Measuring QoE for Short-Form Videos

May 10th 2023

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About the presenter

Yoann Hinard

Chief Operations Officer at Witbe since 2009

Project manager for the first replay TV services in France

PhD in Network Security and Group Communications (2007)

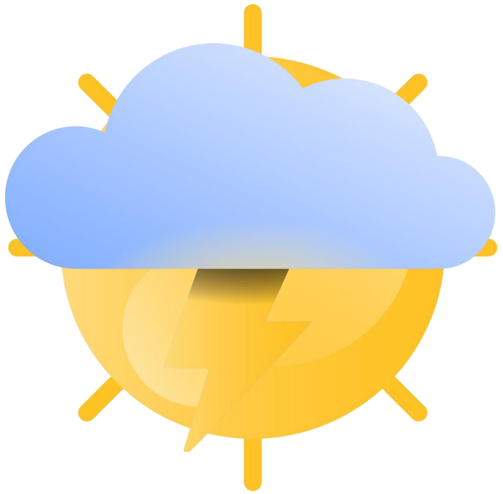
> **For me, a good TikTok app needs to be fast and smooth so I can quickly swipe through my feed and watch videos without any lag. At the same time, the video quality should be clear and sharp, so I can see all the details of the content.**

ChatGPT

Key takeaways

- Fast
- Smooth
- Quickly swipe through feed and watch videos without any lag
- Video quality should be clear and sharp

How do users evaluate this quality?



Challenges

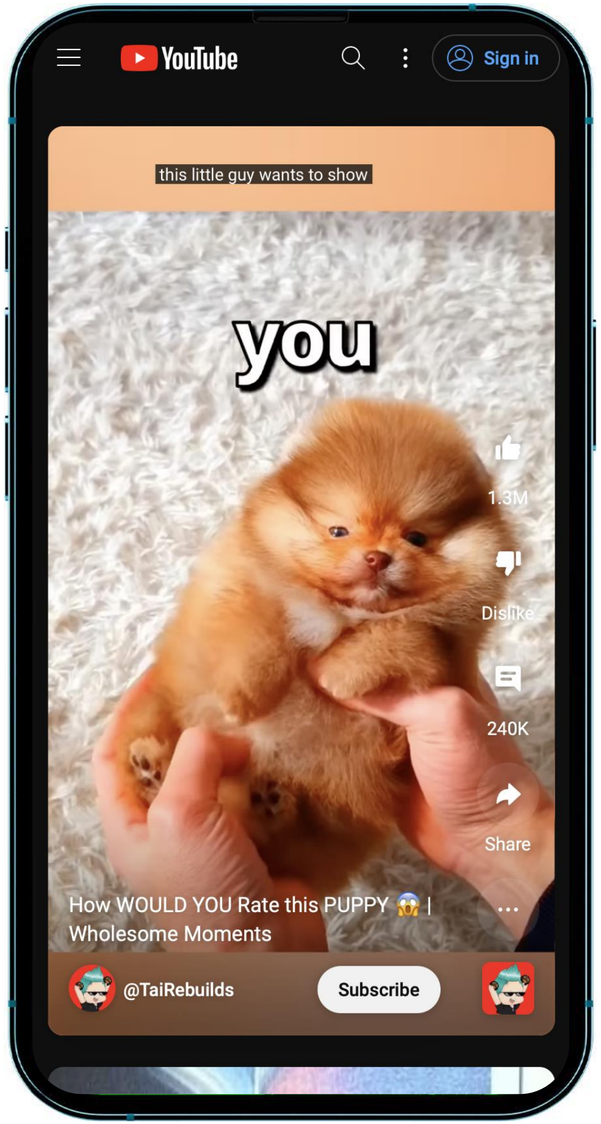
User-generated content → no reference « by design »

