

# Pokémon GO Fest 2020: Global Challenge Arena

James Prompanya  
Staff Technical Lead/Manager, Niantic Labs

# James Prompanya

- 4 Years on Pokémon GO, Niantic
- Staff Technical Lead / Manager
- Level 42, Team Valor
- First day: Pokémon GO Fest 2017



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# Pokémon GO

## Different Kind of Mobile Game

- Catch pokémon using AR
- Encourage players to go outside
- Build relationships and friendships with other players



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# Pokémon GO Live Events



- Community Days
- Special Research
- Raid Hour
- Team GO Rocket



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# Pokémon GO Fest

- Biggest event of the year spanning across multiple regions
- Find rare pokemon with increased shiny variants
- Catch mythical pokémon



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# A look at Pokémon GO Fest 2019

- 4 day event in Chicago
- Sold out w/ 60k paid attendees
- Themed climate zones
- Mini PVP arena
- Connect with large playing community



Grant Park, Chicago, Illinois



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# Goals for Pokémon GO Fest 2020

- Build on the momentum of the last 2 years
- Continue to bring players together to socialize and play
- No new features
- Lock in early



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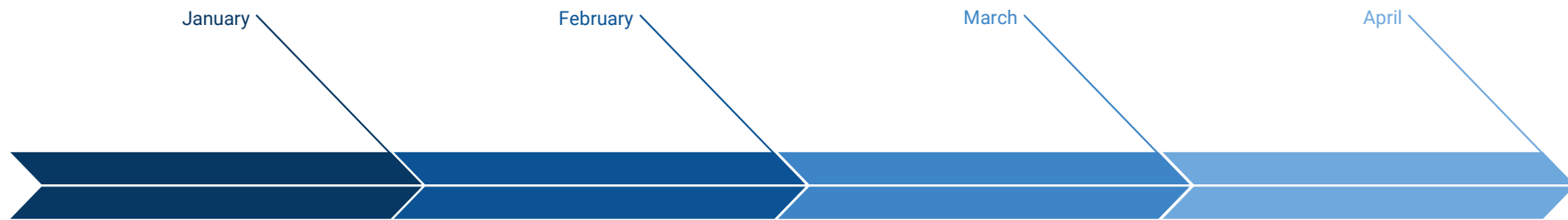
# COVID-19



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# Changing Timelines

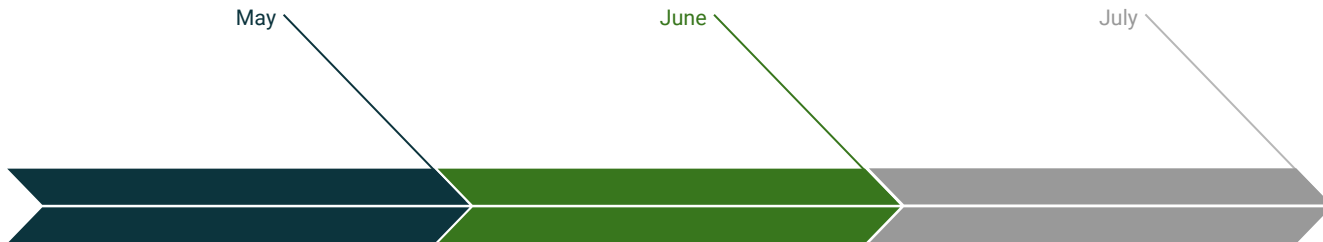


COVID starting to really enter the news

Global Air Travel Restricted

Work from home for "3 weeks"

Work from home all year



Design

Build / Test / Stabilize

Pokémon GO Fest 2020



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# 2020 Revised Goals

- Encourage players to go outside, if it's safe
- Don't punish players who can't
- Recreate feeling of playing together, apart
- Keeping design within reason



