


Universidad del País Vasco
Euskal Herriko Unibertsitatea
The University of the Basque Country

NeRES 2007

NeRES 2007


- Introduction
- Research interest
- Application fields
- Our perspective
- Our interest

Dynamic Configuration of Communications in Industrial Automation Systems



Networks for Reconfigurable Embedded Systems

1



Universidad del País Vasco
Euskal Herriko Unibertsitatea
The University of the Basque Country

Who we are?

NeRES 2007

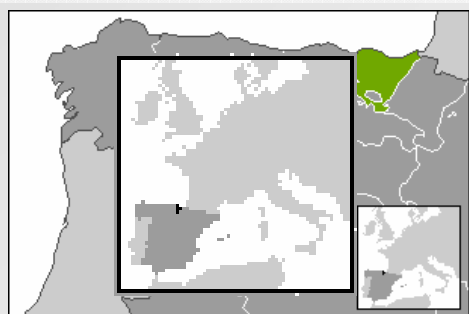
- Introduction
- Issues to Address
- Feedback from Industry

Where are we?

- University of the Basque Country
- Department of Automatic Control and Systems Engineering

Who are we?

- The Integration and Control Systems Group (GCIS)



2

Aveiro, 2nd of April 2007. Marga Marcos, Federico Pérez

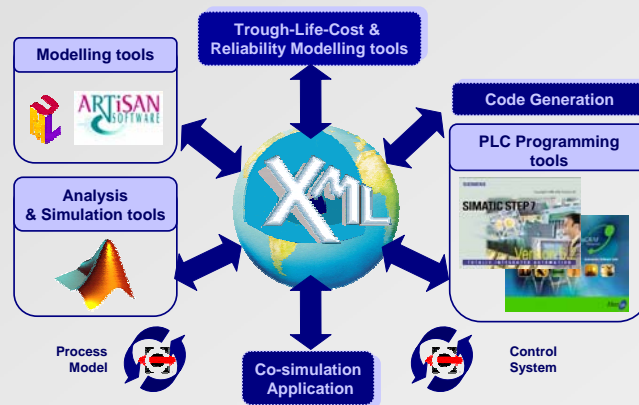
Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Distributed Industrial Automation Systems

- Industrial Partners: SPG, Rolls Royce Marine
- EU IST-2001-37269 FLEXICON, Spanish Ministry of Research & Education



Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Industrial communications systems

- PROFIBUS-DP, PA, DEVICENET, PROFINET IO, CBA, ...



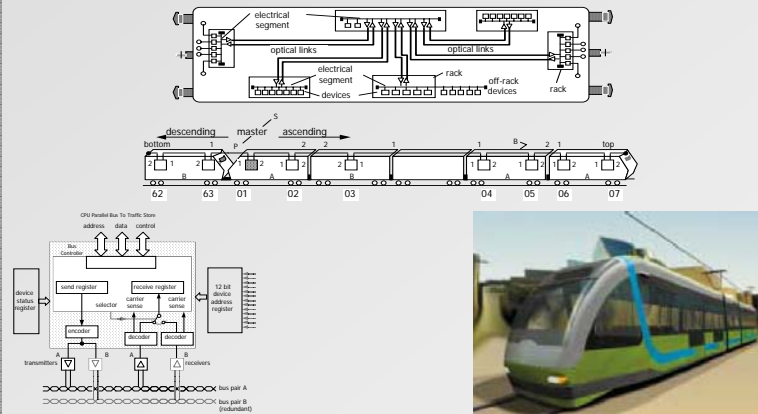
Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Railway Transport systems (CAF, S.A.)

