

## Symptom

Customers may express a wish to run the PCM servers in a virtual environment such as VMware ESX Server or Hyper Virtual Machine. This document sets guidelines for what is and isn't possible where VMware is used, although the same recommendations are to be applied to all supported brands of virtualised environments.

## Environment

SAP Profitability and Cost Management (PCM)  
Hyper Virtual Machine  
VMWare ESX Server

## Resolution

### What is VMware

VMware is a software package that vitalizes the computer hardware that it is running on. This enables several virtual machines to exist on one physical machine. Each virtual machine can host an operating system which (for PCM) is usually Microsoft Windows Server 2003/2008.

There are several VMware products available but the one that clients commonly request to use to run PCM is VMware ESX Server.

### Why would someone want to use VMware

#### 1. Easier to manage resources.

Because virtual machines use a pool of physical resources then it is easier to manage the allocation of those resources and upgrade individual virtual machines where required. For example, if a virtual machine is hosting Microsoft Windows 2003 and this needed more memory then extra memory can be allocated using menu options within the VMware product. This extra memory is taken from the pool of physical memory on the physical machine and allocated to the virtual machine.

So, additional hardware resources can be allocated to virtual machines without having to power down the physical machine or actually install extra physical memory, processors or hard discs etc... Adding extra processors is achieved in a similar manner and disc space is allocated from reserved portions on the real discs.

#### **Advantages.**

>Quickly test the effects of upgrading memory or processors – So different configuration options can be trialed to determine the optimal allocations of resources for an installation.

>Problems can be addressed quickly – So if a server is running out of disc space then more space can be allocated without having to re-install the operating system or install any physical hardware.

#### 2. Easier to return to a known good state.

It is a feature of a virtual machine that a 'snapshot' can be taken. This is a process whereby the current state of a running virtual machine is saved to disc. This means that several 'snapshots' can be taken at different times and then at some point in the future a snapshot can be restored taking the virtual machine back to the exact point when the snapshot was taken.

#### **Advantages.**

>A snapshot can be taken prior to installing a PCM upgrade – So if the upgrade process falters it will be a simple matter of loading the previous snapshot to abort the upgrade process and get the system operational again.

>A snapshot or 'clone' of an operational virtual machine can be transferred to an external disc or network resource then transferred to another virtual machine environment – So virtual machines can be easily migrated to more appropriate hardware to upgrade performance etc...

### Things to be aware of in a virtual environment

During the normal calculation of model results, PCM Applications Servers will use 100% of all CPU resources and often for tens of minutes or even tens of hours. This behaviour is unique and not generally compatible with the way that VMware tries to utilise spare CPU resources.

If you don't configure your virtual environment to manage this expected behaviour then you will have the following problems:

1. Vastly extended model calculation times.
2. Inconsistent model calculation times.
3. Depleted resources on the virtual server(s) hosting VMware environment.

**ALL "Project Scoping" ACTIVITIES MUST BE PERFORMED BY SAP CONSULTANCY SERVICES. This is not a service provided by SAP Product Support.**

## What are the guidelines for using VMware to support PCM?

1. **Discuss your virtual environment requirements by engaging SAP Consultants** – If you intend to use virtual machines to host a PCM production environment then the physical server(s) supporting the VMware environment should be discussed with SAP. The best way to do this is by engaging SAP Consultancy Services to review your current and predicted requirements of the software and the environment it sits within. Refer to notes 83020 and 1054121 for details of how to get in touch with SAP consultancy services.

[Note 83020 - What is consulting - What is support?](#)

[Note 1054121 - The SAP Ecosystem in a Nutshell](#)

2. **Supported VMware servers** - For more details regarding **prerequisites including virtualization**, please see the [SAP BusinessObjects Profitability and Cost Management Master Guide](#)
3. **Dedicate your virtual machines** - Where the SAP Consultant or Installation expert identifies a need for a dedicated server (example: PCM applications server) then this should be reflected in the VMware environment by dedicating a virtual machine to replace the specified physical machine. So a one to one match should be maintained to fulfil the technical requirements.
4. **Reserve virtual CPU resources** - The recommendation in a VMware environment is to reserve CPU MHz for the Virtual Machines running PCM. This ensures best performance and grants the same processing power for every PCM operation. Furthermore, it avoids irregular runtimes of PCM calculating processes.
5. **Reserve virtual memory resources** – The recommendation in a VMware environment is to reserve 100% of the memory required for the Virtual Machine. This prevents the memory being swapped by the ESX hyper-visor which can significantly degrade performance.
6. **Don't over commit CPU/memory resources** - With regard to the PCM servers (example: database, application, web, terminal servers) and after discussion of the system requirements with SAP Consultancy, there should be enough physical CPU/memory resources to service the processor and memory reservations committed to all PCM server(s).

## Keywords

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## Product

Product	Product Version
SAP Profitability and Cost Management	All versions

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## References

### This document refers to:

#### CSS SAP Notes

83020 [What is consulting - What is support?](#)

1054121 [The SAP Ecosystem in a Nutshell](#)

#### SAP Help Portal

[SAP BusinessObjects Profitability and Cost Management Master Guide](#)