klarna

distel
the first ten years

mats cronqvist
masse@klarna.com

this talk

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- editing code
- emacs
- erlang in emacs
- distel

how we write code - 40's

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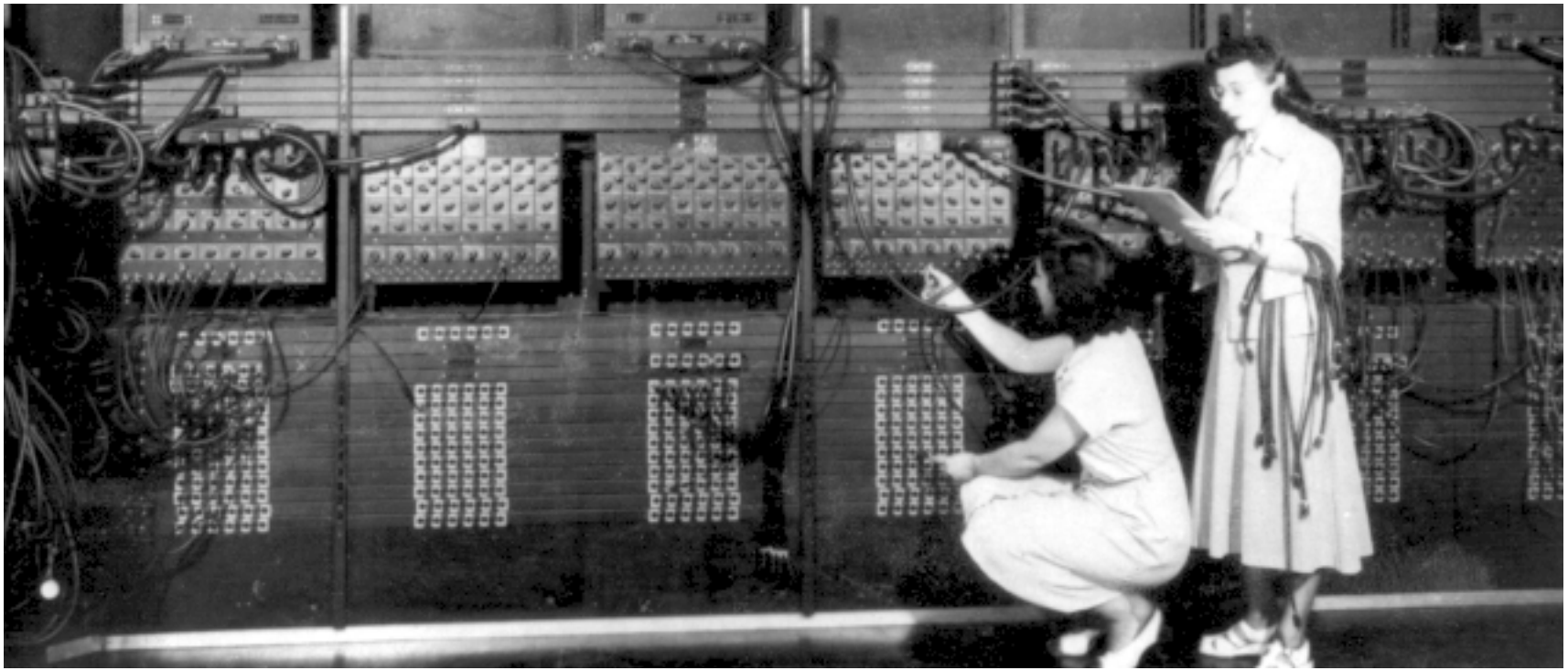

ENIAC programmers, 1945 (U.S. Army)

how we write code - 50s

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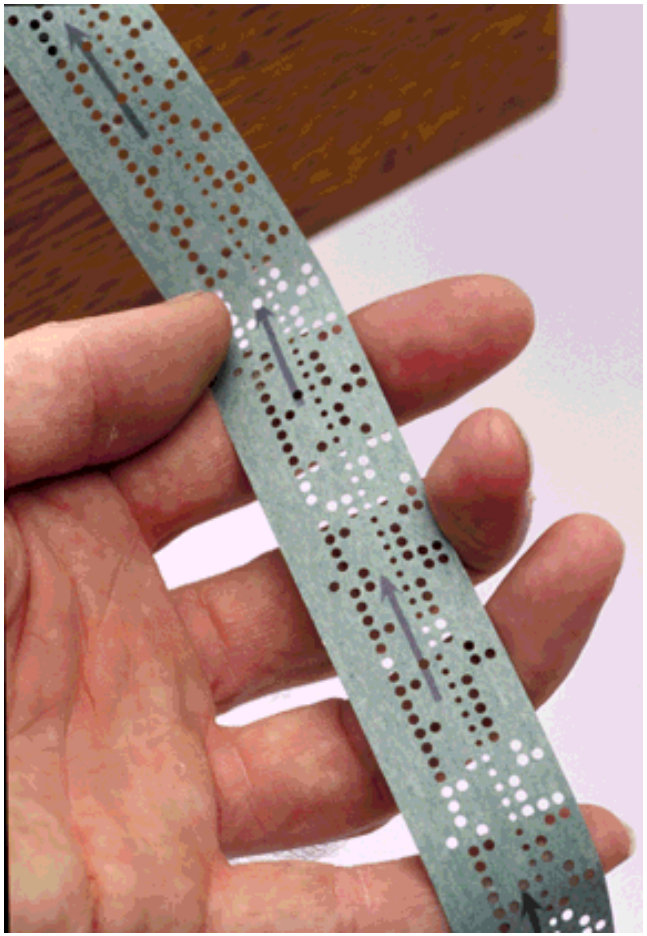

how we write code - 60s

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interactive line editors.

