“Provide connectivity to the right person over the right device at the right time” is the difficult challenge that IT professionals are daily facing. In fact, IT is now widely used to exchange both informal and formal information. A seamless flow of data can be guaranteed by an efficient infrastructure and maximum bandwidth. Because the infrastructure operation highly depends on the devices the network relies on, IT administrator should consider monitoring their Cisco hardware.

Why monitoring Cisco UCS Series is such an important task for an IT administrator is the question we will try to answer in this white paper.
The Cisco UCS B-Series infrastructure consists of a main chassis with blade servers (B-Series) and one or two Fabric Interconnect Switches. The switches are responsible for managing the entire platform and for linking the blade servers to the LAN and to a SAN. The Cisco built-in administration tool UCS manager runs on the switch itself and gives visibility on the health of the main chassis, of the interconnect switches and an overall status of each blade. The IPMI instrumentation technology provides hardware health information about environment (fans, and temperature and voltage sensors), processors, memory modules, LEDs, power consumption and disks.

**MONITORING BLADE ENCLOSURE**

The blade enclosure provides the powering and cooling for all the blade servers inside the chassis. The blade enclosure’s power supply provides a single power source for all the blade servers. If the power supply fails, servers would instantly shut down. Knowing the current status of the power supply (missing, degraded, failed, etc.) and the DC current accuracy will help administrators guarantee constant access to the servers. Additionally, excessive or prolonged heat in a server enclosure can cause damage to critical components and lead to data loss and equipment failure. Proper cooling with fans is essential to maintain optimum performance and product lifespan. Monitoring each fan and temperature sensors will help you guarantee your blades are properly cooled.

The monitoring solution can also indicate the overall power consumption of the blade enclosure in Watt, which is becoming a critical information in many data center where power optimization is a key issue.

**MONITORING BLADE SERVER**

Once the proper operation of the enclosure has been guaranteed, administrators should have a deeper look inside the chassis and monitor the status of each blade server to make sure they are up and running. Because the Cisco UCS B-Series Blade servers are crucial building blocks, hardware monitoring should be focused on processors, memory modules, disk controllers, disk and RAIDs. A close look to the core temperature and the voltage fluctuations might prevent hardware overheating and hardware failures.

**MONITORING CISCO UCS FABRIC INTERCONNECT SWITCHES**

Monitoring switches will increase network reliability and help reduce the costs associated with downtimes. The monitoring solution connects to the switch through the Cisco’s native UCS XML API to help you detect any connectivity issue, identify bottlenecks, and diagnose multipath setups.

Identifying which servers are very demanding, which disk array is under hard pressure and the impact of the nightly backups can also be interesting from an administrator’s point of view. Like for the Cisco servers, it is highly recommended to monitor the powering, the cooling, the temperature and the power consumption of the Cisco UCS Fabric Interconnect Switches.

Monitoring Cisco UCS Fabric Interconnect Switches is not restricted to hardware monitoring; traffic monitoring should not be disregarded. Transmission rates monitoring provides valuable information regarding the incoming and outgoing data managed by servers and switches. Having precise information about traffic demands and spikes will help administrators lower the impact that the bandwidth utilization may have on the network performance.
MONITORING CISCO HARDWARE WITH HARDWARE SENTRY

MONITORING CISCO UCS C-SERIES (RACK-MOUNT)

HIGH-PERFORMANCE SERVERS ...
Cisco rack-mount servers are high-performance standard PC servers that are mostly used for compute-intensive, data-demanding applications, enterprise-critical stand-alone applications and virtualized workloads.

BUT NOT FAILURE-FREE
Even though Cisco Servers are equipped with high-quality devices, no one can guarantee no failure will occur. Hardware issues are commonly registered for the Cisco C-Series; they are generally related to disk drives, RAIDs, and power supplies. Because a problem to a critical device such as a processor could cause a server to fail, to run slowly or lead to data loss or corruption, IT administrators should carefully monitor the physical health of their servers. As they do not have time to individually check servers every day, they are looking for a solution that will enable them to monitor in a single point all their Cisco environments to predict issues, correct them more quickly or take preventive actions.

AND HIGHLY DEPENDENT ON THE HARDWARE HEALTH
Let’s take the example of the Cisco UCS C460 M2 Rack-Mount Server and detail the devices that should be monitored. This system is a rack-mount server that contains a processor, double-data rate memory, disk drive, slots supporting the Cisco UCS C-Series network adapters.

