



# **Add Real-Time Interactive Features to your Online Games**

# AGENDA

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- 1 FOREACH (feature AS “Real-Time Feature”)
  - 2 feature.describe()
  - 3 feature.implement(atScale = true)
  - 4 feature.demo()
  - 5 feature.liveDebuggingSessionWhenTheDemoFails() {blameNetwork}

**Q: Why should I care?**

**A: Real-Time Features Foster Community**

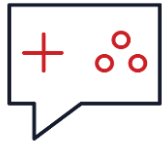
“Players are 2.7x more likely to keep playing a game because they feel like a part of a community.”

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



# Real-Time Features

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In-Game Chat



Leaderboards



Lobbies



In-Game Events



Multiplayer Sync



Parties, Friends,  
Guilds, & Alliances



Achievements &  
Battle Pass



Profile/Inventory  
Management



Player Trading &  
Gifting

# 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

# DEMO: Chat & Lobbies

The screenshot shows a game lobby interface for a custom game. The window title is "PubNubGDCUnityGame".

**PLAYERS ONLINE: 2**

**CHAT** (with a close button 'X')

**CREATE OR JOIN A CUSTOM GAME**

**CUSTOM GAME**

MAP: **BASE**    PLAYERS: **2**    BOTS: **YES**

PLAYERS (2/2)

- DARRYN** (with a crown icon)
- FULLBUILD** (with a blue highlight)

**START**    **LEAVE**

**CHAT LOG:**

- (FULLBUILD: JOINED THE ROOM)
- DARRYN:YO LOBBY CHAT!
- FULLBUILD:ARE WE READY TO START THE GAME?
- DARRYN:YES, LET'S GO!

**LOBBY** (dropdown)    *SEND A MESSAGE...*

**FRIENDS** (button)

**SETTINGS** (gear icon)

PLAYERS ONLINE: 2

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

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## 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**

