



# Creating a Video Conference service with Kurento

And trying to avoid the nightmare of spike usage.



# Agenda

- Me
  - me me me me me me.
- RTMP vs HLS vs WebRTC
  - A little of history.
- Kurento and not "others"
  - Jitsi, I'm looking at you
- PoleAccess.Online
  - Real life requirements
- Resiliency of the infrastructure
  - Distributing the load.
- Thank you

# whoami<enter>

- User: criptos
- log start: 1996
- home: /america/mexico/mexico\_city
- Process tree:
  - Owner of Grupo Aullox.
    - |--- Still developing core baking applications.
  - Co-Owner PoleAccess.online
    - |--- Main developer.



# RTMP vs HLS vs WebRTC



RTMP: Too proprietary, remember flash? they do...

HLS: Apple response to RTMP, also closed.

In a nutshell, both protocols provides a lag between 13-45 seconds or more, require "additional" software (like obs) to stream and are proprietary.

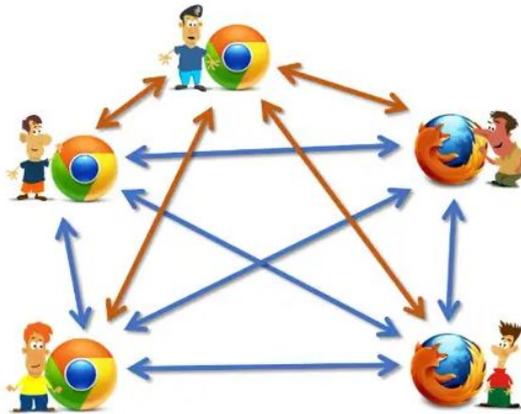
WebRTC: Designed for the web, more flexible, using new codes, and still evolving (last add, redundant audio channels).

**SFU! WebRTC Rulez!**

# MESH VS Selective Forward Unit VS Multipoint Conferencing Unit

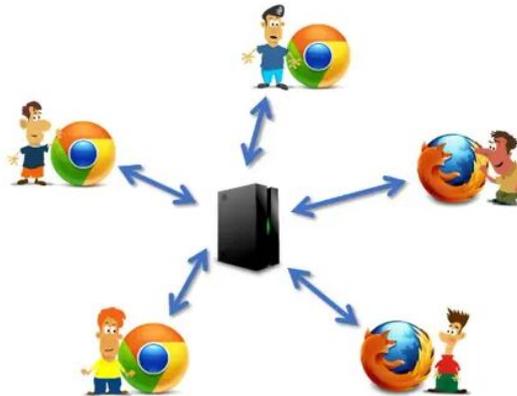
## Mesh

Connections:	4   10
Uplink:	4 mbps
Downlink:	4 mbps
Total:	20 mbps



## MCU

Connections:	1   5
Uplink:	1 mbps
Downlink:	1 mbps
Total:	10 mbps



## SFU

Connections:	5   25
Uplink:	1 mbps
Downlink:	4 mbps
Total:	25 mbps



# Why Kurento?

- Kurento is a Media Server for WebRTC with advanced capabilities for media transformation.
- Is Open Source: <https://github.com/kurento>
- MCU by design.
- Pluggable.
- Node.js, Vanilla JS, Java, and whatever you like.
- Fairly good documentation.
- Fairly active community
- Take a look: <http://www.kurento.org/>



