Technische Universität München

Master Lab Course Web Applications:

Exercise 4 – Final Presentation

Team 4
Markus Fensterer
Kamil Neczaj
Peter Retzer
Michael Schätzlein

25.02.2013

Idea – ARWars

- Massive multiplayer browser game taking place in the real world
- Based on Google Maps and Google Places API
- Optimized for Desktop-PCs and Smartphones/Tablets

Features

- Creation of an augmented reality overlay
- Players have to meet at real life places to progress in the game

Rules

- Two factions struggle for supremacy
- Players assemble into teams
- Players capture places available from Google Places
- Captured places yield resources
- Resources can be used to build units or are necessary to capture special places
- Units aid in capturing or defending places

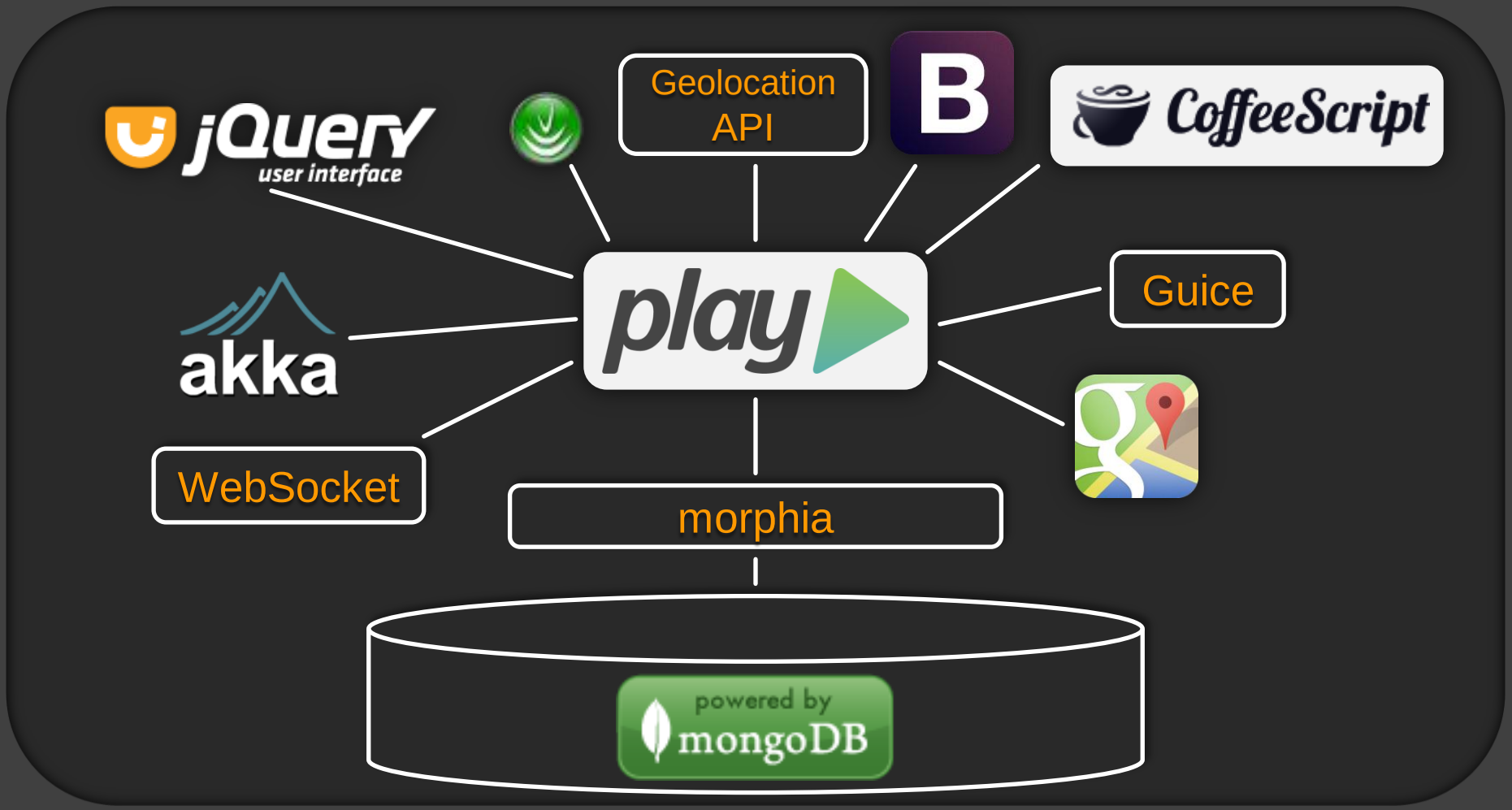
Business Model

- Advertisments
- Selling decorative objects
- Selling organisational services

Competitors

- Traditional browser games → Ogame, Droidwars
- Persistent mobile multiplayer games → Mobile Mafia
- Location-based networks → Foursquare, Google Latitude
- Ingress by Niantic Labs (closed beta)

