

SAM Monthly Best Practices Webinars

Session 2: RHEL in FNMS 2021R1.1 & Windows and SQL Server Optimization

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Agenda

- Last session pointers and answers to questions
- FNMS 2021 R1.1: Red Hat Optimization Reports in details
- Deep dive on Windows Server and SQL server Optimization

Last Session: FNMS 2021R1 & Oracle Optimization reports

- **Useful pointers**

- Recording and PowerPoint:

- <https://community.flexera.com/t5/Events-and-Webinars/Recording-of-the-July-Monthly-SAM-Best-Practices-Webinar-is/ba-p/203983>

- **Answers to questions:**

- Can the new Agent (2021r1) that is enhanced for Java and Oracle middleware be used within an FNMS on prem 2020r2 - or do you see compatibility problems?
 - Backward compatibility is always tricky and not official
 - That said, the way the agent works is that it generates NDIs that augment with more features (Oracle Middleware data for instance). The backend cannot ingest the data but the importers don't include it. Recent agent on older backend generally works but must be tested
- Wrt Oracle soft partitioning, FNMS calculates on the vcenter 5 rule. Is that going to change to the vcenter 6 rule or at least allow control by a configuration setting
 - Short term, the answer is not a setting in the license but the use of the release reports that perform Cluster, vCenter, all vCenter partitioning (global and details)
- Those oracles reports are already with the release 2020r2 or is it only with the 2021 release ? / I may have missed this. When are the report to be available for on premise customers?
 - A published solution allows to use the reports on prem on older versions: <https://community.flexera.com/t5/FlexNet-Manager-Knowledge-Base/FNMS-Oracle-Optimization-Reports-and-vCenter-Soft-Partitinonng/ta-p/163149>
 - First two reports came out of the box with 2021R1 (on prem and SaaS)
 - The other 5 reports are released in 2021R1.1 SaaS only in September
- Would it be possible to receive the slideshow, when I click the slide option it comes back blank.
 - Everything available on <https://community.flexera.com/t5/Events-and-Webinars/Recording-of-the-July-Monthly-SAM-Best-Practices-Webinar-is/ba-p/203983>

News: FNMS 2021 R1.1, released this Month!

- **Delivery: SaaS only**
- **Highlight**
 - 3 more reports on Oracle Optimization (simulation of soft partitioning rules, optimal target architecture)
 - A Red Hat Optimization report
- **Plus, features that will be described in the**
 - [Flexera Feature By Release Portal](#)

New Red Hat Optimization Report

- **Business Need**

- Two editions (Server, DataCenter)
- Server is adapter to physical computers
- DataCenter is aimed for ESX servers, but cheaper only on high RHEL density clusters
- Clusters must be consistently licensed
- Server edition
 - No rounding in ESX servers
 - Mix of processors and pairs of VM



- **Implementation**

- New report
- Makes an assessment at cluster level of the total cost, licensing with Server or Virtual DataCenters edition
- Gives all details
 - Optimal license
 - RHEL VMs
 - Optimization value
 - Statistics (Number of VMs per host, in cluster etc.)

Preview

- Example of high REL density server: recommended to be licensed with DataCenters

Red Hat Enterprise Linux License Optimization

Calculates the optimal license (either Red Hat Enterprise Linux Server, or Red Hat Enterprise Linux for Virtual Datacenters) for clusters where Red Hat Enterprise Linux is running on VMs, hosts, or stand-alone devices. Each cluster must be licensed uniformly.

Search

Device name contains sfdcvbgn1027

1 result returned 20 rows per page

Drag a column header here to group by that column

| <input type="checkbox"/> | Cluster name | Optimal license | Device name | Processors | Device type | Consumed points | Consumed value (USD) | Avg RHEL VMs/host | Host value (Datacenters) (USD) | Cluster cost (Server) (USD) | Cluster cost (Datacenters) (USD) | Comment on optimization |
|--------------------------|--------------------------------|--|--------------|------------|-------------|-----------------|----------------------|-------------------|--------------------------------|-----------------------------|----------------------------------|---|
| <input type="checkbox"/> | NDC/SFDCVBGN1020 - BGN Cluster | Red Hat Enterprise Linux for Virtual Datacenters | sfdcvbgn1027 | 2 | VM Host | 1 | \$1,039.00 | 30 | | \$4,980.00 | \$1,039.00 | In this cluster, the cost of using Virtual Datacenters license (1039.00) is cheaper than using Server license (4980.00) |

- Example of low RHEL density: Servers edition is cheaper!