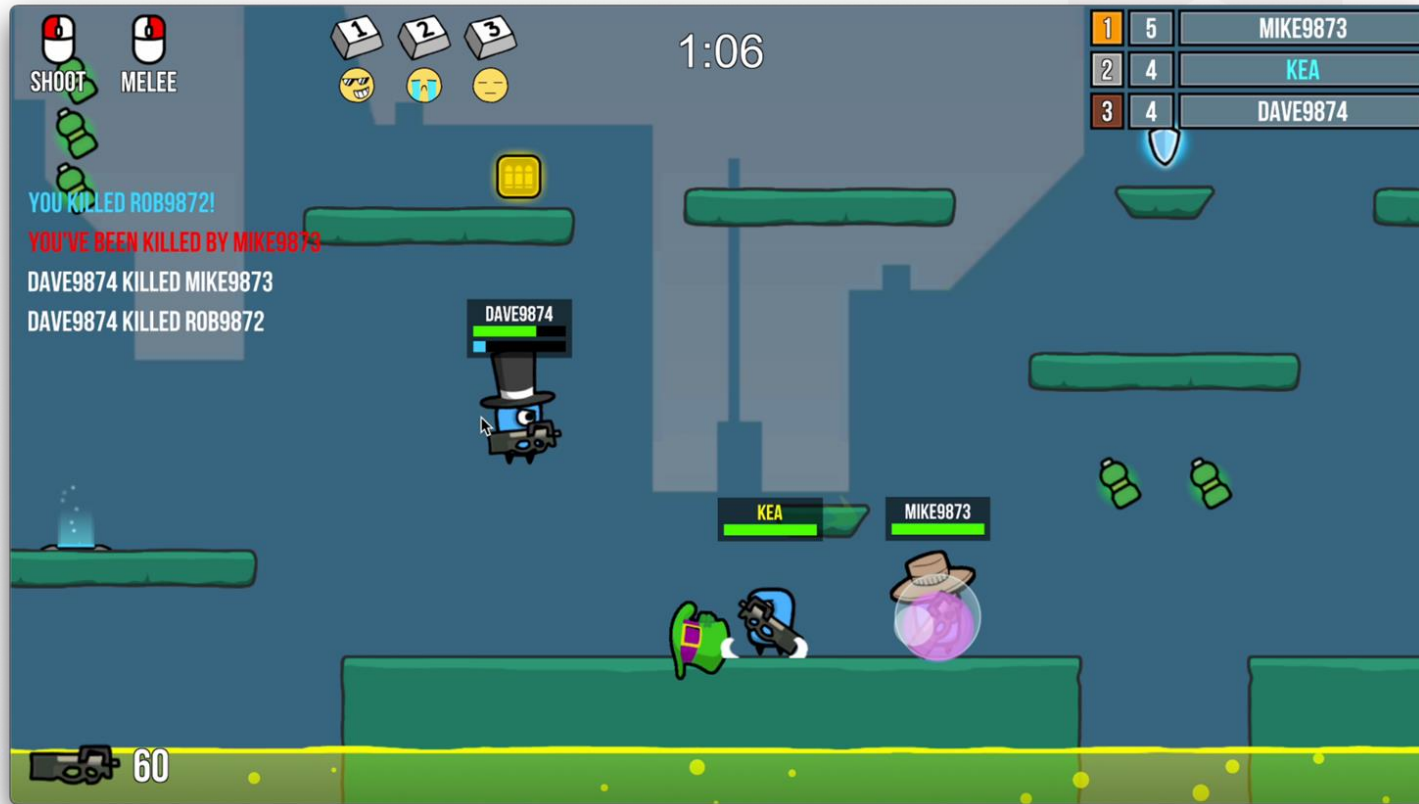


## In-Game Events

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**.



# DEMO: Leaderboards & Challenges



TODAY'S LEADERBOARD		
1	2	DARRYN
2	1	OLIVIER
3	1	RAE
4	0	---
5	0	---

# Implement at Scale: Player Movement

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## 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.

SHOOT MELEE



1:57

1	0	KEA
2	0	ROB9872
3	0	MIKE9873

DAVE9874 ROB9872  
**FIGHT!**

MIKE9873



60

# Implement at Scale: Player Inventory

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## 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**

# DEMO: Player Inventory



PLAYERS ONLINE: 2

FRIENDS

CHAT

X

KEA

CREATE OR JOIN ROOM



CUSTOMIZE

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

TODAY'S LEADERBOARD

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



FRIENDS ▾

SEND A MESSAGE...

