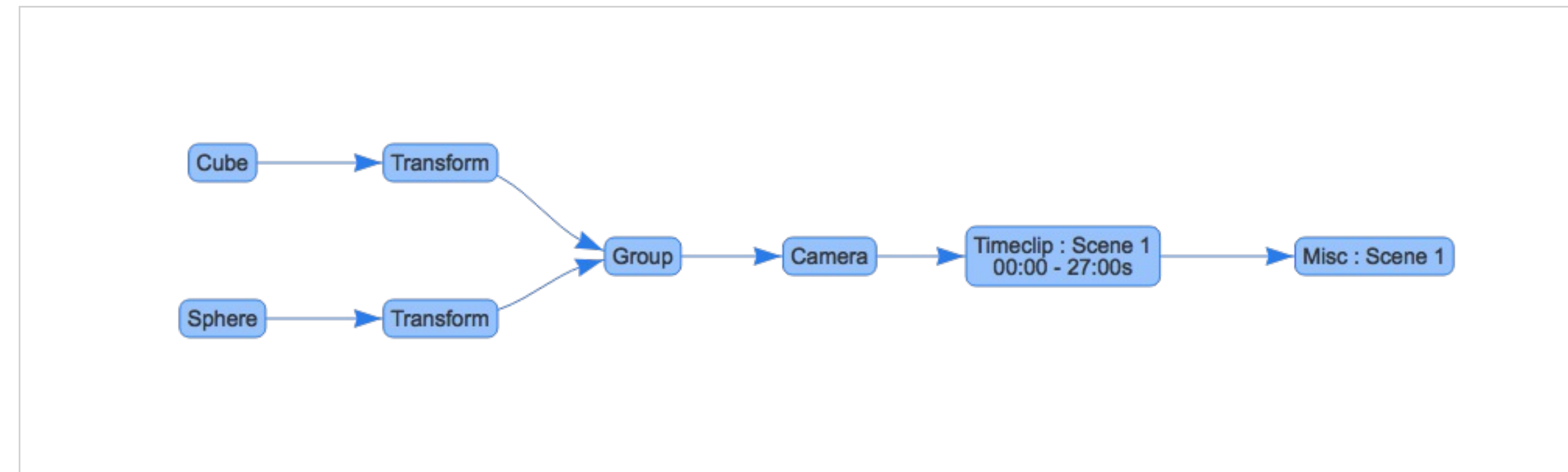


# QDE — A visual animation system

## Software architecture



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Date: 2016-08-11



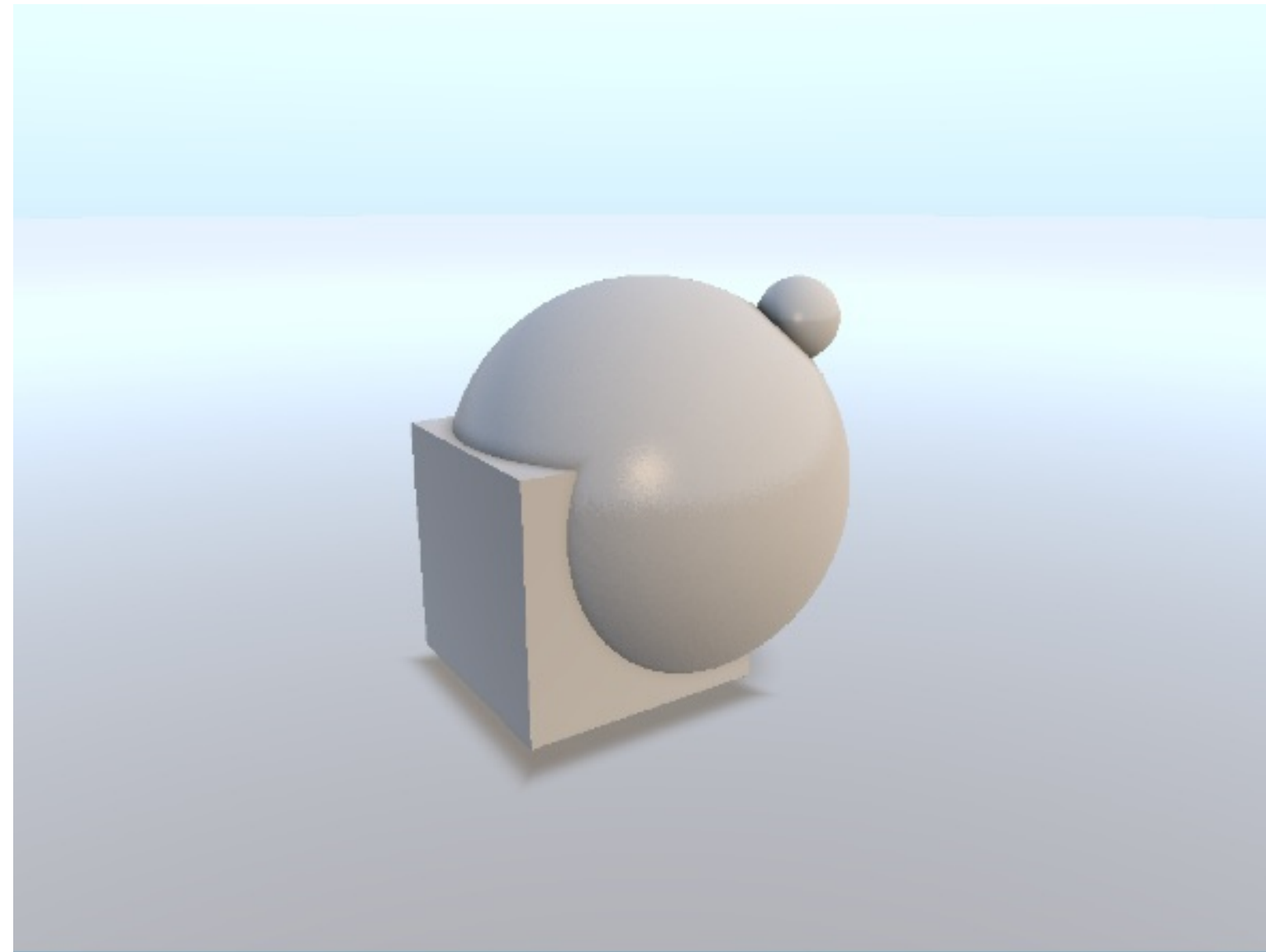
**ECHTZEIT**  
DIGITALE KULTUR



Bern University  
of Applied Sciences

# Motivation

## Possible outcome



# Motivation

## Why?

- Powerful GPUs
- "Real-time" ray tracing
  - Sphere-Tracing
- Quality / Realism
- Easy modeling

# Motivation Problems..

- Easy modeling
  - In code
- "Conventional" models
- Performance

⇒ Solve them

# Software Architecture

## A definition

- Set of significant decisions
- Big ideas
  - Motivations
  - Constraints
  - Organization
  - Patterns
  - Responsibilities
  - Connections

