WHITEPAPER

Online Gaming & Sports Betting: 6 Ways to Exceed Users' Realtime Expectations
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Poor realtime experience = customer churn

Problem 1: Latency is too high

Problem 2: Lack of synchronization across screens

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About Ably
Poor realtime experience = customer churn

We all know how high our expectations of speed have become as customers. According to research by ecommerce consultancy Salmon, 88% of customers rate speed of delivery as more important in who they choose to buy from than the brand itself.

We also know how ubiquitous second-screening has become. Almost 90% of US adults now use a mobile device while watching TV.

If you are competing in an area with many similar offerings, like betting, then not only must you add value through additional, often second-screen, services and features, but you absolutely cannot afford to deliver poor customer experiences or they will churn. It gets worse with younger customers: only 6.5% of millennials class themselves as “brand loyal”. Customer experience is the new competitive battleground and realtime is an important part of that. Sports and gaming businesses, in particular, stand to suffer or gain from how well they execute around realtime.

So, what are the key problems in implementing realtime properly and how do you avoid them?

Customer experience is the new competitive battleground and realtime is an important part of that.
PROBLEM 1

Latency is too high

How fast is fast enough?

In short, you need latencies in the range of 5 milliseconds to 200ms with a target of under 100ms. That is fast enough for customers to perceive the experience as ‘live’ or ‘instantaneous’.

Just waiting for a customer to refresh their app manually is simple but is clearly is not realtime and no longer meets the expectations of customers used to realtime messaging like WhatsApp or realtime vehicle tracking like Uber where no refreshes are required.

Polling by the app improves speed but latencies and load on your servers are high and there is complexity in handling failures. The practical way to solve this is to establish a realtime connection with your service so that realtime updates are pushed to devices, instead of pulled from the servers.

As devices do not have public IP addresses, it is impractical for servers to communicate directly with devices, and as such, devices instead communicate with the servers and keep that bi-directional connection open.

Nearly 70% of consumers following live sports on a mobile app would look for an alternative if the app was slow or not working.

OnePulse, 2018

To achieve low latency updates, you need to consider the many stacks in your layer. In particular, you need to have servers close to your customers when you have lots of subscribers listening at the same time for the same data. You then need scale in your cluster to distribute the work of fanning out these updates to all subscribers.

When you have 1,000 users this is easier. When you have a million and you want all customers to receive the update in under 100ms this represents a considerable engineering challenge.

Other things that can affect performance include the total bandwidth required to deliver each update, as well as the encoding and decoding times in the publisher and client.

Using efficient encodings like binary MsgPack help reduce bandwidth and reduce encoding and decoding times. Depending on the types of updates, it may be more efficient to send the changes (deltas) as opposed to the entire state each time.
Ably’s solution to high latencies

The Ably SDK establishes a persistent connection to the Ably platform enabling low latency communication. This ensures that clients can wait efficiently for data and the platform can broadcast data with little overhead and low latencies.

Data published to our platform is intelligently replicated to the edge of the network where clients exist. This approach is akin to how CDNs solve similar latency issues by bringing data physically close to clients. The Ably platform has 15 datacenters and is constantly expanding. With our latency based routing, we ensure end users connect to the closest datacenter. As such, end users of the Ably platform experience consistently better latencies with our average global round-trip latency being 65ms for the 99th percentile (as of January 2020).

Source: Uptrends Real browser monitoring
Tennis Australia positions itself to its global sponsors and partners as the primary source for live scores, streaming videos, profile information, schedules and live commentary: millions of users receiving billions of realtime messages.

Only Ably could guarantee performance and scalability for millions of concurrently connected fans, ensuring the latest match scores are made available instantly the moment a page or app is loaded, with no infrastructure worries for Tennis Australia.

“Our formal evaluation process and double load testing proved that Ably was the only platform that could meet our very challenging performance targets. They delivered without a hitch in 2018, 2019, and 2020 and we look forward to working with them again next year.”

Jeremy Keech
PMO Manager, Tennis Australia
PROBLEM 2

Lack of synchronization across screens

Second screens are connected devices or applications that are designed to be complementary to TV watching or radio listening. They provide additional services such as betting, data feeds, commentary and fantasy sports.

Viewers experience realtime synchronization through instant updates in line with the action on the pitch. However, many users currently complain that their biggest issue with second screens is a lack of live synchronization with the primary device or when watching live in-person.

