From Scala to Typesafe

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The world of mainstream business application software is changing:

• Moore’s law now achieved by increasing # of cores not clock cycles
• Huge volume workloads that require horizontal scaling

Data from Olukotun, Hammond, Sutter, Smith, Batten, and Asanovic
Opportunity

• Application developers need concurrent programming models with the right level of abstraction
  – threads, locks and shared state won’t do
• Current enterprise Java frameworks increasingly unwieldy due to language limitations
• Fresh new approach: the Typesafe Stack

```scala
class Person(val name: String, val age: Int)

actor {
  receive {
    case people: Set[Person] =>
      val (minors, adults) = people partition (_.age < 18)
      facebook ! minors
      linkedIn ! adults
  }
}
```
Scala: A powerful alternative for Java

Scala

Java
(>10M developers)

JVM
(Oracle, IBM, Google: >1B installed base)

Less code = more productive

Works seamlessly with Java = low risk adoption

Fuses object-oriented & functional = expressive

Parallel multi-core/cloud computing = future proof
Where it comes from

Prehistory:

(“make Java better”)

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1999: joined EPFL
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Timeline:

2003 – 2006: The Scala “Experiment” (research, driven by curiosity)
2006 – 2009: An industrial strength programming language
(“make a better Java”)
What is Scala?
Scala is a Unifier

Agile, with lightweight syntax

Object-Oriented  →  Scala  ←  Functional

Safe and performant, with strong static typing
Let’s see an example:
A class ...

... in Java:

```java
public class Person {
    public final String name;
    public final int age;
    Person(String name, int age) {
        this.name = name;
        this.age = age;
    }
}
```

... in Scala:

```scala
class Person(val name: String, val age: Int)
```
import java.util.ArrayList;
...
Person[] people;
Person[] minors;
Person[] adults;
{
    ArrayList<Person> minorsList = new ArrayList<Person>();
    ArrayList<Person> adultsList = new ArrayList<Person>();
    for (int i = 0; i < people.length; i++)
        (people[i].age < 18 ? minorsList : adultsList)
            .add(people[i]);
    minors = minorsList.toArray(people);
    adults = adultsList.toArray(people);
}

... in Java:

... in Scala:

val people: Array[Person]
val (minors, adults) = people partition (_.age < 18)
Community Traction

Open source ecosystem with:

- **scala-lang.org**: 120K visitors/month
- 40,000 downloads/month, +5x growth last year
- +20 books, the one I co-authored sold 20K+ copies
- 40+ active user groups
- 60% USA, 30% Europe, 10% rest
- Voted most popular non-Java language at DEVOXX

![Job Trends from Indeed.com](https://via.placeholder.com/150)

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![Scala](https://via.placeholder.com/150)

![Typesafe](https://via.placeholder.com/150)
And ... Then?
Forming a Business

2005 – 2008  Open source ecosystem develops around Scala

2008  Twitter adopts Scala

2009  Increase in industrial adoption
      Need for commercial support emerges

2010  Company formed: Scala Solutions.
      consulting, training, tool development.

2011  Scala Solutions merges to form Typesafe.
      raises Series A funding of $3M from Greylock Partners.
The Typesafe Stack

- **Akka:**
  actor-based distributed programming framework

- **Slick:**
  collections for database connect, parallelism, distribution

- **SBT:**
  simple build tool

- **Scala:**
  certified builds, Eclipse IDE, developer tools

100 % compatible with existing investments in Java
Select Commercial Users

- Twitter
- Xerox
- LinkedIn
- Novell
- Siemens
- Office Depot
- NASA
- Foursquare
- EDF
- Workday
- UBS
- Imageworks
- TomTom
- OPOWER
- Yammer
- Guardian.co.uk
- Scala
- Typesafe
Scala drives its social graph service: 380-400 M transactions/day

Migrated core messaging service from Ruby to sustain 3 orders of magnitude growth

Entire web site and all services written in Scala

EU’s largest energy firm migrated a 300K lines contract modeling platform from Java to Scala

Approved for general production use
Founding Team

- **Martin Odersky (CEO)**
  Creator of Scala, ACM fellow, Prof. EPFL

- **Jonas Bonér**
  Creator of Akka, formerly BEA, Terracotta

- **Paul Phillips**
  Key Scala contributor

+20 FTE, mostly leaders drawn from the Scala community

Board of directors:
- Bill Kaiser (Greylock)
- Francois Stieger
- Martin Odersky

Advisory Board includes:
- James Gosling (Java)
- Doug Lea (Concurrency)
- Willy Zwaenepoel (EPFL)

Close cooperation with EPFL & Stanford’s Scala teams with combined funding > $10M
Conclusion

• It’s been super exciting to start this company, and it’s great to help it grow.
• It pushes you to stretch your limits
• You need to come with cutting edge technology and a good plan.
• You need great people to work with. Finding the right partners and early employees is the most important aspect, and also the most rewarding.
How to find out more

scala-lang.org

Typesafe
Science, Not Magic
Scalas and Akka bring time-tested concepts from the functional programming and distributed systems communities to mainstream Java developers. Its not magic -- its computer science.

Enterprise-Grade Scala from the Experts

Typesafe Stack

Professional products for Scala

Typesafe Stack

Professional training and expert advice for Scala, Akka, and the Typesafe Stack.

Typesafe Training

Advanced Scala

A two-day course intended for developers with at least 3 months of production programming experience with Scala who need to understand its advanced features, as well as good software and DSL design practices.

Object Oriented Meets Functional (Fast Track to Scala)

A fast track to Scala for Java developers and engineering managers. No previous knowledge of Scala is assumed. Although intense, the course ensures you will understand the

Thank You