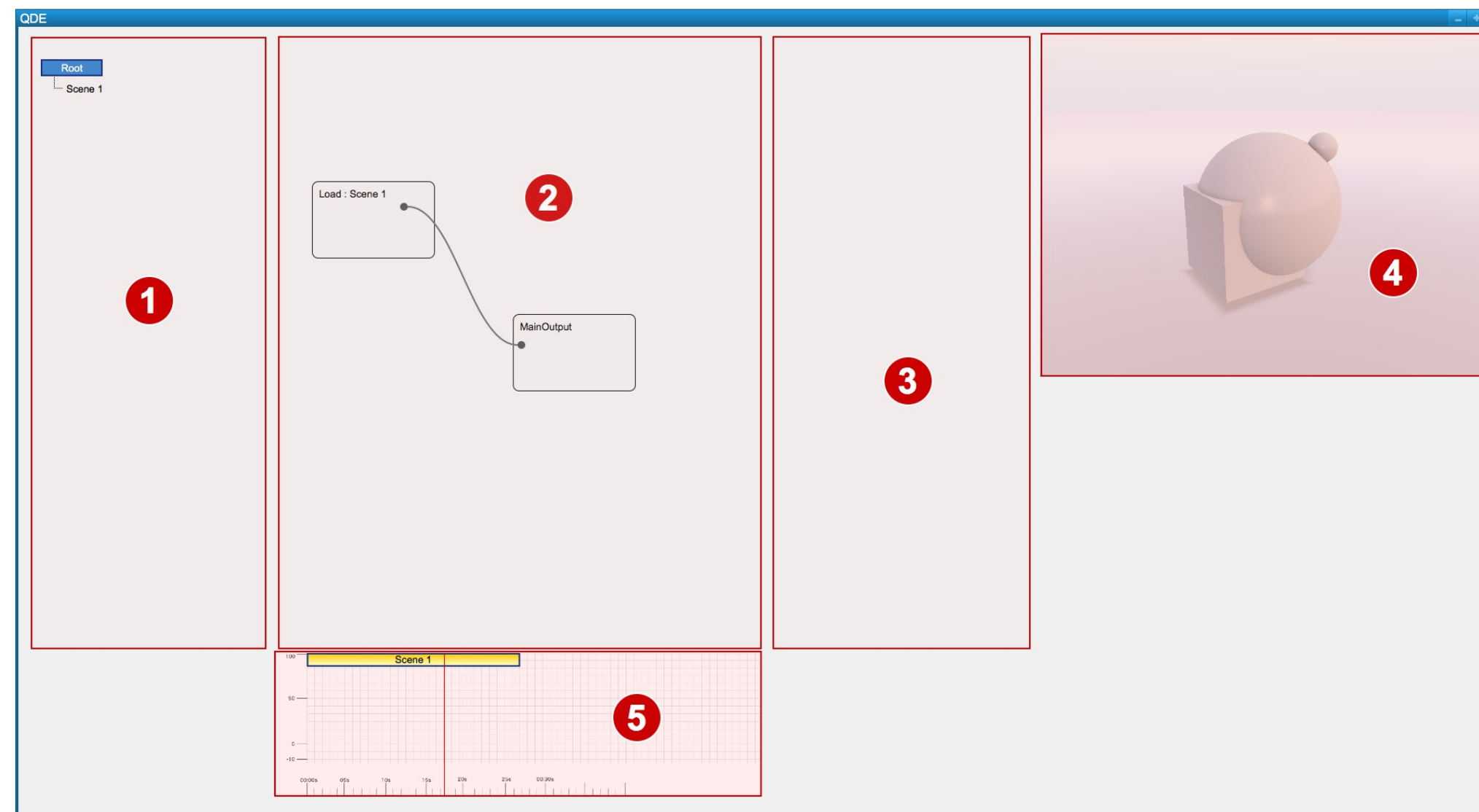
# Software Architecture Procedure

- Unified Process: Iterative
  - Extreme Programming
    - Test-driven development
    - Refactoring
    - Continuous integration
  - Scrum

