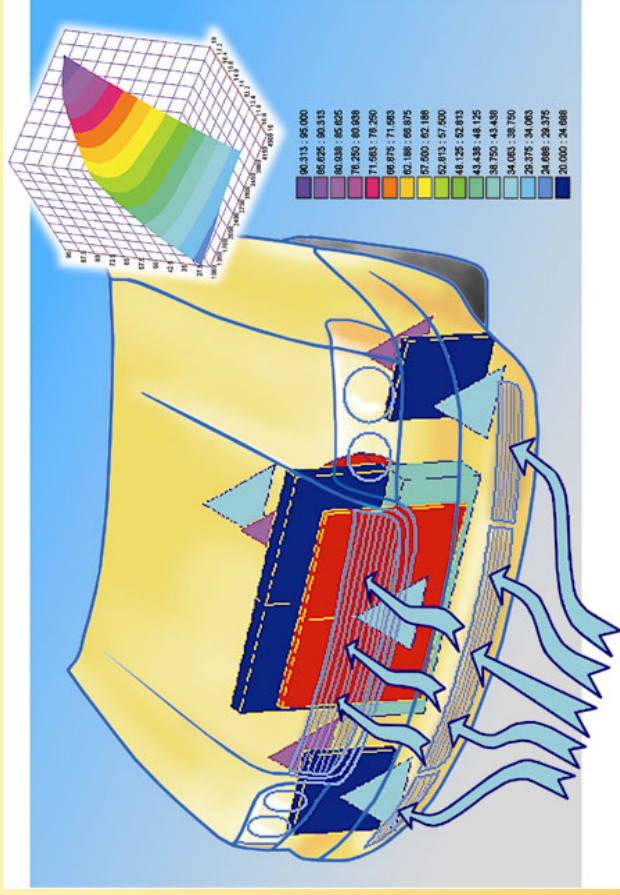


KULI - FLOWMASTER Integration



KULI

- ◆ Air Flow
- ◆ Heat Transfer

FLOWMASTER

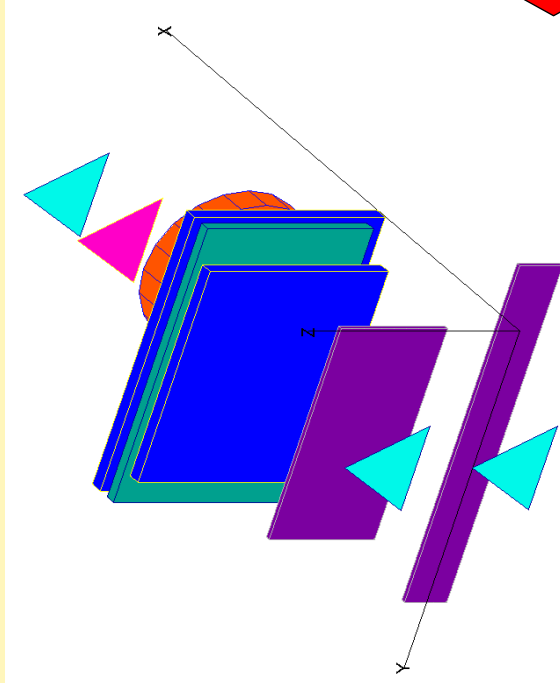
- ◆ Coolant Flow

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Engineering Center Steyr

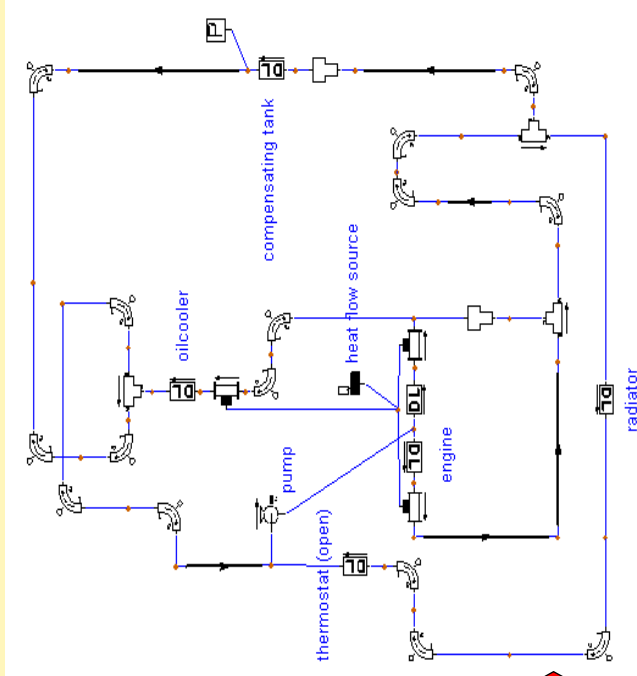
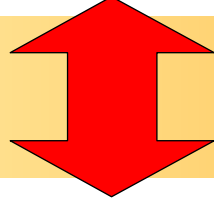
CONTENT

