

# Sourdough and Erlang

## The Essence of Reuse

ACM SIGPLAN Erlang Workshop 2005

Ulf Wiger, Ericsson AB

# Sourdough and Erlang

- The first commercial Erlang license in the U.S. went to Alaska (Land of the Sourdoughs)
- I bought a copy for \$1,000 in 1993
- No mnesia, no ets, no global name server, ... basically just raw Erlang
- I loved it!



Picture from:  
FNH-00061.pdf  
University of Alaska Fairbanks

# SOURDOUGH

FNH-00061

Sourdough, a yeasty starter for leavening hot cakes, waffles, muffins, bread, and even cake, is also a word for an Alaskan old-timer. For these early Alaskans, who lived alone or in small groups of three or four while mining, trapping or homesteading, sourdough became their 'staff of life.' Bread could not be made without it, so the starter became a precious possession.

Food supplies came once or twice a year by ship. The food supplies were off-loaded to small boats, river steamers, dogsleds or backpacks to reach remote coastal or interior Alaskan destinations. Orders were placed a year in advance and foods were selected for keeping qualities as the arrival time often proved uncertain.

If yeast supplies ran out, replacements could be a long time in coming, especially if unseasonable ice formation and heavy wind or seas delayed the ships' entry into rivers or ports of call. Ordinary yeast plants, sensitive to the extreme cold, refused to grow well, while the combination of wild or adapted yeast in the sourdough starter proved as tough as its old-timer namesake. Or did the old-timer resemble and get his name from the indomitable sourdough starter? Choose whichever theory pleases you most.



# What is Sourdough?

- The secret of bread baking for over 5,000 years
- It's believed to have been discovered by accident
- A mixture of wild yeasts (*Saccharomyces cerevisiae*), and lactobacillus bacteria, living in a mixture of flour and water.
- Lactobacilli act as an antibiotic, and feed on dead yeast cells. The wild yeast likes the sour environment



# Caring for and Feeding a Starter

- Mix flour, water with wild yeast (purchased, or captured)
- Keep in a dark and warm (27°C) place
- Let it ferment. After ca 8 hours, feed it with some more flour and water
- Let it sit for another 8 hours or so, then feed some more.
- Later, when baking, set aside some of the starter for future use.



...A bit like developing good software!

# Commercial Yeasts vs Sourdough

## Commercial Yeast

- Genetically engineered for predictable qualities
- Can (nowadays) be resilient if so engineered
- A major characteristic is predictable rise times (allowing for tight oven schedules and mass production)
- Kept in "suspended animation" until activated. Otherwise, not very resilient

## Sourdough

- Taste varies over time, and depending on yeast culture
- Less predictable, although this has been much improved
- Increasingly used by commercial bakers, but production is more costly
- Sometimes combined with commercial yeast, to improve precision (heresy, according to some)
- Lives in a symbiotic relationship, can be kept for ages, if cared for.

# Two Reuse Patterns Emerge

- Commercial Reuse
  - Formula
  - Focus on predictable execution
  - Aims for a good-enough result and massive yield
  - (The OTP framework, gtkNode...)
- Intrinsic Reuse
  - Equilibrium
  - Excellence, even if process may be slower
  - May require more attention and skill
  - (Textbook Erlang, ex11...)

# The Siren Song of the Mainstream

- Commercial Reuse: Become more Predictable!
- Mainstream: solid, predictable = Must be good
- But isn't intrinsic reuse predictable? (Erlang vs C++?)
- Maybe it's all in the packaging...



But people disagree as to which is the better product!

# Sourdough Keeps Coming Back

- In the old days, all bread was sourdough
- With the advent of mass-produced bread, commercial yeast appeared superior (even if the resulting bread wasn't)
- As sourdough technology has improved, production volume has gone up
  - sourdough becomes profitable!

# So What is This Workshop About?



This...?

[http://www.icakuriren.se/recept\\_visa.asp?id=1090](http://www.icakuriren.se/recept_visa.asp?id=1090)



...or this?

<http://bbbhjem.hojjer.info/karhoi/Pages/recept.html>

- From looking at the program, I'd say we're in for some sourdough.