



GAME NARRATIVE  
SUMMIT

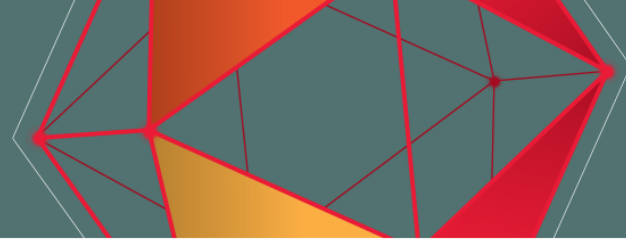
# Crafting RPG Worlds in Real Environments with AR

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GDC

GAME DEVELOPERS CONFERENCE® | MARCH 19-23, 2018 | EXPO: MARCH 21-23, 2018 #GDC18



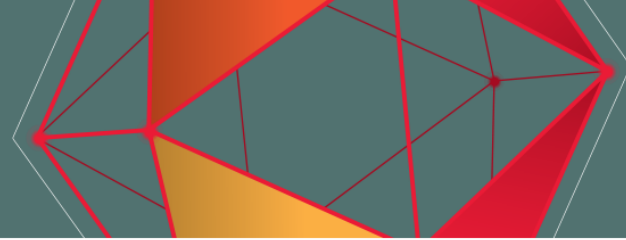


# Who We Are



Enabling new ways of using AR and user location to enhance gameplay and enrich user experiences in games, as well as educational applications.