# Vision

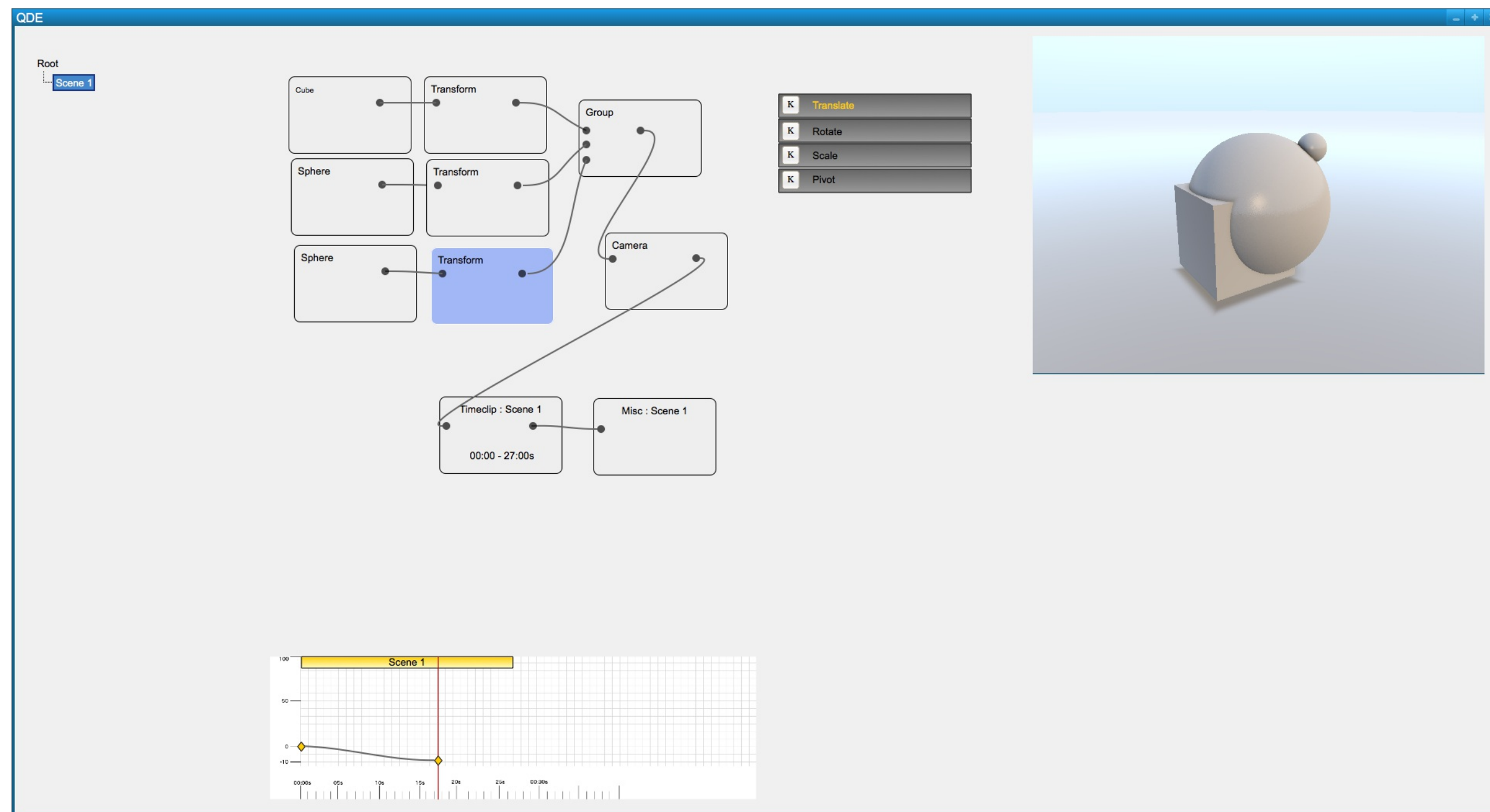
- Software
  - Real-time animations
    - Managing and editing
    - Allow export and import
    - Easily playable
  - Be intuitive
  - Modular
    - ⇒ 2 components
      - Editor
      - Player