- TECO (1963)
- QED (1965)

*SHello$0TT$$ Search for "Hello" and print the line printf("Hello world!\n"); The line *-5DIGoodbye$0TT$$ Delete "Hello", insert "Goodbye", and print the line printf("Goodbye world!\n"); The updated line

how we write code -70s

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Visual editors

- vi (1976)
- emacs (1976)

how we write code - 90s

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Visual Studio (1995)

- code editor supporting IntelliSense
- code refactoring.
- integrated debugger works both as a source-level debugger and a machine-level debugger.
- forms designer for building GUIapplications,
- web designer,
- class designer
- database schema designer
- source-control systems (like Subversion and Visual SourceSafe)

how we write code

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by editing test in files.
nothing's changed since card punches disappeared.

Stevey on IDEs

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People in the industry are very excited about[ideas]such as IDEs that can manipulate code as "algebraic structures", and search indexes, and so on.
These people tend to view code bases much the way construction workers view dirt: they want great big machines that can move the dirt this way and that.

http://steve-yegge.blogspot.se/2007/12/codes-worst-enemy.html

future?

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Not much has happened since mid-80s.

- Inventing on Principle - Bret Victor
- Light Table - Chris Granger

"Light Table is based on a very simple idea: we need a real work surface to code on, not just an editor and a project explorer. We need to be able to move things around, keep clutter down, and bring information to the foreground in the places we need it most."

[http://vimeo.com/36579366]
[http://www.chris-granger.com/2012/05/21/the-future-is-specific]

editing erlang

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- eclipse
- vim
- emacs
  - the preferred tool of the original Erlang crew
  - has a comprehensive erlang mode
  - defines the canonical indentation

erlang in emacs

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- erlang mode (Anders Lindgren, ca. 1995)
  - syntax highlighting
  - navigation
  - indentation
  - compilation
  - inferior shell
  - ...

trivial emacs extensibility

emacs is extensible

```
(if (file-exists-p "Makefile")
    "make -k"
  (concat
 "erlc "
    (if (file-exists-p "../ebin") "-o ../ebin " "")
    (if (file-exists-p "../inc") "-I ../inc " "")
    "+debug_info -W "
    buffer-file-name))
```

non-trivial emacs extensibility

E.g., it is possible to implement the Erlang Distribution on top of it.

Thats's what this fine looking feller did back in 2002.
Luke Gorrie.

highly ambitious

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"Distel is an Emacs-based user-interface toolkit for Erlang. We introduce “Emacs nodes” using the Erlang inter-node distribution protocol, and make communication natural by extending Emacs Lisp with Erlang’s concurrent programming model."

"[The] features we selected are processes, pattern matching, and distribution, and they are reproduced faithfully at a high level, though many details differ."

distel example

```
(defun spawn-counter ()
  (erl-spawn
    (erl-register 'counter)
    (&counter-loop 1)))

(defun &counter-loop (count)
  (erl-receive (count)
    ((msg (message "Got msg #%S: %S"
           count msg)))
    (&counter-loop (+ count 1))))
```

continuation-passing

"Most importantly, erl-receive never returns. Instead it bundles up the execution state and throw's it directly back up to a scheduler loop, bypassing any code on the stack."

"Because erl-receive doesn't return, and nor do functions that call it, they should only be tail-called – called as the last thing a function does."

caveats

Distel is a bit old. And tends to get attention only in the areas that are used by highly motivated hackers.

- Has problems on MacOS.
- Probably doesn't work at all on Windows.
- Some bits are virtually never used, and rotted.

...but some bits work very well.

handy

`erl-reload-module (C-d C-d L)`

Reload an Erlang module, given by name in the minibuffer.

`erl-reload-modules (C-c C-d r)`

Reload all modules that are out of date.

`erl-find-doc (C-c C-d z)`

Show the signature of the function under point.

`file:read_file_info(Filename) -> {ok, FileInfo} | {error, Reason}`

hither and yon

Dynamic “TAGS”

"Distel includes a small source code cross referencer for Erlang. The basic feature is to jump from a function call in a program to the definition of that function."

`erl-find-source-under-point (M-.)` `erl-find-source-unwind (M-,)`

scribbles

Interactive Sessions

"An Interactive Session buffer is to Erlang as the *scratch* buffer is to Emacs Lisp – a scratchpad where code snippets can be hacked and executed."

squash

Debugger

"An Erlang debugger interface, called edb, is also included with Distel. This uses the same interpreter-based back-end as the OTP debugger application, but replaces the Tk-based front-end with an Emacs interface."

outro

https://massemanet@github.com/massemanet/distel.git

distel-ie

```
foo(Cmd) ->
  string:tokens(os:cmd(Cmd),"\n").

[foo(C) || C<- ["ls","date"]].


 -:-> [["elisp","foo.beam","foo.erl",
        "rpmbuild","user_default.beam"
       ["Mon May 28 12:57:09 CEST 2012
```

distel-edb

```
os(Cmd) ->
  lists:foreach(fun(X)->wr("~s~n",X)end,stri

wr(E) -> wr("~p.~n",E).
=>(F,E) -> wr(user,F,E).
wr(FD,F,E) -> io:fwrite(FD,F,[E]).

redbug()->redbug:help().
redbug(A,B,C)->redbug:start(A,B,C).

bt(P) ->
  string:tokens(binary_to_list(e(2,process_i
-UU-:%*--F1  *edbproc <?.132.0> on foo@vagra
        E = "Mon May 28 13:17:09 CEST 2012"
        F = "~s~n"
```