63% of users would change to a more reliable betting app if the stats were incorrect when placing an in-play bet.

OnePulse, 2018

This causes considerable frustration, and commercial damage, for services like in-play and cash-out betting, live commentary and scores, or fantasy sports games. These services all rely on data being created by actions in the game such as a goal, point or foul which could change the outcome and which need to be instantly reflected in the second screen experience.

The solution? You need to use a platform which can simultaneously update all devices and screens in realtime, reliably, so there is no dislocation in the customer’s experience across screens.
Ably’s solution

Unlike the first generation of realtime platforms that are primarily signaling tools, the Ably platform is a second-generation pub/sub realtime data delivery platform focused on data integrity. This difference is significant from a developer’s perspective as signaling and other pub/sub systems cannot provide data ordering guarantees or even guarantee that data will arrive at all when clients become briefly disconnected.

The Ably platform provides data integrity guarantees through a number of mechanisms, including applying datacenter specific serial numbers to each message. This approach ensures all subscribers can receive data in the order it was published, but uniquely without adding latency or reducing reliability by introducing any single point of congestion. Additionally, all data is persisted in at least two physical datacenters ensuring that in the event of unrecoverable hardware or network failures, data is not lost and delivery is guaranteed.
PROBLEM 3

Loss of connectivity across changing network conditions

Increased demand from sports fans to engage with their teams while on the move has led to a sharp rise in the use of mobile phones as a primary connection point.

Issues arise due to constantly changing network conditions as users move between 3G, 4G and Wi-Fi, or lose connectivity completely. These changes cause disruptions to data delivery as connections open and close. Customers who have lost connectivity may well refresh their app which rebuilds the game and event state from scratch.

Over 80% of users follow live sports while on the move.
OnePulse, 2018

You cannot guarantee that your customers will have a continuous connection. However, you must provide a continuous service to meet their expectations.

The solution? You need to make it possible for disconnected devices that reconnect within a short window to resume the data stream from where they left off. This significantly reduces work for your engineering team as they do not have to handle failed connection states.

Ably’s solution

Cloud based platforms typically aim to be stateless as this approach reduces complexity in both maintenance and development of the platform. However, stateless designs fall short in many areas, specifically when it comes to providing continuity to clients that may become disconnected. The Ably platform is unique in that it is intentionally stateful in design which enables us to offer functionality to developers that other platforms cannot offer such as continuity of service, data integrity and consistent device awareness over unreliable networks such as mobile networks.

Technically, when a client connects to our platform, we store client state for that connection and distribute it across the cluster. Clients that then become disconnected for brief periods (up to two minutes), can reconnect when the underlying Internet connection becomes available again, and resume using the buffers maintained in our stateful platform for that connection. Second screen applications, typically operating in unreliable network conditions, benefit immensely from this seamless continuity of service.
Fantasy Football Fix is a fantasy sports application that uses the world’s most powerful and predictive fantasy football algorithm to make informed transfer decisions and increase its user's performance. Individuals predominantly use the application as a second screen during live football matches.

Initially the team were worried about unstable networks: individuals moving from 3G to Wifi and entering dead spots. This had created problems as users’ connectivity issues were causing messages to be lost as delivery never occurred.

Ably were able to provide a solution due to our reliable message ordering and message history features.

“Simple and powerful API, we were up and running in 10 minutes powering instantaneous realtime data delivery to get all our realtime gaming messages to our players.”

Adam Moss
Technical Director, Fantasy Football Fix
PROBLEM 4

99.999% uptime required

More perhaps than any other sector, sports and gaming businesses have huge amounts of value at stake in concentrated periods of time, most obviously during a live match. Lucrative in-play and cash-out betting services need reliable realtime platforms.

You may think that just under 99.999% uptime is a good goal to aim for. However, consider that means a customer could be unable to use your service for over an hour a year. Given events are extremely time-sensitive, that missing hour of an event (at any time) could be a disastrous experience for your customer and just as bad for your business.

Long-term effects can be even more devastating. Customers, who show low brand loyalty, will flock to a more reliable service. This loss of future revenue could lead to cash flow problems and potential exit from the market.

The solution? Only 99.999% uptime is good enough.