# Vision Envisioned





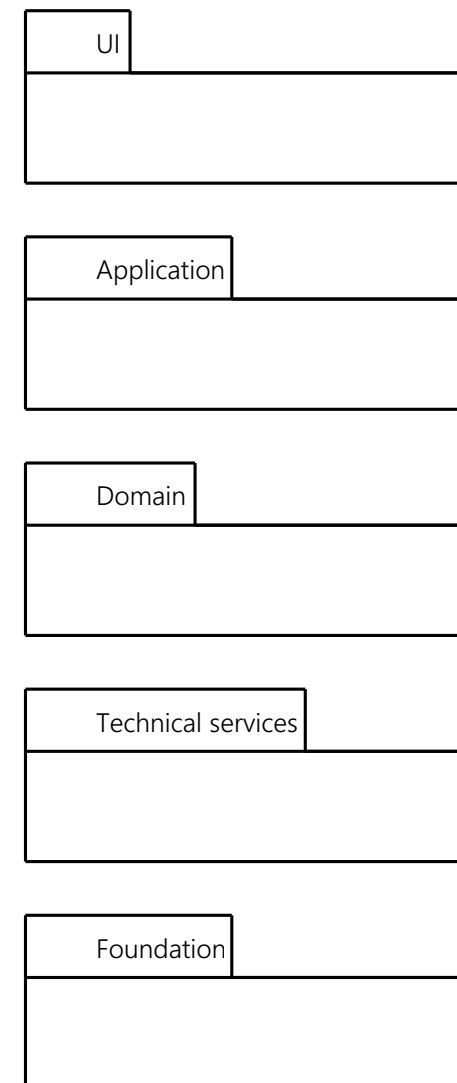
# Vision Envisioned



# From vision.. ..to architecture

- Requirements
  - Actors
  - Use Cases
  - Additional
- Domain model
- Sequence diagrams
- Logical architecture
- Class diagrams

