

# Video Game Server

- Efficiently pair groups of players base on various statistics and relative PING between players

BETSY DE LA CRUZ, LUKE HOFFMAN, AND DEANTE COLE

# User Stories

1

As a **video game player**, I want to be able to play a game with low **delay**, so that I can play the game without interruption.

2

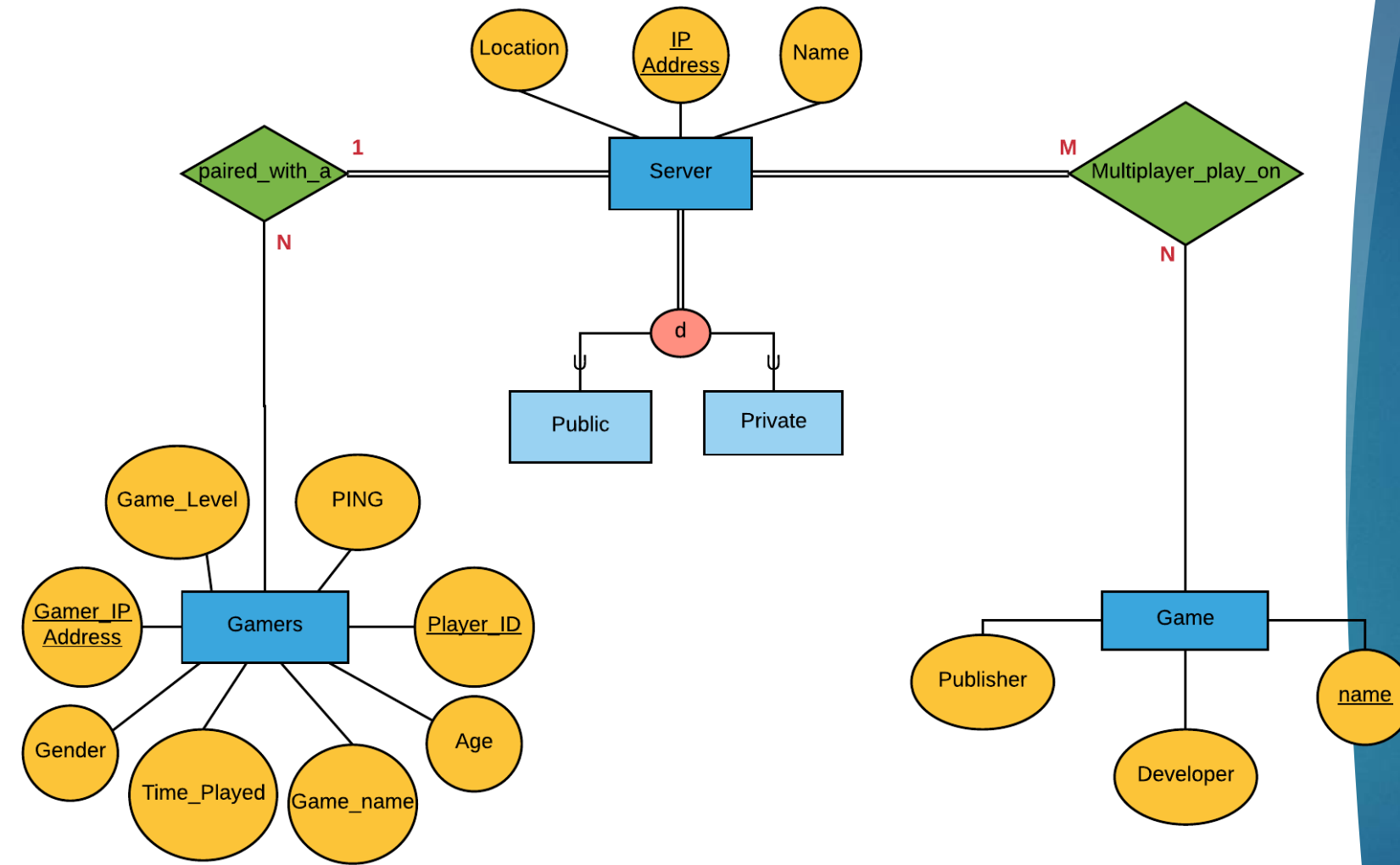
As a **video game player**, I want to be able to play a game **privately**, so that my friends and I can play together without random stranger.