Ably's solution

Ably is the only realtime service that currently offers a 99.999% uptime guarantee, accredited by an SLA. As a result, our goals are aligned with our customers as we are commercially incentivized to deliver on this promise.

However, only looking at a platform’s uptime can be misleading as measuring end user service availability vs platform uptime will often diverge significantly. For example, it is not uncommon for a device to suffer from a network partition or an intermittent and unreliable datacenter. During this time, a platform could legitimately report 100% uptime, however, end users may not be able access to the service for an extended period of time. Ably has addressed this issue by embedding intelligence in our client library SDKs to detect degraded performance or network issues, and autonomously route traffic to alternative healthy datacenters. This unique Ably feature ensures that end users would typically be offline for no more than 10 seconds, as opposed to extended periods often up to an hour.
PROBLEM 5

Unreliable message ordering

Have you considered how important it is for your data to be delivered in the correct order? If updates are not delivered and displayed in the order they actually happened, a customer could place bets based on incorrect information. Their bets will then be rejected which is annoying for them and lost business for you.

Over 90% of users get annoyed by poor reliability when using an app to follow live sports.

OnePulse, 2018

Devices should never have the ability to set the terms of a bet, only to follow the offer made by the entity they are betting with.

Data ordering becomes a greater concern when the events you are streaming to your clients are partial updates (data deltas or patches) as opposed to full updates. To reduce bandwidth and latency, it can make sense for businesses to send only the updates of a dataset to a device, as opposed to the whole dataset.

In most cases, this will work fine on any realtime transport. However, when updates arrive in the incorrect order, the data deltas / patches can result in corrupted data. Then there is no guarantee that all devices have the same view of the same data in spite of the fact they all received the updates.

Ably's solution

Ably ensures that data arrives with integrity as you intended. This is guaranteed due to every message having a unique incrementing message serial. Messages published to a channel anywhere in the world will always follow the same order that the messages were originally published.
PROBLEM 6

Handling sudden spikes in demand

Live sport is exciting and unpredictable. It draws in billions of fans from around the globe to watch football, tennis, athletics and many more live events. A global audience of 5.23 billion people watched the Euro 2020.

You must be able to deal with unprecedented, and sometimes unexpected, spikes in demand during major sporting events or risk disrupting the consumer experience and losing business. You should be able to focus on growth opportunities without the burden of knowing if your technical systems are ready for great successes.

Imagine the scenario as the Australian Open final goes to a tie break and millions of fans are using their second screen to follow updates, place in-play bets and check their fantasy team results.

When choosing a realtime data platform you need to know that, regardless of the number of active users, the amount of work required from your servers remains constant. All the work required to keep potentially millions of connections alive and distribute the published data to them should be deferred to the realtime platform. This greatly simplifies your technical architecture and reduces associated engineering costs.

Ably's solution

Ably is designed to absorb unexpected spikes in traffic in three ways: leveraging the existing traffic we already deliver in our platform, any single customer experiencing a spike of 100x their usual traffic load, for example, may only result in a 10% increase globally for our cluster; capacity is actively managed across all 15 datacenters by our autoscaling systems ensuring we predict when capacity is needed and provision automatically to maintain sufficient spare capacity at all times; datacenters that become overloaded will shed traffic to other datacenters.

In addition to the automated systems that ensure spikes can be absorbed, Ably is continuously investing in the platform to optimize for very large workloads, and has a 24x7 infrastructure engineering team actively monitoring the platform and manually overprovisioning when necessary.
About Ably

Ably is an enterprise-grade realtime communication platform that takes care of the complex global infrastructure essential for building, delivering, and scaling live digital experiences.

Our technology powers the applications we rely on every day for work, learning, and play such as driver tracking on maps, IoT device communication, remote multi-user collaboration, internet-scale events, and business-critical chat.

Out-of-the-box, companies benefit from our massively scalable global network, unique data ordering and delivery guarantees that ensure seamless end-user experiences, legitimate 99.999% uptime SLAs thanks to our fault tolerant infrastructure, and integrations and plugins to easily extend their applications.

This allows companies to quickly add innovative realtime capabilities they can depend on at any scale while simplifying engineering, minimizing DevOps overhead, and increasing development velocity.

For more information or to talk to sales about how Ably can help you deliver better realtime experiences or distribute your data streams to third parties, get in touch at ably.com/contact.

Explore Ably’s platform

You’re in good company