



# Kaltura and the AWS Migration

What happened, and what happens now


October 1, 2020





# Why Kaltura Had to Migrate





The AWS migration had always been planned.

During 2019, Kaltura had planned to migrate to a public cloud provider.

- This would offer greater elasticity and scalability, including greater redundancy, automatic server spin-up and failover, unlimited memory, no limitations on capacity, and improved backup.

At the beginning of March 2020, we chose AWS.

- At the time, the plan had been to finish the migration by March **2021**.
- Then COVID-19 hit the US, and we saw a spike of up to 500% in video consumption (depending on service) in just a few days.

After the first wave of COVID-19, we dramatically accelerated the plan.

- In May, we changed the goal to completing migration in time for the Sept 2020 school year.
- Challenges with the accelerated timeline causes us to slip two weeks, making Aug. 29 the earliest possible date.
- It was just in time—capacity issues caused noticeable outages on August 26 and 27.

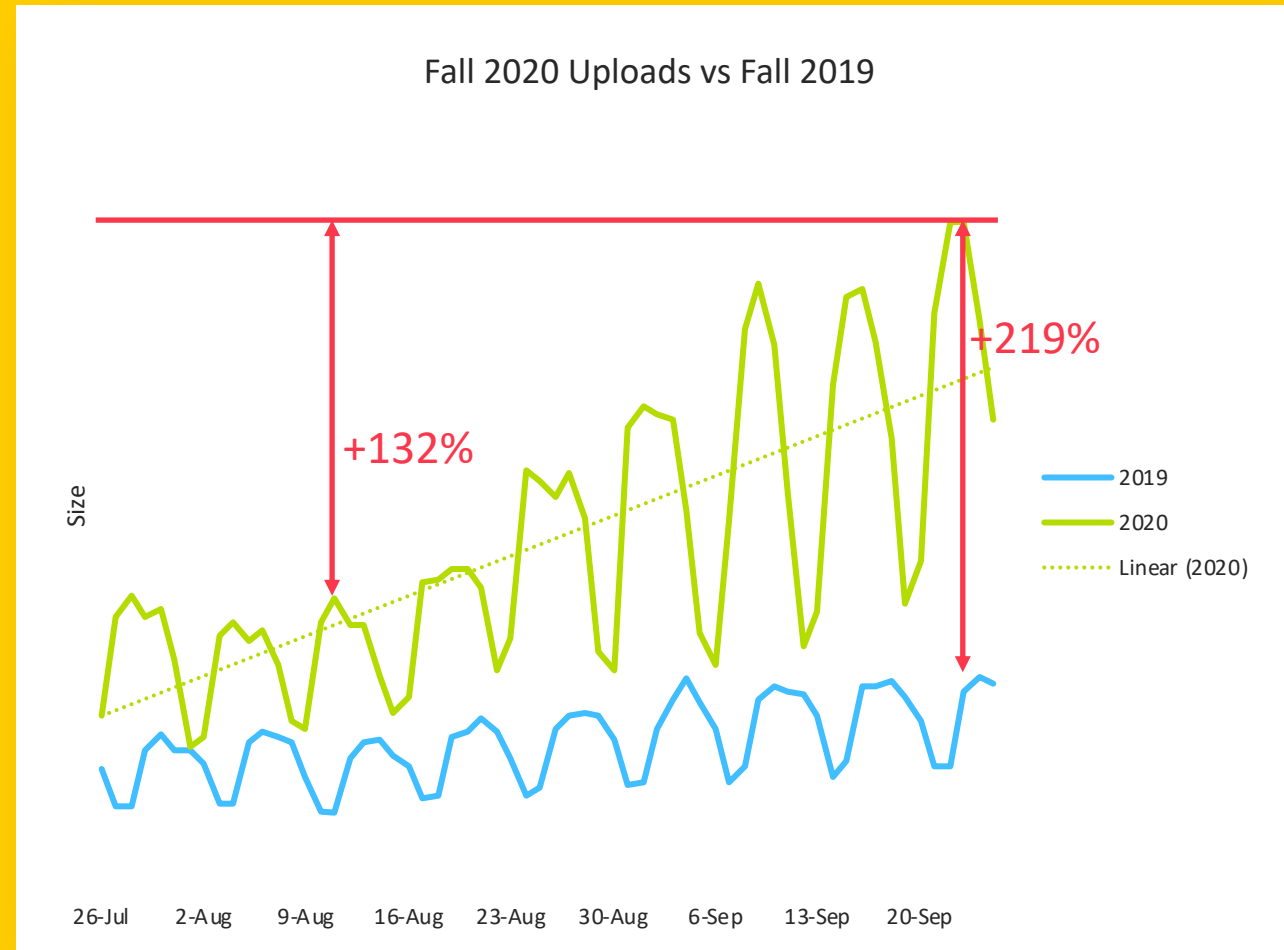
# Changes in Kaltura Usage



Overall usage  
has soared not  
only compared  
to last year, but  
since August

