

# Paradiseo

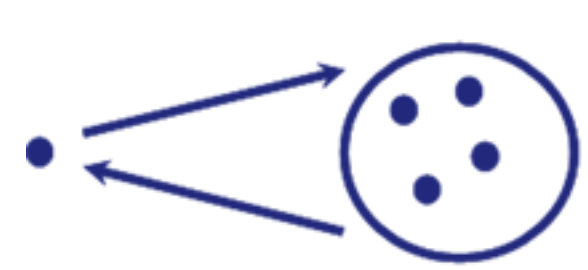
An Open Source Framework for Metaheuristics, Hybrid and Parallel Metaheuristics  
<http://paradiseo.gforge.inria.fr>

## DESIGN CONCEPTS

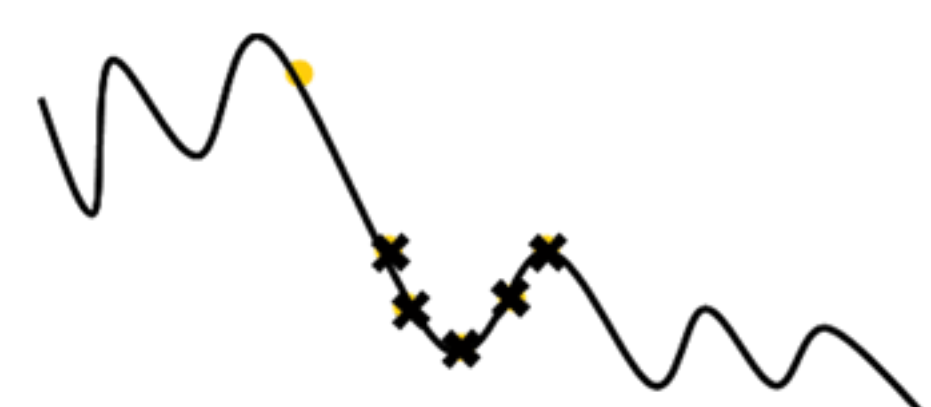
### MO Single solution based metaheuristics

Local search, hill climbing, simulated annealing, tabu search, iterated local search, VNS, TA.

Neighborhood



Replacement

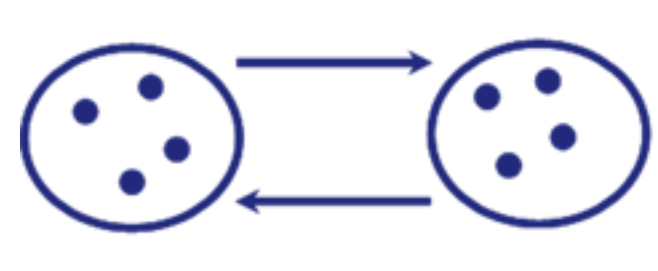


Local optima

### EO Population based metaheuristics

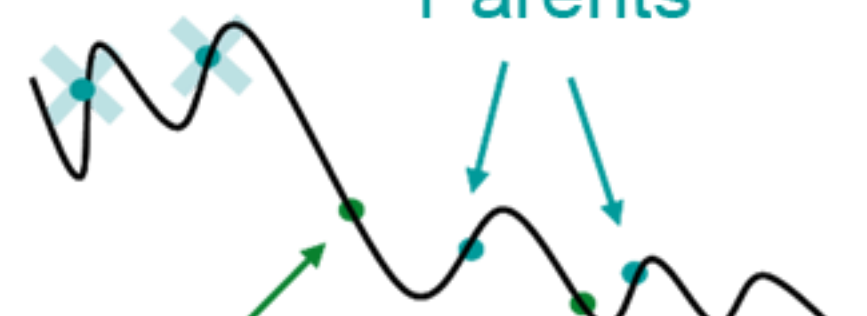
Evolutionary algorithms, genetic algorithms, Particle swarm optimization, differential evolution algorithms, evolution strategy, etc.

