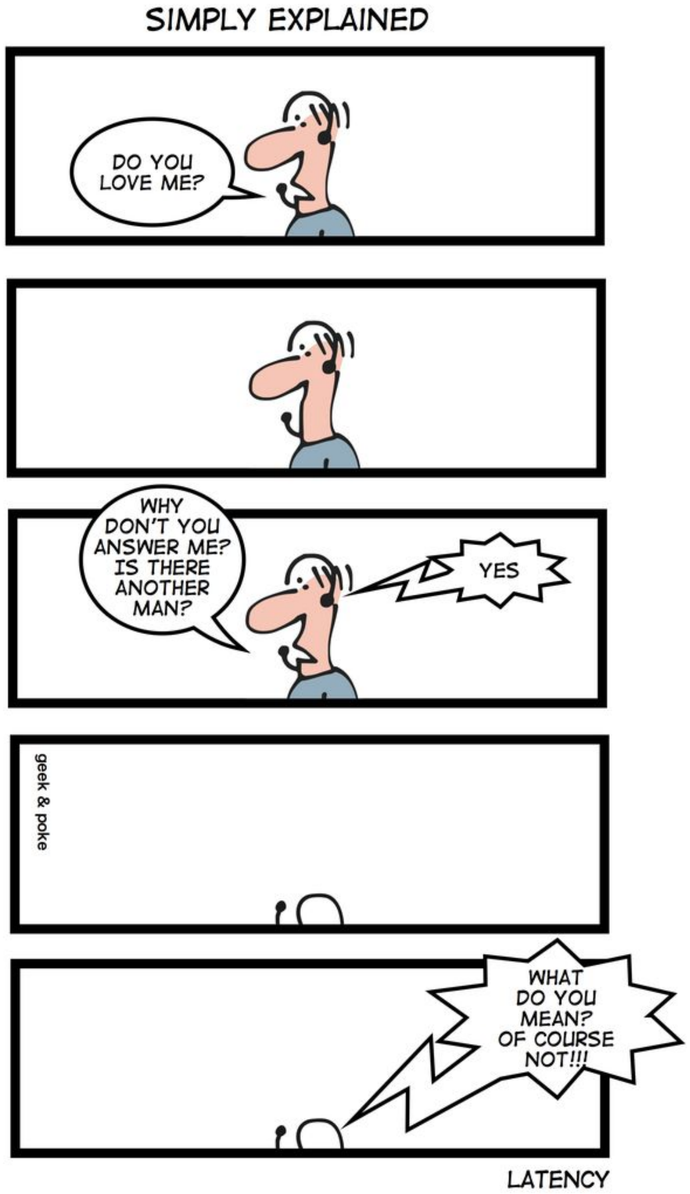
An analytics perspective

Varun Singh, CEO

Metrics Monday, 02.05.2016

@callstatsio @vr000m

callstats.io

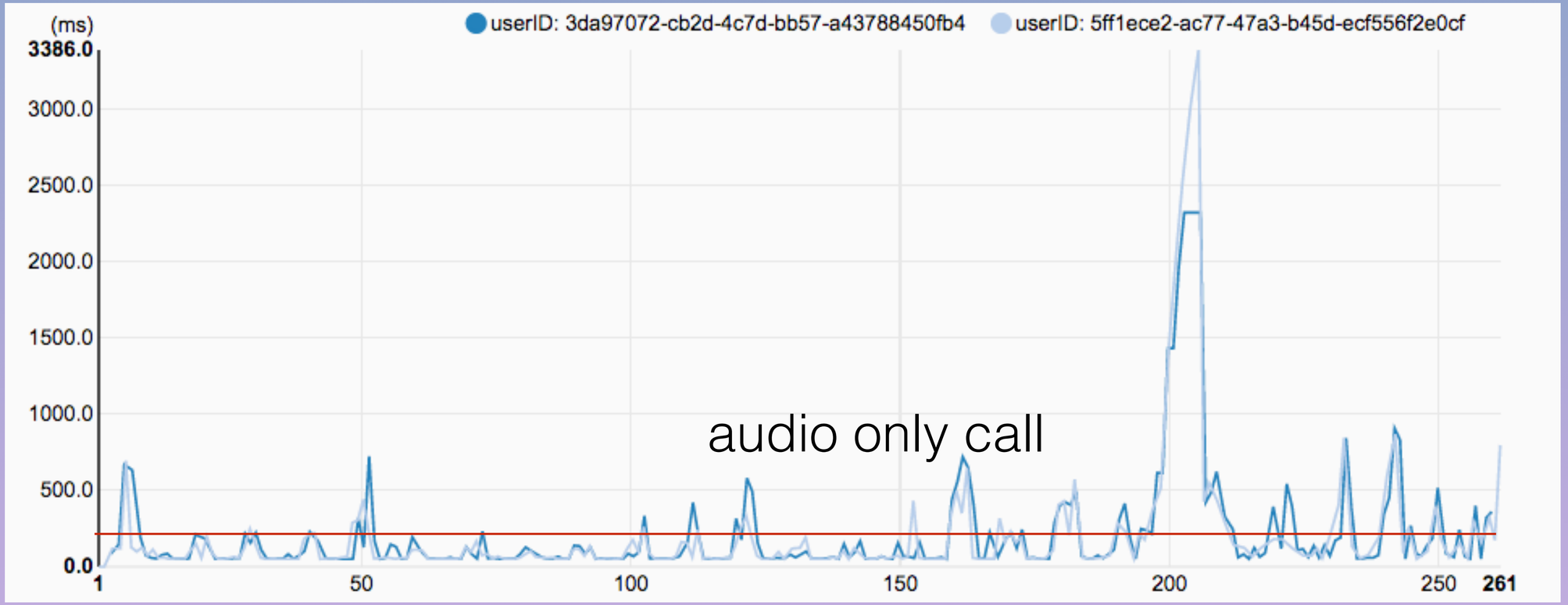


http://geek-and-poke.com/

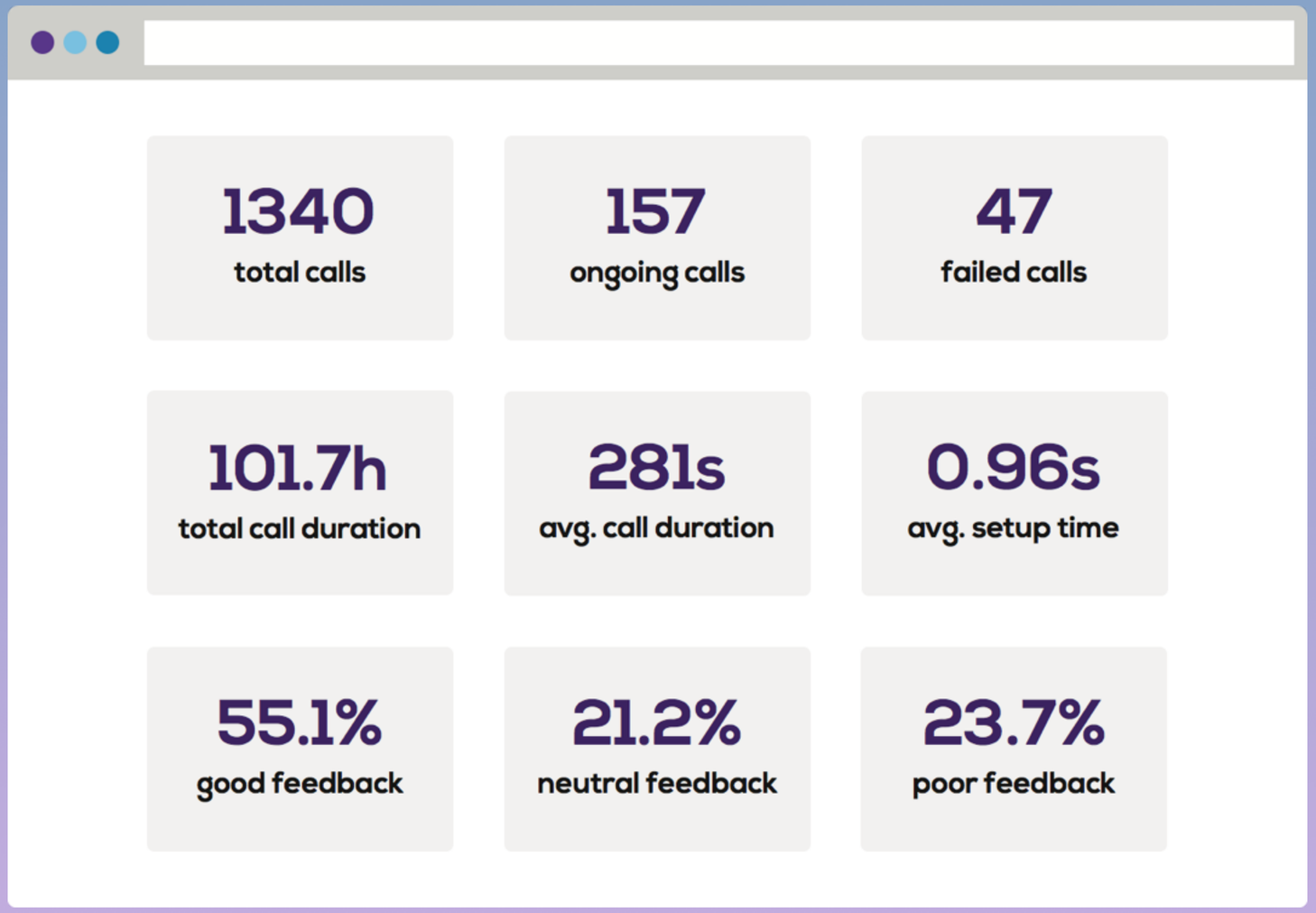
It is not all about throughput*

*)capacity
bandwidth
speed

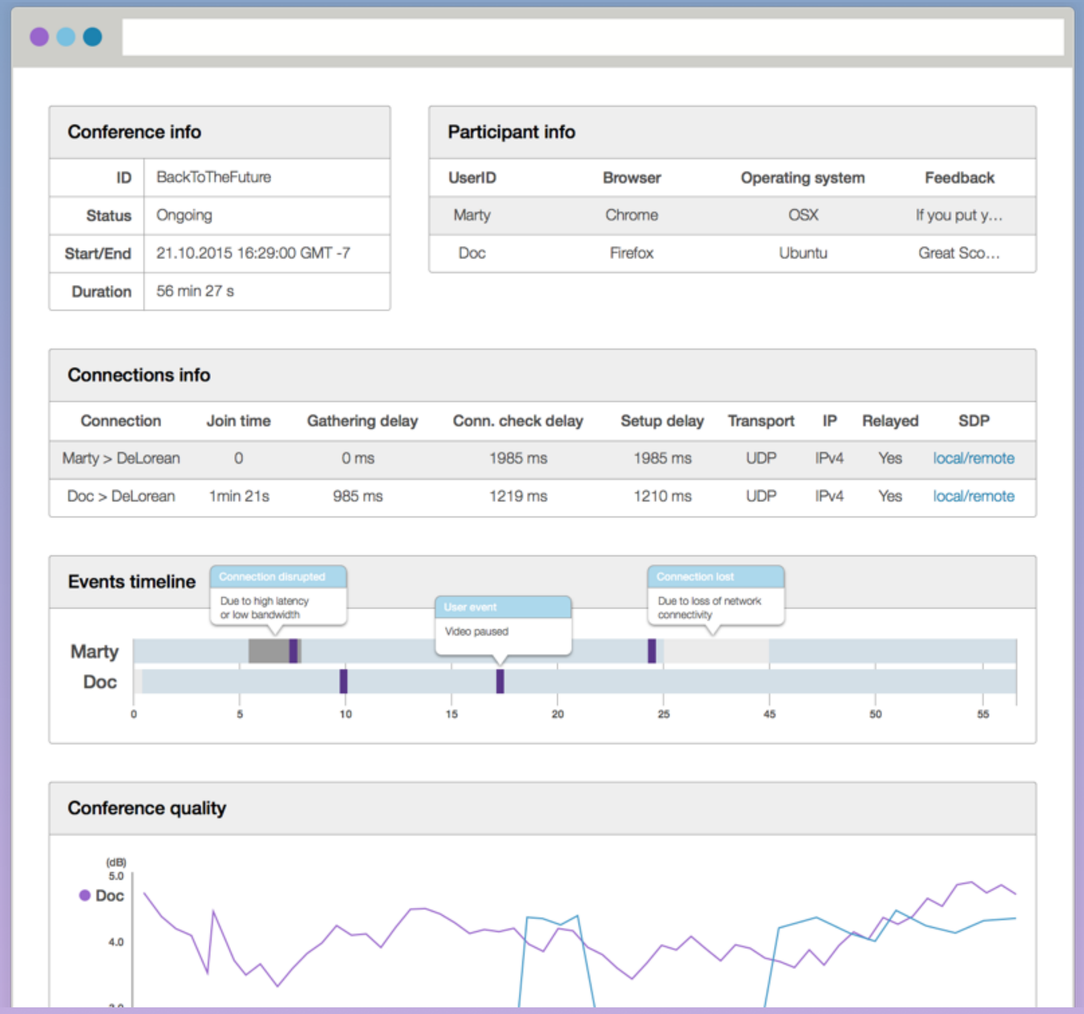
- … it is about latency or delay!



Overall Metrics



Conference Timeline (1/2)



Conference info

ID	BackToTheFuture
Status	Ongoing
Start/End	21.10.2015 16:29:00 GMT -7
Duration	56 min 27 s

Participant info

UserID	Browser	Operating system	Feedback
Marty	Chrome	OSX	If you put y…
Doc	Firefox	Ubuntu	Great Sco…

