

# Urbi & Orbi

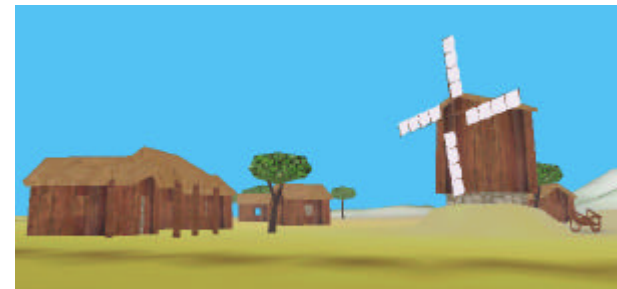
A language oriented  
approach of  
Distributed Virtual  
Environment

**EPITA Research and Development  
Laboratory**

14-16 rue Voltaire, F-94276 Le Kremlin-Bicêtre  
cedex, France

phone +33 1 44 08 01 77

fax +33 1 44 08 01 99



# I – Our framework

1/2

- **Goals:**
  - Architecture 3 1/3
  - Reactivity
  - Robustness
- **Models:**
  - Group communication
  - Asynchronous
  - Code migration

# I – Our framework

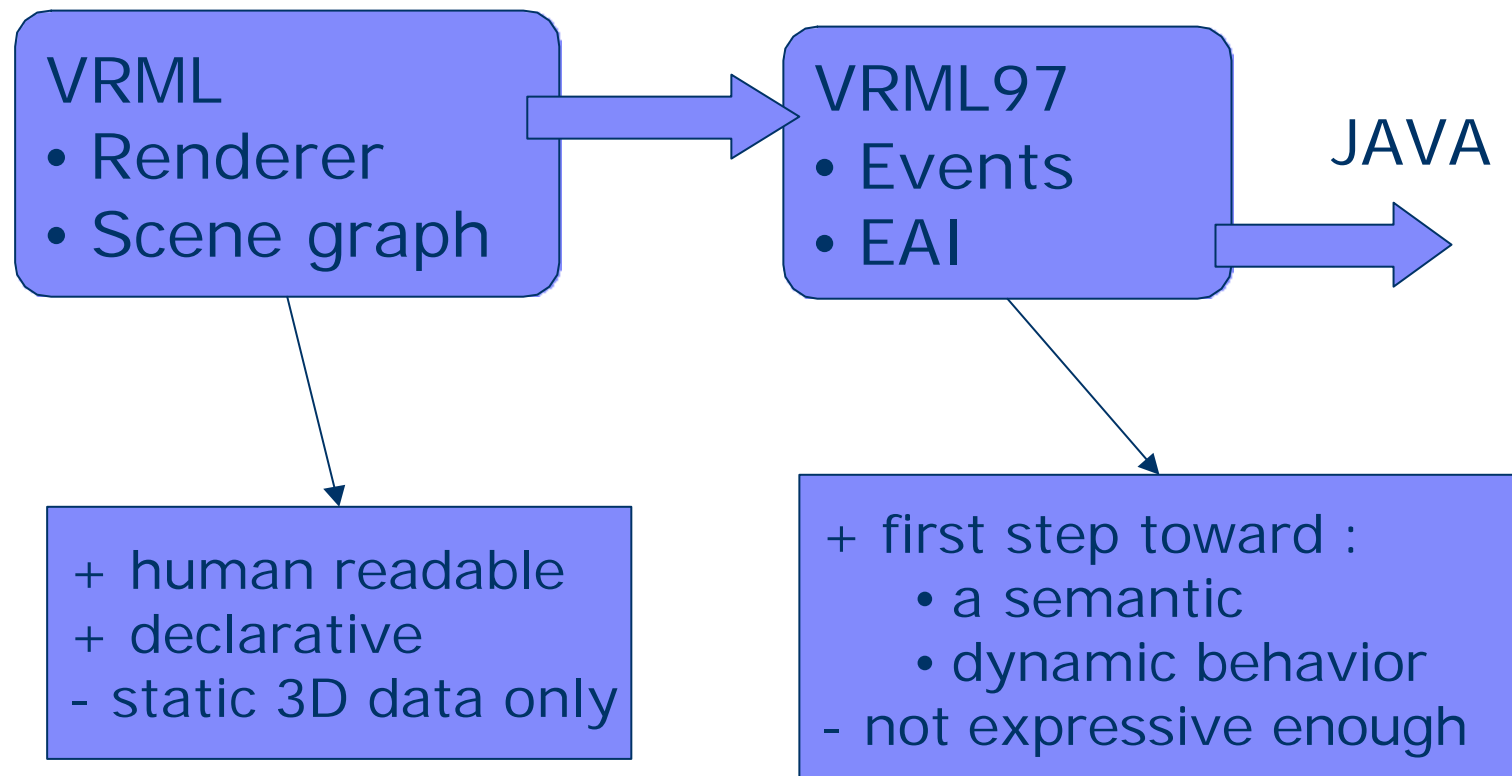
2/2

