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# Computer Support for Simulator Training and Testing

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# Overview

- **Support for Training**
- Support for Testing
- Commonality in Training and Testing




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# Support for Training Introduction

- Computer Assisted Instruction - Anti Aircraft crew
- Prototype in research project
- Upgrade to operational use
- Support training staff
- Proven technology

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# Support for Training
# Training with CAI

- Anti Aircraft, German and Dutch




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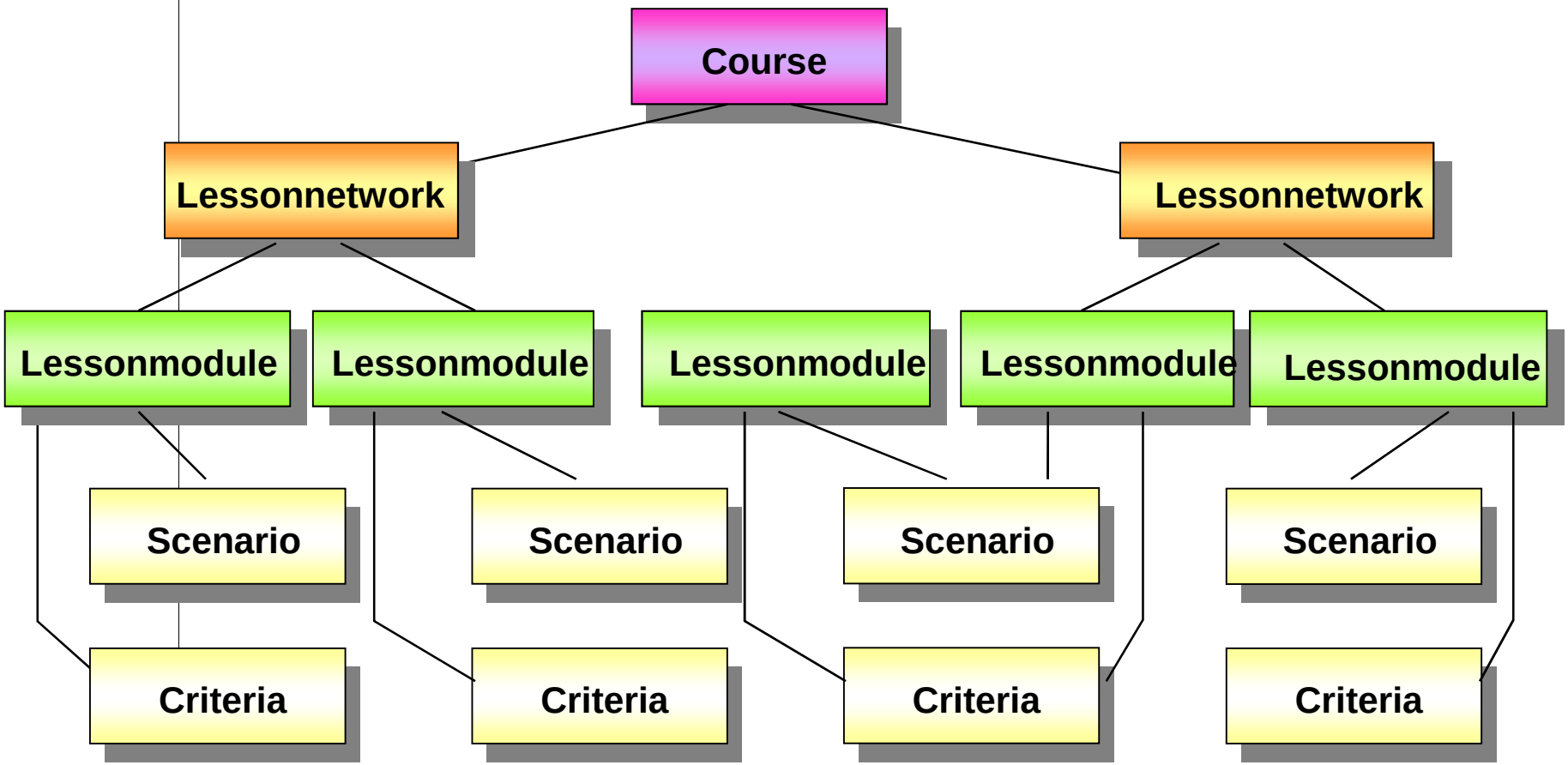
# Support for Training
## Training development process