Connections info

Connection	Join time	Gathering delay	Conn. check delay	Setup delay	Transport	IP	Relayed	SDP
Marty > DeLorean	0	0 ms	1985 ms	1985 ms	UDP	IPv4	Yes	local/remote
Doc > DeLorean	1min 21s	985 ms	1219 ms	1210 ms	UDP	IPv4	Yes	local/remote

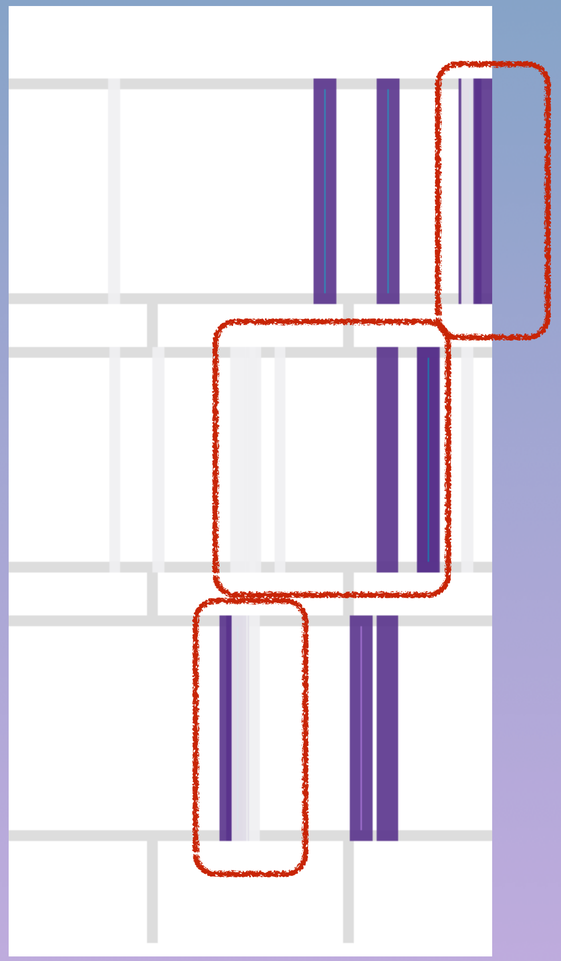
Conference Timeline (2/2)

Disruptions

Disruption: loss of connectivity when network interfaces change, low available capacity,or high delay

The light grey vertical lines show disruption, highlighted by the red bounding boxes.

Disruptions and user behaviour

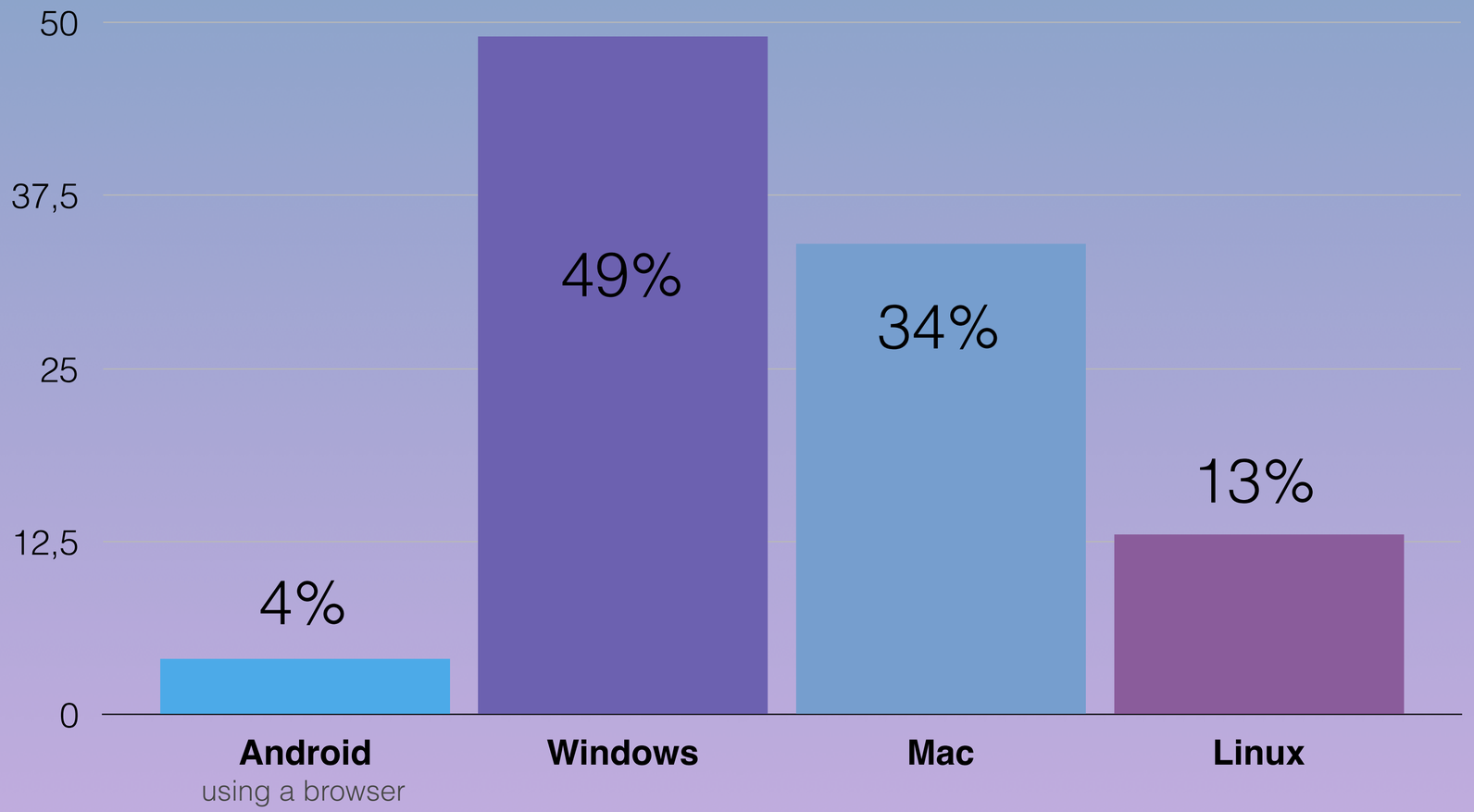


User Behaviour: The user tries to correct for the disruption by turning on and off video

