PRAGMADEV
modeling and testing tools

Modeling and Testing tools

emmanuel.gaudin@pragmadev.com

References

Aero/ Defense

AIRBUS
esa
DGA
CS COMMUNICATION & SYSTEMES

Automotive

RENAULT
BlueSolutions by Bolloré

Telecoms

Alcatel·Lucent
AEROFLEX
ERCOM
WIPRO
NewLogic
LG Electronics
THOMSON images & beyond
KETI Korea Electronics Technology Institute
ABB

Semi-conductor

life.augmented
TOSHIBA
MITSUMI

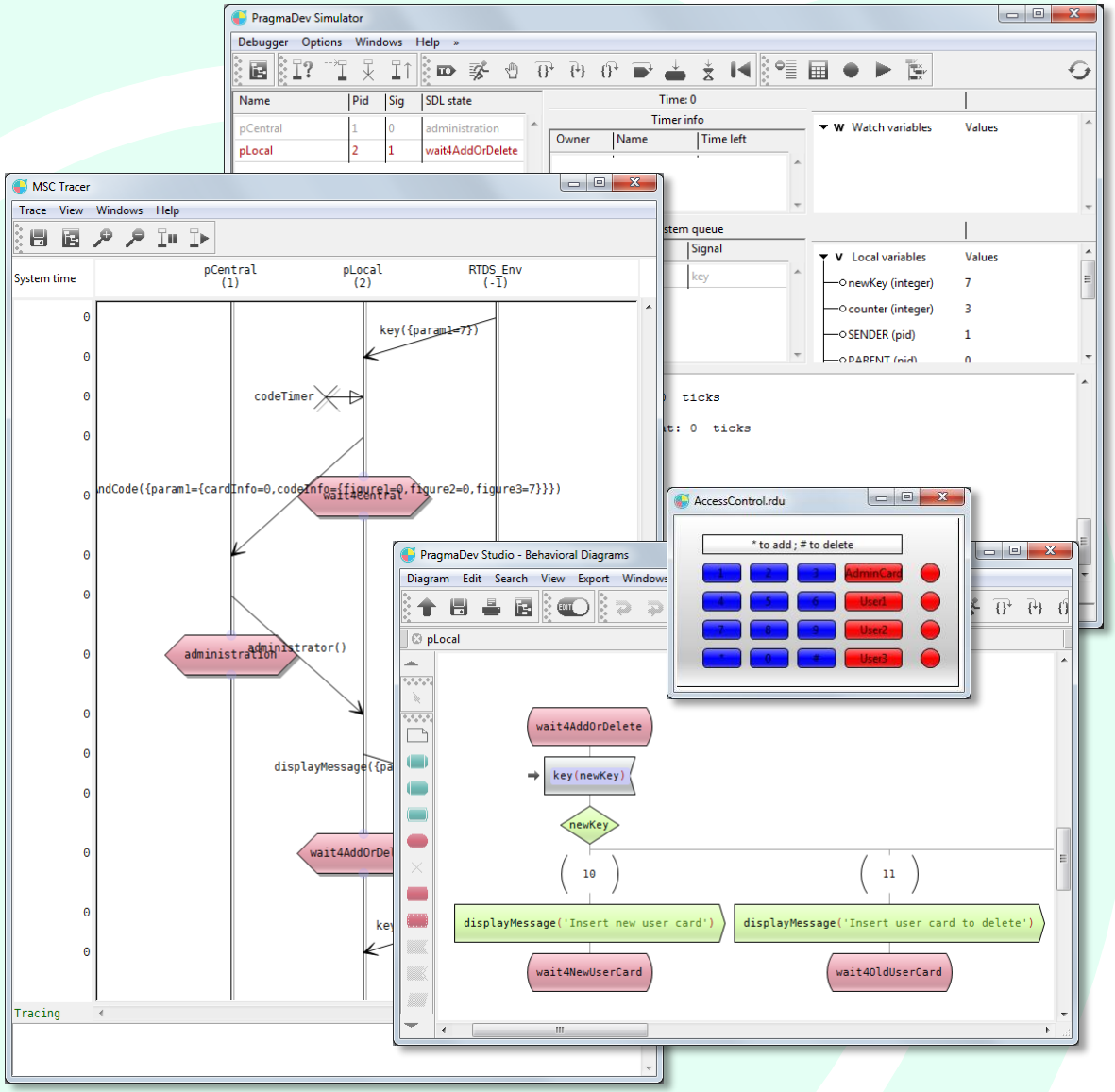
- Free university program : more than 800 licenses used over the world
- Distribution Network covering North America, Asia and Europe…