- Task analysis
- Training Needs Analysis
- Training course
  - Breakdown, with scenarios and criteria
- CAI:
  - Support configuring scenarios and criteria
  - Control training

# Support for Training
## CAI course structure



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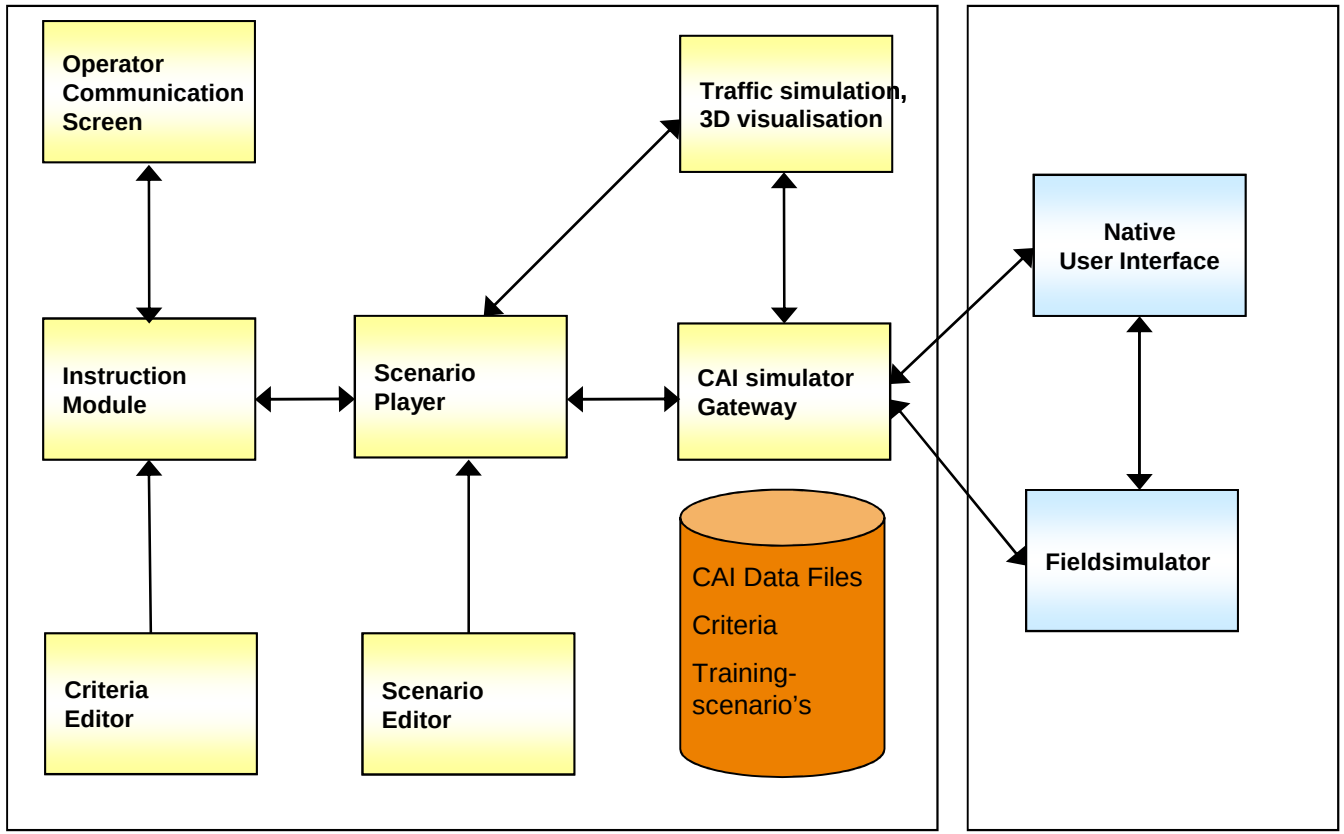
# Support for Training CAI Architecture