Recombination



Replacement

Replacement Parents



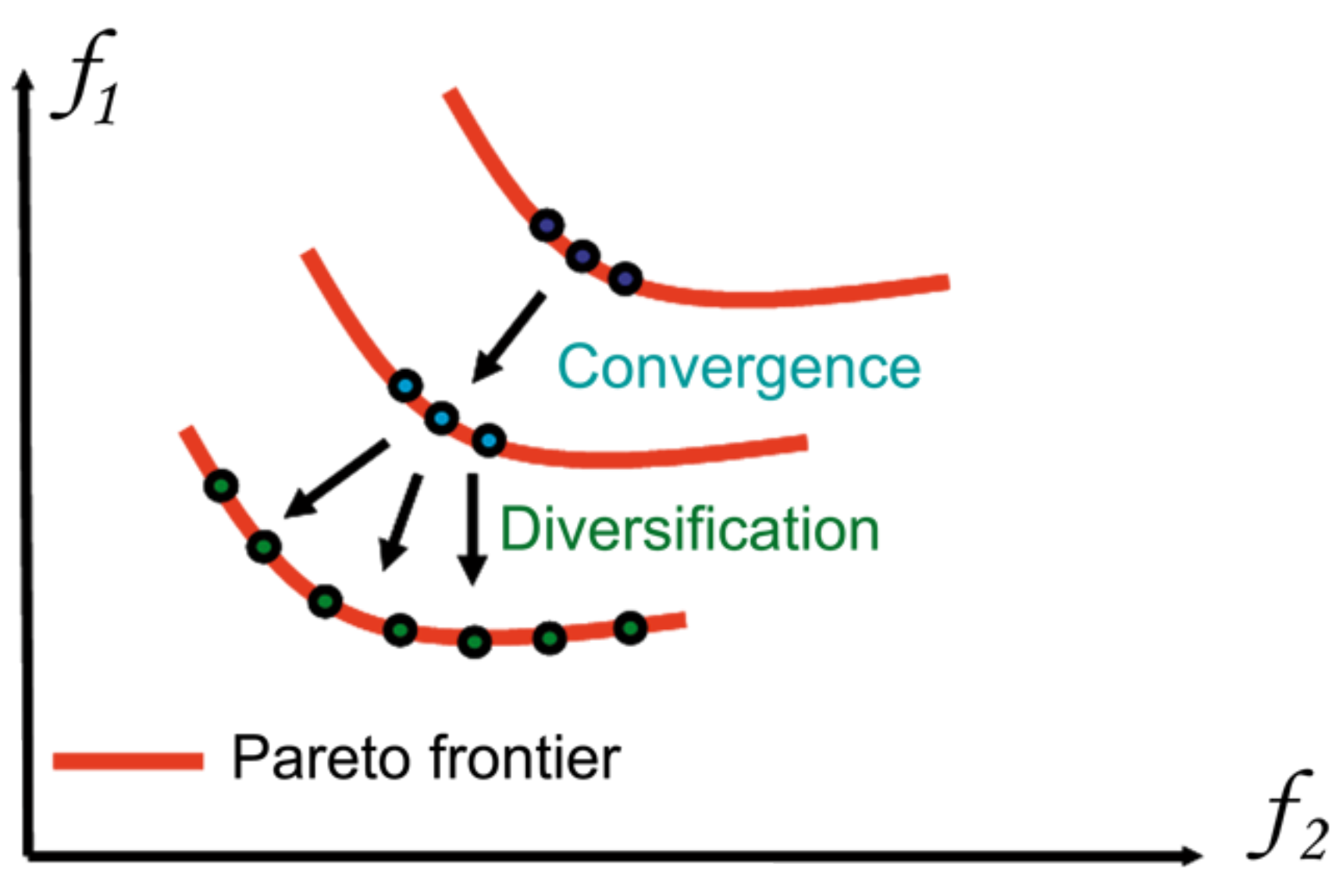
Children

### MOEO Multi-objective optimization

Fitness assignment schemes, diversity preservation mechanisms, elitism

Performance metrics: hypervolume, epsilon...

Algos: NSGA-II, IBEA, SPEA2...

