WORLD of TANKS BLITZ

Postmortem:
Building a AAA MMO for Mobile Devices

Vitaliy Borodovsky

World of Tanks

1,000,000 players right now
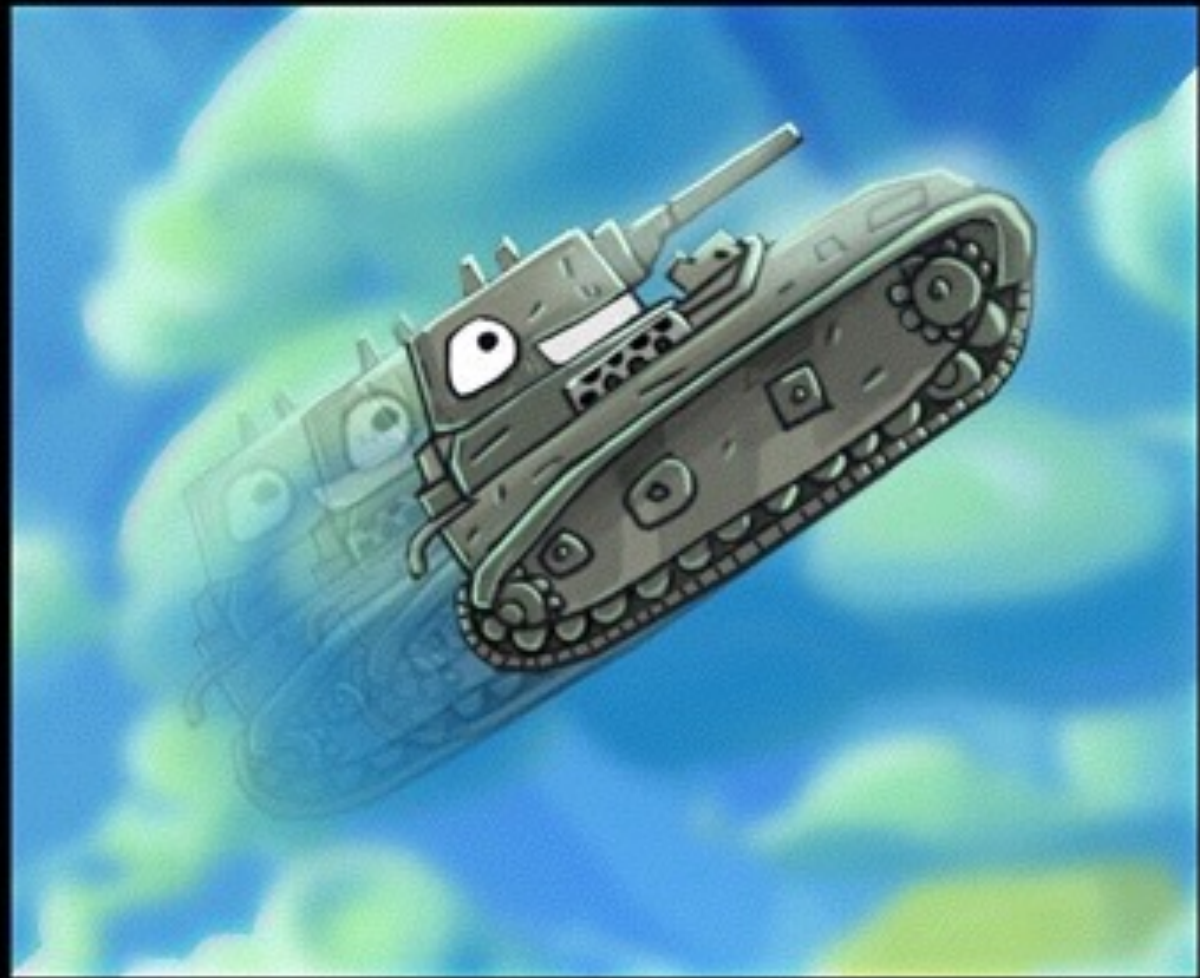
100+ million registrations

World of Tanks	World of Tanks Blitz
1,000,000 players right now	100,000 players right now
100+ million registrations	20+ million registrations

?

Nobody knows the secret	And I don't know either
?	?

No one was harmed in the making of this video. All characters appearing in this work are fictitious and played by professional stuntmen.

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Project Beginning

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Small Team

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No Management Processes

No Technical Processes

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Small Team

No Management Processes

No Technical Processes

No 3D Engine

Pre-production

How can we create a fun game?

Pre-production

How can we create a fun game?

200+ Play Tests

Pre-production

How can we create a fun game?

How can we quickly prototype?

200+ Play Tests

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How can we create a fun game?

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200+ Play Tests

500+ Tweaking Options

Pre-production

How can we create a fun game?

How can we quickly prototype?
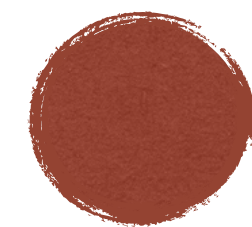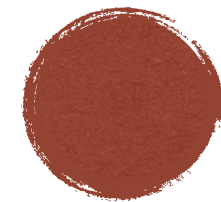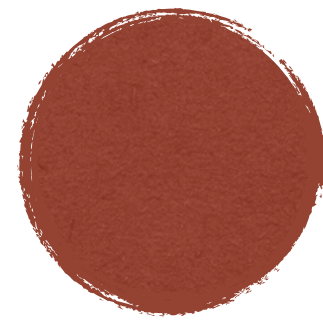
200+ Play Tests

500+ Tweaking Options

20+ Control Schemes

Joystick

Dynamic

Static

Pre-production

How can we create a fun game?