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# Global Challenge Arena

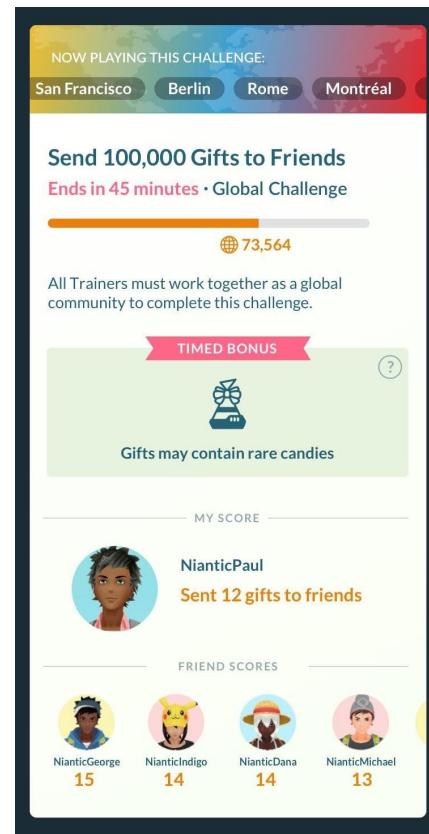


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# Global Challenge Arena

- Group goals and group rewards
- Friendly Competitive Gameplay
- Global Participation



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# Three Main Parts

The challenge/  
reward System

The friends  
leaderboards

Global stats  
aggregation



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# Challenge / Reward System

- First 24+ hours
- 5 habitats
- 3 states per habitat
  - Non-ticketed
  - Ticketed
  - Reward state
- 105 states to manage

Challenge	Bonus	DEV TIME PST	Seattle PST	Newyork EDT	Germany CEST	Japan JST
fire	Stardust	1:00 PM	1:00 PM	4:00 PM	10:00 PM	5:00 AM
battle	KM	2:00 PM	2:00 PM	5:00 PM	11:00 PM	6:00 AM
water	XP	3:00 PM	3:00 PM	6:00 PM	12:00 AM	7:00 AM
battle	Candy	4:00 PM	4:00 PM	7:00 PM	1:00 AM	8:00 AM
grass	Buddy	5:00 PM	5:00 PM	8:00 PM	2:00 AM	9:00 AM
fire	Stardust	6:00 PM	6:00 PM	9:00 PM	3:00 AM	10:00 AM
battle	KM	7:00 PM	7:00 PM	10:00 PM	4:00 AM	11:00 AM
water	XP	8:00 PM	8:00 PM	11:00 PM	5:00 AM	12:00 PM
battle	Candy	9:00 PM	9:00 PM	12:00 AM	6:00 AM	1:00 PM
grass	Buddy	10:00 PM	10:00 PM	1:00 AM	7:00 AM	2:00 PM
fire	Stardust	11:00 PM	11:00 PM	2:00 AM	8:00 AM	3:00 PM
battle	KM	12:00 AM	12:00 AM	3:00 AM	9:00 AM	4:00 PM
water	XP	1:00 AM	1:00 AM	4:00 AM	10:00 AM	5:00 PM
battle	Candy	2:00 AM	2:00 AM	5:00 AM	11:00 AM	6:00 PM
grass	Buddy	3:00 AM	3:00 AM	6:00 AM	12:00 PM	7:00 PM
fire	Stardust	4:00 AM	4:00 AM	7:00 AM	1:00 PM	8:00 PM
battle	KM	5:00 AM	5:00 AM	8:00 AM	2:00 PM	9:00 PM
water	XP	6:00 AM	6:00 AM	9:00 AM	3:00 PM	10:00 PM
battle	Candy	7:00 AM	7:00 AM	10:00 AM	4:00 PM	11:00 PM
grass	Buddy	8:00 AM	8:00 AM	11:00 AM	5:00 PM	12:00 AM
fire	Stardust	9:00 AM	9:00 AM	12:00 PM	6:00 PM	1:00 AM
battle	KM	10:00 AM	10:00 AM	1:00 PM	7:00 PM	2:00 AM
water	XP	11:00 AM	11:00 AM	2:00 PM	8:00 PM	3:00 AM
battle	Candy	12:00 PM	12:00 PM	3:00 PM	9:00 PM	4:00 AM
grass	Buddy	1:00 PM	1:00 PM	4:00 PM	10:00 PM	5:00 AM



