



Beyond Speed

October 2022

Our Goal

For our Agent to run in every connected device in the world.
And for our measurements to provide perfect realtime visibility of internet performance.



QoE origin story

Great fibre infrastructure



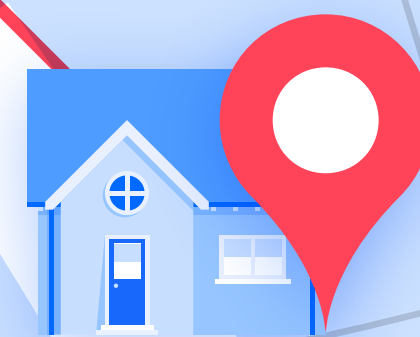
~3ms

Poor Fortnite performance

FORTNITE



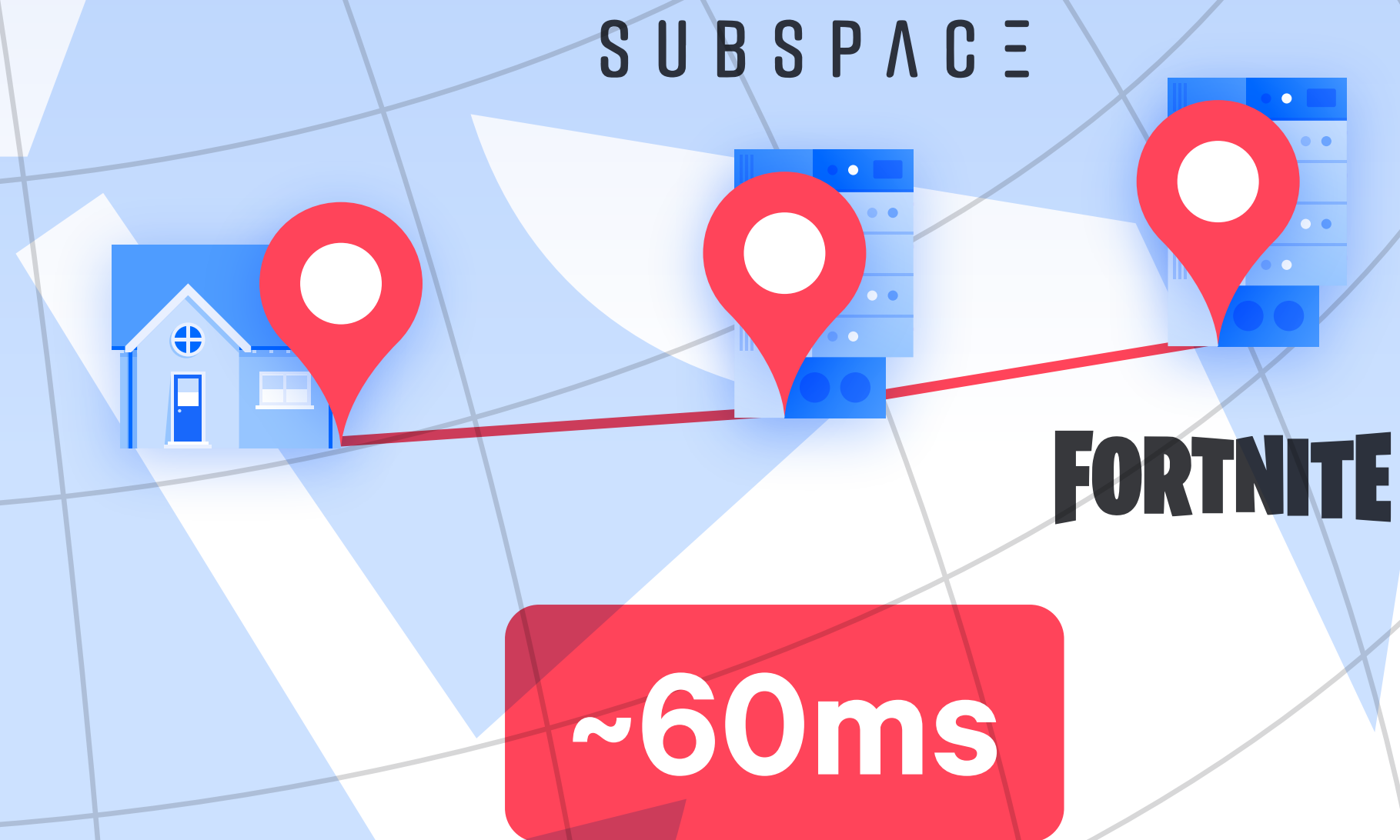
~120ms



Pings to Fortnite's new server in India showed impossible results

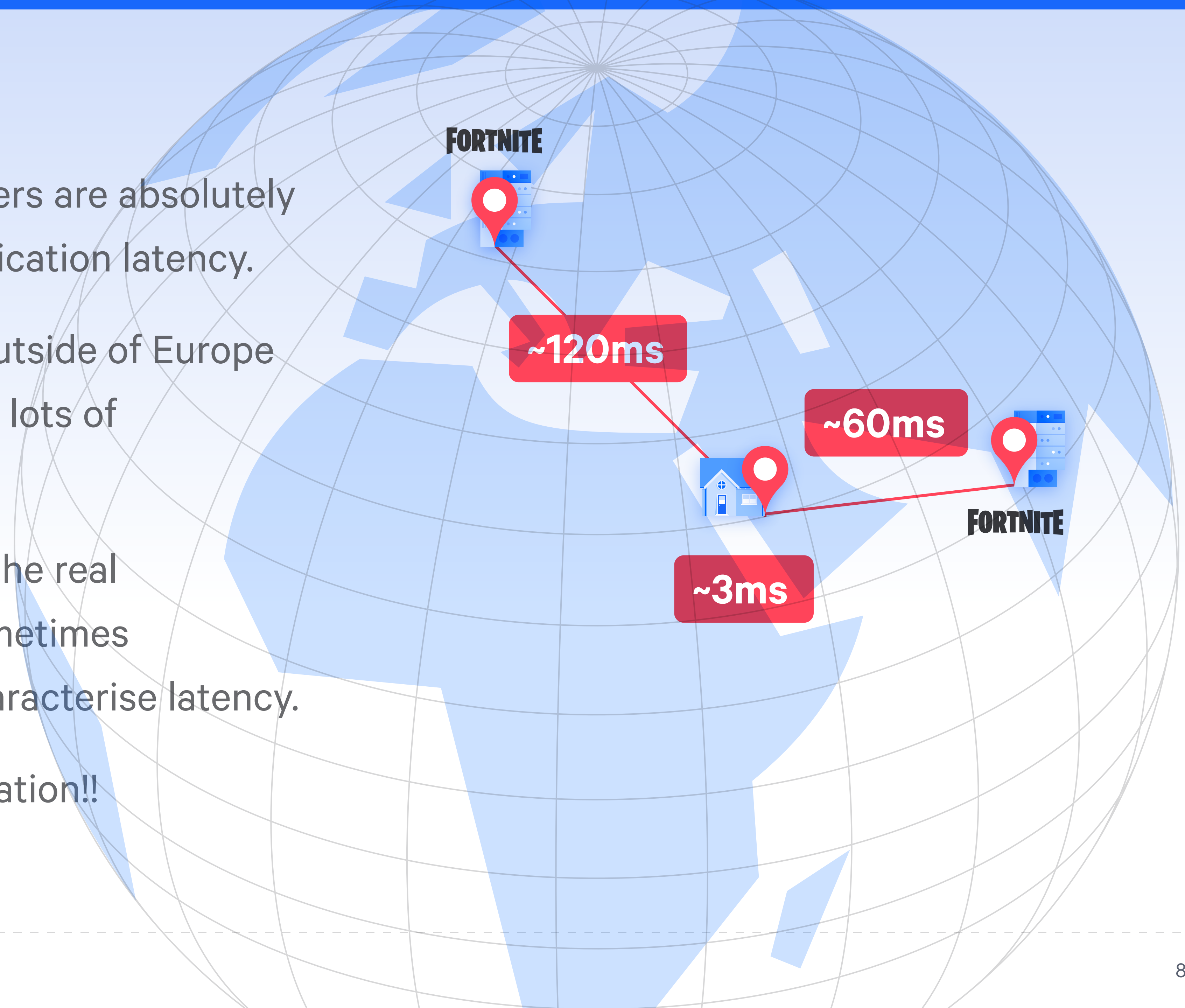


Pings to Fortnite's IPs were hitting Subspace's proxies in Dubai. Using the real Fortnite UDP protocol told a different story



Our conclusion

- Latency tests to test servers are absolutely not representative of application latency.
- This is even more acute outside of Europe and North America, where lots of applications are hosted.
- Even pings can lie. Using the real application protocol is sometimes necessary to correctly characterise latency.
- And this is just one application!!



