batman-adv - Bug #322

compiling for 4.5 fails: "implicit declaration of function 'G_TC_AT'"

12/24/2016 08:32 AM - Linus Lüssing

Status:	Closed	**Start date:**	12/24/2016
Priority:	Normal	**Due date:**	
Assignee:	Linus Lüssing	**% Done:**	0%
Category:		**Estimated time:**	0.00 hour
Target version:	2017.0		

Description

I suspect it might even be the compat code I provided with the last multicast patchset, but couldn't quite verify yet. The issue is the following, occuring when trying to build against a 4.5.0 kernel with a kernel config build via "make defconfig":

```
/home/tux/dev/batman-adv-t_x/gen-compat-autoconf.sh /home/tux/dev/batman-adv-t_x/compat-autoconf.h
mkdir -p /home/tux/dev/batman-adv-t_x/build/net/batman-adv/
compat-patches/replacements.sh
touch /home/tux/dev/batman-adv-t_x/build/net/batman-adv/.compat-prepared
/usr/bin/make -C /home/tux/dev/linux/headers/usr/src/linux-headers-4.5.0+ M=/home/tux/dev/batman-a
dv-t_x/build PWD=/home/tux/dev/batman-adv-t_x/build REVISION=2016.5 CONFIG_BATMAN_ADV=m CONFIG_BAT
MAN_ADV_DEBUG=y CONFIG_BATMAN_ADV_DEBUGFS=y CONFIG_BATMAN_ADV_BLA=y CONFIG_BATMAN_ADV_DAT=y CONFIG
_BATMAN_ADV_NC=n CONFIG_BATMAN_ADV_MCAST=y CONFIG_BATMAN_ADV_BATMAN_V=y INSTALL_MOD_DIR=updates/
modules
make[1]: Entering directory '/home/tux/dev/linux/headers/usr/src/linux-headers-4.5.0+'
  CC [M]  /home/tux/dev/batman-adv-t_x/build/net/batman-adv/../../../compat-sources/net/core/skbuf
f.o
In file included from include/linux/filter.h:16:0,
                 from include/net/sock.h:64,
                 from include/linux/tcp.h:22,
                 from include/linux/ipv6.h:72,
                 from /home/tux/dev/batman-adv-t_x/build/net/batman-adv/../../../compat-sources/ne
t/core/skbuff.c:35:
include/net/sch_generic.h: In function 'skb_at_tc_ingress':
include/net/sch_generic.h:413:2: error: implicit declaration of function 'G_TC_AT' [-Werror=implic
it-function-declaration]
  return G_TC_AT(skb->tc_verd) & AT_INGRESS;
  ^
include/net/sch_generic.h:413:33: error: 'AT_INGRESS' undeclared (first use in this function)
  return G_TC_AT(skb->tc_verd) & AT_INGRESS;
                                 ^
include/net/sch_generic.h:413:33: note: each undeclared identifier is reported only once for each
function it appears in
cc1: all warnings being treated as errors
scripts/Makefile.build:258: recipe for target '/home/tux/dev/batman-adv-t_x/build/net/batman-adv/.
./../../compat-sources/net/core/skbuff.o' failed
make[3]: *** [/home/tux/dev/batman-adv-t_x/build/net/batman-adv/../../../compat-sources/net/core/s
kbuff.o] Error 1
scripts/Makefile.build:407: recipe for target '/home/tux/dev/batman-adv-t_x/build/net/batman-adv'
failed
make[2]: *** [/home/tux/dev/batman-adv-t_x/build/net/batman-adv] Error 2
Makefile:1391: recipe for target '_module_/home/tux/dev/batman-adv-t_x/build' failed
make[1]: *** [_module_/home/tux/dev/batman-adv-t_x/build] Error 2
make[1]: Leaving directory '/home/tux/dev/linux/headers/usr/src/linux-headers-4.5.0+'
Makefile:90: recipe for target 'all' failed
make: *** [all] Error 2
```

I can reproduce the error with v2016.3, v2016.4, v2016.5 and master. The issue does not occur with a kernel 4.6 to 4.9 - those versions have a CONFIG_NET_CLS_ACT set in their .config, too, and the includes of net/pkt_cls.h, uapi/linux/pkt_cls.h or net/sch_generic.h look the same to me compared to 4.5.0.

Although the includes do indeed look a little strange, I'm currently wondering why "include/net/pkt_cls.h" is not "include/linux/pkt_cls.h" which would match better to the uapi variant, I guess?

I will try to reproduce the issue with a v4.5.7 kernel.

Update:

- 4.5.7 does not work either
- 4.3.0 and 4.4.0 work fine

History

#1 - 12/24/2016 09:14 AM - Linus Lüssing

- Description updated

#2 - 12/24/2016 09:30 AM - Sven Eckelmann

- Assignee set to Linus Lüssing

Have you checked what Virtualbox did to fix it in their SVN repo? https://www.virtualbox.org/ticket/15327

#3 - 12/24/2016 01:49 PM - Linus Lüssing

Woops, haven't saved my last update. My last update consisted this, so yes, a search engine also led me to VirtualBox having had the same issue once.

What they did is simply adding an include in their VirtualBox code, compat style. But looks kind of "wrong", I'm wondering why they haven't submitted a patch to Linux for an include in net/sch_generic.h.

