

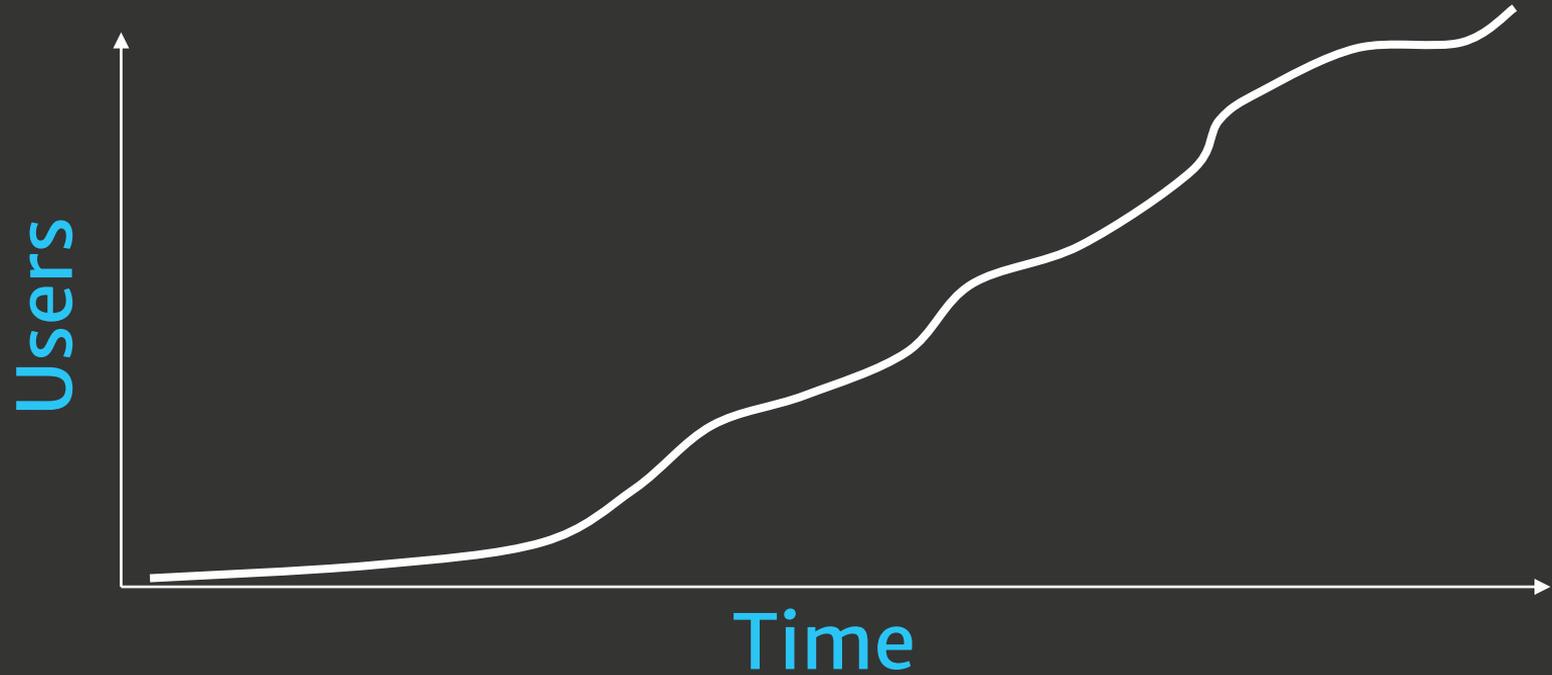
demonware

How to cope with a few
million people
knocking at your door
looking to get in

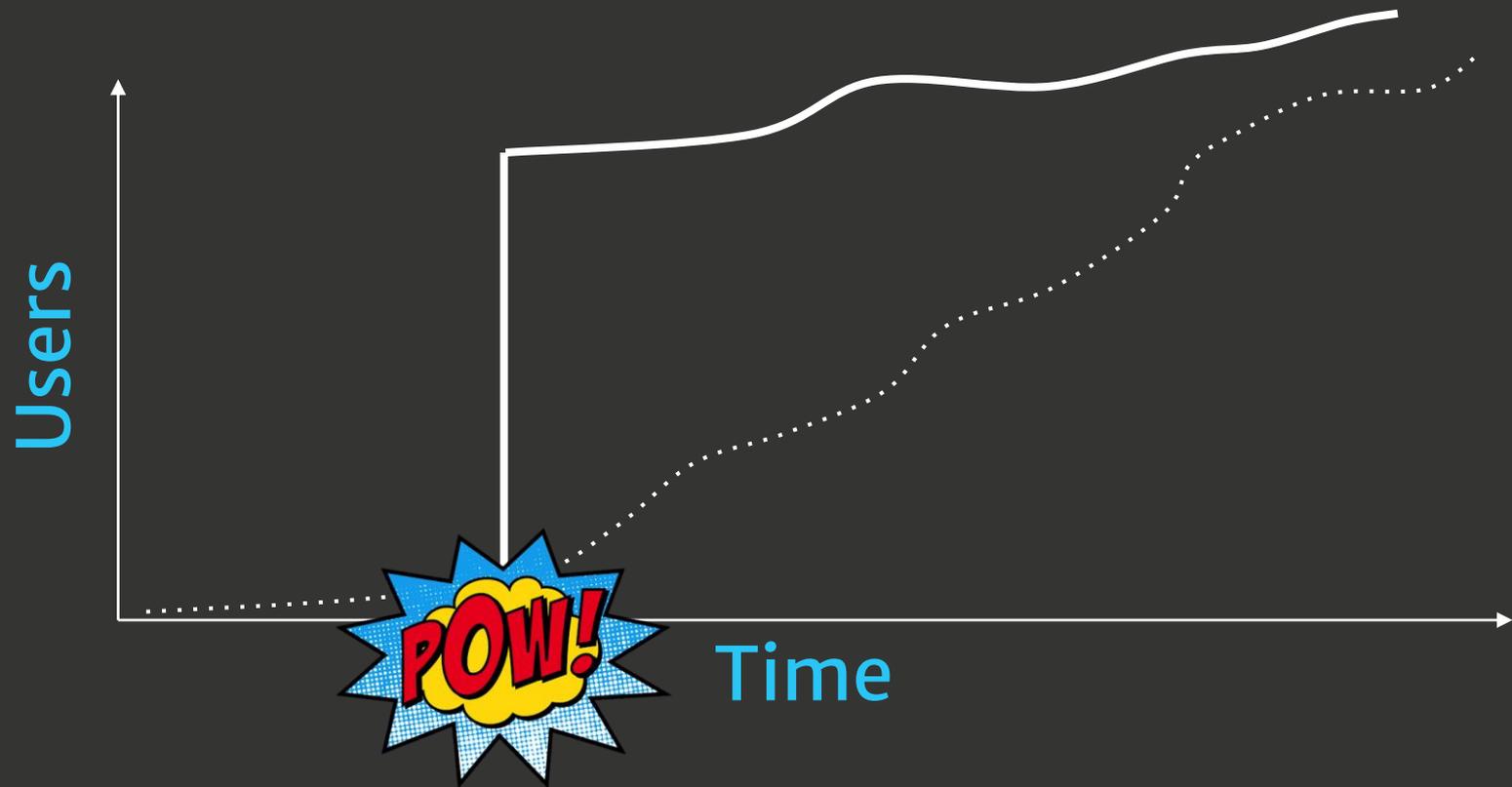


a.k.a Doing Call of Duty
online services

What regular growth might look like



What COD like growth looks like



70000 requests per second

470 million gamers

3 million + online at one time

Best case scenario:

**Players don't know we're
there**

How are Demonware
involved?

We do 3 things

Online Platform

Server side framework for
building and running online
services



Matchmaking,
Leaderboards, Online
profile etc.

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Server side framework for building and running online services



Matchmaking,
Leaderboards, Online
profile etc.

Partnership

Support and consulting for studios developing online games



Build new custom services
for games as they are
developed

We do 3 things

Online Platform

Server side framework for building and running online services



Matchmaking, Leaderboards, Online profile etc.

Partnership

Support and consulting for studios developing online games



Build new custom services for games as they are developed

Hosting

Reliable, cost-effective hosting for online titles



Run 10s of thousands of servers in Datacentres and clouds to support the title

For example



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Player Name	Location

For example



I want to play Warzone, I'm
in Dublin!