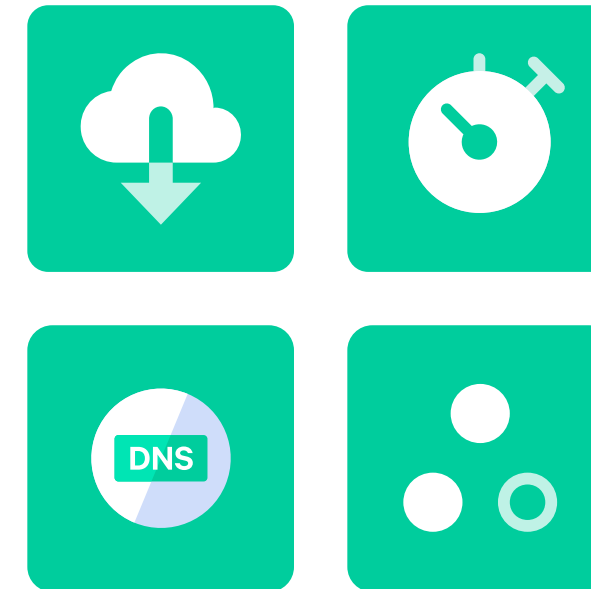
Measurement suite

Measurement suite

Overview of the available tests

Quality of Service tests

Download, Upload, Latency, Latency-under-load, Packet loss, Jitter, DNS, VoIP, Traceroute



In-home tests

Device data usage, Device link speed, Device latency, Device signal strength, Device channel occupancy, Device disconnections



Gaming

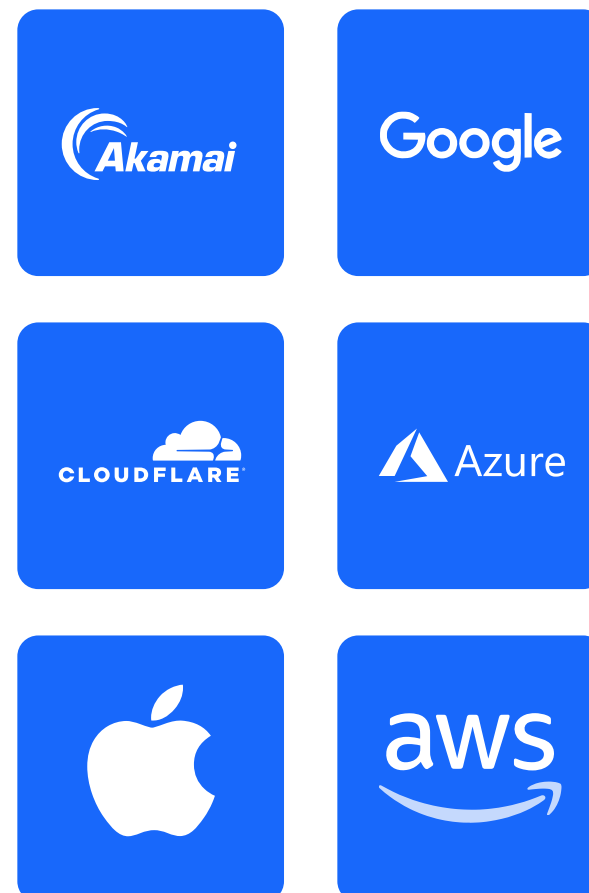
League of Legends, DOTA 2, FIFA, Fortnite, Apex Legends, Heroes of the Storm, Diablo 3, Roblox, Overwatch, Among Us, Counter Strike: Global Offensive, PlayerUnknown's Battlegrounds, PUBG Mobile, Hearthstone, World of Warcraft, Tom Clancy's Rainbow Six Siege, Valorant, Rocket League, StarCraft 2, Call of Duty Warzone/Vanguard, Gears of War 5, Halo Infinite, Battlefield V