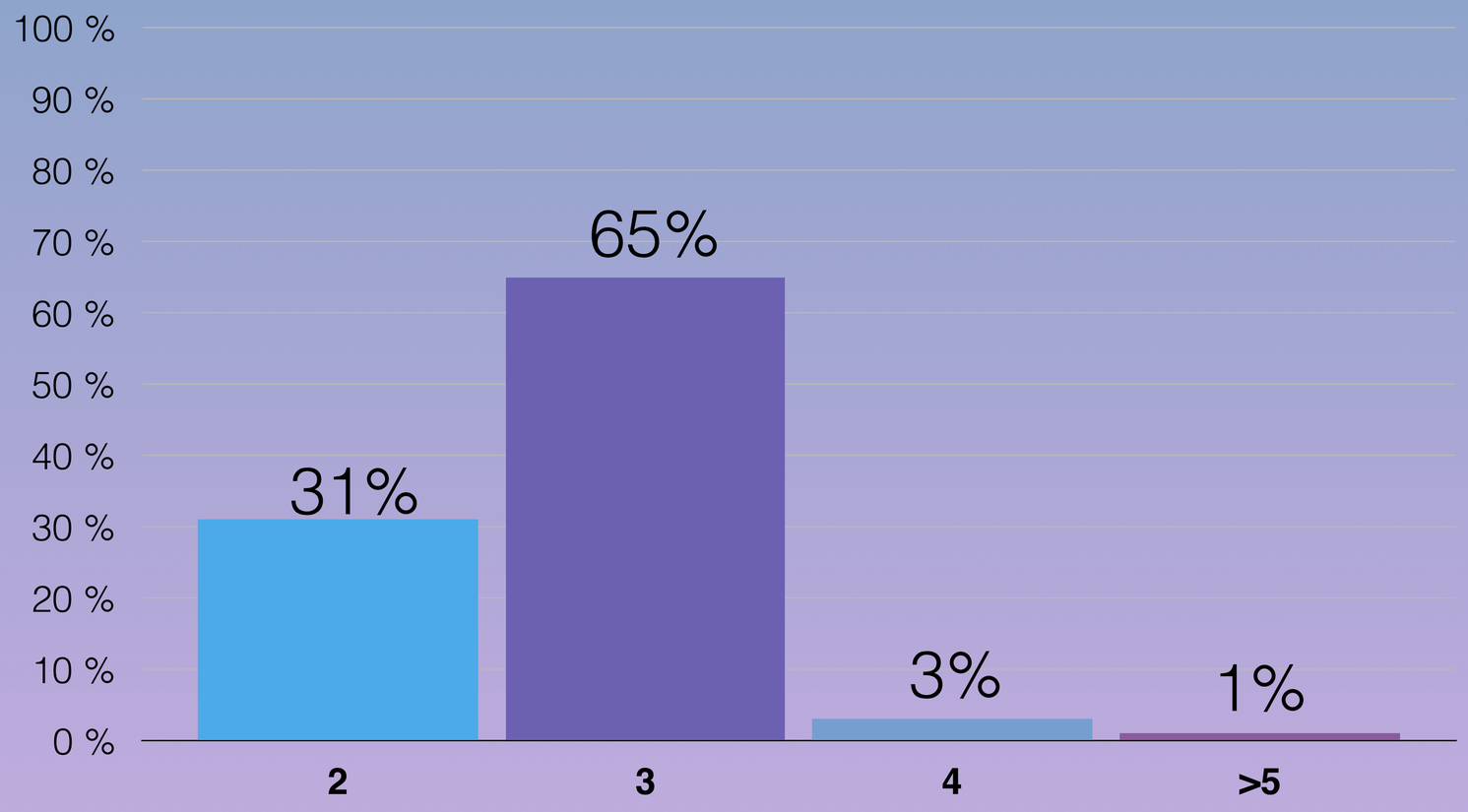
state of webrtc

(as we observe it)

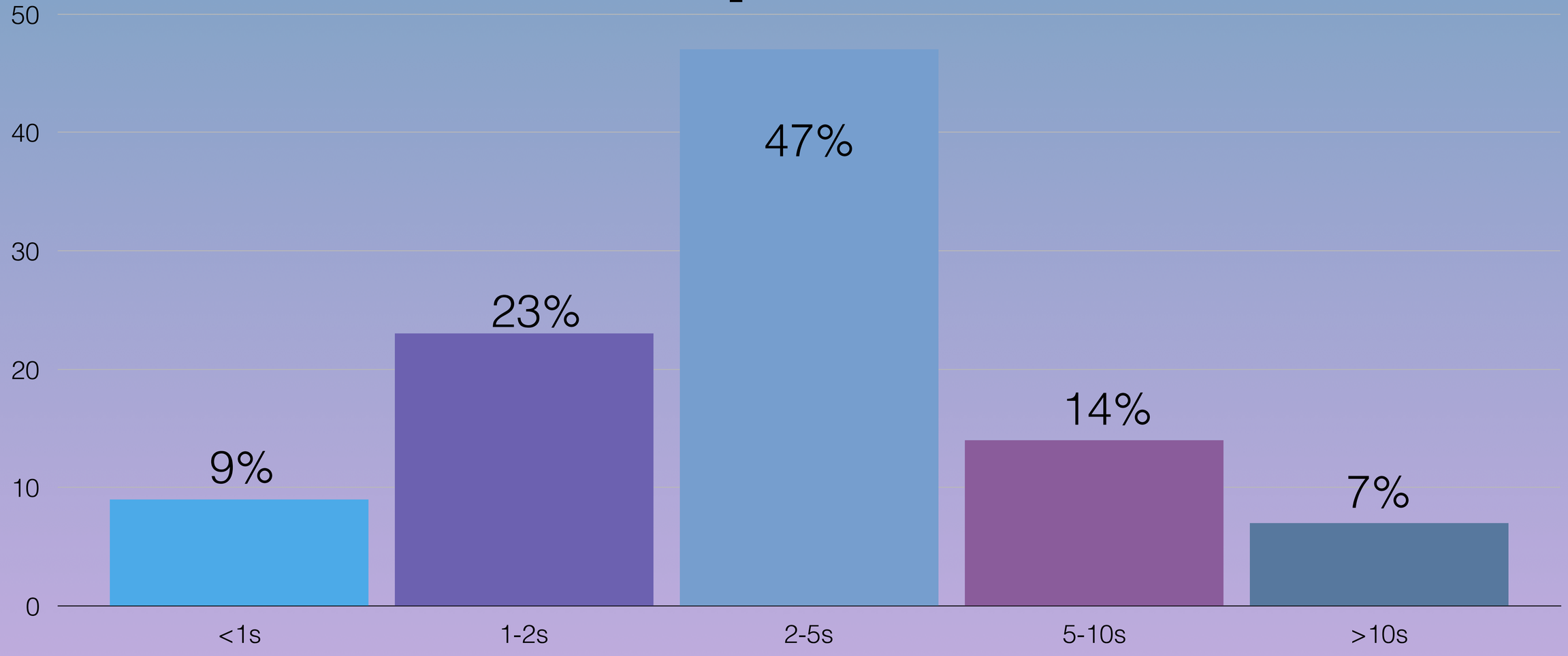
OSes


50
37,5
25
12,5
0
4%
49%
34%
13%
Android
using a browser
Windows
Mac
Linux

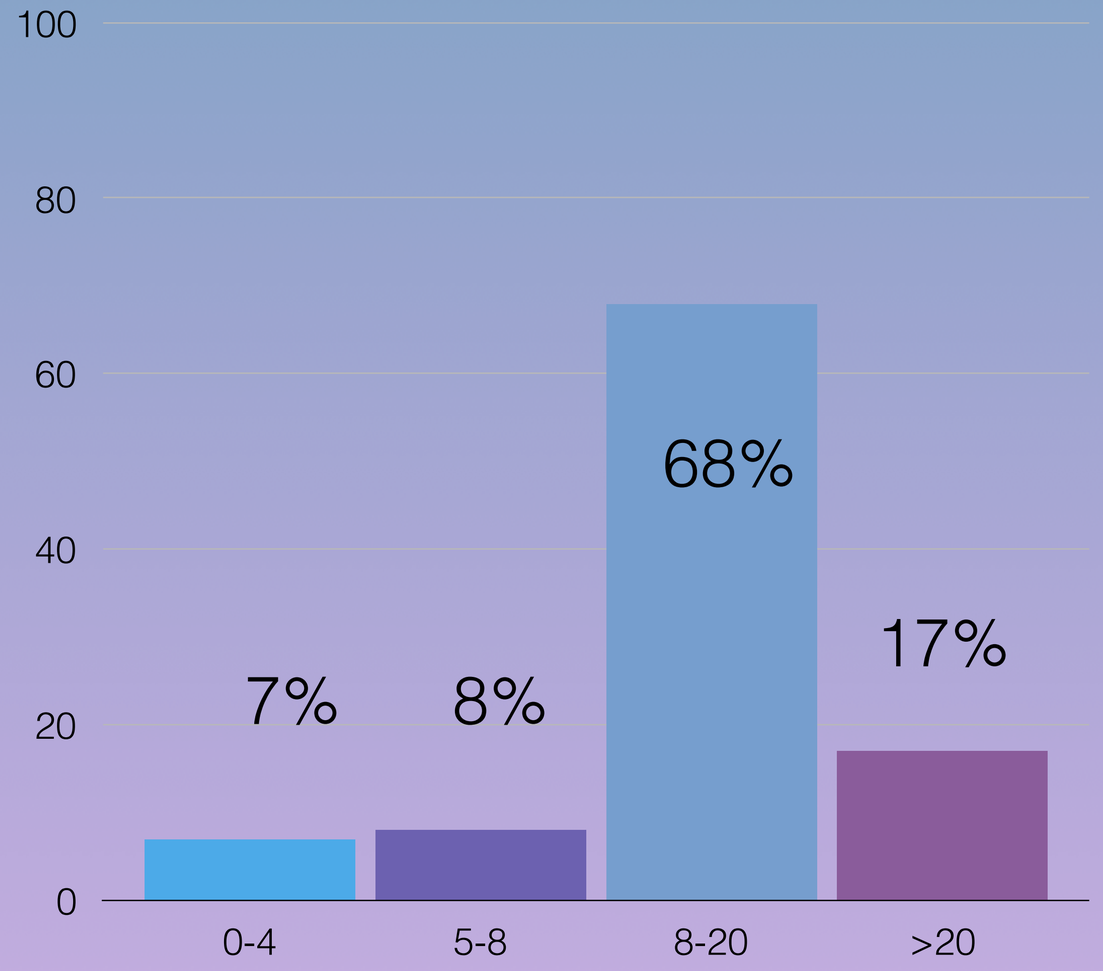
multiparty?



Setup times



how many ICE candidates?



