

Project OnePush

Yahoo!'s next-generation intelligent push-notification system

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User Notification Today | Industry's common problems



User Notification Today | Industry's common problems



User Notification Tomorrow | Yahoo!'s solution



User Notification Tomorrow | Yahoo!'s solution



OnePush's Vision:

Deliver the right amount (and kind) of personally relevant user notifications at the right time (and place).



Yahoo! Beijing Global R&D Center's 3 Pillars

OnePush's Vision:

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Cloud Computing

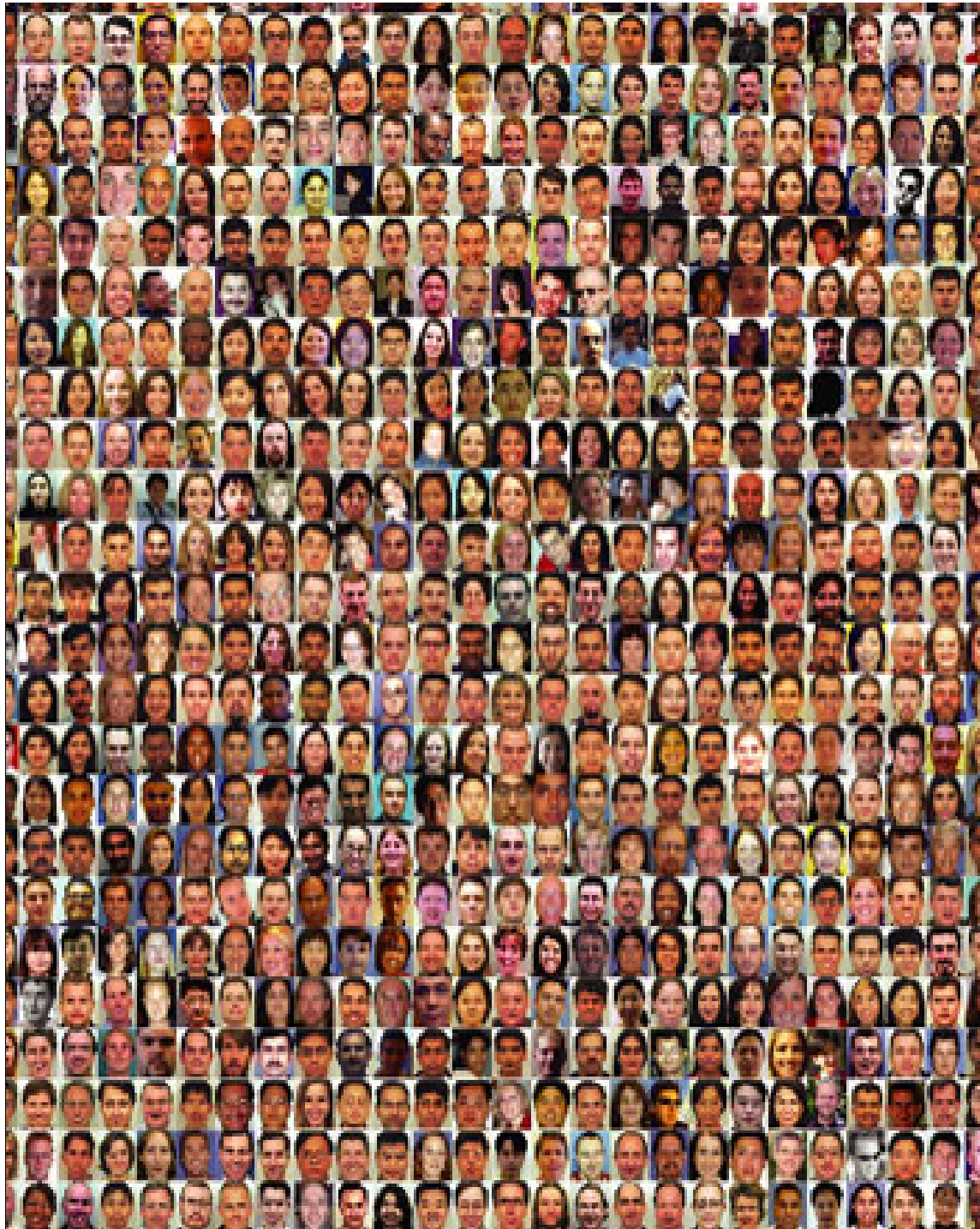
Mobile Platforms &
Apps

Personalization &
Advertising

Yahoo!'s Mission

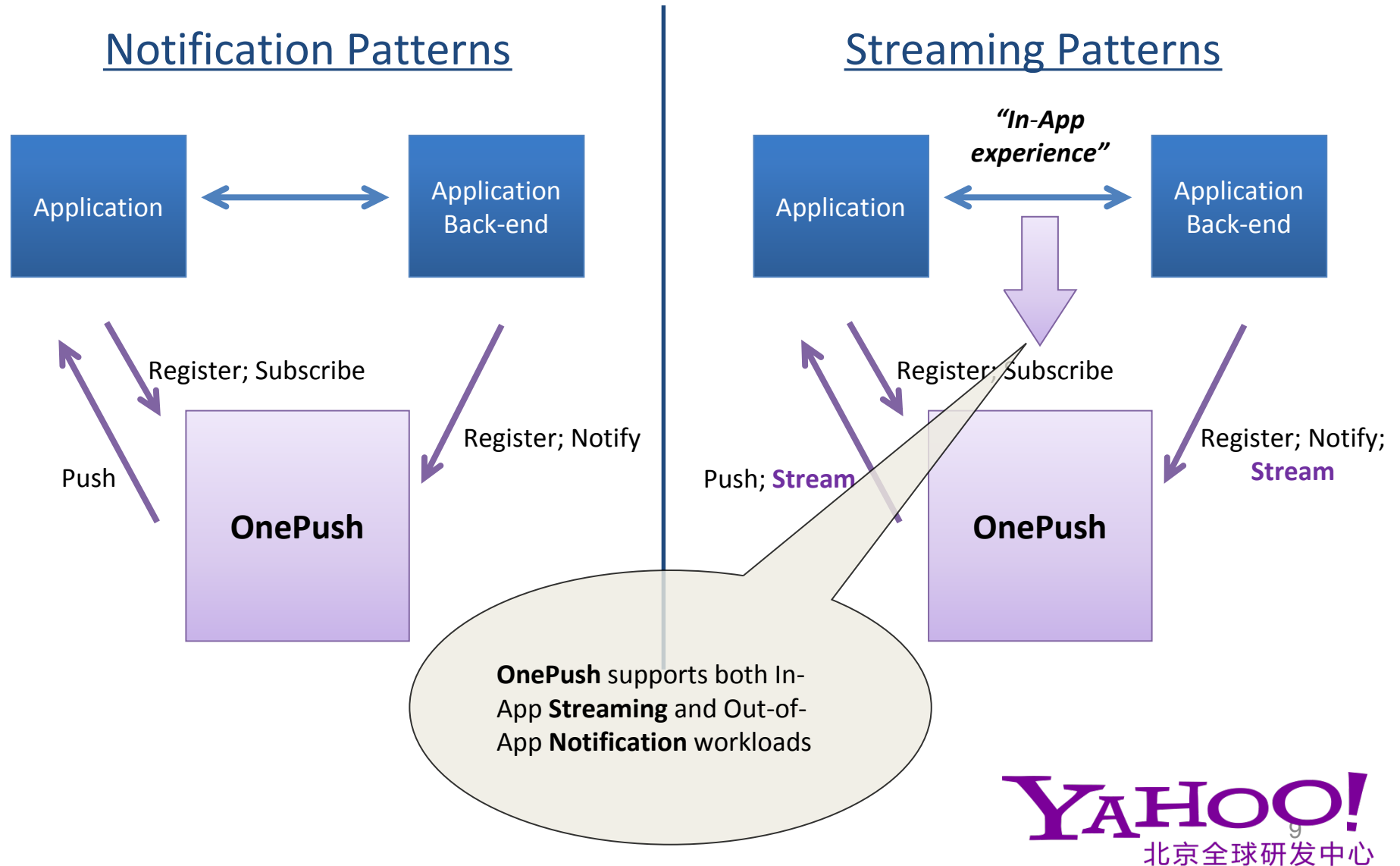
To make the world's daily habits more inspiring and entertaining.

By creating highly personalized experiences for our users, we keep people connected to what matters most to them, across devices and around the world. In turn, we create value for advertisers by connecting them with the audiences that build their businesses.



