Company intorduction

MADFINGER Games

Madfinger Games

- 6 years of existence
- Around 90 employees
- Samurai series, Shadowgun, Monzo, Dead Trigger 1 and 2, Unkilled

-9 months of development of initial release, 7 moths of updating

-5 programmers, 3 designers, 3 graphics and 1 analytic

-Unity and C#

Agent architecture

MADFINGER Games

-evaluate world and stores information to blackboard or memory

-Sensor eyes - get all agents and calculate visibility and additional info (Enemy looking at me, Enemy in front of me)

- stores events for certain time as fact

- Fact- information that have lifetime and believability

EnemyFire
Lifetime: 1.3s Believibility: 0.7

Animation Component

- contains two FSMs, for upper and lower body. AnimState

- is responsible of agent movement (if any) and playing animation

- NavmeshAgent and Legacy animations

Special Anim States

- Traverse off-mesh links

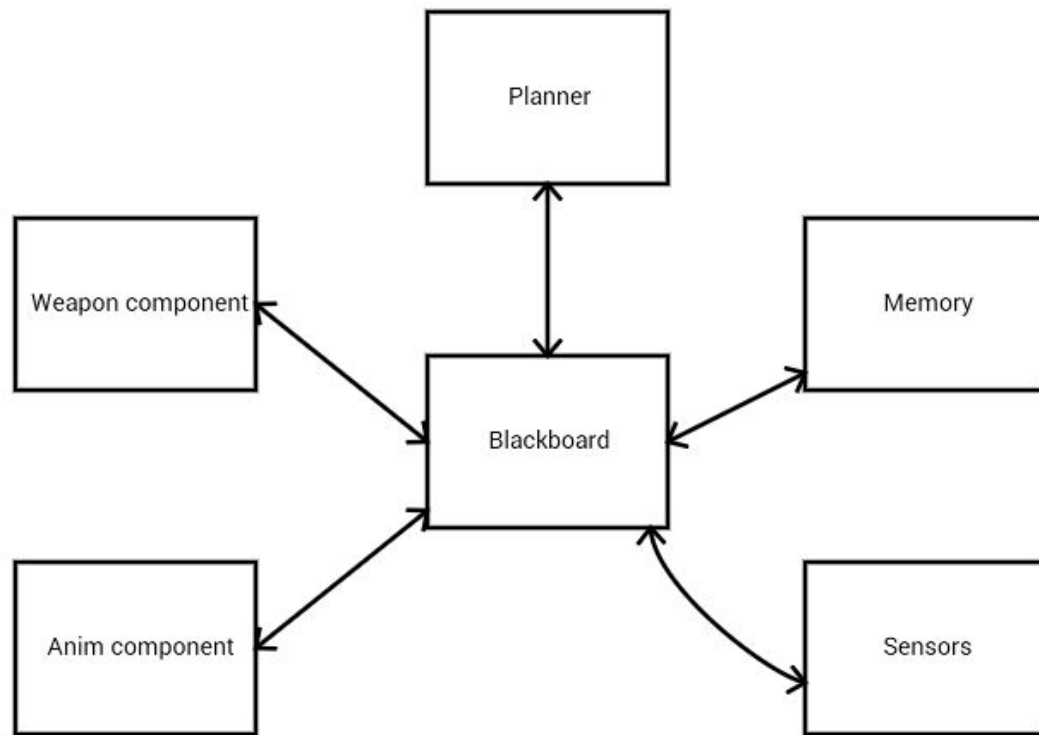-Anim state can be FSM itself – Attack Berserk