—

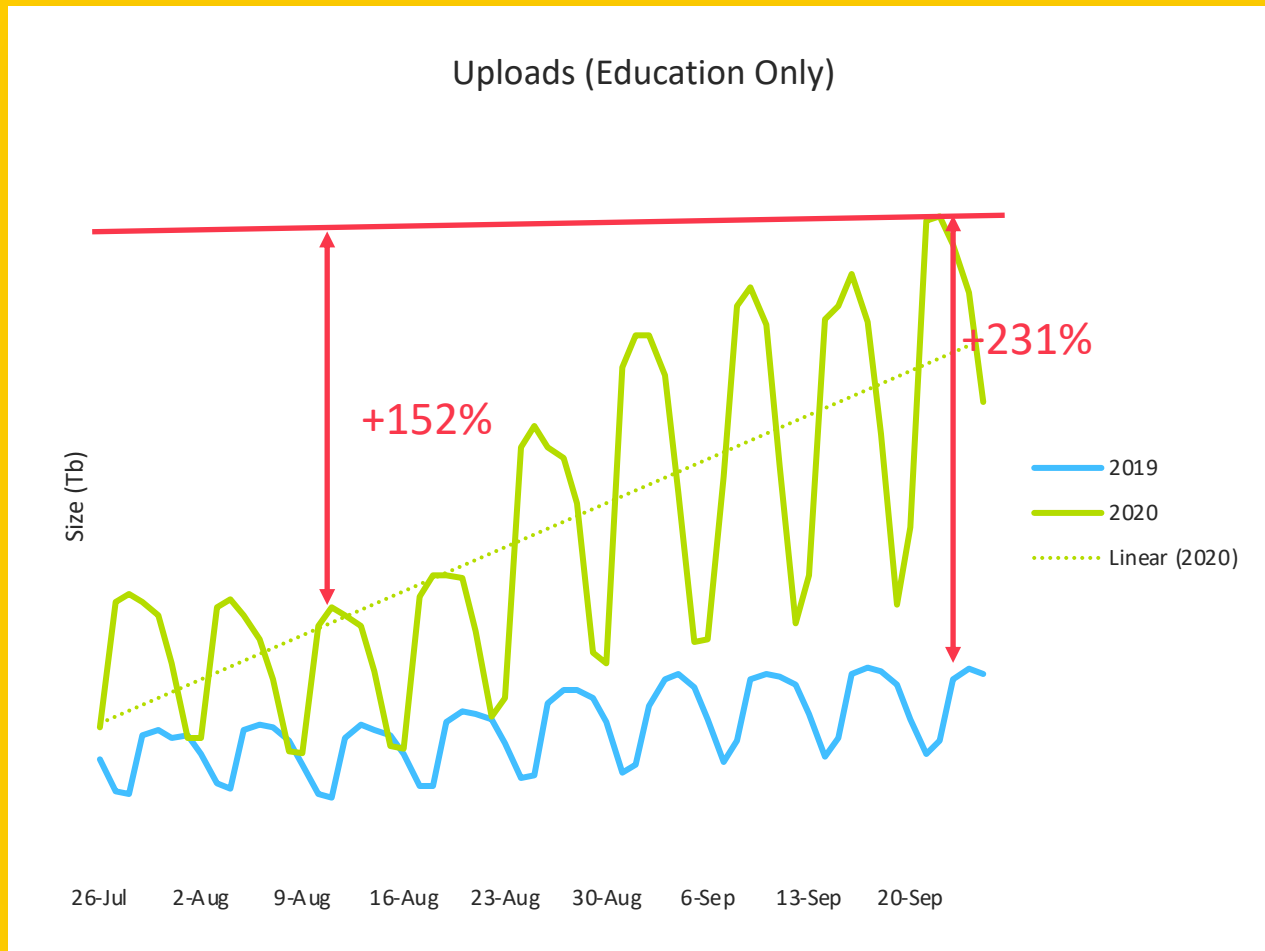
Since mid-August,  
uploads have increased  
by 132%; comparing  
against the same time  
period last year, uploads  
increased 219%.



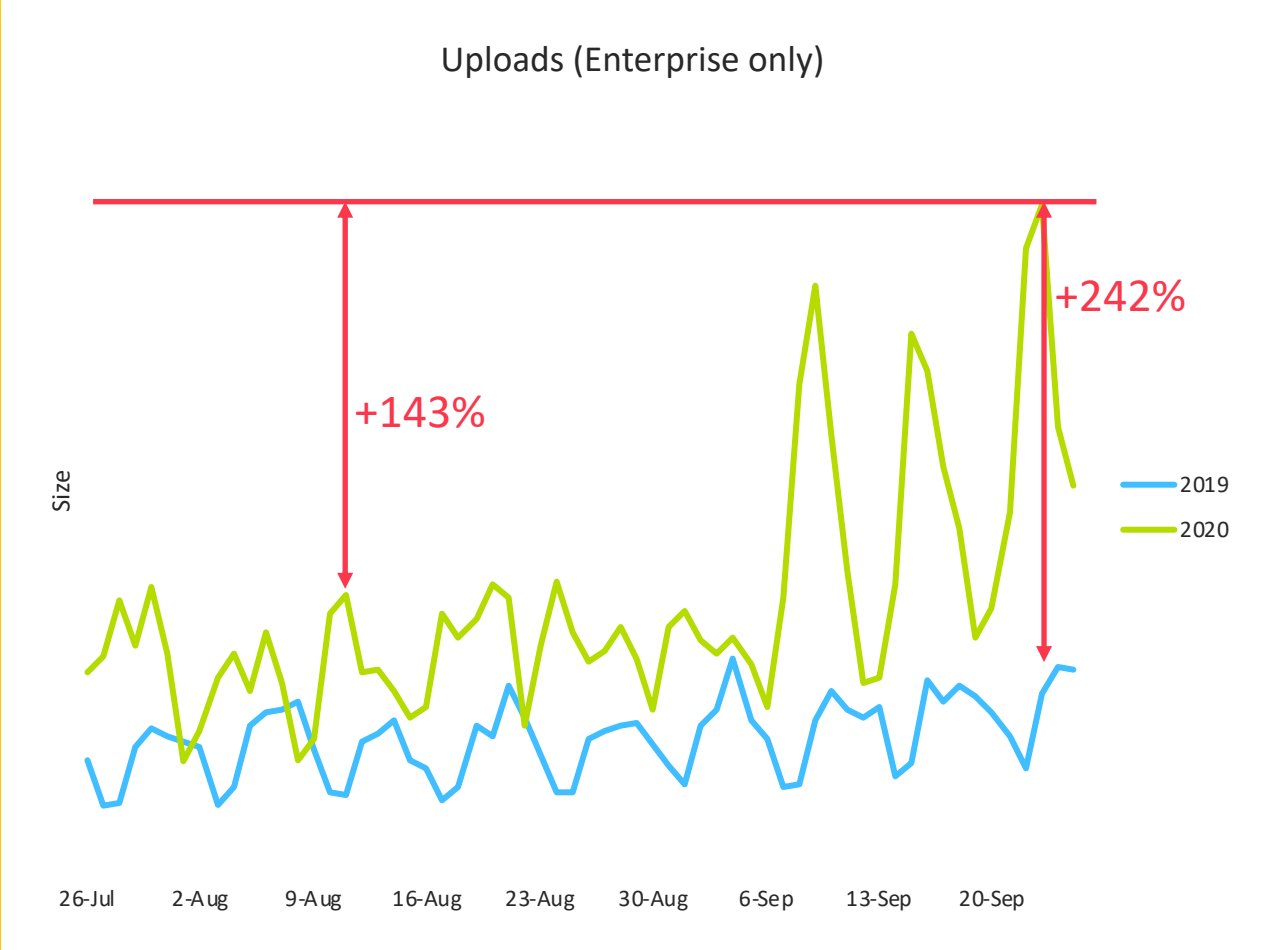
# Kaltura Education customer usage has exploded