Game stores

PlayStation Network, Xbox Live, Steam

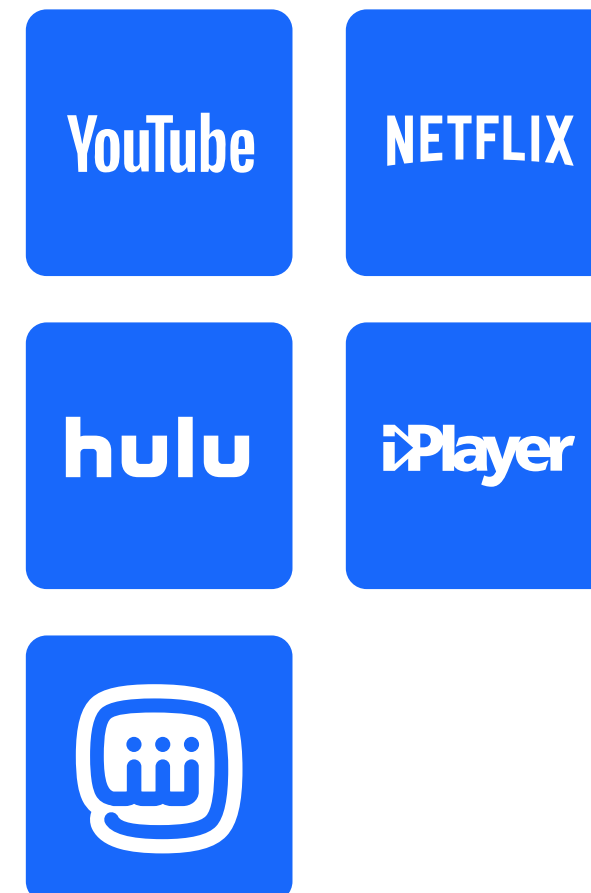
CDN performance

Azure, Cloudflare, Apple, Amazon, Akamai, Google



Video streaming

Netflix, YouTube, BBC iPlayer, Hulu, Shahid, Mutlicast IPTV, HLS/DASH services



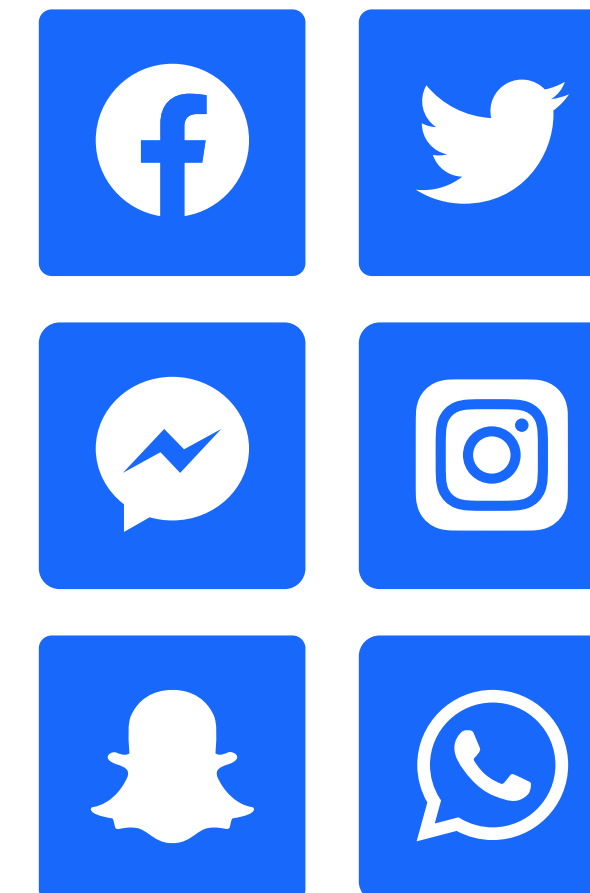