- A virtual synchrony kernel or « a global synchrony for asynchronous local messages ».
- A concurrent renderer
- A scripting language

Urbu & Orbi is a « kernel » composed of three threaded modules in charge of the network, the display and the execution of the language.

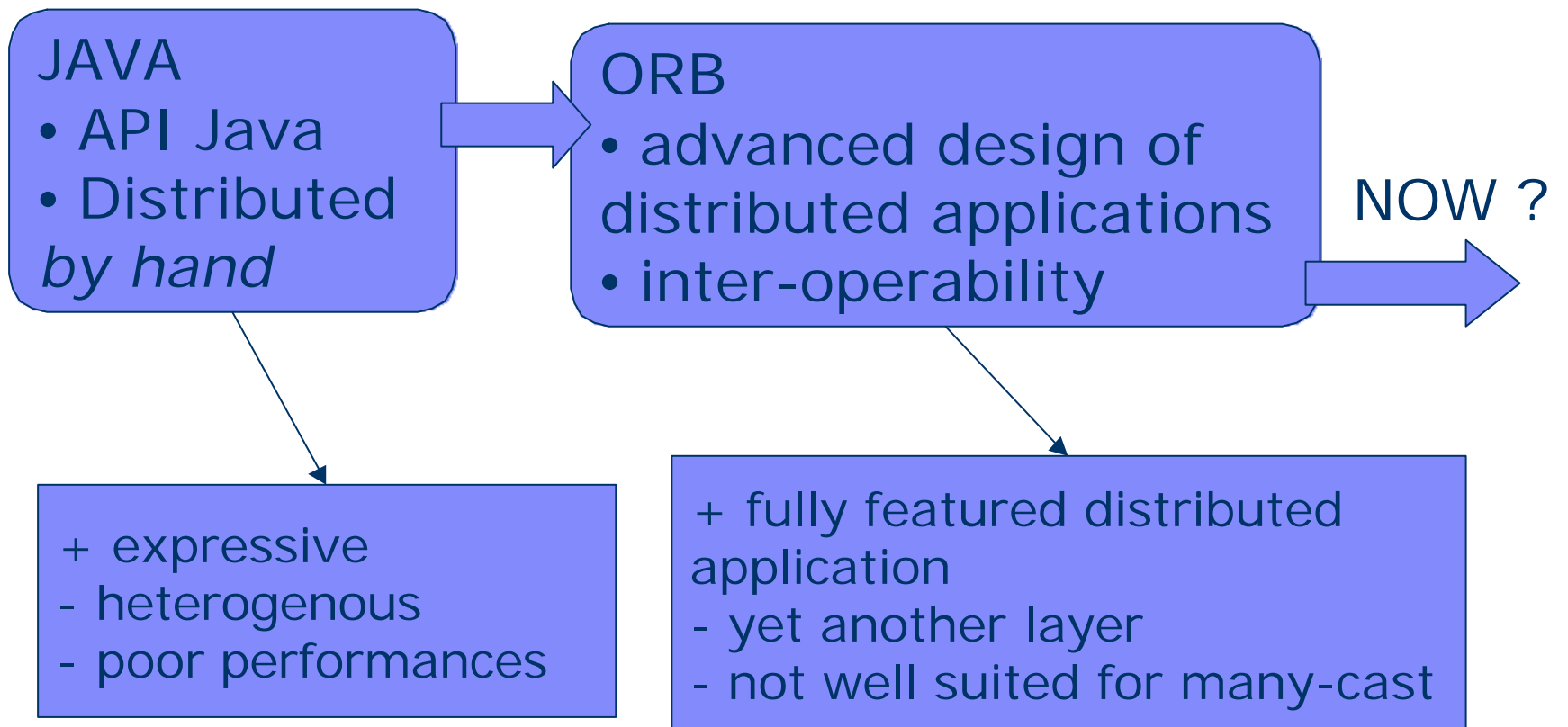
## II - The main stream

1/3



## II - The main stream

2/3



## II - The main stream

3/3

A three layers architecture has some major drawbacks:

- Too heterogenous.
- Unfit for many-cast, realtime use.
- Suffering serious performance penalty.

