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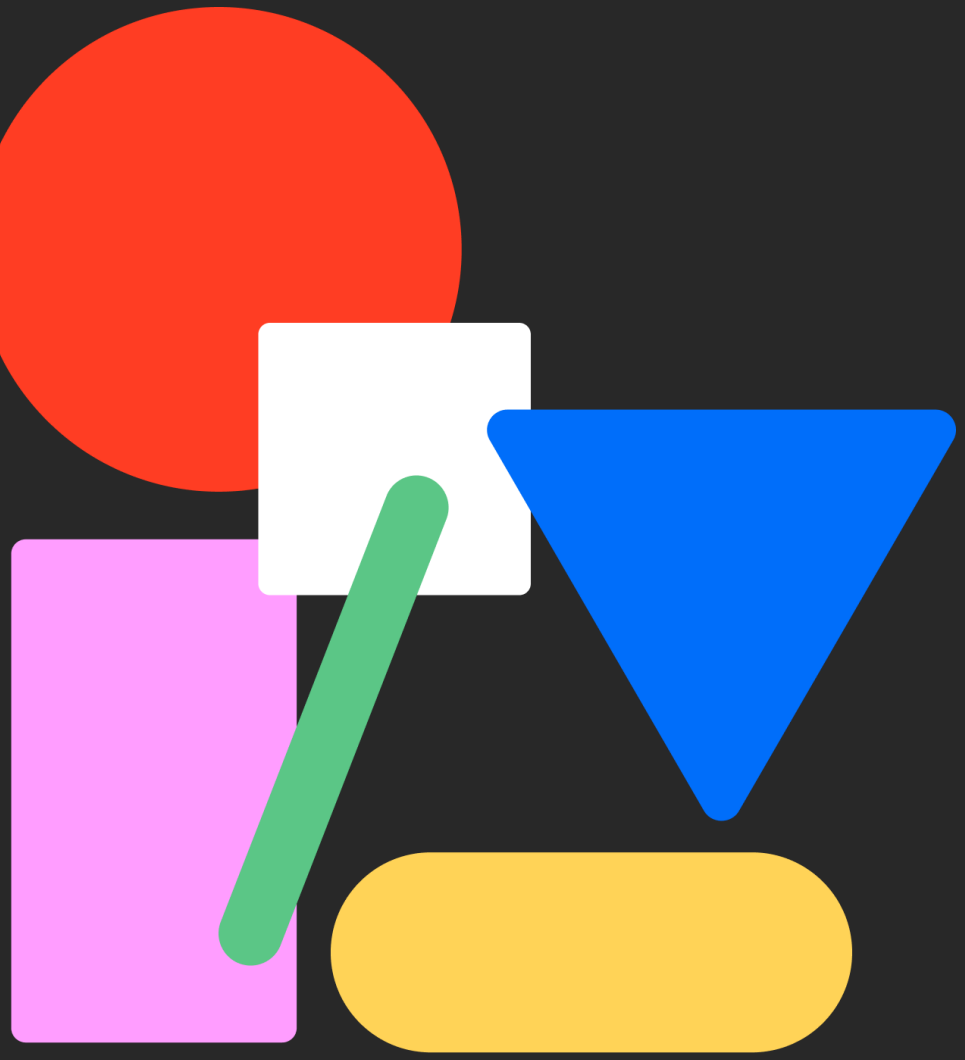

How did we grow from startup to an enterprise with Janus?

April 2024

Denis Sicun

Do you ever feel lucky?

The luckiest animal alive, my fat cat Pepi

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We are lucky!

And have some talent ;)

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1. My Name is Denis Sicun - Working with RTC for the last 7 years
2. For the last 5 years leading the core RTC team at Kaltura/Newrow
3. I LOVE my guitars
4. I’m on a journey to become an Ironman (3.8KM swim, 180KM bike, 42.2KM run)– masochist ☺
5. I love solving complex problems with simple solutions