3

As a **video game publisher** (Microsoft, Sony), I want to be able to see the statistics of **who** is playing which **game** and **where**, so that we can determine how to market any future game or systems.

4

As a **video game player**, I want to be able to connect to **servers** in my **country**, so that there is no concern about **lag** due to foreign servers



# ER/EER Diagram



# Database State

## Server

IP_ADDRESS	IS_PRIVATE	SERVER_NAME	LOCATION
1 192.168.1.1	1	server1	USA
2 192.16.1.1	0	server2	UK
3 192.168.1.3	1	server3	Mexico
4 192.168.2.1	1	server4	Germany
5 192.168.30.1	1	server5	Spain
6 192.168.25.1	1	server6	Italy
7 192.168.1.254	1	server7	Canada
8 192.168.4.1	0	server8	Portugal
9 192.168.3.1	1	server9	Brazil
10 10.0.0.138	0	server10	Japan

## Game

NAME	DEVELOPER	PUBLISHER
1 Rocket League	Psyonix	Psyonix
2 Overwatch	Blizzard Entertainment	Blizzard Entertainment
3 Call of Duty	Infinity Ward	Activision
4 Battle Field 4	EA Dice	Electronic Arts
5 World of Warcraft	Blizzard Entertainment	Blizzard Entertainment

