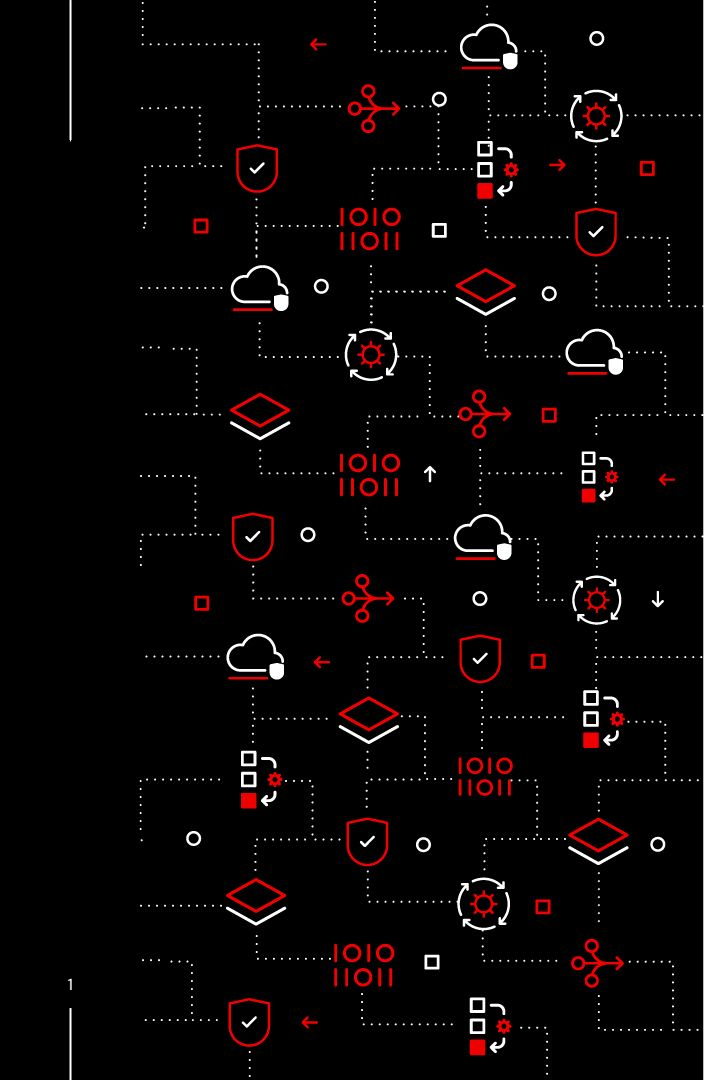
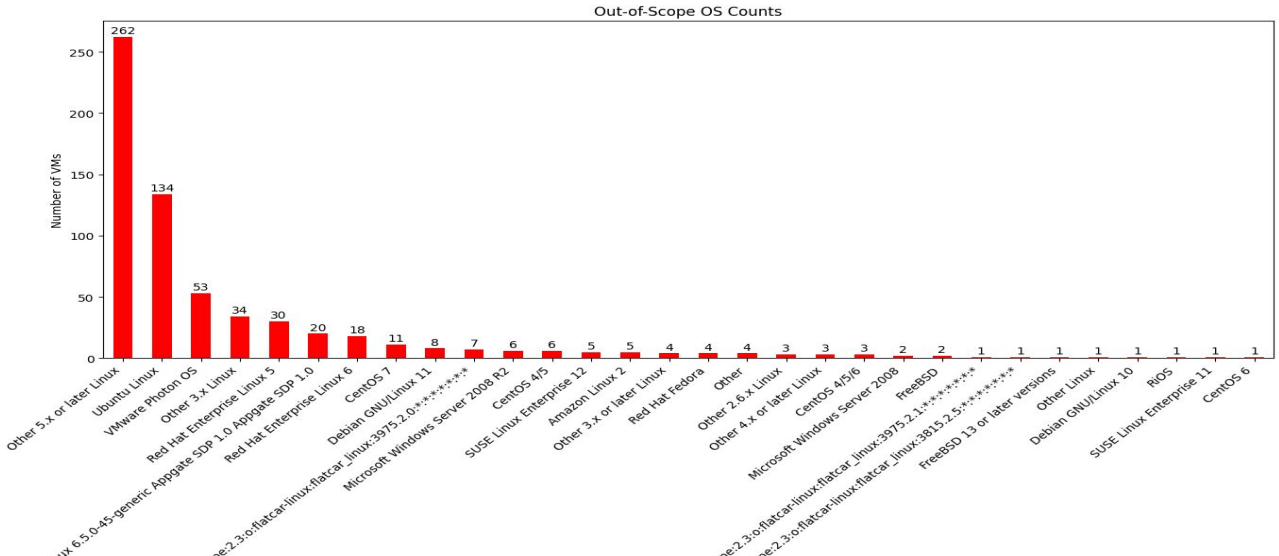
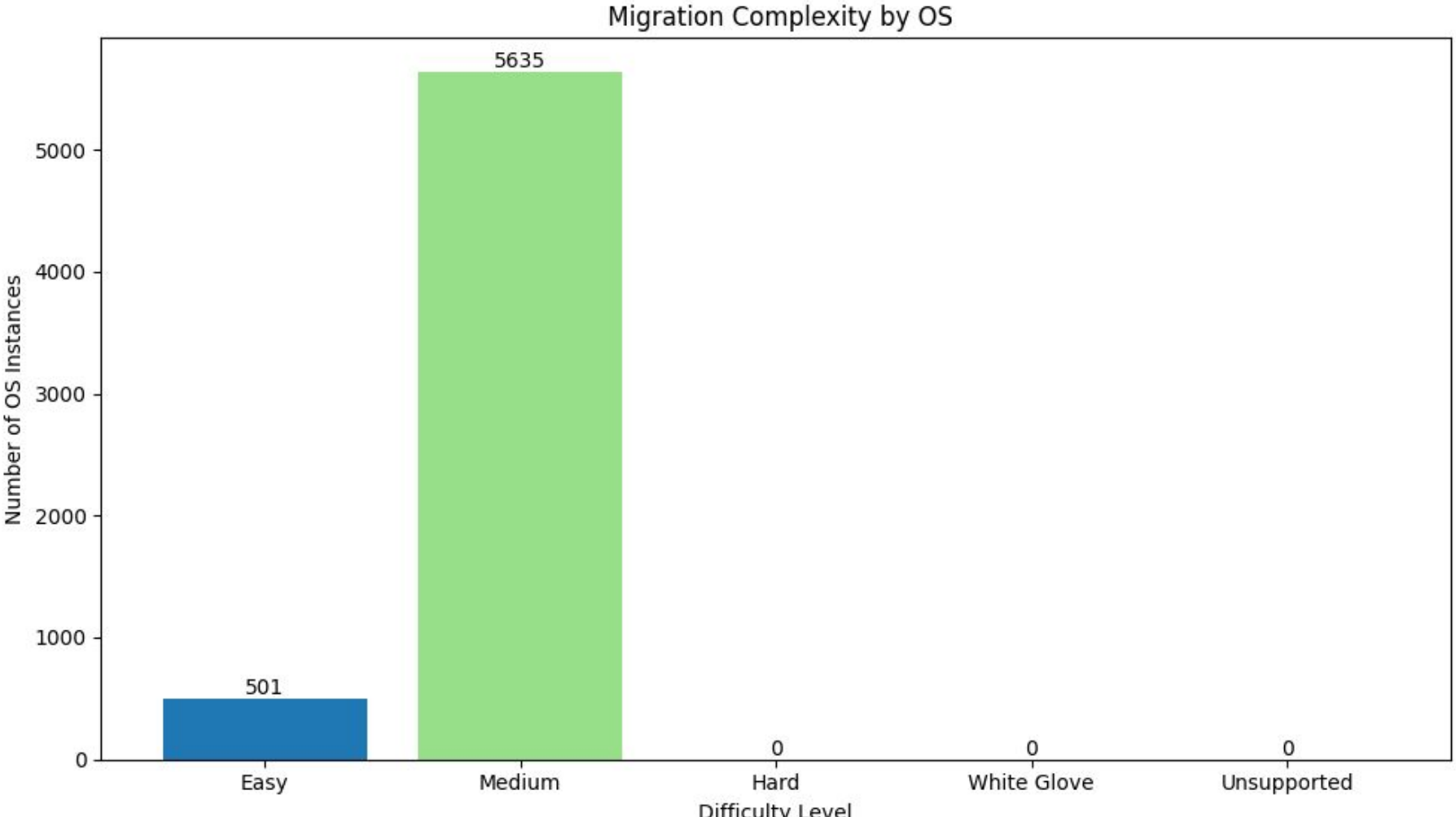


