Add Real-Time Interactive Features to your Online Games

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AGENDA

(1)   FOREACH (feature AS "Real-Time Feature")

       (2)   feature.describe()

       (3)   feature.implement(atScale = true)

       (4)   feature.demo()

       (5)   feature.liveDebuggingSessionWhenTheDemoFails() {blameNetwork}
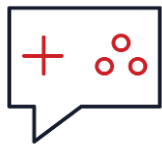
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Q: Why should I care?

A: Real-Time Features Foster Community

"Players are 2.7x more likely to keep playing a game because they feel like a part of a community."

Top 13 Social Features in Mobile Games with Examples | Udonis | 3/6/2023

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Real-Time Features

In-Game Chat

Leaderboards

Lobbies

In-Game Events

Multiplayer Sync

Parties, Friends, Guilds, & Alliances

Achievements & Battle Pass

Profile/Inventory Management

Player Trading & Gifting

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Implement at Scale: Chat & Lobbies

In-Game Chat

Direct messaging, team messaging, target all players, Emoji Reactions, **Cross Platform, Reliability of Delivery, Latency**

Lobbies

Find Lobby, Advertise Lobbies, **Handle disconnection, Network issues**.

Lobby Chat

Group chat, Message Moderation, Sentiment Analysis (**in-line, offline**), Language Translation, File sharing, **Storage costs**.
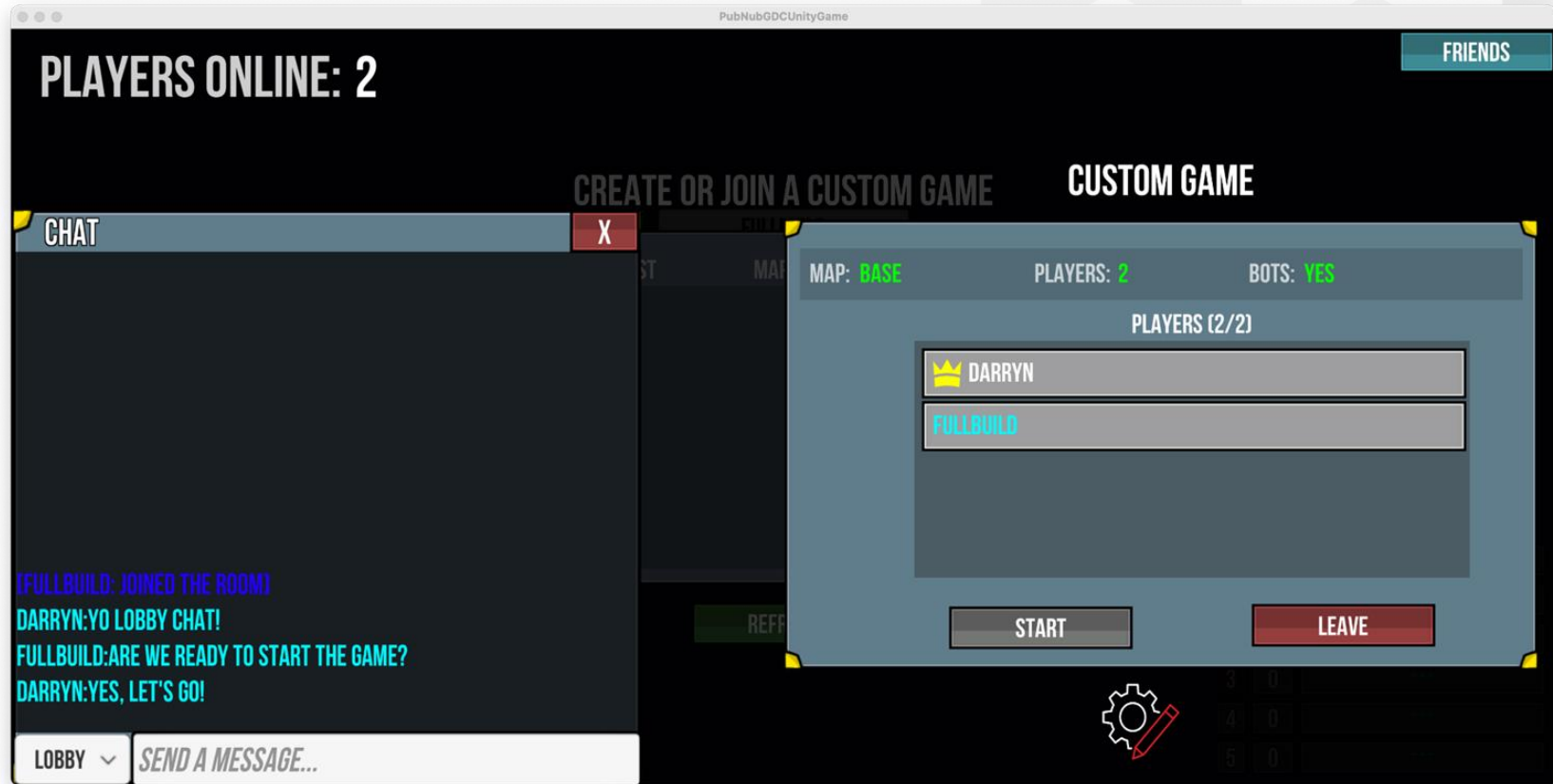
Friends