# III – GOAL: A scripting language

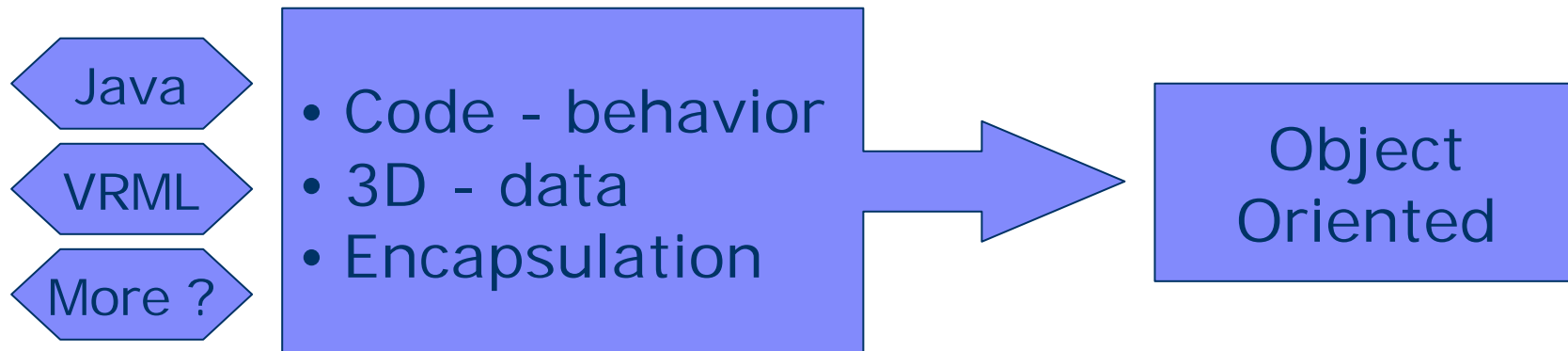
1/5

- Uniform environment
- High level API
- Simple language
- Code migration

# III – GOAL: A scripting language

2/5

To make uniform

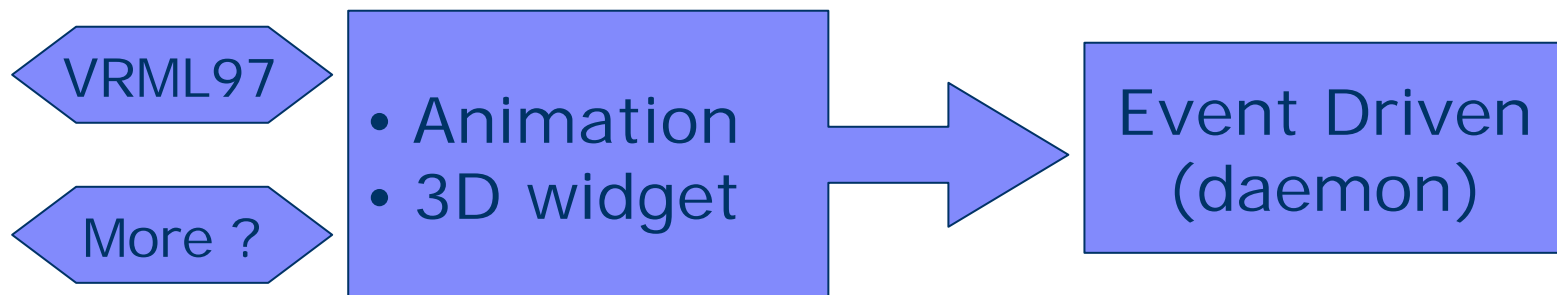




# III – GOAL: A scripting language

3/5