- Train Communication Network
- Real Time Protocols



Aveiro, 2nd of April 2007. Marga Marcos, Federico Pérez

5

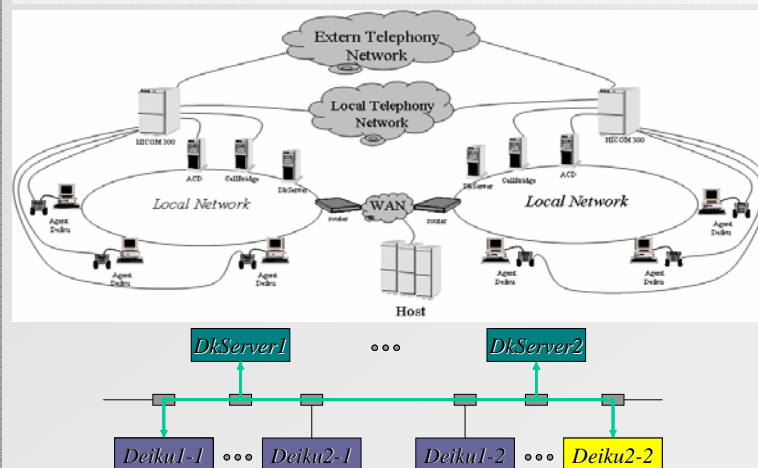
Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

SOS-Deiak Telecommunication Dynamic Reconfiguration

- Computer Telephony Integration (CTI)
- Call center phone control – Agent state control



Aveiro, 2nd of April 2007. Marga Marcos, Federico Pérez

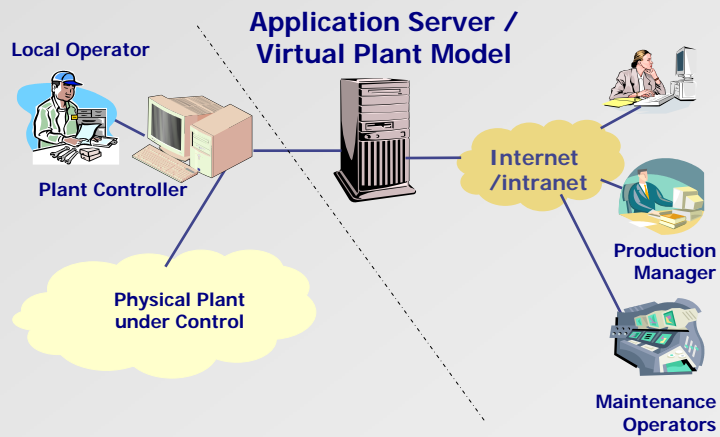
6

Related Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Middleware: Reference Architecture

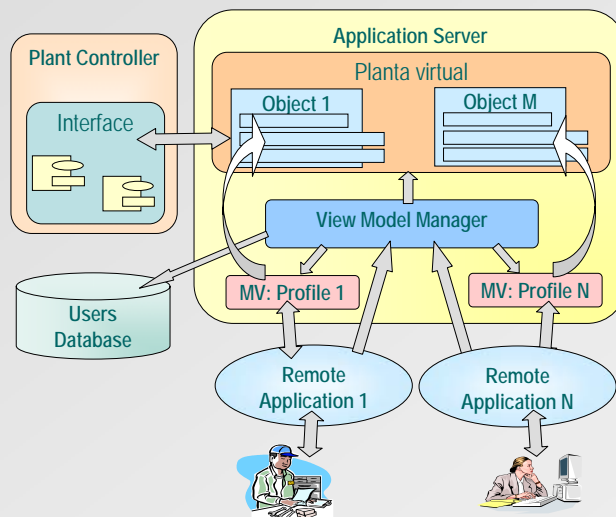


Related Application Fields

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

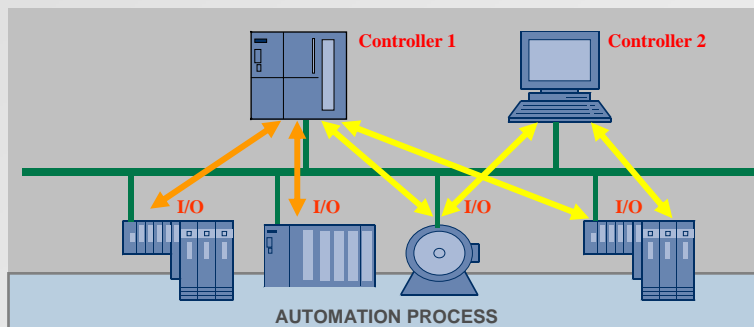
Object Oriented Process Modelling (Virtual Plant)



