Subject: [PATCH] Report that kernel is tainted if there were an OOPS before (v2)
Posted by xemul on Tue, 17 Apr 2007 08:53:58 GMT
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If the kernel OOPS-ed or BUG-ed then it probably should
considered as tainted. Use die_counter introduced by many
architectures to determine whether or not the kernel died.

This saves a lot of time explaining oddities in the
calltrace seen via SysRq-P.

Signed-off-by: Pavel Emelianov <xemul@openvz.org>
Signed-off-by: Kirill Korotaev <dev@openvz.org>
Cc: Randy Dunlap <randy.dunlap@oracle.com>

```
diff --git a/Documentation/oops-tracing.txt b/Documentation/oops-tracing.txt
index ea55ea8..dddbfe0 100644
--- a/Documentation/oops-tracing.txt
+++ b/Documentation/oops-tracing.txt
@@ -240,6 +240,10 @@ characters, each representing a particul
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      Tainted flag be set, ' ' otherwise.

+  8: 'D' if a kernel has died recently, i.e. there was an OOPS or BUG
+     before, ' ' otherwise. This is useful when seeing the calltrace
+     from SysRq-P output.
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index b3ffba1..764526c 100644
--- a/arch/arm/kernel/traps.c
+++ b/arch/arm/kernel/traps.c
@@ -207,7 +207,6 @@ void show_stack(struct task_struct *tsk,
 static void __die(const char *str, int err, struct thread_info *thread, struct pt_regs *regs)
 {
  struct task_struct *tsk = thread->task;
- static int die_counter;

  printk("Internal error: %s: %x [#%d]\n", str, err, ++die_counter);
  print_modules();
diff --git a/arch/avr32/kernel/traps.c b/arch/avr32/kernel/traps.c
index c8b7153..0829ebc 100644
--- a/arch/avr32/kernel/traps.c
+++ b/arch/avr32/kernel/traps.c
```

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@@ -156,8 +156,6 @@ static DEFINE_SPINLOCK(die_lock);

 void NORET_TYPE die(const char *str, struct pt_regs *regs, long err)
 {
- static int die_counter;
-
  console_verbose();
  spin_lock_irq(&die_lock);
  bust_spinlocks(1);
diff --git a/arch/i386/kernel/traps.c b/arch/i386/kernel/traps.c
index 35d1c38..8531901 100644
--- a/arch/i386/kernel/traps.c
+++ b/arch/i386/kernel/traps.c
@@ -438,7 +438,6 @@ void die(const char * str, struct pt_reg
   .lock_owner =  -1,
   .lock_owner_depth = 0
  };
- static int die_counter;
  unsigned long flags;

  oops_enter();
diff --git a/arch/ia64/kernel/traps.c b/arch/ia64/kernel/traps.c
index 5bfb8be..7a1e8d8 100644
--- a/arch/ia64/kernel/traps.c
+++ b/arch/ia64/kernel/traps.c
@@ -47,7 +47,6 @@ die (const char *str, struct pt_regs *re
   .lock_owner =  -1,
   .lock_owner_depth = 0
  };
- static int die_counter;
  int cpu = get_cpu();

  if (die.lock_owner != cpu) {
diff --git a/arch/mips/kernel/traps.c b/arch/mips/kernel/traps.c
index 27c53f1..2c65120 100644
--- a/arch/mips/kernel/traps.c
+++ b/arch/mips/kernel/traps.c
@@ -312,7 +312,6 @@ static DEFINE_SPINLOCK(die_lock);

 NORET_TYPE void ATTRIB_NORET die(const char * str, struct pt_regs * regs)
 {
- static int die_counter;
 #ifdef CONFIG_MIPS_MT_SMTC
  unsigned long dvpret = dvpe();
 #endif /* CONFIG_MIPS_MT_SMTC */
diff --git a/arch/powerpc/kernel/traps.c b/arch/powerpc/kernel/traps.c
index bf6445a..13bc4c7 100644
--- a/arch/powerpc/kernel/traps.c
```