Most years feature a small bump when school starts.

Since mid-August, uploads have increased by 152%; comparing against the same time period last year, uploads increased 231%.



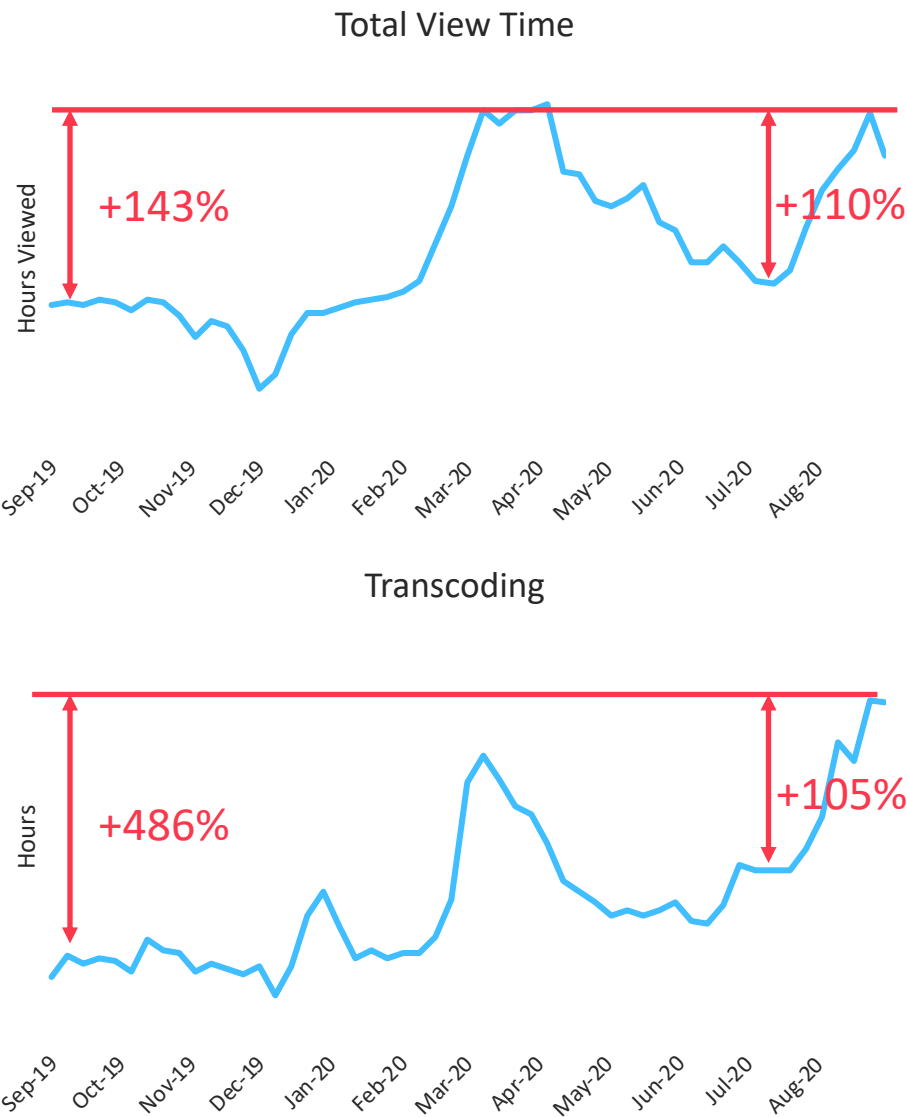
Kaltura Enterprise uploads alone have scaled up dramatically in September