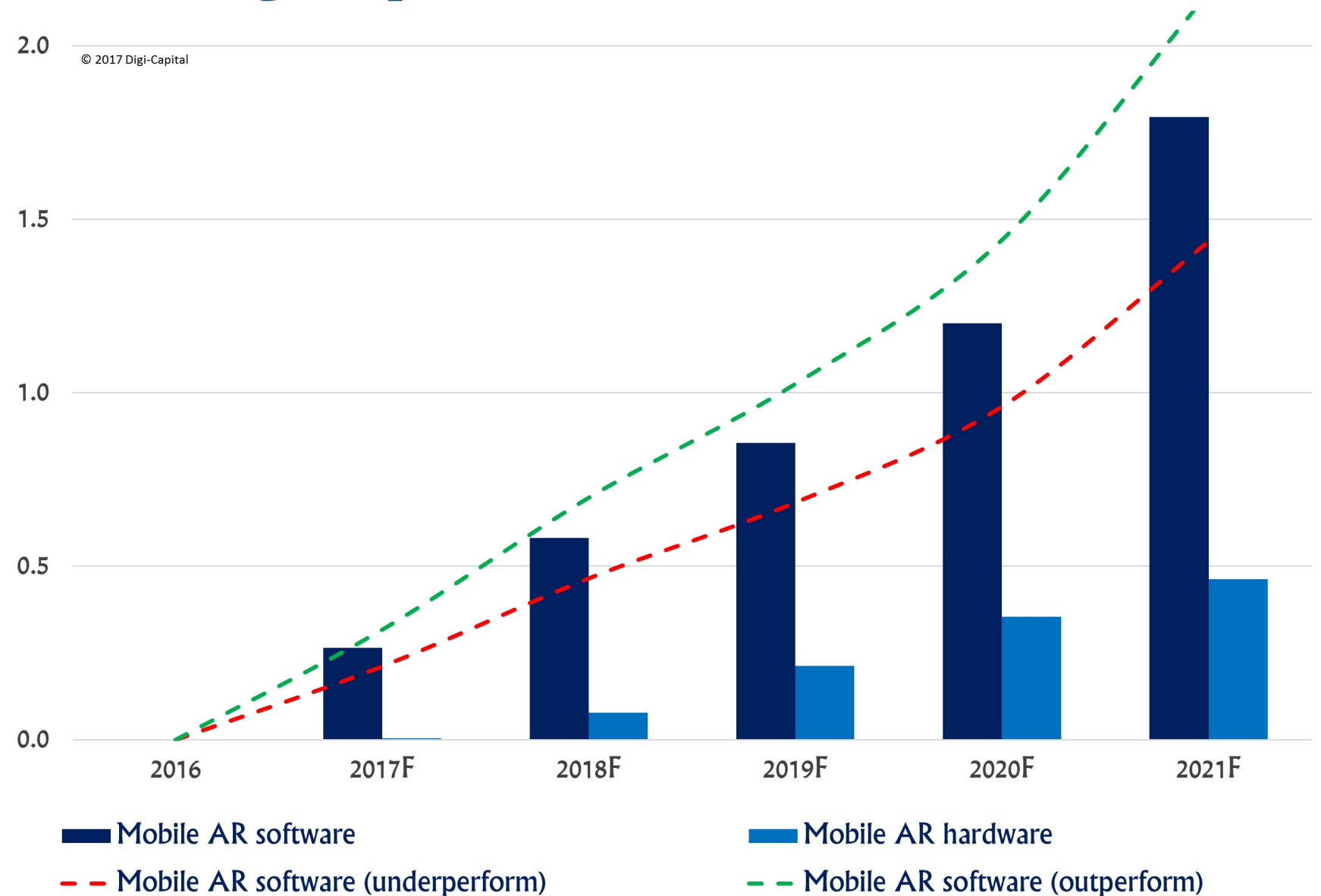


# Why AR?

Digi-Capital: mobile AR  
over 1B users and \$60B  
revenue by 2021

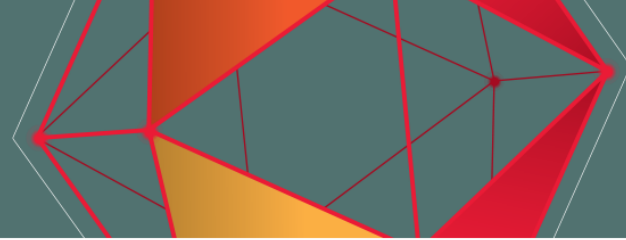
## Digi-Capital™ Mobile AR installed base (B)

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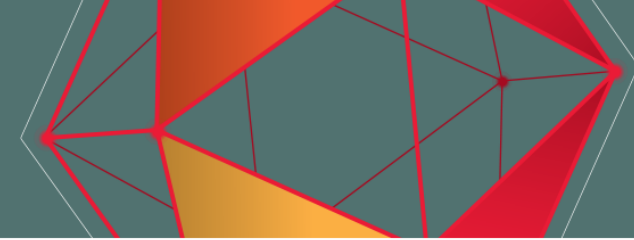


# The True Mobility of the Smartphone

- Physical + technical features:
  - Devices can physically be carried anywhere + GPS  
→ Location awareness
  - Free rotation of the device + camera, gyro, compass, etc.  
→ Augmented Reality
- Mobile is the perfect medium.



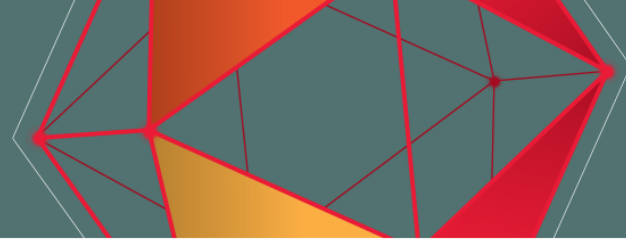




# Location-Based AR is an MMO

- Server simulates the game-world.
- There is a map.
  - Which happens to be based on the real world.
- App is the client.
- You are the avatar.

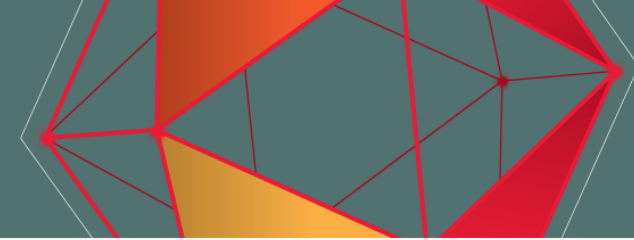




# Location-Based AR is an MMO

“Augmented reality is just a virtual world, an MMO, a MUD even, with all of the same design issues, plus a few new ones.” – Raph Koster



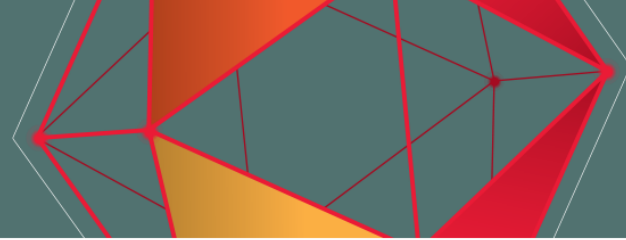


# Monster Buster: World Invasion



<https://youtu.be/EliRzQ2TvF8>





# Monster Buster: World Invasion

- It was the first of its kind.
  - Initial release as open beta on Windows Phone – end of 2014.
  - Full launch on Android and iOS – 2017.
- Proved to be well delivered nonetheless.
  - > 1 000 000 downloads.
  - One of the best-rated games on the whole Windows Phone store.