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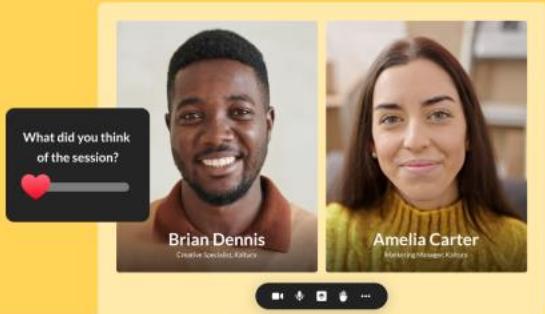
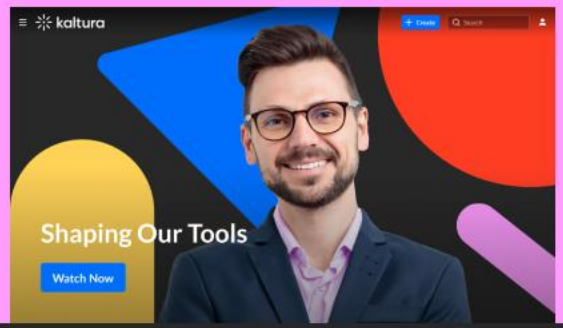
Extraordinary webinars, events, video hubs, and more to boost your reach, engagement, and ROI