Action points examples

Berserk

-static memory that can be access for read and write by anyone

- used for decoupling of agents components

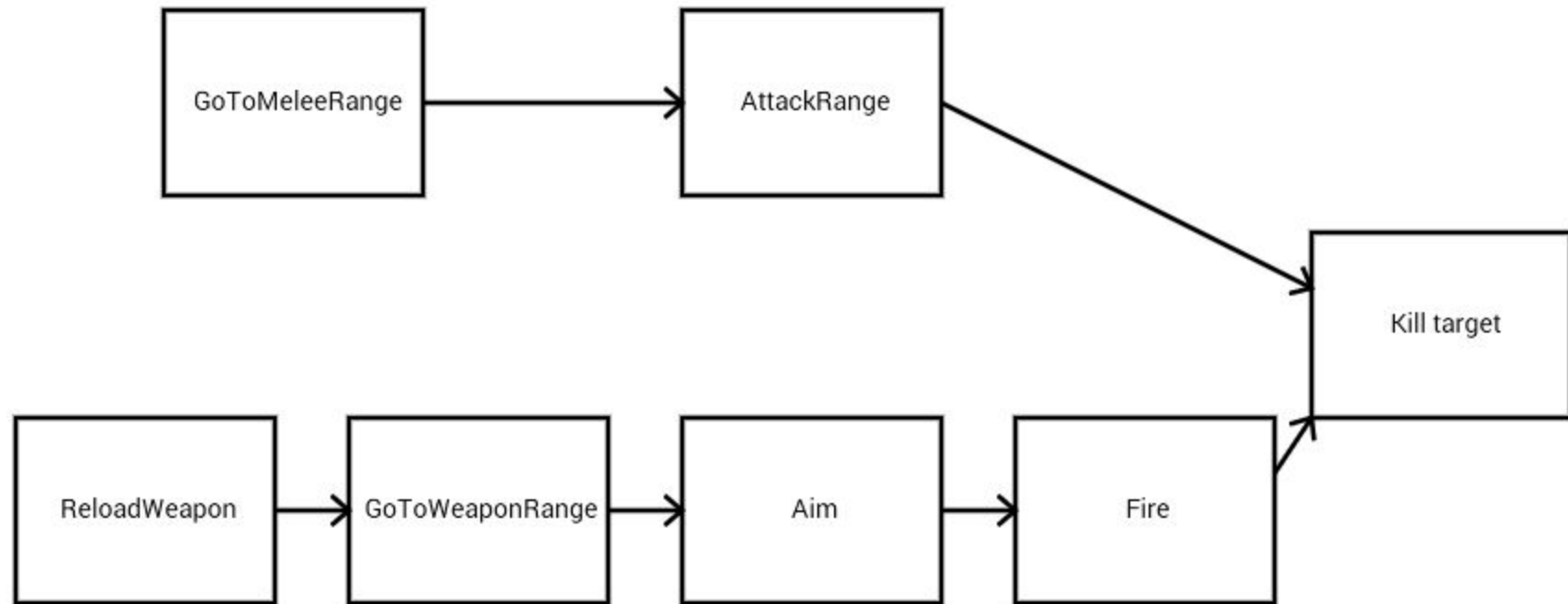# Advanced planning

MADFINGER Games

- create plan (sequence of actions) for current goal

- based on blackboard and agent's memory

-possible strategies for agent

-evaluated every frame, if goal is interruptible and more relevant goal can be planned, goal is replanned