A lot of in-app optimizations thanks to smart developers and Ops Engineers

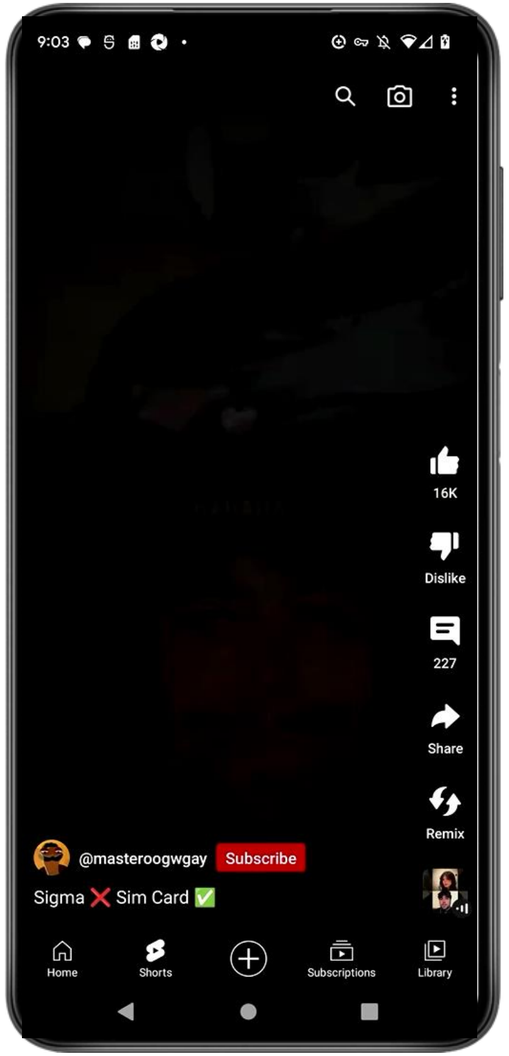
- Prefetch
- On net, off net cache
- HTTP/2 and QUIC

Constantly changing, updating, and evolving:
So far in 2023 alone, 14 TikTok releases on 5 iOS public releases!

