DEPLOYING ERLANG APPLICATIONS ON THE CLOUD WITH WOMBAT

A Riak Example

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ABOUT ME

Erlang SOLUTIONS

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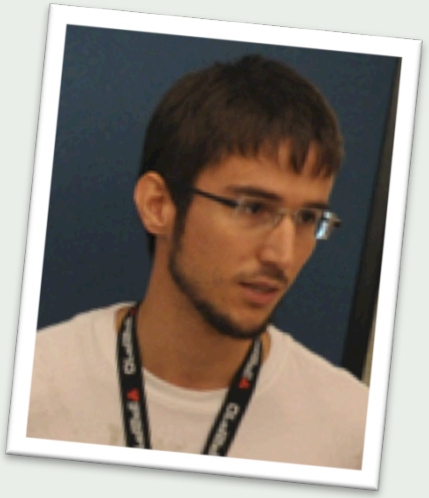

- Born in 1987 in Spain
- MSc. Computer Science (Distributed Systems track)
- Research Associate at Universitat Rovira i Virgili
  - Peer-to-Peer Networks and Distributed Systems
- Research Engineer at Ericsson Research
  - Cloud Computing/Networking (OpenStack, ...)
  - SAIL (FP7 Research Project)
- Software Engineer at Erlang Solutions (Stockholm)
  - RELEASE (STREPS Research Project)

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ERLANG SOLUTIONS

Erlang
SOLUTIONS

- Offices in 5+ countries
- Professional training
- Erlang certification
- In-house system development
- On-site consultancy
- Research
- Conferences

More at erlang-solutions.com

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RELEASE (EU FP7 STREPS)

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GOAL OF THE PROJECT

To scale the radical concurrency-oriented programming paradigm to build reliable general-purpose software on massively parallel machines.

RELEASE Statement of Aims, 2011

MULTI-CORE

DISTRIBUTED

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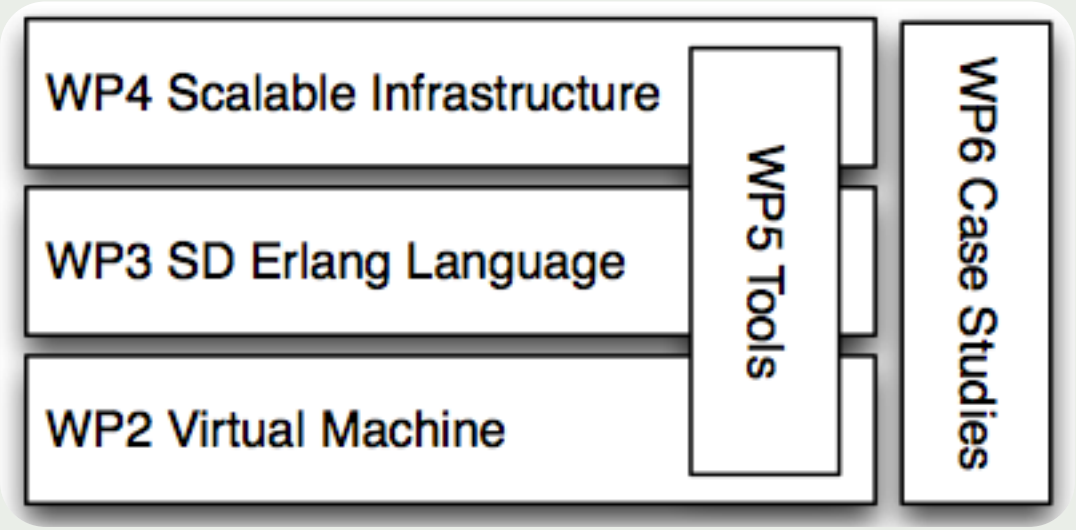
WORK PACKAGE 4 (SCALABLE INFRASTRUCTURE)



Developing a scalable virtualization infrastructure capable of creating, managing and dynamically scaling super-clusters of smaller heterogeneous clusters, based on capability profile matching

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WOMBAT (ORCHESTRATION)

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HETEROGENOUS DEPLOYMENT (WHAT?)

Seamless deployment across multiple cloud providers

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HETEROGENOUS DEPLOYMENT (WHY?)

- Avoid vendor lock-in
- Multiple providers offering different capabilities
- Go beyond the limits of a single Cloud provider

  e.g., limit in the number of instances per user account

- Massively parallel infrastructure

  Deploy an Erlang application on an infrastructure consisting of 1000+ computing units spread all over the world

