



Valgrind Integration in Eclipse

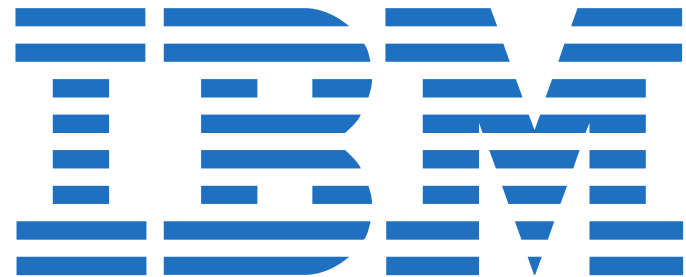
Roland Grunberg
rgrunber@redhat.com
Software Engineer
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The Linux Tools Project

- <http://www.eclipse.org/linuxtools/>
- Gcov/Gprof, Oprofile, Perf, Valgrind, SystemTap, LTTng, RPM/yum interaction, Changelog, Building Eclipse
- About 15 contributors per year, over last 2 years

POLYTECHNIQUE
MONTREAL

LE GÉNIE
EN PREMIÈRE CLASSE



ERICSSON




redhat.



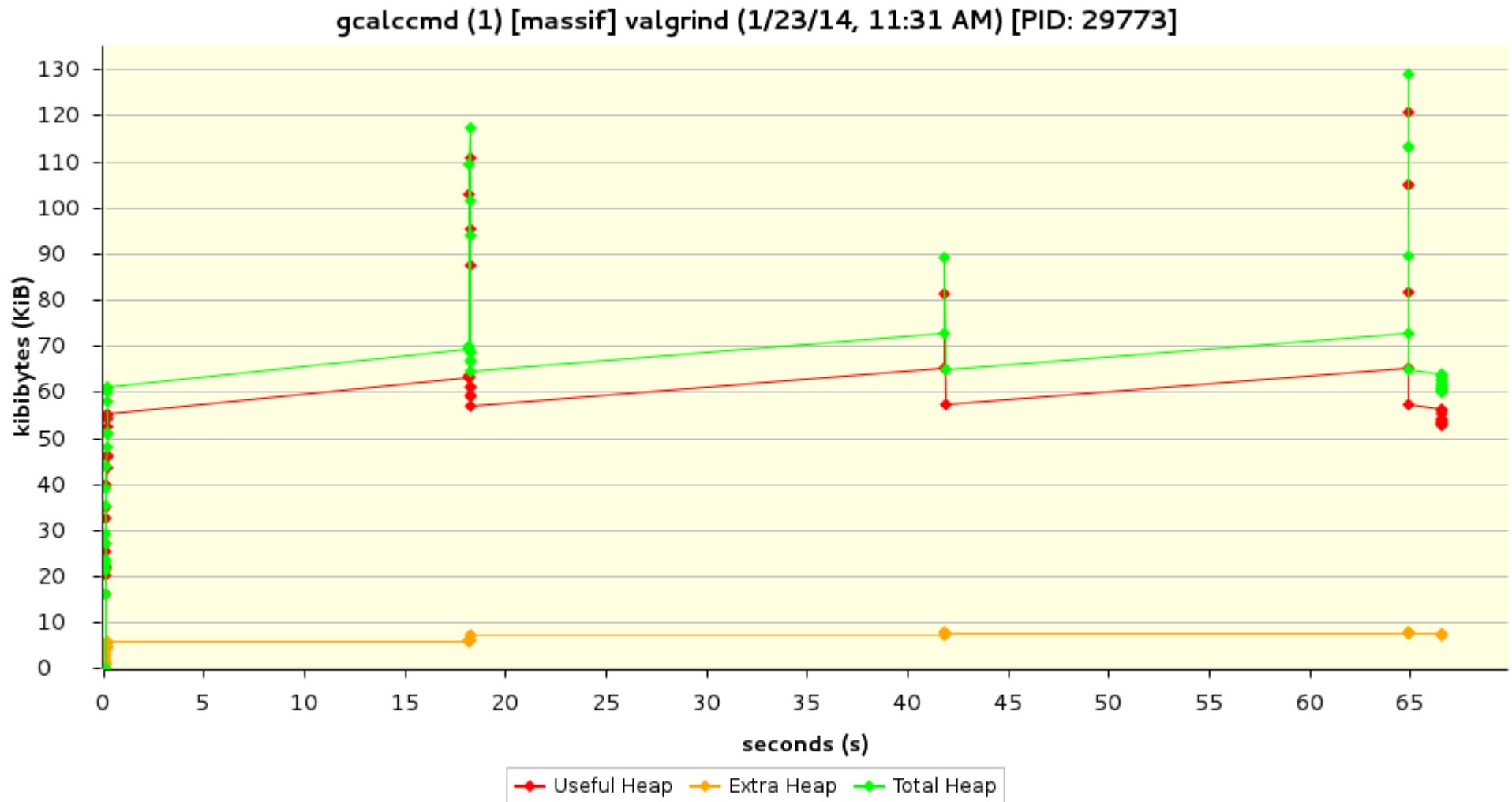
Memcheck

- Problems reported as annotations on source code
- Potential for quick fixes (resolve the problem)

```
26 char *get_lower_case(char *input) {  
27     char *t = strdup(input);  
28  
29     V 12 bytes in 1 blocks are definitely lost in loss record 1 of 1 [PID: 22711]  
30  
31       
32  
33     return t;  
34 }  
35
```