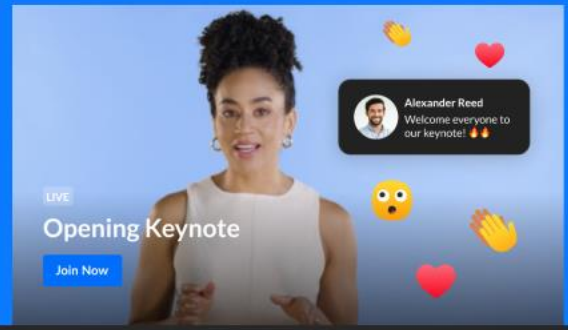
Webinars



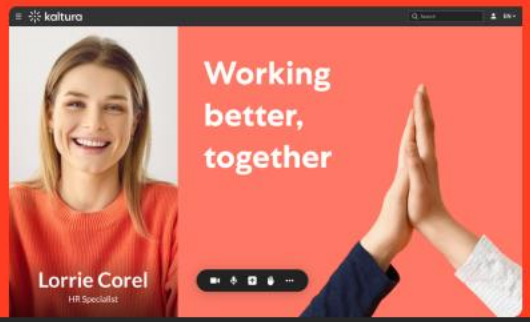
Video portal



Events

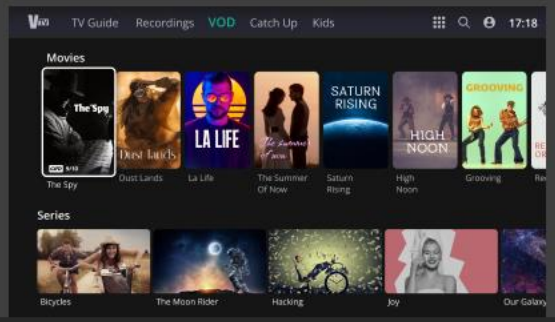


Training platform



Education suite

Cloud TV platform



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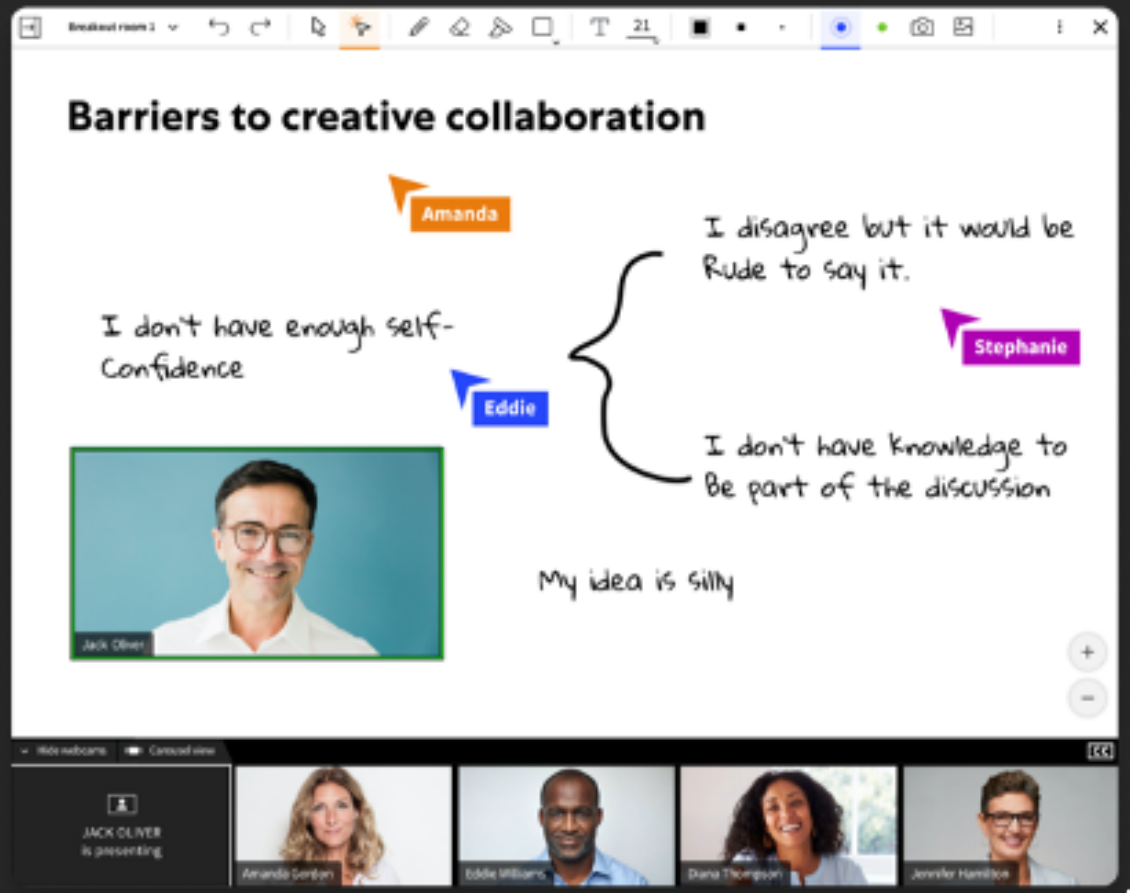
new row

- Until 2020, a startup developing the next-generation Virtual Classroom Platform
- We had major customers
- At that point, the core infrastructure was in stabilization period



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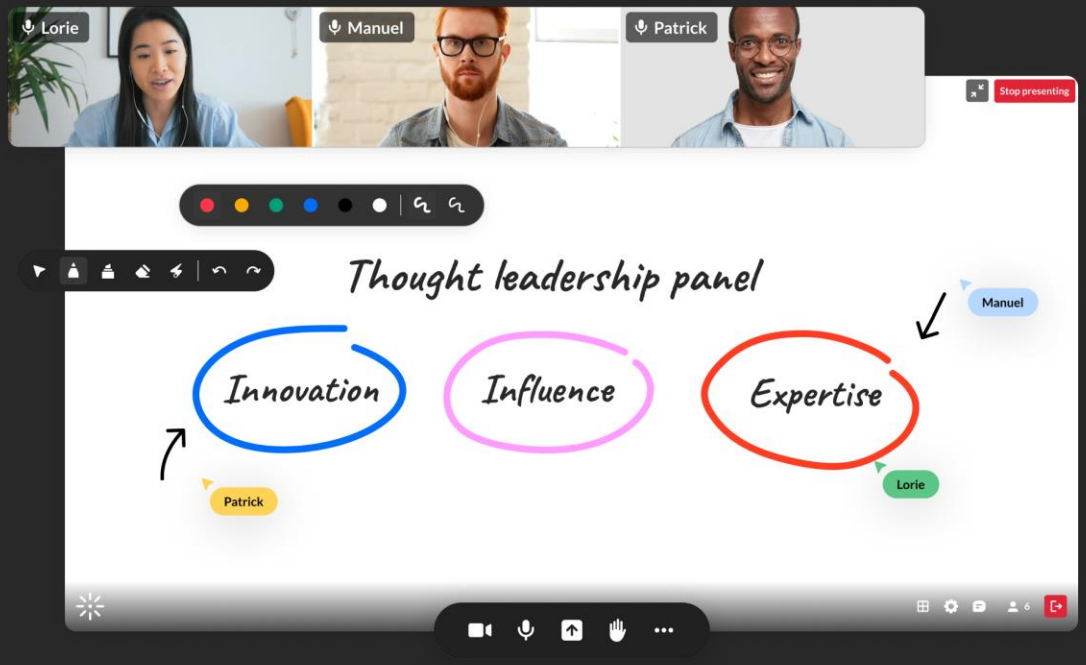
Newrow is now KME (Kaltura Meeting Experience)