# First advice

- Don't overuse AR!
- At first we thought to do everything in AR.
- But we didn't do that in the end because:
  - Arms get tired.
  - Players can't move while fighting.

search



engage



fight!



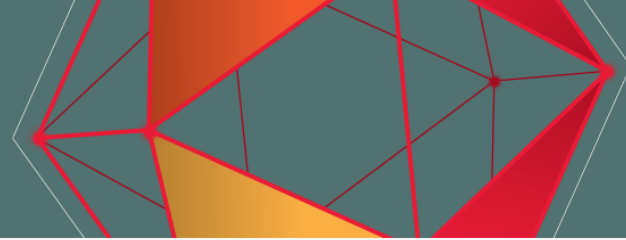


# In a Location-Based AR Game

- Real-world locations and objects.
  - Is a player in a park / lake / cemetery? City / countryside?
  - Is a player near a monument / water / supermarket?
- Real-world time.
  - Game should use real-world time to have more immersion.
  - Season (summer / winter). Daytime / nighttime.



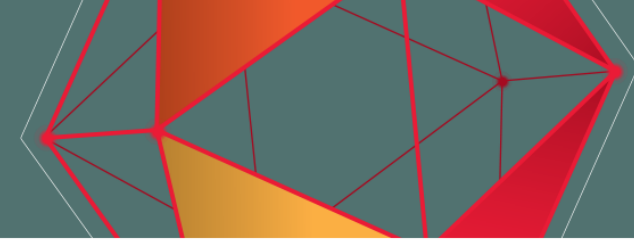




# In a Location-Based AR Game

- Real-world weather!
  - Rain / sun / snow.
- Real-world people.
  - Anonymity (real person vs their avatar).





# Relevant Issues

- Narrative.
- World Persistence.
- Communal Play.
- Engagement.
- ...

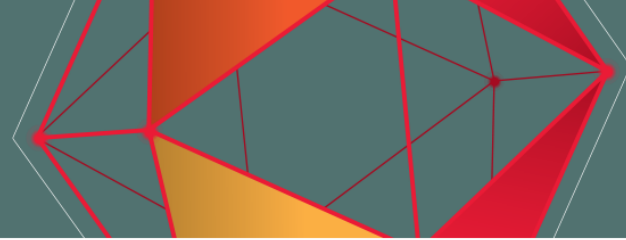




# Constructing Narrative in an MMO

- It is usually done using:
  - Quests.
  - World-building and population.
    - eg. creatures, signs, environment details.
  - Cinematics and in-game dialogue.
  - External to the game media.
    - eg. external videos, stories on the game website, companion apps.

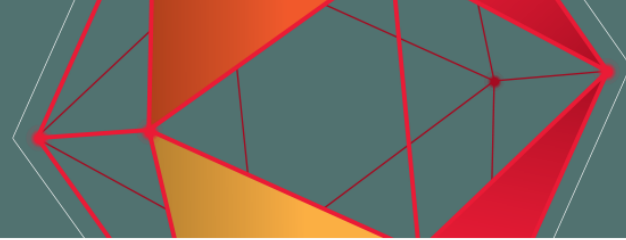




# Constructing Narrative in an MMO

- Quests.
  - Can they be used in a location-based MMO game?

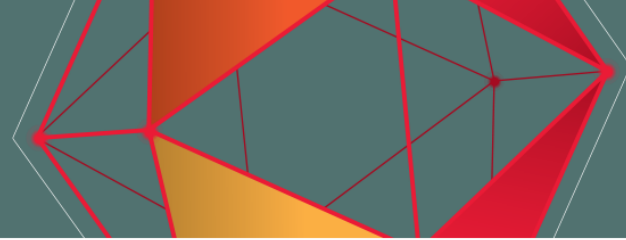




# Constructing Narrative in an MMO

- Quests?
  - Yes, but must be designed differently, by keeping in mind real-world time, location, weather.
  - This brings new possibilities but can be discouraging as well.
    - eg. a challenge to defeat Water Elemental while it is raining.