List of Friends, Guild Membership, Raiding Parties, Alliances, **Chat with friend group**, **Online status**, **Access Controls**, **Scalability** (friend lists grow faster than the number of players)

Compliance

Are you dealing with personal data? GDPR compliance, Prevent players sharing data they shouldn't

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DEMO: Chat & Lobbies

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FRIENDS

KEA

CREATE OR JOIN ROOM

CUSTOMIZE

CHAT

TODAY'S LEADERBOARD

1	4	DARRYN
2	3	DARRYN
3	2	DCCWINBUILD
4	2	FULLBUILD2
5	2	DARRYN

Implement at Scale: Leaderboards & Challenges

Leaderboards

Storing leaderboards, **Database consistency** (writes from worldwide), Distribute to players on update, Single source of truth, **Dynamic in real-time**
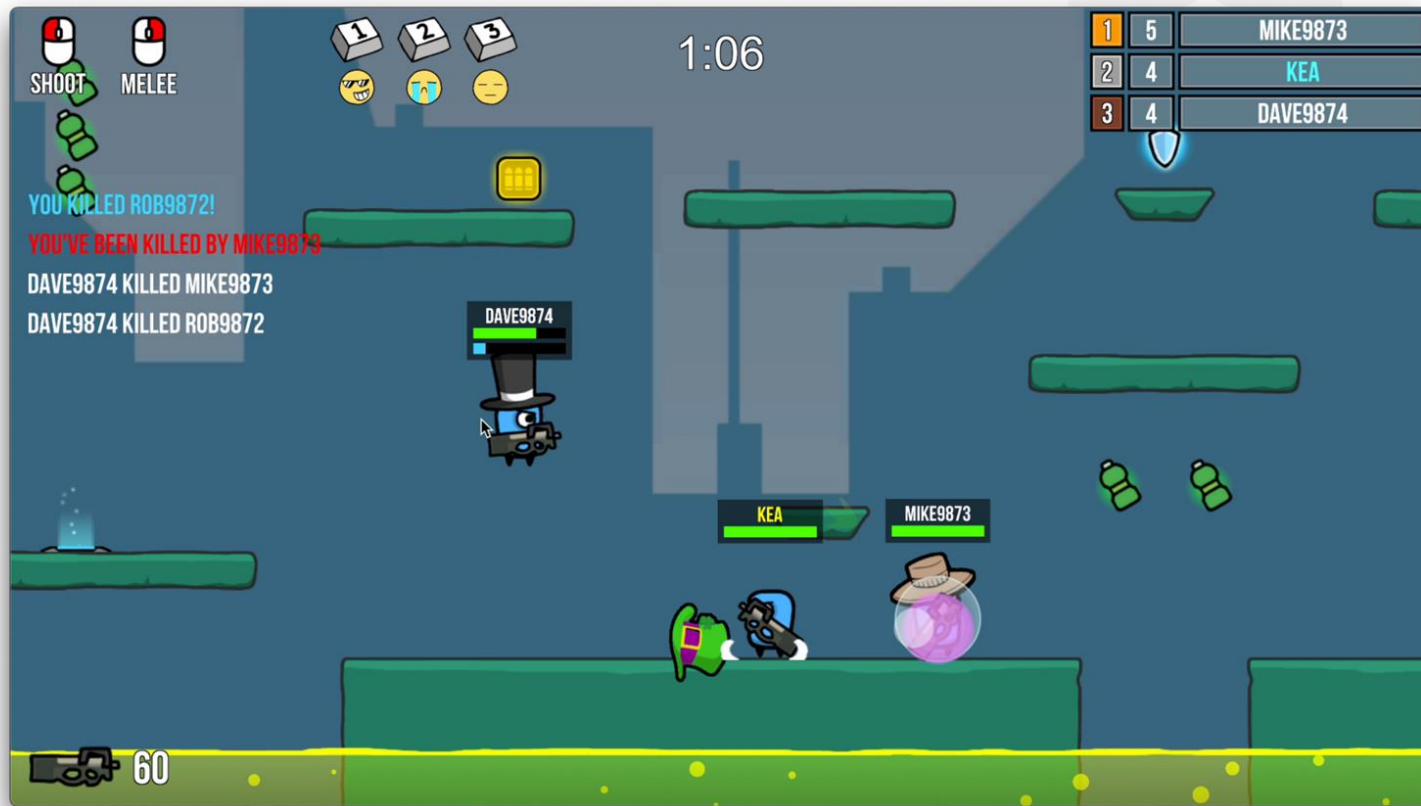
Challenges

Achievements & Battle Pass, Result of or could trigger in-game event, **Notify friends**

In-Game Events

In-world events such as character **Pulling a Lever**, or levelling up vs. external events such as **Player Disconnects**. Register for interest, **notify interested parties**.