Massif

- Chart showing heap usage



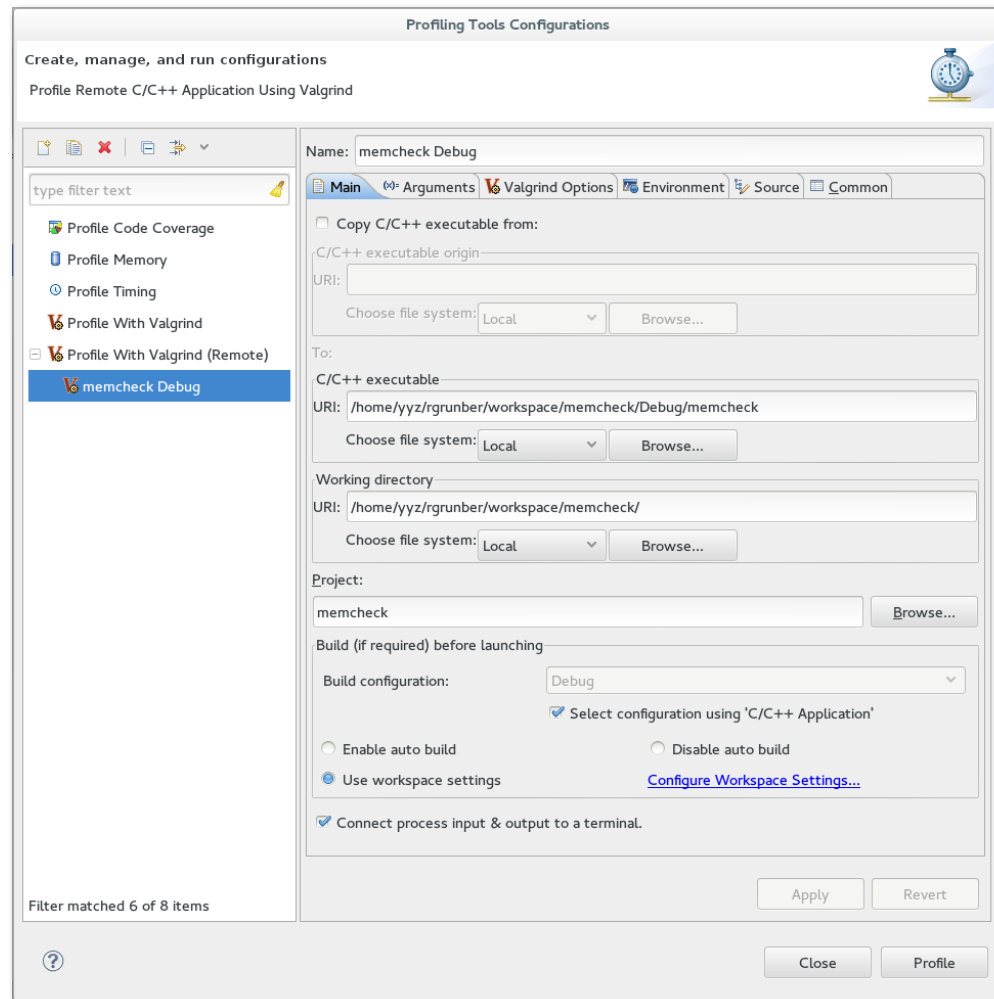
Helgrind

- Reports synchronization / data race problems
- Source code annotations

```
Problems Console Valgrind
deadlock Debug [helgrind] valgrind (1/23/14, 2:42 PM)
Thread #3: lock order "0x6010C0 before 0x601100" violated [PID: 21075]
Observed (incorrect) order is: acquisition of lock at 0x601100 [PID: 21075]
  at 0x4A0B395: pthread_mutex_lock (in /usr/lib64/valgrind/vgpreload_helgrind-amd64-linux.so)
  by 0x4009BD: thread2 (deadlock.c:47)
  by 0x4A0A245: ??? (in /usr/lib64/valgrind/vgpreload_helgrind-amd64-linux.so)
  by 0x32A7C07C52: start_thread (in /usr/lib64/libpthread-2.17.so)
  by 0x32A74F5DBC: clone (in /usr/lib64/libc-2.17.so)
followed by a later acquisition of lock at 0x6010C0 [PID: 21075]
  at 0x4A0B395: pthread_mutex_lock (in /usr/lib64/valgrind/vgpreload_helgrind-amd64-linux.so)
  by 0x4009C7: thread2 (deadlock.c:48)
  by 0x4A0A245: ??? (in /usr/lib64/valgrind/vgpreload_helgrind-amd64-linux.so)
  by 0x32A7C07C52: start_thread (in /usr/lib64/libpthread-2.17.so)
  by 0x32A74F5DBC: clone (in /usr/lib64/libc-2.17.so)
Required order was established by acquisition of lock at 0x6010C0 [PID: 21075]
```

Remote Targets

- Project is compiled/run on target host



Improvements

- Introduce more quick fixes (Memcheck, Helgrind)
- Make Remote Profiling Easier
- Keep up to date with useful Valgrind features
- Valgrind can be (understandably) slow with memcheck

Questions

- Eclipse IDE C/C++ : <http://www.eclipse.org/downloads/>
- CDT : <http://www.eclipse.org/cdt/>
- Linux Tools Project : <http://www.eclipse.org/linuxtools/>
- PTP : <https://www.eclipse.org/ptp/>