200+ Play Tests
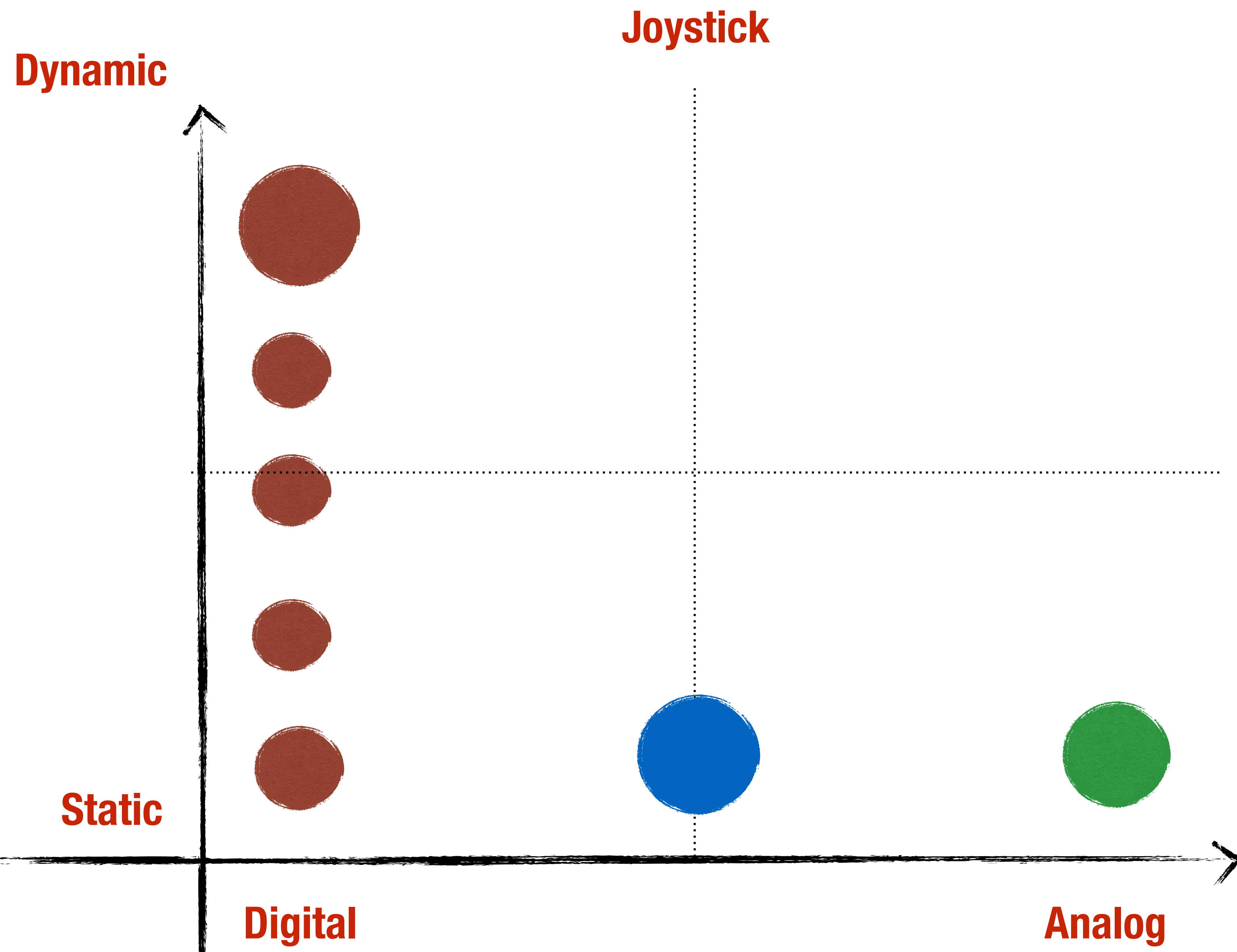
How can we quickly prototype?

500+ Tweaking Options

20+ Control Schemes

Pre-production

How can we create a fun game?

How can we quickly prototype?

200+ Play Tests

500+ Tweaking Options

20+ Control Schemes

Lots of corridor tests

Pre-production

How can we create a fun game?

How can we quickly prototype?

200+ Play Tests

500+ Tweaking Options

20+ Control Schemes

Lots of corridor tests

5 Focus Tests

Play your game!

Challenges

Challenges

Unstable trunk

Challenges

Unstable trunk

Failed builds

Challenges

Unstable trunk

Failed builds

Repeated bugs

Challenges

Unstable trunk

Failed builds

Repeated bugs

Unpredictable results

Management

Management

How to increase predictability?

Management

How to increase predictability?

Scrum

Management

How to increase predictability?

How to add flexibility?

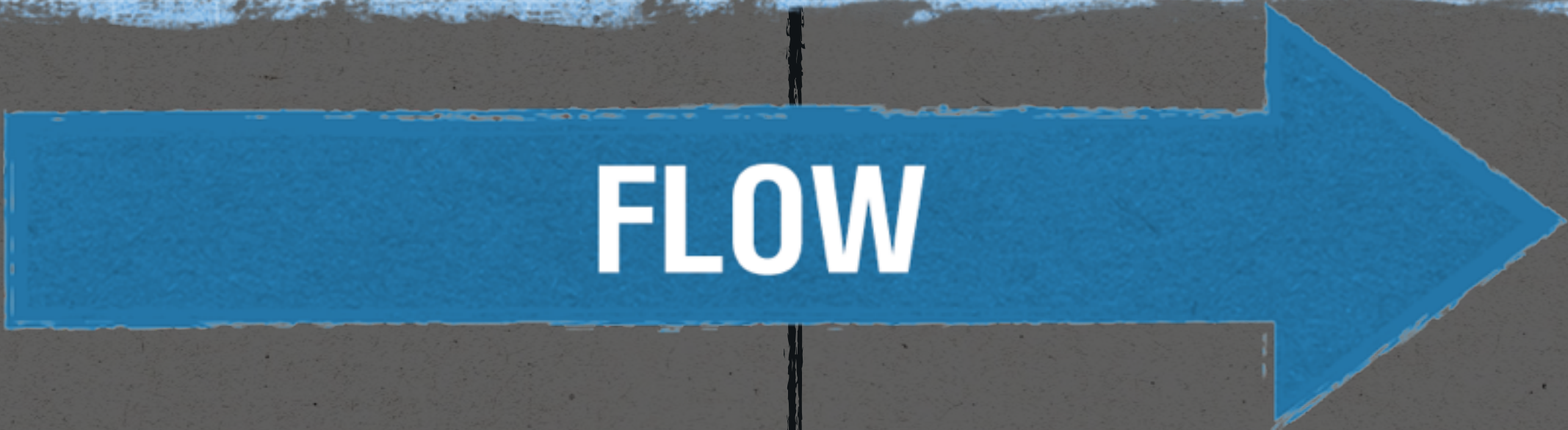# Scrum

Management

How to increase predictability?