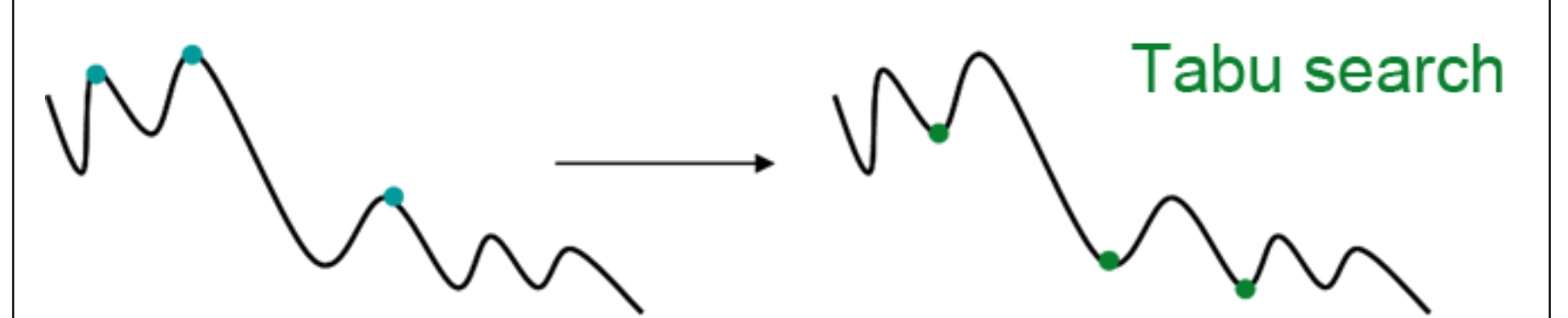


### PEO Hybridization

Balancing between diversification and intensification

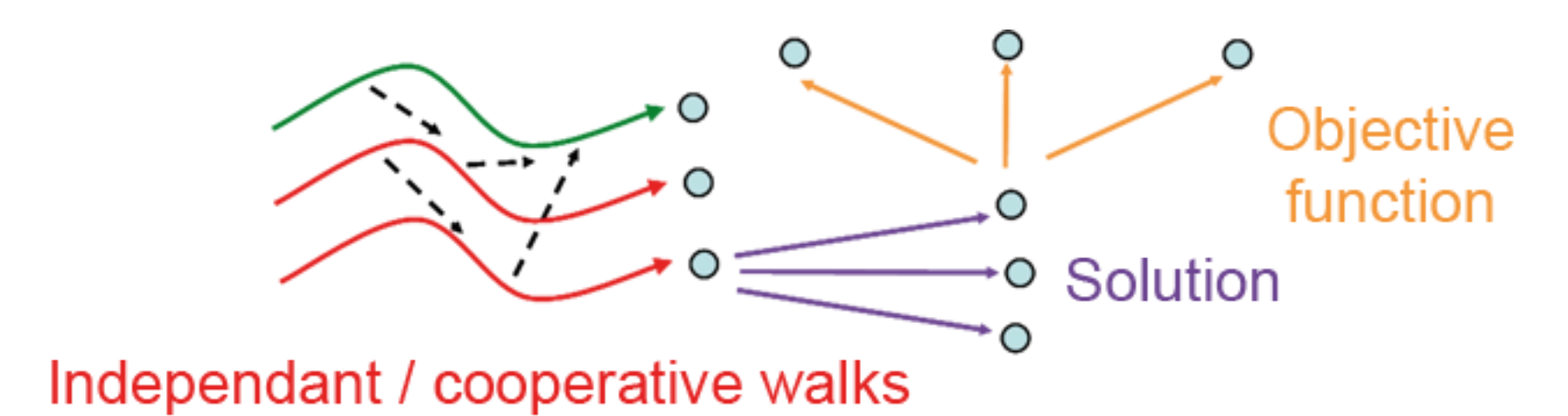
Delivering better and robust solutions

Genetic algorithms



### PEO Parallel and distributed environments

Speedups the search to solve