PLAYERS ONLINE: 2

FRIENDS

KEA

CREATE OR JOIN ROOM



CUSTOMIZE

CHAT



TODAY'S LEADERBOARD

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

# Use an off-the-shelf Solution

Good News: Dedicated Network Engines exist

**You don't have to implement real-time features from scratch**

**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





# PubNub

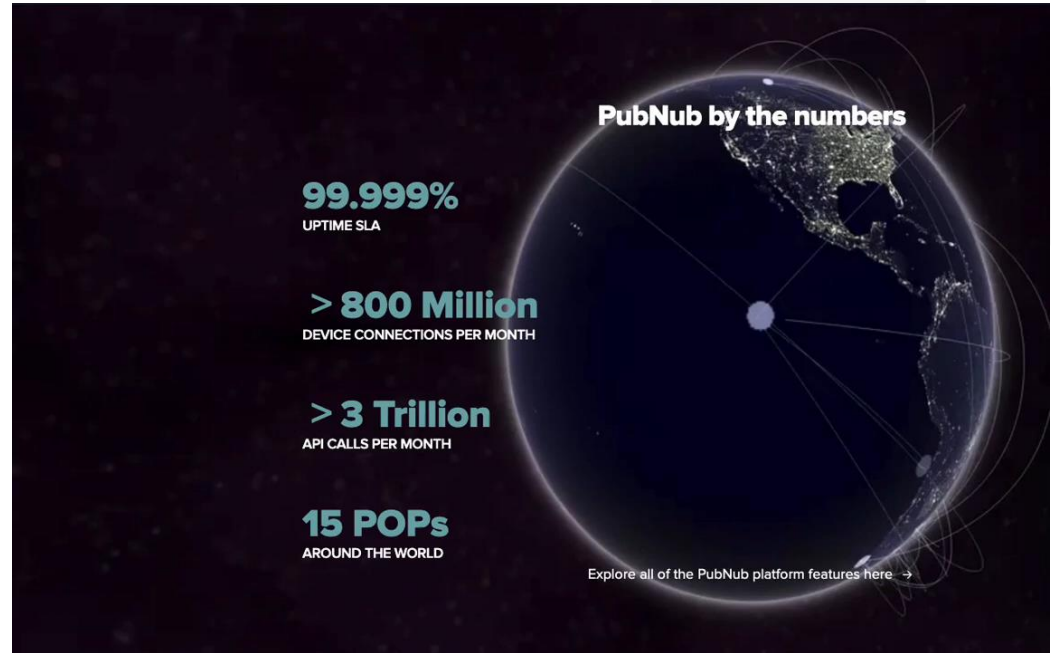
## Good News: PubNub

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!**



# Final Thoughts

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## Adding Real-Time Interactive Features to your Online Games

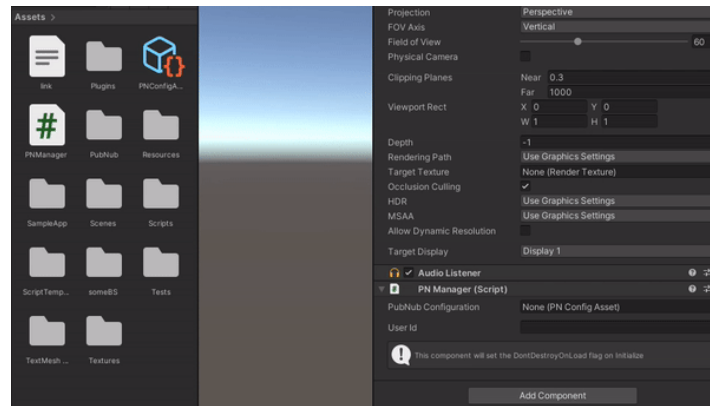
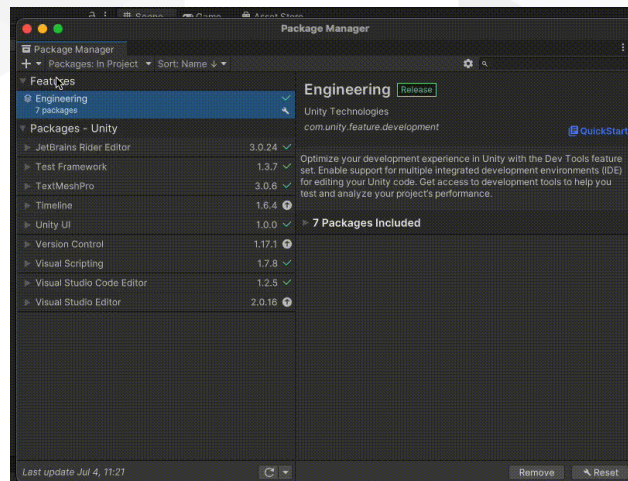
- **A few hours research up-front can save you a lot of time in the long run**
- Most real-time features are left until the end of the game lifecycle
- A wider feature set can help you as you expand your game beyond just great gameplay
- Analytics can help you better understand your players



# PubNub Unity SDK Launch

## 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>





QUESTIONS?

# Resources

## PubNub

- **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](mailto:devrel@pubnub.com)

- **PubNub Socials:**



@PubNub



@pubnub



@PubNub



- **Play our game:**

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

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

PHOTO OF BOOTH GOES  
HERE

DO NOT FORGET...

- **Darryn Campbell:** [devrel@pubnub.com](mailto:devrel@pubnub.com) | @darryncampbell