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DEMO: Leaderboards & Challenges

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Implement at Scale: Player Movement

Multiplayer Sync

Latency (Lag), Break players into **regional areas** to avoid lag, prioritize certain traffic based on game, Number of messages grows in line with number of players - **Consider your Architecture (Client - Client vs. Client - Server)**, very big consideration with some types of games.

Replays / History

Single source of truth for Player Actions, **Order of Actions is imperative**, Could be a lot of data: **Storage Costs**, data availability. Replays **stream data in real-time**. **Time & timestamps** - you can't depend on client device time.

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Implement at Scale: Player Inventory

Player Profile

Profile Management: **Globally accessible**, Contains **personal information** (Compliance?), **Resilient** (can players play without access to their profile?), How Long will you store a Player's profile? **Notify others when the profile changes** (update name etc.)

Inventory

Inventory management: Need Secure storage, **Prevent abuse / cheating,** Updated by game events, **Notify others when inventory changes in game** (Real-Time updates critical here)

Item Trading

Exchange items between players, **Notify others** in real-time, Place players in tiers based on inventory, Gifting, **Monetization, Offline notifications**

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DEMO: Player Inventory

PLAYERS ONLINE: 2

CHAT   X

KEA:HI EVERYONE
KEA:I WOULD LIKE A FRIEND :(
DARRYN:I'LL BE YOUR FRIEND
KEA:YAY, HELLO FRIEND
DARRYN:HI THERE
DARRYN:HALLO FREUND
DARRYN:J'AIME JOUER À DES JEUX
KEA:HELLO TO ALL MY FRIENDS
KEA:I NEED TO FIND A NICE HAT

FRIENDS ∨ | SEND A MESSAGE...

KEA

CREATE OR JOIN ROOM

CUSTOMIZE

TODAY'S LEADERBOARD

1	4	DARRYN
2	3	DARRYN
3	2	DCCWINBUILD
4	2	FULLBUILD2
5	2	DARRYN

PLAYERS ONLINE: 2

FRIENDS

KEA

CREATE OR JOIN ROOM

CUSTOMIZE

TODAY'S LEADERBOARD

1	0	---
2	0	---
3	0	---
4	0	---
5	0	---

CHAT

Use an off-the-shelf Solution

Good News: Dedicated Network Engines exist

<u>You don't have to implement real-time features from scratch</u>

This isn't news to anybody but consider:

- Is the service designed for gaming, or useable elsewhere in your ecosystem?
- Can the service be used with any game engine?
- How long does it take to integrate?
- What platforms does the service support?
- How can I get started?
- What does the service cost?
  - Specifically, for my use case
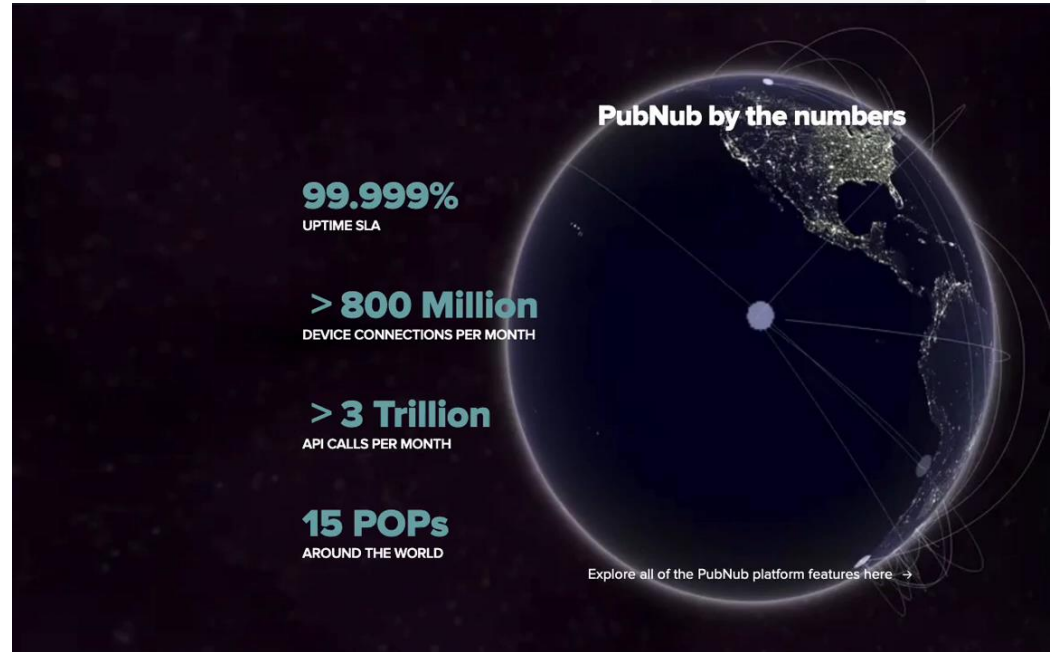