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# Challenge / Reward System

- Difficult to manage so many moving pieces (increased chance of errors)
- Reduce 105 states to 15 (3 for each habitat)
- Configure time intervals into each state
- High risk but high reward

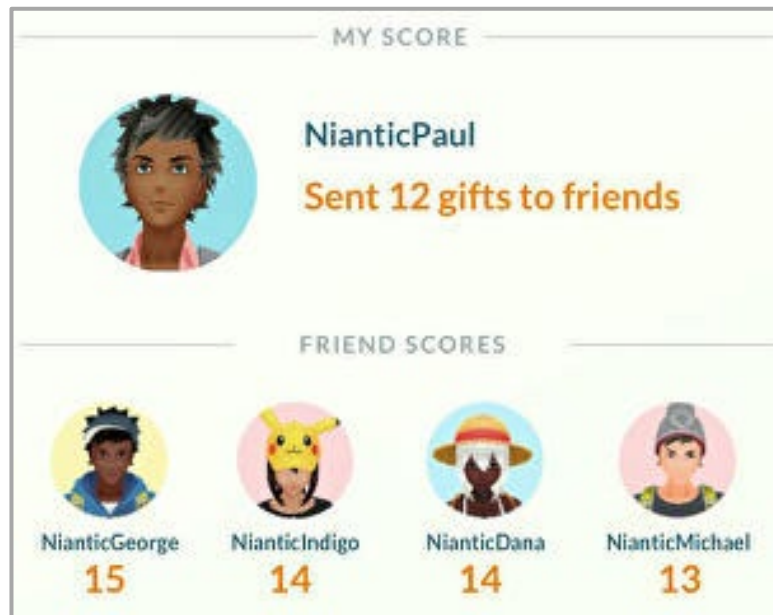


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# Friend Leaderboards

- Query friend progress in real-time
- Compete against friends
- Encourage other friends to participate

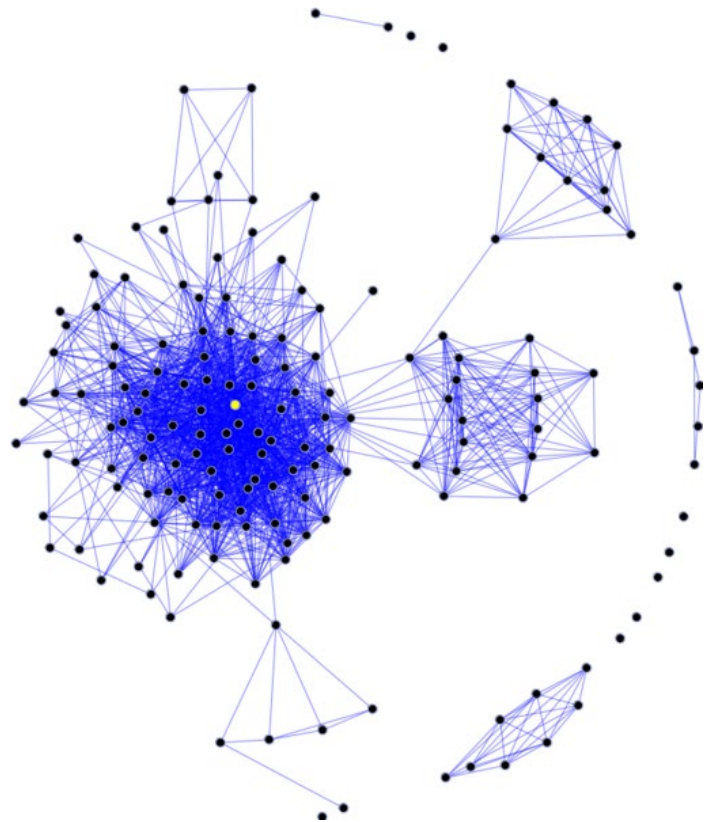


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# Friend Leaderboards

- Friend groups naturally sharded
  - Kernighan–Lin algorithm
- Optimized for constant, periodic queries to get latest friend data
- Save score into personal profile
- Queried as part of friends list