- Kill Target, GoToArea, GoToEvent

Goals

Heal
Relevancy: 0.95

KillTarget
Relevancy: 0.8

Cover
Relevancy: 0.75

Patrol
Relevancy: 0.2

Dodge
Relevancy: 0.1

Actions

- possible tasks to satisfy goal

- defined by effects, preconditions and context preconditions

- create agent action, that is pushed to blackboard and agent components react on it.
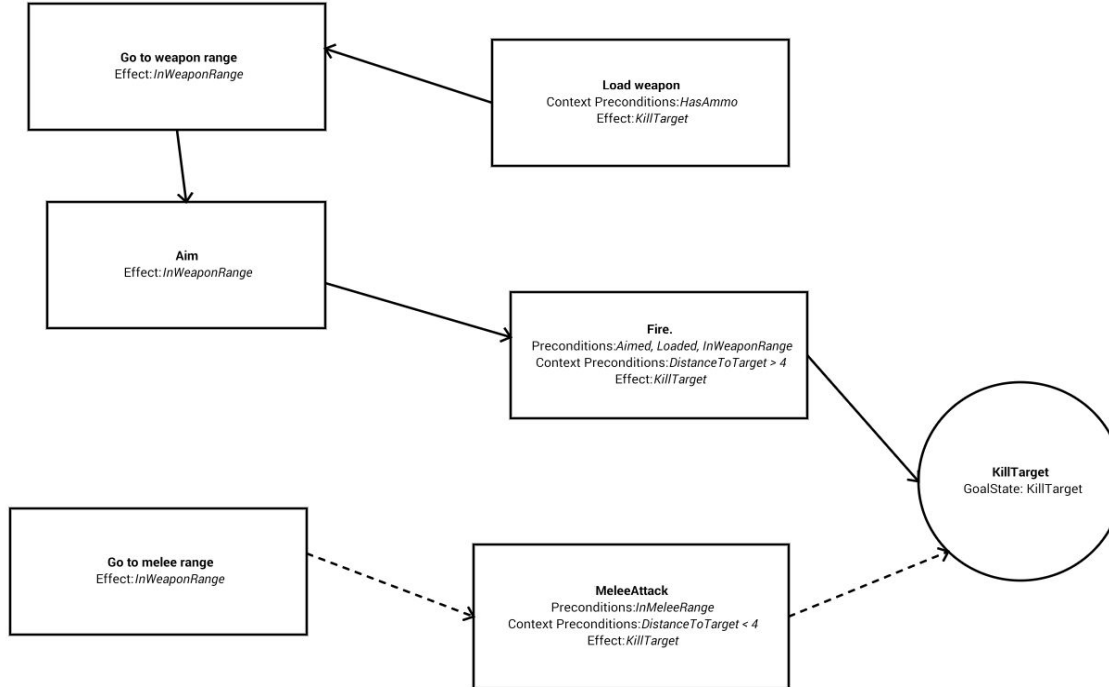
Actions

Usually change state of one of FSMs in Anim Component

- GoToWeaponRange, AttackMelee, Fire, Reload …

-Use A* to find plan

- start at finish and looking for action that have all preconditions satisfied

Plan

Go to weapon range
Effect:*InWeaponRange*

Load weapon
Context Preconditions:*HasAmmo*
Effect:*KillTarget*

Aim
Effect:*InWeaponRange*

Fire.
Preconditions:*Aimed, Loaded, InWeaponRange*
Context Preconditions:*DistanceToTarget > 4*
Effect:*KillTarget*

KillTarget
GoalState: KillTarget

Go to melee range
Effect:*InWeaponRange*

MeleeAttack
Preconditions:*InMeleeRange*
Context Preconditions:*DistanceToTarget < 4*
Effect:*KillTarget*

Special Goals

Emotions:

-Fear and Rage

-evaluating every frame base on blackboard and events

- activating special attack or retreats

Butcher

Scripting commands

-highest relevancy goals scripted by designers

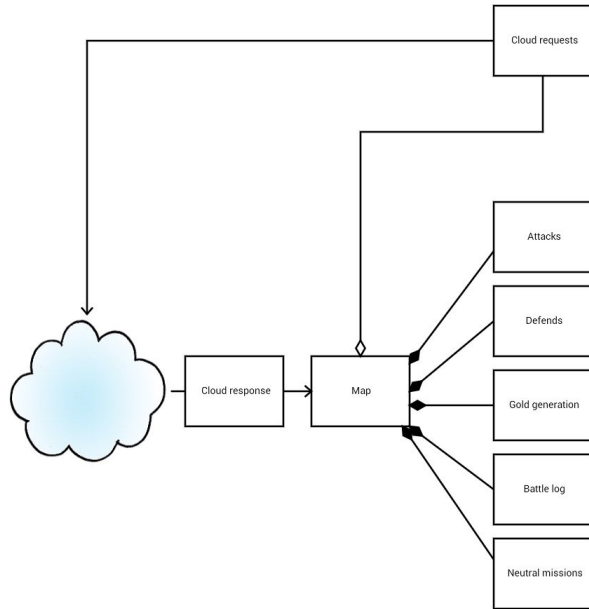-GoTo, WaitFor, Defend

Questions?