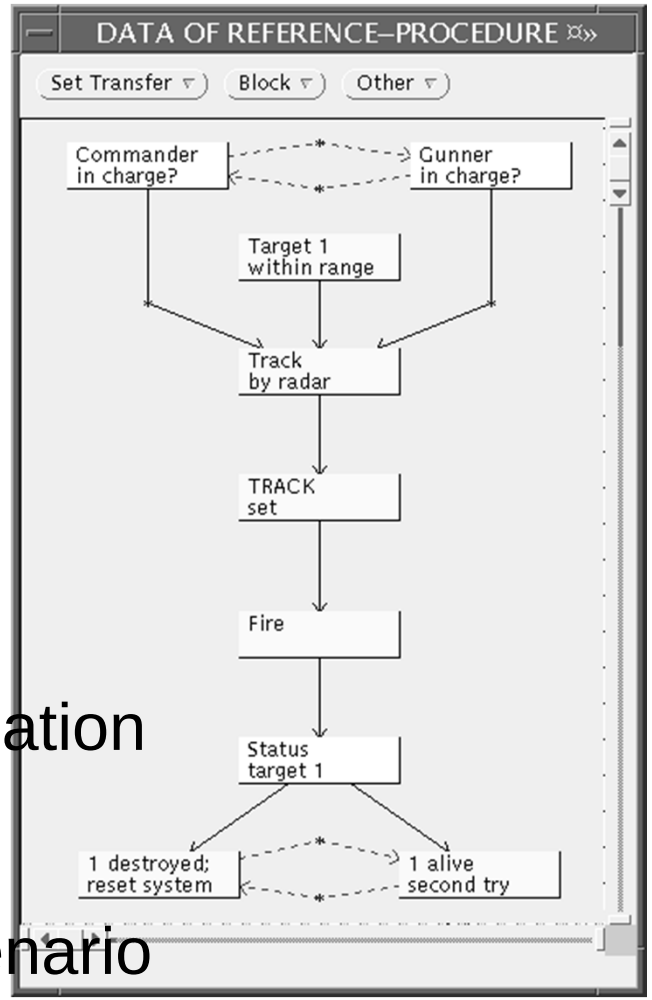
- Scenario Editor
- Criteria Editor
- Training Module
- Scenario Manager
- Interface with Simulator(s)

# Support for Training System Architecture



# Support for Training

- Standard Process:
  - Configure lesson material
  - Sequencing by CAI
  - Evaluate results
- Assessment:
  - Analyse events from simulation
  - Compare with criteria
  - Score on criteria -> on scenario



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# Support for Training Highlights

- Standardized lesson material development
- Uniform training, uniform scoring
- Individual as well as team-training
- One instructor, multiple simulators
- Configurable for different simulators
- Efficiency gain via reuse of lesson material
- Exchangeability of scarce instructors

# Support for Training Examples

- Stinger Dome trainer
- Leopard 2 Procedure trainer
- Traffic Tunnel Operator
- Ground Based Air Defence – Embedded Training





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# Overview

- *Support for Training*
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# Support for Testing Introduction

- Introduces off-line testing
- Introduces repetitive testing
- Large/complex control systems
- Lots of responses from simulator
- Improves transparency test process
- Improves stability of operational system




