

# Looking Beyond the Symptoms Presented to Identify Root Cause

*Preventing costly downtime before it occurs.....*

## Summary

**Industry:** Semiconductor company

**Challenge:** A gradual slow down in system performance was having a negative impact on output. Preliminary investigation indicated that the system's dynamic memory pool was 80% allocated. It appeared a costly shut down was going to be necessary to allocate additional memory to restore performance levels.

**Solution:** As an IT partner SCI was notified that the database would be down for one hour and the VMS server would be rebooted. Intrigued by the situation SCI did some additional investing and was able to hypothesize that there may be an application issue causing the excessive use of Paged Pool. Armed with this new found information the system managers at the site were able to pinpoint the source of the growth and correct, the issue and avoid the downtime.

**Results:** Drawing on their knowledge the OpenVMS experts at SCI were able to quickly analyze the data and draw a conclusion as to the root cause of the problem. Due to SCI's ability to further analyze the problem we were able to point the on-site staff in the right direction to correct the root source of the problem, preventing it from reoccurring in the future. The customer also benefited by avoiding a reboot of the OpenVMS systems which would have resulted in costly down time.

## The challenge

One of the world's leading semiconductor companies relies on the consistency, stability and reliability of their OpenVMS systems to manufacture their flash memory products. Over time they had noticed a gradual slow down in system performance which was having an impact on output. After some rudimentary investigation, the site's OpenVMS system managers recognized that the system's dynamic memory pool (aka Paged Pool) was 80% allocated. Knowing that an allocation this large could impact performance it was concluded that this was the source of their performance issues. The system managers decided to allocate additional paged pool to accommodate the growth and hopefully performance would return to expected levels.

## The solution

As an IT partner performing Remote Database Administration Services, Software Concepts International (SCI) was notified by the customer that they would be shutting down the database for one hour to increase the Paged Pool and reboot the VMS servers. Being familiar with the site configuration and curious as to why the dynamic memory suddenly became a problem, SCI was prompted to do some additional investigating.

SCI's VMS technician was able to quickly conclude that the Paged Pool was indeed at 80% usage; however the 2nd node of the OpenVMS cluster showed minimal Paged Pool utilization. Questioning the drastic difference between the two otherwise similar nodes and curious of the source of the memory consumption, SCI continued to investigate. Upon further evaluation SCI was able to identify that the dynamic memory on the one node was being consumed by tens of thousands of logical name definitions and was able to identify a specific pattern of logical names being created with a process but not deleted if/when the process exits.

With this new found information SCI went back to the customer and hypothesized that there may be an application issue causing the excessive use of Paged Pool. Upon learning the specific logical name

details, the site staff was able to determine that the problem was a configuration issue within a custom application. Relieved that a system reboot was no longer necessary the on-site staff corrected the application setting to prevent the consumption of the dynamic memory in the future and the orphaned logicals were purged from the system bringing the dynamic memory utilization more in line with the other cluster node.

### **The results**

SCI's OpenVMS experts were able to draw on their knowledge of not only the types of things that could affect the dynamic memory, but more importantly how to find the information to analyze what was causing the memory growth. Once a cause was identified, the SCI experts were able to quickly analyze the data and draw a conclusion as to the root cause of the problem.

Increasing the dynamic memory was at best only a short term solution to address the customer's system performance issues. Due to SCI's ability to further analyze the problem we were able to point the on-site staff in the right direction to correct the root source of the problem and prevent it from reoccurring in the future. The customer also benefited by avoiding a reboot of the OpenVMS systems which would have resulted in costly down time.

### **About Software Concepts International**

Software Concepts International (SCI) is a leading provider of remote OpenVMS management and database administration services, worldwide. We specialize in providing system management, database administration, consulting, software utilities, and training for mission-critical systems and databases running on the OpenVMS platform.

Founded in 1987, as a consulting firm specializing in a niche database market, Software Concepts International quickly gained an international reputation for its database expertise. Building on this expertise and international reputation, Software Concepts International now supports a global installed base of OpenVMS mission critical systems.

Our unprecedented balance of strengths – technological innovation, leadership, outstanding people and a proven track record of delivering exceptional service – allows us to provide our customers with world-class system management and database support. For more information, please visit [www.sciinc.com](http://www.sciinc.com).



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