**In a two day span,
Yahoo! gets more
page views than
there are people
on Earth**

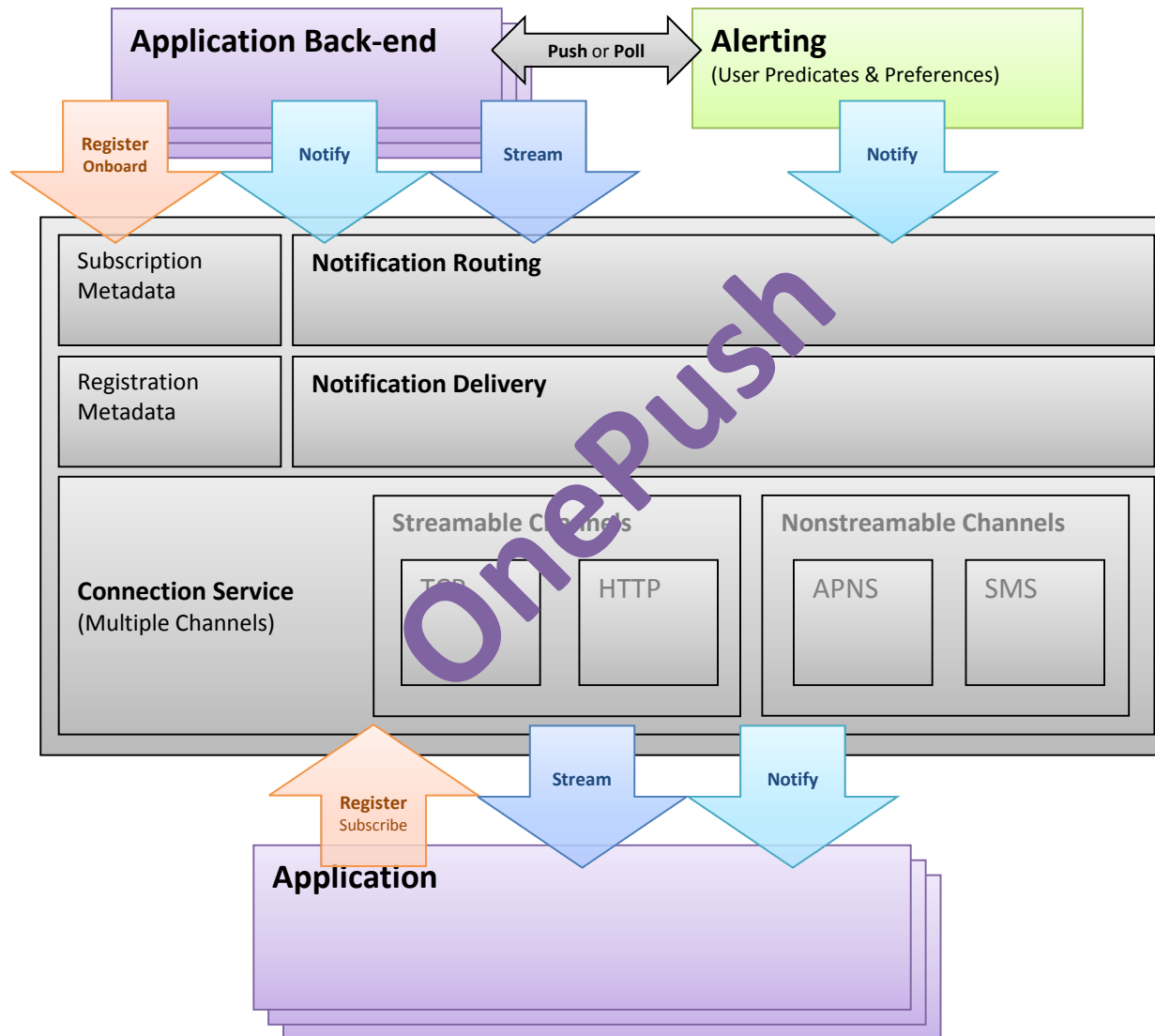
OnePush's Problem Statement



OnePush's Design Goals

Goals	Remarks
One consistent set of APIs	Support Registration, Subscription, Notification and Topic Namespaces (Discovery, Navigation, Management, Analytic).
One coherent onboarding experience	One coherent customer onboarding experience (Use-case Review, Capacity Planning (SLAs), Integration, Troubleshooting).
Intelligent notification	Personalized push-notification user experience.
Low-latency, multiplexed connection management across all channels	Provide reliable, full message payload, efficient (Battery Consumption, Connection Sharing, Guaranteed Delivery & Latency) transport services for all channels (TCP, HTTP).
Secure, measurable, reliable, scalable system	Include Authentication, Authorization, Multi-tenancy, Elasticity, Throttling, Monitoring and Troubleshooting .
Streaming-capable	Support Narrowcast and Broadcast style streaming.

