Ably Pub/Sub Channels

Class-leading pub/sub messaging APIs to build even the most complex realtime features. Presence, history, token auth, message ordering, and more.

As organizations seek to implement, or scale, realtime features and functionality in their apps they quickly come up against issues of reliability and performance. They realize it's an overwhelming engineering burden better offloaded to specialist cloud service providers than taken on in-house.

Ably Pub/Sub Channels provide fully-managed pub/sub messaging APIs that make it simple to build even the most complex realtime features. Powered by Ably's Data Stream Network, Channels offer unrivalled quality of service to reliably and securely stream data from any device, on any platform, to any number of subscribers in under 65ms. Create collaboration and chat products, power and control IoT deployments, deliver realtime updates, and more.

Ably Channels: the bedrock of low-latency pub/sub messaging

Ably Pub/Sub Channels is the core routing mechanism of Ably's expansive cloud network, exposed through our APIs. Channels follow a well-established Publish/Subscribe (pub/sub) architectural pattern that enables low-latency pub/sub messaging over channels.

How do Channels work?

Channels enable any number of publishers to publish data to a channel, which any number of subscribers can then subscribe to. Once subscribed, subscribers no longer need to poll servers to check for new data. Instead, new data is pushed to subscribers as it becomes available. This enables fast and efficient data transfer with improved reliability and scalability.
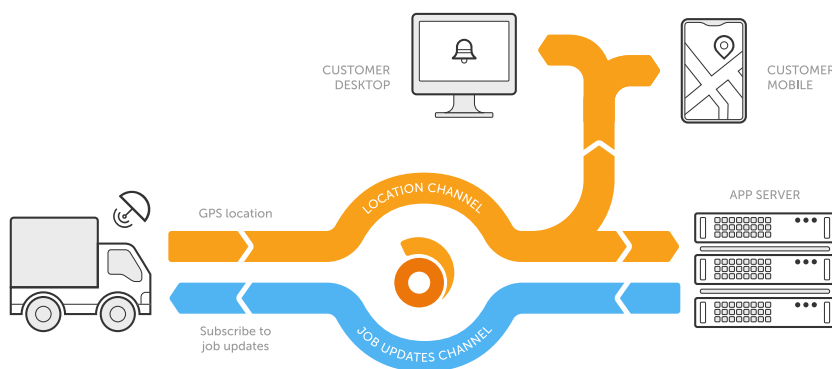
Channels provide all the features you need to build out any realtime feature:

- Token-based authentication, including JSON Web Tokens (JWT).
- Device and user presence so you know who is connected to your app and what their status or attributes are.
- Persisted data which ensures any missed messages during disconnected periods are re-sent when a client reconnects.
- Message ordering and connection state recovery.
- A unified API to deliver native iOS and Android push notifications
- Sub-100ms global latencies. For context, the blink of an eye is 300–400 milliseconds.

Benefits

✓ **Your Realtime Advantage**
Reduce technical complexity and operational engineering burden by offloading upfront and ongoing realtime engineering requirements to Ably. Focus on core engineering goals that drive service development and ship and scale faster and more efficiently.

✓ **Ably's realtime messaging fabric**
Rely on Ably's technology to solve the hard realtime engineering problems such as message ordering, guaranteed delivery, idempotent publishing, intelligent routing, data deltas, and more.

✓ **Truly global cloud network**
With 16 datacenters and over 175 edge acceleration points of presence (PoPs), we guarantee close proximity to your subscribers and median roundtrip latencies of sub-100ms.

✓ **High availability**
Channels are available globally, structured so that no single location or server ever jeopardizes the Ably network. Under adverse conditions, our client library SDKs intelligently route traffic to available servers to ensure continuity of service.

✓ **Developers love Ably**
Ably's extensive Client Library SDKs (40 and counting) provide APIs that save developers hundreds of hours with support for every major protocol, platform, cloud provider, and server environment.

If you're interested in how the Ably Channels can work for you, get in touch hello@ably.io or visit our website www.ably.io.

First class WebSocket support

Ably Pub/Sub Channels stream data over the near-universally supported and highly efficient Websocket transport protocol. As applications and services run, connections to channels are persisted and can remain open for the duration. As an additional guarantee of delivery we also support long polling as a fallback.

Any device, technology, and protocol

With over 40 Client Library SDKs Channels caters for any combination and number of devices and platforms, so you can develop with the tools you're already using.

In addition, as the ecosystem of realtime protocols is fragmented with no universally-agreed standards, Channels benefit from Ably's adapter function. This adapter ensures interoperability between realtime protocols such as MQTT, SSE, gRPC, and proprietary realtime protocols of other realtime platforms. This gives developers the freedom to develop in numerous directions, according to their current needs, while minimizing protocol lock-in.

Ably's network and ready-built integrations, your compute

We provide APIs to link Channels to your other systems - be they legacy, hybrid, or cloud environments. This gives you the flexibility to integrate the services and business logic you're already using to transform messages on the fly. Use your existing compute to run code, process and transform data, and execute functions - all in realtime. We support WebHooks, Amazon Lambda, Google Cloud Functions, Azure Functions, and more.

The Ably Adapter supports:

- Ably Native SDKs
- Websockets
- SSE/HTTP Streaming
- HTTP
- MQTT
- AMQP
- STOMP
- GRPC *Coming soon*

The Ably Reactor supports:

- Google Cloud Functions
- AWS Lambda
- Azure Functions
- Webhooks
- WebSub *Coming soon*
- AMQP
- Kafka *Coming soon*
- Kinesis
- Amazon SQS

Stable, resilient, fast

Ably's sole focus is delivering the most reliable, performant, and secure realtime messaging service possible. As such we're able to provide better quality of service through our APIs than organizations can ever achieve in-house. By building with Ably, organizations gain access to the only Data Stream Network that meets three key realtime messaging criteria: absolute data integrity, mission-critical reliability, and universal interoperability at sub 100ms global latencies.

That's why companies such as HubSpot chose to reduce their operational engineering overhead and infrastructure cost by building on Ably, freeing their developers focus on core engineering goals and ship innovative features faster and more efficiently.

Key features

- ✓ End-to-end 256 bit AES encryption for realtime messages
- ✓ Basic authentication over TLS and token authentication (incl JWT)
- ✓ Channel presence, message persistence, connection state recovery, message ordering, guaranteed delivery
- ✓ Binary encoding for messages to further enhance performance
- ✓ Use your compute for message queues, functions, and transforming messages
- ✓ Support for multiple protocols including WebSockets, MQTT, SSE
- ✓ Global redundancy allows us to offer genuine 99.999% uptime SLA guarantees

Key numbers

< 1/10
second latency worldwide (<100ms)

Billions
of messages sent each day

100s of millions
of messages per second network capacity

30,000,000+
monthly end users

7,500+
developers building on Ably

"We run thousands of services with 100s of daily deploys by autonomous teams. Ably's infrastructure layer supports this agile SoA environment. And the team provide responsive, collaborative support that help us meet our technical, business, and product development requirements."

Max Freiert
Product Group Lead / HubSpot

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