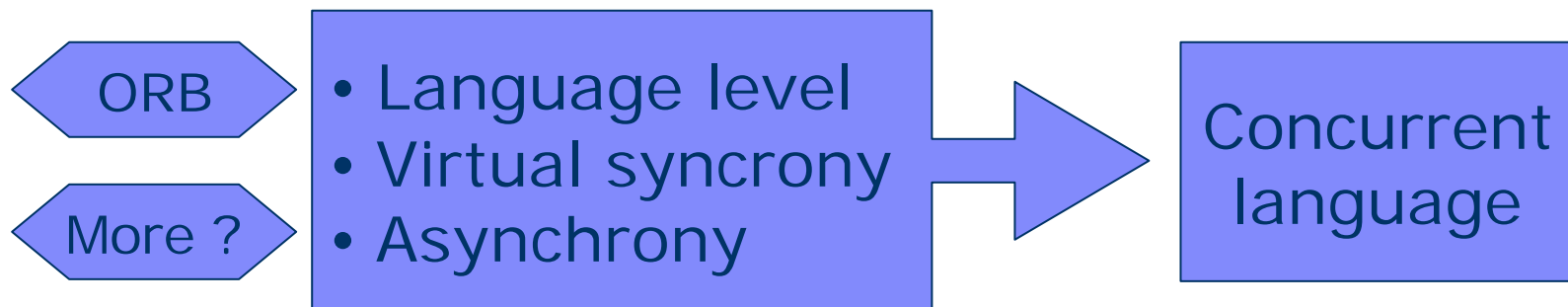
## Extended interactivity



# III – GOAL: A scripting language

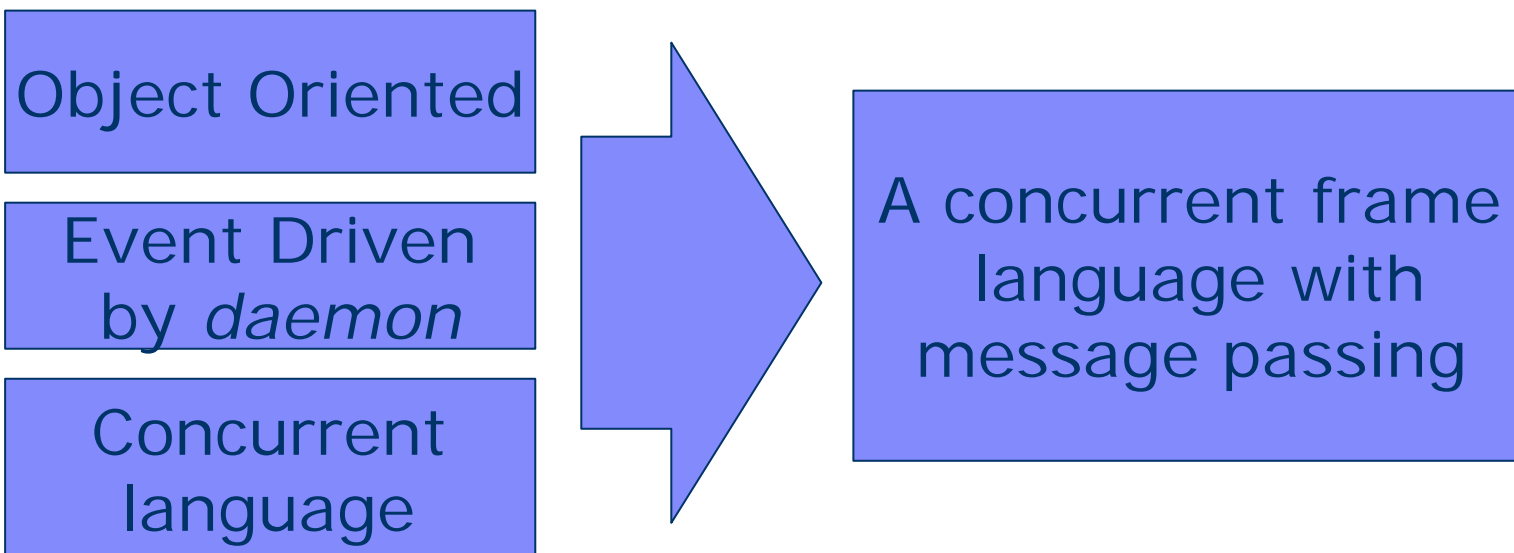
4/5

## Network & performances



# III – GOAL: A scripting language

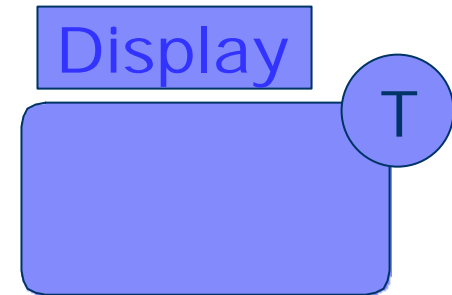
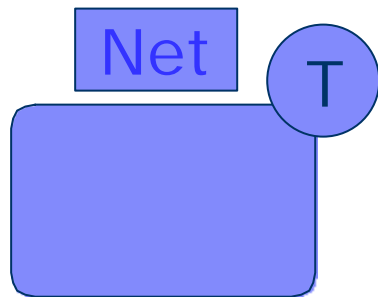
5/5



