



*an AI approach to
web gaming in the cloud*

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@OWF 2011*

Cloud-TM



INESC ID (PT)



Algorithmica (IT)



C.I.N.I. (IT)



Red Hat (IE)

co-financed by the European Commission through the contract no. 257784.

Web Games

Browser Games



Empire View

	Earth	Mars	Venus	Jupiter	Saturn	Uranus
Resources						
Metal	6,998,541	6,422,728	7,000,002	6,897,496	6,779,237	34,049,066
Crystal	1,999,412	1,709,009	2,000,001	1,710,990	1,699,444	9,314,947
Deuterium	203,936	69,085	214,840	78,342	3,027	568,930
Storage Space						
Metal Storage	14,150,000	1,400,000	6,950,000	1,400,000	1,400,000	27,200,000
Crystal Storage	14,150,000	1,400,000	5,550,000	900,000	900,000	22,900,000
Deuterium Tank	8,950,000	400,000	3,500,000	400,000	400,000	13,700,000
Research						
Metal Res.	25	21	28	21	20	115
Crystal Res.	22	20 (22)	24	20	18 (19)	104
Deuterium Synthes...	20	15	23	15	16	89
Solar Plant	18	23	16	23	23	127
Fusion Reactor	2	0	0	2	0	4
Metal Storage	14	7	11	7	7	44
Crystal Storage	13	7	10	6	6	41
Deuterium Tank	11	4	9	4	5	33
Factories						
Robotics Factory	10	9	10	9	10	48
Naval Factory	9	9	9	9	9	8
Shipyards	12	9	12	10	9	52
Research Lab	14	8	12	7	8	47
Transformer	4	0	0	0	0	4
Alliance Depot	1	0	0	2 (1)	0	3
Missile Silo	4	1	4	0	0	9
Defenses						

Flash Games



Gameforge > 300M reg users!
Zynga has 50% of facebook users!




Outlook

- an AI design pattern
- scaling in the Cloud

*an AI
design pattern*

MAS: an AI pattern



Percept
Action
E_i  *Environment*

The text is centered on a large, dark green, textured sphere that resembles a planet or a large rock. The words "Percept" and "Action" are stacked vertically. Below them, the text "E_i" is followed by a small red circular icon with a stylized brain, which is connected by a horizontal line to the word "Environment". All text is in a white, italicized, sans-serif font.

more agents

The text "more agents" is written vertically in a white, italicized, sans-serif font, positioned to the right of the central sphere.

Why MAS?

- 1. Benefits of a cmd pattern**
- 2. Guarantees on correctness**
- 3. Easy to plug in AI and MAS code**

MadMass

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3

1

[Source](#)[Commits](#)[Network](#)[Pull Requests](#)[Issues](#)[Discussions](#)[Graphs](#)[branch: master](#)[Switch Branches \(1\)](#) [Switch Tags](#) [Branch List](#)

Madmass stands for "MAS" (Multi-Agent System Simulator) and is a framework for designing and simulating multi agent system simulations, with a flexible number of agents. madmass is released under AGPL License. — [Find more](#)

[Downloads](#)[Copy to clipboard](#) <https://github.com/algorithmica/madmass.git> [Read-Only Access](#)