| <input type="checkbox"/> | Cluster name | Optimal license | Device name | Processors | Device type | Consumed points | Consumed value (USD) | Avg RHEL VMs/host | Host value (Datacenters) (USD) | Cluster cost (Server) (USD) | Cluster cost (Datacenters) (USD) | Comment on optimization |
|--------------------------|---|---------------------------------|-----------------|------------|-------------|-----------------|----------------------|-------------------|--------------------------------|-----------------------------|----------------------------------|--|
| <input type="checkbox"/> | DC-EDC-SVC/SEDCVB102023000V-CorPDir-SIS | Red Hat Enterprise Linux Server | sedcvb102023005 | 4 | VM Host | 0.5 | \$166.00 | 0.13 | \$2,078.00 | \$332.00 | \$4,156.00 | In this cluster, the cost of using Server license (332.00) is cheaper than using Virtual Datacenters license (4156.00) |

The background features a dark blue to light blue gradient. It is overlaid with a complex network of thin white lines connecting small blue dots, resembling a data network or server architecture. Scattered throughout are various numerical values in a light blue font, such as 2.582, 73.1192, 13702, 82, 30, 141, 26, 2, 11, 62811, 7, 2811, 1702, 130719, 8.90310, 58.043, and 82.395. The overall aesthetic is technical and futuristic.

Windows & SQL Server Optimization

VMWare: Licensing headaches

- **VMWare virtualization is incredibly flexible:**
 - VMs can move any second to guarantee an optimal utilization of hardware resources
 - Across hosts in a cluster, across clusters in a vCenter, and even across vCenters with versions 6.5+
- **Software Vendors have impacted this heavily in their licensing**
 - Check out [this post](#) on that never ending licensing to technology adaptation
 - Approach: as virtualized infrastructure elastic, license the max configuration
 - Oracle: any installed VM with Oracle triggers licensing the full cluster (even vCenter theoretically now)
 - Microsoft: any Windows Server Standard License covering an ESX Host is “blocked” for 90 days
- **This turns into high risks and costs for our customers**
 - Multi millions Oracle Audits (addressed last month)
 - 90% of large companies license their ESX servers with Windows Server DataCenter Edition (more expensive, but unlimited number of VMs)



SQL Server Optimization

Licensing SQL VMs the optimal way

- The solution chooses and documents the best option:
 - License the full host for all VMs with Enterprise Edition
 - All VMs on a host with Standard edition
 - Each VMs with Standard or Enterprise

Microsoft - SQL Server Consumption and Optimization

v38 This view gives all SQL Server Consumptions for the EA licenses.

Search

59 results returned 20 rows per page

[Recommended License for Host] ▲

| <input type="checkbox"/> | [Cluster Name] | [Host Name] | [Computer Name] | [Status] | [Role] | [Computer Type] | [Consumed License] | [Consumed Cores] | [License Cost For Covering ESX with SQL Enterprise] | [License Cost] | [Optimization vs Covering the full ESX With SQL Enterprise] |
|--|----------------|---------------|-----------------|------------|---------|-----------------|---|------------------|---|----------------|---|
| [Recommended License for Host]: (38) | | | | | | | | | | | |
| [Recommended License for Host]: Consider licensing each VM individually! (8) | | | | | | | | | | | |
| <input type="checkbox"/> | Cluster337142 | VMHost0011945 | | Production | VM Host | | Microsoft SQL Server Standard Core L+SA | 8 | 60,000 | 10,400 | 14,800 |
| <input type="checkbox"/> | Cluster337142 | VMHost0011944 | | Production | VM Host | | Microsoft SQL Server Standard Core L+SA | 8 | 60,000 | 10,400 | 14,800 |
| <input type="checkbox"/> | Cluster307141 | VMHost0011938 | | Production | VM Host | | Microsoft SQL Server Standard Core L+SA | 4 | 120,000 | 5,200 | 7,400 |



Windows Server Optimization

Business Challenge

- Microsoft Server Operating System's Licensing is challenging
 - Multiple Licenses/Editions
 - Windows Server Standard, Windows Server DataCenter, Core Infrastructure Datacenter, Core Infrastructure Standard, System Center Standard, System Center DataCenter
 - Multiple Metrics over the time
 - Old processor metric transitioned to core metric in 2016
 - Different licensing rules (and costs)
 - Windows Server DataCenter Edition (7 times more expensive than Standard Edition): unlimited VMs covered
 - Windows Server Standard Edition: cheaper but two rules
 - More VMs will require more licenses
 - A license covering a VM on a host cannot be “reallocated” to another host for 90 days

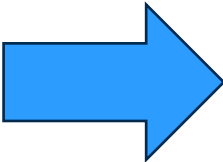
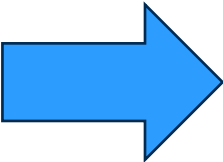
Business Challenge

