Scala Days 2016 Overview

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Summary

- 2.12 Release and beyond
- Dotty
- New Tooling
- Scala Center
- Spark 2.0 Preview
- Scala JS
- Scala Native

Scala 2.12

- Only runs on Java 8
- Smaller executable footprint - use new Java 8 JVM features
- Faster execution speed
- 33 Features documented in Release Notes
- 336 PRs from 65 committers
- Still on Java 6/7 ? -- 2.11 will supported for a while to come

Scala 2.12 Futures

- Added flatten so no need to .flatMap(identity) anymore
- Added zip and zipWith to join futures
- New transform method, map and recover implemented with it
- Easy to lift into a Try, someFuture.transform(Try(_))
- New transformWith for flatMap and recoverWith
- onSuccess and onFailure will be deprecated
- "zero" for Future - Future.unit will replace Future.successful(())
- Never completing future - Future.never to prevent memory leaks
- No more use of sun.misc.Unsafe

Scala 2.12 Links

- Details in @odersky Key Notes
- All you want to know about Futures in Scala 2.12
- Strategic Scala Style: Principle of Least Power

Scala 2.13

- 2.13 will focus on libraries, 2.12 focused on the compiler
- Simplified Collections, more inline with Spark, better lazy
- Call for Straw proposals open now, submit yours
- Scala stdlib split, scala-core and scala-platform

DOTTY

- **What is Dotty ?:** New Scala Compiler base on Dot
- **What is Dot ?:** A new simple language used to prove and reason about new Scala features
- **Why?:**
- - Allows for more "dialects" for the Scala language
  - Keep the language stable with features that are trust worthy
  - Bit more than half the size of current Scala compiler
  - Twice the speed of nsc (Current Scala compiler). Lot more opportunity ahead.
  - Dotty plugin for InteliJ IDE under development

DOT

- Proven foundation for Scala
- Calculus with a minimal language subset
- Concludes and 8 year effort!
- Encode much of the language from this instruction set
- Opens the door to do much more language work with better confidence than before
- Provides a way to prove type soundness for the language
- higher-order unification for type constructor -- SI-2712

DOTTY

Martin Odersky's Key Note

NOT moving to Dotty

- Procedure Syntax
- Macros
- DelayedInit
- General Type Protection
- Early Initializers
- Existential Types

New Features in Dotty

- Intersection Types
- Union Types
- Function Arity Adaptation
- @static methods and fields
- Named Type Parameters
- Multiversal Equalities
- Not blocking lazy vals
- Trait parameters

New Tooling

- Package Index - ScalaDex - the world of Scala libraries
- ScalaFiddle - do I need to explain?
- Sip/Slip Process - revamp to simplify and make better
- ScalaBlitz
- Scalameta (Replacement for Macros)
- Scalafmt
- Doc generation with dynamic linking for cross linking documentation across libraries

Scala Center

- New Steward for Scala, non-profit organization at EPFL
- Independently guide and support the Scala community
- Coordinate and develop open source libraries and tools for the benefit of all Scala users
- Provide deep, and quality, educational materials for Scala
- Money funded/donated -- IBM, Verizon, Golden Sachs, Nitro, Lightbend, 47 degrees

More Details in @heathercmiller Key Notes

For the good of all

Open source

MUCH CAN BE IMPROVED!

The Scala Center seeks to:

- Improve the landscape of Scala's libraries.
- Substantially grow our community of open source contributors.
- Coordinate and direct the **open source** development of libraries/tools of broad benefit to the community.
- Provide scaffolding to help community develop, publish, find, and evaluate Scala libraries.

For the good of all

Education

THE COURSES:

1. Functional Programming Principles in Scala
   TAUGHT BY: **MARTIN ODERSKY**
2. Functional Program Design in Scala
   TAUGHT BY: **MARTIN ODERSKY**
   GUEST LECTURER: **ERIK MEIJER**

NEW 3. Parallel Programming
TAUGHT BY: **VIKTOR KUNCAK, ALEKSANDAR PROKOPEC**

NEW 4. Big Data Analysis in Scala and Spark
TAUGHT BY: **HEATHER MILLER**

Spark 2.0 Preview

- File support only
- Not initial Kafka support in 2.0, maybe 2.1
- Based and optimzed for DataFrames and DataSets
- Aggressive optimizations improvements

Scala JS

- Latest 0.6.9
- "native" anonymous class
- js.tupleN
- Junit Support
- Faster code generation

Scala Native

- A new dialect for Scala that does NOT run on the JVM
- Write Scala to run on LLVM
- Really cool but very limited right now
- C level performance

Session slides & Resources

- Martin Odersky Keynote
- Heather Miller Keynote
- Matei Zaharia Keynote (Couldn't find slides)
- Precise Types bring Performance
- Why the free Monad isn't free
- Scala Native
- Lightbend Lagoom
- Finagle under the hood
- Being creative with Genetic Algorithams
- Data in Motion: Streaming static Data Efficiency
- Slick Event Sourcing

Session slides & Resources (Cont.)

- Meta Programming 2.0
- Poweramp Microservices at iHeartRadio
- Distributed Real-Time Stream Processing: Why and How 2.0
- Domain Driven Design and Onion Architecture in Scala
- The Structure of Programming Revolutions
- Dotty Linker: Precise Types Bring Performance
- This Week in #Scala

- DZone: Scala Days NYC 2016: Highlights

Thanks