"The future of Erlang"

Keynote speech
ICFP Erlang Workshop

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The future seems bright!

- Increasing interest for Erlang
  - Activity on mailing lists
  - Traffic on erlang.org site from all over the world
  - Blogs about Erlang
  - More books on their way
  - New products built with Erlang
Some positive statistics

Number of mails per month to the Erlang-Questions mailing list
Increasing Interest World Wide

Number of visits on Erlang.org last month (Aug 27 - Sep 26)
Why is the Future Bright?

- Multi core support, one of the strengths of Erlang
- Increased interest for FP and high level programming languages
- More focus on R&D efficiency
- Solutions which combine components (written in different languages)
More about Multi core (and SMP)

- Started work on VM with SMP support 2005
- Strategy
  - First, ”make it work”
  - Second, ”measure”
  - Third, ”optimize” by removing and moving locks
- First release was in OTP R11B May 2006
- Remove Big IO-lock
- Process lock optimized
- March 2007 first use in product
  - 1.7 speed improvement from single to dual core
Erlang (non SMP) VM today
Erlang SMP VM today

Erlang VM

Scheduler #1

Scheduler #2

... 

Scheduler #N

run queue
Multi core is a strong selling point

- Erlang is already good at Multi Core (SMP)
- But we still need to improve
  - Better scalability on 8, 16, ... Cores
    - Separate run queues per scheduler
    - Migration of processes is the tricky thing here
    - Separate IO locks per scheduler
  - Optimize locks around internal database access (ETS and Mnesia)
  - Process level locking
Erlang SMP VM next step

Erlang VM

Scheduler #1

run queue

Scheduler #2

run queue

... 

Scheduler #N

run queue

migration logic
Other important features to add

- Unicode support (in R12B-5)
- "Standalone" programs
- FFI, Foreign Function Interface or loadable BIF’s
- JSON support as part of standard distribution (BIF?)
- Fine granular parallelism (Erlang threads or fibers)