Scrum

How to add flexibility?

Kanban

With Scrum Mix-ins

Technical Processes

How to keep the trunk stable?

Branching

Build machine

hot fixes

stable releases

trunk

feature branches

Technical Processes

How to keep the trunk stable?

Branching

Build machine

How to improve code quality?

Code review

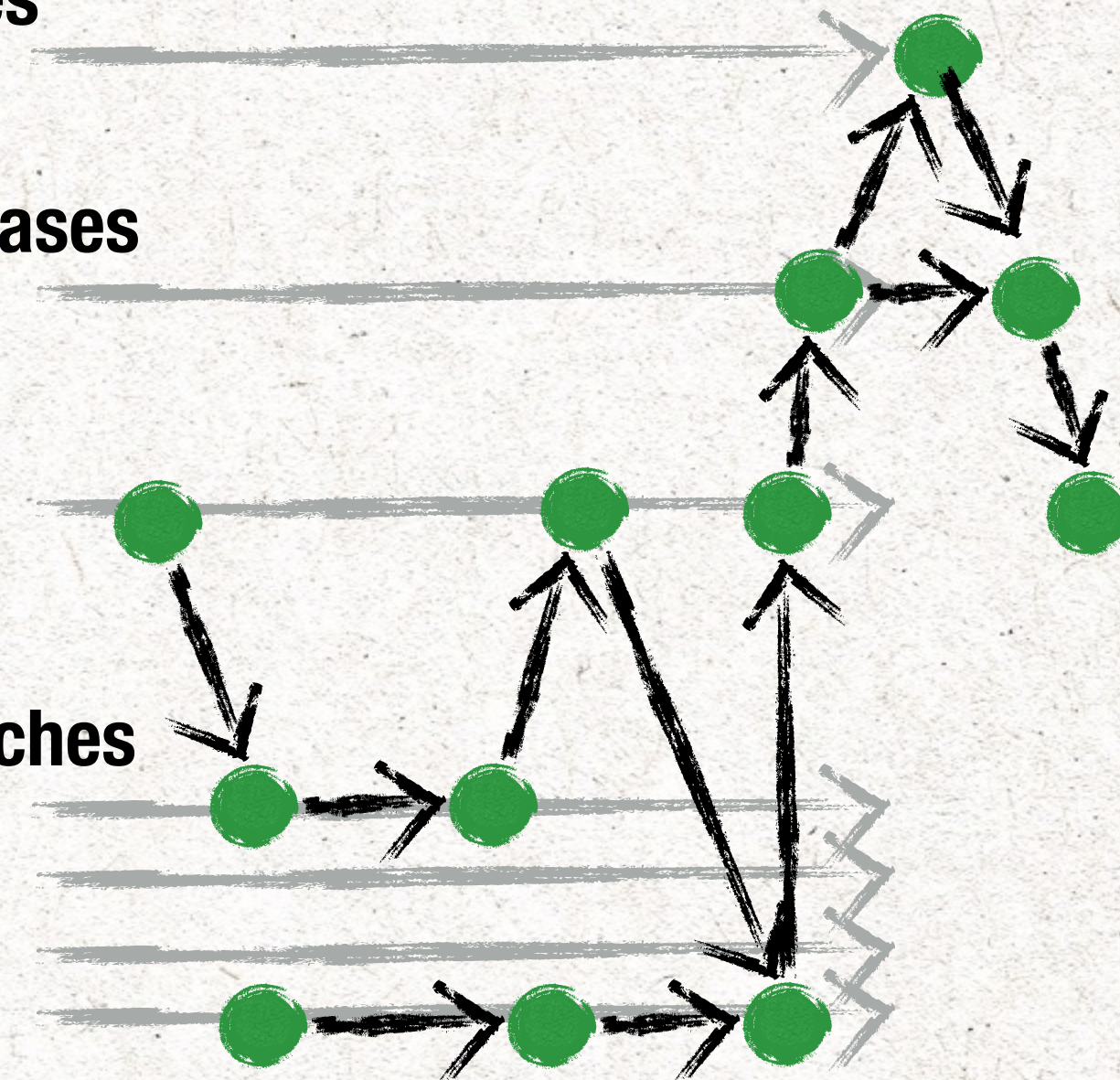### 1 to 1

Column on Kanban

hot fixes

stable releases

trunk

feature branches

Technical Processes

How to keep the trunk stable?