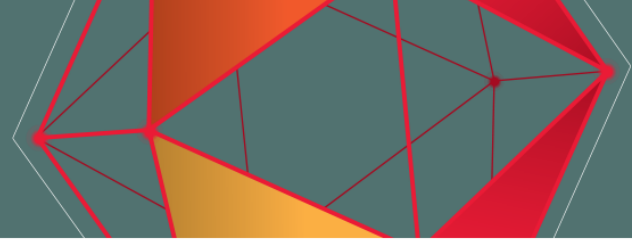


# Constructing Narrative in an MMO

- World-building and population?



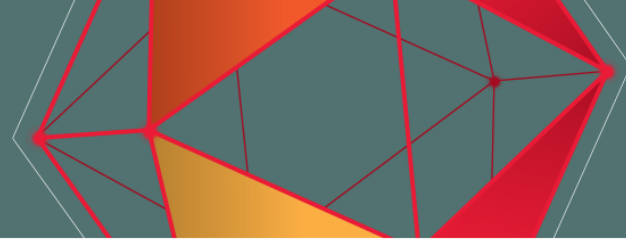




# Constructing Narrative in an MMO

- World-building and population?
  - More or less – yes.
    - We can add detail to the real world, but if we use AR, the question is how to integrate them, so that they would feel as if they belong in the real-world?
    - Google announced their offering of Google Maps APIs for game developers (customizable 3D buildings, etc)

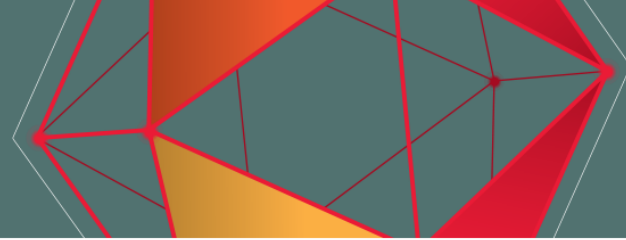




# Constructing Narrative in an MMO

- Cinematics and in-game dialogue?
- Media external to the game?

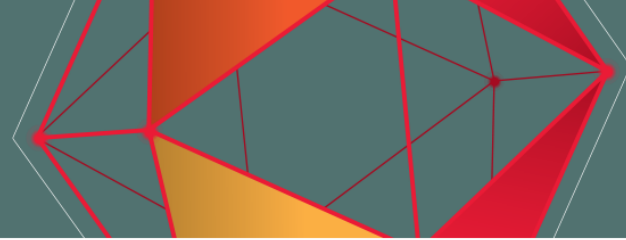




# Constructing Narrative in an MMO

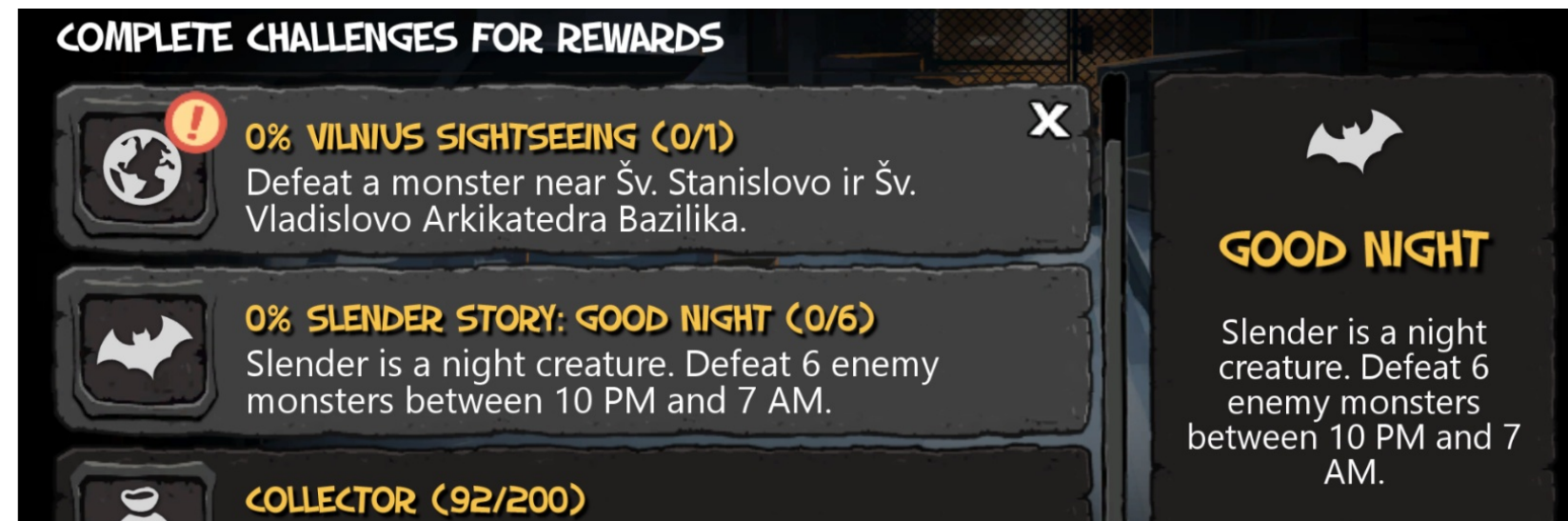
- Cinematics and in-game dialogue?
  - Yes, but think how to do cinematics that it would be engaging and convincing.
    - eg. if the player is in the real-world, should environments be taken from the real-world?
- Media external to the game?
  - Definitely!