typo fixed

[algorithmica](#) authored September 02, 2011

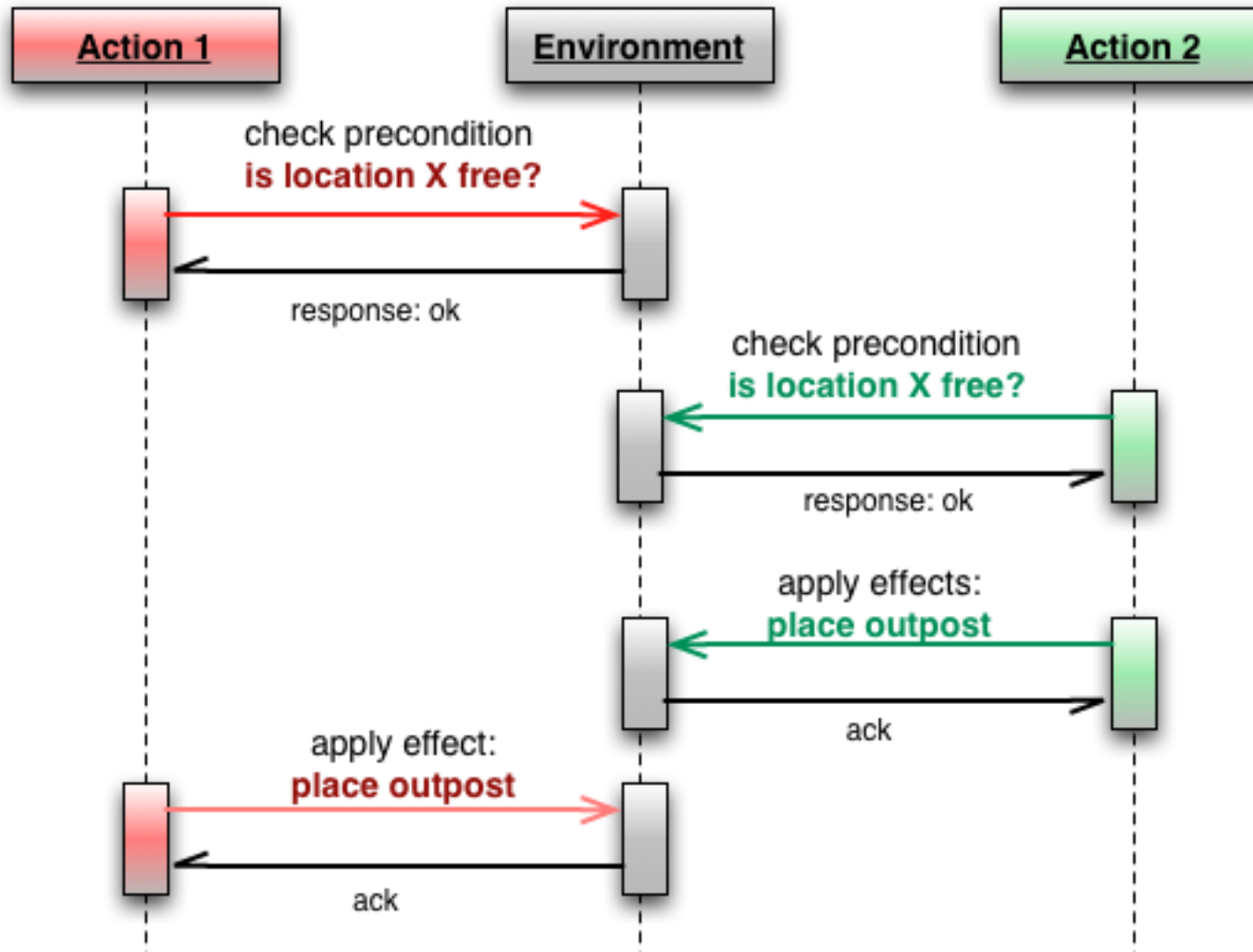
commit 9ac1aad

[madmass](#) /

name	age	message	history
config/	August 19, 2011	added configuration, communication, client and acti... [algorithmica]	
lib/	September 02, 2011	typo fix [algorithmica]	
test/	September 02, 2011	integration with rails apps [algorithmica]	
.document	July 28, 2011	first commit [algorithmica]	
.gitignore	July 28, 2011	ignored netbeans files [algorithmica]	

*scaling in
the Cloud*

The price of scaling





A DSTM data layer



Distributed Software Transactional Memory

... imagine a memory that elastically scales,
that transparently persists data,
and that deals for you with concurrency issues