Technology Stack 1/3



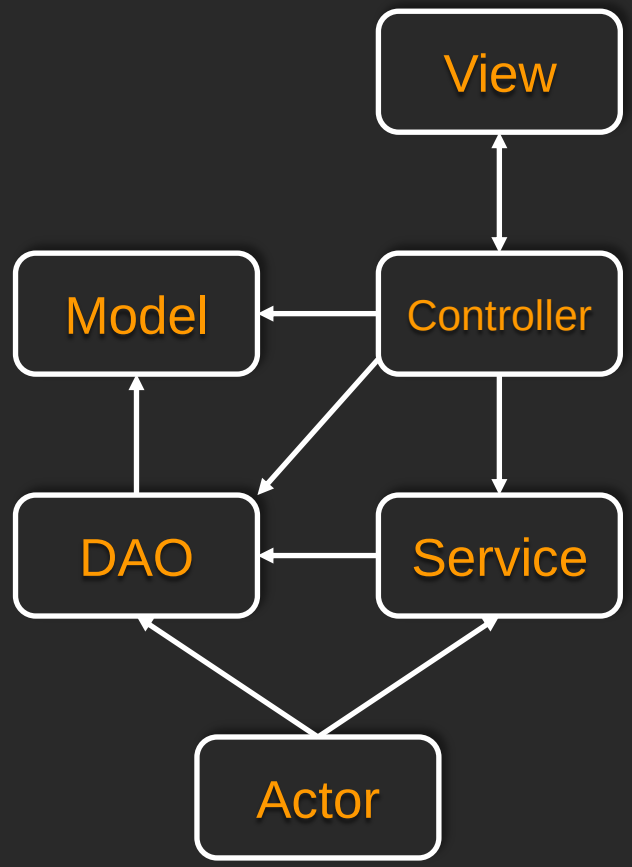
Technology Stack 2/3

- mongoDB: High performance noSQL-database
- morphia: Mapping Java objects to/from MongoDB
- WebSocket: Bi-directional communication for the web
- akka: Event-driven concurrency framework
- Guice: Dependency injection framework
- Google Maps/Places API: Map and location data

Technology Stack 3/3

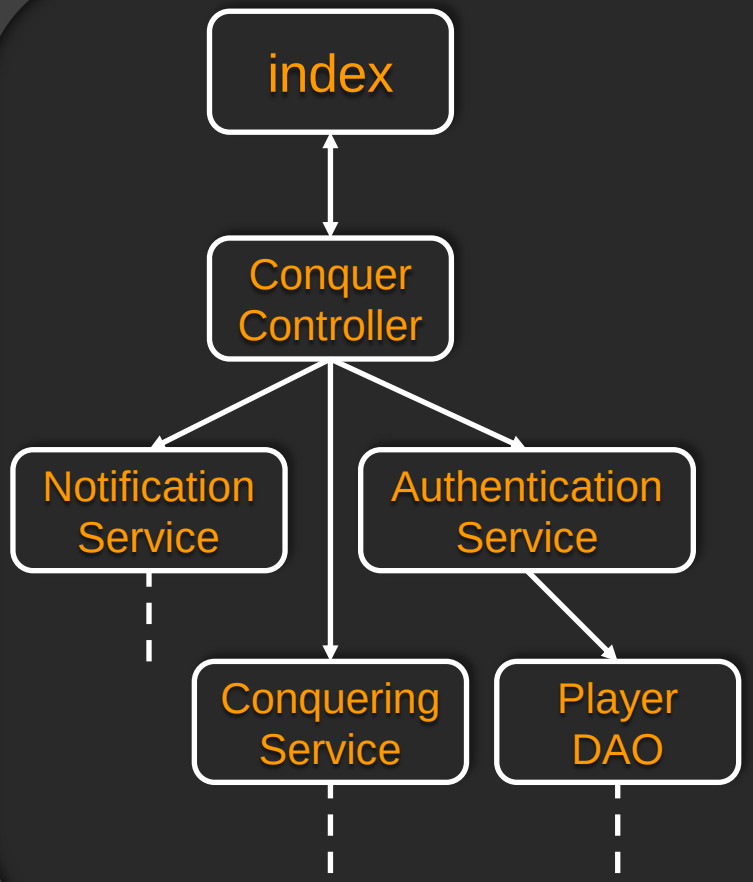
- jQueryUI: JavaScript user interface library
- Pines Notify: JavaScript notifications for Bootstrap
- Geolocation API: Retrieve position from the browser
- Bootstrap: Powerful front-end framework
- CoffeeScript: Language that compiles into JavaScript

Architecture



- Services: Encapsulate business logic
- DAOs: Abstract from the database
- Views: User interface templates
- Models: Represent entities
- Controller: Connect business logic, data storage and representation
- Actors: Carry out concurrent and asynchronous actions