I'm currently bisect'ing, it's some commit between Linux 4.4rc-7 and 4.4-rc8 having introduced the issue.

Also, it's not multicast dependent, with multicast optimizations turned off it fails for bridge-loop-avoidance.c instead.

#4 - 12/24/2016 04:03 PM - Linus Lüssing

This commit introduced the issue:

```
fdc5432a7b44ab7de17141beec19d946b9344e91 is the first bad commit
commit fdc5432a7b44ab7de17141beec19d946b9344e91
Author: Daniel Borkmann <daniel@iogearbox.net>
Date:   Thu Jan 7 15:50:22 2016 +0100

    net, sched: add skb_at_tc_ingress helper

    Add a skb_at_tc_ingress() as this will be needed elsewhere as well and
    can hide the ugly ifdef.

    Signed-off-by: Daniel Borkmann <daniel@iogearbox.net>
    Acked-by: Alexei Starovoitov <ast@kernel.org>
    Signed-off-by: David S. Miller <davem@davemloft.net>

:040000 040000 6490612e4ede1a69d14b2993df61b925850dcf94 6bd4ed2177fbb2b86ada15e601b2bcdaabbd6be6 M      includ
e
:040000 040000 9ca6c05034a6f5ea9ca87bd53a1f4b90845d1c45 0ea5adeae816c02397f57bf87a9429aa9c23f791 M      net
```

Seems obvious to me that the author moved code but forgot to move/add an include, too.

I will continue bisect'ing tomorrow to figure out what might have fixed or hidden this bug again between 4.5 and 4.6. (Maybe that points to some fix which was simply forgotten to be backported to 4.5 stable kernels)

#5 - 12/25/2016 04:33 PM - Linus Lüssing

And this is the patch which accidentally "fixed" it by adding the missing include for uapi/linux/pkt_cls.h in include/linux/netdevice.h:

```
commit e4c6734eaab90695db0ea8456307790cb0c1ccb5
Author: John Fastabend <john.fastabend@gmail.com>
Date:   Tue Feb 16 21:16:15 2016 -0800

    net: rework ndo tc op to consume additional qdisc handle parameter

    The ndo_setup_tc() op was added to support drivers offloading tx
    qdiscs however only support for mqprio was ever added. So we
    only ever added support for passing the number of traffic classes
    to the driver.

    This patch generalizes the ndo_setup_tc op so that a handle can
    be provided to indicate if the offload is for ingress or egress
    or potentially even child qdiscs.

    CC: Murali Karicheri <m-karicheri2@ti.com>
    CC: Shradha Shah <sshah@solarflare.com>
    CC: Or Gerlitz <ogerlitz@mellanox.com>
    CC: Ariel Elior <ariel.elior@qlogic.com>
    CC: Jeff Kirsher <jeffrey.t.kirsher@intel.com>
    CC: Bruce Allan <bruce.w.allan@intel.com>
    CC: Jesse Brandeburg <jesse.brandeburg@intel.com>
    CC: Don Skidmore <donald.c.skidmore@intel.com>
    Signed-off-by: John Fastabend <john.r.fastabend@intel.com>
    Acked-by: Jiri Pirko <jiri@mellanox.com>
    Acked-by: Jamal Hadi Salim <jhs@mojatatu.com>
    Signed-off-by: David S. Miller <davem@davemloft.net>

:040000 040000 7db55c94fddeff569c119f80452911d25be007aa c033a54ea9630457f26aeeabb8b75f9d91b2e339 M      driver
s
:040000 040000 46770a522df76c9c0ed1850737e9c1360f03f1de f8d07537f3abdacf194bc99ae4921e37b1f8c0d0 M      includ
e
:040000 040000 634792dd917190cef10ab8fcf8b9b1faee3dad19 ee7e2dd613e4ff0084e0c967cad9b400070b9aa9 M      net
```

I'll prepare two patches: One reverting the include this commit made with an "Introduced-by:" to this commit. And then a second patch which re-adds the include in include/net/sch_generic.h with an "Introduced-by" to the helper patch mentioned yesterday which introduced the issue in the first place.

So the first patch will hopefully go to 4.6 kernels and newer, the second one to 4.5 kernels and newer.

#6 - 01/10/2017 01:30 AM - Linus Lüssing

The simple patch to add the missing include for uapi/linux/pkt_cls.h in net/sch_generic.h did not work.

I'm currently trying to investigate with Daniel Borkmann why the linux-headers directory created via "$ make-kpkg kernel_headers" creates two and differing header files with the same __LINUX_PKT_CLS_H guard:

- uapi/linux/pkt_cls.h
- linux/pkt_cls.h -> has the "#ifdef *KERNEL*" section containing the necessary define stripped

So if the *non-uapi* version is included before the uapi one, then compilation fails.

(So far I am a little clueless why those two headers with the same guard exist or how to fix that)

#7 - 04/24/2017 09:01 PM - Linus Lüssing

Since there was no response from upstream to fix things in Debian's make-kpkg, a workaround was added to the batman-adv compat code, present since batman-adv v2017.0:

   "batman-adv: compat: workaround for issues with make-kpkg for 4.5 kernels" ([102146d65c5](#))

However, make-kpkg still needs to be fixed.

(and actually a new, probably related problem just popped up: [#333](#))

#8 - 04/25/2017 08:42 AM - Sven Eckelmann

- Target version set to 2017.0

- Status changed from New to Closed