- It’s a platform for video conferencing based on WebRTC
- Rich toolset for real time engagement
- Up to 100 live participants
- Up to 1000 viewers in webinar
- Unlimited participants in a hybrid event view (Kaltura's Live Webcasting)
- Major part of Kaltura’s webinars, event platform and education suite



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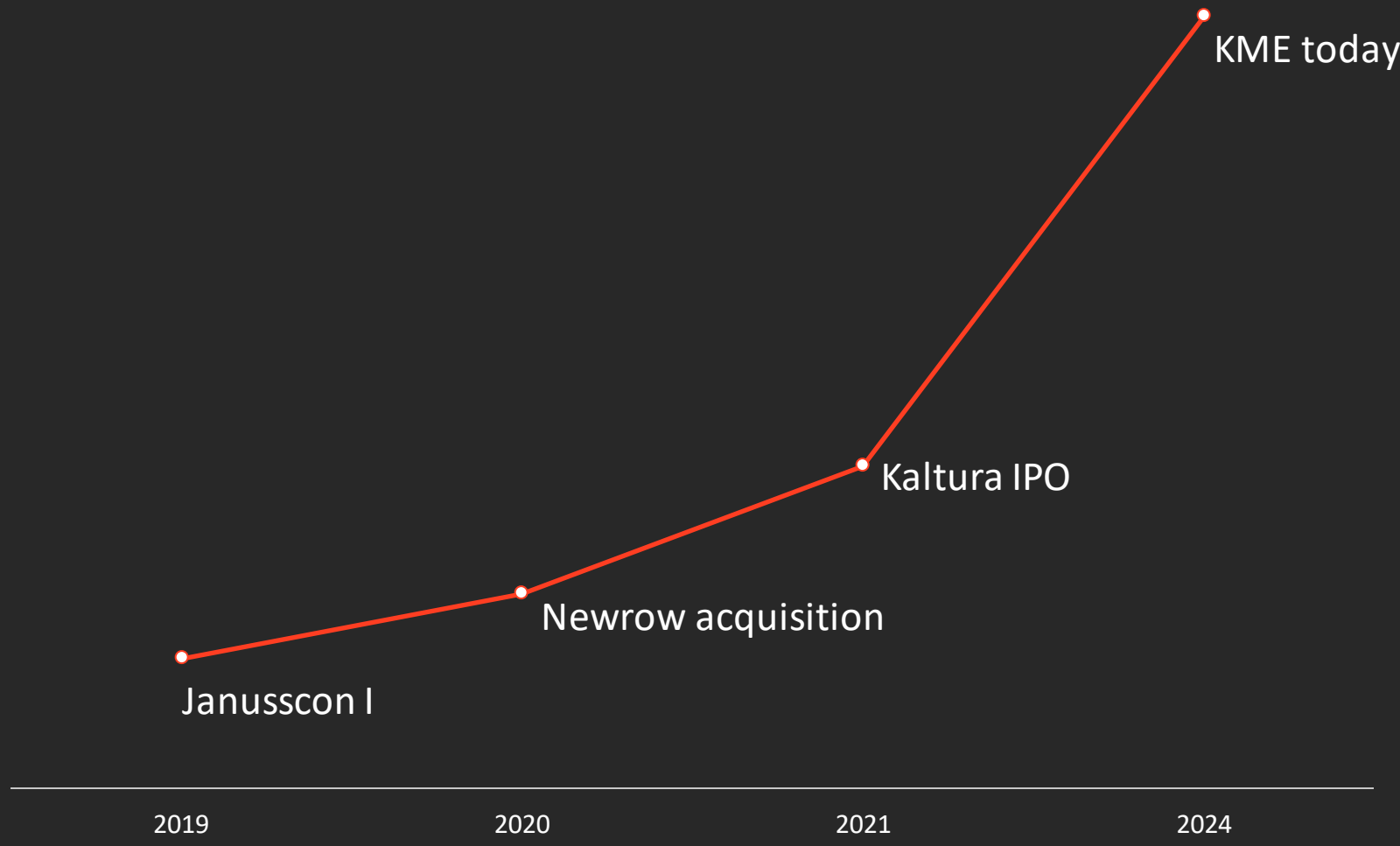
KME’s maturing over the last 5 years



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How did we do it?
Luck?