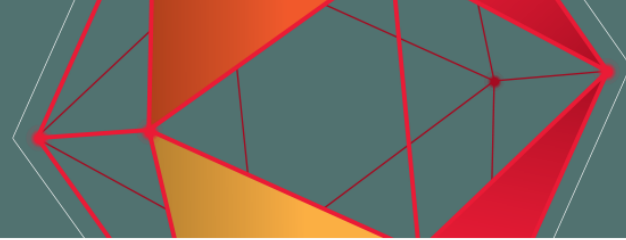




# Monster Buster: World Invasion Example

- RPG game where the virtual map is replaced with the real world map.
  - Exploration and looking for objectives happen in the real world.
  - Monsters in historical places – sightseeing while playing (difficult in other virtual worlds).
  - Monster stories that are told through a series of challenges/quests.

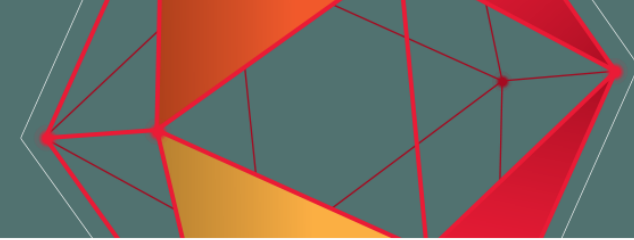




# Quests in the Real World

So, what to keep in mind when designing quests in the real world?



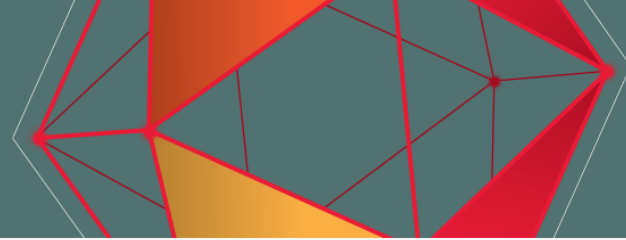


# Quests in the Real World

- We could just place quest givers and points around the player's location and force them to walk around.
  - The player goes 100 meters North → meets a quest-giver → talks to her → gets a quest to go 500 meters South...
- Not so immersive.





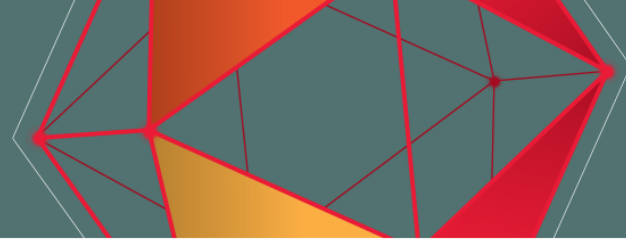


# Quests in the Real World

The story should refer to geographical objects or local surroundings with their usual meaning, otherwise it will feel less immersive.

It should use other real-world aspects as well (eg. weather, time, etc.).

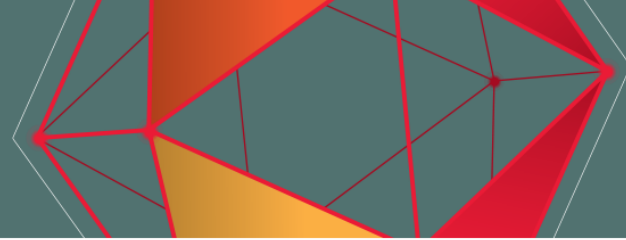




# Quests in the Real World

- Get inspiration from Alternate Reality Games (ARGs).
- ARG is an interactive narrative experience that engages the player by layering a fictional world over the real world.

