UNIFY

Security Advisory Report - OBSO-1505-01

Leap Second on 2015-06-30 - Security Note for Unify Products

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Summary

The International Earth Rotation & Reference Systems Service announced the **introduction of a new leap second** for the Coordinated Universal Time (UTC) **at the end of June 30, 2015** to correct differences between astronomical and atomic time caused by irregularities of earth rotation *(Ref: Bulletin C at the* Earth Orientation Center*)*.
This event does not constitute a security vulnerability, but could cause system outages or service interruptions due to the exceptional handling of leap seconds in computer systems.

The Security Note summarizes the impact of this leap second on Unify products and recommended actions at a high level only.
For details refer to the associated Unify service and partner information (KM Entry #233380**) or contact your regular support channels at Unify.**

The overall risk for potential system outages or service interruptions in Unify products is rated as low.
Exception: the risk for HiPath 4000 V6 R1 is rated high.

Vulnerability Details

In 2015, a positive leap second will be introduced between June 30, 23h 59m 59s and July 1, 0h 0m 0s UTC.
All NTP servers supporting Network Time Protocol version 4 according to IETF RFC 5905 and attached to an appropriate NTP time service (or configured otherwise according to the current version of the List of Leap Seconds provided by US NIST) will receive a leap second indicator during the month of June. This will be propagated to NTP clients (e.g. any Linux or Windows system kernel) somewhen (unpredictable) during the day when the leap second has to be added to the system clock. The system kernel will then add this extra second to the system clock at the end of the day (after June 30, 23h 59m 59s UTC).
The following issues are known which could potentially impact system stability or availability:

1. **Windows time service**: no issues are known; there is no impact expected on applications running on Windows (client or server) operating systems
2. **Linux kernel versions 2.6.26 through 3.3**: a bug in the handling of timers (due to a missing "clock was set" event during the leap second) could cause a system to consume up to 100% CPU time
3. **SUSE Linux Enterprise Server 11 (SP1 - SP3)**: an incomplete fix for issue #2 could cause a kernel deadlock and freeze the system

The following chapters refer to these three different issues accordingly (*"Regarding 1./2./3."*)

Affected Products

Regarding 1: No impact is expected on Unify products running on Microsoft Windows operating systems

Regarding 2:
2a. Impacted with high risk of potential system outages or service interruptions: HiPath 4000 V6 R1 Platform and Softgate

2b. Impacted with low risk:

- OpenScape Business X1/X3/X5/X8 - all versions up to and including V1 R3
- OpenScape Office MX - all versions up to and including V3 R3
- OpenScape Contact Center Call Director SIP Service (OSCC CDSS) - all versions up to and including V8 R2

Regarding 3:
3a. Impacted with high risk: None

3b. Impacted with low risk:

- OpenScape 4000 V7 R1 Platform before V7 R1.8.3 or V7 R1.39.1
  OpenScape 4000 V7 R1 Softgate with LW before V7 R1.8.8 or V7 R1.39.1
- OpenScape Voice V7 R1 before V7 R1.43.1
- OpenScape Voice V8 before V8 R0.34.8
- Unify Applications if running on SUSE Linux Enterprise Server 11 (e.g. OpenScape Voice Survivability Authority, UC Application servers,

OpenScape 4000 Manager, any other Management application, OpenScape Business S and Booster Server)

The following Linux-based Unify products are **not** affected by issue 2. or 3.:

- HiPath/OpenScape 4000 - V6 R2, V7 R0: Platform and Softgate
- HiPath/OpenScape 4000 - all versions: Assistant, CSTA
- OpenScape Branch, OpenScape SBC
- OpenStage / OpenScape Desk Phone IP
- HiPath Cordless IP
- OpenScape Alarm Response (OScAR) Eco and Pro
- Applications and Management Applications running on other Linux systems than SUSE Linux Enterprise Server 11
  (for example: SUSE Linux Enterprise Server 10 for HiPath 4000 Manager V6, or Debian Linux V6/V7 for OpenScape Xpert MLC)

Recommended Actions

Important general notes:

- **Products that are not connected to an NTP service** are not affected by the leap second event. As the drift for unsynchronized clocks is typically greater than one second, we also do not recommend any manual interaction to adjust the time because of the leap second event
- **No Unify-internal test was able to produce any negative impact** on any Unify product stability or availability associated with the leap second event. The residual risk for customer installations without having applied the recommended actions is rated as low. Therefore, in cases where the recommended actions can not be performed, the following alternative action can be considered:
  "Do nothing", but check system status after the leap second has passed. In the (unlikely) event of service outages, restart the affected servers one by one according to the individual product procedure.
  *Important: this note does **not** apply to HiPath 4000 V6 R1 (Platform and Softgate), where significant risk for potential outages was identified*
- The recommended actions listed in this chapter **should be applied latest on June 29, 2015 23:00:00 UTC** (Coordinated Universal Time)

Regarding 2:

- **HiPath 4000 V6 R1, Platform and Softgate:**
  Upgrade to latest version or at least to V6 R1.12.2 (HF003013, release date: 2012-11-29)
  Systems still running an older version at the day of the leap second could be impacted by system outage as documented in Service Knowledge Base entry KM110079 with significant probability.
  In cases where an upgrade is not possible before June, 30: install an intermediate NTP package on Platform and Softgate that enables a permanent "slew" mode and effectively prevents potential 100% CPU consumption as associated with the leap second event. The solution is available as Service Information INF-15-000243 (release date: 2015-05-13).
- **HiPath 4000 V6 R1, standalone Softgates:**
  HF003013 is not available for standalone Softgates. Therefore, follow the recommendations provided by INF-15-000243 in all cases.
- **OpenScape Business X1/X3/X5/X8, OpenScape Office MX, OSCC CDSS:**
  Temporarily deactivate NTP configuration via the product's standard configuration interface and reactivate it on July 1 or afterwards. The deactivation of the NTP synchronisation for a few days does not impact system stability

Regarding 3:

- **OpenScape 4000 V7 R1 Platform:**
  Upgrade to **V7 R1.8.3 (HF004149, release date: 2015-05-29)** or **V7 R1.39.1 (HF004150, release date: 2015-05-29)**, or later versions
  OpenScape 4000 V7 R1 Softgate:
  Upgrade to LW Hotfix **V7 R1.8.8 (HF004147, release date: 2015-05-29)** or **V7 R1.39.1 (HF004148, release date: 2015-05-29)**, with Softgate LW A3.004-002, or later versions
  In cases where an upgrade is not possible before June, 30: install an intermediate NTP package on Platform and Softgate that enables a permanent "slew" mode and effectively prevents a potential kernel deadlock associated with the leap second event. The solution is available as Service Information INF-15-000243 (release date: 2015-05-13, **last update: 2015-05-29**)
- **OpenScape Voice:**
  Upgrade to V7 R1.43.1 (MOP Q3074 in INF-15-000174, release date: 2015-05-14) or V8 R0.34.8 (MOP Q3076 in HF004092, release date: 2015-04-30), or later versions.
  In cases where an upgrade is not possible before June, 30: install a workaround solution that puts NTP configuration into "slew" mode and effectively prevents a potential kernel deadlock associated with the leap second event. The solution is available as Service Information INF-15-000236 (release date: 2015-05-05)
- **Unify Applications running on SUSE Linux Enterprise Server 11:**
  Follow the recommendations provided by SUSE at: https://www.suse.com/support/kb/doc.php?id=7016150
  Application-specific notes:
  - **OpenScape Business S/Booster Server:**
    upgrade to V1 R3.0.0 or later before applying the operating system patch provided by SUSE
  - **OpenScape Office LX/HX:**
    upgrade to V3 R3.10.0 or later before applying the operating system patch provided by SUSE
  - **OpenScape 4000 Manager V7:**
    the recommended options are either to apply the operating system patch provided by SUSE or to do nothing (as the risk for a potential freeze of the system is low).
    Note that the workaround ("slew mode") described by SUSE is not applicable on OpenScape 4000 Manager servers (as a different NTP configuration interface is implemented). A third option (for unpatched installations with high availability requirements) is to temporarily disable the NTP daemon via webmin on June 29 UTC and enable it again not before July 1, 01:00 am UTC.

References

- Bulletin C at the [Earth Orientation Center](#)
- Network Time Protocol Version 4: [IETF RFC 5905](#)
- SUSE Knowledgebase article: https://www.suse.com/support/kb/doc.php?id=7016150

Revision History

2015-05-21: Initial release
2015-05-29: Update 01

- Added release information for OpenScape 4000 V7 R1 Platform and Softgate

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