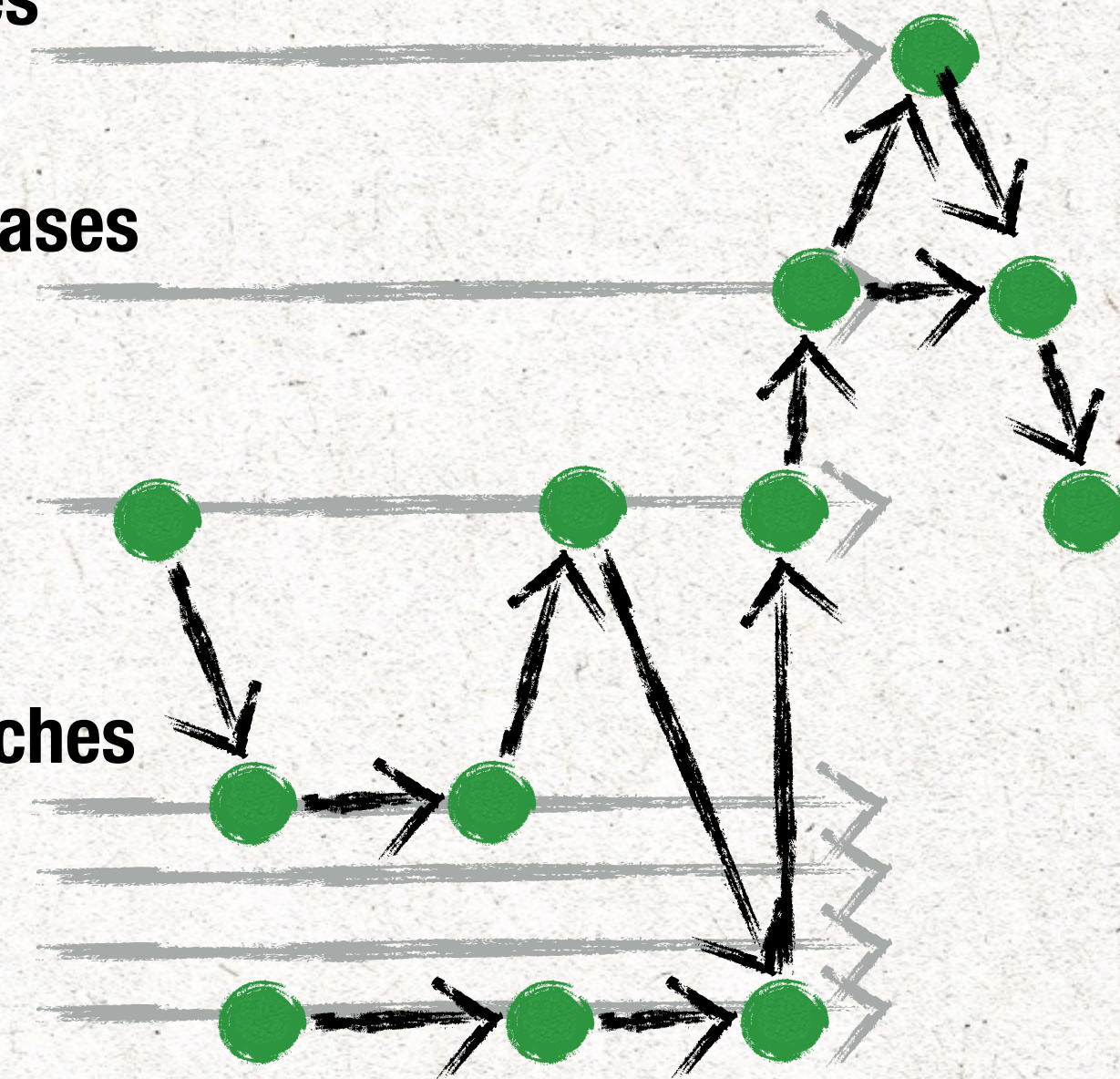**Branching**

Build machine

How to improve code quality?