```
+++ b/arch/powerpc/kernel/traps.c
@@ -105,7 +105,6 @@ int die(const char *str, struct pt_regs
   .lock_owner =  -1,
   .lock_owner_depth = 0
  };
- static int die_counter;
  unsigned long flags;

  if (debugger(regs))
diff --git a/arch/ppc/kernel/traps.c b/arch/ppc/kernel/traps.c
index 810f7aa..3a058fb 100644
--- a/arch/ppc/kernel/traps.c
+++ b/arch/ppc/kernel/traps.c
@@ -76,7 +76,6 @@ DEFINE_SPINLOCK(die_lock);

 int die(const char * str, struct pt_regs * fp, long err)
 {
- static int die_counter;
  int nl = 0;
  console_verbose();
  spin_lock_irq(&die_lock);
diff --git a/arch/s390/kernel/traps.c b/arch/s390/kernel/traps.c
index 90ca82b..659f41c 100644
--- a/arch/s390/kernel/traps.c
+++ b/arch/s390/kernel/traps.c
@@ -251,8 +251,6 @@ static DEFINE_SPINLOCK(die_lock);

 void die(const char * str, struct pt_regs * regs, long err)
 {
- static int die_counter;
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  debug_stop_all();
  console_verbose();
  spin_lock_irq(&die_lock);
diff --git a/arch/sh/kernel/traps.c b/arch/sh/kernel/traps.c
index e9f168f..38ae9de 100644
--- a/arch/sh/kernel/traps.c
+++ b/arch/sh/kernel/traps.c
@@ -78,8 +78,6 @@ DEFINE_SPINLOCK(die_lock);

 void die(const char * str, struct pt_regs * regs, long err)
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  console_verbose();
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index dc9ffea..b9b4ddd 100644
--- a/arch/sparc/kernel/traps.c
+++ b/arch/sparc/kernel/traps.c
@@ -89,7 +89,6 @@ void instruction_dump (unsigned long *pc

 void die_if_kernel(char *str, struct pt_regs *regs)
 {
- static int die_counter;
  int count = 0;

  /* Amuse the user. */
diff --git a/arch/sparc64/kernel/traps.c b/arch/sparc64/kernel/traps.c
index dc652f2..556189b 100644
--- a/arch/sparc64/kernel/traps.c
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@@ -2208,7 +2208,6 @@ static inline struct reg_window *kernel_

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  extern void smp_report_regs(void);
  int count = 0;

diff --git a/arch/x86_64/kernel/traps.c b/arch/x86_64/kernel/traps.c
index e5403dc..93c4215 100644
--- a/arch/x86_64/kernel/traps.c
+++ b/arch/x86_64/kernel/traps.c
@@ -570,7 +570,6 @@ void __kprobes oops_end(unsigned long fl

 void __kprobes __die(const char * str, struct pt_regs * regs, long err)
 {
- static int die_counter;
  printk(KERN_EMERG "%s: %04lx [%u] ", str, err & 0xffff,++die_counter);
 #ifdef CONFIG_PREEMPT
  printk("PREEMPT ");
diff --git a/arch/xtensa/kernel/traps.c b/arch/xtensa/kernel/traps.c
index 693ab26..97cc4e2 100644
--- a/arch/xtensa/kernel/traps.c
+++ b/arch/xtensa/kernel/traps.c
@@ -465,7 +465,6 @@ DEFINE_SPINLOCK(die_lock);

 void die(const char * str, struct pt_regs * regs, long err)
 {
- static int die_counter;
  int nl = 0;

  console_verbose();
diff --git a/include/linux/kernel.h b/include/linux/kernel.h
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index b8f8252..54c4fc4 100644
--- a/include/linux/kernel.h
+++ b/include/linux/kernel.h
@@ -202,6 +202,7 @@ extern enum system_states {
 #define TAINT_USER   (1<<6)

 extern void dump_stack(void);
+extern int die_counter;

 #ifdef DEBUG
 /* If you are writing a driver, please use dev_dbg instead */
diff --git a/kernel/panic.c b/kernel/panic.c
index 623d182..e75eea4 100644
--- a/kernel/panic.c
+++ b/kernel/panic.c
@@ -150,23 +150,27 @@ EXPORT_SYMBOL(panic);
  *  'R' - User forced a module unload.
  *  'M' - Machine had a machine check experience.
  *  'B' - System has hit bad_page.
+ *  'D' - An OOPS or BUG has happened.
  *  'U' - Userspace-defined naughtiness.
  *
  * The string is overwritten by the next call to print_taint().
  */
+
+int die_counter;