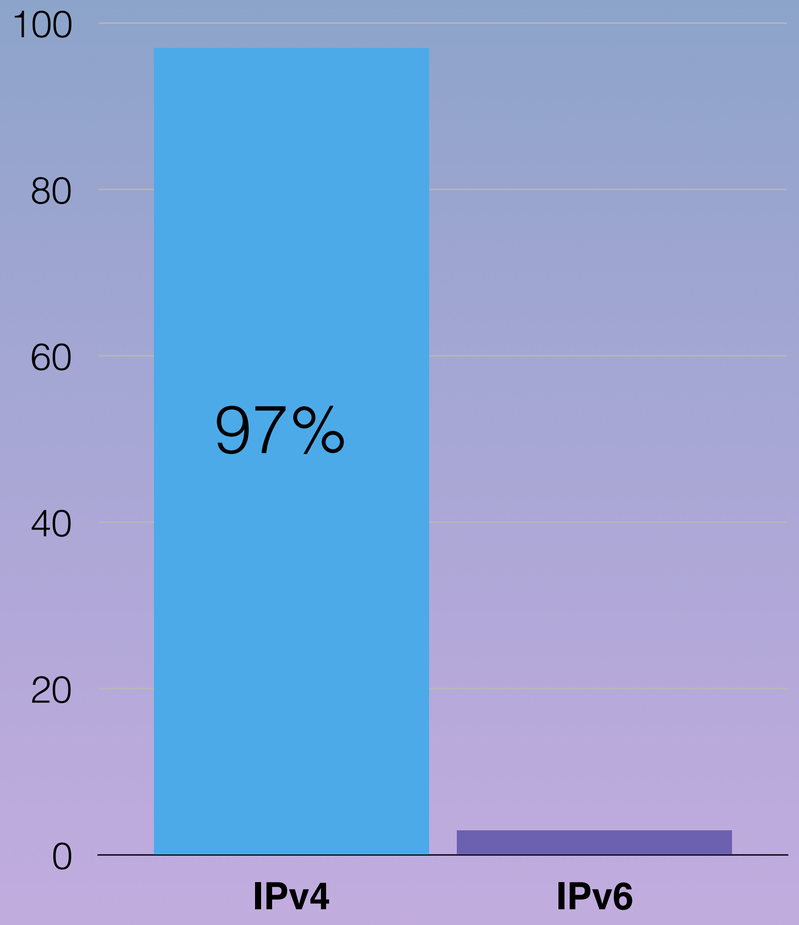
host
stun
turn

v4
v6

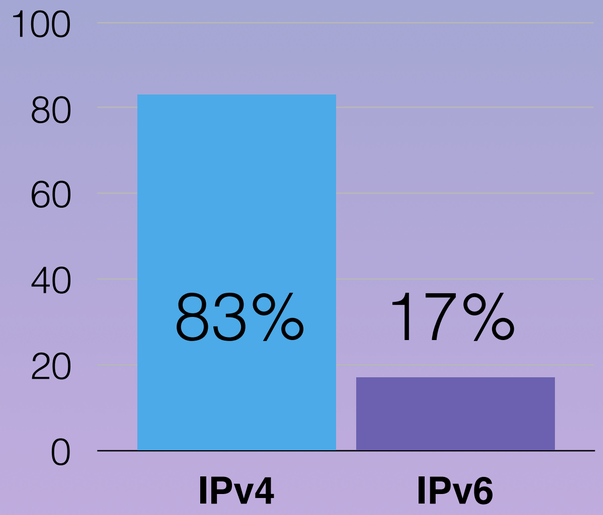
multi homed

24 candidates: 8%

IPv6?