large problems based on three hierarchical models

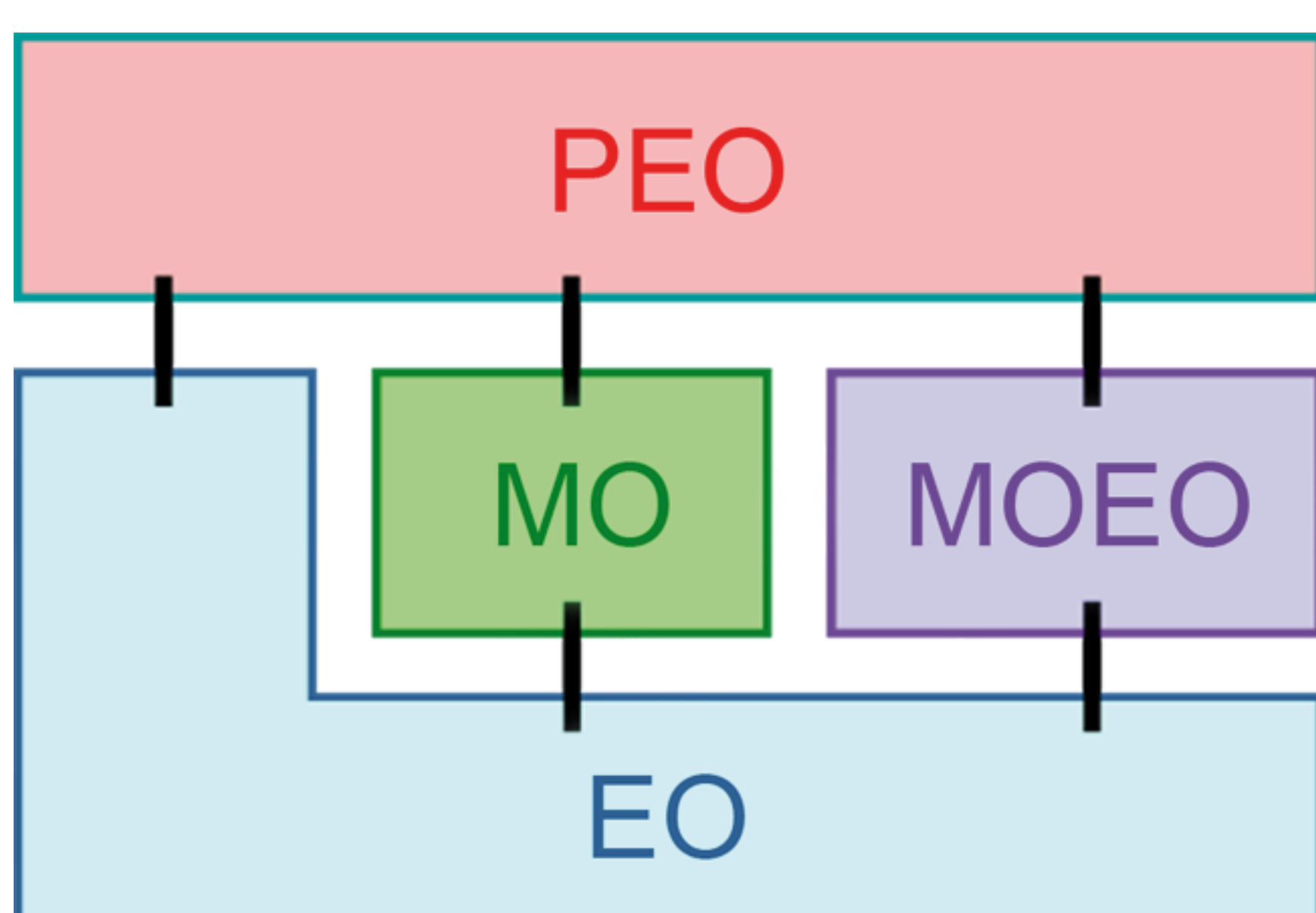


Many experiments lead on the modeling and the parallel resolution of real and hard problems from telecommunications, genomics, engineering design, transportation and logistics, physics and chemistry.