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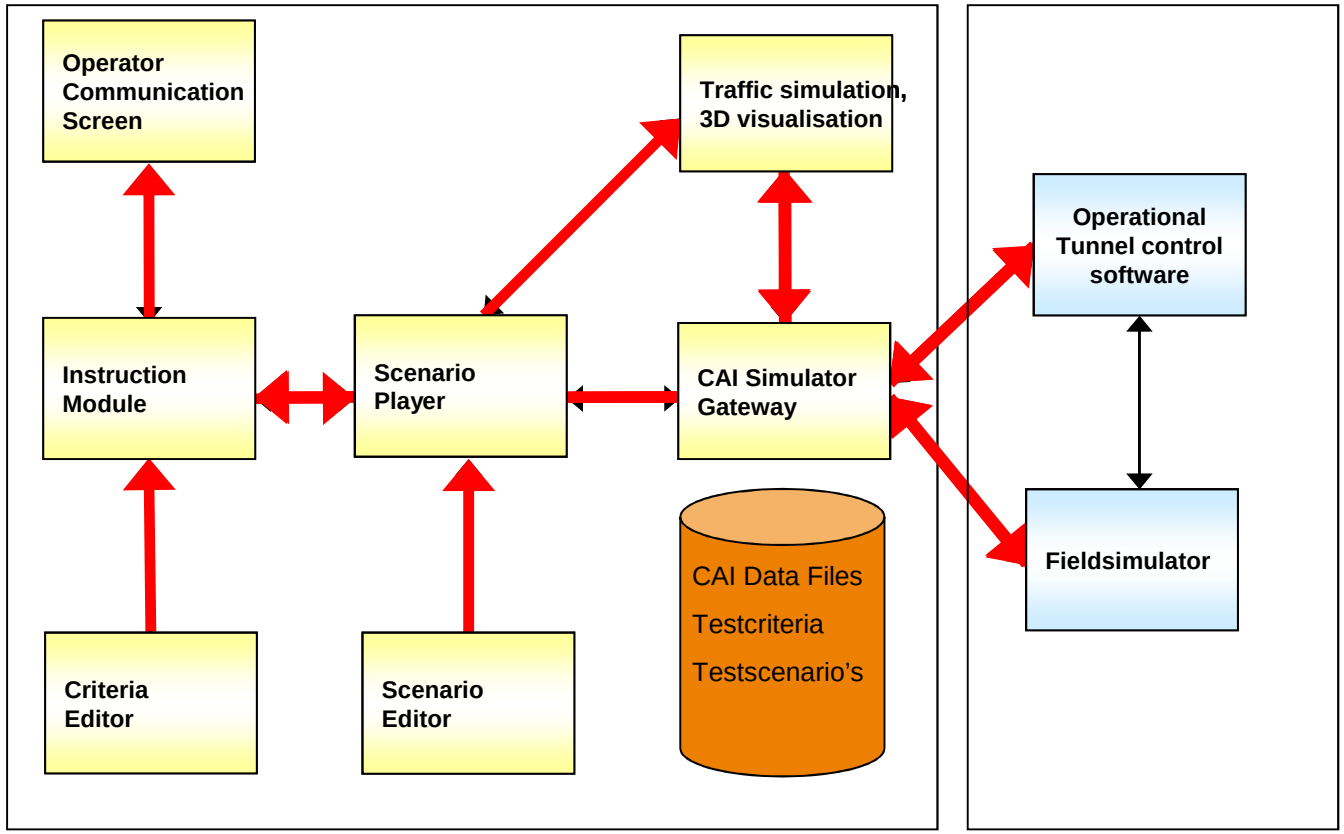
# Support for Testing Development process

- Analysis of requirements (what to test)
- Prepare scenario's and criteria
- Automated process for executing tests
- Extensive configuration files

# Support for Testing Architecture




Scenario Analysis started

# Support for Testing

- Standard Process:
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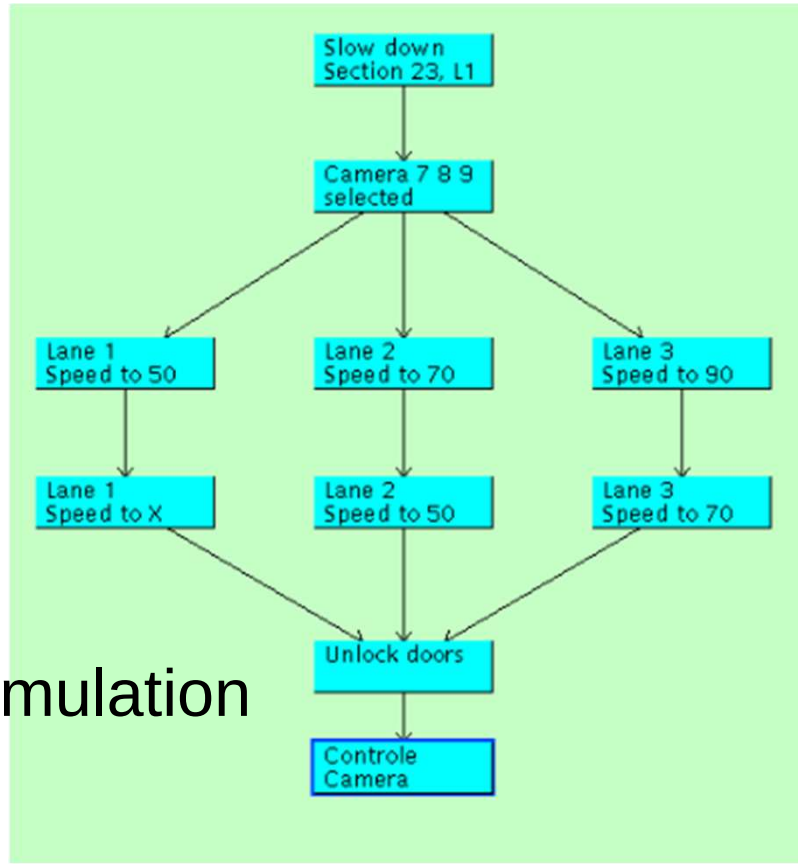