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Player Name	Location

For example



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Player Name	Location
Damo111	Dublin

For example



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Player Name	Location
Damo111	Dublin

I want to play Warzone
against people in Dublin



For example



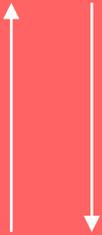
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Ok, you should play against
Damo111



Player Name	Location
Damo111	Dublin

For example



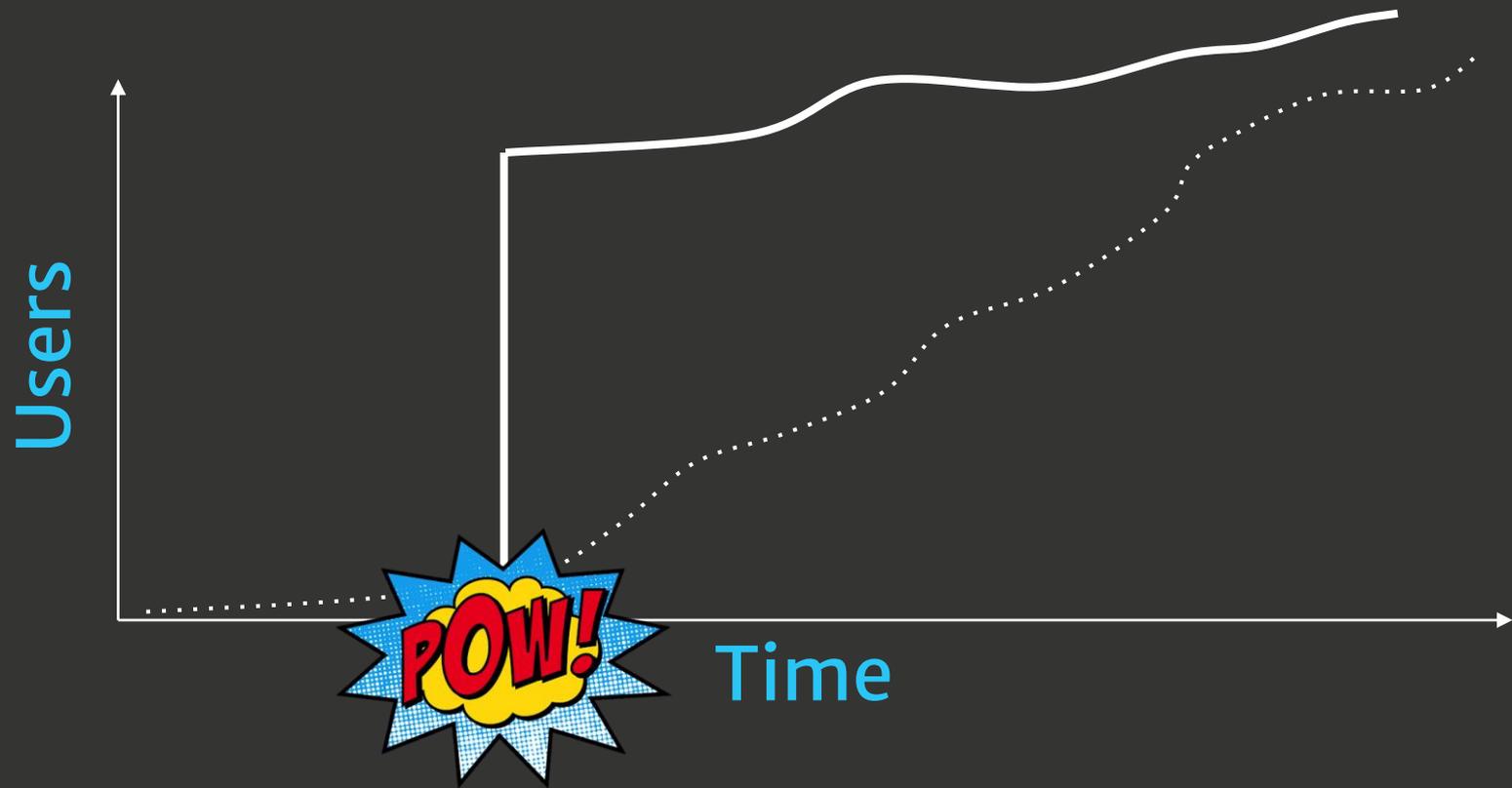
Pew!
Pew!
Pew!