- ◆ INTRODUCTION
- ◆ CORBA INTERFACE
- ◆ INTERFACE FUNCTIONS
- ◆ FUTURE STEPS

KULI - FLOWMASTER INTEGRATION



KULI 3.1



FLOWMASTER

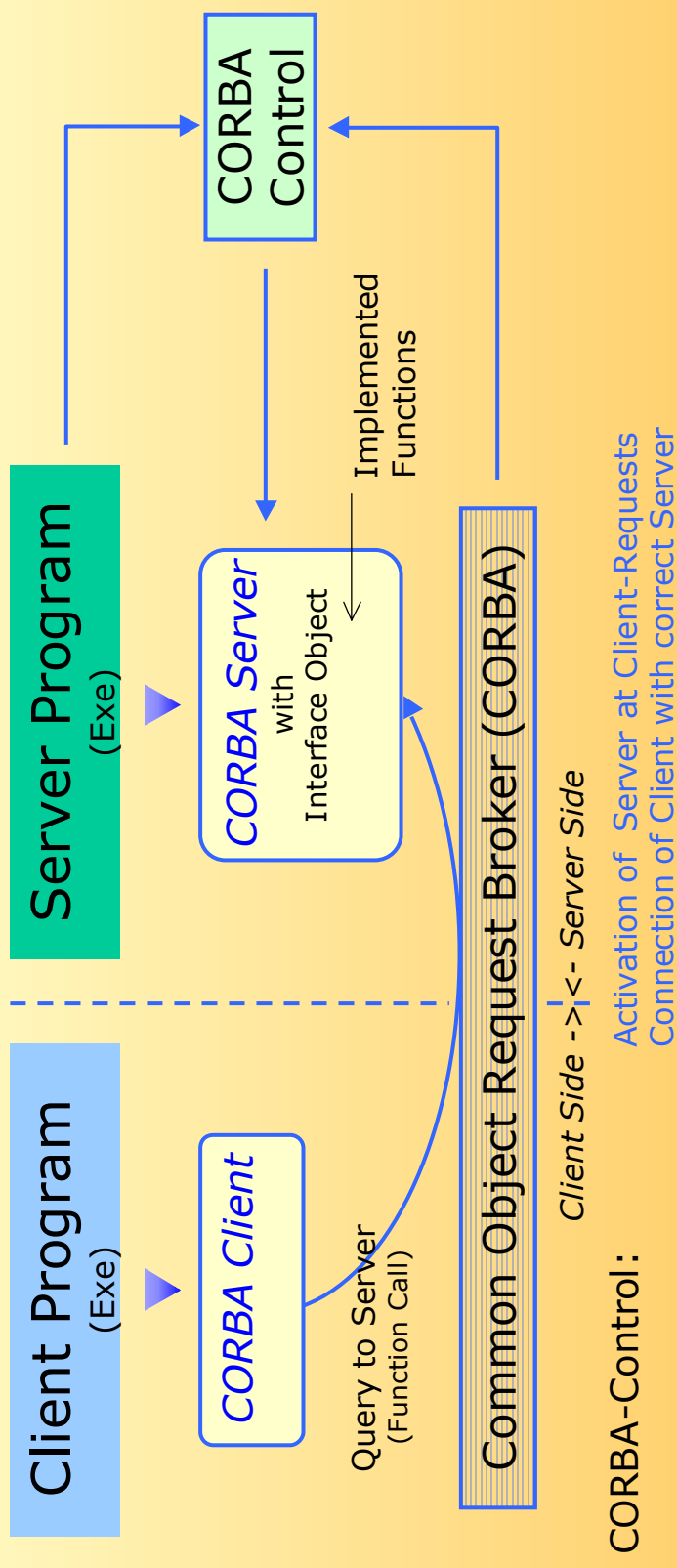
OBJECTIVES

- ◆ **Modern Interface Technology (CORBA)**
- ◆ **Fast Data Exchange via RAM (no File)**