- Customers have to adapt their licensing strategy

| Strategy | Effort | Cost | Risk |
|---|---------|---------|--------|
| Lowest footprint: take an instant snapshot of OS installations, deduce the optimal license position | Average | Low | Audit! |
| Worst case scenario: take an instant snapshot of OS installations, consider mobility for every VM on all virtualization environment, compute the optimal license position | High | Average | / |
| Infrastructure silos: license virtualization infrastructure with Data Center edition: easy option but extremely expensive (used by most of customers) | Low | High | / |

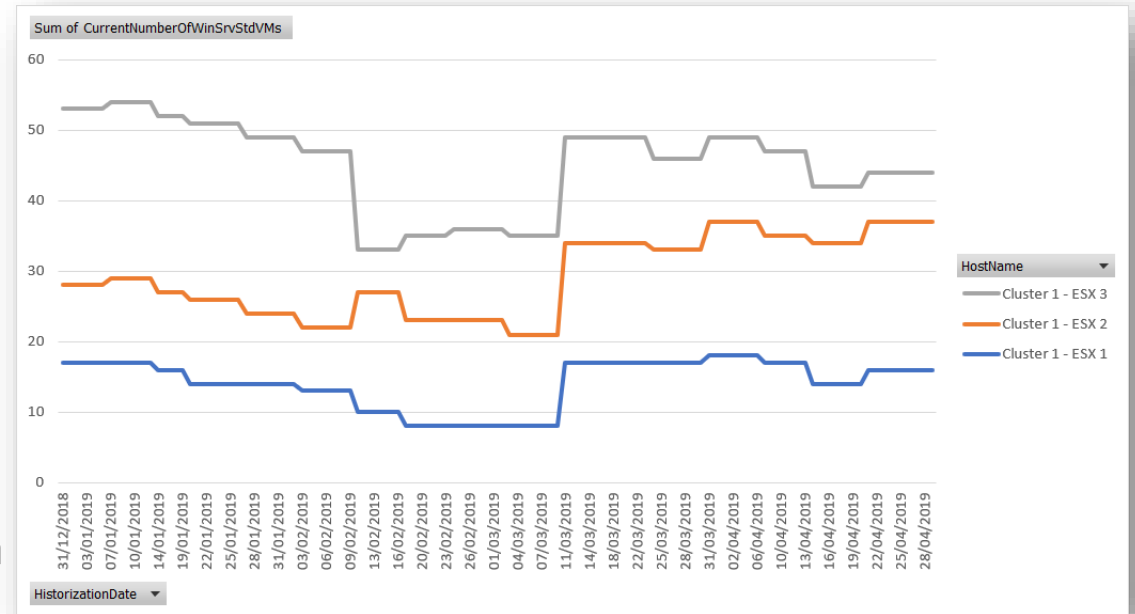
- These activities have to be executed on a regular basis

Business Challenge



The Windows Server Optimization report

- **Published** for on prem customers, planned for SaaS end of 2021
- **Computes, host per host, within clusters the optimal license**
- **Catches the following data**
 - Number of VMs (Std & Ent, Dtctr) peaks
 - Highest version & edition (Host, Cluster)
 - List of VMs in various editions
 - Presence or not of SCCM in the cluster
- **Uses the following metrics**
 - Worst case
 - Current Highest number of VMs in Host
 - (New!): Peak number of VMs from history data
- **Allow safe and “less safe” approaches**



Demo

Microsoft - Windows Server Consumption and Optimization

(v40) This view gives all Windows Server Consumptions (in cores) for the EA licenses, with optimal consumptions for ESX servers based on current number of VMs (current, average for cluster etc.).

Search

241 results returned 20 rows per page



Drag a column header here to group by that column

| <input type="checkbox"/> | [ClusterName] | [ComputerName] | [NumberOfProcessors] | [NumberOfCores] | [ComputerType] | [Status] | [Role] | [OperatingSystem] | [Optimal License] | [LicenseConsumptionCores] | [OptimalLicenseCost] | [CostForLicenseHostInDataCenter] | [SavingOnServer] | [TotalOptimization] | [RecommendedLicenseBase] |
|--------------------------|---------------|----------------|----------------------|-----------------|----------------|----------|------------|-------------------|---|---------------------------|----------------------|----------------------------------|------------------|---------------------|-------------------------------|
| <input type="checkbox"/> | Cluster157139 | VMHost0024 | 2 | 16 | VM Host | Active | Production | VMware ESXi | Microsoft Core Infrastructure Server Suite Standard L+SA - EA | 32 | 3,040 | 7,760 | 4,720 | 261,900 | Microsoft Core Infrastructure |
| <input type="checkbox"/> | Cluster157139 | VMHost0025 | 2 | 16 | VM Host | Active | Production | VMware ESXi | Microsoft Core Infrastructure Server Suite Standard L+SA - EA | 32 | 3,040 | 7,760 | 4,720 | 261,900 | Microsoft Core Infrastructure |

There are choices to make

- Is a Windows Server VMs to be considered differently if Std or Dtctr? (“Safe” or “Less Safe” approaches).
- Are you licensed with Windows Server only or Windows Server AND CIS
- What is the metric you want to use?
- As a consequence, the released report will give options (radio button)
 - Do you want a safe or less safe approach?
 - Are you licensed for Windows Server only, or Windows Server and CIS, CIS only?
 - Which metric do you want to use for your optimization calculation?

