OOo linux dev

Agenda

- Speaker Introductions
- gdb
- strace
- {val|call}grind
- oprofile
- callcollector
- Q & A

gdb breakpoints

- Deferred breakpoints
  - *essential*
  - *relatively recent*
  - *not with c++ member names*
  - *run to completion and rerun bug*

- Gotchas
  - *requirement for soffice.bin to have debug info*
  - *the ctor fiasco*
    - *gcc creates two copies of a ctor*
  - *testsuite at http://people.redhat.com/caolanm/mygdbproblems.tar.gz*

gdb with unicode

- gdb doesn't natively support UTF-16/UCS-2
  - *but supports calling code directly from the debugger*
  - *and supports resolving overloaded functions*

- provide dbg_dump for string classes
  - *extensible*
  - *files containing them must be compiled with -g*
  - *http://www.skynet.ie/~caolan/TechTexts/GdbUnicodePrinting.html*

strace

- classic tool
  - *works*
  - *getrlimit(RLIMIT_NOFILE is the first OOo call*
  - *performance dismissed on casual glance*

- Seeks
  - *to end and back to determine file size*
    - *osl_getfilesize1*
  - *backwards and forwards over a small area*
    - *need to use a buffered i/o. stdio, iostream framework*

- Example
  - *searching iso before ooo for resources*

callgrind

- valgrind framework
  - *excellent*
  - *already used in classic mode.*
  - *LD_PRELOAD salloc_malloc*

- callgrind (previously calltree)
  - *excellent front end in kcachegrind*
  - *sal finds its commandline in an unusual way*
    - *workaround at http://people.redhat.com/caolan/callgrind*

- Emulates
  - *other system behaviour not relevant*
  - *io not considered*
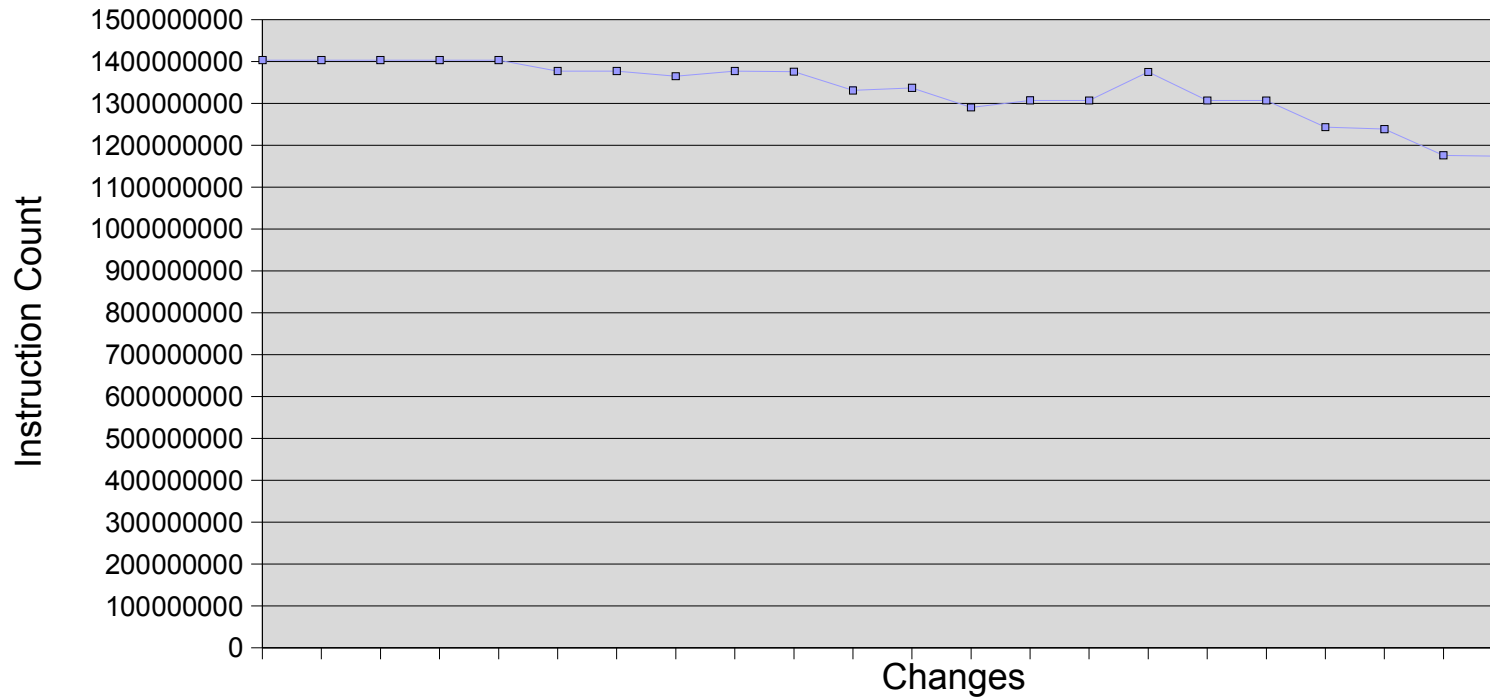 - *cache hit information*

callgrind examples

- Static/Global classes
  - *Non trivial ctors get called when .so initialized*
  - *cws tune03 removed the ones from startup*

- INetURLObject
  - *uses UniString. Poor string growing behaviour*
  - *using rtl:: OUString and StringBuffer is much better*

- unlocked stdio
  - *getc -> getc_unlocked*
  - *__fsetlocking*

Random Graph

Results

- *unlocked stdio minor difference*
- *alternative pthread locking was not*
- *InetUrl successful*

oprofile

- Requirements
  - *requires 2.6 SMP kernel with callgraph patch*
  - *requires root*
  - *problematic on my laptop*

- Samples
  - *Real world behaviour*

- op2callgrind/op2calltree
  - *load in kcachegrind*

callcatcher

- Suspicious that code is no longer in use
  - *compile to assembly*
  - *scrape direct and indirect calls*
  - *fragile, gcc-xml, pseudo target arch*

- Findings
  - *cws tune02*
  - *300k of obj from sw*
  - *older macro containers inject unused code.*

- No false positives
- Non-virtuals only

callcatcher

- --strict
  - *include unreferenced copy constructors*
  - *include unreferenced alternative const members*
  - *interesting to see non-standard copy constructors*

- --OpenOffice.org
  - *ignore unused methods belonging to pre-STL macros*
  - *interesting to move legacy code to STL containers*

- Demo
  - *http://www.skynet.ie/~caolan/Packages/callcatcher.html*

Resources

- gdb snapshot: http://www.gnu.org/software/gdb/current/
- gdb testsuite: http://people.redhat.com/caolanm/mygdbproblems.tar.gz
- gdb unicode: http://www.skynet.ie/~caolan/TechTexts/GdbUnicodePrinting.html

- valgrind: http://valgrind.kde.org/
- kcachegrind: http://kcachegrind.sourceforge.net/
- callgrind hack: http://people.redhat.com/caolanm/callgrind/

- callcatcher: http://www.skynet.ie/~caolan/Packages/callcatcher.html

- shared libs: http://people.redhat.com/drepper/dsohowto.pdf

- oprofile: http://oprofile.sourceforge.net/