4 integrated tools

PRAGMADEV SPECIFIER

PRAGMADEV
modeling and testing tools

An executable model



- Integrated action language
- Model debugger based on the language semantic
- Breakpoints and stepping capabilities in the model,
- Interactive or external operators,
- Simulation traces,
- Connection to an HMI or an external tool via socket.

The model can be verified

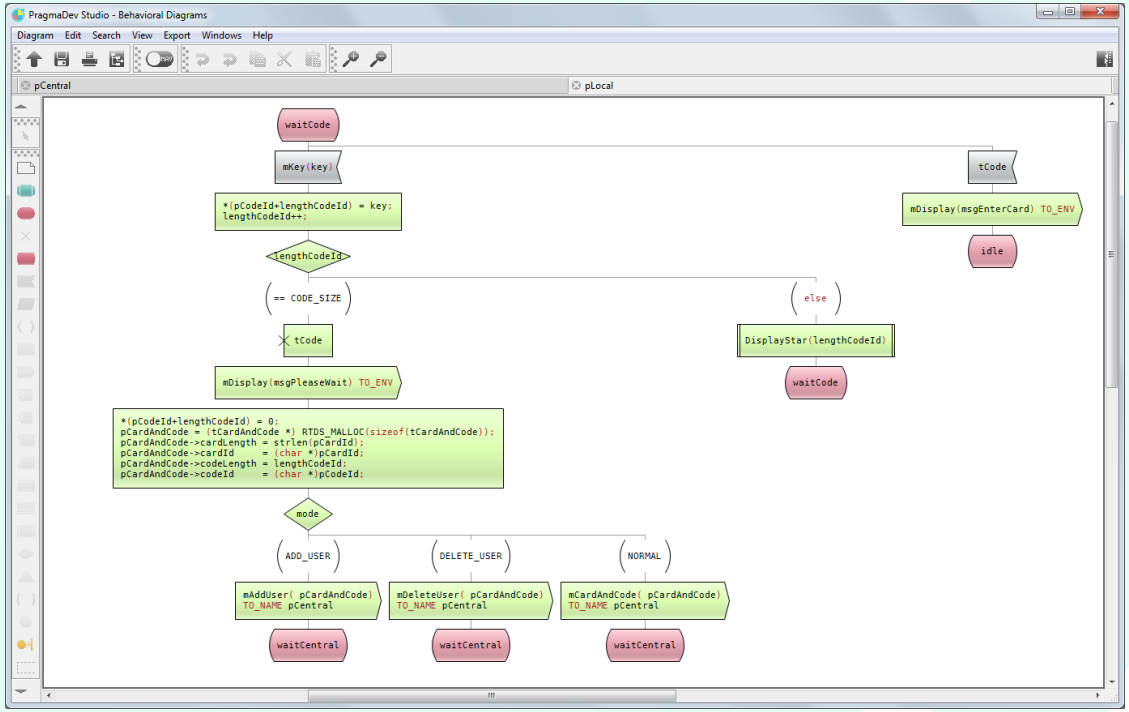
PRAGMADEV DEVELOPER

PRAGMADEV modeling and testing tools

A graphical organization of your code

- Same model but action language is C/C++
- Code generation of C or C++
- Templates for integration with RTOS, OS or Scheduler
- Integration with debugger
- Debugging is done at the model level
- Generated code is Royalty Free

SDL RT



- **No re-think, no need to re-design, process continuity**
- **Coding phase is shortened**
- **No need to debug (the model is right)**
- **Less errors of coding**
- **Easier maintenance**

Abstract Test Cases

- Same abstraction level
- Relies on same basic services
  - Messages
  - Procedures
  - Timers
  - Parallel execution
- Based on TTCN-3 international standard:
  - Data types definitions or ASN.1,
  - Templates definitions,
  - Test cases,
  - Verdict,
  - Execution control.