- No way to emulate app behavior with accuracy

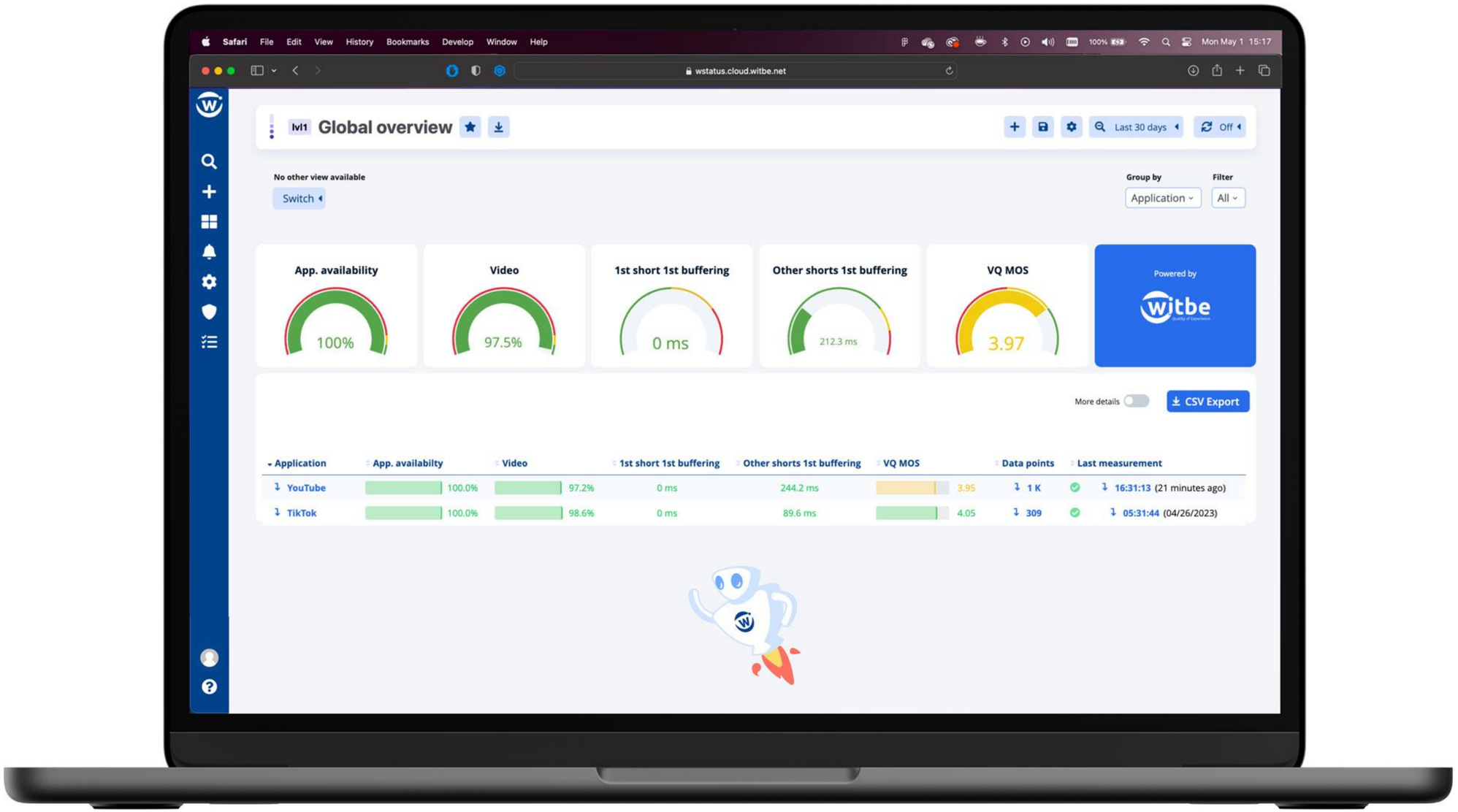


What if it were that simple?



Initial buffering time for first reel : 100ms ☑
Video quality ☑
Blur : 5% ☑
No Rebuffering ☑

First frame 0ms ☑
Rebuffering ❌
Rebuffering ❌


Safari File Edit View History Bookmarks Develop Window Help
Mon May 1 15:17
wstatus.cloud.witbe.net
lvl1 Global overview
Last 30 days
Off
No other view available
Switch
Group by
Application
Filter
All
App. availability
100%
Video
97.5%
1st short 1st buffering
0 ms
Other shorts 1st buffering
212.3 ms
VQ MOS
3.97
Powered by
witbe
More details
CSV Export
Application
App. availabilty
Video
1st short 1st buffering
Other shorts 1st buffering
VQ MOS
Data points
Last measurement
YouTube 100.0% 97.2% 0 ms 244.2 ms 3.95 1 K 16:31:13 (21 minutes ago)
TikTok 100.0% 98.6% 0 ms 89.6 ms 4.05 309 05:31:44 (04/26/2023)