Viewing time and  
transcoding time  
show similar  
spikes

—



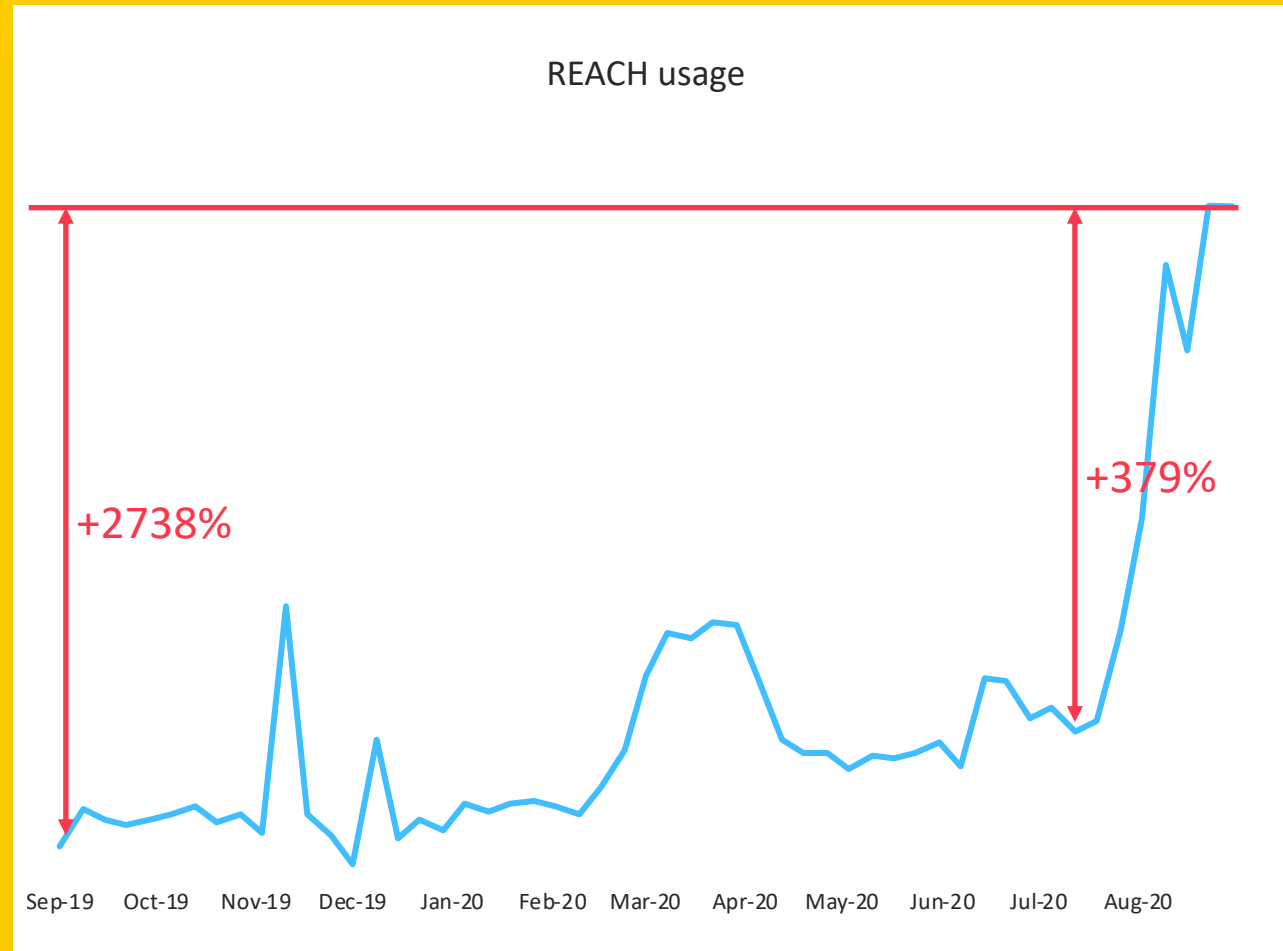
# Changes in Partners Usage



Captions  
through REACH  
surged even  
more  
dramatically

—

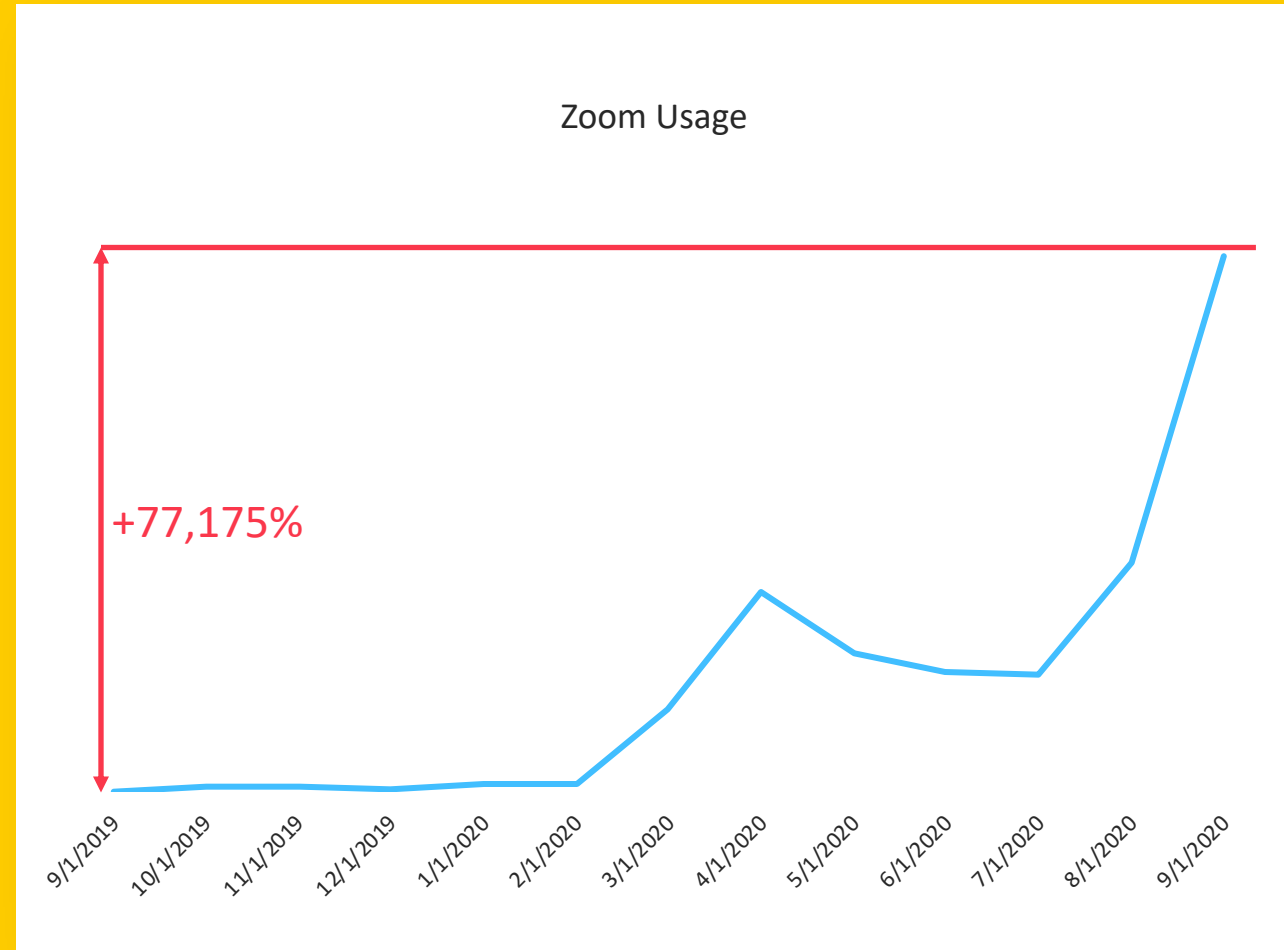
In the last two months,  
REACH usage has  
increased 379%.