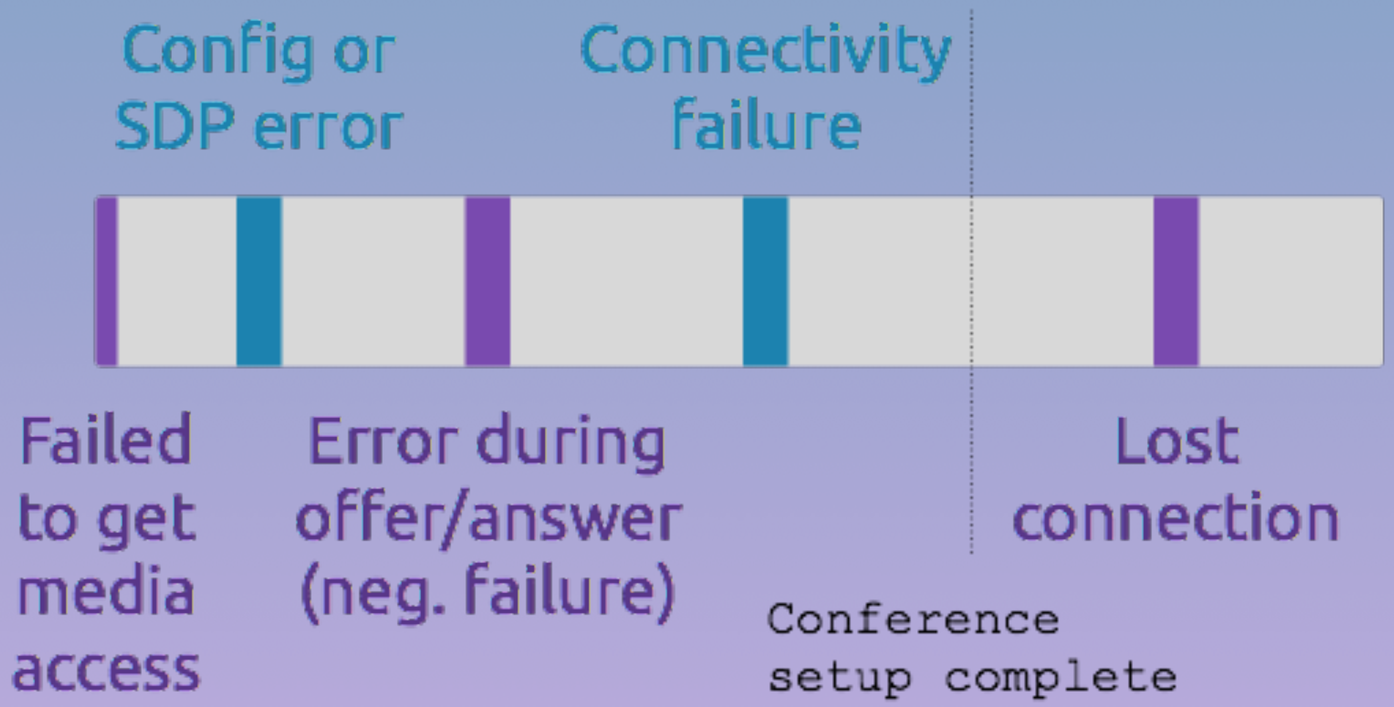


Not all is lost, for Europe alone



~12% calls fail to set up

Failure Reasons

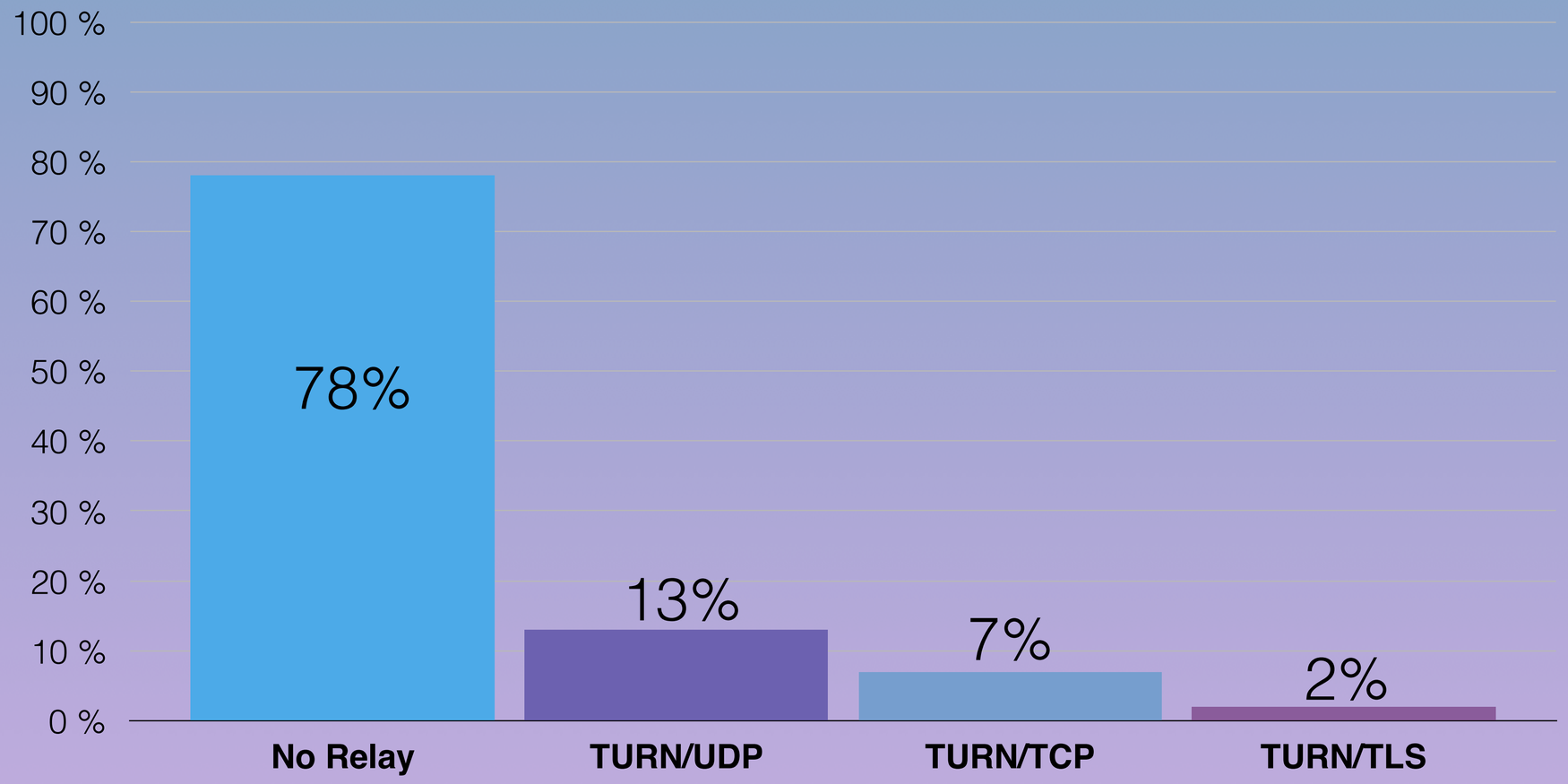


14%

<1%

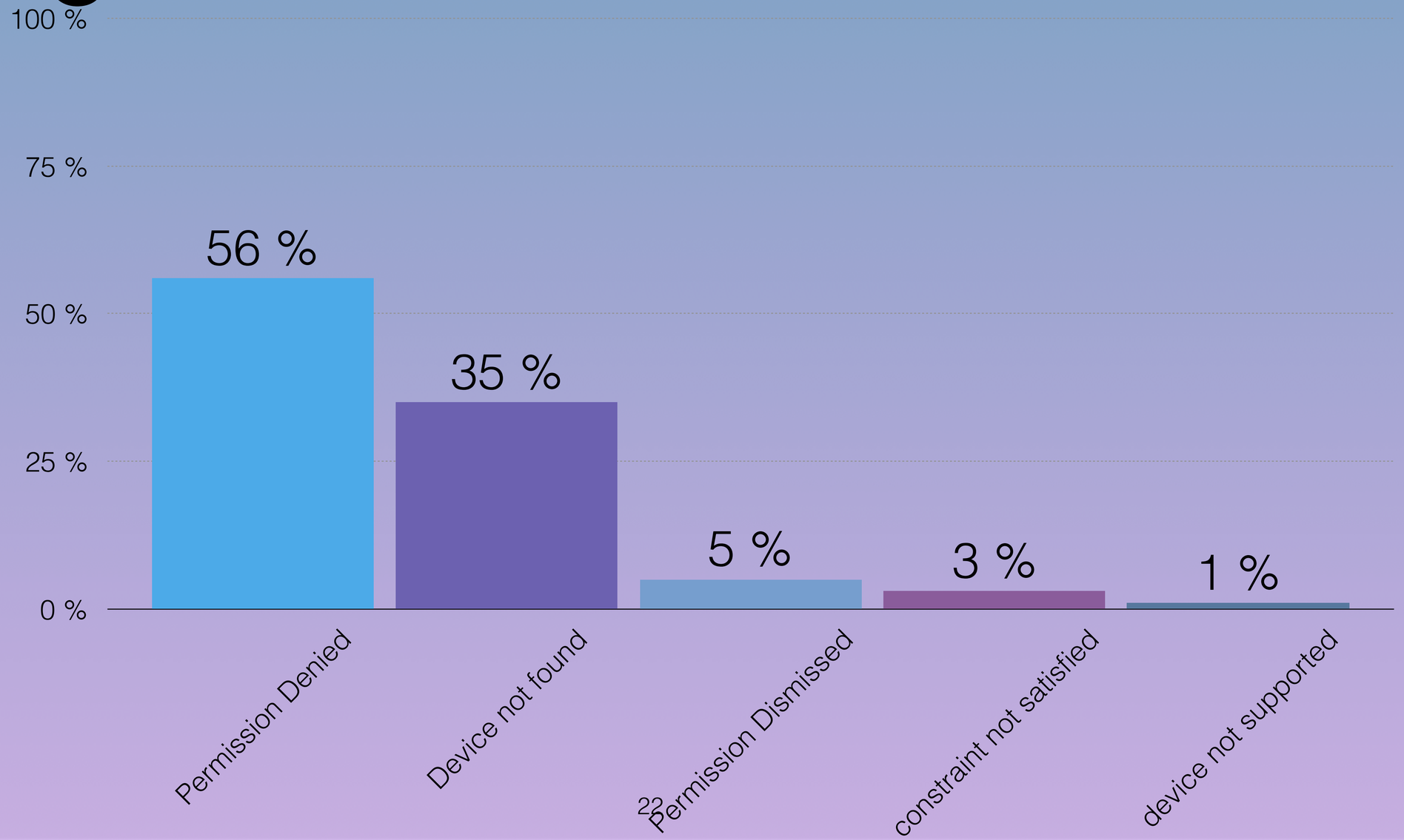
85%

Types of Relays



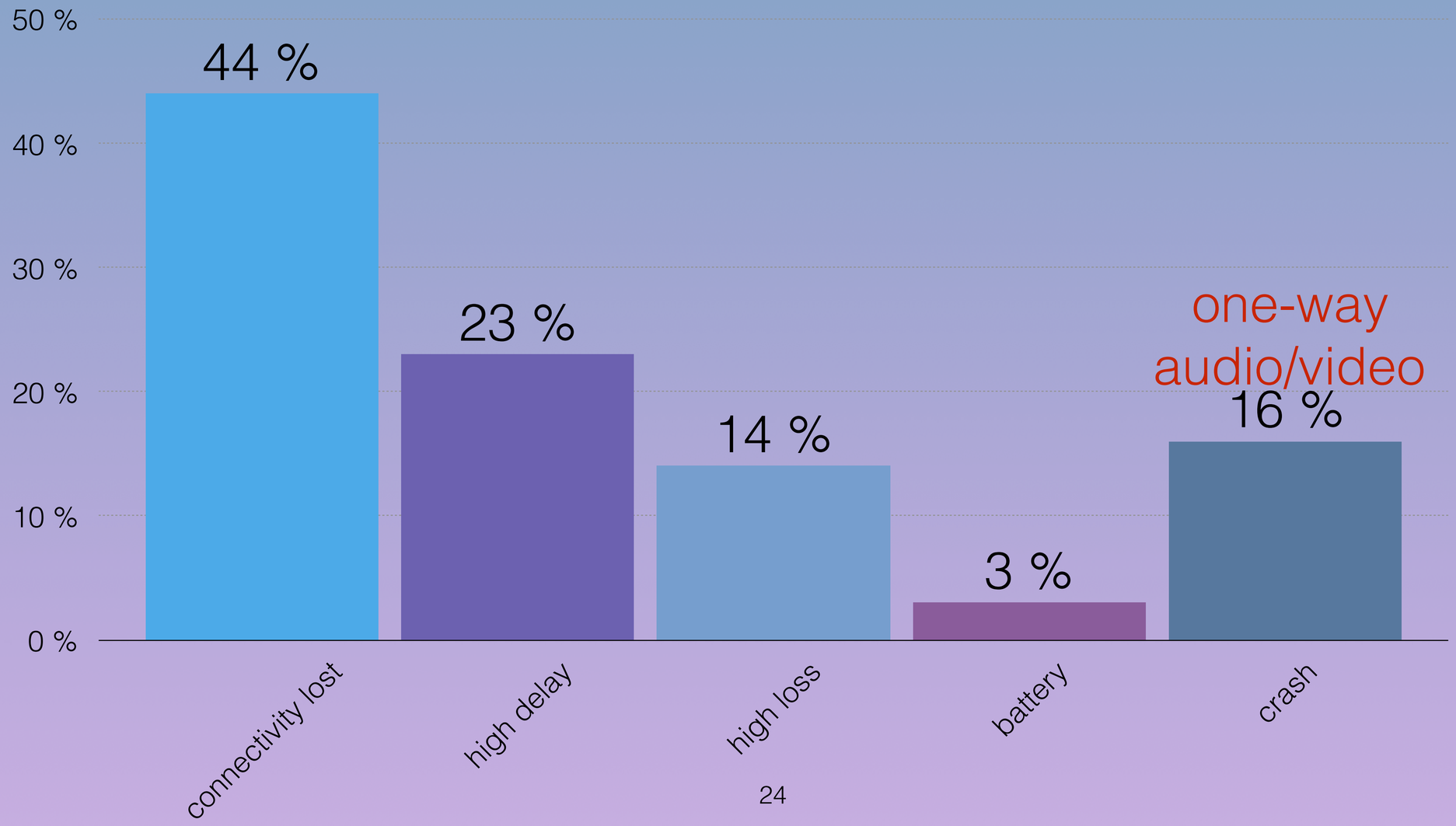
22% of calls need infrastructure

getUserMedia() errors?



~20% calls drop after setup

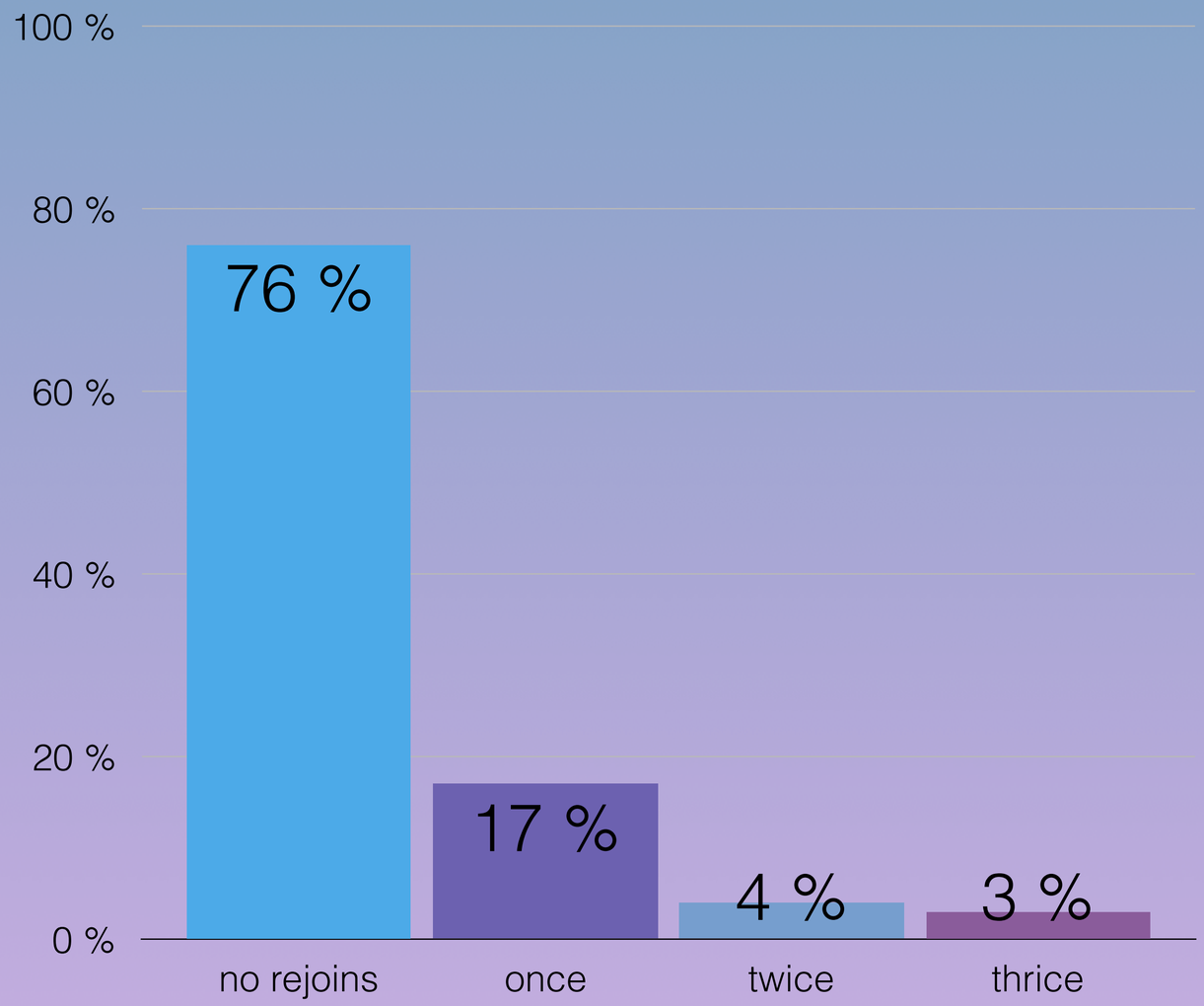
Dropped calls



churn:

user joins — leaves — joins again

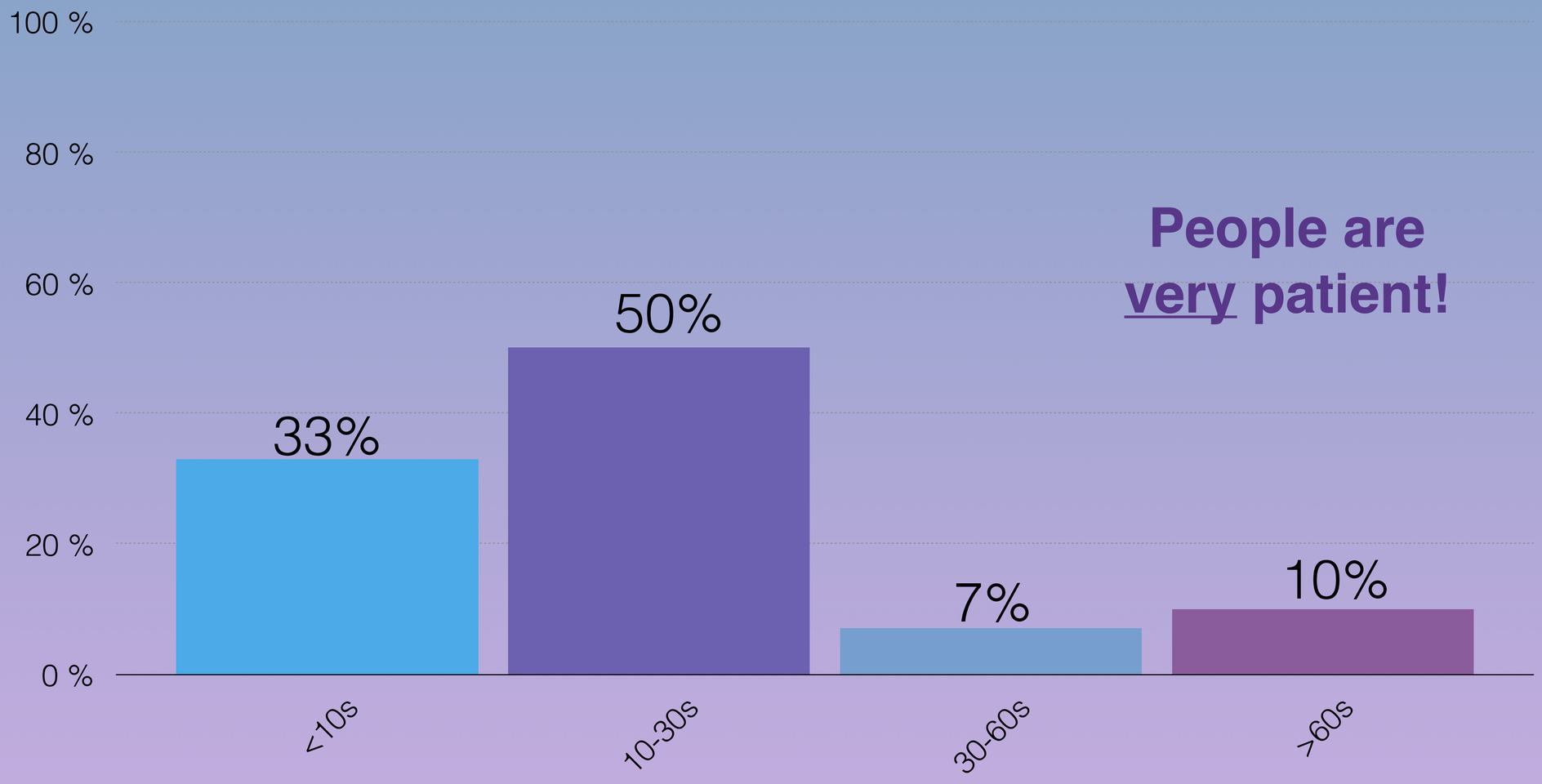
Churn*



*participant rejoins the same call repeatedly

Average joins per participant per conference

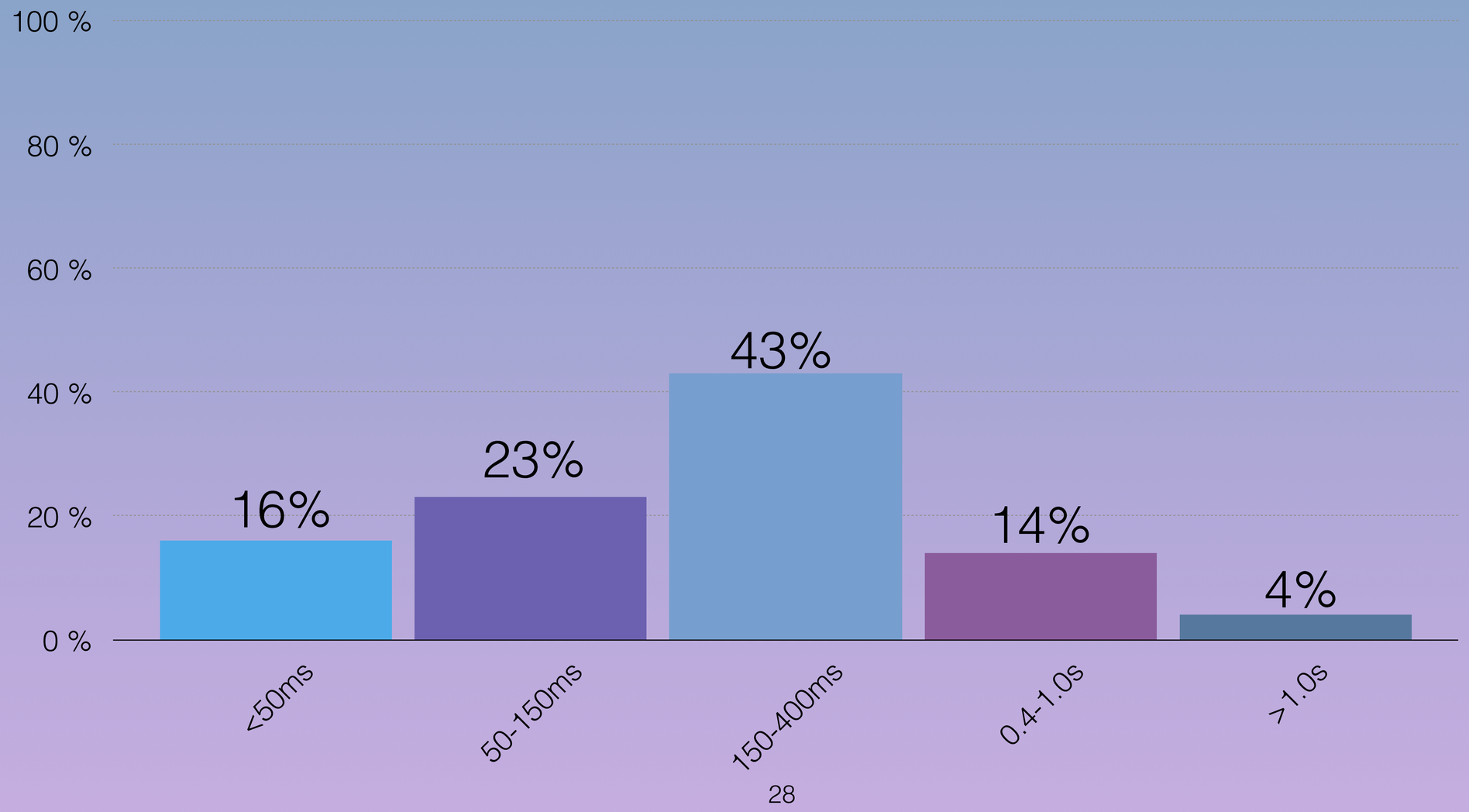
Time to Failure



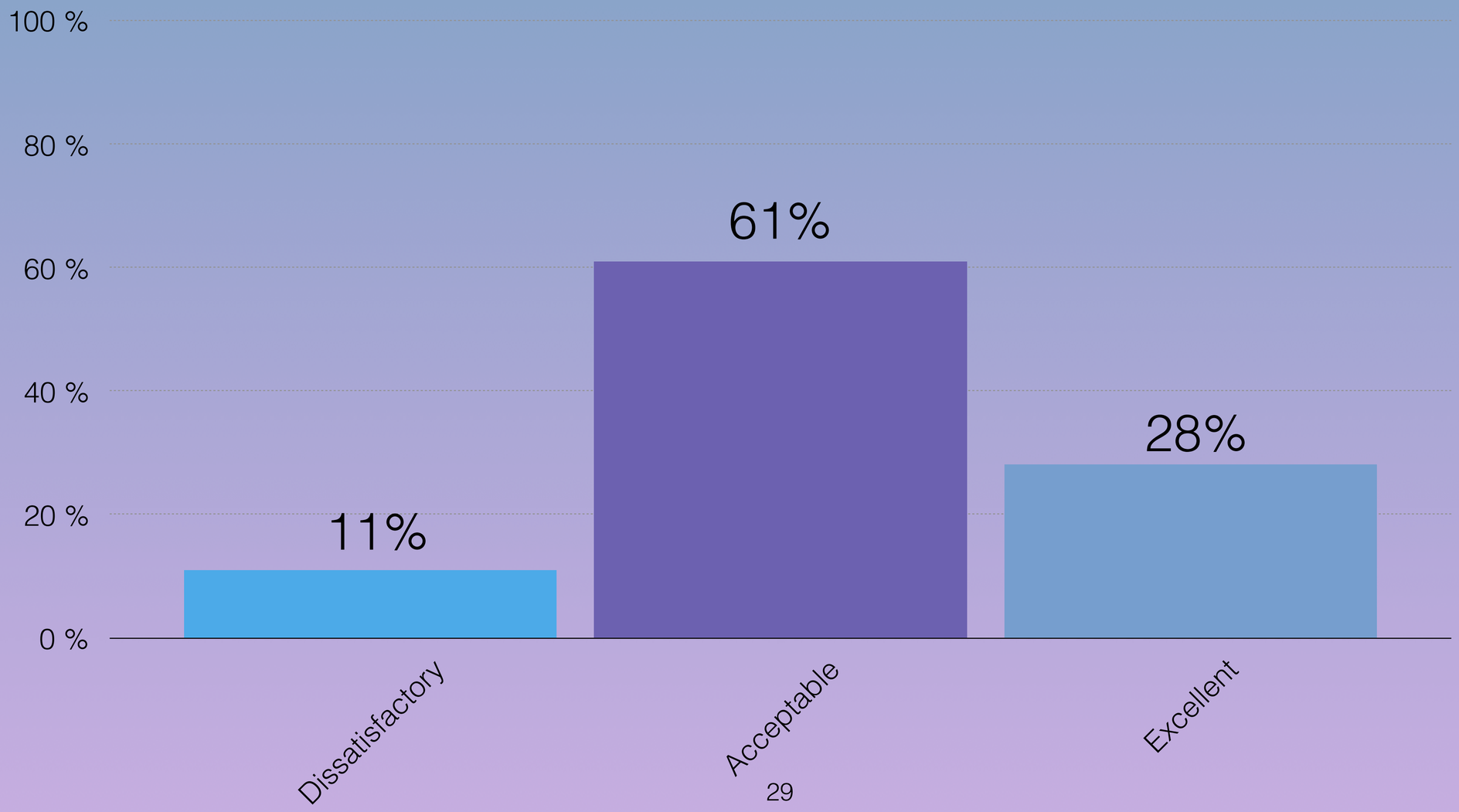
People are very patient!