- ◆ **High Flexibility**
 - Independent of Client / Server**
 - ◆ **Location**
 - ◆ **Hardware**
 - ◆ **Software**

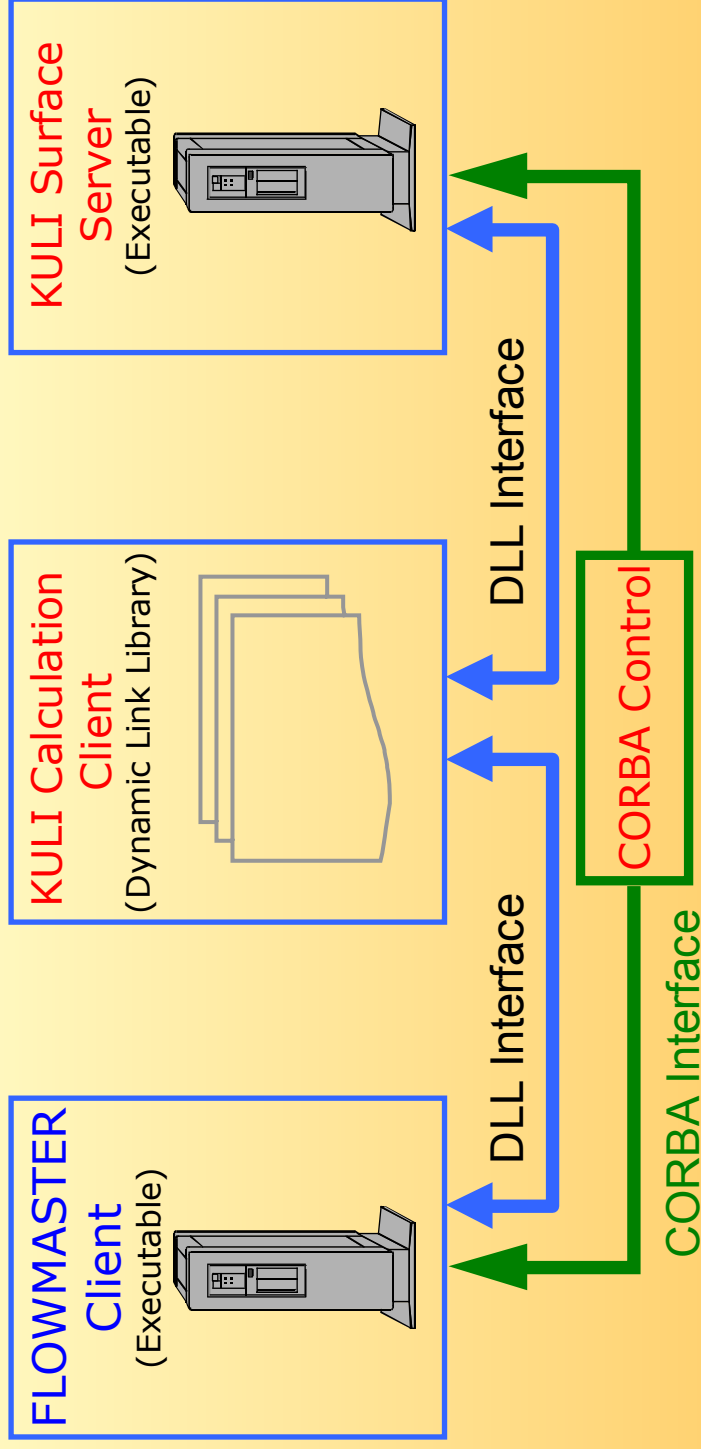
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Common Object Request Broker (CORBA)