Web browsing

Website performance test, Web browsing lite



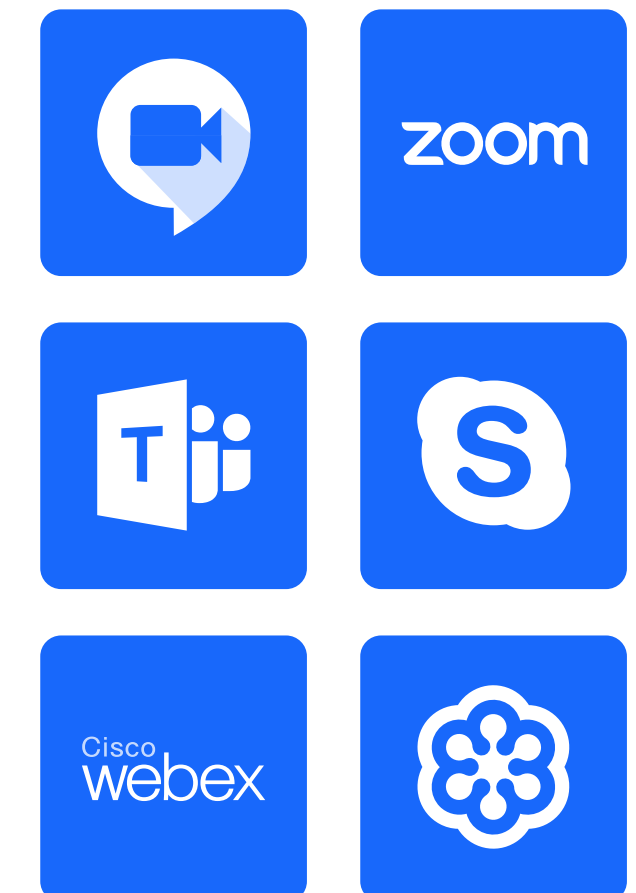
Social Media

Facebook, Instagram, WhatsApp, Snapchat, Twitter



Video Conferencing

Google Meet, GoTo Meeting, Teams, Skype, Webex, Zoom

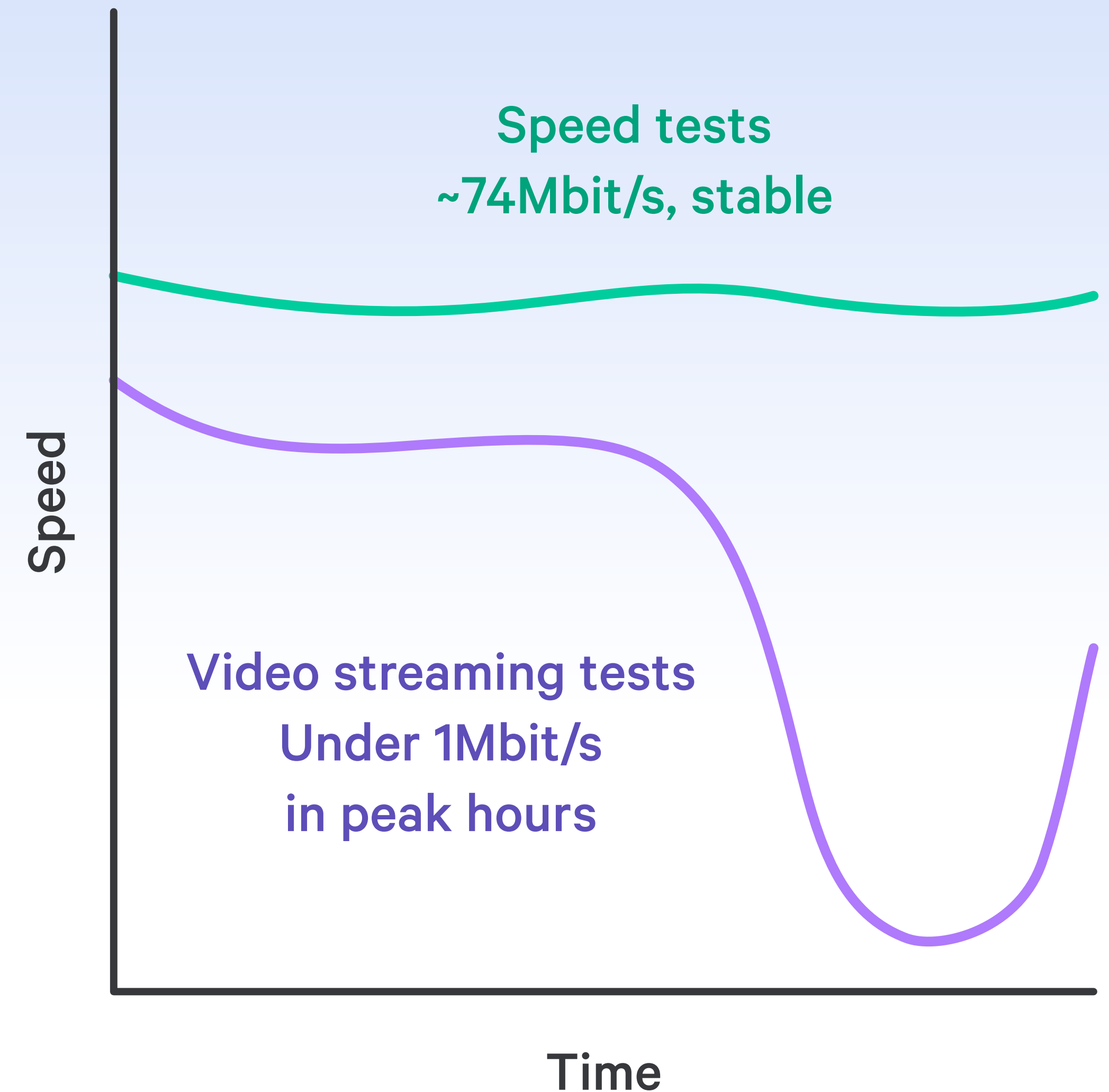