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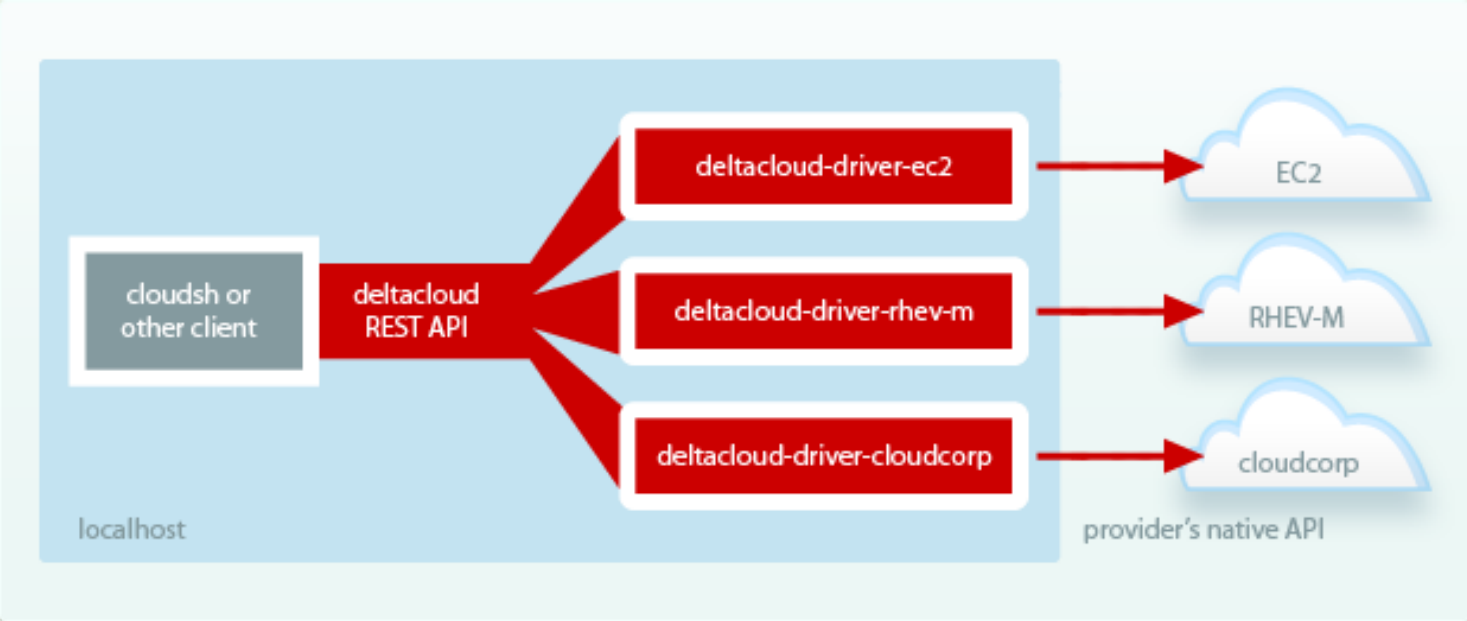
HETEROGENEOUS DEPLOYMENT (HOW?)



ONE API (DeltaCloud/CIMI) TO RULE THEM ALL !

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SEMI-EXPLICIT DEPLOYMENT

Match deployment demands against the capabilities of the available deployment domains

- Co-location of nodes
- Geographical constraints
- Load balancing across infrastructure providers
- Infrastructure provider consolidation

  e.g., prioritize the deployment on a private Cloud and fallback to a public Cloud only when we cannot cope with the demand of resources

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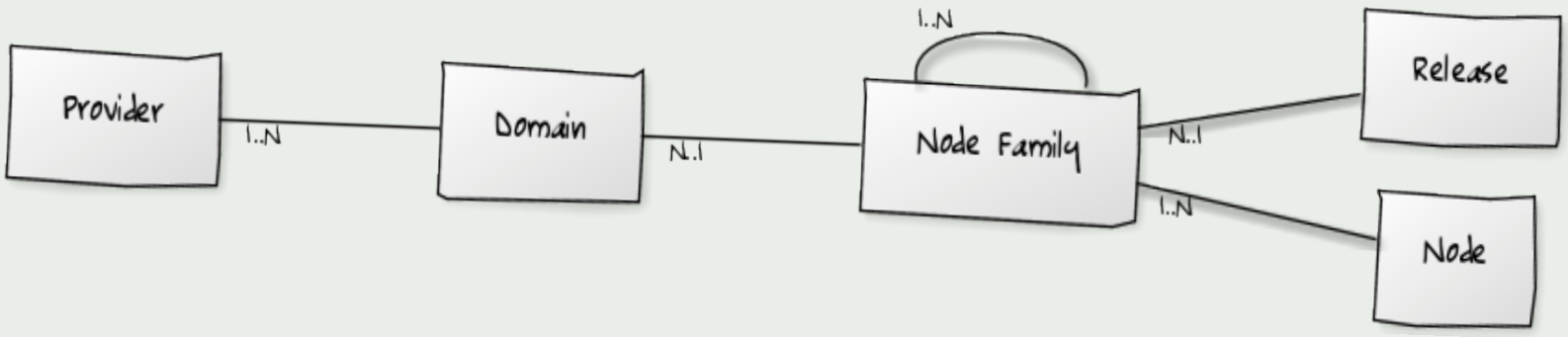
USER INTERACTION



- Register infrastructure providers
- Upload Erlang releases
- Create node families
- Define intra/inter-family bootstrapping strategies
- *Spawn new nodes within a node family*
- *Manage existing nodes (e.g., start, stop, ...)*
- *Remotely execute application-specific commands*

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ROADMAP

- Semi-explicit deployment
- 1-click service deployment
- Built-in support for SD Erlang
- ~~Management web-dashboard~~
- ~~Auto-discovery of nodes~~
- ~~Monitoring~~
- Auto-scaling
- License parts of Wombat as open-source

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LIVE DEMO

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QUESTIONS?

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