Good News Everyone!

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Good News: PubNub

Dedicated Gaming features:
- Online/offline player rosters & notifications
- Live statistics, scores and leaderboards
- Embedded chat functionality

Also….
- Platform agnostic
- Trusted by large game developers
- Enterprise-Grade uptime
- Very low global latency
- Free to get started
- **Come visit our booth!**

PubNub by the numbers

99.999%
UPTIME SLA

> 800 Million
DEVICE CONNECTIONS PER MONTH

> 3 Trillion
API CALLS PER MONTH

15 POPs
AROUND THE WORLD

Explore all of the PubNub platform features here →

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Final Thoughts

Adding Real-Time Interactive Features to your Online Games
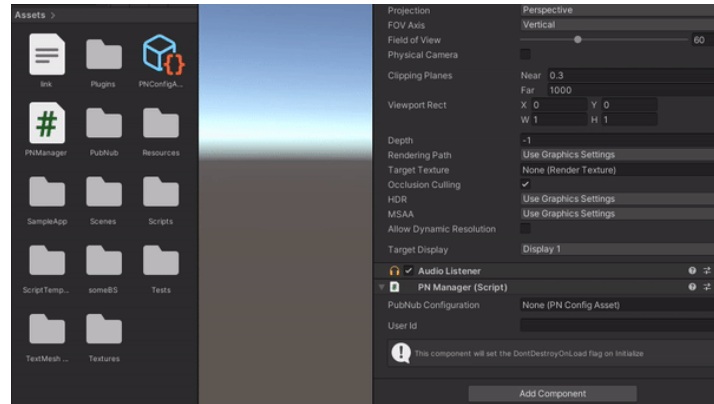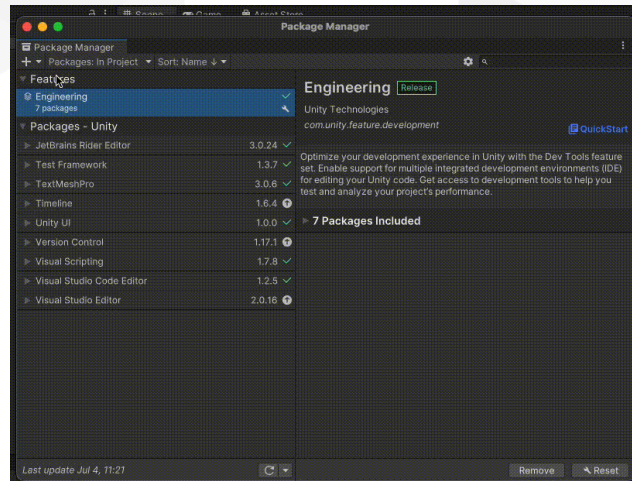
- **<u>A few hours research up-front can save you a lot of time in the long run</u>**

- Most real-time features are left until the end of the game lifecycle

- A wider feature set can help you as you expand your game beyond just great gameplay

- Analytics can help you better understand your players

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PubNub Support for Unity & Unreal

Introducing PubNub Unity SDK 7.0

- **Reduce dev time** integrating real-time features like game lobbies, multiplayer chat, in-game alerts, live leaderboards, push notifications, and much more.

- **Maximum flexibility** that allows you to create unique interactive experiences with your own UI

- **Make your work more enjoyable** with native Unity developer experience and functionality

- https://www.pubnub.com/docs/sdks/unity

- **We also have support for Unreal**

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QUESTIONS?

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Resources

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- **Sign up for a Free Trial:**
  http://pubnub.com

- **New Unity SDK & announcement blog:**
  https://www.pubnub.com/docs/sdks/unity
  http://bit.ly/3seCKFk

- **Connect with our DevRel team**
  devrel@pubnub.com

- **PubNub Socials:**

  ▶ @PubNub

  in @pubnub

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- **Play our game:**

  https://github.com/PubNubDevelopers/unity-multiplayer-shooter

- **Come visit our booth to learn more:**

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  PHOTO OF BOOTH GOES
  HERE




  DO NOT FORGET...
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