Video streaming investigation

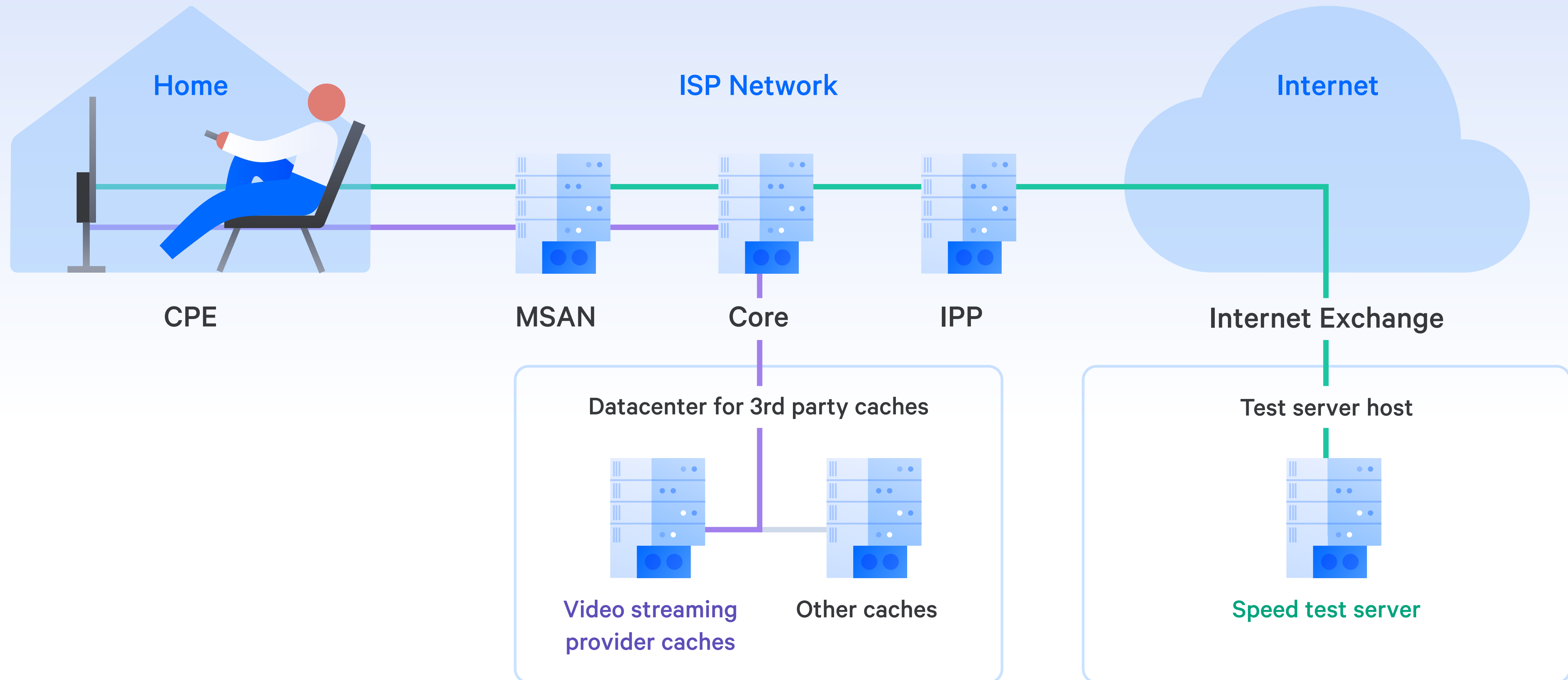
Netflix streaming problem

- Customers complaining about poor streaming performance
- Speed tests were reporting everything was fine
- Our Netflix streaming test could measure the degradation