Client architecture for asynchronous multiplayer

MADFINGER Games

Data

- Google AppEngine

- Communication via CloudAction and Cloud Request in JSON

Data

Buttons

Buttons

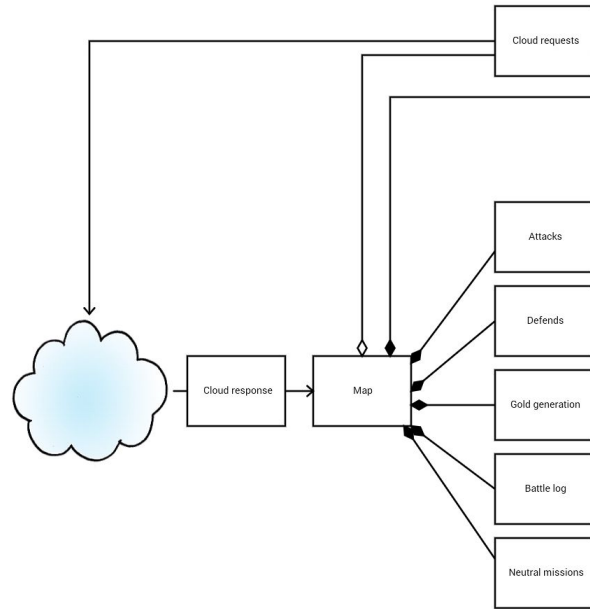- player interaction

- visual representation of entities

- visual effects

Base Spawner

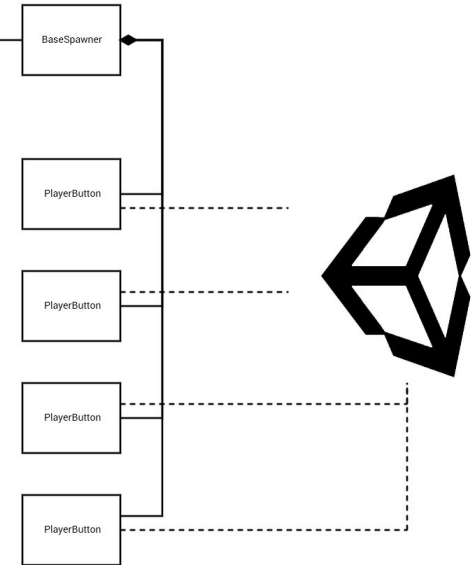-spawning buttons

-managing slots

-serializing slot layout

Base editor

Mediator

- Behavioural pattern
- defines an object that encapsulates how a set of objects interact

Base Manager

- Responsible for lifetime of mediators and DI of data
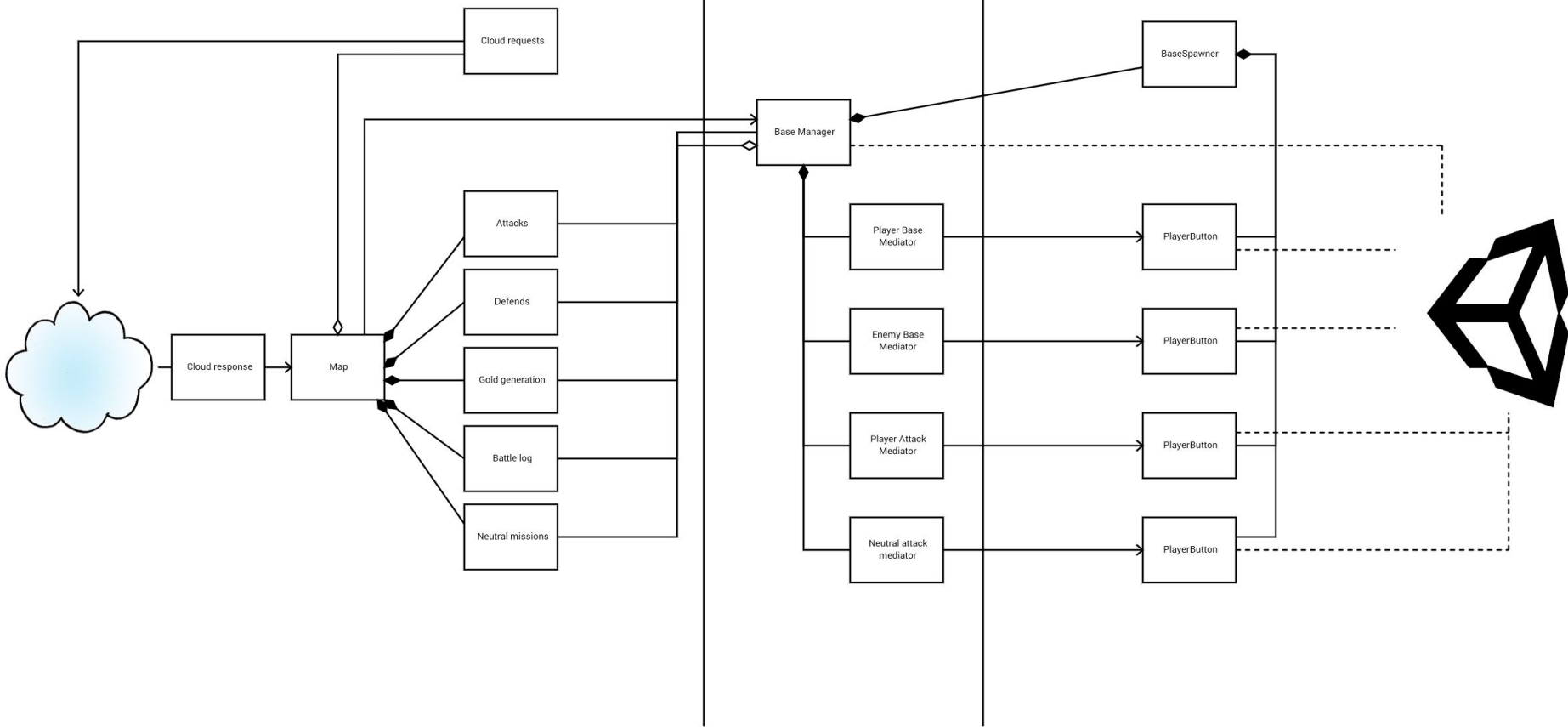- Resending unity messages and cloud updates