Code review

1 to 1

Column on Kanban

How to get higher quality?
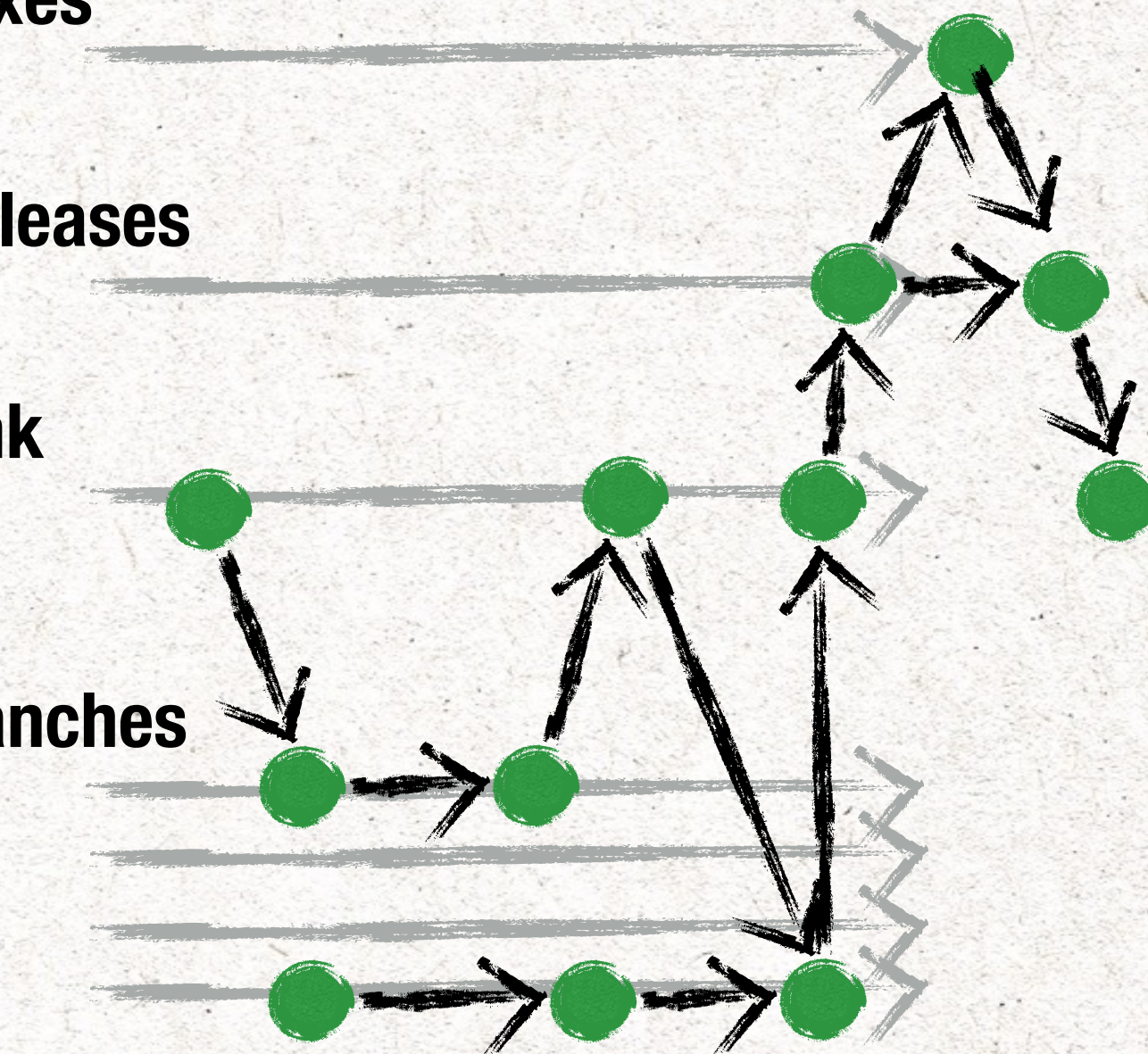
Many to 1

hot fixes

stable releases

trunk

feature branches

Engine & Client sync

Live on trunk

Unstable game after commits to engine trunk

Engine & Client sync

Live on trunk

Unstable game after commits to engine trunk

Engine & Client sync

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Version based releases

Engine & Client sync

Live on trunk

Unstable game after commits to engine trunk

Version based releases

Game don't want to update the engine

Longer migration

Engine & Client sync

Live on trunk

Unstable game after commits to engine trunk
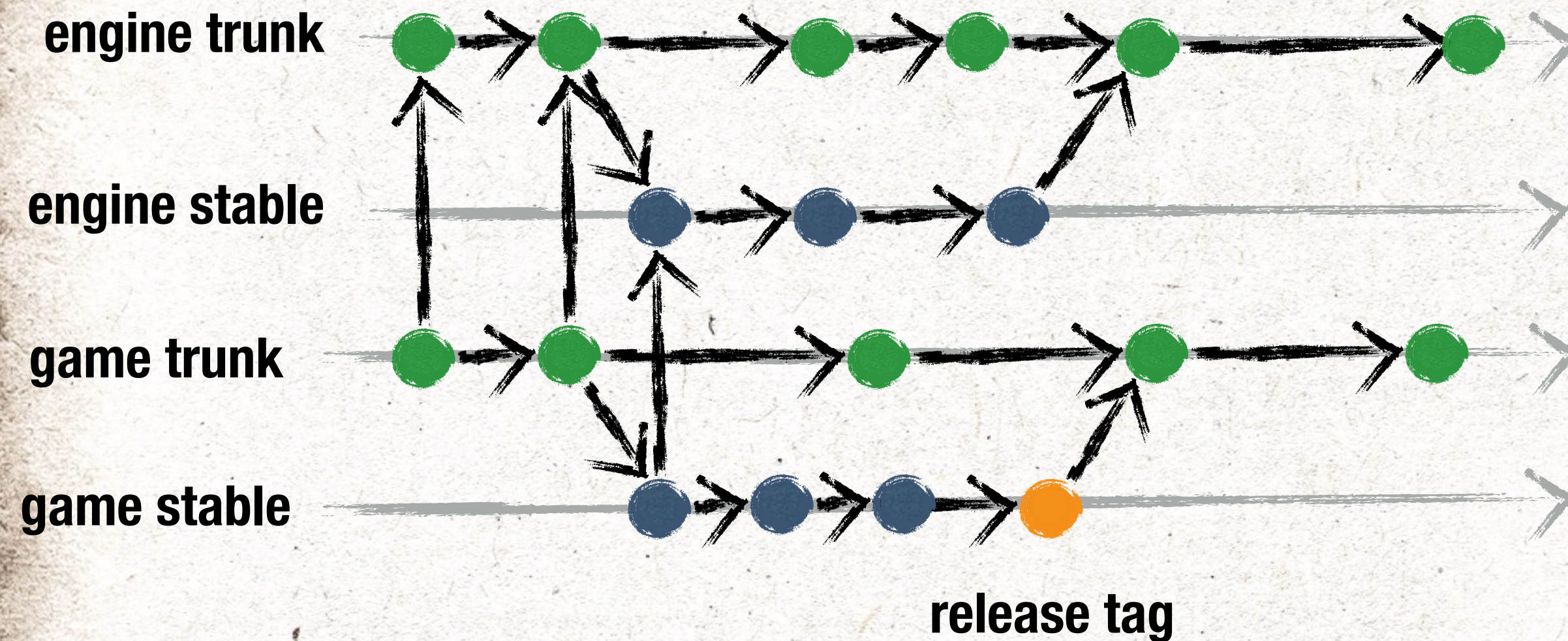
Version based releases

Game don't want to update the engine

Longer migration

No commits to trunk

Improved branching scheme

engine trunk

engine stable

game trunk

game stable

release tag

Personalize your processes!