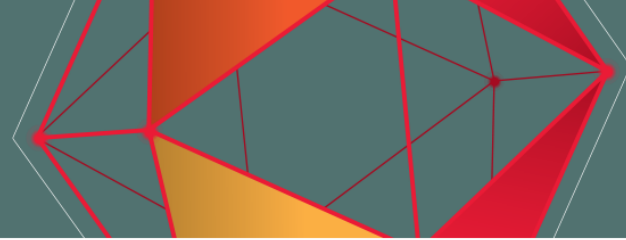




# Alternate Reality Games Tell Stories

- Player actions in the real world influence the state of the fictional world.
- Usually, ARGs are about going to real world locations to get clues or objects, decipher puzzles, or interact with actors.
- The same should be done in other location-based games, but...

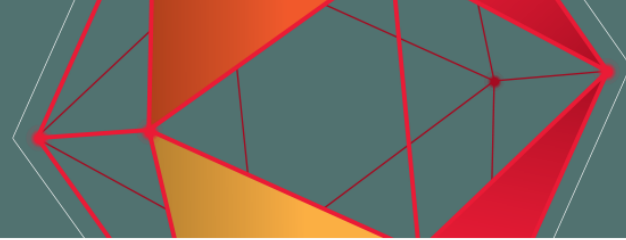




# Alternate Reality Games Have Problems

- Their stories are usually location-specific.
  - eg. they are set in one concrete city and can't be played elsewhere without rewriting.
- They usually have game-masters and other actors (real persons) placed in the real world.



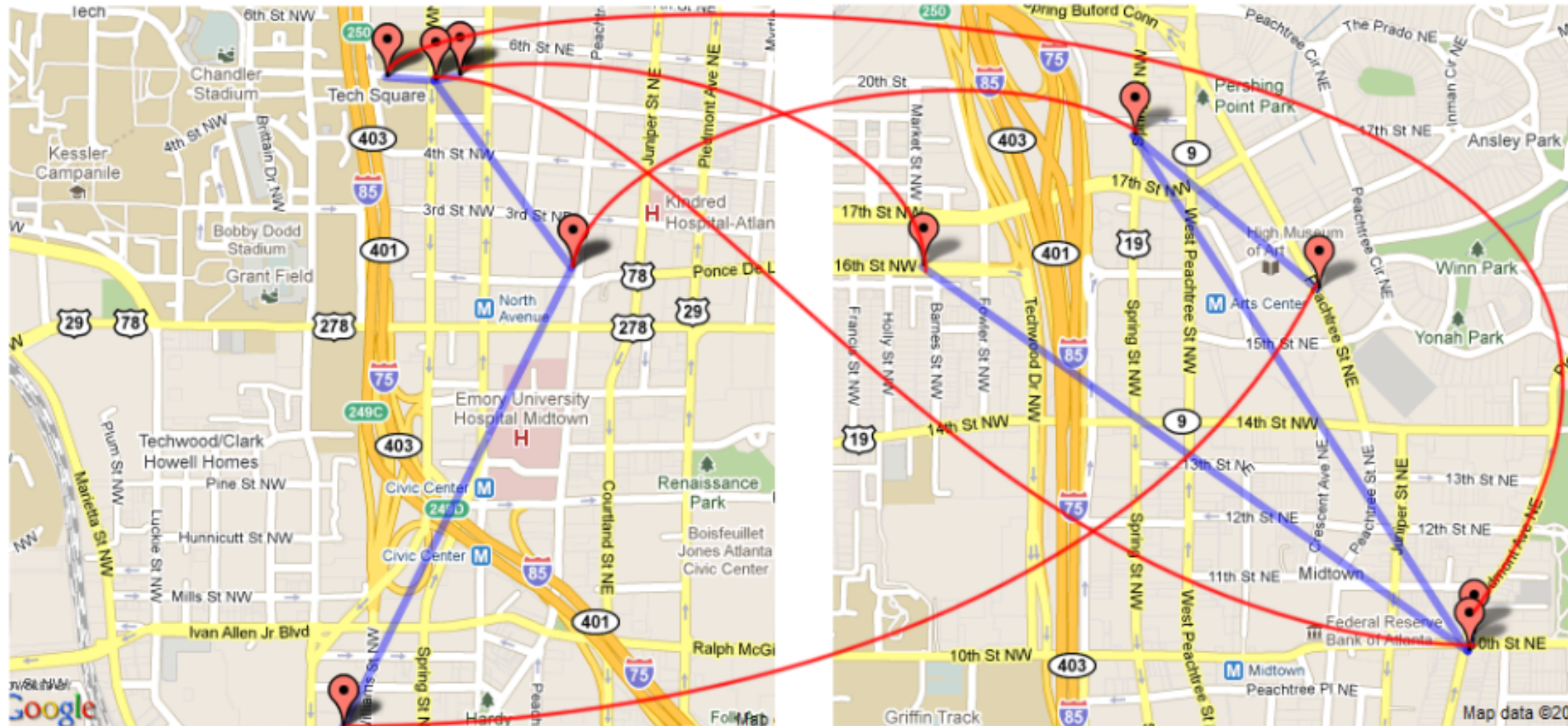
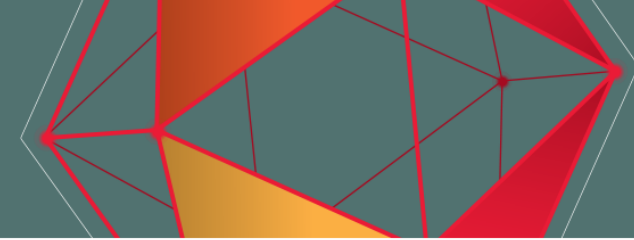