**GOAL** - *Group and Object Asynchronous Language.*

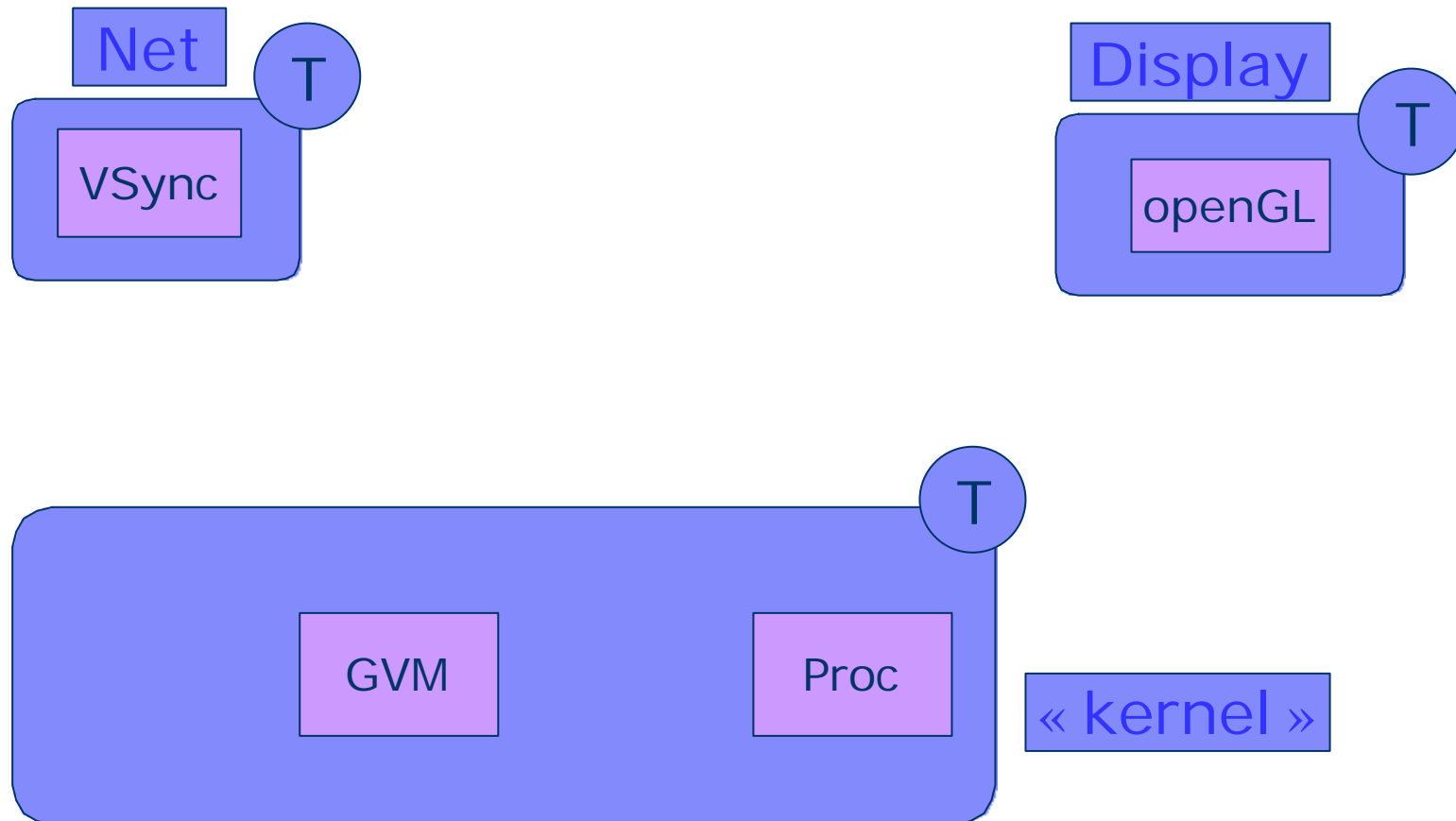
# IV – Architecture

1/5