More technical challenges

Engine

Performance

Architecture was not scalable

Hard to add new features

Not enough objects on the maps

Slow content creation

Engine Architecture

Performance

Scalability

Engine Architecture

Performance

Scalability

Code Driven => Data Driven

OOP Model => ECS Model

Data

Entities with LOD Component

Entities with Render Component

Entities with Switch Component

Code

LOD System

Render System

Switch System

Engine Architecture

Tools

First version of toolchain

Based on own UI framework

Tools

First version of toolchain

Based on own UI framework

Tools

First version of toolchain

Based on own UI framework

Second iteration of toolchain

New UI framework for PC/Mac

Transfer to new UI framework

Tools

First version of toolchain

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2 months

Embedded old tools to new framework

Old Editor Embedded
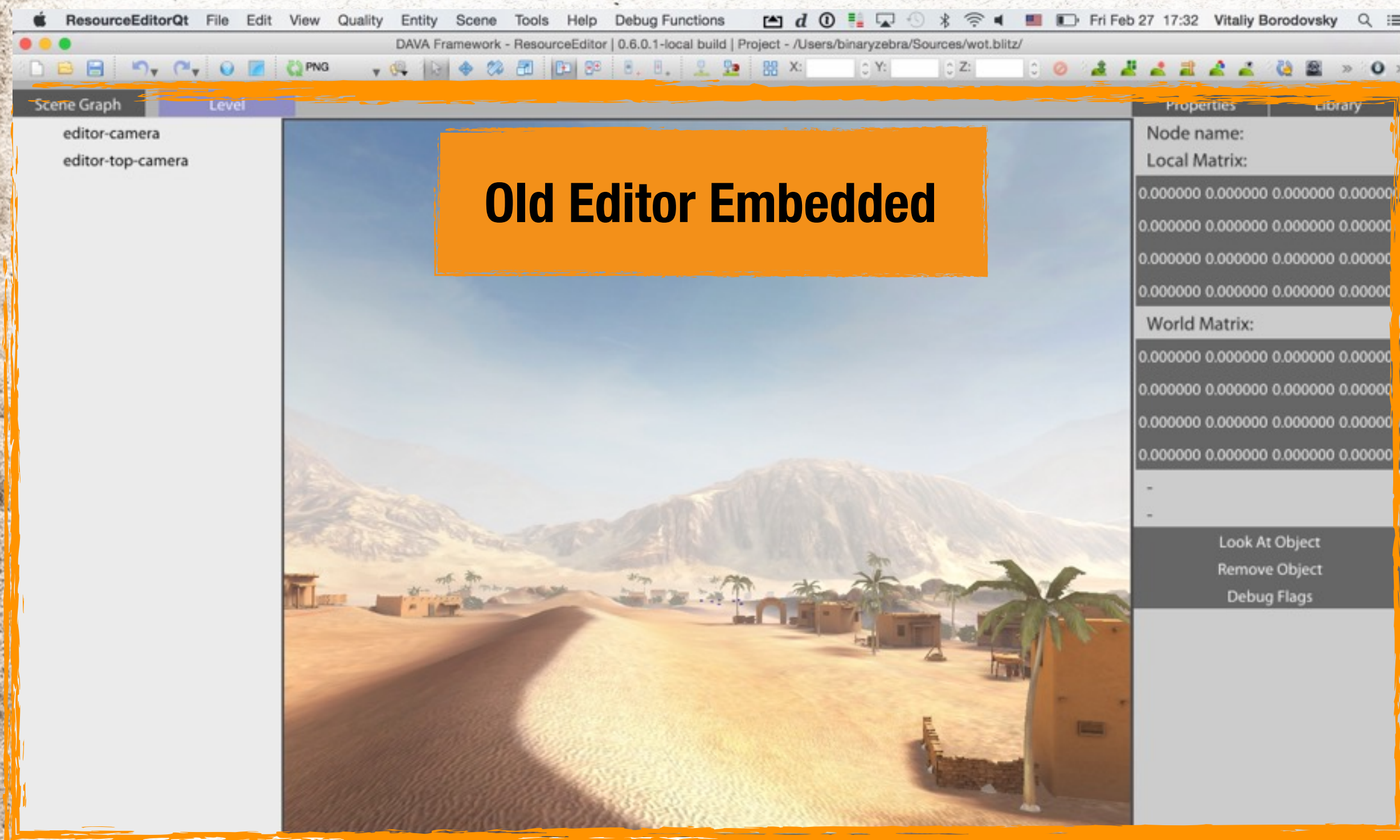
Tools

First version of toolchain	**Based on own UI framework**
Second iteration of toolchain	**New UI framework for PC/Mac**
Transfer to new UI framework	**2 months**
New features	**Embedded old tools to new framework**
Old Editor	**4 months**
	Transfer of old functionality