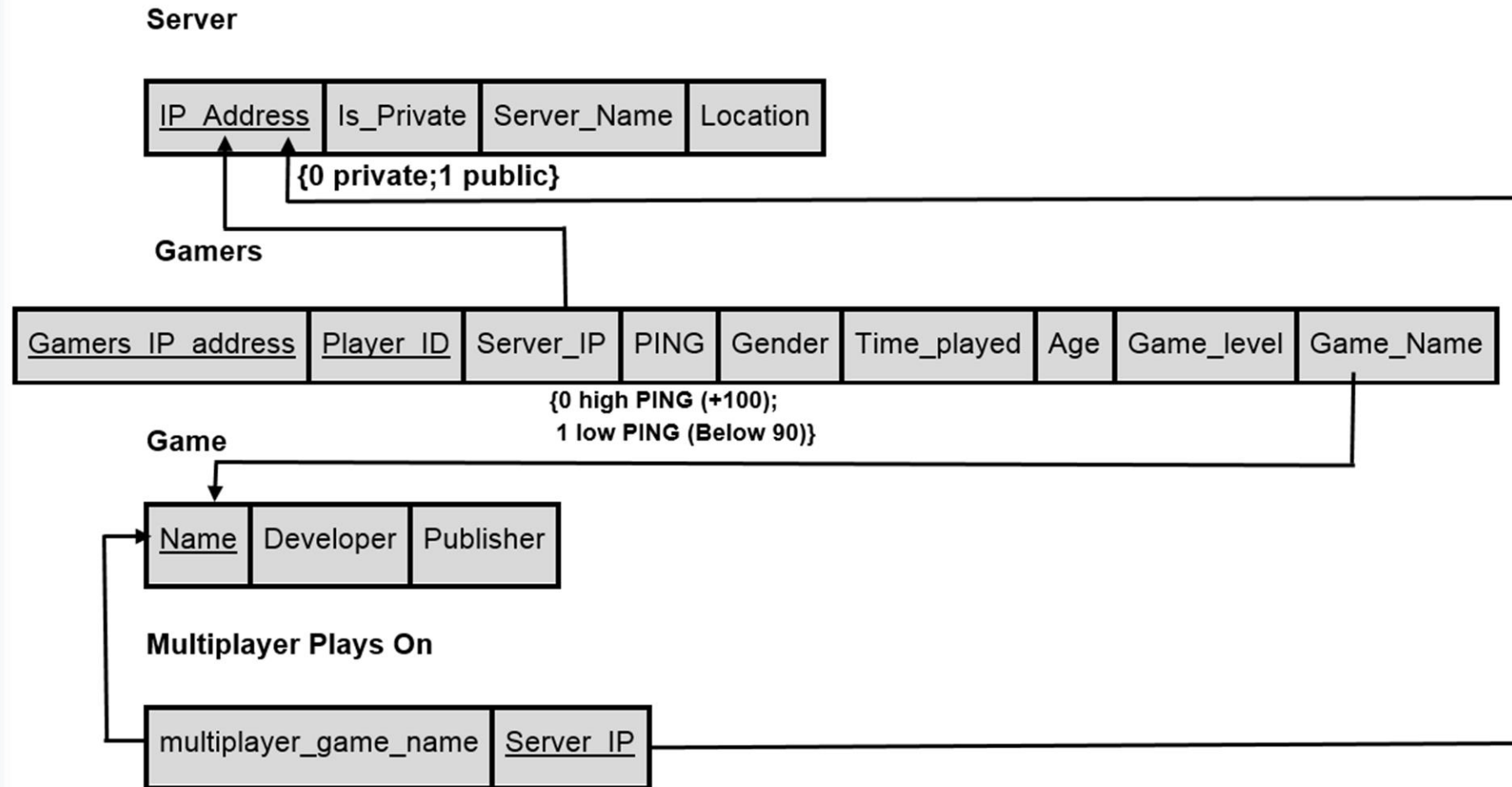
## Multiplayer\_play\_on

MULTIPLAYER_GAME_NAME	SERVER_IP
1 Rocket League	10.0.0.138
2 Rocket League	192.168.1.254
3 Rocket League	192.168.1.3
4 Overwatch	192.16.1.1
5 Call of Duty	192.168.1.1
6 Call of Duty	192.168.4.1
7 Battle Field 4	192.168.2.1
8 Battle Field 4	192.168.3.1
9 World of Warcraft	192.168.30.1
10 World of Warcraft	192.168.25.1

## Gamers

	GAMERS_IP_ADDRESS	PLAYER_ID	SERVER_IP	PING	GENDER	TIME_PLAYED	AGE	GAME_LEVEL	GAME_NAME
1	192.52.3.2	ApplePlayer	192.168.30.1	1	F	30	15	2	World of Warcraft
2	193.54.1.1	Heyy123	192.168.30.1	0	M	28	16	1	World of Warcraft
3	193.34.2.1	Hello102	192.16.1.1	0	F	55	18	1	Overwatch
4	193.168.5	Gamer123	192.168.1.1	0	M	125	19	2	Call of Duty
5	134.4.1.1	12345Gamer	192.168.1.1	0	M	345	38	98	Call of Duty
6	193.51.65.2	Microsoftplayer	192.168.2.1	1	M	137	21	4	Battle Field 4
7	134.1.2.1	PlayerPlayer	192.168.2.1	0	M	348	26	5	Battle Field 4
8	127.35.3.2	Destroyer345	192.168.2.1	0	M	475	28	8	Battle Field 4
9	183.43.12.1	Gamer12	192.168.30.1	0	M	147	37	3	World of Warcraft
10	187.57.34.2	Mikey	192.168.30.1	0	M	236	36	5	World of Warcraft
11	152.23.124.1	SinisterxSnipper	10.0.0.138	0	M	125	35	10	Rocket League
12	148.32.1.5	Smiley123	10.0.0.138	0	M	135	26	9	Rocket League
13	173.75.3.1	2Wire	192.16.1.1	1	M	245	34	11	Overwatch
14	132.1.2.3	Luke	192.16.1.1	0	M	314	36	18	Overwatch
15	123.1.423.1	Dante	192.16.1.1	1	M	216	38	25	Overwatch
16	142.22.3.1	Betsy	10.0.0.138	0	F	65	20	50	Rocket League
17	137.23.53.1	Elizabetha	192.168.25.1	1	F	123	19	4	World of Warcraft
18	128.23.52.3	JacobJackHi	192.168.25.1	0	M	45	16	5	World of Warcraft
19	342.123.1.4	FruitLoops1234	192.168.25.1	0	M	79	19	5	World of Warcraft
20	128.23.52.3	Canadian1243	192.168.1.254	1	M	253	16	10	Rocket League
21	128.55.23.1	Noah	192.168.1.254	0	M	453	36	20	Rocket League
22	168.52.3.1	AzulCielo	192.168.1.3	1	F	557	29	24	Rocket League
23	134.2.1.1	JJJJJ	192.168.1.3	0	M	37	16	6	Rocket League

