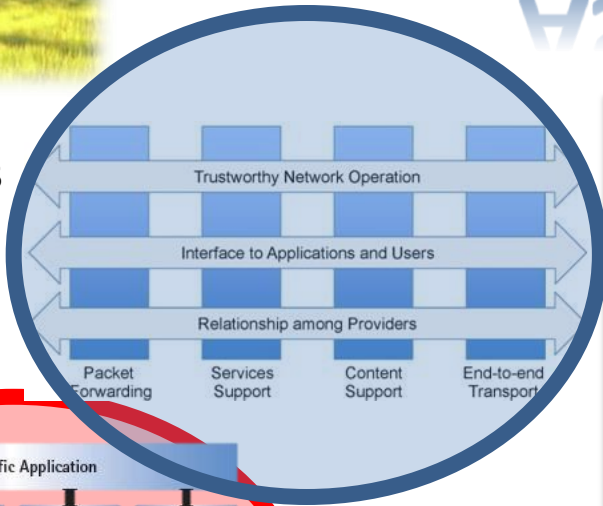
- 1) CIDServer starts
- 2) ContentServer1 starts
- 3) Client starts
- 4) ClientServer2 starts
- 5) ClientServer1 fails
- 6) ClientServer2 fails



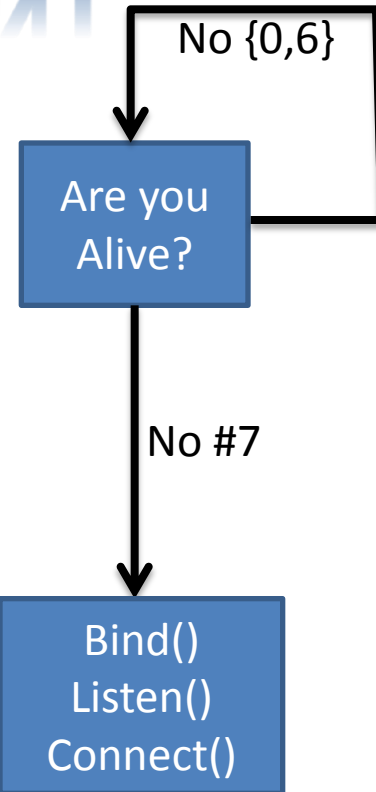


# ASSESSMENT

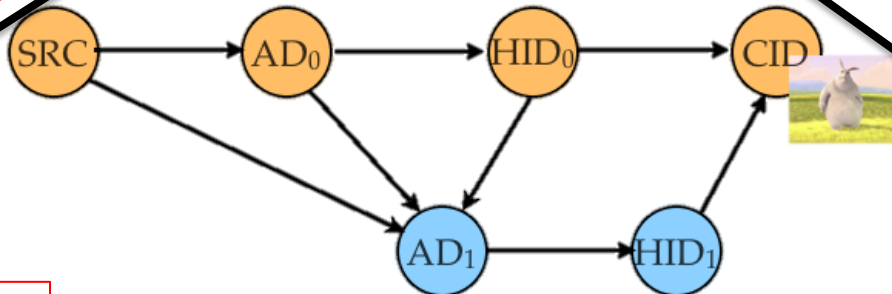
## XIA Strengths Over IP



## Other Option: Application Layer



## Developer has flexibility with DAG's and Intent



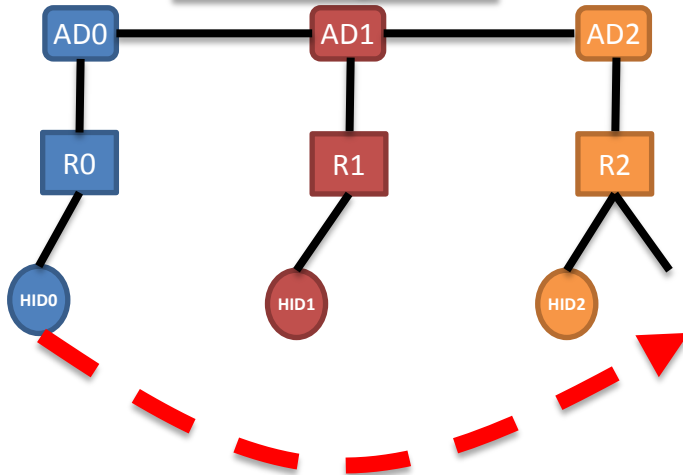
Streaming Video in XIA





# FUTURE WORK

## Client Migration



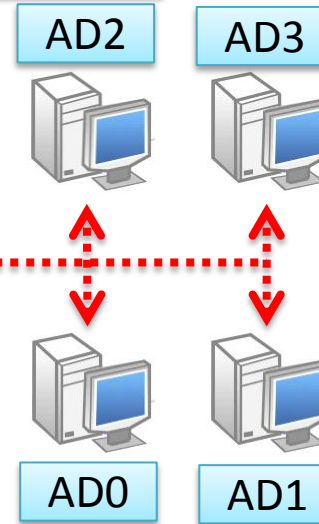
## Example Network Package instead of a Script



Streaming Video in XIA

## Out of the VM

### Single VM



## GUI + User Services



## Additional Get Chunk Response

READY\_TO\_READ if the requested chunk is ready to be read.  
INVALID\_HASH if the CID hash does not match the content payload.  
WAITING\_FOR\_CHUNK if the requested chunk is still in transit.  
REQUEST\_FAILED if the specified chunk has not been requested  
+  
CONTENT\_NOT\_FOUND if the CID does not exist at the location