Interface KULI-FLOWMASTER



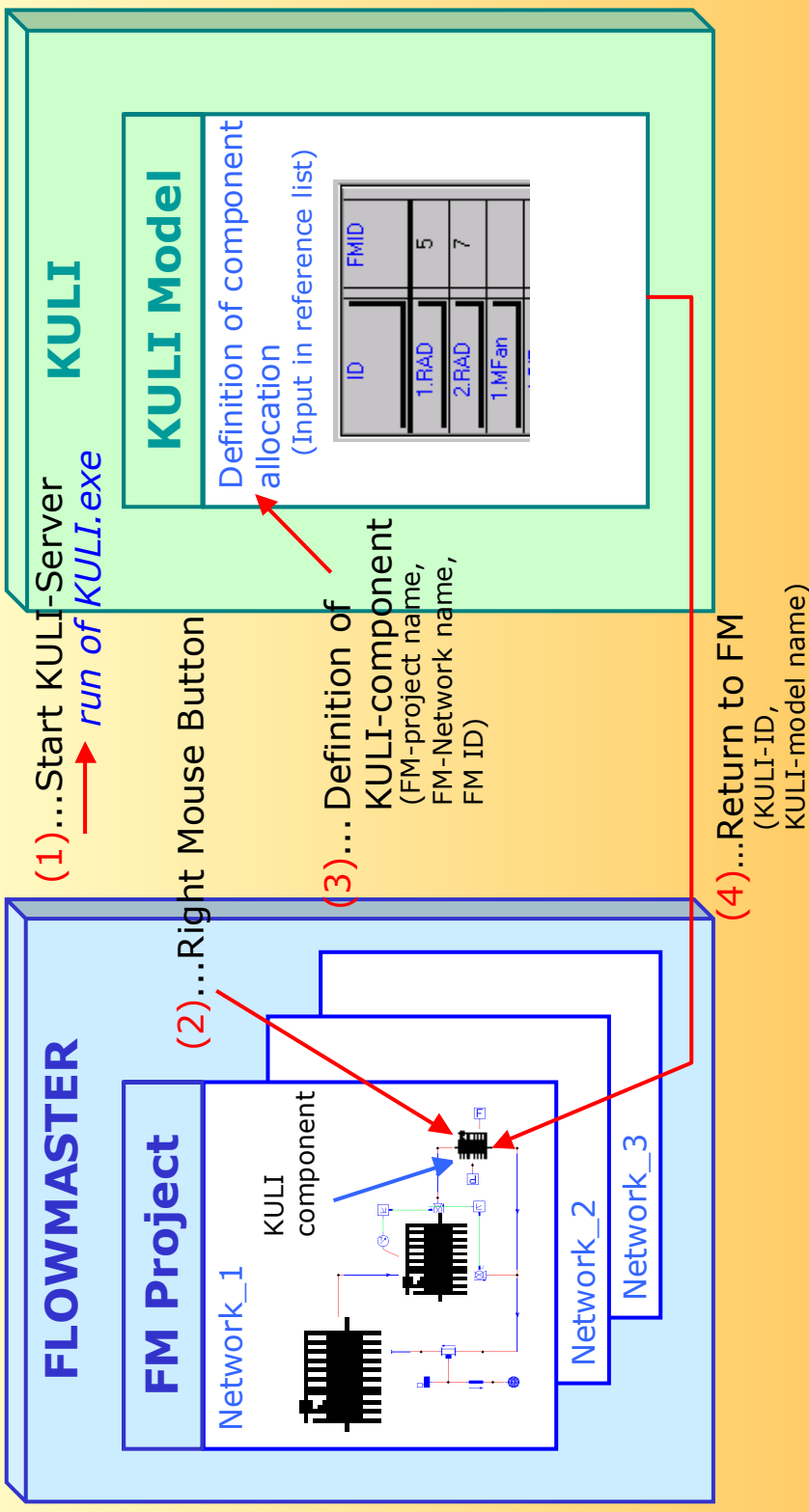
CONTENT

- ◆ INTRODUCTION
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- ◆ FUTURE STEPS

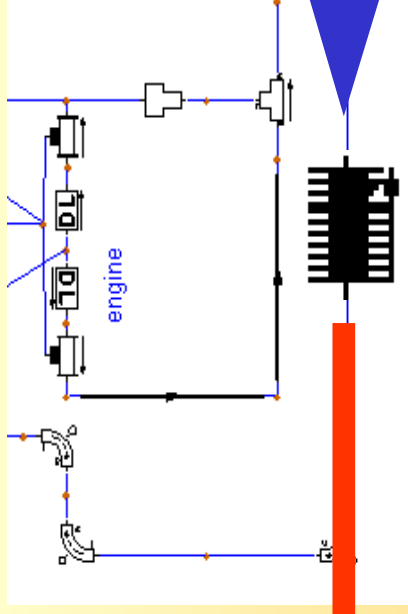
Server Functions

- ◆ Generate a connection to KULI
- ◆ Create a KULI component
- ◆ Delete a component in KULI
- ◆ Transmit FLOWMASTER ID to KULI component
- ◆ Complete a KULI model
- ◆ Copy a KULI model if FM network is copied
- ◆ Tests (e.g. "is KULI model complete ?")
- ◆ Parallel renumbering in KULI, if FM IDs are changed