Mediators - around 400 lines

Views - around 600 lines

Data | Behaviour | View

Cloud requests

BaseSpawner

Base Manager

Cloud response

Map

Attacks

Defends

Gold generation

Battle log

Neutral missions

Player Base Mediator

Enemy Base Mediator

Player Attack Mediator

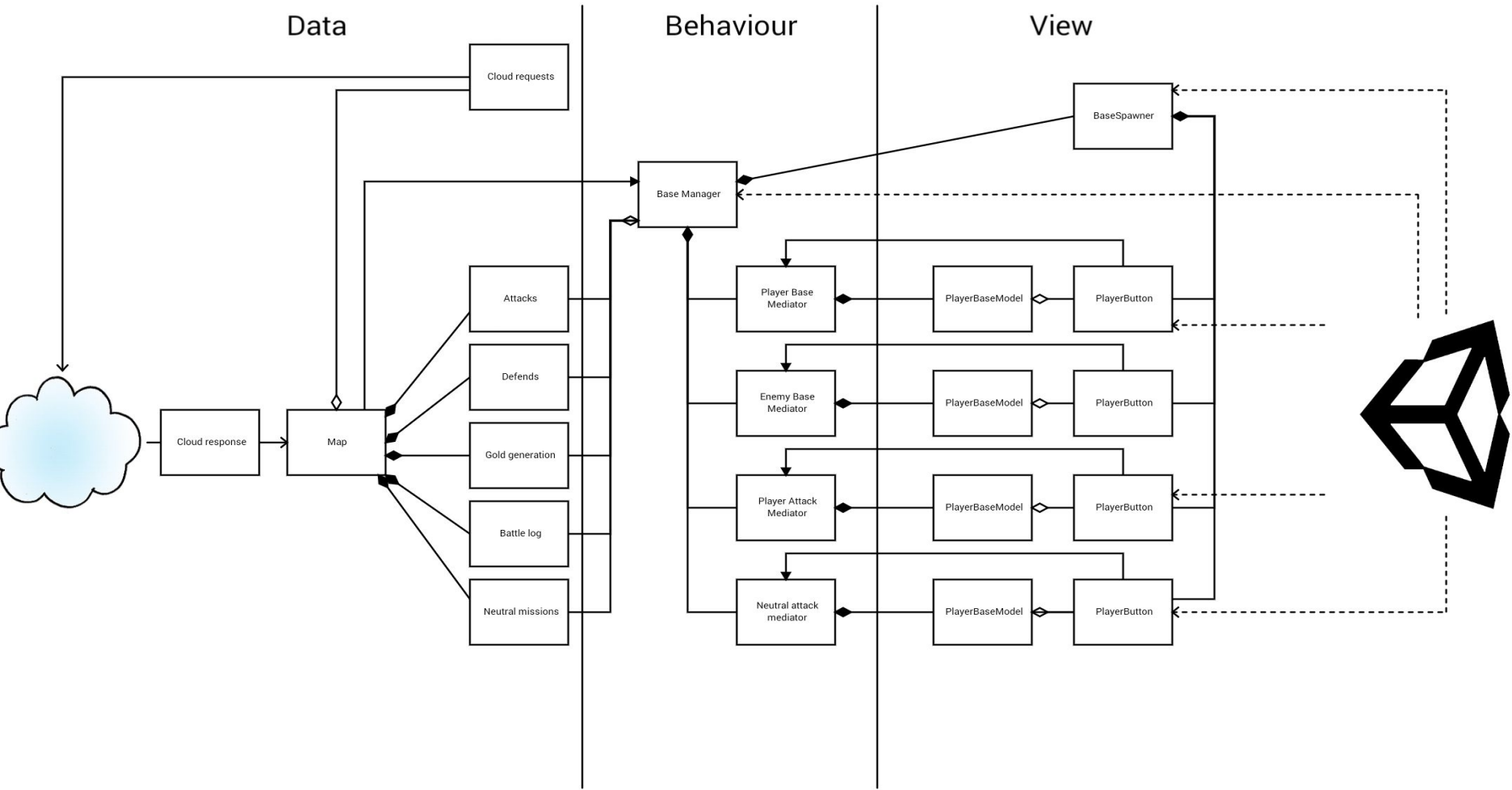Neutral attack mediator

PlayerButton

PlayerButton

PlayerButton

PlayerButton

- Controlling Buttons with simple structure
- Pros - easy way to remember button state (outros)
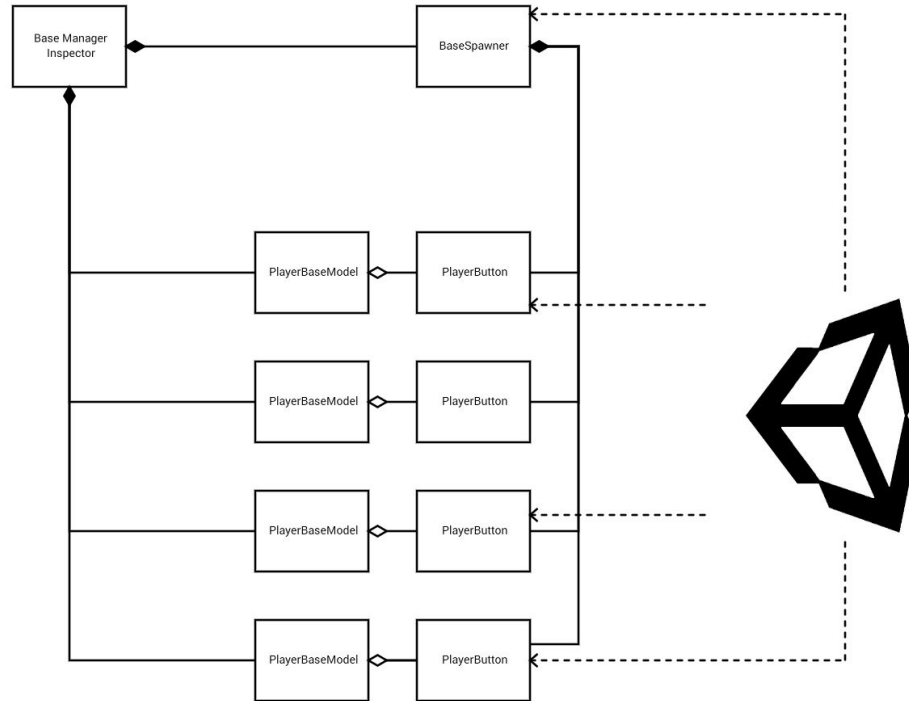- Ability to write GUI tests

Outro

Data | Behaviour | View

Cloud requests

BaseSpawner

Base Manager

Cloud response → Map

Attacks

Defends

Gold generation

Battle log

Neutral missions

Player Base Mediator — PlayerBaseModel — PlayerButton

Enemy Base Mediator — PlayerBaseModel — PlayerButton

Player Attack Mediator — PlayerBaseModel — PlayerButton

Neutral attack mediator — PlayerBaseModel — PlayerButton

Gui Tests

View

Questions?

Madfinger is hiring

http://madfingergames.com/company/jobs

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