

PDPTA'2000 – June 27, 2000

Éric CARIOU

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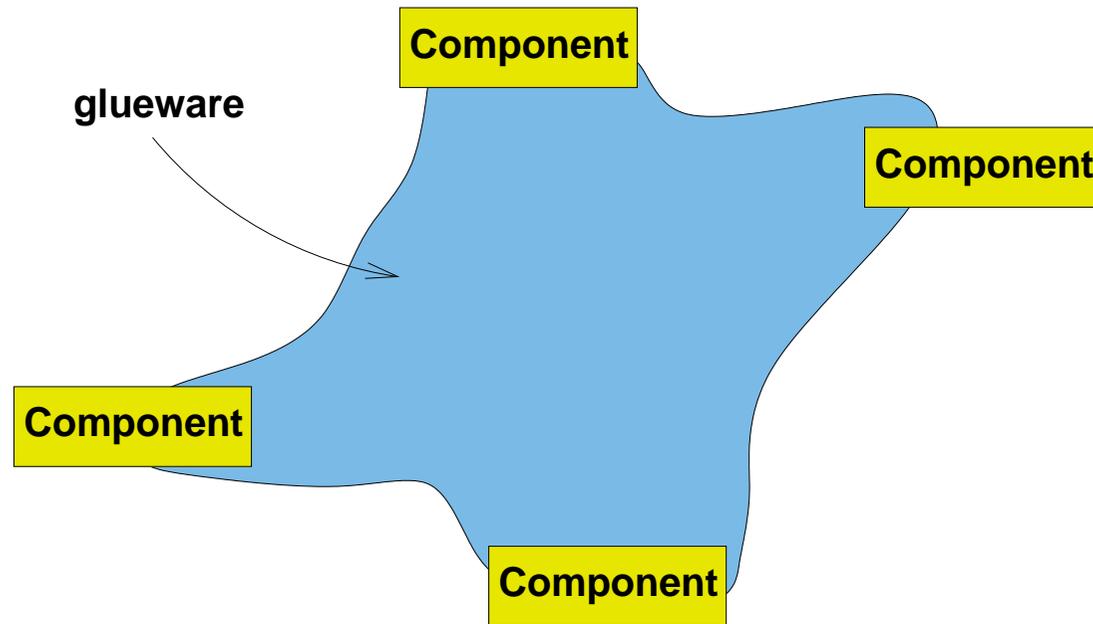
Specification of Communication Components  
in UML

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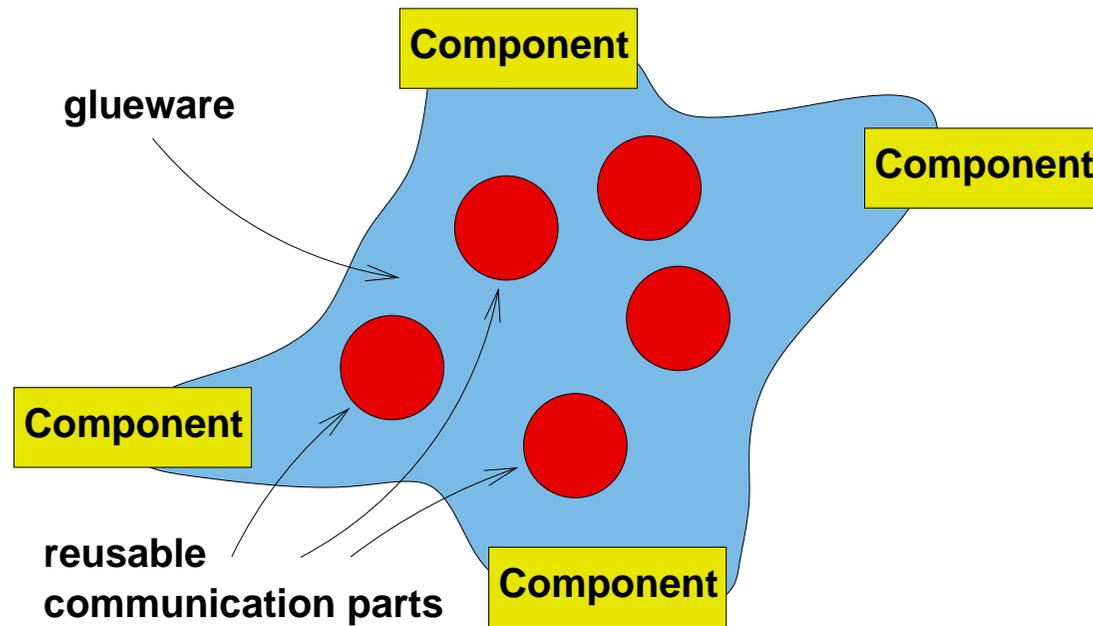


# APPLICATION DESIGN WITH COMPONENTS



- Application = set of **components** (functional concern) linked by **glueware coordination** (application specific part)