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# Support for Testing Highlights

- Automated process:
  - Extensive logging of results
  - Ability to check errors in simulator
- Clear definition of test procedures and criteria
- No man-in-the-loop during testing
- Complete tests with simulated subsystems

# Support for Testing Example


- Tunnel control software
- Field simulator
- Many test procedures and test scenarios
- Regression testing with new version of tunnel control software
- Tracking and documenting of test results
- Port to operational system




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# Overview

- *Support for Training*
- *Support for Testing*
- **Commonality in Training and Testing**




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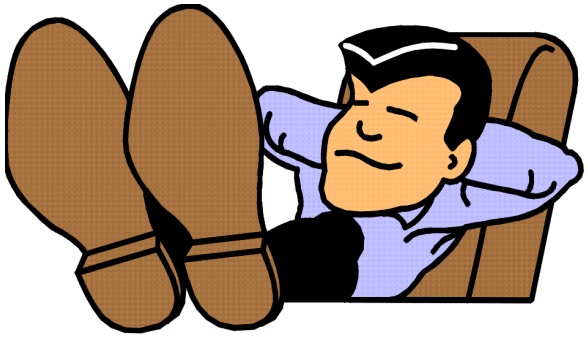
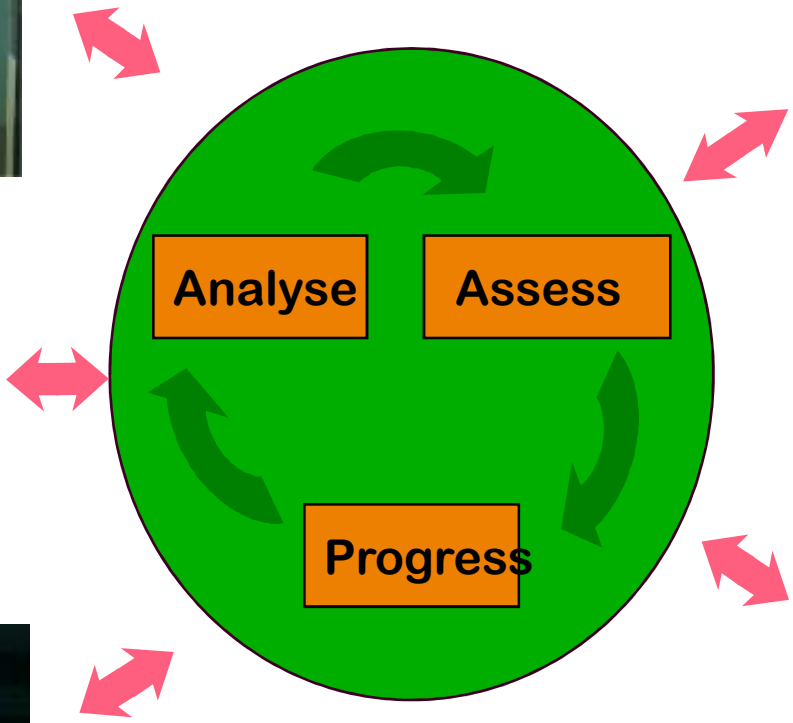
# Commonality in Training and Testing

- Common:
  - Configuration data
  - Configure scenarios, criteria, lesson network
- Differences:
  - Amount of data
  - Feedback to student during training, logging during testing

# Questions




***CAI-System***

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