

C3VOC Review – 31c3



C3VOC, FEM e.V, AGS

danimo - C3VOC



Who are we?

- C3 Streaming – Joint venture of C3VOC, FeM e.V and AGS
- Teams
 - Infrastructure
 - Streaming/Encoding
 - Website/Player
 - Post-processing/Encoding
 - Operation
 - Subtitles

31c3 Innovations

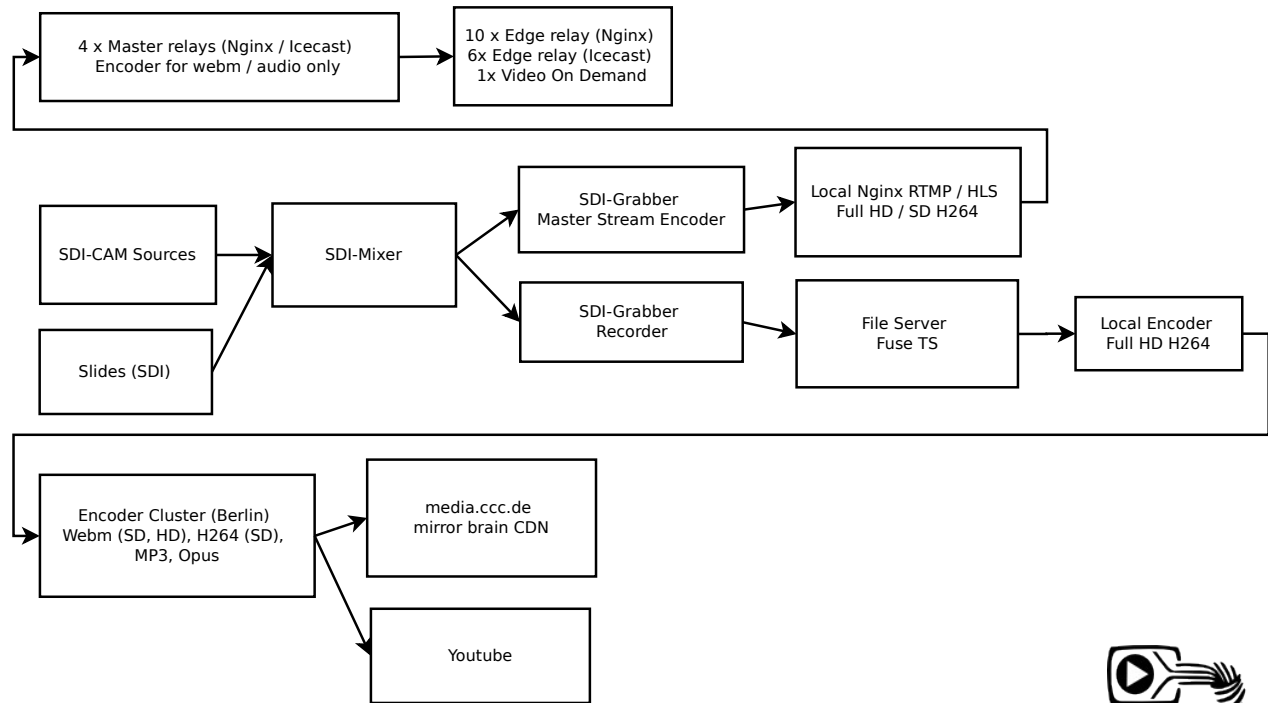
- Video on Demand
- Full HD (1080p25) in all rooms (h264 + vp8)
- Release to YouTube
- Subtitles in the room and in the web player
- GoPro cameras for presenting small objects
- Backup recording with SSDs (and we needed it!)
- Lots of small improvements (CDN, etc)
- DVB-T



Pipeline

- Production in Full HD
- H264 HD masters rendered @CCH
- Transcoding to other formats on off-site cluster
- 90 GHz peak CPU usage

31c3 VOC Pipeline (simplified)



Subtitles

- 40 Angels helping
- Up to 3 parallel tracks subtitled
- Very good feedback from hearing impaired/deaf viewers
- Also popular with non-German/English natives
- Usage peaks
 - Fnord News Show: ~120 subtitle viewers
 - “Reconstructing Narratives”: ~100 subtitle viewers



Downtimes

- Virus Operation Center (#CCCebola)
 - According to Nagios Human Object Monitoring: 25 Core (9 down)
 - Mad props to CERT for getting them fixed up!
- Technically: Rather smooth sailing
 - Short frontend outage due to events.ccc.de dependency
 - DVB-T (test for next year's camp) a bit flaky



Some Stats

- Delivered **80 TB+** of streams (Use more bandwidth!)
- Video on Demand: **9 TB**
- Video CDN: **91.5k** views, handled by 10-15 mirrors

- Raw video material: **4.5 TB**
- **148.6** hrs of recordings amounting to **891.4 hrs**