 const char *print_tainted(void)
 {
  static char buf[20];
- if (tainted) {
-  snprintf(buf, sizeof(buf), "Tainted: %c%c%c%c%c%c%c",
+ if (tainted || die_counter) {
+  snprintf(buf, sizeof(buf), "Tainted: %c%c%c%c%c%c%c%c",
     tainted & TAINT_PROPRIETARY_MODULE ? 'P' : 'G',
     tainted & TAINT_FORCED_MODULE ? 'F' : ' ',
     tainted & TAINT_UNSAFE_SMP ? 'S' : ' ',
     tainted & TAINT_FORCED_RMMOD ? 'R' : ' ',
      tainted & TAINT_MACHINE_CHECK ? 'M' : ' ',
     tainted & TAINT_BAD_PAGE ? 'B' : ' ',
-    tainted & TAINT_USER ? 'U' : ' ');
+    tainted & TAINT_USER ? 'U' : ' ',
+    die_counter ? 'D' : ' ');
  }
  else
   snprintf(buf, sizeof(buf), "Not tainted");
```

Subject: Re: [PATCH] Report that kernel is tainted if there were an OOPS before (v2)
Posted by Jan Engelhardt on Thu, 31 May 2007 19:50:50 GMT
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This seems to have died and remain unmerged as of yet... resubmit?

On Apr 17 2007 12:58, Pavel Emelianov wrote:

>Date: Tue, 17 Apr 2007 12:58:47 +0400
>From: Pavel Emelianov <xemul@sw.ru>
>To: Andrew Morton <akpm@osdl.org>,
>   Linux Kernel Mailing List <linux-kernel@vger.kernel.org>,
>   linux-arch@vger.kernel.org
>Cc: randy.dunlap@oracle.com, devel@openvz.org
>Subject: [PATCH] Report that kernel is tainted if there were an OOPS before
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> static void __die(const char *str, int err, struct thread_info *thread, struct pt_regs *regs)
> {
>  struct task_struct *tsk = thread->task;
>- static int die_counter;
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>  printk("Internal error: %s: %x [#%d]\n", str, err, ++die_counter);
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> printk(KERN_EMERG "%s: %04lx [%u] ", str, err & 0xffff,++die_counter);

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>@@ -202,6 +202,7 @@ extern enum system_states {
> #define TAINT_USER   (1<<6)
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> extern void dump_stack(void);
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> #ifdef DEBUG
> /* If you are writing a driver, please use dev_dbg instead */
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>  * The string is overwritten by the next call to print_taint().
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> const char *print_tainted(void)
> {
>  static char buf[20];
>- if (tainted) {
>-  snprintf(buf, sizeof(buf), "Tainted: %c%c%c%c%c%c%c",
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>-   tainted & TAINT_USER ? 'U' : ' ');
>+   tainted & TAINT_USER ? 'U' : ' ',
>+   die_counter ? 'D' : ' ');
> }
> else
>   snprintf(buf, sizeof(buf), "Not tainted");
>-
>To unsubscribe from this list: send the line "unsubscribe linux-kernel" in
>the body of a message to majordomo@vger.kernel.org
>More majordomo info at http://vger.kernel.org/majordomo-info.html
>Please read the FAQ at http://www.tux.org/lkml/
>

Subject: Re: [PATCH] Report that kernel is tainted if there were an OOPS before (v2)
Posted by Pavel Emelianov on Fri, 01 Jun 2007 07:33:16 GMT
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Jan Engelhardt wrote:
> This seems to have died and remain unmerged as of yet... resubmit?

Yes. I remember this. I will rework the patch in a few days.

Thanks,
Pavel

>
> On Apr 17 2007 12:58, Pavel Emelianov wrote:
>
>> Date: Tue, 17 Apr 2007 12:58:47 +0400
>> From: Pavel Emelianov <xemul@sw.ru>
>> To: Andrew Morton <akpm@osdl.org>,
>>   Linux Kernel Mailing List <linux-kernel@vger.kernel.org>,
>>   linux-arch@vger.kernel.org
>> Cc: randy.dunlap@oracle.com, devel@openvz.org
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>> ---
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>>  console_verbose();
>>  spin_lock_irq(&die_lock);
>>  bust_spinlocks(1);
>> diff --git a/arch/i386/kernel/traps.c b/arch/i386/kernel/traps.c
>> index 35d1c38..8531901 100644
>> --- a/arch/i386/kernel/traps.c
>> +++ b/arch/i386/kernel/traps.c
>> @@ -438,7 +438,6 @@ void die(const char * str, struct pt_reg
>>   .lock_owner =  -1,
>>   .lock_owner_depth = 0
>>  };
>> - static int die_counter;
>>  unsigned long flags;
>>
>>  oops_enter();
>> diff --git a/arch/ia64/kernel/traps.c b/arch/ia64/kernel/traps.c
>> index 5bfb8be..7a1e8d8 100644
>> --- a/arch/ia64/kernel/traps.c
>> +++ b/arch/ia64/kernel/traps.c
>> @@ -47,7 +47,6 @@ die (const char *str, struct pt_regs *re
>>   .lock_owner =  -1,
>>   .lock_owner_depth = 0
>>  };
>> - static int die_counter;
>>  int cpu = get_cpu();
>>
>>  if (die.lock_owner != cpu) {
>> diff --git a/arch/mips/kernel/traps.c b/arch/mips/kernel/traps.c
>> index 27c53f1..2c65120 100644
>> --- a/arch/mips/kernel/traps.c
>> +++ b/arch/mips/kernel/traps.c
>> @@ -312,7 +312,6 @@ static DEFINE_SPINLOCK(die_lock);
>>
>> NORET_TYPE void ATTRIB_NORET die(const char * str, struct pt_regs * regs)
>> {
>> - static int die_counter;
>> #ifdef CONFIG_MIPS_MT_SMTC
>>  unsigned long dvpret = dvpe();
>> #endif /* CONFIG_MIPS_MT_SMTC */
>> diff --git a/arch/powerpc/kernel/traps.c b/arch/powerpc/kernel/traps.c
>> index bf6445a..13bc4c7 100644
>> --- a/arch/powerpc/kernel/traps.c
>> +++ b/arch/powerpc/kernel/traps.c
>> @@ -105,7 +105,6 @@ int die(const char *str, struct pt_regs
>>   .lock_owner =  -1,
>>   .lock_owner_depth = 0
>>  };
>> - static int die_counter;
```