Architecture example: Conquering



- index: View for the main interface
- ConquerController: Delegates calls from the UI to the services
- NotificationService: Sends notifications to players
- AuthenticationService: Retrieves the player currently logged in
- ConqueringService: Manages conquering attempts, calculates result
- PlayerDAO: Responsible for retrieving player-objects from the DB

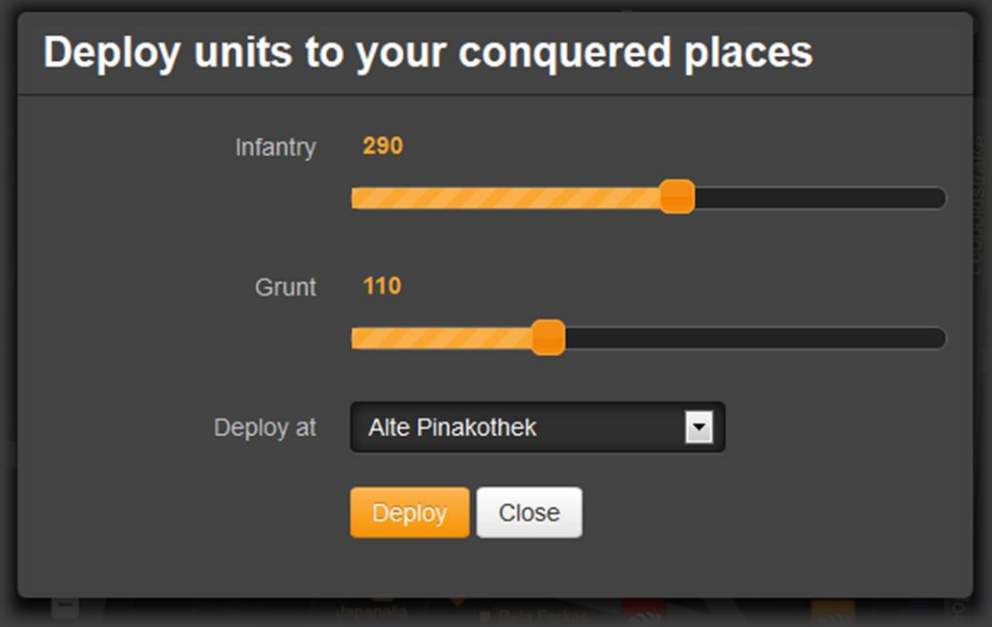
Demo

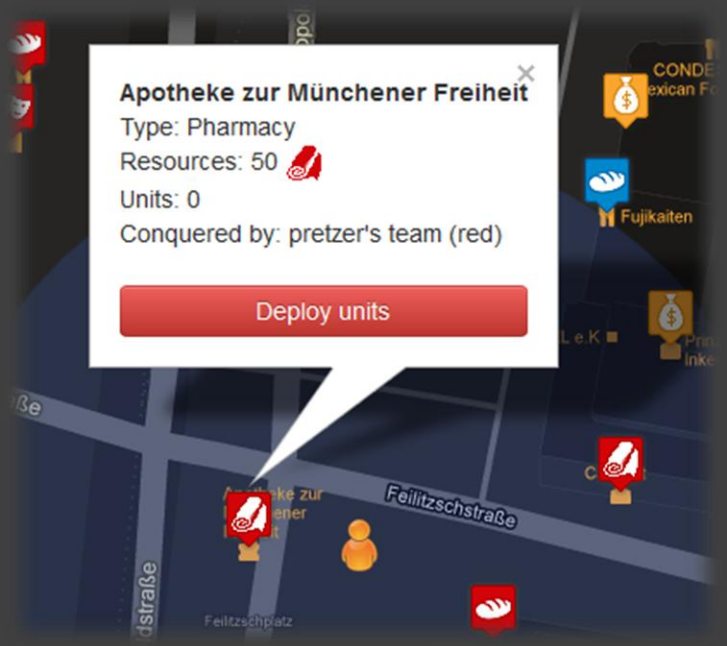
Conquering Places

1. Initiate conquering attempt
2. Let team members join
3. Check requirements
   - number of participants currently nearby the place (150m)
   - sufficient resources: evenly split across the participants
4. Inform the initiator
5. Conduct the battle: result is not known upfront
   - failure chance of a unit: btw. 5 and 10 percent
   - strength is uniformly distributed btw. minStrength and maxStrength
6. Inform participants of result

Deploying Units

- Player can deploy units to his conquered places to defend them
- Deploy menu can be invoked
  - from sidebar (where the conquered places of the player are listed) or
  - directly from the place popup window on the map





Building Units

- Players can use their resources to build units
- Total amount of units is limited by the food resource
- Units live until they fail at a conquering attempt