# Relational Model



# Queries

```
select server_name, ip_address from server, gamers
where server.ip_address= gamers.server_ip
and gamers.ping !=0
order by game_level;
```

1

As a **video game player**, I want to be able to play a game with low **delay**, so that I can play the game without interruption.

```
select game_name, server_ip, player_ID from gamers, server
where server.IP_address= gamers.server_ip
and is_private=0
and (player_ID='Smiley123'
or player_ID='Betsy'
or player_ID='luke');
```

	SERVER_NAME	IP_ADDRESS
1	server5	192.168.30.1
2	server4	192.168.2.1
3	server6	192.168.25.1
4	server1	192.168.1.1
5	server7	192.168.1.254
6	server2	192.16.1.1
7	server3	192.168.1.3
8	server2	192.16.1.1
9	server8	192.168.4.1

2

As a **video game player**, I want to be able to play a game **privately**, so that my friends and I can play together without random stranger.

	GAME_NAME	SERVER_IP	PLAYER_ID
1	Rocket League	10.0.0.138	Smiley123
2	Rocket League	10.0.0.138	Betsy

3

```
select player_id, game_name, location from server, gamers
where server.IP_address=gamers.server_IP
order by game_name ASC;
```

	PLAYER_ID	GAME_NAME	LOCATION
1	Microsoftplayer	Battle Field 4	Germany
2	PlayerPlayer	Battle Field 4	Germany
3	Destroyer345	Battle Field 4	Germany
4	Gamer123	Call of Duty	USA
5	12345Gamer	Call of Duty	USA
6	Hello102	Overwatch	UK
7	2Wire	Overwatch	UK
8	Luke	Overwatch	UK
9	Dante	Overwatch	UK
10	SinisterxSnipper	Rocket League	Japan
11	Betsy	Rocket League	Japan
12	Canadian1243	Rocket League	Canada
13	JJJJJ	Rocket League	Mexico
14	AzulCielo	Rocket League	Mexico
15	Noah	Rocket League	Canada
16	Smiley123	Rocket League	Japan
17	ApplePlayer	World of Warcraft	Spain
18	JacobJackHi	World of Warcraft	Italy
19	FruitLoops1234	World of Warcraft	Italy
20	Elizabetha	World of Warcraft	Italy
21	Gamer12	World of Warcraft	Spain
22	Mikey	World of Warcraft	Spain
23	Heyy123	World of Warcraft	Spain

As a **video game publisher** (Microsoft, Sony), I want to be able to see the statistics of **who** is playing **which game** and **where**, so that we can determine how to market any future game or systems.

4

As a **video game player**, I want to be able to connect to **servers** in my **country**, so that there is no concern about **lag** due to foreign servers

```
select server_name,location,player_ID, PING from server,gamers
where gamers.server_IP=server.IP_Address
and PING =1
order by location;
```

	SERVER_NAME	LOCATION	PLAYER_ID	PING
1	server7	Canada	Canadian1243	1
2	server4	Germany	Microsoftplayer	1
3	server6	Italy	Elizabetha	1
4	server3	Mexico	AzulCielo	1
5	server5	Spain	ApplePlayer	1
6	server2	UK	2Wire	1
7	server2	UK	Dante	1



# Technical Reflections

- ▶ Hard to stay on track.
  - ▶ I found myself wanting to collect other data that does not relate with the user stories.
- ▶ Difficult to conceptualize
  - ▶ While the basic idea of “what we’re doing” is there, it’s hard to imagine how it would actually be implemented.
  - ▶ In fact, many of our decisions were based on us not knowing how things would interact in a real gaming environment, thus we made simplified generalizations.
- ▶ Learning the functions of servers
  - ▶ While we created tables, queries, and user stories we also had to understand the backend functions of servers