>> unsigned long flags;
>>
>> if (debugger(regs))
>> diff --git a/arch/ppc/kernel/traps.c b/arch/ppc/kernel/traps.c
>> index 810f7aa..3a058fb 100644
>> --- a/arch/ppc/kernel/traps.c
>> +++ b/arch/ppc/kernel/traps.c
>> @@ -76,7 +76,6 @@ DEFINE_SPINLOCK(die_lock);
>>
>> int die(const char * str, struct pt_regs * fp, long err)
>> {
>> - static int die_counter;
>> int nl = 0;
>> console_verbose();
>> spin_lock_irq(&die_lock);
>> diff --git a/arch/s390/kernel/traps.c b/arch/s390/kernel/traps.c
>> index 90ca82b..659f41c 100644
>> --- a/arch/s390/kernel/traps.c
>> +++ b/arch/s390/kernel/traps.c
>> @@ -251,8 +251,6 @@ static DEFINE_SPINLOCK(die_lock);
>>
>> void die(const char * str, struct pt_regs * regs, long err)
>> {
>> - static int die_counter;
>> -
>> debug_stop_all();
>> console_verbose();
>> spin_lock_irq(&die_lock);
>> diff --git a/arch/sh/kernel/traps.c b/arch/sh/kernel/traps.c
>> index e9f168f..38ae9de 100644
>> --- a/arch/sh/kernel/traps.c
>> +++ b/arch/sh/kernel/traps.c
>> @@ -78,8 +78,6 @@ DEFINE_SPINLOCK(die_lock);
>>
>> void die(const char * str, struct pt_regs * regs, long err)
>> {
>> - static int die_counter;
>> -
>> console_verbose();
>> spin_lock_irq(&die_lock);
>> bust_spinlocks(1);
>> diff --git a/arch/sparc/kernel/traps.c b/arch/sparc/kernel/traps.c
>> index dc9ffea..b9b4ddd 100644
>> --- a/arch/sparc/kernel/traps.c
>> +++ b/arch/sparc/kernel/traps.c
>> @@ -89,7 +89,6 @@ void instruction_dump (unsigned long *pc
>>
>> void die_if_kernel(char *str, struct pt_regs *regs)

```
>> {
>> - static int die_counter;
>>  int count = 0;
>>
>>  /* Amuse the user. */
>> diff --git a/arch/sparc64/kernel/traps.c b/arch/sparc64/kernel/traps.c
>> index dc652f2..556189b 100644
>> --- a/arch/sparc64/kernel/traps.c
>> +++ b/arch/sparc64/kernel/traps.c
>> @@ -2208,7 +2208,6 @@ static inline struct reg_window *kernel_
>>
>> void die_if_kernel(char *str, struct pt_regs *regs)
>> {
>> - static int die_counter;
>>  extern void smp_report_regs(void);
>>  int count = 0;
>>
>> diff --git a/arch/x86_64/kernel/traps.c b/arch/x86_64/kernel/traps.c
>> index e5403dc..93c4215 100644
>> --- a/arch/x86_64/kernel/traps.c
>> +++ b/arch/x86_64/kernel/traps.c
>> @@ -570,7 +570,6 @@ void __kprobes oops_end(unsigned long fl
>>
>> void __kprobes __die(const char * str, struct pt_regs * regs, long err)
>> {
>> - static int die_counter;
>>  printk(KERN_EMERG "%s: %04lx [%u] ", str, err & 0xffff,++die_counter);
>> #ifdef CONFIG_PREEMPT
>>  printk("PREEMPT ");
>> diff --git a/arch/xtensa/kernel/traps.c b/arch/xtensa/kernel/traps.c
>> index 693ab26..97cc4e2 100644
>> --- a/arch/xtensa/kernel/traps.c
>> +++ b/arch/xtensa/kernel/traps.c
>> @@ -465,7 +465,6 @@ DEFINE_SPINLOCK(die_lock);
>>
>> void die(const char * str, struct pt_regs * regs, long err)
>> {
>> - static int die_counter;
>>  int nl = 0;
>>
>>  console_verbose();
>> diff --git a/include/linux/kernel.h b/include/linux/kernel.h
>> index b8f8252..54c4fc4 100644
>> --- a/include/linux/kernel.h
>> +++ b/include/linux/kernel.h
>> @@ -202,6 +202,7 @@ extern enum system_states {
>> #define TAINT_USER   (1<<6)
>>
```