# Automating Quest Location Translation

- Mark Riedl in his research papers suggests that some geo-location translation techniques could be used to scale such quests!
  - He offers a translation algorithm with suggestions for location descriptors and their similarity.
  - Google: “Scaling Mobile Alternate Reality Games with Geo-Location Translation”.





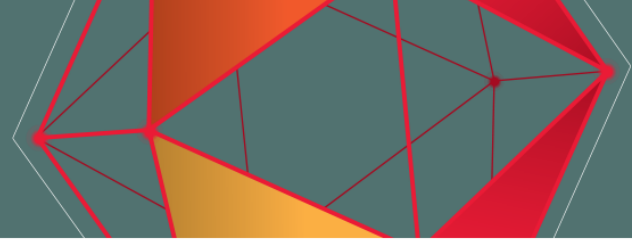


**Fig. 1.** An ARG story translated from one part of a city to another. Blue lines are dependency arcs. Red lines show analogical matches between locations.

Image from:  
Hajarnis, S., Headrick, B.,  
Ferguson, A. and Riedl, M.O.,  
“Scaling mobile alternate  
reality games with geo-  
location translation”, 2011



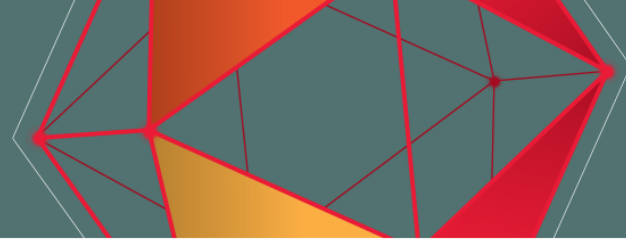




# Sadly, That is not Perfect...

- Some cities may not have some places.
  - eg. university or zoo.
  - Add alternatives (zoo/pet shop/pet shelter).
- Rural areas are doomed to have no stories :(
  - or have more generic versions of them.

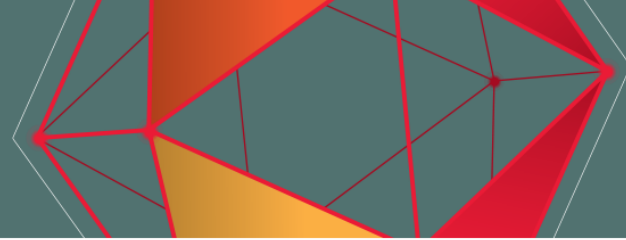




# P. S. Regarding Side Quests

- Designing side quests is easier because we can show only the ones that are appropriate according to the player's location.
- Procedurally generating side quests is a good option.
  - eg. make some quest templates → add details (shops, landmarks, etc) at runtime.