Witbe Video MOS – Non-reference video quality assessment

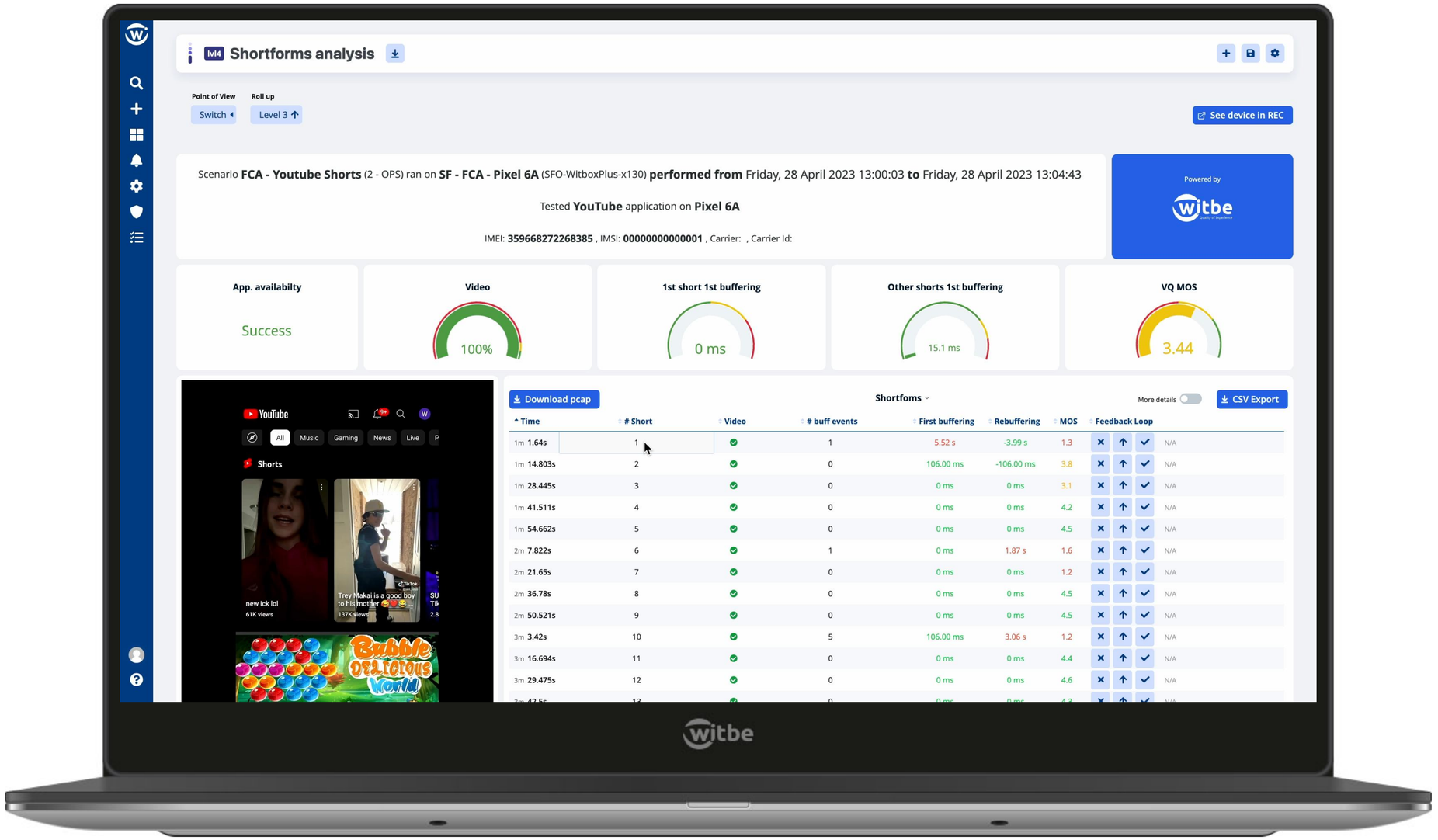
5

MOS: 4.7
Block: 1%
Blur: 0.4%