A Red Hat Backbone

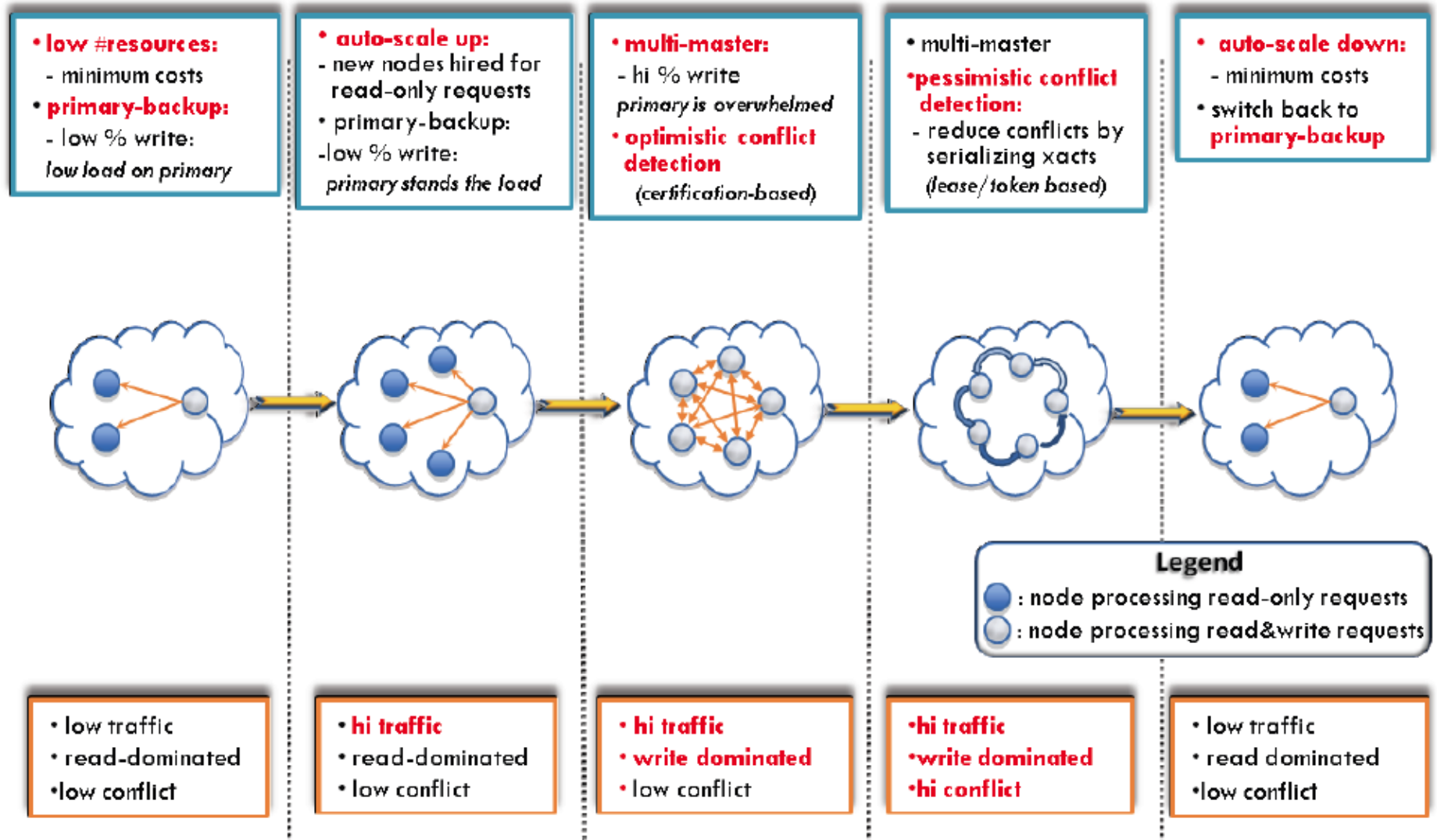
Infinispan

 **HIBERNATE** OGM

TorqueBox



Autonomic Self-Optimization



Want to know more?

oludap.com

github.com/algorithmica/madmass

cloudtm.eu

www.hibernate.org/subprojects/ogm

www.jboss.org/infinispan

torquebox.org

Thanks!