VMA – Workshop

Red Hat


Out-of-Scope OS Counts
Number of VMs
0
50
100
150
200
250
262
134
53
34
30
20
18
11
8
7
6
6
5
5
4
4
4
3
3
3
2
2
1
1
1
1
1
1
1
1
Other 5.x or later Linux
Ubuntu Linux
VMware Photon OS
Other 3.x Linux
Red Hat Enterprise Linux 5
Linux 6.5.0-45-generic Appgate SDP 1.0 Appgate SDP 1.0
Red Hat Enterprise Linux 6
CentOS 7
Debian GNU/Linux 11
cpe:2.3:o:flatcar-linux:flatcar_linux:3975.2.0:*:*:*:*:*:*:*
Microsoft Windows Server 2008 R2
CentOS 4/5
SUSE Linux Enterprise 12
Amazon Linux 2
Other 3.x or later Linux
Red Hat Fedora
Other
Other 2.6.x Linux
Other 4.x or later Linux
CentOS 4/5/6
Microsoft Windows Server 2008
FreeBSD
cpe:2.3:o:flatcar-linux:flatcar_linux:3975.2.1:*:*:*:*:*:*:*
cpe:2.3:o:flatcar-linux:flatcar_linux:3815.2.5:*:*:*:*:*:*:*
FreeBSD 13 or later versions
Other Linux
Debian GNU/Linux 10
RiOS
SUSE Linux Enterprise 11
CentOS 6