NETFLIX



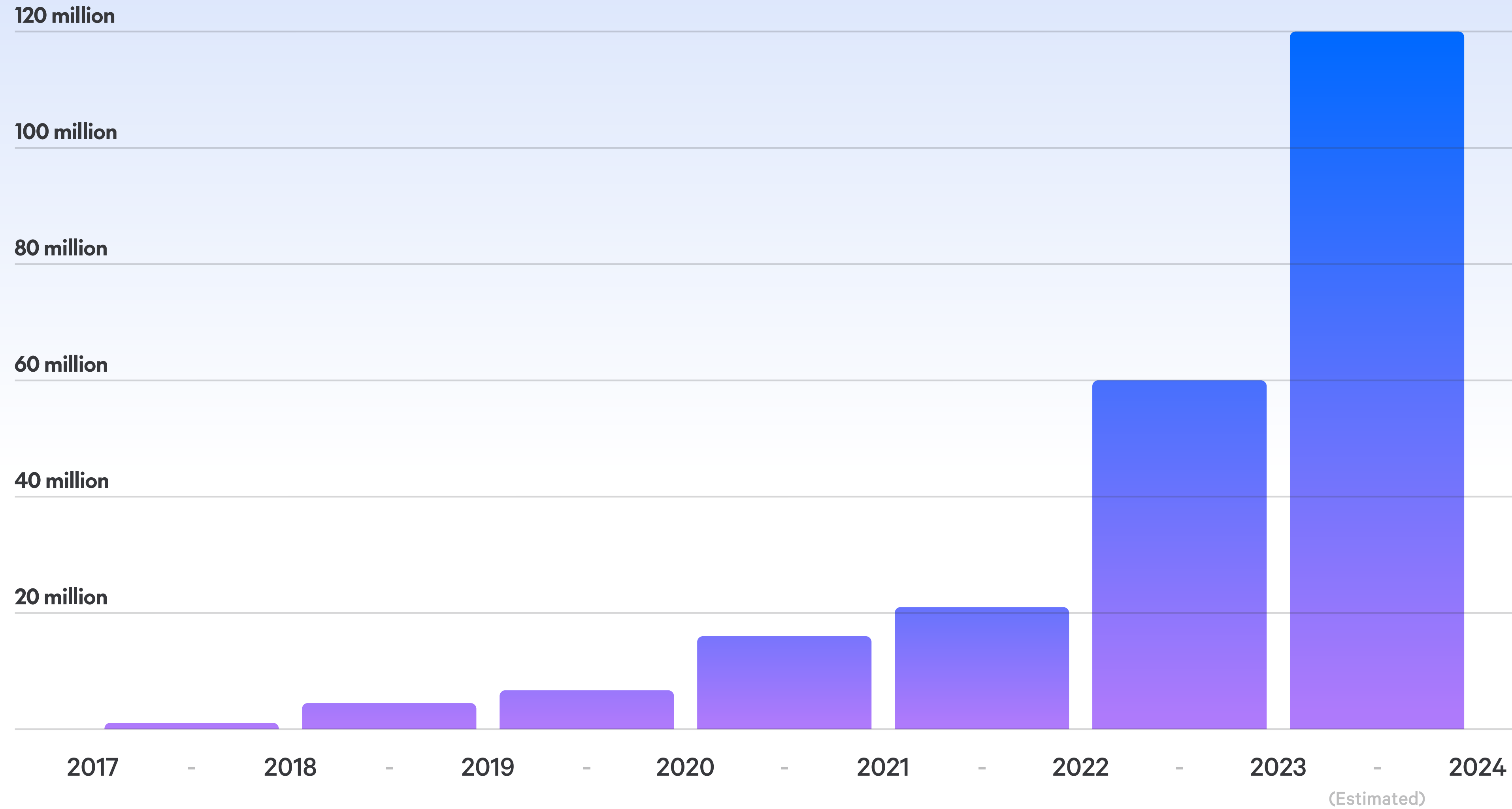
The cause was congested caches



The Future

An agent for every device, a test for every application

Agent growth



Thank you for your time

Are there any questions?