# Others...

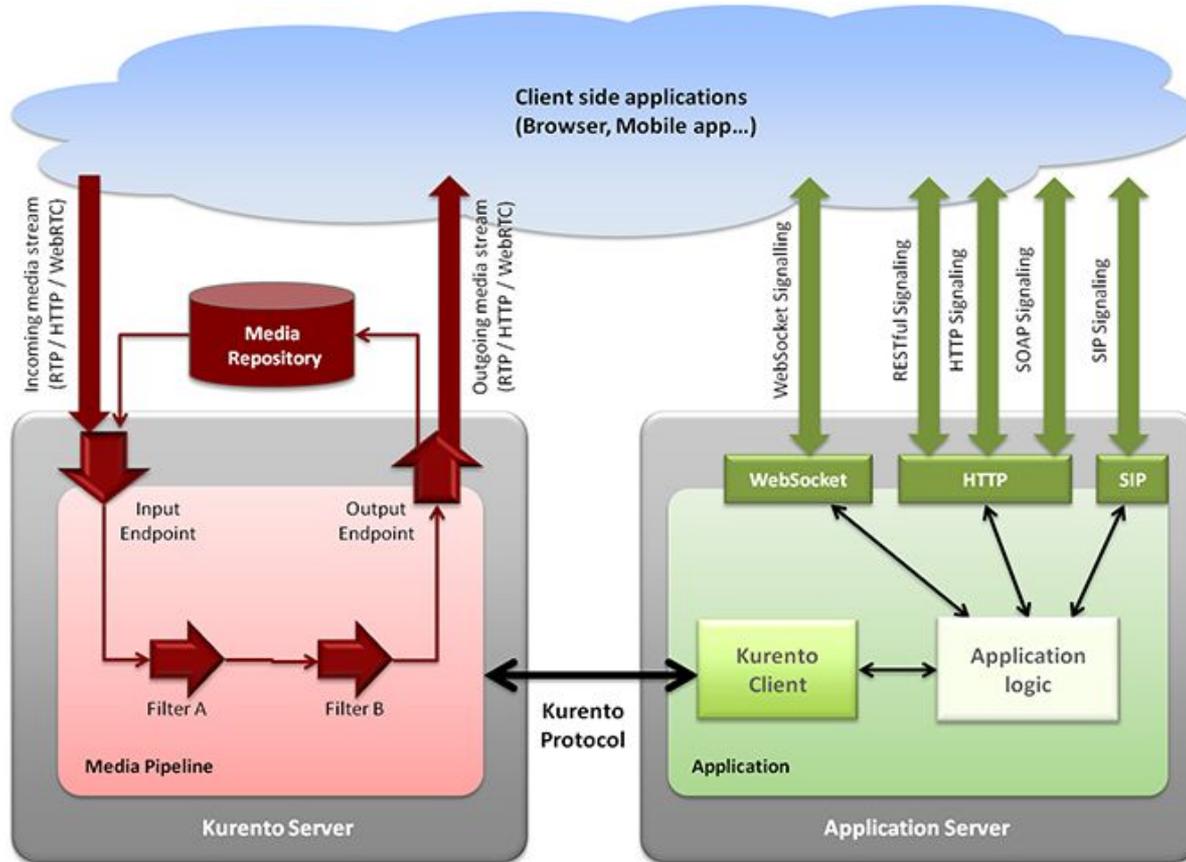
- ANT, not so open source, community edition = lag, more oriented to be a contained service, like conference room too...
- Jitsi, too oriented to be a "conference room" , "difficult to implement", I simple didn't liked for my use case.
- Nginx RTMP, goodie, oldie, but not very flexible.
- Other implementation, please tell me...