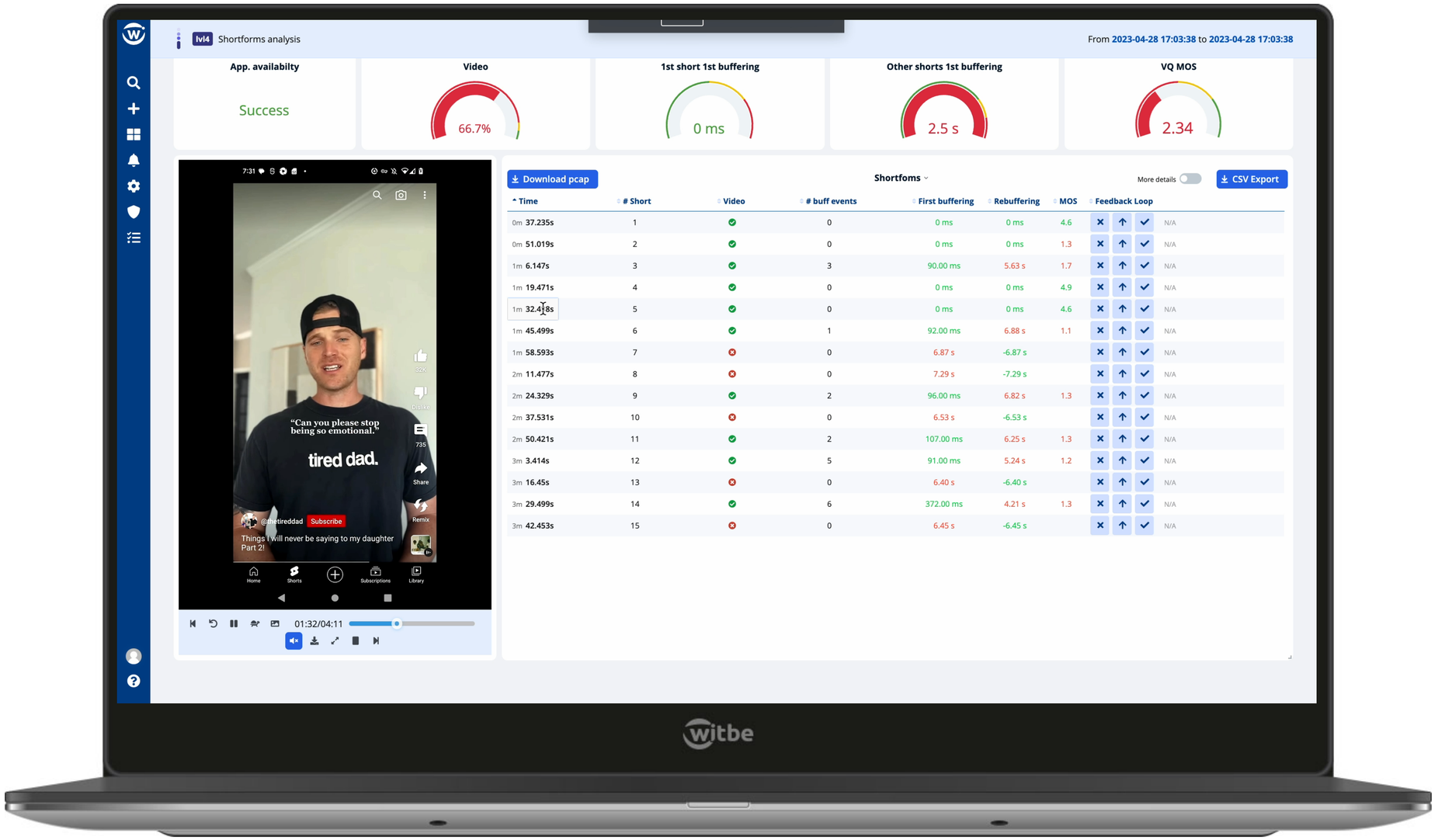
MOS: 1.9
Block: 12%
Blur: 66%

1

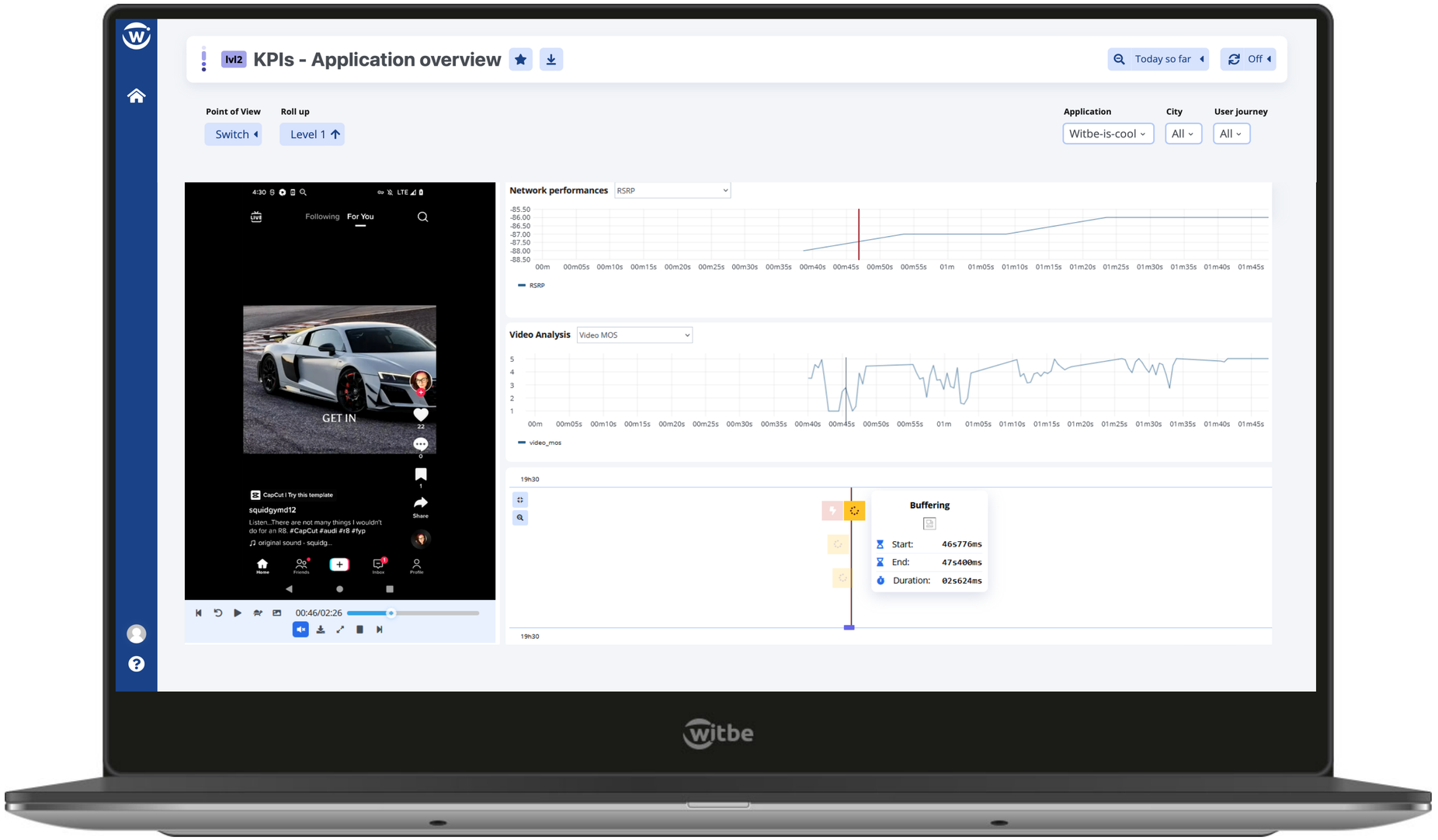
Initial buffering time ?