September  
Zoom entries  
far surpass  
previous April  
peak

---

Importing Zoom entries  
went from minimal  
adoption to massive  
usage.



What Happened



## The migration faced unexpected challenges.

The migration began Saturday, August 29<sup>th</sup>.

On Sunday, August 30<sup>th</sup>, a global internet outage\* occurred.

- This interrupted end-to-end tests, causing major issues and delays.
- The temporary AWS solution meant to bridge the gap until the migration was complete could not handle the increased load that started the week of August 24<sup>th</sup>.

Multiple issues compounded until a massive transcoding queue formed.

- As a result of the jobs' downtime during the incidents of August 26<sup>th</sup>-27<sup>th</sup>, and the migration days of August 29<sup>th</sup>-30<sup>th</sup>, a huge queue of transcoding jobs accumulated, and during the week of August 31<sup>st</sup>, customers suffered from a number of issues, including uploading and transcoding delays, playback, webcasting slide sync issues, API latency, and caption delays.

\*See <https://www.cnn.com/2020/08/30/tech/internet-outage-cloudflare/index.html>

Now the Good News:  
Kaltura Servers Are Stable, and  
Benefits Are Starting to Emerge

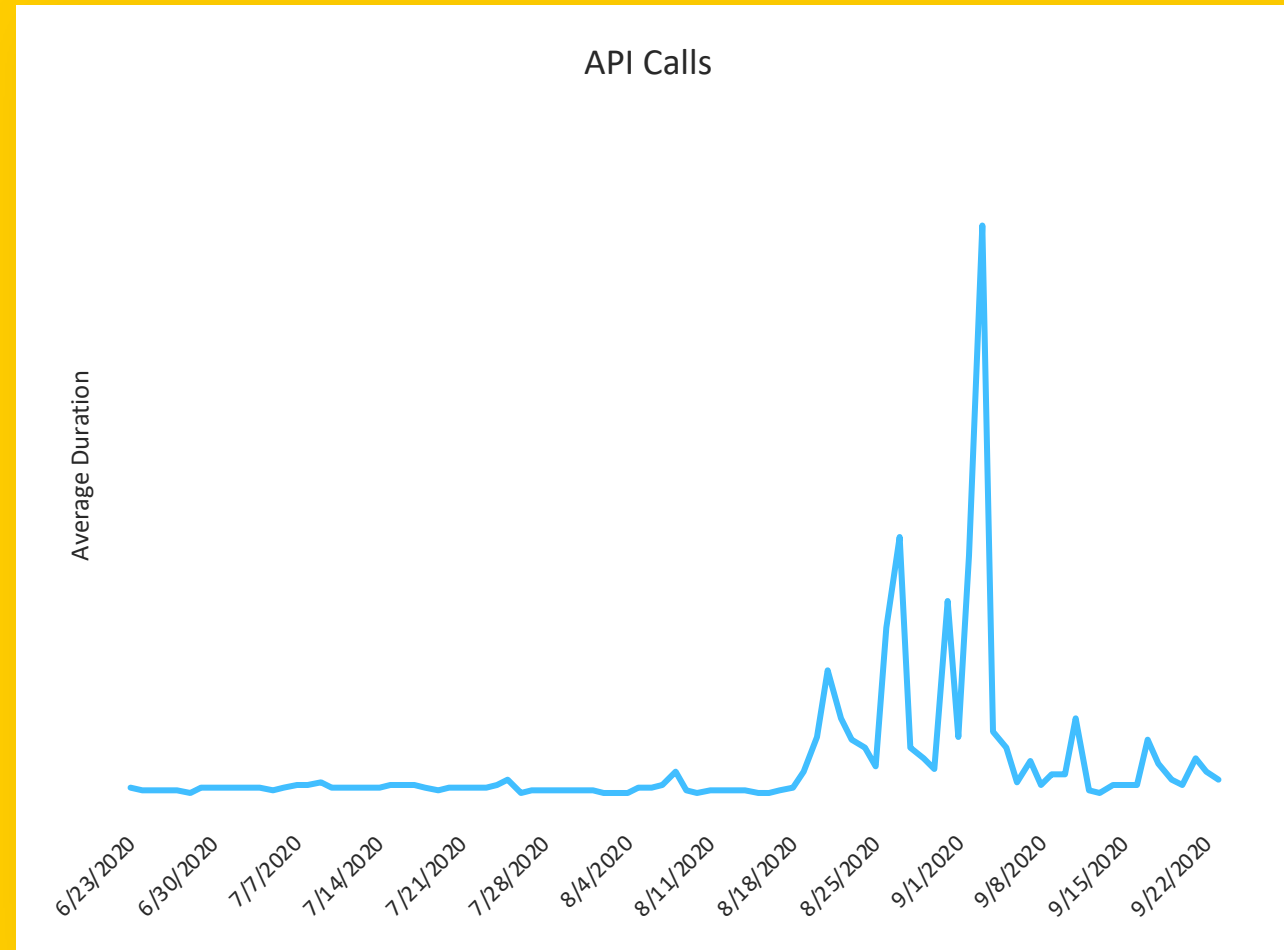


# API call response time is returning to normal

Response time started to grow in late August, and then spiked shortly after the migration.

—

While still a little longer than before August, response times have dropped dramatically and are starting to level out again.



