Product Support Notice

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PSN #	PSN004446u

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Severity/risk level	Medium	Urgency	When convenient

Name of problem Possible system hang while logging leap second insertion message under heavy load

Products affected

Meeting Exchange 5.2.X

Problem description

The basic time used in most world time zones is the so-called coordinated Universal time (UTC) which is derived from several highly precise and accurate atomic clocks located in several countries across the world. The time measured by atomic clocks is based on the measurement of transitions between energy levels on the atomic nuclei, so it is largely independent of the Earth rotation time and it is expected that the Earth rotation time will slowly drift away from the UTC. This drift requires that UTC be synchronized with the Earth's rotation from time to time. This is done by inserting what is called a "leap second". Leap seconds are usually inserted at midnight of the end of December (the 31st) or at midnight of the end of June (the 30th) when required.

Linux kernel handles leap seconds by repeating the last second of the day.

So, on a normal day we would have

3/10/2015 23:59:58

3/10/2015 23:59:59

3/11/201500:00:00

3/11/2015 00:00:01

On the other hand, on June 30, 2015 at 23:59:60 UTC we will have

6/30/2015 23:59:58

6/30/2015 23:59:59

6/30/2015 23:59:59

7/1/2015 00:00:00

7/1/2015 00:00:01

The kernel will record this "discontinuity" by writing a message on the system log after 23:59:59, indicating the insertion of a leap second. With Red Hat Enterprise Linux 4 and 5 some older kernels have a bug that under conditions of heavy load may cause a deadlock and consequently hang the system. This could happen after the insertion of the leap second. A trace similar with the following might be produced. Red Hat does not have a solution to this potential condition.

```
#0  ktime_get_ts (ts=0xffffffff8158bb30) at include/asm/processor.h:691
#1  0xffffffff8104c09a in ktime_get () at kernel/hrtimer.c:59
#2  0xffffffff8102a39a in hrtick_start_fair (rq=0xffff810009013880,
    p=<value optimized out>) at kernel/sched.c:1064
#3  0xffffffff8102decc in enqueue_task_fair (rq=0xffff810009013880,
    p=0xffff81003fb02d40, wakeup=1) at kernel/sched_fair.c:863
#4  0xffffffff81029a08 in enqueue_task (rq=0xffffffff8158bb30,
    p=0xffff81003b8ac418, wakeup=-994836480) at kernel/sched.c:1550
```

Resolution

Please check that Meeting Exchange is up and operational after the insertion of the leap second on June 30, 2015 at 23:59:60 UTC

Workaround or alternative remediation

In the unlikely event of a system crash, the recovery measure will be to reboot the machine

Remarks

Patch Notes

The information in this section concerns the patch, if any, recommended in the Resolution above.

Backup before applying the patch

N/A

Download

N/A

Patch install instructions	Service-interrupting?
N/A	Refer to instructions at start of Resolution field

Verification

N/A

Failure

Contact Technical Support

Patch uninstall instructions

N/A

Security Notes

The information in this section concerns the security risk, if any, represented by the topic of this PSN.

Security risks

N/A

Avaya Security Vulnerability Classification

Not Susceptible

Mitigation

N/A

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BusinessPartner Notes

Additional information for BusinessPartners

N/A

Avaya Notes

Additional information for Tier 3, Tier 4, and development

N/A

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