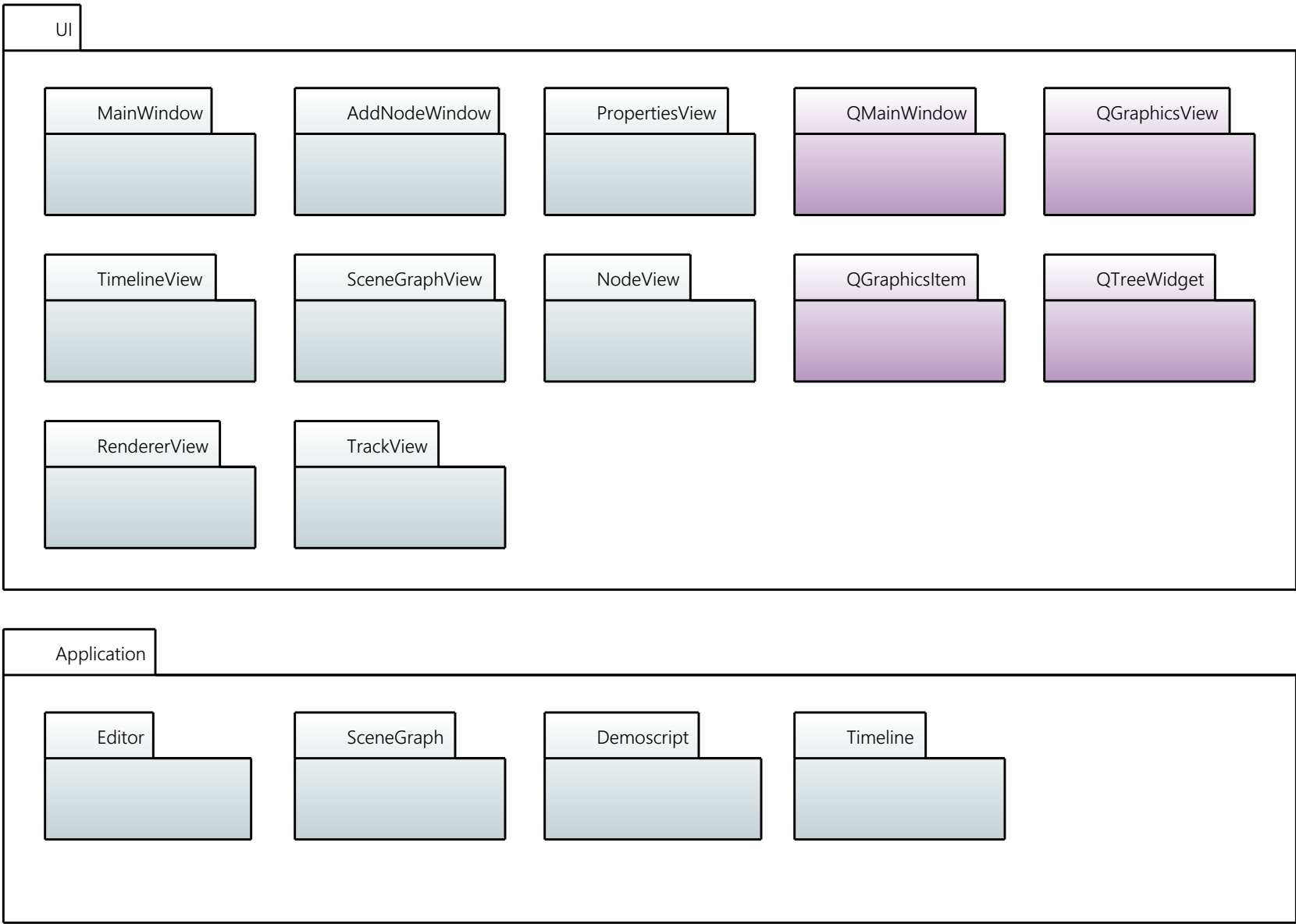
# Architecture Layers



⇒ Relaxed layered architecture

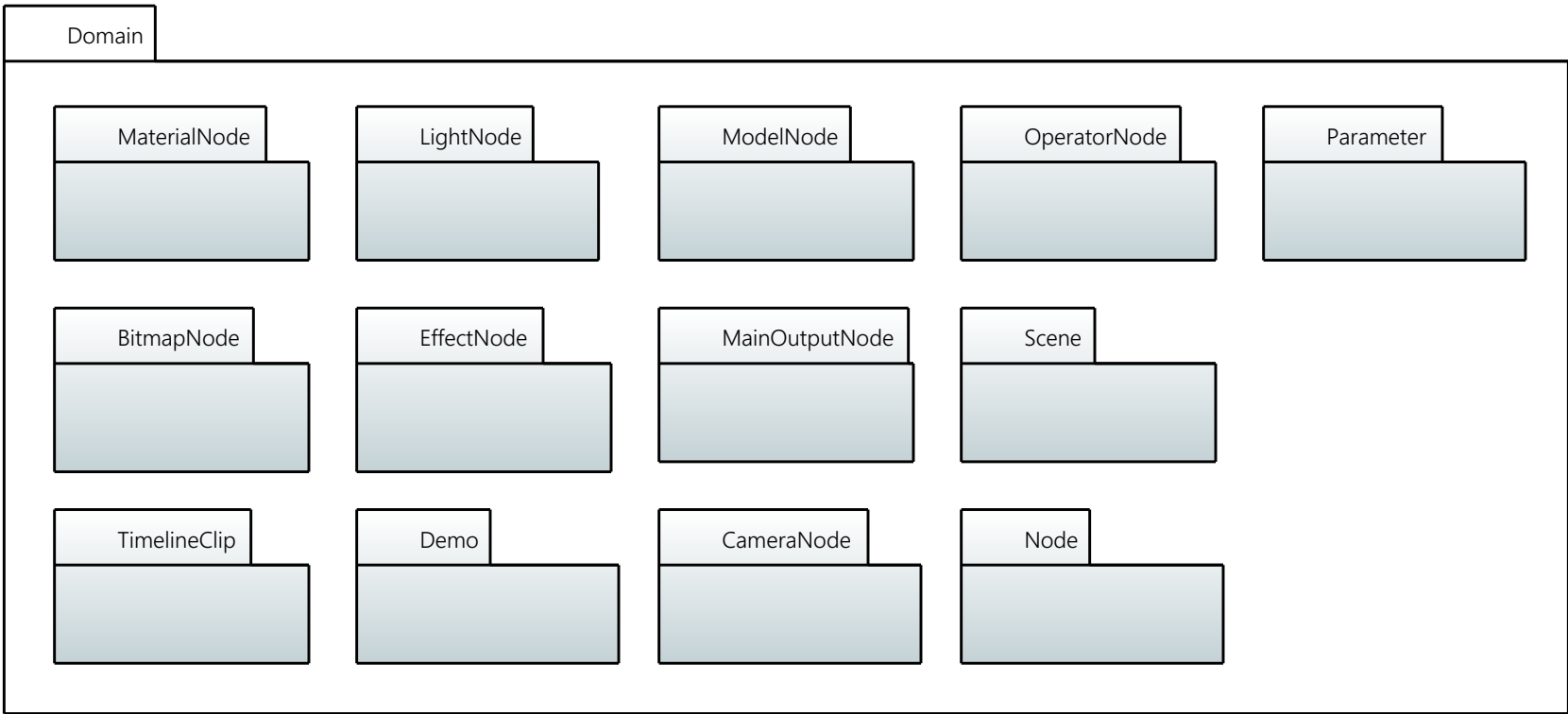
# Architecture

## Layers: UI & Application