>> extern void dump_stack(void);
>> +extern int die_counter;
>>
>> #ifdef DEBUG
>> /* If you are writing a driver, please use dev_dbg instead */
>> diff --git a/kernel/panic.c b/kernel/panic.c
>> index 623d182..e75eea4 100644
>> --- a/kernel/panic.c
>> +++ b/kernel/panic.c
>> @@ -150,23 +150,27 @@ EXPORT_SYMBOL(panic);
>> * 'R' - User forced a module unload.
>> * 'M' - Machine had a machine check experience.
>> * 'B' - System has hit bad_page.
>> + * 'D' - An OOPS or BUG has happened.
>> * 'U' - Userspace-defined naughtiness.
>> *
>> * The string is overwritten by the next call to print_taint().
>> */
>> +
>> +int die_counter;
>>
>> const char *print_tainted(void)
>> {
>> static char buf[20];
>> - if (tainted) {
>> - snprintf(buf, sizeof(buf), "Tainted: %c%c%c%c%c%c%c",
>> + if (tainted || die_counter) {
>> + snprintf(buf, sizeof(buf), "Tainted: %c%c%c%c%c%c%c%c",
>>   tainted & TAINT_PROPRIETARY_MODULE ? 'P' : 'G',
>>   tainted & TAINT_FORCED_MODULE ? 'F' : ' ',
>>   tainted & TAINT_UNSAFE_SMP ? 'S' : ' ',
>>   tainted & TAINT_FORCED_RMMOD ? 'R' : ' ',
>>   tainted & TAINT_MACHINE_CHECK ? 'M' : ' ',
>>   tainted & TAINT_BAD_PAGE ? 'B' : ' ',
>> -   tainted & TAINT_USER ? 'U' : ' ');
>> +   tainted & TAINT_USER ? 'U' : ' ',
>> +   die_counter ? 'D' : ' ');
>> }
>> else
>>   snprintf(buf, sizeof(buf), "Not tainted");
>> -
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>> Please read the FAQ at http://www.tux.org/lkml/
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