Is Haskell ready for everyday computing?

An informal experience report.

Jeff Polakow

CUFP 2008

Talk Overview

- My background
- Job background

- System description
- Points of interest

- Conclusions

About Me

- Theoretical PL research
- Insecurity about utility of my work
- Desire to spread use of “good” languages

About My Job

- Small credit trading group
- Credit markets are opaque
- Information management is main task
- Quantitative analysis less important

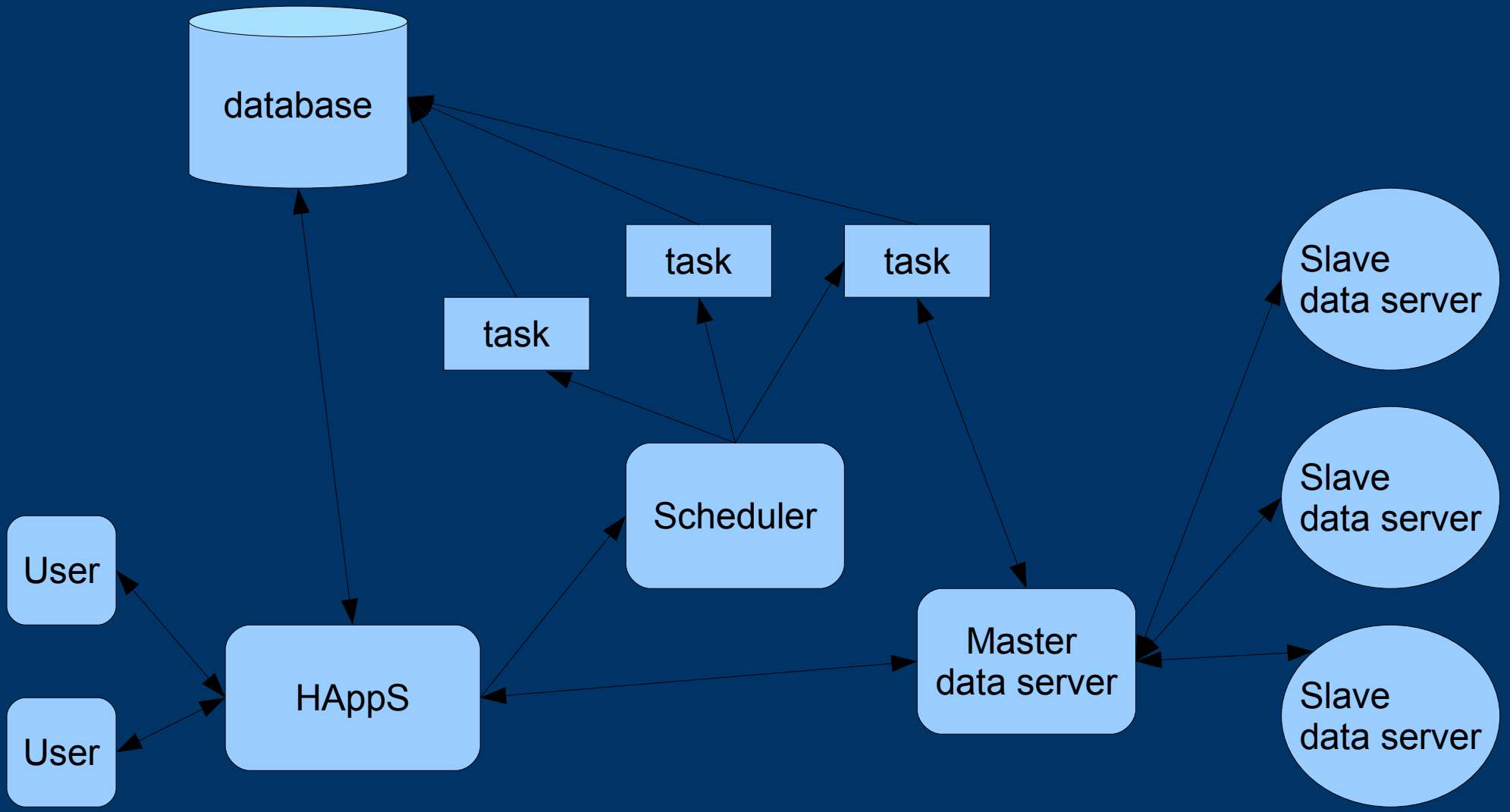
Why Haskell?

- Because I can
  - My chance to put theory into practice
  - Curious to know how Haskell fares
- Easiest way for me to be productive
  - Usual typed, higher-order reasons
  - Nicer syntax than OCaml

System Overview

- Database and Web system
- Scheduler to spawn autonomous tasks
- Several communicating pieces
- Distributed over several computers

System Architecture



First Version

- GHC 6.6.1 (started with GHC 6.4)
- HappS 0.8.4, HDBC 1.0.1 (using ODBC)
- All XP
- All process (not thread) based
  - Issues with -threaded
- Somewhat primitive, but stable

Current Version

- GHC 6.8.3
- HAppS 0.9.2, HDBC 1.1.5 (using ODBC)
- XP and Linux
- Threads (where possible) and processes
- Nice machinery for logical processes and servers
- More autonomous pieces talking to each other

Novelties

- Statically typed tables with mini SQL DSL
  - Manipulate tables in memory
  - Generates SQL queries to create a table in memory
- Automatic generation of RPC wrappers
- Proc monad for logical process machinery
- Abstract (socket-based) server machinery

The Good

- Usual stuff
  - Types & type classes for static guarantees
  - First class (higher-order) functions for code reuse
- Purity
  - Able to upgrade old (poorly documented) code with relative ease
- Performance not an issue (for our purposes)

The Bad

- Upgrading to 6.8.3 was painful
  - Some libraries don't like XP
  - Some libraries don't like cabal-install
- Errors / inadequacies of some libraries
- Most library documentation is poor

What is everyday computing?

My very subjective criteria.

- Database access tools
  - HDBC, Takusen, etc...
- Web tools
  - HAppS, powerful but difficult to install and learn
  - HSP, WASH, etc...
  - Curl bindings, FTP lib work pretty well
- Ability to write stable server-like programs
  - Great lightweight threads support
  - Good socket interface

What is everyday computing?

More very subjective criteria.

- Scripting
  - ghci as a shell, HSH
  - Good string processing machinery
- Foreign library interaction
  - FFI, plus helper tools, are good
  - No easy way to use .NET or Java libs
- Development Environment
  - GHC is easy to install & low maintenance
  - Libraries are not always easy to install
  - Available IDEs not adequate for everyone

Is Haskell ready for everyday computing?

Yes

- if you are
  - a seasoned Haskell programmer
  - comfortable with laziness/strictness trade offs
  - comfortable reading library source code
  - capable of understanding and fixing linker errors
  - ...
- and, if in a corporate environment, you are
  - free to try drastically new things
  - capable of functioning without IT dept support