# Kurento in a nutshell.

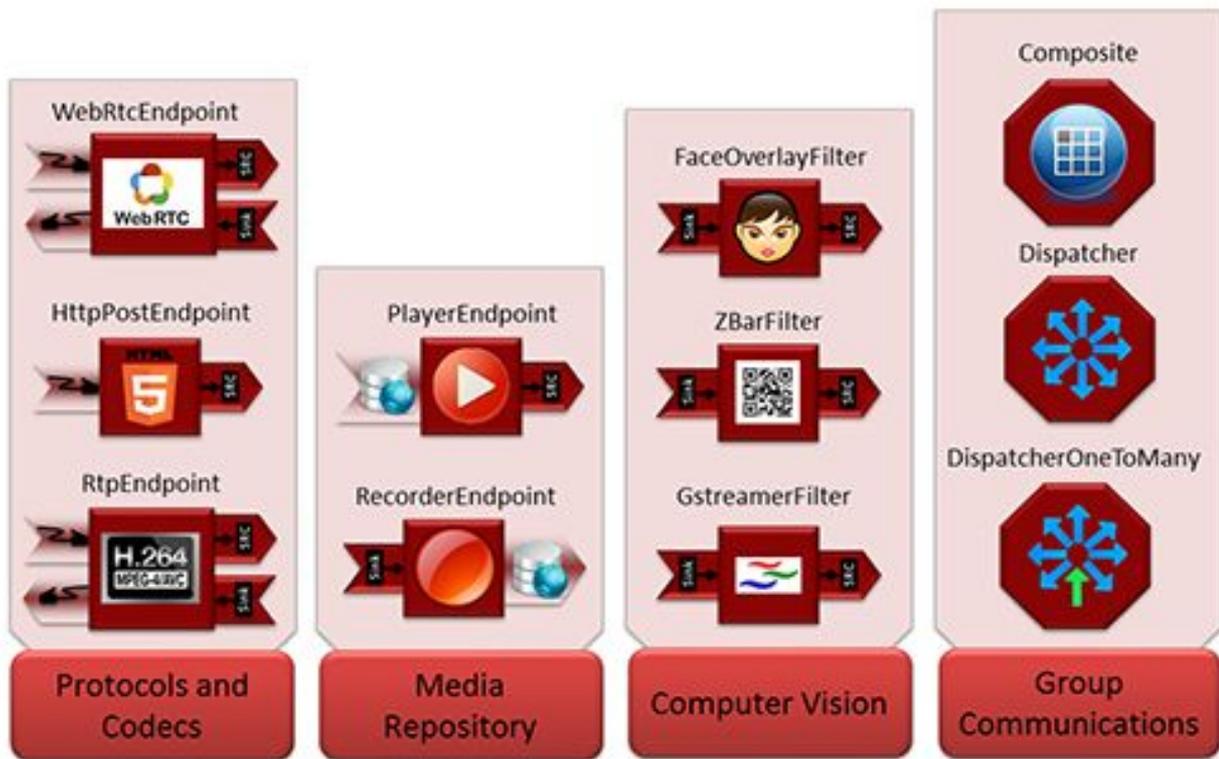
- Please, use the docker image.
  - <https://hub.docker.com/r/kurento/kurento-media-server>
- Complex to build, too close to Ubuntu.
- Remember, STUN is required.
- GOOD tutorials, good examples at github.
- Is even better with a signalling server.



# Kurento in a nutshell.



# Kurento in a nutshell.



# PoleAccess.online, the pandemic pushing innovation.

The screenshot displays the PoleAccess.online website interface. At the top left is the logo, and at the top right are search and navigation options. A large black warning box on the left contains the text: "WARNING THE FOLLOWING CONTENT MAY CONTAIN ELEMENTS THAT ARE NOT SUITABLE FOR SOME AUDIENCES. ACCORDINGLY, VIEWER DISCRETION IS ADVISED." The main content area features the event "Sexxxotic Pandemia 2020" with a 5-star rating and a price of \$10.00 USD plus fees. To the right, a "Live Schedule" section lists two events: "CARNIVAL Carnival of Souls Night 1" and "CARNIVAL Carnival of Souls Night 2", both with "Buy Ticket" buttons. At the bottom, three circular event thumbnails are shown: "Spirit Flow At Home@ 2020-11-14", "Cinema Sexxxotic@Mexico 2020-12-05", and "Global Exxxotic Championships@ 2020-12-06". A "We Are He" logo is in the bottom right corner.