## FRAMEWORK

A C++ white-box object-oriented framework dedicated to the reusable design of metaheuristics

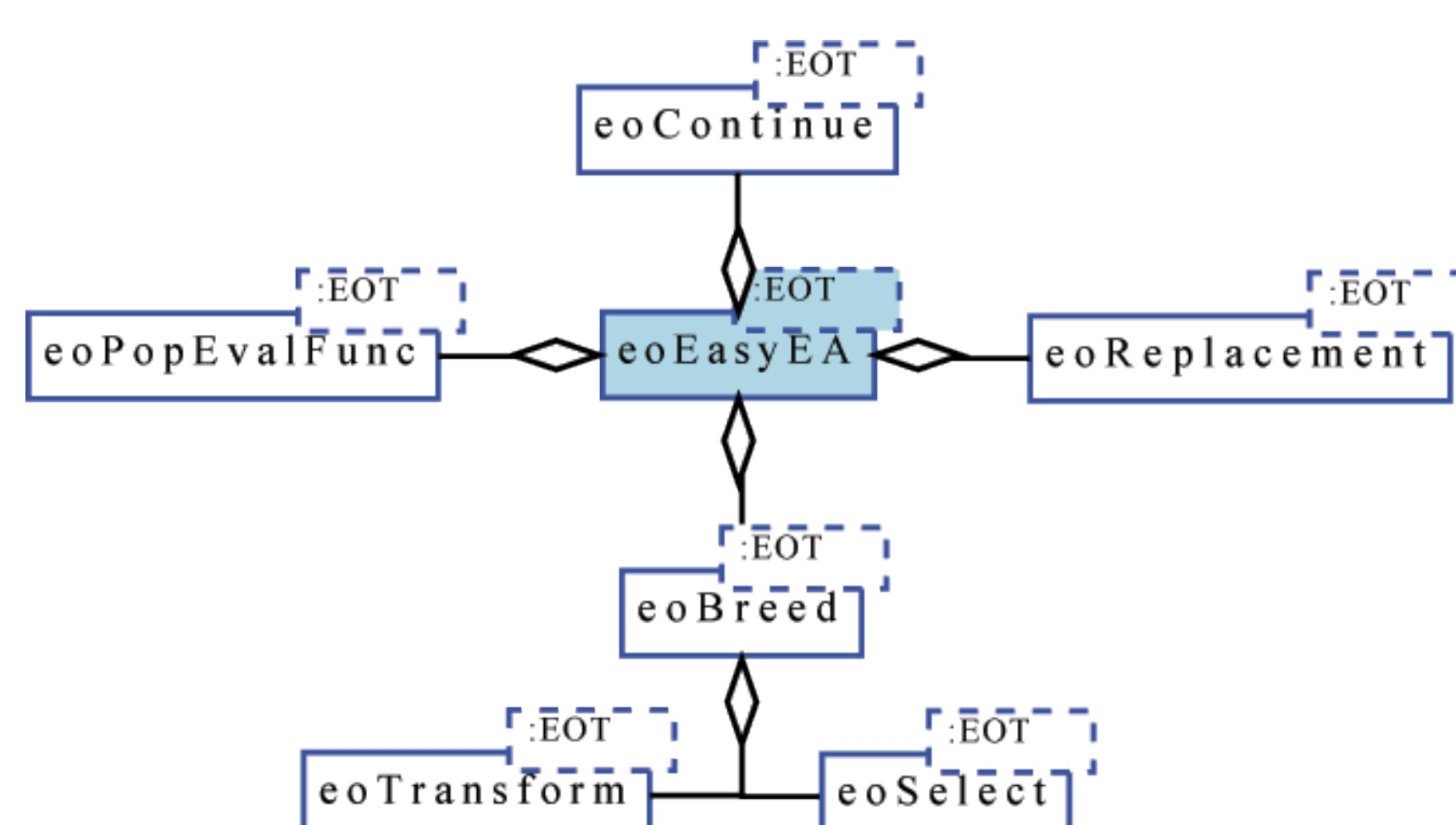
### Design architecture



### Execution architecture

**Portable on:** Windows, Unix and MacOS  
**Automatic install:** Script for Unix, Windows installer  
**Parallel and distributed architectures (MPI)**  
**Grids (Globus, Condor-G / MW)**

ParadisEO provides a set of ready to use components which can be extended to ensure a high flexibility degree and confer a maximum code and design reuse.



### Support

#### Tutorials

More than 20 lessons to dive easily into ParadisEO

#### API doc

Template tools, classes and functions are fully described.

### Contact

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