Screenshot taken by User:DarwinPeacock, CC BY 3.0 <<https://creativecommons.org/licenses/by/3.0/>>, via Wikimedia Commons

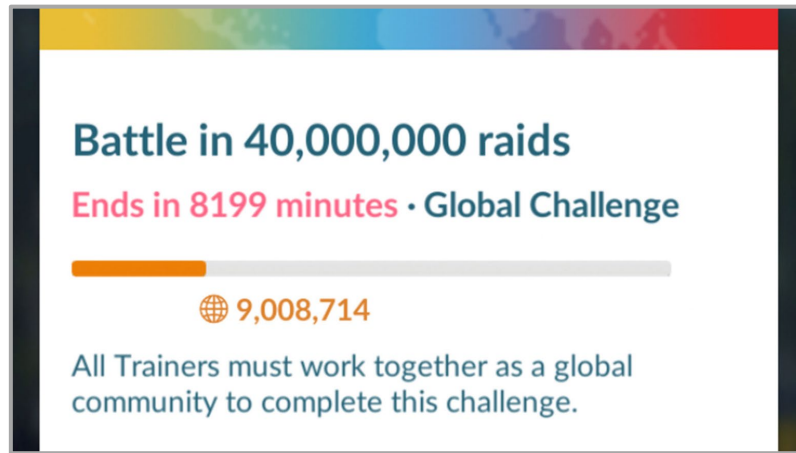


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# Global stats aggregation

- Aggregate data from multiple players on multiple servers
- Real time
- 100%(ish) Accuracy



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# Why not just fake the data?

- Lots of different data to track
- Around the clock event
- Feel that you're in the event, stakes involved
- We didn't want to take the easy way out



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# High-Level Overview

- Aggregate player data in-memory per game server
- Send data to a separate micro-service
- Write event data into Google BigQuery
- Aggregated global data is returned to the game server
- All game servers enter the “reward” state at once

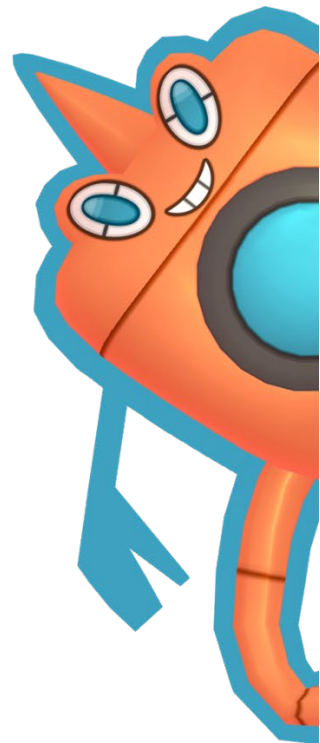


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# Fall-back

- Can drop a small percentage of data without large impact
- Can sample and extrapolate
- All else fails, fall back to random formula



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# Testing for scale

- QA
- Internal Dogfooding
- Load testing
- Dark launch



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# Unique Challenges

1 “Realm”  
(the world)

