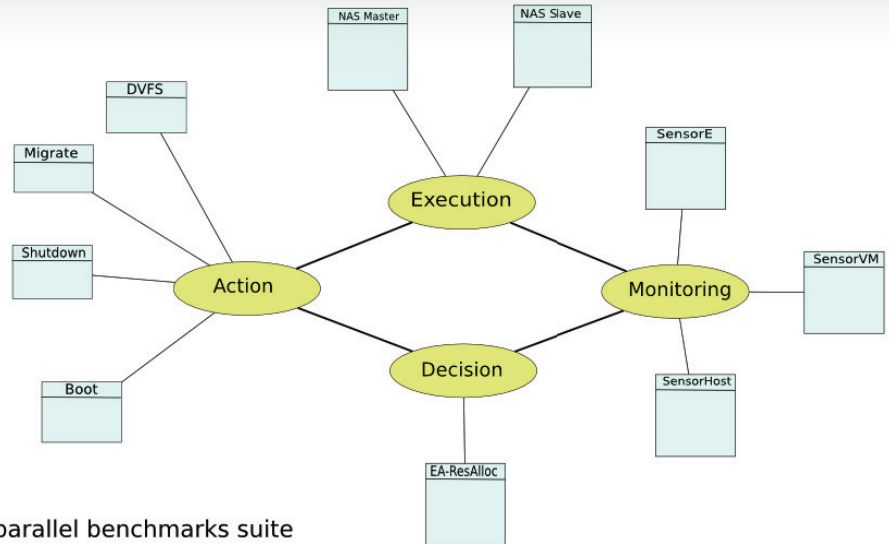


ENERGY-AWARE AUTONOMIC MANAGER

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By using the TUNe middleware to provide us the ability to autonomically control our environment, we have developed a solution to reduce the energy consumption of a large scale system.

The autonomic manager TUNe allows us to plug-in an energy-aware resource allocation algorithm, thus modeling a complete generic autonomic energy reduction infrastructure.



- Execution of parallel applications : NAS parallel benchmarks suite
- One virtual machine per process
- Different granularity sensors : power, VM, host
- Behaviour modeling through activity diagram

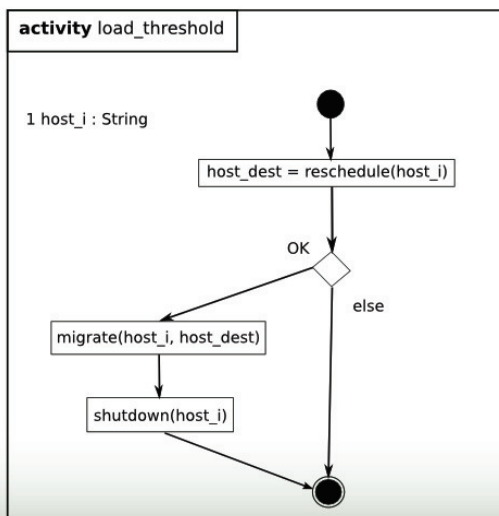
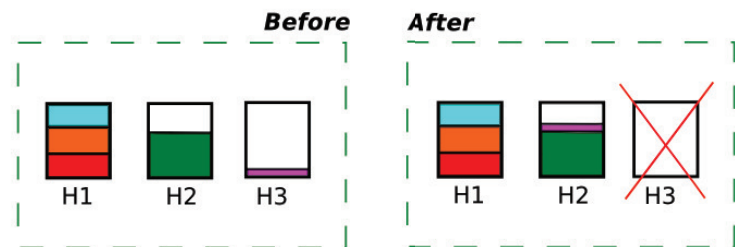
Example:

```

event.received(from:HostSensor, host_i.load <= 5%)
if (reschedule(host_i.jobs))
then migrate(host_i.jobs);
    shutdown(host_i);
endif
    
```

EVENT TYPE

- > Host load threshold
- > System power threshold
- > Arrival of a new job
- > End of a job
- > System load threshold



Each event generates a call to an activity which is described in a UML activity diagram.

The Decision Center calculates the necessary actions. Here `migrate(h3.jobs)` and `shutdown(h3)`.

The Decision Center enforces the actions via the corresponding actuators.

TUNe provides a platform that simplifies this process.