OnePush's Customers & Use-cases



Notification Patterns

Multicast
(to Topics, Users)

Multi/Unicast
(to Mailboxes)

Streaming Patterns

Narrowcast
(to Mailboxes)

Broadcast
(to Mailboxes)

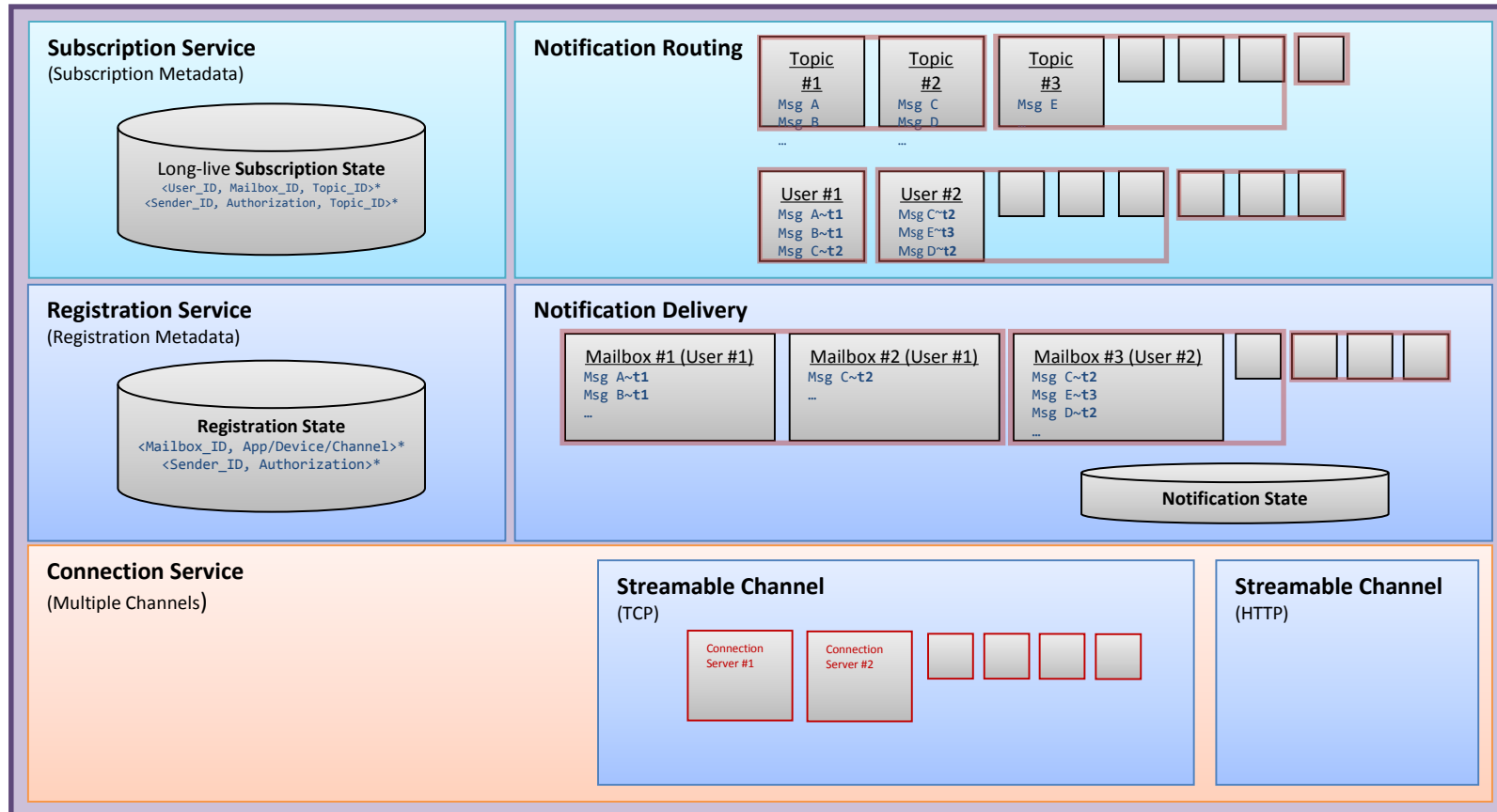
Aggressive Filtering
Using **Presence** to cut down traffic load.