demonware



Player Name	Location
Damo111	Dublin

What COD like growth looks like



For example

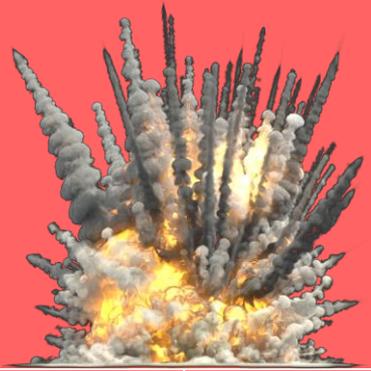


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Player Name	Location
Damo111	Dublin

For example



want to r...
Dublin... I'm

demonware

war... ay Warz...
n...

Player Name	Location
CoolDude11	London
Damo	Dublin
Firestarter	Spain
Finto	USA
Kablamo	Brazil
Flameman	Ireland
Flamewoman	Laois
Flamewoman	Laois
Flamewoman	Laois

What can go wrong?

- **Game is way more popular than expected!**
- **Broken game client spams requests**
- **Database disks fill up**
- **Hardware randomly fails**
- **Disk speed unable to keep up**
- **Bugs and broken configuration change**
- **Network gets overloaded**
- **Hurricane!**
- **Distributed Denial of Service attacks**
- **....and more!**

What can go wrong?

Not meant to be scary!

Creates a very interesting challenge
and space to work in!

How to manage a launch

- **Design features to scale safely**
- **Use scalable technologies**
- **Prepare to fail (so that we don't)**

Design for scale

We work hand in hand with game studios to design the game feature

- How often does the game need the feature? Can it be reduced?
- How fresh does the data need to be? Can we serve up data that's 5/10/60 minutes old?
- What happens to the game if this errors out – will the user be forced to retry or do you display an error message?
- Can the user play the game if this feature doesn't work?
- Can the feature operate in a degraded state if necessary?

Use Scalable Technologies

Demonware is primarily a Python house of development; and we have a hybrid environment with our own data centers and external AWS and GCP.

- Programming languages:



C++



- Databases:



- Infrastructure:



Linux



Nebula



kubernetes

Prepare to fail (so that we don't)

We loadtest extensively before the game launches

- Loadtest user numbers far in excess of expectations
- Test error cases – what happens if a database fails, or the network gets overloaded.
- Create chicken switches – know which features we can turn off without affecting the core game experience

Our best case scenario:

Players don't know we're
there

Demonware: who are we?

Brief History of Demonware

Founded in Dublin, Ireland in 2003



Grew fast as a start up and earned customers such as Activision, Ubisoft, Sega, THQ and more;



Acquired by Activision in 2007



Continuously create great experiences for gamers by being the most fearless and reliable provider of online services to date

Demonware's Main Titles:

120+ games

- We have shipped 120+ games. Most of these are still running.
- The COD titles are definitely the biggest but we have shipped games on 15 platforms for dozens of different studios.



Engineering Departments

Titles

The title teams work with studios to build and run games. They provide custom development, consulting and support throughout the title lifecycle.

Platform

Platform works on the layer between the infrastructure abstraction and our services. It is responsible for how services are built, how they talk to each other, how they are monitored, etc.

Products

Products are long lived services that work across games, and provide the foundation for Activision's online platform. They provide deep expertise in game specific services such as matchmaking, loot and identity.

Infrastructure

Infrastructure is responsible for the hosting platform. The infrastructure, data centres, cloud platforms and networks that all of our services are deployed on.

Demonware offices

- **Dublin** Original office with 70+ employees
- **Vancouver** Established after acquisition with 100+ employees
- **Shanghai** Established in 2012 with 15 employees, main focus is Call of Duty China







Vancouver





Shanghai





Summer Party! (Van)





Summer Party! (Dub)





Holiday Party!



Pride!





Snack Cart!



Intern Team Events!



We have full time roles
and internships open at all
levels

<https://demonware.net/careers>

Thank you!

Questions?