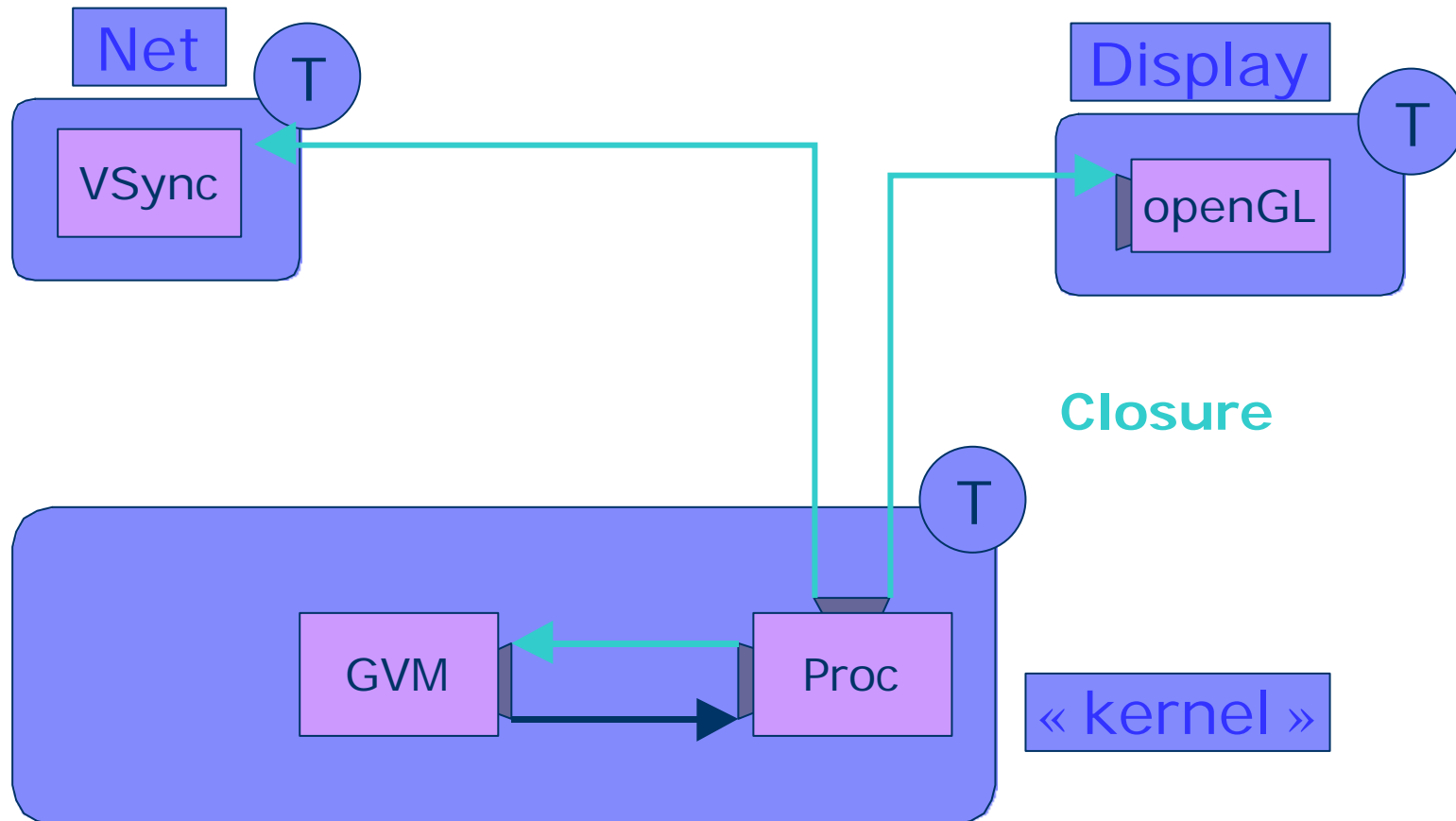
# IV – Architecture

2/5



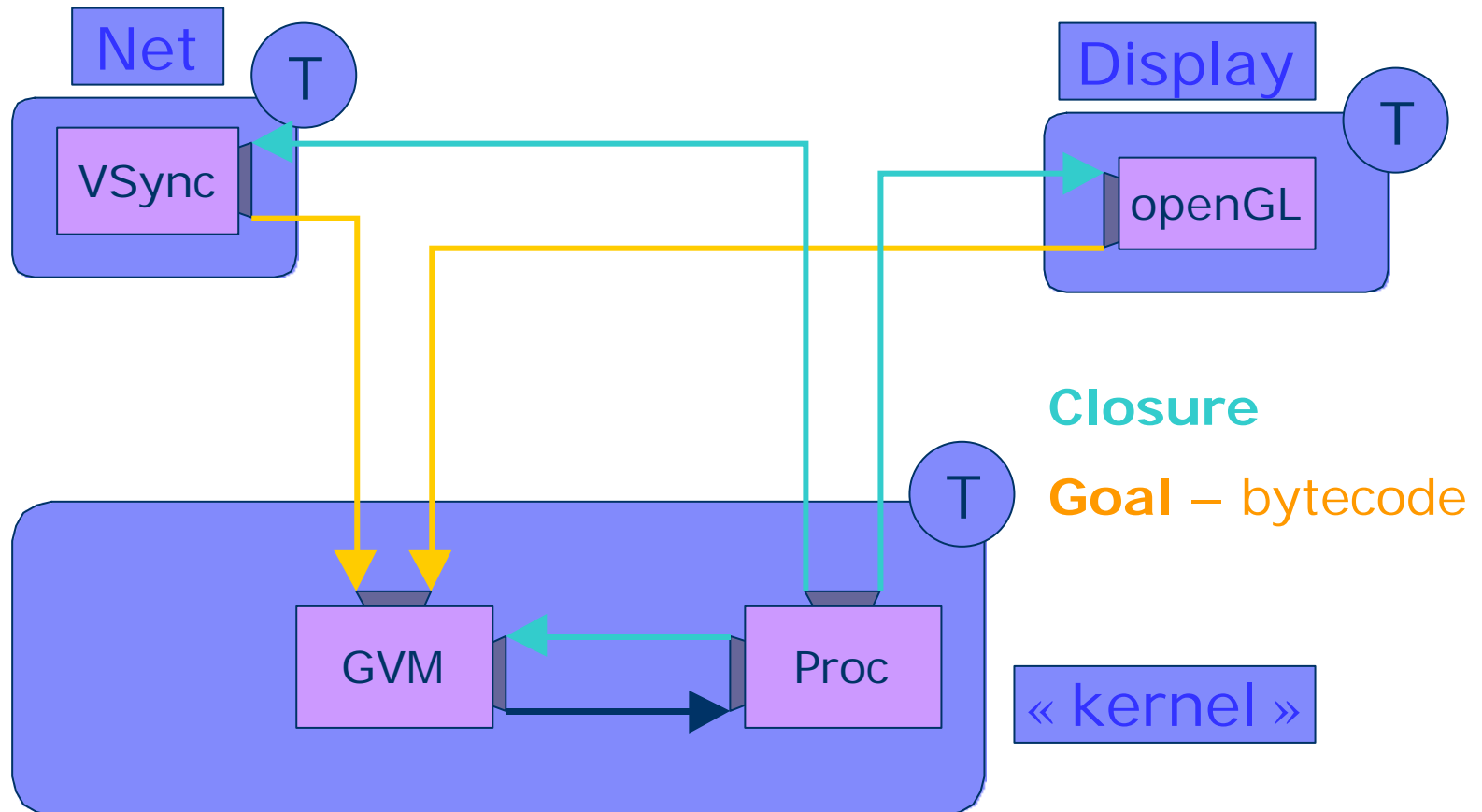
# IV – Architecture

3/5