Among the devices available, processors and memory modules can be considered as the most critical ones. In fact, a processor fault will lead to the system reboot; hence the importance to know if each processor is actually operational and running and to get a message when a processor has been disabled upon a reboot. Likewise, it is important to monitor memory modules since a single error in the main memory can lead to a severe computer crash potentially leading to data corruption. By monitoring the memory modules, administrators can have precise statistics on failures, be informed when a failure is predicted and be able to take precautionary measures.

IT professionals should also pay attention to another critical device: the power supply. The power supply transforms the AC Line into electric power needed by the server. Monitoring power supplies is even more recommended in redundant systems as no other symptoms will help you predict failures. Reports on power supplies failures will offer you a chance to replace the faulty device in time and maintain redundancy.

Because the proper operation of power supplies highly depends on the quality of the data center electrical distribution, you should also monitor voltage. High voltage fluctuations can be detrimental to power supplies. If you notice high failure rates for power supplies, you should verify the quality of your data center electrical distribution.

Disk drives obviously also play a key role in the overall data availability and performance. Our monitoring solution reports the overall status of each physical disk. Failures are notified quickly to replace the faulty parts and maintain the performance and/or redundancy levels of their RAID volumes.

Last but not least, a few LEDs on the server itself indicate the overall health of the system and reports major failures. It is often the very first item that system administrators check to diagnose a server. Our solution reports the color and status of each LED to avoid the need to physically check each LED and make sure no failures will be overlooked.

MONITORING CISCO UCS SERIES WITH HARDWARE SENTRY

IT professionals might wonder why they should integrate an umpteenth monitoring solution; considering this integration will be time-consuming and a source of expense. At a time when cutting down costs has become an everyday concern, these arguments might plead on their favor but after considering all the pros and cons, they may finally change their mind.

Even though IT administrators plan to harmonize their datacenter, unified computing can unfortunately be considered as a mere utopia. Several types of servers are still being mixed in datacenters. This heterogeneous environment complicates hardware monitoring as administrators must refer to each vendor’s monitoring solution to get the information they need. As no integration with other management solutions is possible, the administrator’s attention is scattered across different sources of information. As a consequence, neither time nor money is saved.

That’s when Hardware Sentry comes into picture. Fully integrated with BMC True-Sight Operations Management framework, it offers a centralized monitoring mana-
Administrators can therefore visualize in a unique point the health of all their server hardware, regardless of the environment used.

Because real-time monitoring is displayed in the BMC TrueSight Operations Management Console, IT administrators can identify at a glance issues on critical devices or even better get informed when critical thresholds are met (through standard notification, Email, etc.). In case a replacement is required, determining which device is faulty will not be sufficient: administrators will need more information such as the vendor name, the model, the serial number, etc. For that reason, Hardware Sentry gathers in a single dialog box all the relevant information about devices.

The Sentry’s monitoring solution is not limited to the hardware health; it also provides information about traffic conditions and power consumption. Administrators can for instance visualize the network traffic on graphs to better identify demands and spikes. The power consumption metric will help administrators identify the most-consuming servers and guide their choice later when replacing servers in their datacenter.

CONCLUSION

Hardware Sentry KM for PATROL provides a rich set of monitoring features for the Cisco UCS C-Series and Cisco UCS B-Series, regardless of the environment used (Linux, Windows, and VMware). No advanced configuration is required; Hardware Sentry automatically discovers all the hardware events and displays them into the BMC environment. The advanced monitoring of critical devices and the different reports supplied (full hardware, SAN and Network traffic, capacity reports, etc.) will help IT professionals identify and prevent common issues. In brief, Hardware Sentry KM will relieve IT Administrators’ mind; thus allowing them to focus on other important points.
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I.T. RUNS ON BMC SOFTWARE™

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ABOUT SENTRY SOFTWARE™

Sentry Software, a BMC MarketZone Direct and Technology Alliance Partner, provides monitoring solutions that expand and enhance the capabilities of BMC TrueSight Operations Management, thus enabling up to 100-percent coverage of any infrastructure. Sentry Software specializes in single solutions for multi-platform monitoring of hardware, storage, custom applications, or any IT infrastructure component. Its products are deployed in diverse industry sectors around the globe.

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