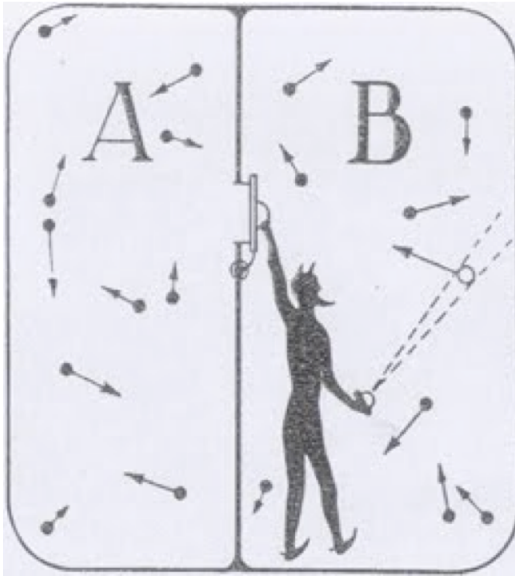


μ MMD



Marek & Nico

WBMv4 @ SBG

March 2011

μMMD

History

- Started as a crazy idea during hacking sessions at /tmp/lab in Paris
- Experiments at CNAM in Paris in 2010
 - Small testbed with 8 nodes in Ad-Hoc mode
 - Audio USB sticks/speakers plugged on Fonera2
 - MP3 streams from a laptop in RTP using VLC
 - Output on the devices with Ffmpeg cmdline

μMMD

Problems

- Tested several audio/multimedia tools
 - Pulseaudio, gstreamer, Ffmpeg...
- Tested different codecs and formats
 - AAC, AC3, MPEG...

Nothing really fitted our needs...

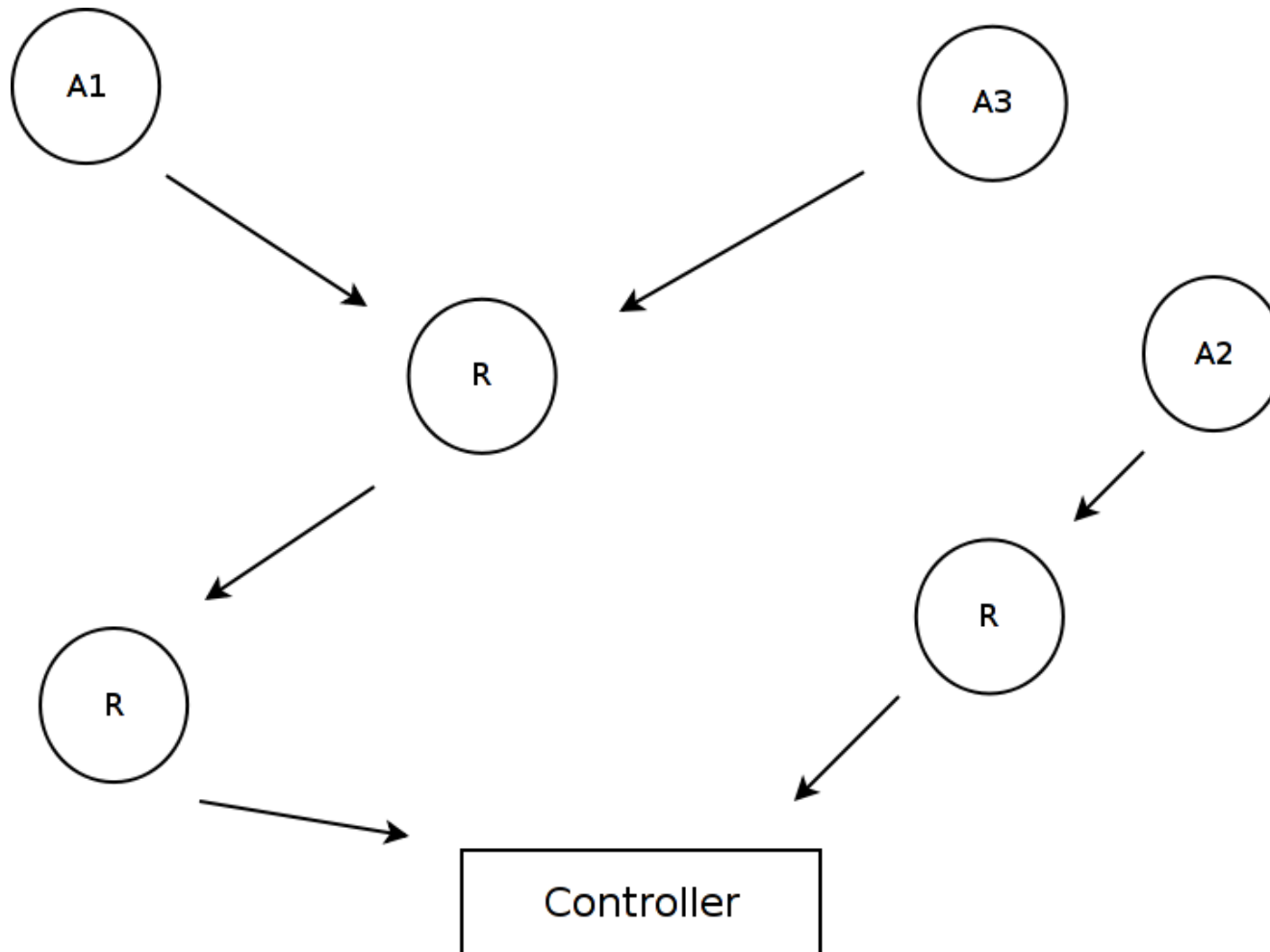
μMMD

Birth of μMMD

- Needed a stripped-down multimedia daemon
- Able to record and play sound streams to/from the network and audio devices
- Remote control capabilities
- Efficient and flexible sound distribution with multicast