*not mobile

Round Trip Times

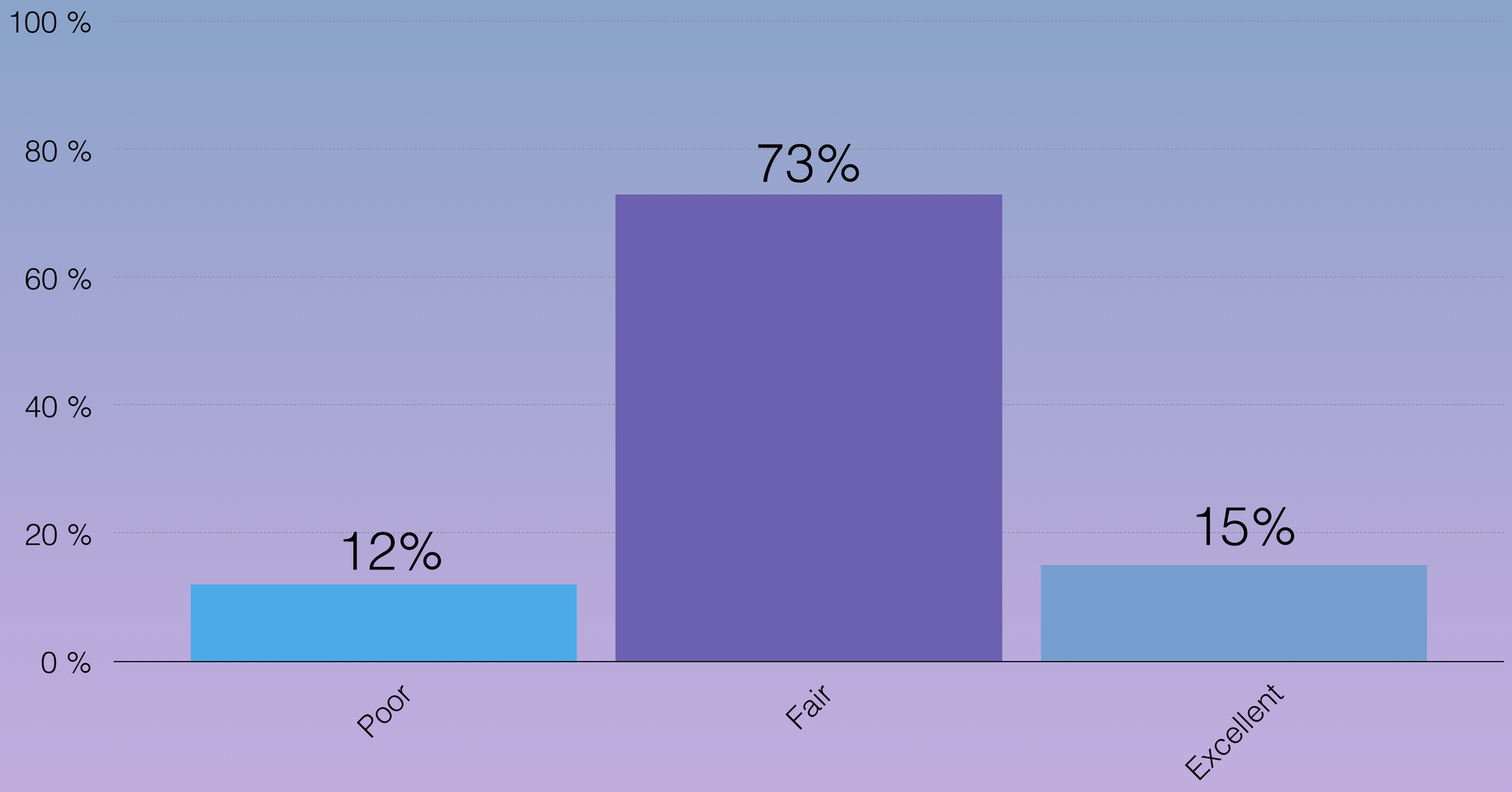


User Feedback



*asking the right question is important

Objective Quality



*uses timeliness as the basis of model

Lessons Learnt

- ask for audio and video device permissions separately
- deploy TURN servers with UDP and TCP support
- detect crashes and re-setup connections
  - media pipelines sometimes crash
  - screen sharing plugin crashes

Summary (1/2)

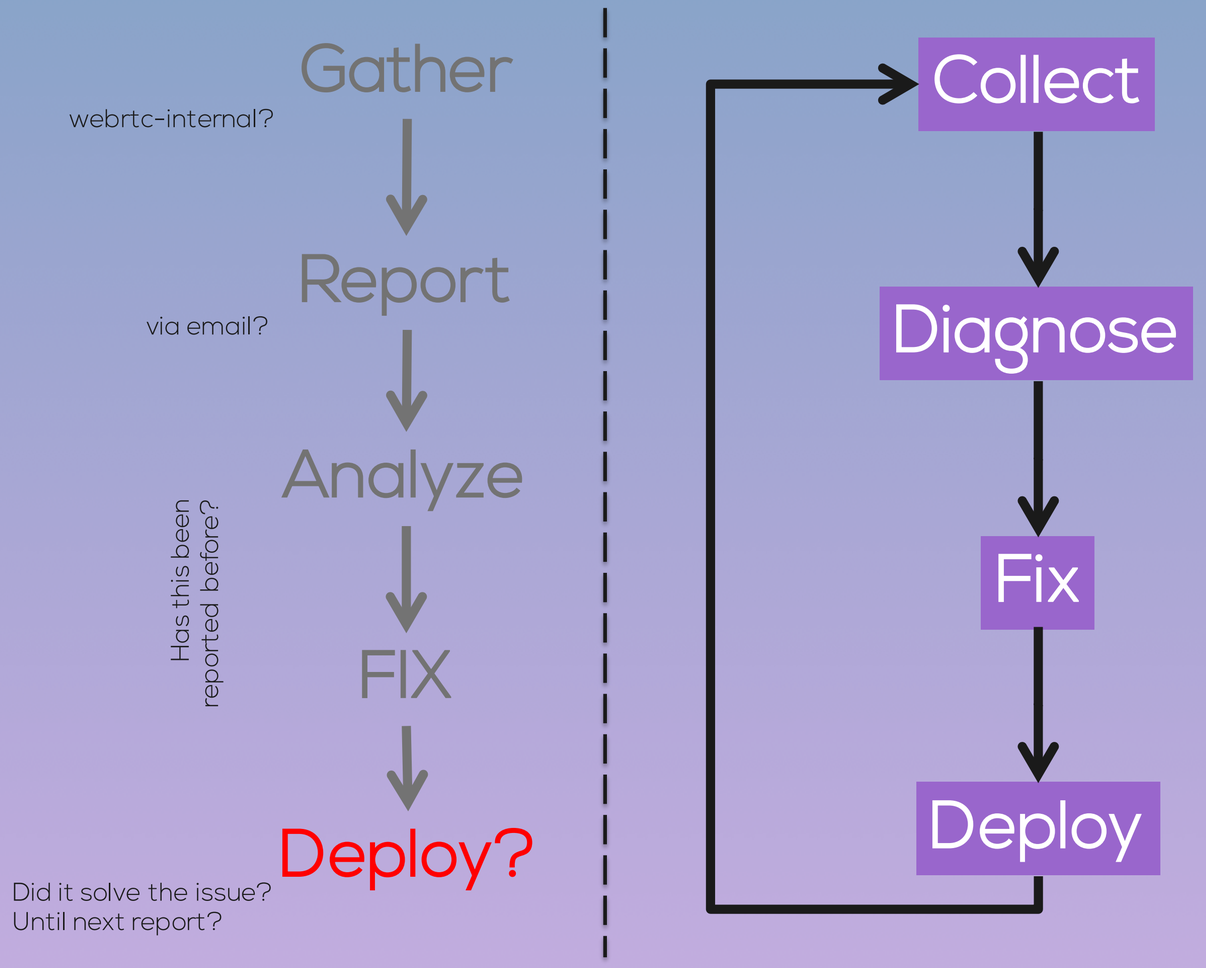
- **Browsers**: Chrome dominates WebRTC
- **OSes**: Windows and Mac are pretty even
- **Participants**: ~3 participants (changing from last year)
- **Relays**: ~20% sessions need a TURN server

Summary (2/2)

- **Setup time**: 80% sessions setup in <5s
- **Call Setup Failures**: ~10% of calls fail to setup
- **Reason for failure**: 85% due to NAT/FW
- **Call Drop**: 20% calls fail after setup
- **Churn**: 24% of sessions have a participant rejoining