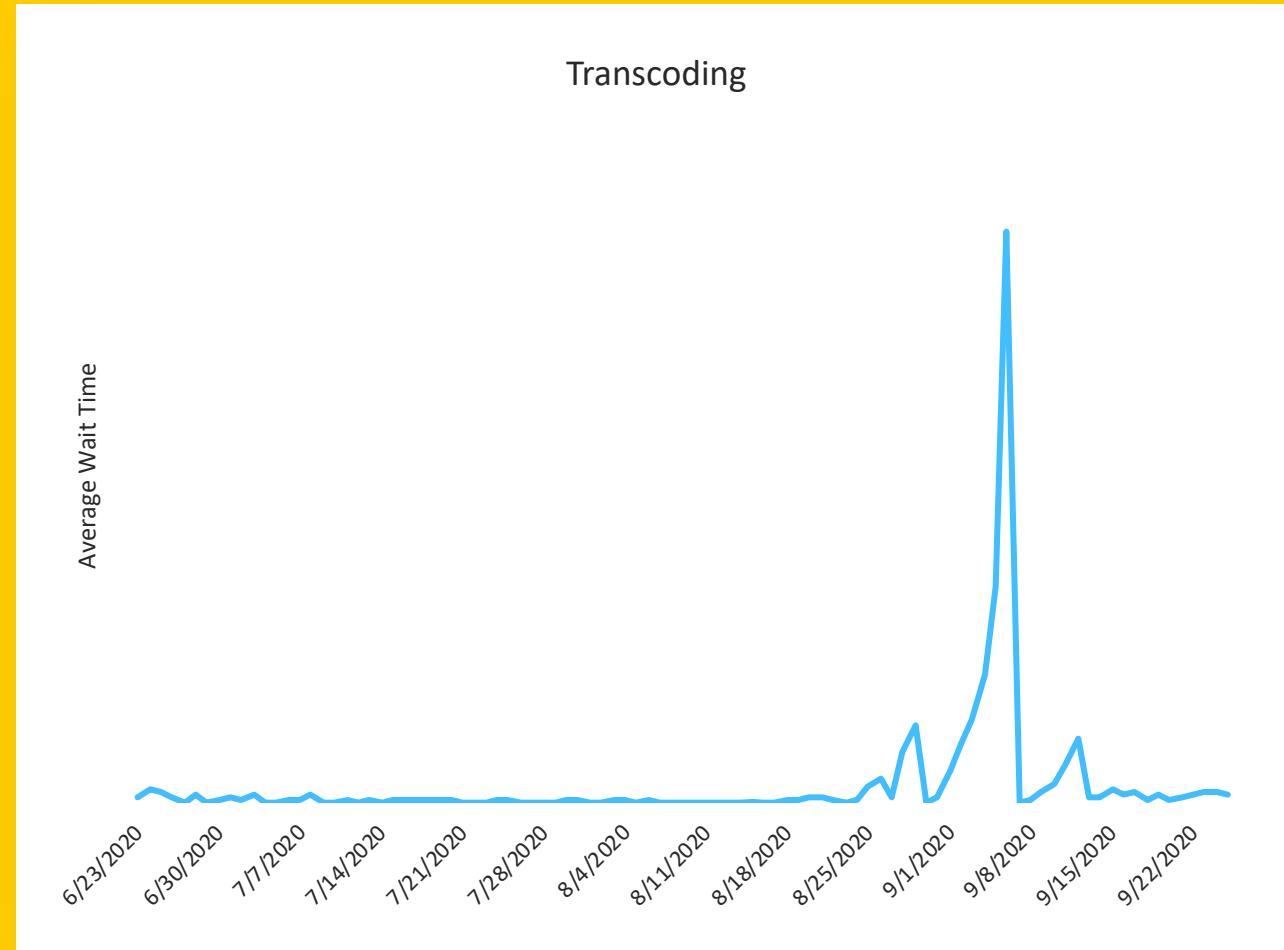


Transcoding  
wait times have  
also leveled off

The queue has been  
cleared, and new media  
should no longer stack  
up waiting.

—

Transcoding times are  
starting to return to pre-  
migration levels.