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We have to go back in time to 2020

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COVID

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Trying to stabilize in no time

- Scale problems
- Stability
- Bugs
- Need to move fast!

Metrics & observability

- Improved support tickets system with RTC stats
- Added custom real time metrics
- We gained a clear view of the system and of customer incidents
- Read more about this in my blog post

Blog Post about how we implemented our custom metrics collection →

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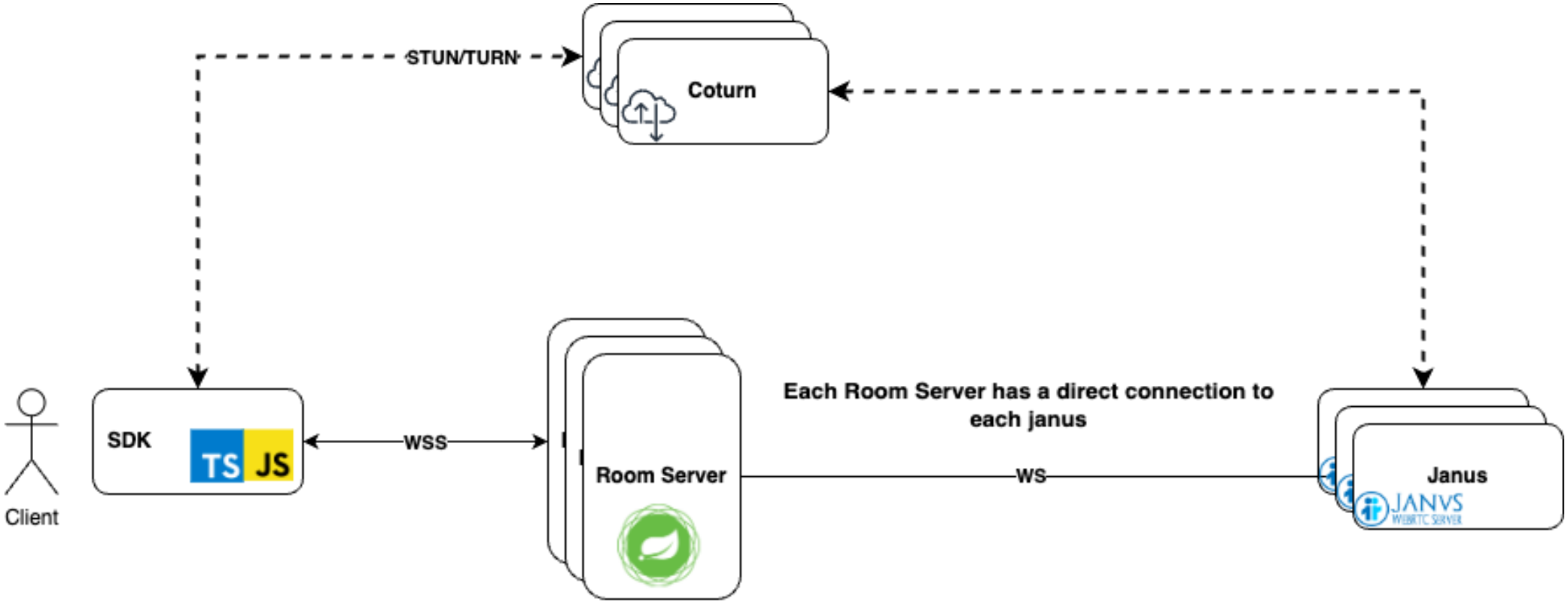
Our system was naive

- It’s expensive
- Inefficient
- Design flaw from day 0
- The system became hard to maintain
- Technical debt grew over time

Newrow core RTC architecture



Problems we had with this design

Monolitic design

The only way we could grow was by using larger servers

Media servers capacity

Server capacity is reached quite quickly

Geo location

High latency and setup time degrades the service quality

Streams distribution

Hard to distribute streams in an optimal way

Wrong framework

Hard to maintain, develop and troubleshoot

Reinvented the wheel

By using on demand EC2 instances and having a custom deployment

We decided we had to redesign our RTC architecture

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We are lucky!

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New Infrastructure Design

Which atomic actions do we have in our system?

New Infrastructure Design

What new components do we need?

New Infrastructure Design

How do we solve our pain points?

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New Infrastructure Design

How do those components help us scale?