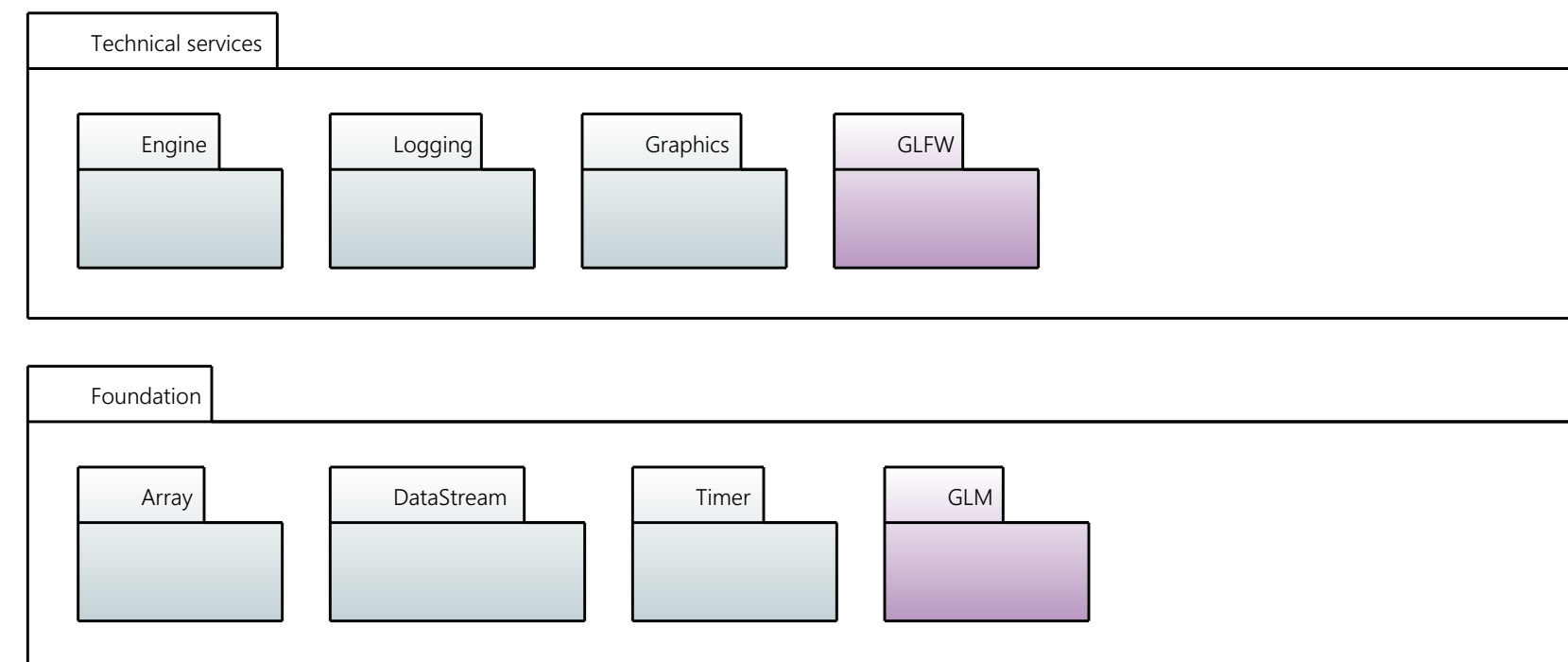
# Architecture

## Layers: Domain

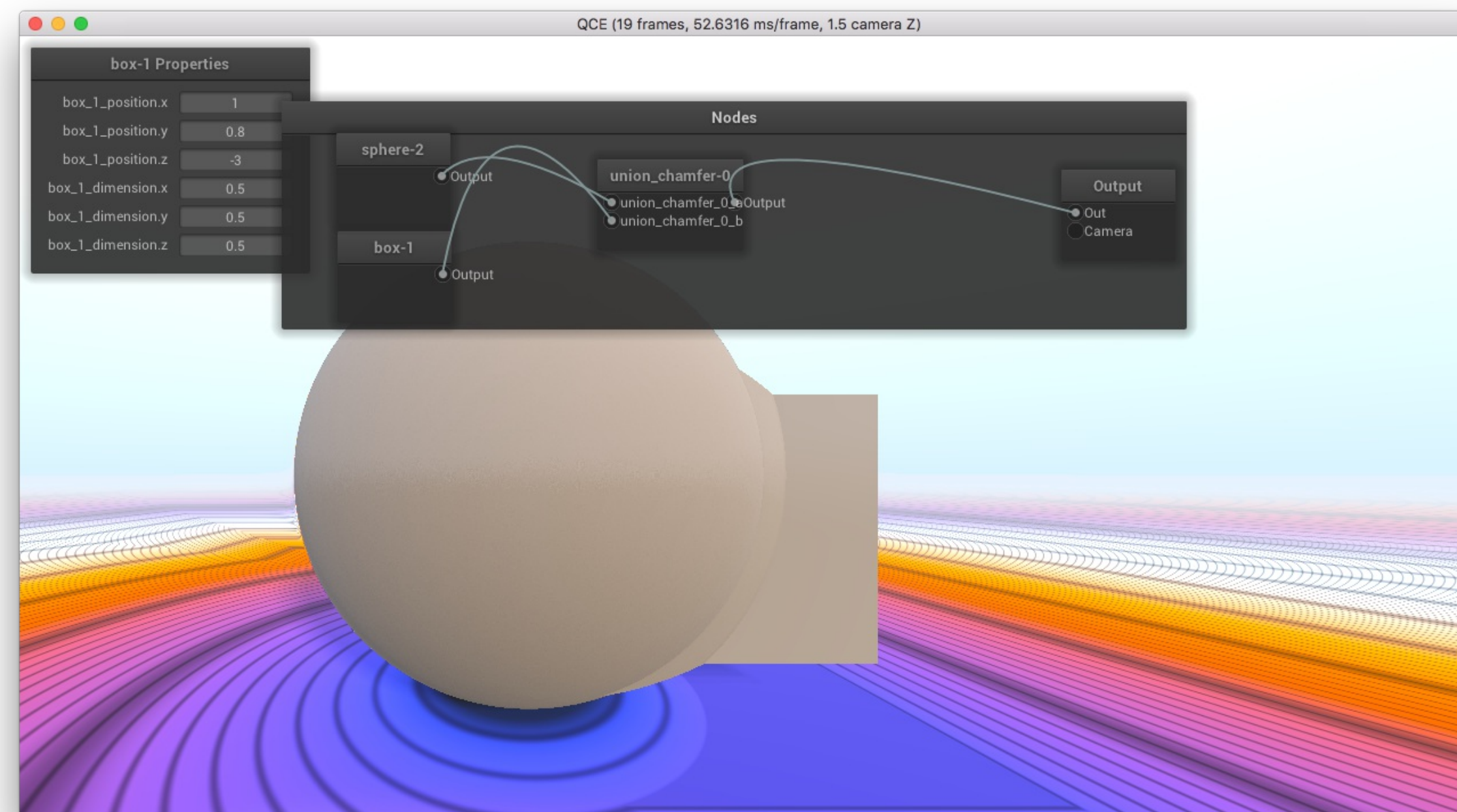


# Architecture

## Layers: Technical services & Foundation



# From theoretical.. ..to practical: Prototype



# Prototype

## Goal

- Model simple scene
- Provide primitives
- Graph



# Prototype Procedure

- Re-compilation of shaders
- Dynamically loading of shader files
- Shader-template
- Graph

# Lessons learned & outlook

- Iterations
- Simplicity
- Patterns
- Document

Thank you..  
Questions?