Resource Affinity
Serving periodic traffic patterns & meeting QoS.

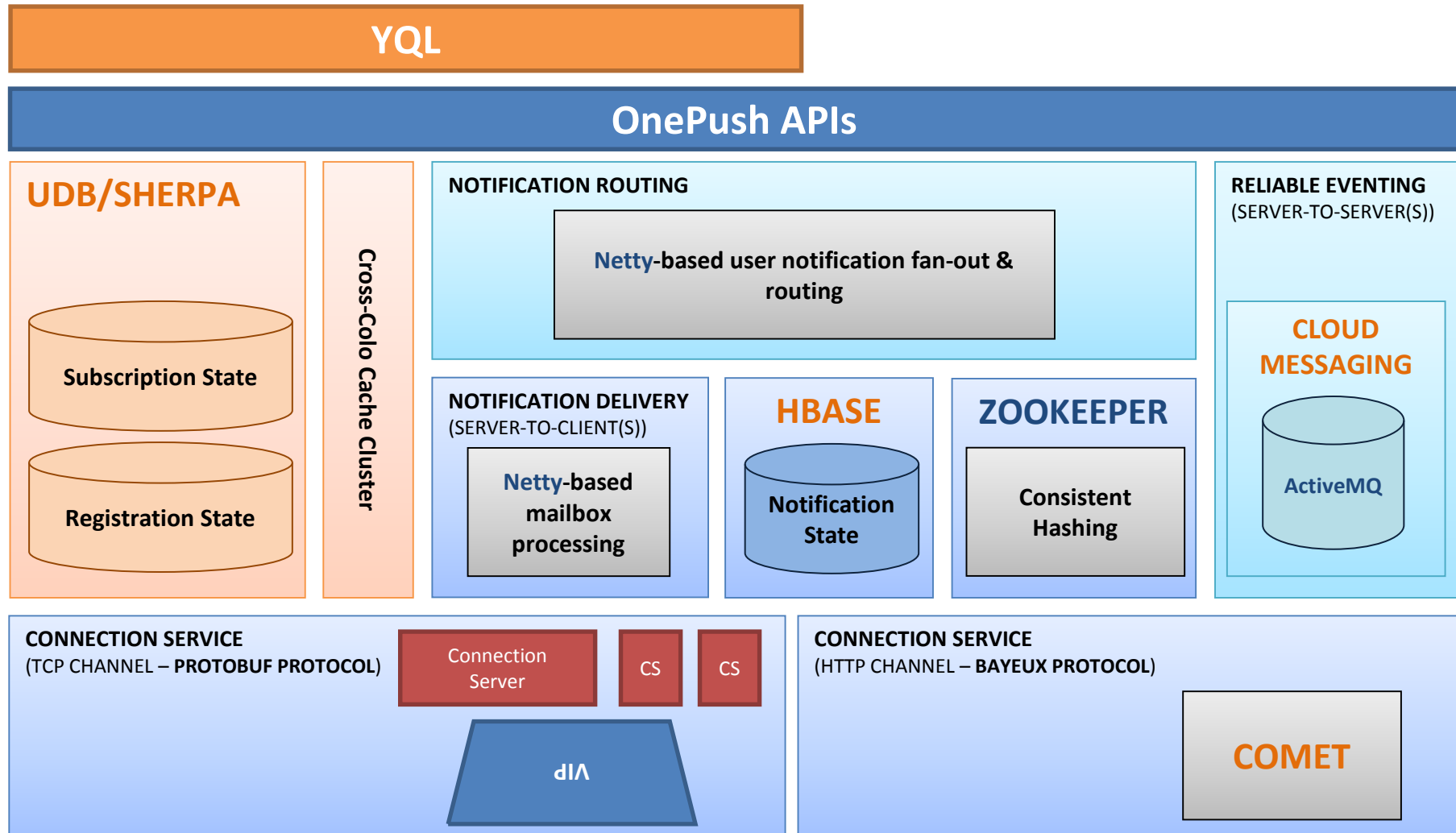
Non-persistent Messages
Okay to discard messages within TTL, if not delivered.

Aggressive Sharing
For broadcasted content.

OnePush's Architecture | Logical



OnePush's Architecture | Physical



THANK YOU!