Worst case is not a good choice

- Example of simulations
- 2,500 ESX servers, 40,000 VMs
- Total cost difference for perpetual licenses between actual peak and worst case is USD15 million...
- Using metrics that are less a present to Microsoft will save millions

| noCIS Less Safe Worst case | | |
|--|--------------------------------|---------------------------|
| ComputerType | VM Host | |
| Row Labels | Sum of LicenseConsumptionCores | Sum of OptimalLicenseCost |
| Microsoft Windows Server Standard Core L+SA - EA | 81,804 | 4,499,220 |
| (blank) | | |
| Microsoft Windows Server Datacenter Core L+SA - EA | 78,250 | 30,126,250 |
| Grand Total | 160,054 | 34,625,470 |

| noCIS Less Safe 90 d peak | | |
|--|--------------------------------|---------------------------|
| ComputerType | VM Host | |
| Row Labels | Sum of LicenseConsumptionCores | Sum of OptimalLicenseCost |
| Microsoft Windows Server Datacenter Core L+SA - EA | 27,892 | 10,738,420 |
| Microsoft Windows Server Standard Core L+SA - EA | 151,528 | 8,334,040 |
| (blank) | | |
| Grand Total | 179,420 | 19,072,460 |

| noCIS Less Safe Peak Number of VMs on host in cluster | | |
|---|--------------------------------|---------------------------|
| ComputerType | VM Host | |
| Row Labels | Sum of LicenseConsumptionCores | Sum of OptimalLicenseCost |
| Microsoft Windows Server Datacenter Core L+SA - EA | 40,202 | 15,477,770 |
| Microsoft Windows Server Standard Core L+SA - EA | 223,582 | 12,297,010 |
| (blank) | | |
| Grand Total | 263,784 | 27,774,780 |

So... how do I save money?

- Customers on average will be over-licensed with Windows Server DataCenter licenses... should they just “give back” the license?
- Several situations
 - EASL: next renewal, easy!
 - EA
 - Lower next true up
 - True up only Windows Server
 - Decrease Windows Server DataCenter (25% of full license cost every year!)

Windows Server for ESX Optimization Solution saving calculator

| | Cost | # Licenses |
|---|-----------|-----------------|
| <i>Scope of Windows Server</i> | | |
| Current SA 3 year renewal Amount for Windows Server Data Center | 6,750,000 | <= Please Input |
| Perpetual License value (Core) | 9,000,000 | 2,571 |

(Assumptions: SA = 25% of License costs, Windows Server Standard Edition 16 cores, 500, Windows Server DataCenter 3500 / 2 procs)

Potential Savings Moving from all ESX Data Center to Mix of Std or Dtctr

| | |
|--|-----------|
| Potential saving switching from all Dtctr to Std / Dtctr Mix (Cores) | 3,447,000 |
|--|-----------|

Projected Consumptions in Mix (Core)

| | | |
|----------------------------------|-----------|-------|
| Windows Server Std (Core) | 1,791,000 | 3,582 |
| Windows Server DataCenter (Core) | 3,771,000 | 1,077 |

Possible ways of saving

- If a true up is necessary
- If a metric change is not yet applied
- If consumption is stable (Core)
- If max version in ESX or Cluster is old

Purchase Windows Server Standard and Make the switch
Negotiate a DataCenter against Standard Step Down

| | | | | |
|---------------|-------------------------------|----------------|--|----------------------------|
| Cancel SA for | 1,494 DataCenter and purchase | 6,275 Standard | Total License entitlement would become (core): | 1,494 WinSRV Dtctr 2019 |
| | | | | 1,077 WinSRV Dtctr with SA |
| | | | | 6,275 WinSRV Std With SA |

Stop maintenance on some DataCenter

Useful resources for anticipating released features

- Often on for on-premise customers, but are on boarded
- Oracle-Specific:
 - [Oracle Optimization Reports](#)
 - [Oracle Instances Transparency Reports](#)
 - [Application Recognition Transparency report](#)
 - [Automating the non-inclusion of embedded Java instances](#)
- But also other vendors
 - [Microsoft: Windows and SQL Server Optimization Reports](#)
 - [Adobe Optimization Report](#)
 - [Red Hat Optimization Report](#)
- More generally
 - [Creating advanced automations in a FNMS Cloud Instance](#)

THANK YOU