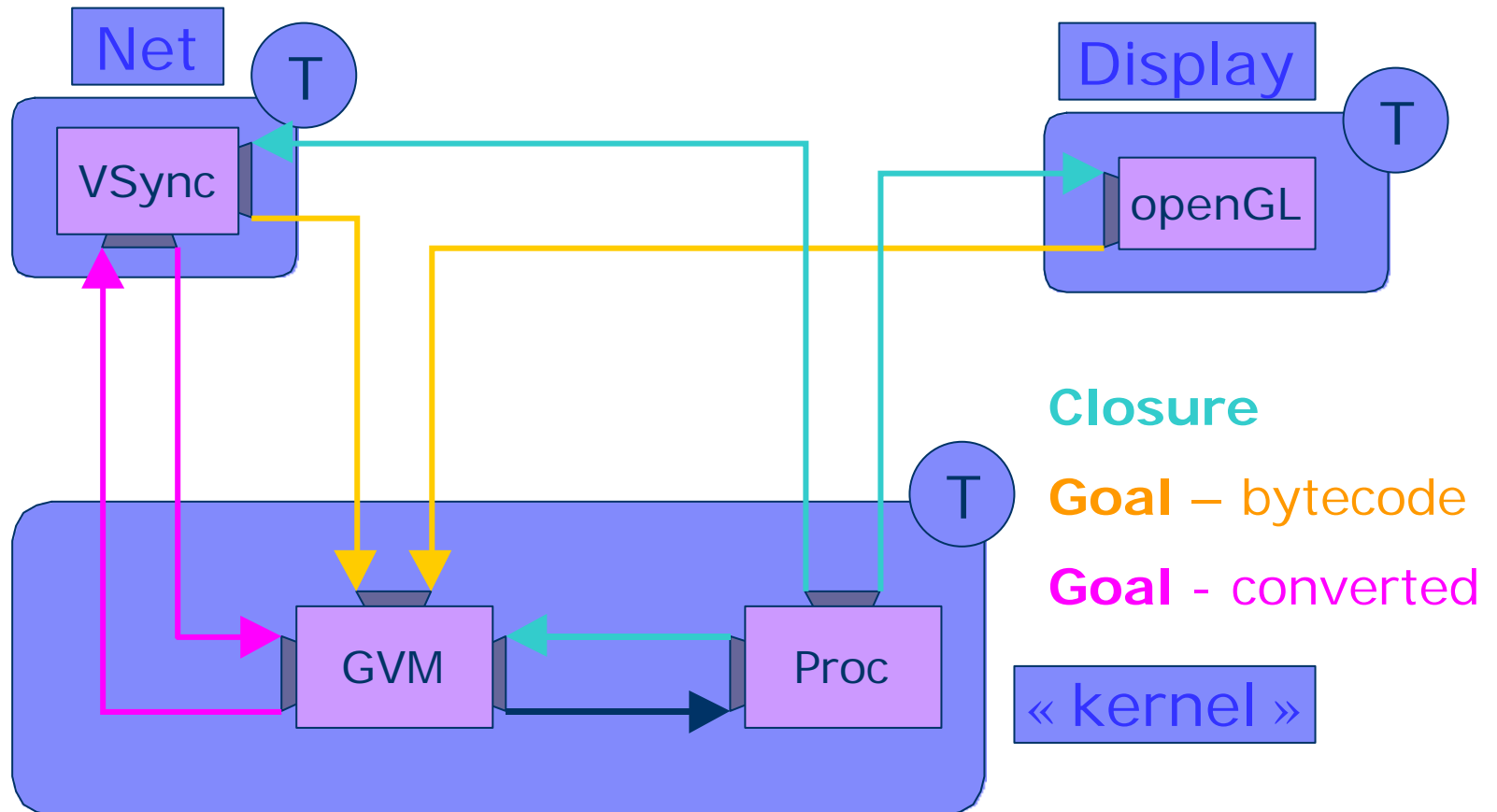
# IV – Architecture

4/5



# IV – Architecture

5/5





## V – Further work...



- How to handle:
  - Security issue
  - Authentication issue

Urbi & Orbi is a pliant framework to test different virtual reality system structures.