

Predicate Analysis with BLAST 2.7.3



Pavel Shved, Mikhail Mandrykin,
and Vadim Mutilin



BLAST 2.5



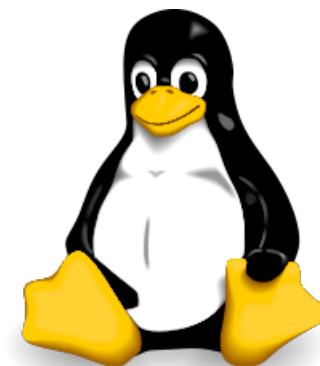
Berkeley
Lazy
Abstraction
Software
Verification
Tool

BLAST 2.7.3



Linux Driver Verification Project Goals

- Provide infrastructure for application of verification tools to the Linux device drivers
- Research new verification approaches in the industrial settings
- Improve quality of the Linux device drivers



Comparison of BLAST and CPAchecker

on drivers in the Linux kernel 4.4-rc1

- **CPAchecker-RefSel**
(SVCOMP Winner in DeviceDriversLinux64)
- **CPAchecker-LDV**
(Configuration which we are using regularly in LDV)
- **BLAST**

Results for 30185 verification tasks from Linux kernel 4.4-rc1

#	Task		Total	Safe	Unsafe	Unknown			
							Time	Time Ok	Time Fail
1	<input type="radio"/>	Task description CPAchecker-RefSel	30185	25203	182	4800	1 714 348	1 195 092	519 255
2	<input type="radio"/>	Task description CPAchecker-LDV	30185	25458	248	4479	974 720	443 910	530 810
3	<input type="radio"/>	Task description BLAST	30185	24969	261	4955	527 887	201 341	326 545

Details of comparison CPAchecker-LDV and BLAST

	Only by CPAchecker-LDV	Only by BLAST
Correct verdicts	872	402
Correct unsafe verdicts (bugs)	57	80

CPAchecker in LDV

- has more correct results
(mostly because of correct safe)
- finds new bugs, but still less than BLAST
- became our main verification tool

Thank you!



Vadim Mutilin

mutilin@ispras.ru

<http://linuxtesting.org/project/ldv>