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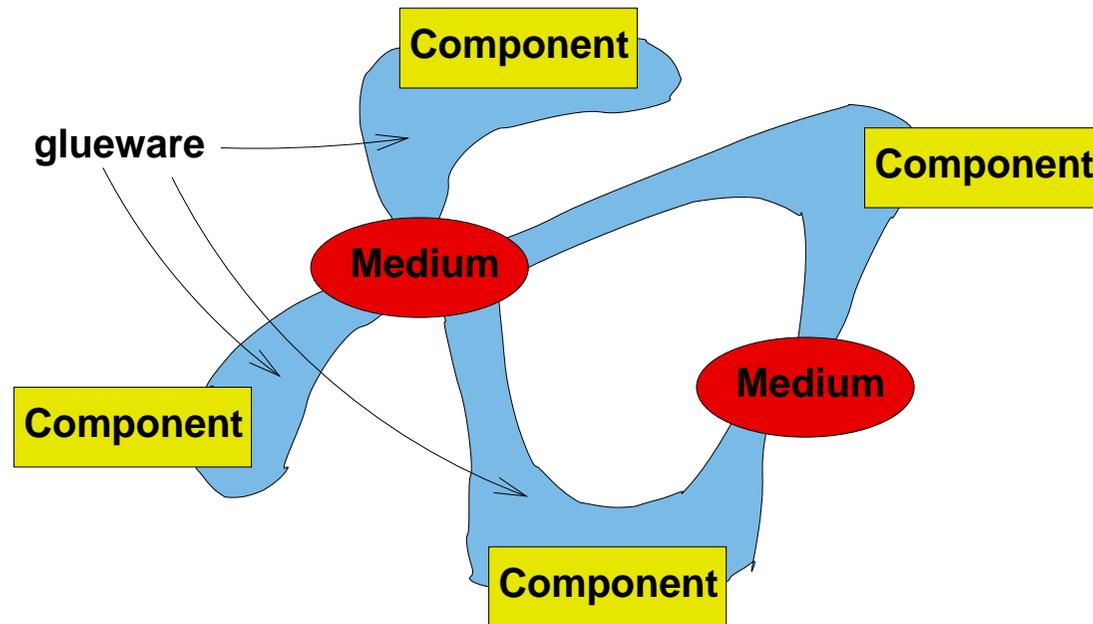


- Inside the glueware: some interaction/coordination/**communication means are reusable.**

## COMMUNICATION COMPONENT (MEDIUM)

- Component properties:
  - ↳ Autonomous software element
  - ↳ External interactions and contract clearly specified
  - ↳ Replaceable and **reusable**
- Medium properties:
  - ↳ A communication specialized component: implement an **any-level communication protocol** or service (consensus, vote, blackboard, event broadcast, message passing, ...)
  - ↳ “Classical” components communicate through mediums