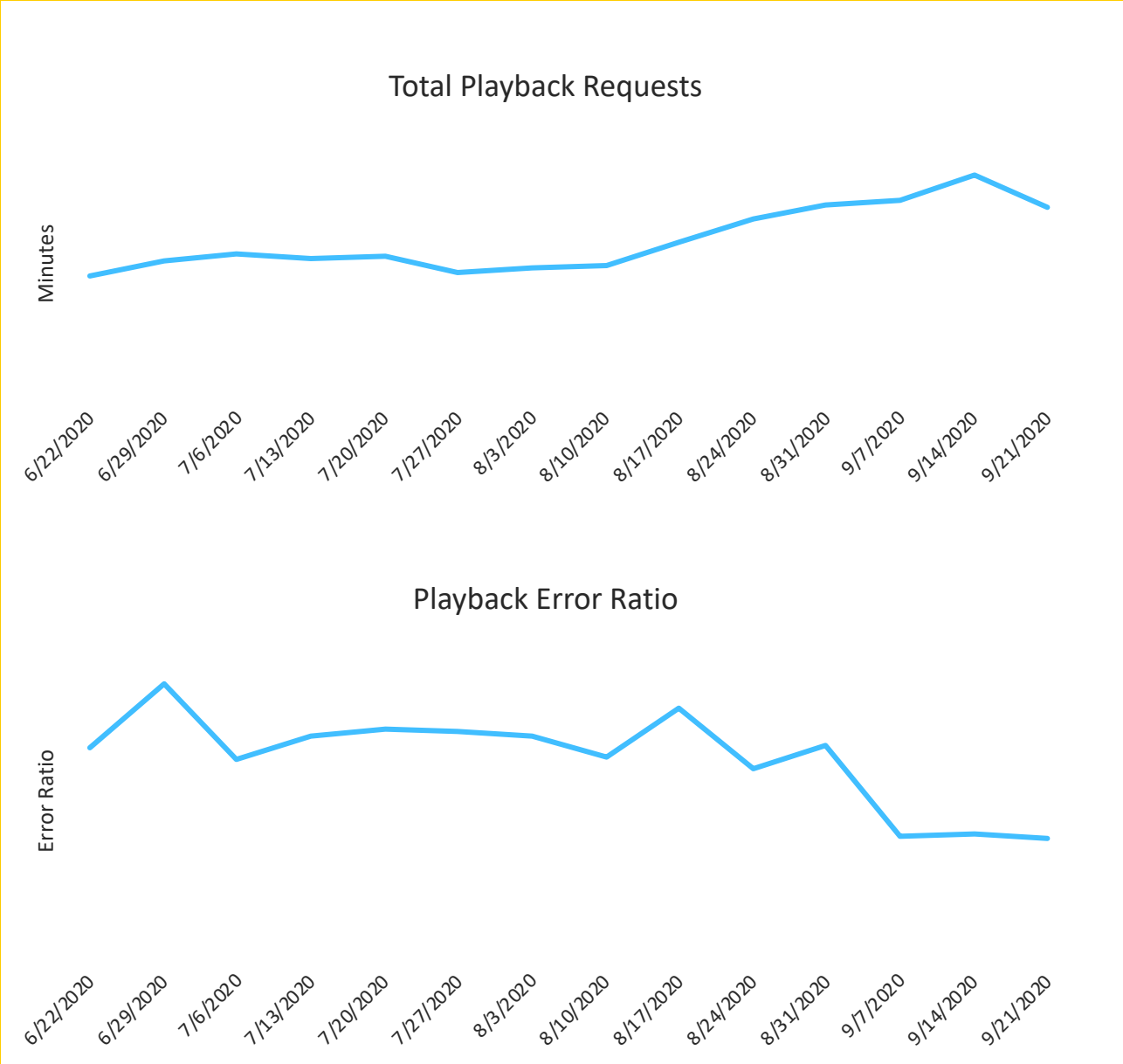


Playback errors  
are getting back  
to normal, even a  
little lower than  
previously

Playback requests have  
grown over August and  
September.

—

Despite this, playback error  
ratios are now lower than  
they had been in the past.  
Now that we’re past  
migration, viewers will start  
to see better performance  
overall.

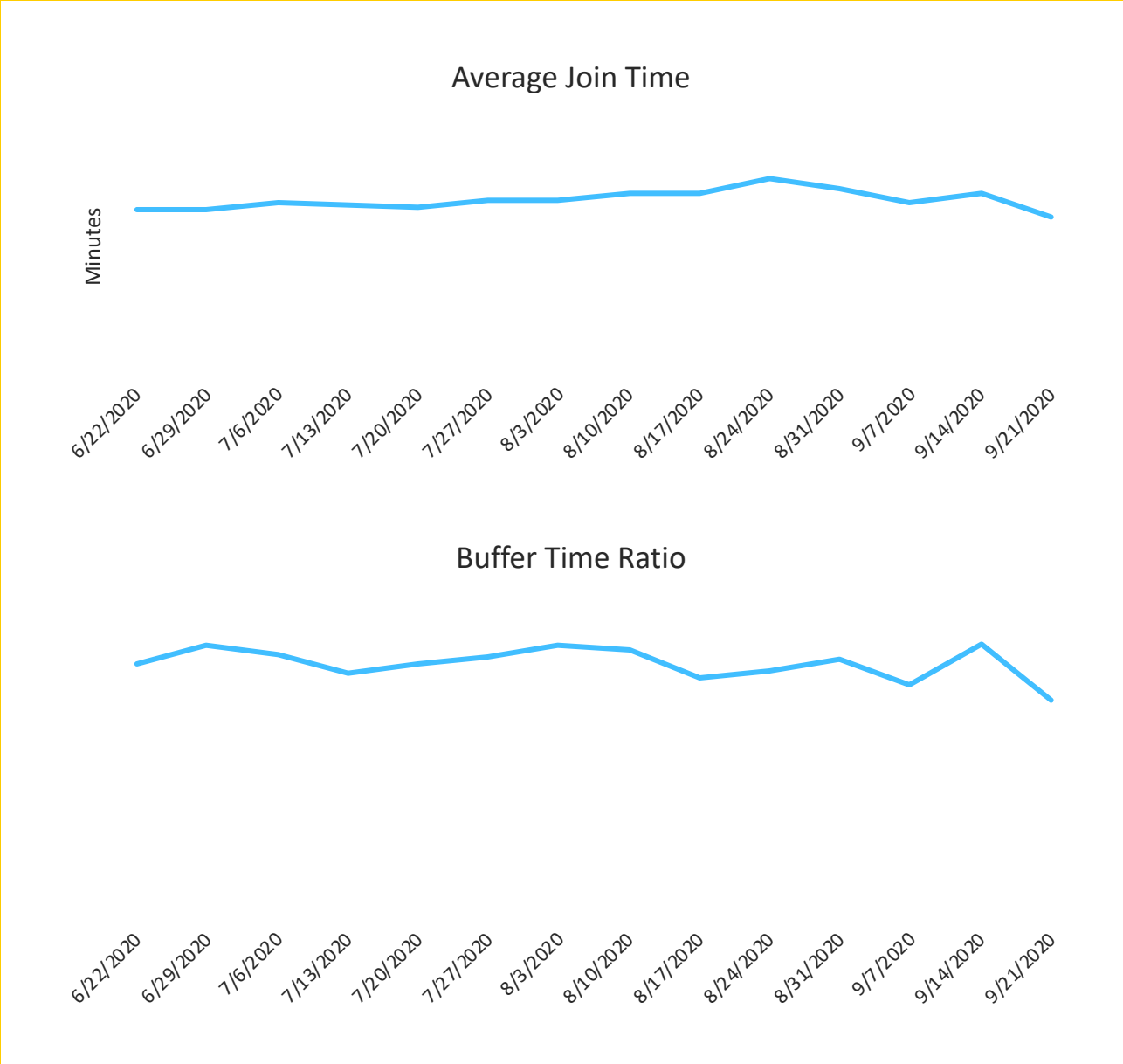


Join time and  
buffer ratio have  
also both  
decreased from  
pre-migration.