No Public Test  
Realm (PTR)  
server

First Release:  
Pokémon GO  
Fest 2020

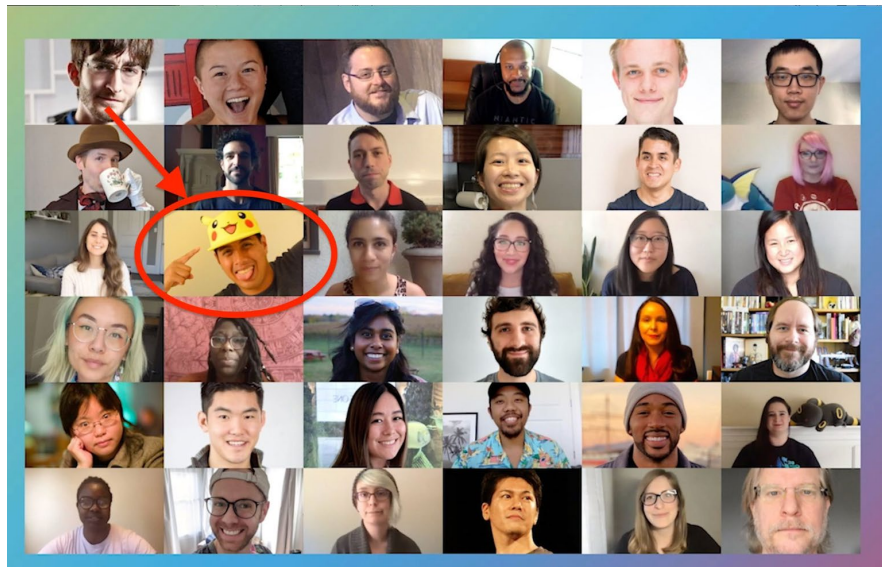


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# Results: Success!

- ~1 billion Pokémon caught
- 58 million Team GO Rocket members defeated
- 55 million gifts sent
- Participants averaged 15km walked each



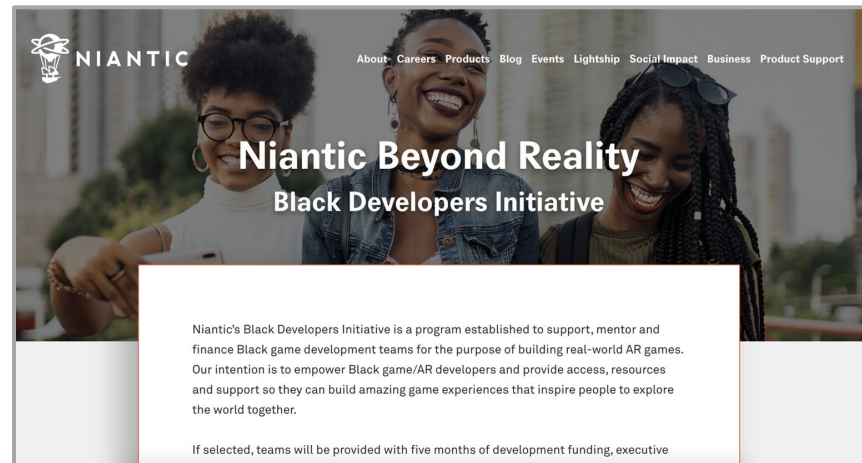
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# Making an Impact

With the proceeds from Pokémon GO Fest:

- Niantic donated \$7 million to hyperlocal nonprofits focused on Black communities in the U.S.
- Created Black Developers Initiative



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# The future

- 5th Anniversary!
- Pokémon GO Fest 2021
  - July 17-18
- All digital once again
- Global Challenge Arena Returns!



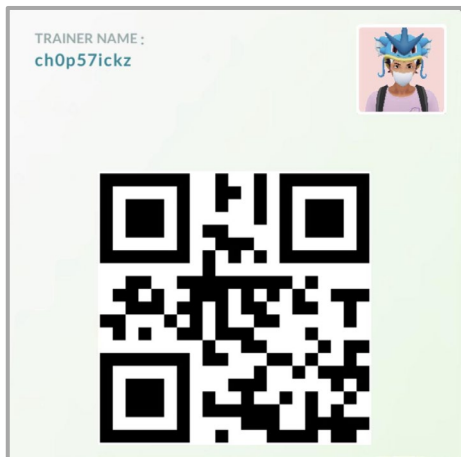
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# See you again for 2022!

Trainer Code: 2710 7211 2667

Referral Code: BBKFXYP4M



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