New Infrastructure Design

How do we achieve better resources utilization?

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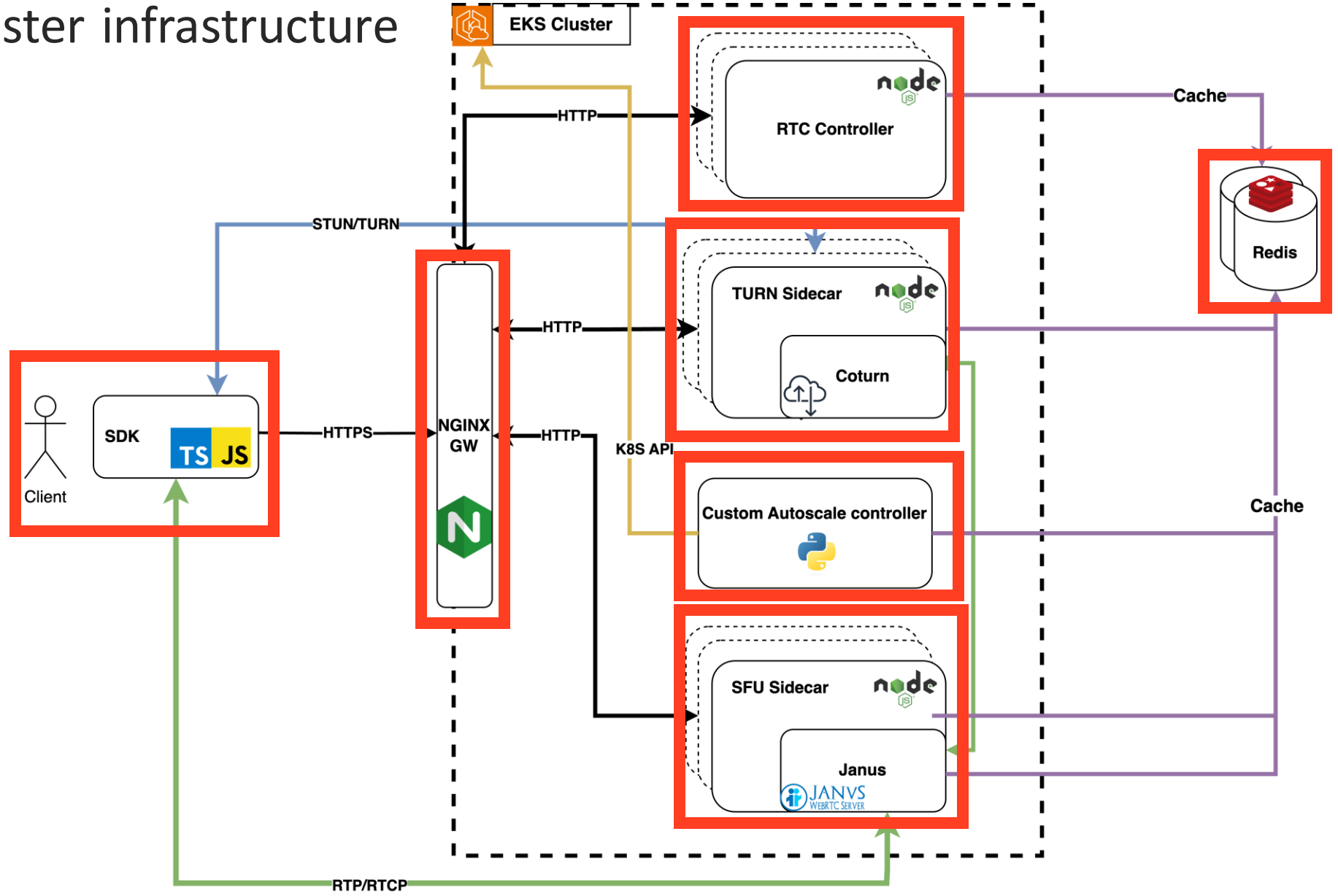
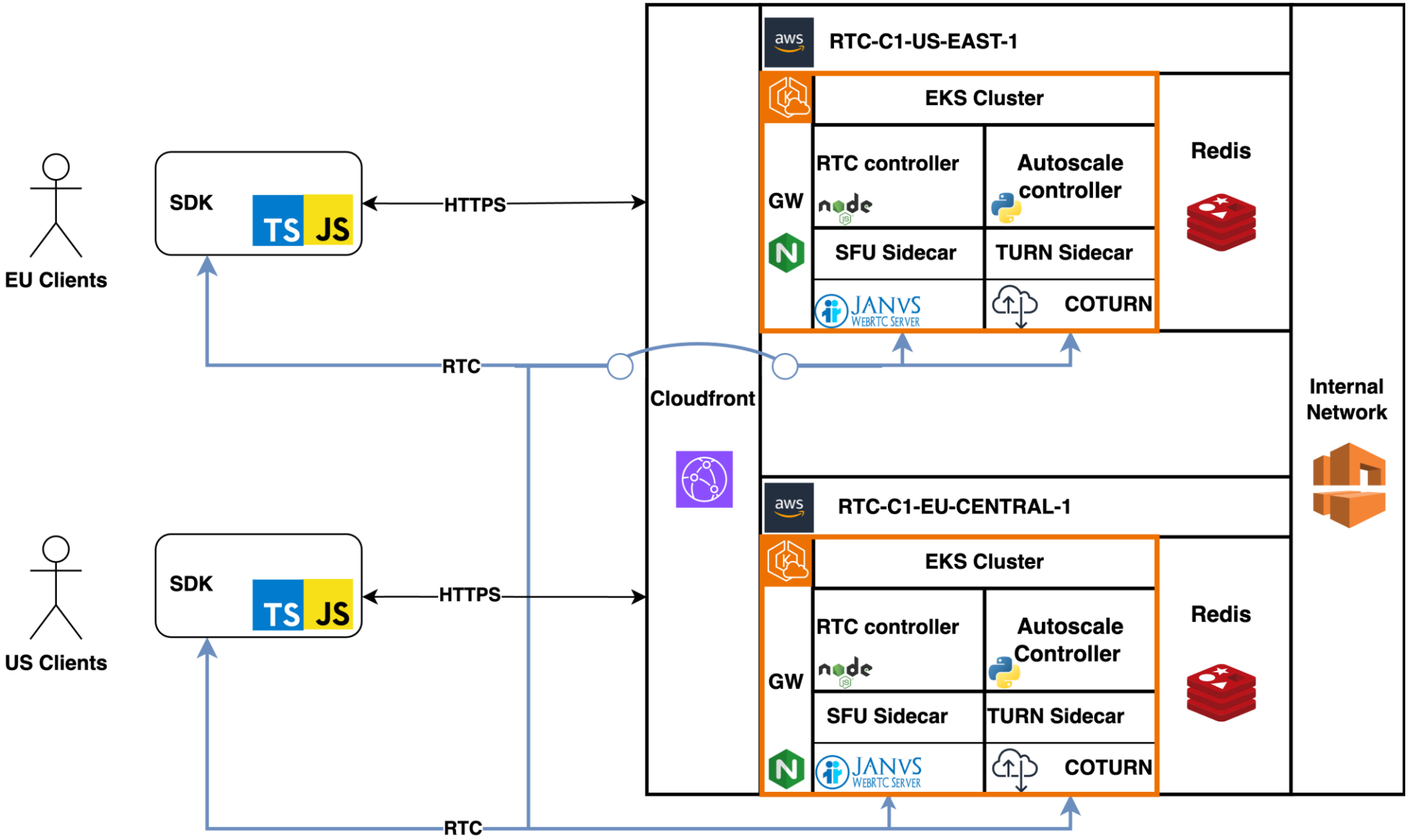
Single cluster infrastructure



Multicluster infrastructure



What did we gain?

- RTC as a Service - Multi backend support
- Smaller and simpler components = flexible, extendable and testable system
- Improved resource utilization
- Easier to add new call topologies = larger rooms
- WHIP & WHEP ready

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Additional notable features

- Simulcast with client side BWE
- Virtual backgrounds with MediaPipe
- K8S custom autoscale
- Unit tests and CI for RTC – with Playwright
- Nudity detection and hand gestures – Hackathon 2023 winner
- Realtime speech detection and translation – Hackathon 2024 winner

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What’s next? (Last N active speakers)

- Add audio mixing – to reach unlimited live participants
- Improve mix distribution between clusters
- Improve Audio Quality (Noise Cancelation & AGC)

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I feel lucky!

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Thank You!

Visit us at

kaltura.com

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