1:09:40

**WARNING**  
THE FOLLOWING CONTENT  
MAY CONTAIN ELEMENTS  
THAT ARE NOT SUITABLE  
FOR SOME AUDIENCES.  
ACCORDINGLY,  
VIEWER DISCRETION IS ADVISED.

### Sexxxotic Pandemia 2020

Sexxxotic Pandemia is a collaborative effort to bring you entertainment. All revenue will be shared among the performers. Thanks por your support.

♡ Pole 👁 93 Views 5 months ago 👤 PoleAccess

★★★★★

Sales 25

Buy for only: \$10.00USD plus fees

**Live Schedule**

2020-10-23 19:00  
**CARNIVAL**  
Carnival of Souls Night 1  
Buy Ticket

2020-10-24 19:00  
**CARNIVAL**  
Carnival of Souls Night 2  
Buy Ticket

Next Competitions or Events

Spirit Flow At Home@ 2020-11-14

Cinema Sexxxotic@Mexico 2020-12-05

Global Exxxotic Championships@ 2020-12-06

SpiritFlow 2021 edicion Aire@Mexico 2021-03-06

We Are He

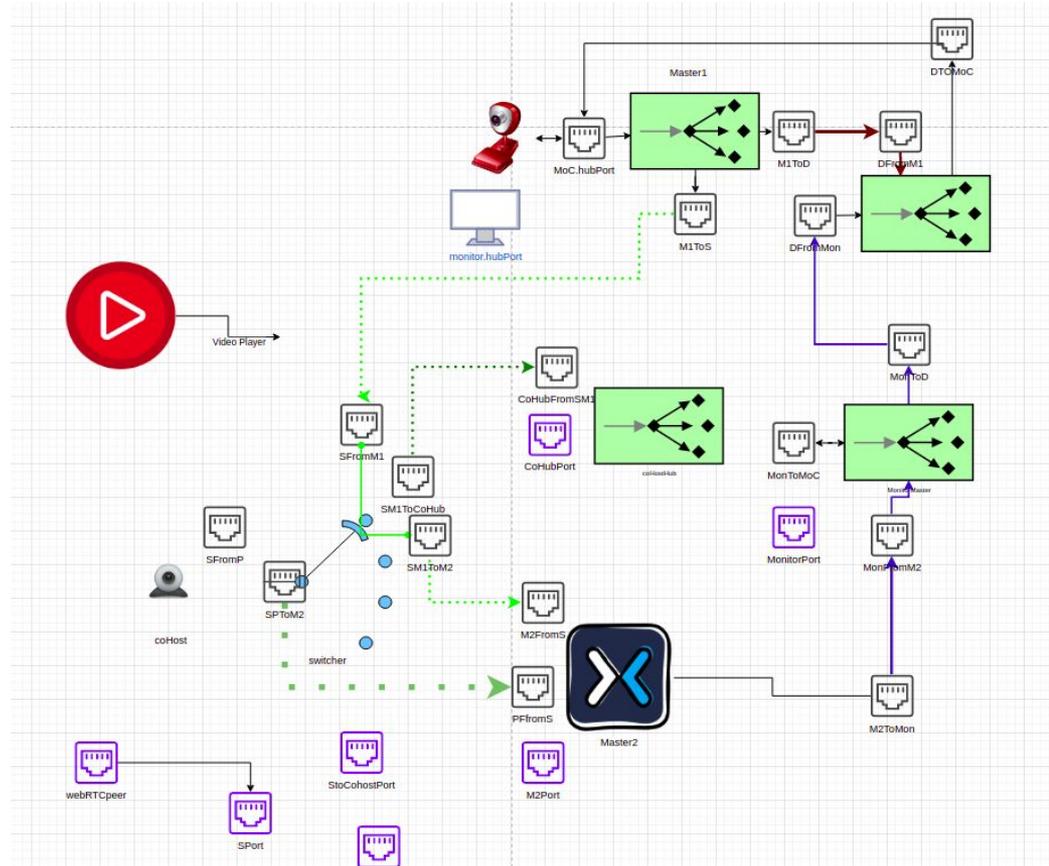


# Client specifications / CEO Wife orders.

- Oriented to show, not meetings.
  - Using MCU, artificially limit up to 4 host, multiple viewers.
- Able to inject video.
  - Kurento player can be added to the composite.
  - Users can be readdresses to player endpoint.
- Tips
  - Not about “video” but about architecture.
- Face 2 face video
  - Using MCU to implement SFU.