Application of the Interface KULI-FM



Analysis



**FM
Iteration**

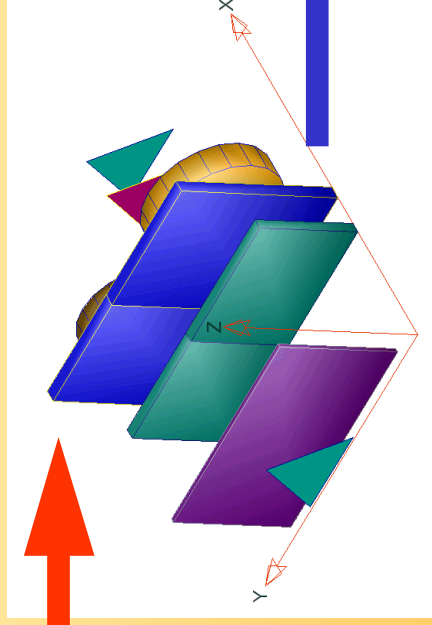
**KULI
Iteration**

Radiator Inlet

- Temperature
- Pressure
- Mass flow rate

Radiator Outlet

- Temperature
- Pressure
- Mass flow rate



CONTENT

- ◆ INTRODUCTION
- ◆ CORBA INTERFACE
- ◆ INTERFACE FUNCTIONS
- ◆ FUTURE STEPS

Future Development Steps

- ◆ Full Integration of Parallelflow Heatexchangers (Heat balancing in KULI)
- ◆ Extended Data Change KULI-FM via Interface (Pumpspeed, Valveposition,...)