Tools

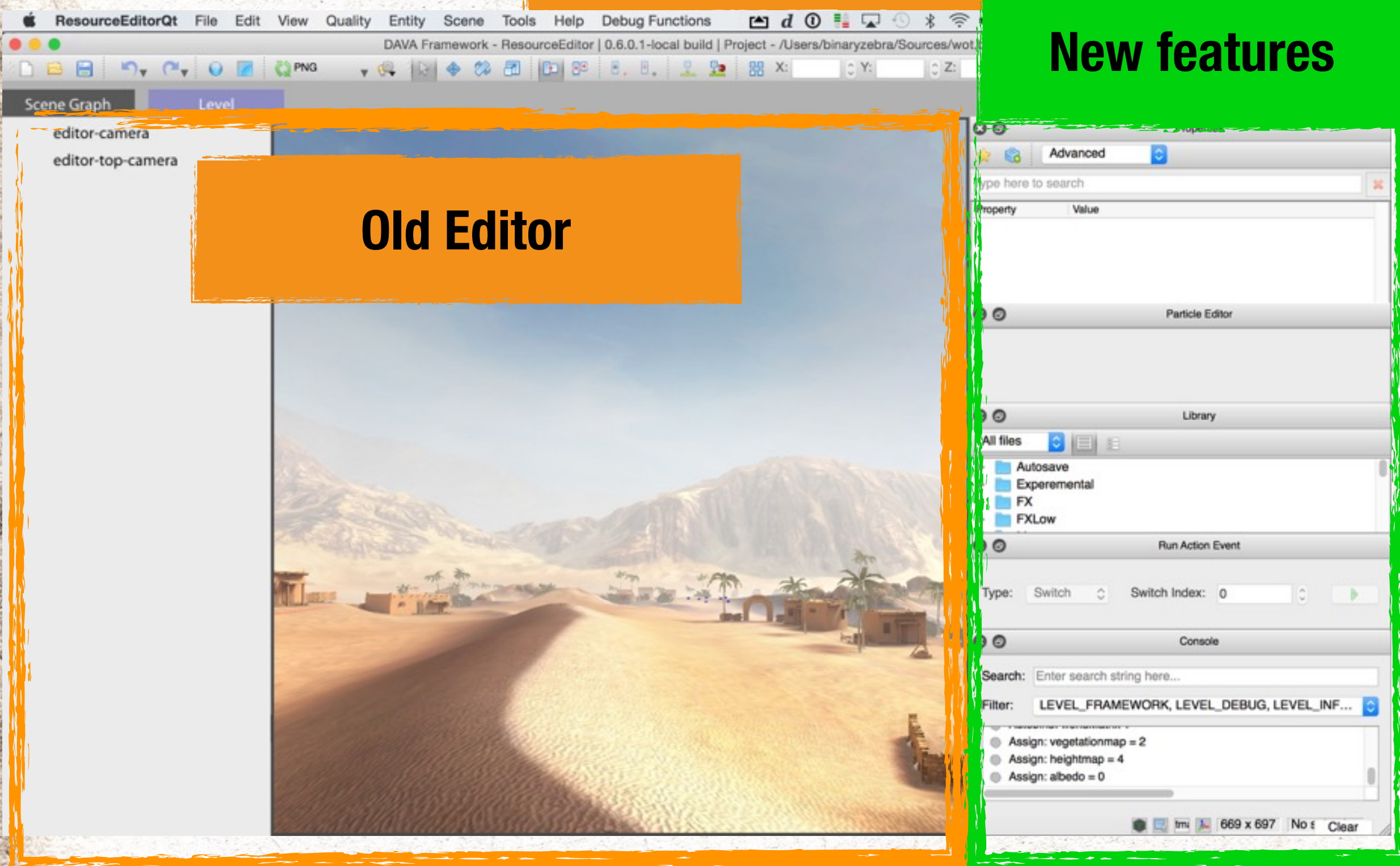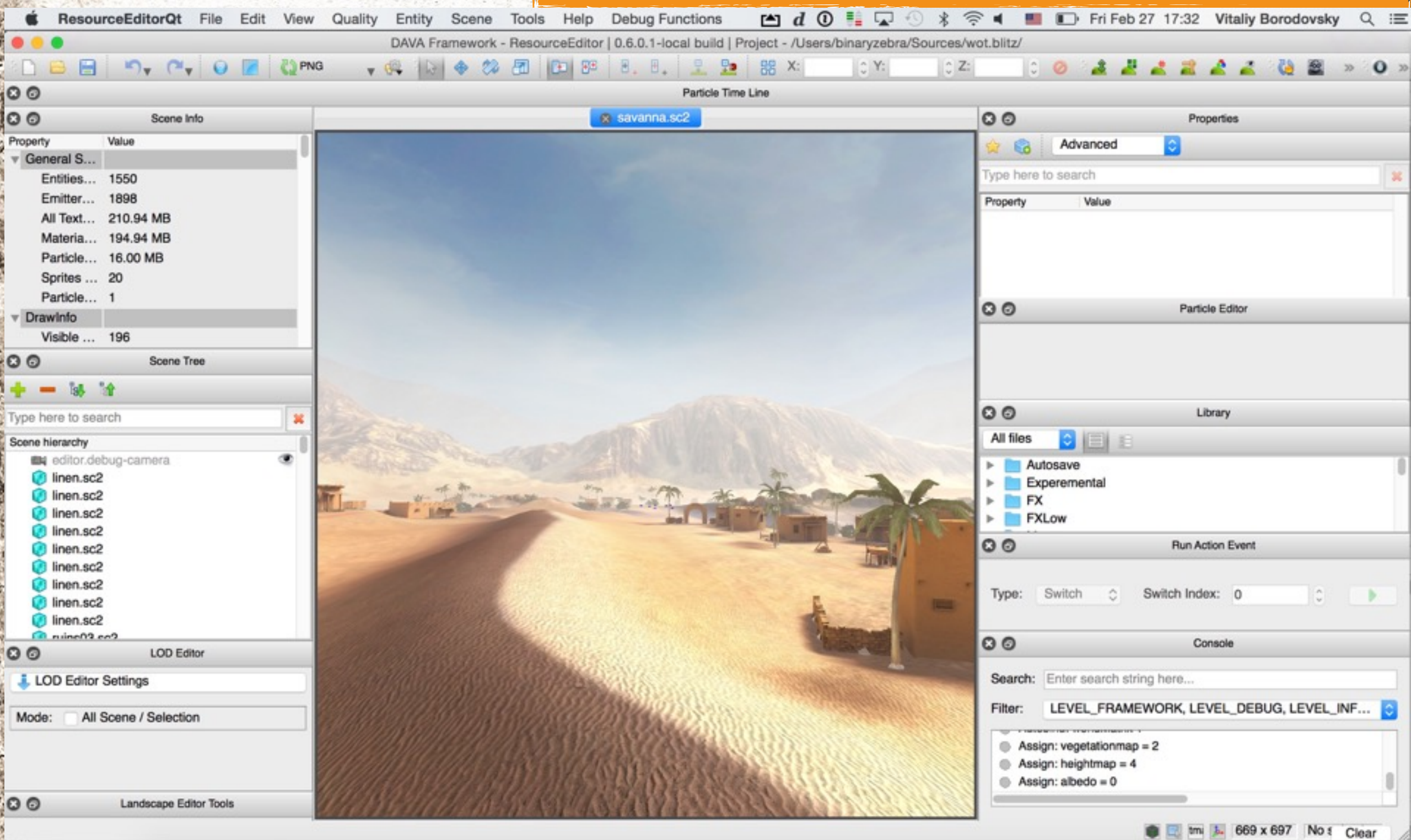|	
First version of toolchain	Based on own UI framework
Second iteration of toolchain	New UI framework for PC/Mac
Transfer to new UI framework	2 months
	Embedded old tools to new framework
	4 months
	Transfer of old functionality
	Next Iterations
	New features on new framework

Don't be afraid to overhaul everything!

