Session VS029

Applications Tuning for OpenVMS

Robert Gezelter Software Consultant
35 – 20 167th Street, Suite 215
Flushing, New York 11358 – 1731
United States of America

+1 718 463 1079
gezelter@rlgsc.com

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Room B10/B11

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The Issue:

Improve system performance and responsiveness

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Goals:

Maximize Productive Output

Minimize System Overhead

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NOTES

Classes of Overhead

Necessary Overhead

Avoidable Overhead

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Necessary Overhead

Paging

I/O Overhead

File Management

Logical Name Translation

Network Operations

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NOTES

Unnecessary Overhead

Thrashing

Unneeded Input/Output

Formatting Overhead

Inefficient File Utilization

Event Mismanagement

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Solution:

User Level
- Watch Array References

Try to step through arrays in the order they are stored

FORTRAN - High Order Index
Most other languages - Low Order Index

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Keep Data Structures Dense

Virtual Memory is a solution to the problem of manual overlaying.

It does not behave the same way as real memory.

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System Level - Disk Space

Fragmentation

- ***Performance impact depends on typical file size and activity***
- ***Spread users' files across different spindles - seek time is the major impediment***

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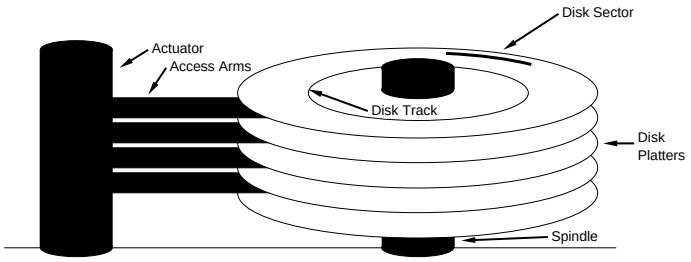
NOTES



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Preventitive Actions

- ***Cluster Factor - Good, but can lead to significant loss of usable space***
- ***Increase default allocations***
- ***Compress Disks – Risky business***
- ***Increase buffer factors and sizes -reduce frequency and number of disk operations***

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NOTES

Memory Concerns

- ***Non-Paged Pool***
- ***Paged Pool***
- ***System Working Set***
- ***User Working Set***
- ***Global Pages***
- ***Installed Images***

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Non-Paged Pool

- ***I/O Packets***
- ***Device Data Structures***
- ***DECnet Messages***
- ***SCS Messages***
- ***Lock Blocks***
- ***Window Blocks***

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NOTES

Paged Pool

Logical Name Tables

XQP I/O Buffer Cache

Global Section Descriptors

Access Control List Elements

Known Images Lists

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User Working Sets

Actual User Area

Keep as small as possible

Some Page faulting is normal

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System Working Set

- ***Contains System Libraries***
- ***Global Images***
- ***System wide information***

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Installed Images

- ***Can greatly reduce memory requirements***
- ***Improve image activation speed***
- **Be careful about shared areas (COMMONs)**

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NOTES

Recommendations

Remember: There is no such thing as a free lunch!

However: There are some relatively inexpensive snacks on the menu.

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Disk Recommendations:

Try to keep disk activity moderate

Try to prevent fragmentation from starting

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Memory Recommendations

Virtual memory does not reduce the real memory needs of a system, it merely trades system speed for the ability to run large programs on a small system.

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Page faulting is normal, if you have a zero fault rate, your working set is too large.

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NOTES

As much as possible, let VMS manage itself. Don't try to micromanage your system.

Questions?

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