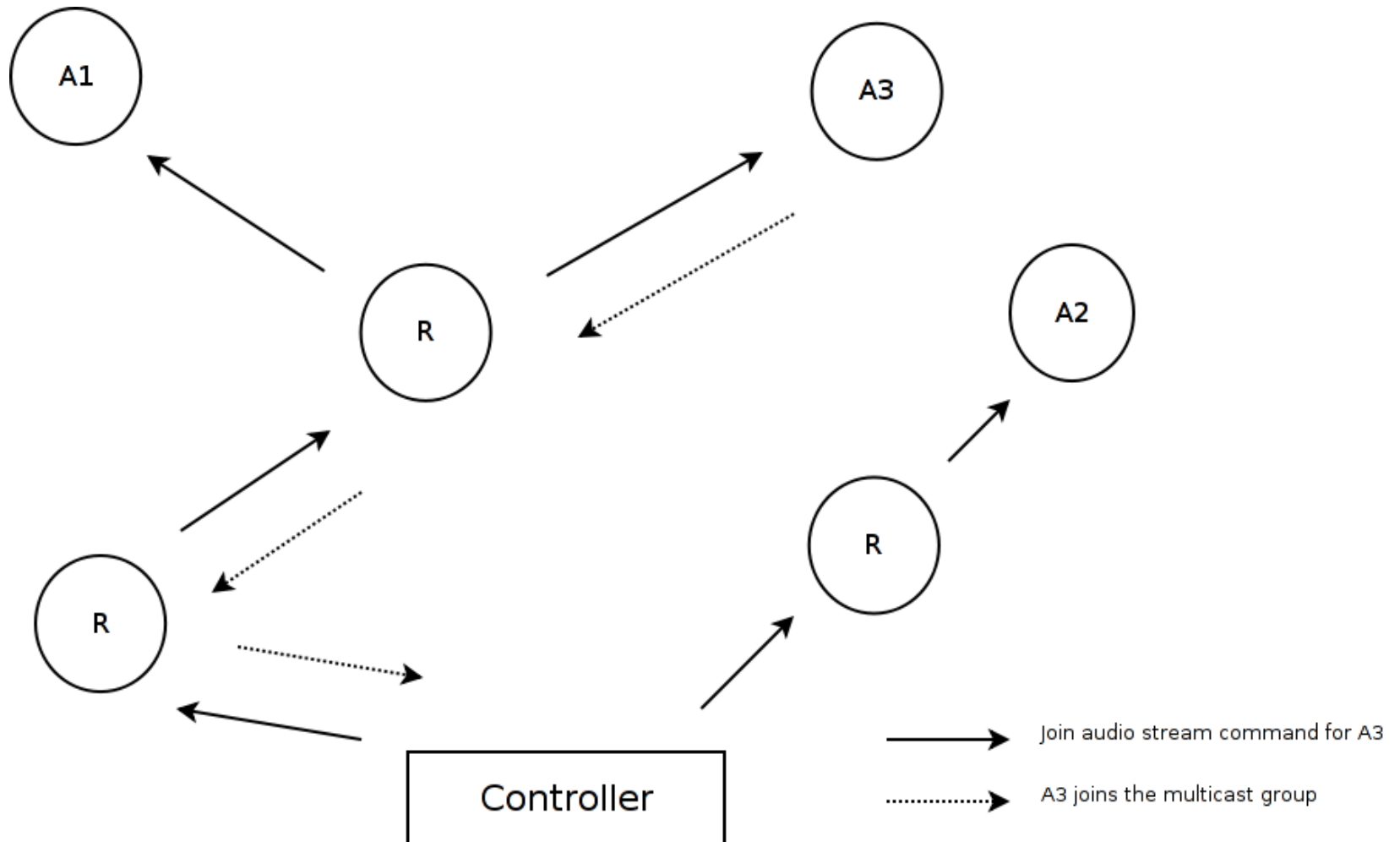
μ MMD

« I'am here » message



μMMD

« joining a sound stream »



μMMD

Basic architecture

- Multiple audio sources (network, soundcard, files...)
- Multiple audio destinations (network, soundcard, files...)
- Audio sources and destinations can be altered using filters (adding effects, mixing...)

Sources > Filters > Destinations

μMMD

Goals

- Record at some locations and playback somewhere else
- Scale to an arbitrary number of nodes
- Control all nodes from a central location
- Apply effects depending on devices interactions (signal strength, traffic, proximity, mesh topology changes...)

μMMD

Where we are now

- Early stages of development (80% complete ;)
- Still not sure which codecs, transports, formats to use : embedded devices should be able to encode and decode audio streams
- Still not sure how many multicast streams mesh networks can sustain simultaneously
- Still not sure which hardware to use

μMMD

Conclusions

- Is a ground-breaking framework to experiment with audio, multicast and mesh
- Is available on github
<https://github.com/psycho-nico/ummd>
- Needs more audio and networks specialists
- Questions ?