# PoleAccess.online, Livestreaming with a twist.



# Resiliency of the infrastructure

- Single server for 8 core, 32gb ram:
  - Kurento KMS Docker.
  - STUN Server.
  - VM for web page
- Longest stream: 4 continuous hour.
- 2 co-hosts.
- Inline Videos.
- 250 Viewers max, 135 average.
- 2 "proxy servers"

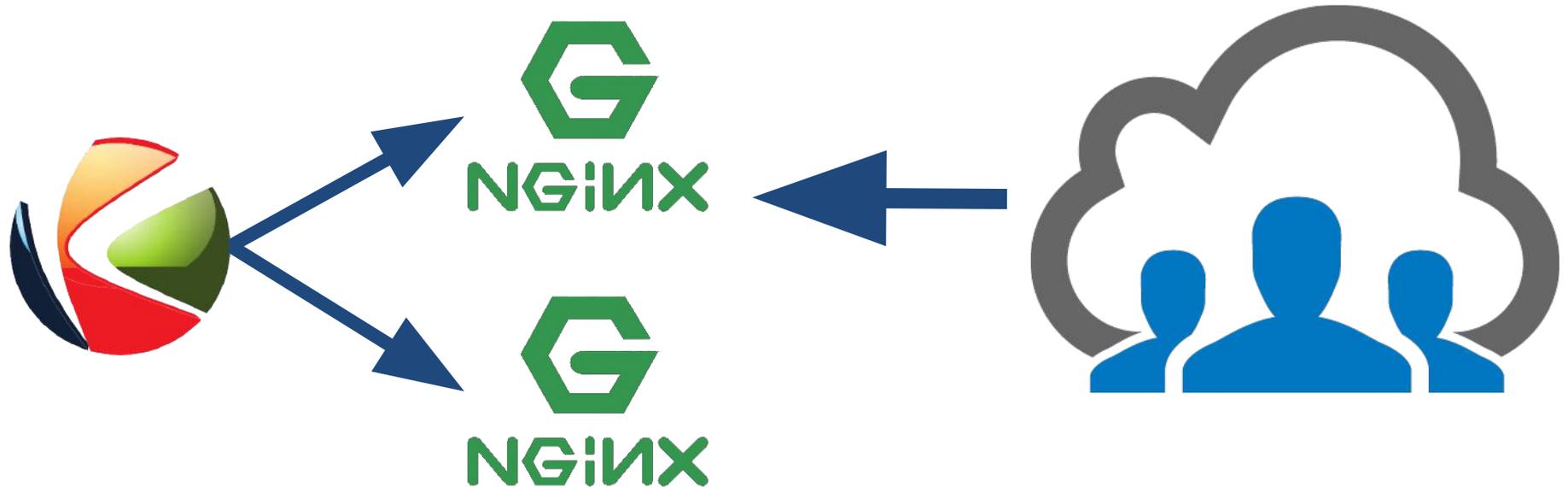


# Resiliency of the infrastructure

NGINX RTMP to the rescue.

Virtual Server created and destroyed in demand (thanks vultr)

Good old HLS streaming, (yes with some lag, but no issues)



# Questions?

# Shoot!

email: criptos @ mobil.aullox.com

twitter: <https://twitter.com/criptos>

IG: [https://www.instagram.com/photodot\\_poleaccess/](https://www.instagram.com/photodot_poleaccess/)

(yes I do photography too...)

2020



Thank You



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