TTCN-3
Testing & Test Control Notation

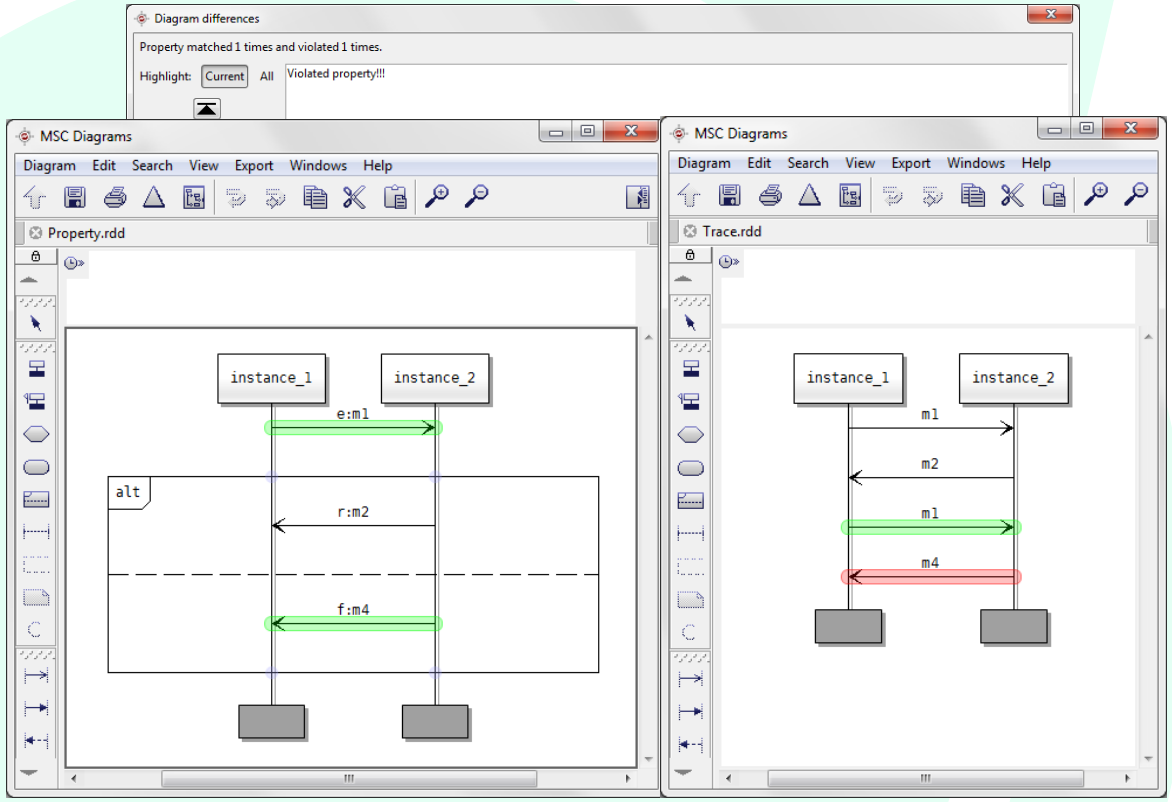
ETSI
World Class Standards

ITU
International Telecommunication Union

PRAGMADEV TRACER

PRAGMADEV modeling and testing tools

Tracing & Property verification

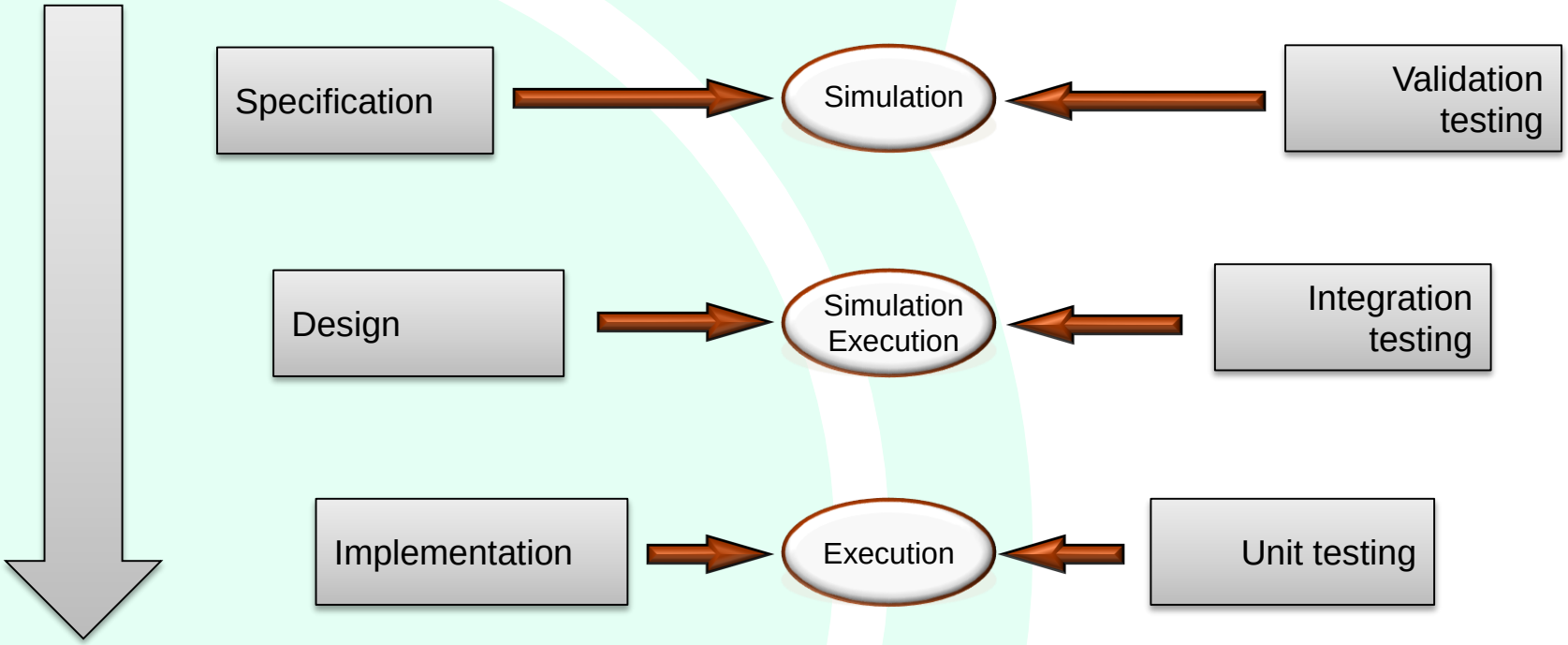


- Graphical traces
  - From model simulation
  - From real execution
- Property definitions
- Property verification
- Free !!

PRAGMADEV STUDIO

PRAGMADEV modeling and testing tools

Benefits: early validation



Property verification

- Exhaustive simulation:
  - Verimag
  - LAAS (FIACRE)
- Symbolic resolution:
  - PragmaList: joint lab with French National Nuclear Research center CEA
- Property verification on traces

Benefits:

- **System validation**
- **Robustness**

PRAGMADEV STUDIO

PRAGMADEV modeling and testing tools

Model Based Testing

Test generated from:

- Execution traces
  - Simulation
  - Real execution
- Test objective (property in exhaustive simulation)
- Code coverage