Possible issues to address

Industrial Automation Field

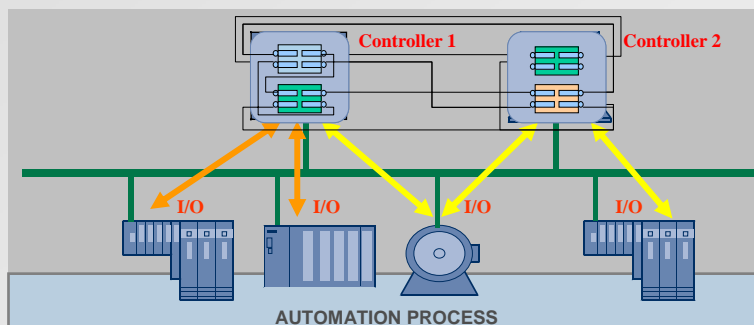
- Fault tolerance alternative
- Transient overhead
- Hybrid control of dynamic systems
- Industrial control of mobile devices



Possible issues to address

Industrial Automation Field

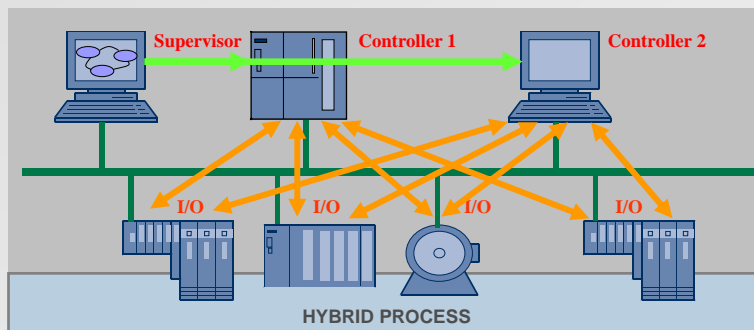
- Fault tolerance alternative
- **Transient overhead**
- Hybrid control of dynamic systems
- Industrial control of mobile devices



Possible issues to address

Industrial Automation Field

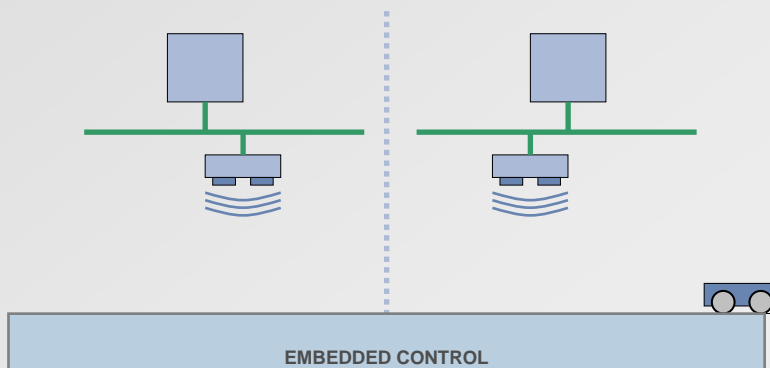
- Fault tolerance alternative
- Transient overhead
- **Hybrid control of dynamic systems**
- Industrial control of mobile devices



Possible issues to address

Industrial Automation Field

- Fault tolerance alternative
- Transient overhead
- Hybrid control of dynamic systems
- **Industrial control of mobile devices**



Feedback from Industrial Partners

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Industrial Automation

- **SPG (GECSA group)**
 - Only proven technologies
 - Lack of operator training
- **TEAM (INGE TEAM group)**
 - Interested
 - Currently, no demand from final customers

Feedback from Industrial Partners

NeRES 2007

- Introduction
- Issues to Address
- Feedback from Industry

Electrical Energy Distribution

- **ZIV Aplicaciones y Tecnología, (ZIV group)**
 - IEC 61850
 - Difficult application until proven robustness
- **GEPCE, (GE group)**
 - Possible application in distributed electrical protections