Tools

Tools delivery

Tools

Tools delivery

Launcher tool

DAVA Launcher 0.9 build 7

Config URL: http://winserver.corp.wargaming.local/dava.framework/win/launcher/launcher_config.yaml

News

Stable

DF-1785_pipetka

DF-2031_UIScroll

DF-2214_Undo_Redo

DF-2314_UIEditor_memory

DF-2339-Drag_n_Drop

DF-2474_console_widget

DF-2776_Distance_field_font

DF-2880_UISlider_refactoring

Application	Installed Version	Avalible Version
Resource Editor		0.6.0_2014-09-12_13.58.06__0300
Tank Editor		0.6.0_0.1.56
Tank Viewer		0.5.9_0.1.109
UIEditor		0.5.9_2014-08-22_14.09.22__0300

Eliminate time wasters!

How do we overcome challenges?

How do we overcome challenges?
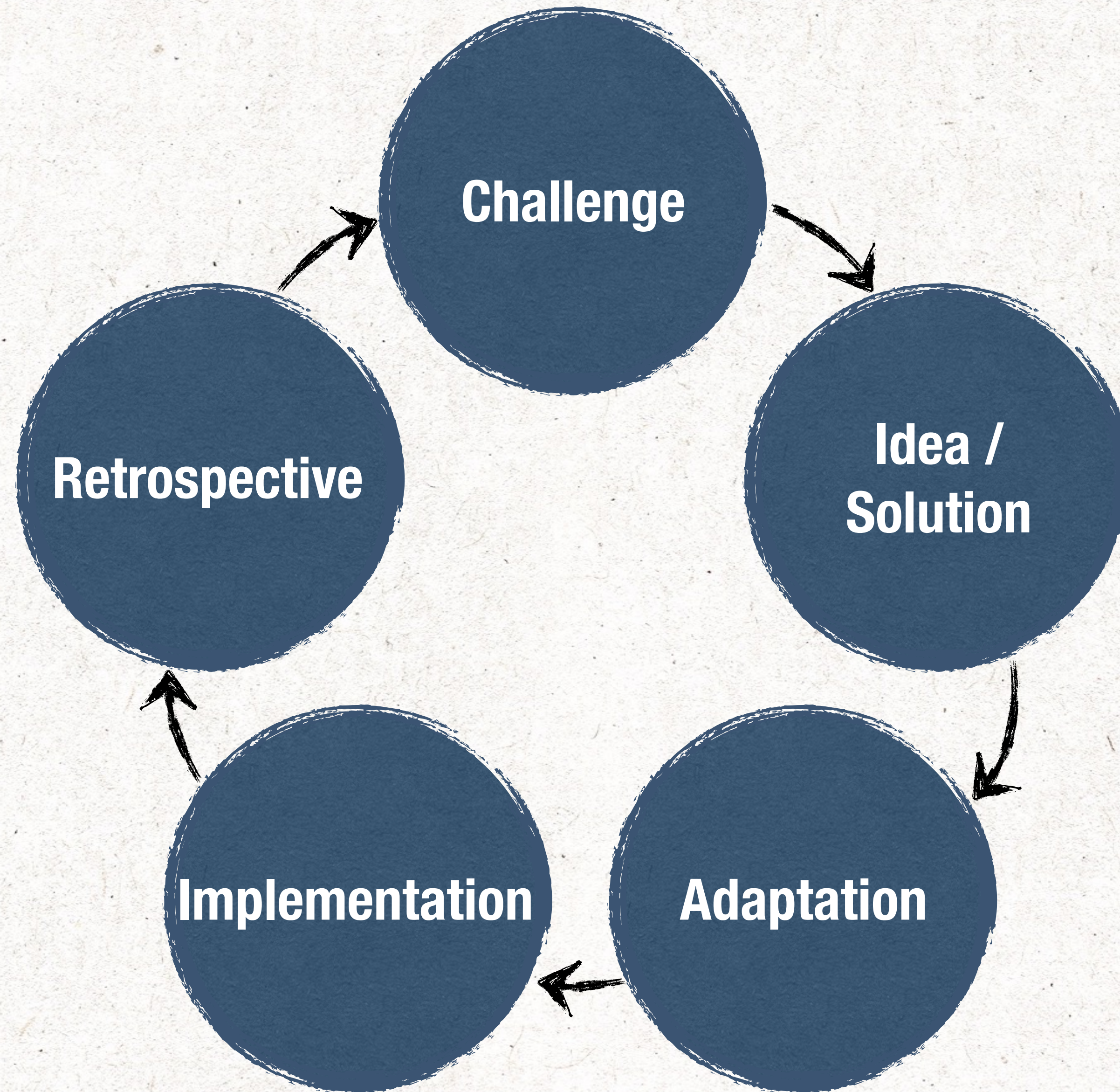
- Challenge
- Idea / Solution
- Adaptation
- Implementation
- Retrospective

Constantly improve everything

Personalize your processes

Right technical decisions matter!

Don't be afraid to overhaul everything!

Eliminate time wasters

Constantly improve everything

Personalize your processes

Right technical decisions matter!

Don't be afraid to overhaul everything!

Eliminate time wasters

Play your game every day!

Links:

Engine & Tools Source Code:

https://github.com/dava/dava.framework

Kanban & Scrum Making The Most Of Both

http://www.agileinnovation.eu/wordpress/wp-content/uploads/2010/09/KanbanAndScrum_MakingTheMostOfBoth.pdf

Artemis Framework

http://gamadu.com/artemis/

Thanks to the team

Andrew Karpiuk

Dmitry Bobrovnichiy

Stepan Drozd

Alexey Alexeev

Alexey Prosin

Ivan Petrochenko

Viktor Kleschenko

Anna Kovalenok

Volha Mamul

and everyone else who helped Blitz happen

Special Thanks

Artem Sinitsky

Alexey Goncharevich

Thank you!

Questions?

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