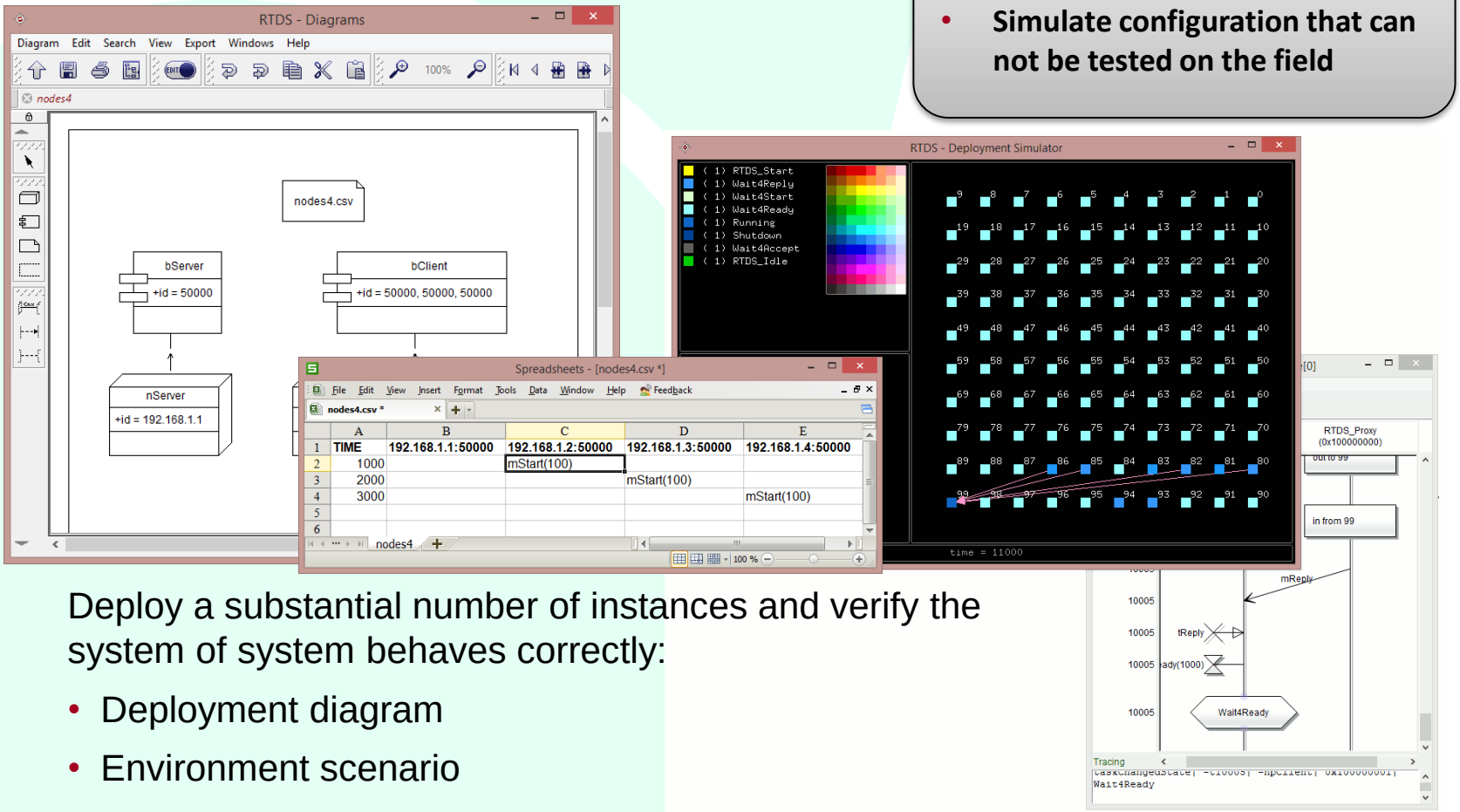
Benefits:

- **Easier to write**
- **Easier to maintain**

Deployment simulator

Benefits:

- **Simulate configuration that can not be tested on the field**



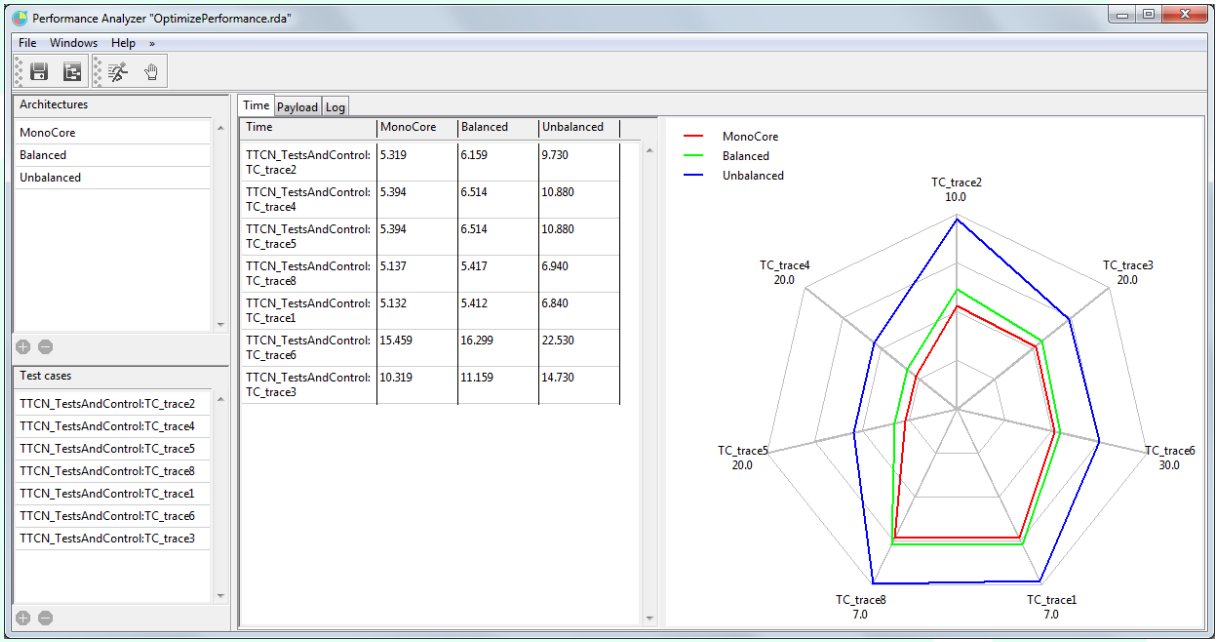
Deploy a substantial number of instances and verify the system of system behaves correctly:

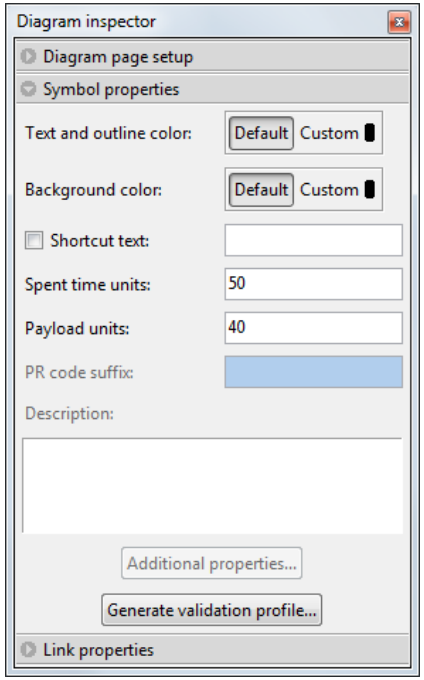
- Deployment diagram
- Environment scenario
- Live and post-mortem simulation traces

PRAGMADEV STUDIO

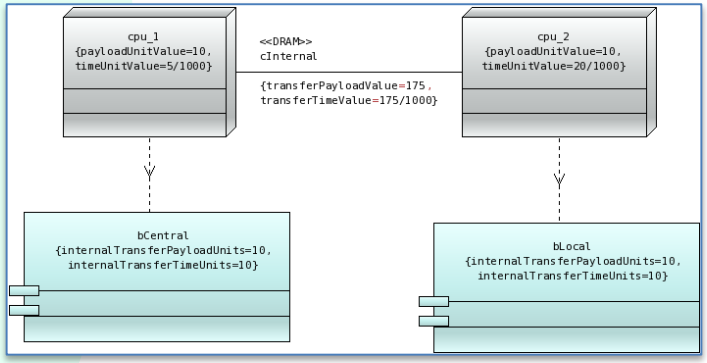
PRAGMADEV modeling and testing tools

Performance analyzer





Automatically execute test cases on different architectures defined with a deployment diagram.



Benefits:

- **Find the best architecture**