Comparing the week of Sept  
20 to July, average join time  
has fallen 10% and buffer  
time ratio decreased by  
11%.

—

Viewers will spend less time  
waiting for media to play  
than before the migration.

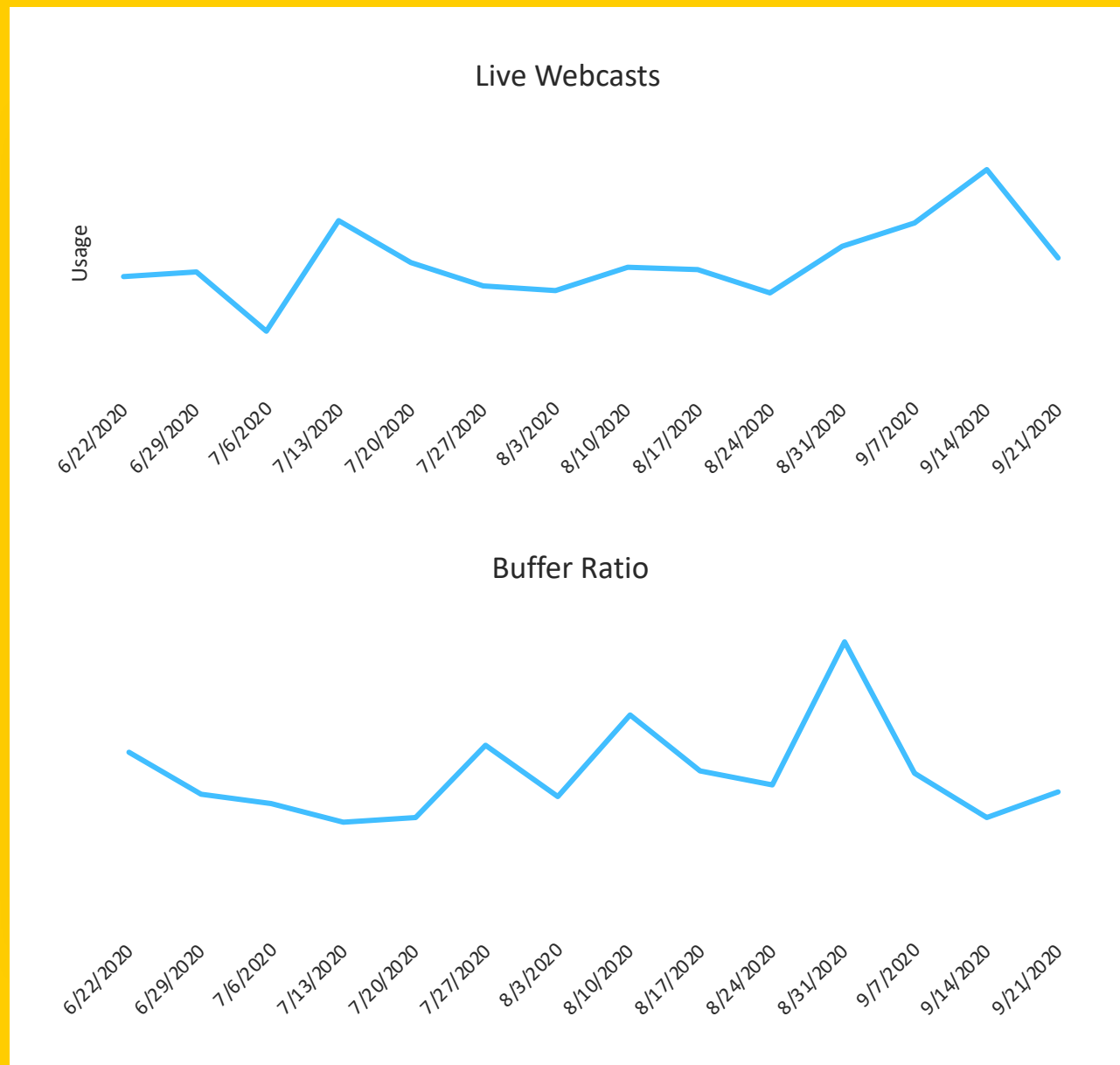


Despite increase in live webcasts in last two weeks, buffer ratio is back down

Live webcast participants will experience the lower buffer rates they expect

—

Even though the week of September 14 featured more live events, the buffer ratio was the lowest in months.





Moving Forward



## Where are we now, and what's coming?



### Current Status

- The system is stable, and most issues have been resolved.
- Our services have been running on AWS solely for almost four weeks and the system is handling the increased load nicely. We are monitoring upload, transcoding, and playback closely to ensure further optimizations are put in place, should the need arise.
- Our KPIs and customer reports indicate that we are back to normal.

### Next Steps

- Moving forward, we will continue to monitor the system, and in parallel we will finalize the architecture modernization, complete the storage copy from the legacy data centers to AWS, and ultimately decommission our data centers.
- Major planned milestones:
  - Complete content migration from legacy data centers to AWS
  - Decommission Data Centers
- All upcoming changes will be clearly communicated in advance, before updates are made

## What have we learned?



### Communication

Our biggest misstep was in our failure to adequately communicate first our plans, and then the status of the migration in the first few days after it occurred. While the decisions we made were absolutely necessary, and some of the difficulties unforeseen, we should have kept you in the loop better. We're deeply sorry.

In the future, we commit to being clearer from the beginning, both to administrators of Kaltura accounts and also to your end users.

### Next Time

All future steps will be performed with clear planning and communication, and with mitigation and redundancy plans set in place.



## Conclusions

We understand the migration project was painful, and impacted you and your end users severely, and for that we sincerely apologize.

We are currently conducting a stringent internal review and will use this as a learning opportunity to do better next time.

During the coming weeks we will continue to extend our customer care teams in order to reduce the ticket backlog that has developed over the past few weeks and get back to our regular service levels quickly.

As we are now serving our video solutions from AWS, we expect you to quickly experience a more reliable service, that will be even further enhanced in the coming months.