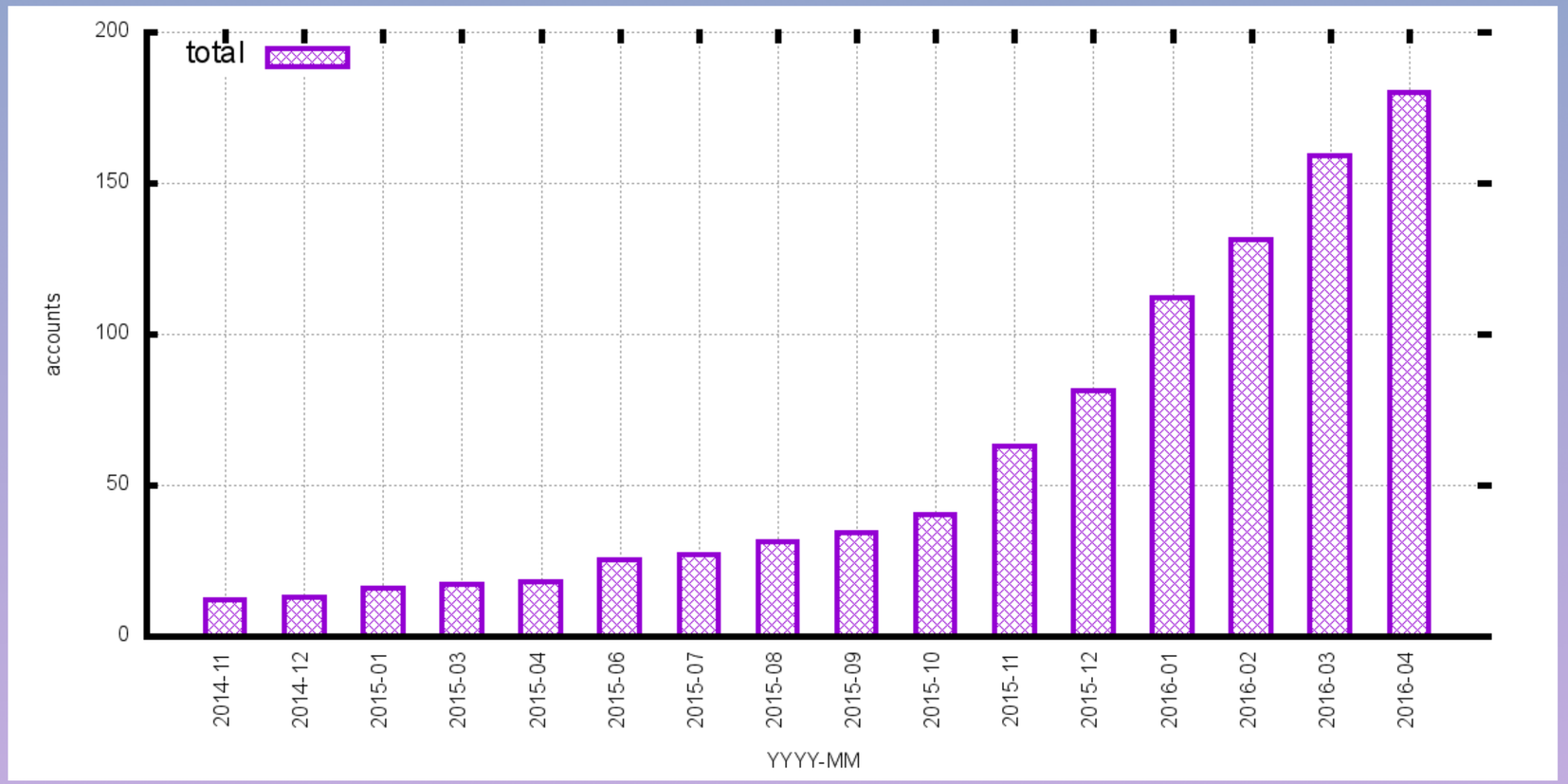
Vision

A world where real-time communication is both *frictionless* and *effortless* to set up, operate, and scale.

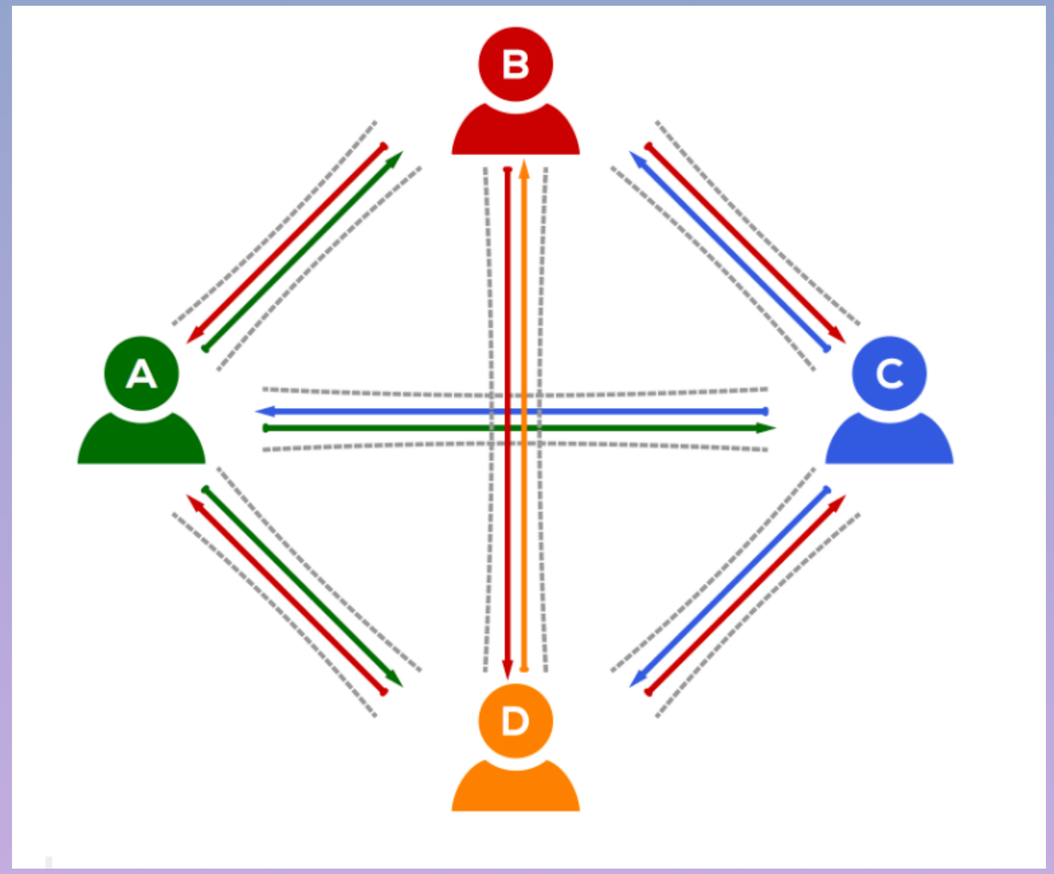


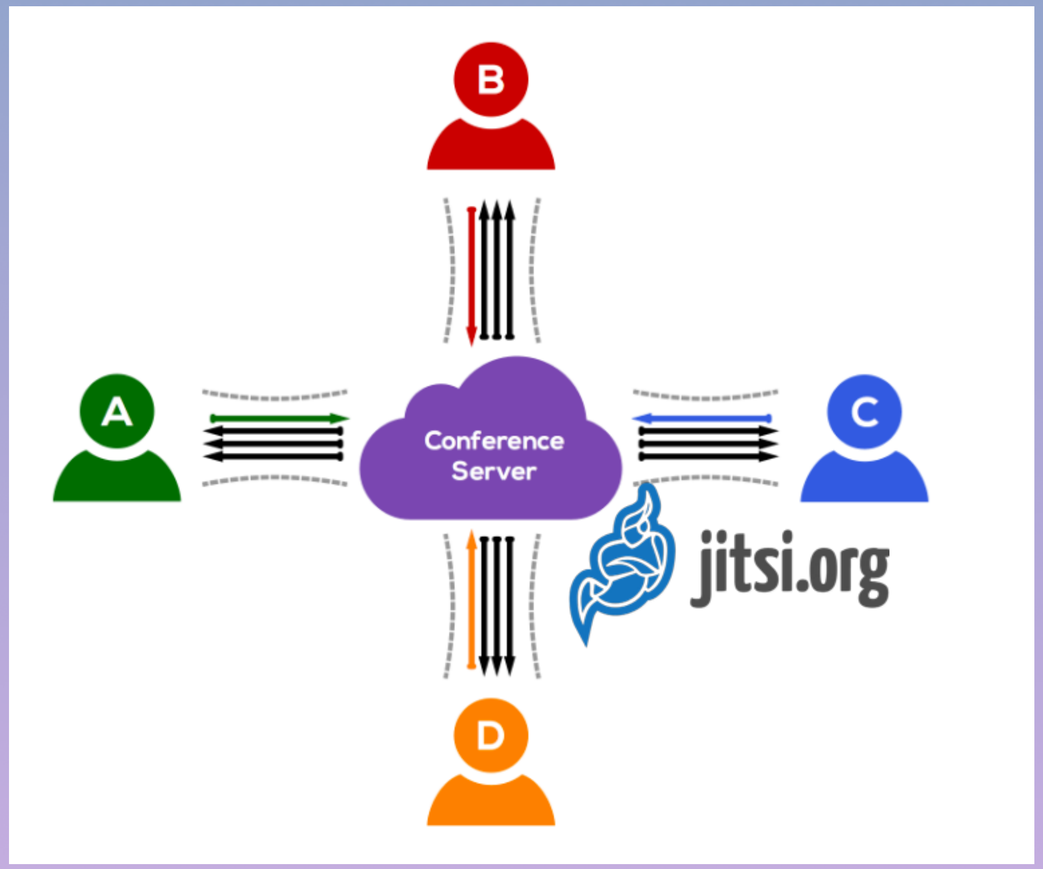
Growth of callstats.io

First cloud-based **monitoring service** for WebRTC



Support for mesh and SFU and complex topologies





Integrations

X

put your logos here

Free developer account

https://dashboard.callstats.io/register

/**daveyw**/daveapp1, /**yusuke84**/skyway-callstats, /**easyrtc**/tree/callstats-integration-sample-added-in-demos, /**jitsi**/lib-jitsi-meet, /**jitsi**/jitsi-videobridge/, /**twilio**/twilio-conversations.js/, /**apprtc**/pull/261, /phidio/