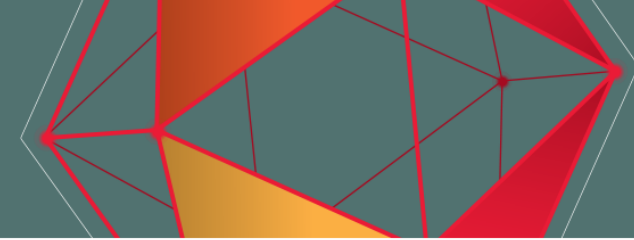


# So...

- The game world should have something in common with the real world (so that it would make sense to use AR)
- But adding a fictional aspect helps build more transferable stories.



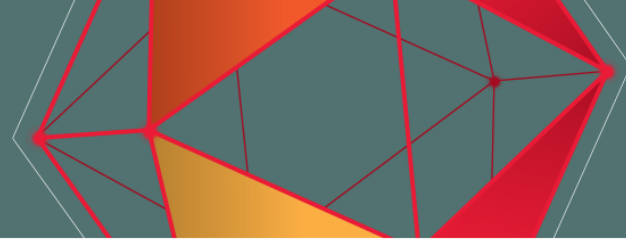




# Relevant Issues

- ~~Narrative.~~
- World Persistence.
- Communal Play.
- Engagement.
- ...



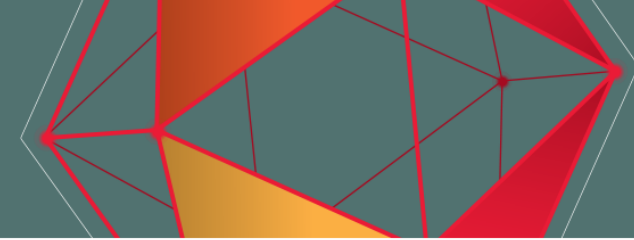


# Game World Persistence

- Most players can't travel to other countries or cities :(
  - As a result, game can't force player to move vast distances when he levels-up as most MMO games do.
- Need to support low- and high-level players in the same physical location.
  - As a result, the persistence of the game world needs to be sacrificed (use some kind of phasing/instancing).



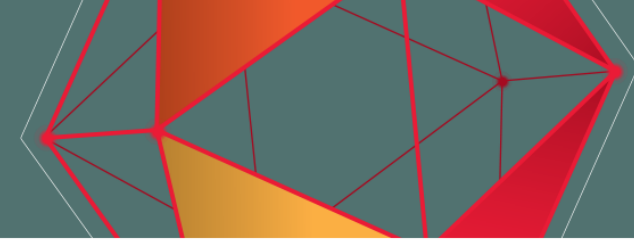




# Communal Play

- Real-world people on the real-world map, which is a game map, as well.
  - Think how to handle anonymity.
  - And how to protect eg. minors from dangers.
- Different areas can have vastly different player density.
  - How to have an independent and social gameplay?
  - eg. indirect interactions could be used.

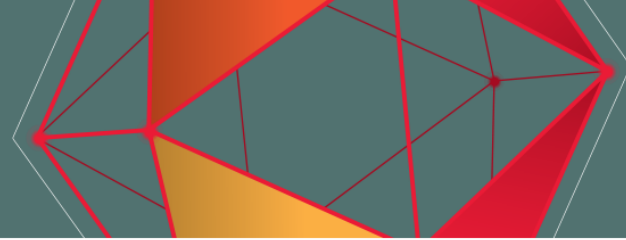




# Engagement and Other Issues

- Not all players want to walk, and the weather can be too hostile for those that do like it.
- When designing a game, think about battery drain.
  - Do not use sensors all the time!
  - Maybe limit session lengths – let player turn off the phone screen while walking.
- Remember: do not trust the client!
  - This means that constant internet connection is required.
  - What about areas where mobile internet is not available?

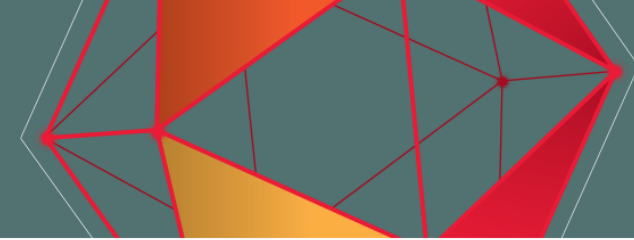




# Takeaway

- Smartphones are perfect for location-based and AR games.
- However, you have to be aware of the issues with location-based AR:
  - Game design – think about AR specifics and how they affect gameplay experiences!
  - Story – think how to tell it in ways that are immersive, but can still be used around the globe.
  - Be flexible – think about players who don't like to or can't walk a lot as well.
- You should look for the golden mean – use, but don't overuse.





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