# APPLICATION DESIGN WITH MEDIUMS

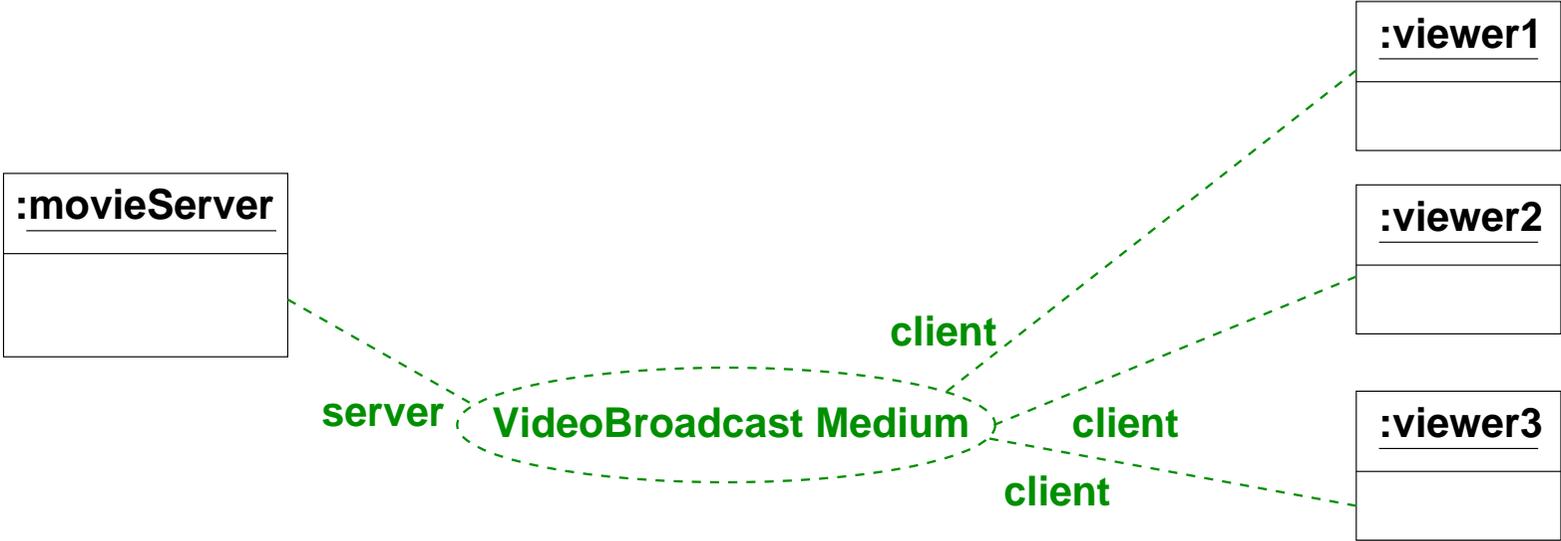


- Application = set of **components** (functional concern) and **mediums** (communication concern) linked by **glueware** (*more* specific part of the application)

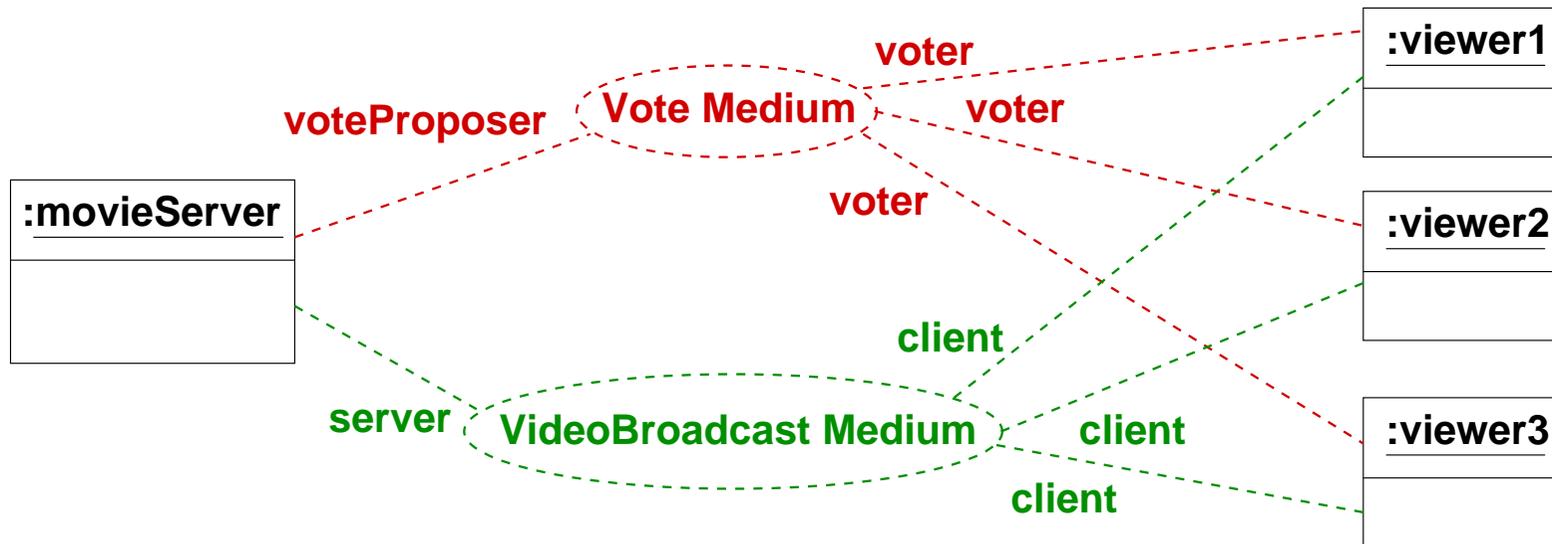
# SPECIFICATION OF COMMUNICATION COMPONENTS

- Why a specification ?
  - ⇒ *to describe the **component contract** from its **user's point of view***
  - ↳ List of its offered and required services
  - ↳ Behavior of each of its services
- How to specify ?
  - ⇒ ***in UML***
  - ↳ Medium described by a collaboration
  - ↳ Interaction messages, statecharts and OCL for the behavioral aspect

# BASIC EXAMPLE: VIDEO BROADCAST



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- In the paper:
  - ↳ The methodology of medium specification in UML
  - ↳ Specification of a Linda coordination model based medium

## CONCLUSION

- Communication service reified into a component:
  - ⇒ **Abstraction for manipulating** communication/coordination means from analysis and design to implementation
  - ⇒ Allowing **reusability of communication means**

## PERSPECTIVES

- Two applications using two mediums (video broadcast and vote) about to be released
- A medium catalogue is being developed
- Integrating this UML methodology of specification in an UML CASE Tool (Umlaut) for code generation and medium validation

## FOR MORE INFORMATION...

➤ E-mail:

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➤ Informations on Communication Components:

`http://www-info.enst-bretagne.fr/medium/`

➤ The UML Case Tool Umlaut is freely downloadable from:

`http://www.irisa.fr/pampa/UMLAUT/`