Scala Enthousiasts
The Actor model and Akka

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February 16, 2012

Agenda

- Some theory about the Actor model and Akka
- Use case : Nao by Nicolas
- Examples with Nao by Nicolas

Disclamer

This is an introduction by dummies for enthousiasts
Philipp Haller, from TypeSafe, is interested in giving a presentation
more advanced features
(Future and Promise)

Actor model

The Actor model provides efficient concurrent computation where every object is an actor communicating with each other with messages

Actor model

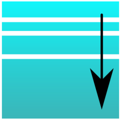
An actor consists of:

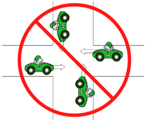
- an independant process
- a mailbox to communicate

This enables synchronous and asynchronous communication

Actor model advantages

- High level concurrent computation
- Sequential execution, one message at a time
- Simplified distribution of processes
- Avoid deadlocks through timeout





Actor model and Akka

Akka provides more than only Actors, among the most important:

▸ registry

▸ routing

▸ remote

▸ supervision

▸ STM

Actor model and Akka

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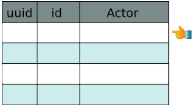
And also Plain Old SCala Object integration in ▸ Typed Actors

Registry

- store every created Actor
- lookup using ids or types



uuid	id	Actor

Akka features

Routing

- Routing actors
- Actor pool size fixed or dynamic

▸ Akka features

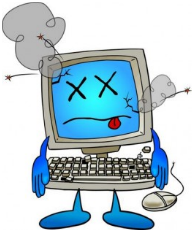
Remote

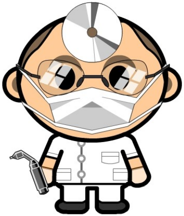
- Server managed
- Client request accessing registred actors
- Transparent

▸ Akka features

Supervision

- Let it crash
- Life cycle management : Permanent or not
- Restart hook

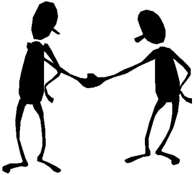




Akka features

Software Transactional Memory

- Shared references
- Transactions
- Coordination



▸ Akka features

POSCO integration

- Class and Interface
- Factory for creation
- Transparent

Akka features

AKKA

Akka provides high-level concurrent computation with (among most important):

- POSCO integration
- load balancing
- supervising

And now. . . .

- Everyone is now Akka enthousiast?
- Practice and you will