

Re: Netscape 7 issues.

Source: <http://unix.derkeiler.com/Newsgroups/comp.sys.sun.admin/2003-07/0252.html>

From: Dr. David Kirkby (drkirkby_at_ntlworld.com)

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Eric Behr wrote:

> *Time for a little rant, I guess.*

Okay, I'll have one too in a minute, about a similar issue (nothing specific to Netscape). Sorry it is a little long, but does I think expose an important point.

> *This tells me that noone*

> *is using Solaris to test Unix things, nobody believes in KISS*

> *anymore, noone gives a damn about portability and bloat.*

There is certainly a culture amongst Linux users that if it works on the latest Redhat, or whatever distribution they use, the software is ready for release to the world. No effort seems to be made to check portability to any other systems. I've seen people say 'all I care about is if it runs on Redhat 7.2'

I think this is VERY foolish, for reasons other than the obvious one, as the following real example shows.

Before releasing the previous version (4.3.2) of 'atlc'

<http://atlc.sourceforge.net/>

I had tested atlc on 10 computers, including: several Suns running:

Solaris 2.5

Solaris 9 – with both Sun's compiler and gcc.

NetBSD

OpenBSD

Debian Linux

Redhat Linux

in addition to:

A Dec Alpha running Tru64 – using HP's compiler.

An HP box running HP-UX

A PC running Solaris x86

A PC running Redhat Linux.

No problems were found, apart from when compiled to exploit multiple CPUs on SPARC Linux distributions. I thought this was due to broken thread support, as I gather thread support was poor in early linux distributions. The code works fine on current Linux distributions.

Since releasing it, I got the chance to check it on an Itanium based machine, again with no problems – even with multi-processor support enabled.

This week I tried to build that code on an IBM RS/6000 running AIX using IBM's C compiler. IBM's compiler did not like my C++ comments. Given the code is C, I decided to remove the C++ style comments, so aiding portability. (Sure, I could have added a compiler option to accept C++ comments, but why do that? C++ style comments are convenient, but it seems a shame to use them in an otherwise C program).

However, much more seriously, once the comments were fixed, the program crashed on AIX. On inspection I found a dynamically allocated array, `foo[x-1][y]`, was being called with `x=0`, so it was trying to read from element `foo[-1][y]`.

Finding this bug on AIX, while not on the above 11 systems, was surprising given:

a) The bug had not been found when compiled using Sun's C compiler with the compiler's 'memory access checking' enabled.

b) I'd built the code with gcc, with the unofficial bounds checking patches of gcc
<http://www.lrde.epita.fr/~akim/compil/doc/bounds-checking.html>
installed. Again, one might have expected the patched gcc to find such a bug.

That, along with many other instances in the past, have shown me that by testing for portability, one finds bugs on one system that don't obviously show up on another. The bugs exist, but don't show up. That is until you run on another system, using a different compiler, have more or less users on the system, the wind is blowing the wrong way etc etc.

The other fatal flaw people make, it to compile on other hardware, but still using gcc. It's clearly better to check portability on a number of different compilers.

I think if people took care like this, bugs in code would be found much easier. With places like Sourceforge's compile farm:
http://sourceforge.net/docman/display_doc.php?docid=762&group_id=1
HP's testdrive
<http://www.testdrive.compaq.com/>
anyone can (if they put the effort in), test code on a range of

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platforms for zero cost. Old hardware that is suitable for such testing is cheap – you don't need the latest fastest box around. Using automated test procedures (I'll post a script if anyone wants it), it's possible to test on a number of systems in parallel, without spending all your life doing it.

I've now fixed the bug, so the latest release of atlc does not make this fatal memory access. It now compiles and runs on AIX 5.2, but is giving the wrong answers!! This indicates there is ANOTHER bug, which is again showing up on AIX and not the other systems. But I can't currently donate the time to find that bug. Sometime over the weekend, I might get a chance to fix it.

Later I will check portability to IRIX too, and perhaps install an older release of AIX on the IBM, just to check it under different versions.

Perhaps I go a bit OTT in checking for portability issues, but I sure wish others would do a bit more. Then large programs like the Gimp, Mozilla, OpenOffice would crash less often. </rant>

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