Peak Fefe

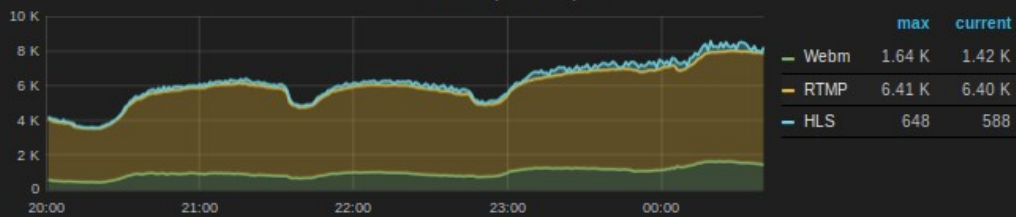
VIEWERS **8.70 K**

MAX **8.88 K**

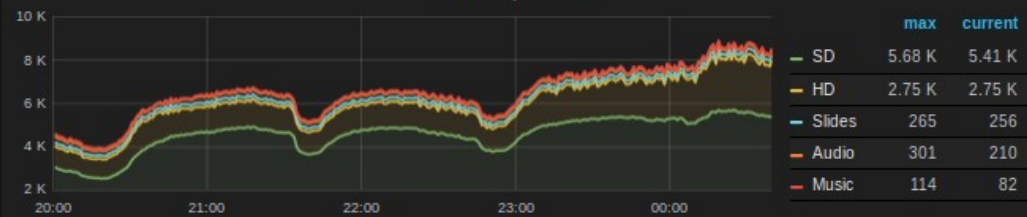
BANDWIDTH **8.37 Gib**

MAX **10.86 Gib**

Viewers per Transport



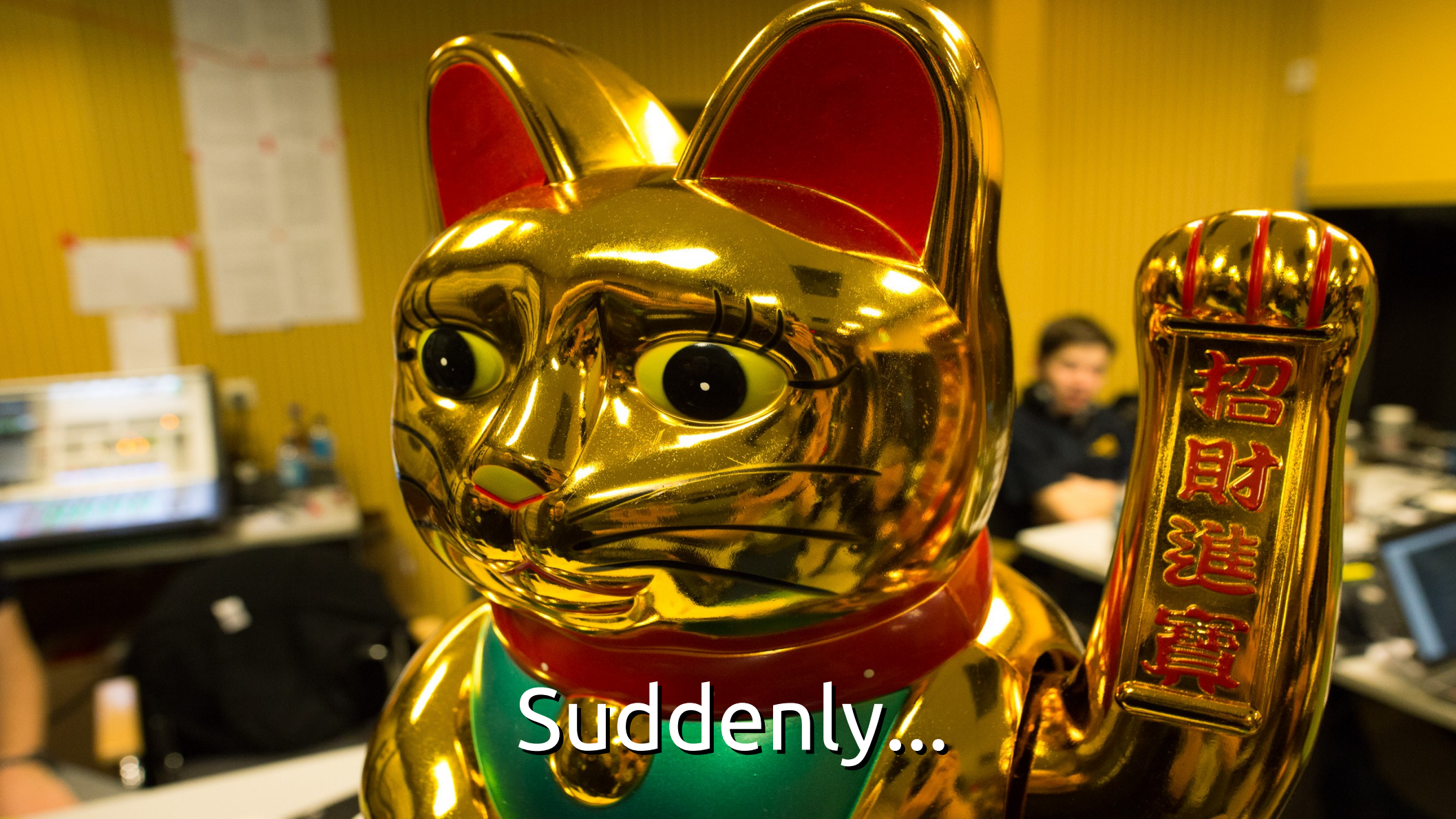
Viewers per Stream



For Viewer's Sake!

- We streamed all of Sendezentrum's shows
- Unfortunately no VOD this year
- Amazing viewer #: NSFW Latenight:
 - 3K viewers (!)
- All videos will be available online later





Suddenly...

Thank you!

Big hands to all the video angels!

Feedback: voc@c3voc.de

<http://c3voc.de>: Home of Winkekatze

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