But also


lvl4 Shortforms analysis
From 2023-04-28 17:03:38 to 2023-04-28 17:03:38
App. availabilty
Success
Video
66.7%
1st short 1st buffering
0 ms
Other shorts 1st buffering
2.5 s
VQ MOS
2.34
Download pcap
Shortfoms
More details
CSV Export
Time
Short
Video
buff events
First buffering
Rebuffering
MOS
Feedback Loop
0m 37.235s 1 0 0 ms 0 ms 4.6 N/A
0m 51.019s 2 0 0 ms 0 ms 1.3 N/A
1m 6.147s 3 3 90.00 ms 5.63 s 1.7 N/A
1m 19.471s 4 0 0 ms 0 ms 4.9 N/A
1m 32.418s 5 0 0 ms 0 ms 4.6 N/A
1m 45.499s 6 1 92.00 ms 6.88 s 1.1 N/A
1m 58.593s 7 0 6.87 s -6.87 s N/A
2m 11.477s 8 0 7.29 s -7.29 s N/A
2m 24.329s 9 2 96.00 ms 6.82 s 1.3 N/A
2m 37.531s 10 0 6.53 s -6.53 s N/A
2m 50.421s 11 2 107.00 ms 6.25 s 1.3 N/A
3m 3.414s 12 5 91.00 ms 5.24 s 1.2 N/A
3m 16.45s 13 0 6.40 s -6.40 s N/A
3m 29.499s 14 6 372.00 ms 4.21 s 1.3 N/A
3m 42.453s 15 0 6.45 s -6.45 s N/A
"Can you please stop being so emotional."
tired dad.
@thetireddad Subscribe
Things I will never be saying to my daughter Part 2!
01:32/04:11
witbe

Video vs. Network Analysis

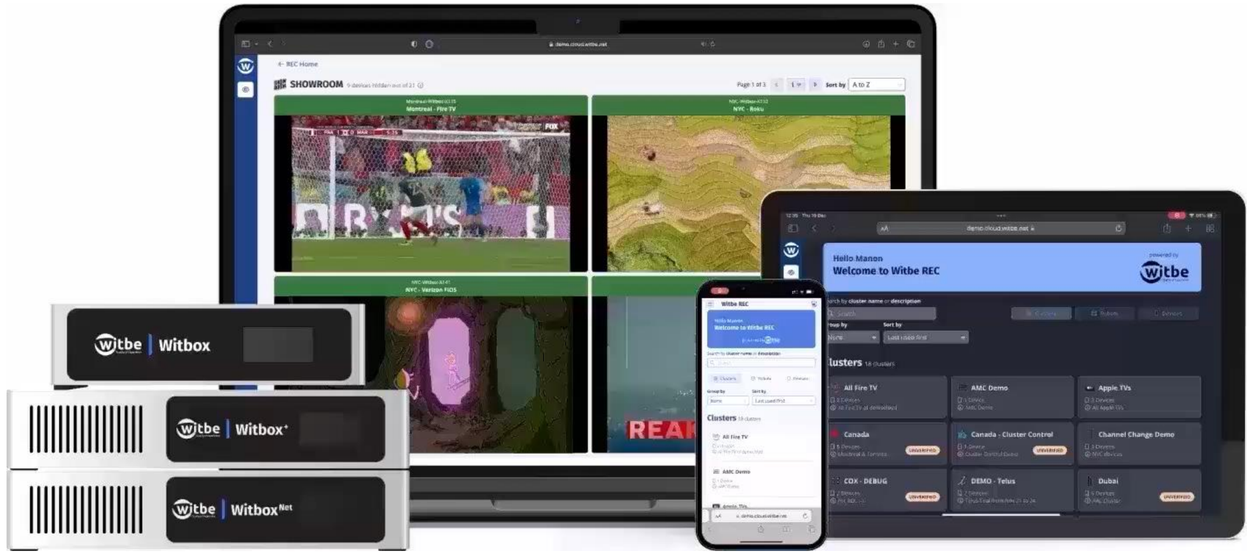


About Witbe

Automated testing and proactive monitoring technology for video services

Test on the same real, physical devices that customers are using

Launched short-form video testing technology in 2022



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Any questions?

Thank you!