Migration Complexity by OS
Number of OS Instances
0
1000
2000
3000
4000
5000
501
5635
0
0
0
Easy
Medium
Hard
White Glove
Unsupported
Difficulty Level

What we will be doing:

- We are going to split the participants into five (5) teams
- Each team will get a working space to work on their virtual customer scenario
- Instructions for the scenario:
  - The idea of the scenario is to simulate the data captured from a Virtualization Migration Assessment from a customer
  - Your team will need to create the following output from the scenario provided:
    - High Level Design with component description
    - Migration scope and approach
    - Identify which constraints and assumptions influenced your design and roadmap decisions
    - Present your VMA findings to the class, like you present to a customer

Scenario 1: Financial Services (Large European Bank)

Ask

The customer wants to migrate their current virtualized environment to a new platform due to financial pressures from the current vendor.

Current Environment Specifications

Software & Data Center Config

- VMware vSphere Foundation (from versions 6.5 to 8.0)
- 2 physical data centers
  - Main production data center (Naboo)
  - DR / Dev data center (Coruscant)
- 1 main vSphere vCenter

Hardware

- Total of 254 hypervisors
  - 55% of hypervisors in Naboo
  - 45% of hypervisors in Coruscant
- Dell Technologies is the preferred server vendor

Connectivity

- Cisco is the preferred network vendor
  - Cisco Nexus are in use
  - CLOS Leaf-Spine topology deployed
- Server Network Interface Controllers:
- 4x 10 gbps
  - 2x management/oob network
  - 2x data plane network
- 1x FC HBA connected to MDS Switches

Storage

- Dell Technologies is the preferred Storage vendor
- Storages in use:
  - Dell PowerMax (tier 1) - 400TB
  - Dell PowerFlex (tier 2) - 800TB
  - Local Storage [raid 5 sas] (tier 3) - 900TB

Workloads

- 18k workloads
- Mix of Operating Systems
  - 70% windows
    - Windows Server 2003 - 10 %
    - Windows 2016 - 50 %
    - Windows Server 2019 - 30 %
    - Windows Server 2022 - 10 %
  - 25% Linux
    - RHEL 7 - 45%
    - Ubuntu Server - 25 %
    - RHEL 8 - 30%
  - 5% Other
    - Solaris various (80%)
    - OpenServer (20%)

Other Considerations

- Other things to consider:
  - No NSX in use
  - There is no new hardware for migrating virtual machines; re-use is necessary!
  - The customer wants OpenShift Virtualization exclusively on bare metal, with no container workloads.
  - Security compliance needs to be taken into account for the design.
  - Some apps in scope:
    - Oracle RAC
    - Red Hat OpenShift AI
    - ActiveDirectory Server

Red Hat

Scenario 2: Tier 1 Telco

Ask

The customer wants to migrate 1440 hypervisors to a new platform due to financial pressures from the current vendor and to have an opportunity to modernize.

Current Environment Specifications

Software & Data Center Config

- VMware vSphere Foundation
- 12 physical data centers (3 per network zones)
- 4 vSphere vCenter
- Divided into network zones:
  - Hogwarts
  - Mahoutokoro
  - Castelobruxo
  - Ilvermorny

Hardware

- Total of 1440 hypervisors
  - Equally distributed between all data centers
- Various hardware technologies being used

Connectivity

- Juniper Fabric
  - CLOS Leaf-Spine topology deployed
- Servers:
  - 2x 1gbps NIC
    - management/oob network
  - 2x 10 gbps NIC
    - 1 - data
  - 1 FC HBA to Brocade Switch

Storage

- Various types of storage, including:
  - EMC Symmetric
  - Oracle FS1
  - Dell EqualLogic
  - Pure FlashArrayX
  - VMware VSAN

Workloads

- ~40K workloads
- Mix of Operating Systems
  - 70% windows
    - Windows Vista - 2%
    - Windows XP - 3%
    - Windows Server 2003 - 10 %
    - Windows 2016 - 45 %
    - Windows Server 2019 - 20 %
    - Windows Server 2022 - 20 %
  - 25% Linux
    - RHEL 7 - 35%
    - Ubuntu Server - 25 %
    - RHEL 8 - 30 %
    - RHEL 9 - 10%
  - 5% Other
    - Solaris various (30%)
    - Other Unix (80%)

Other Considerations

- Other things to consider:
  - No NSX in use
  - New hardware can be procured with a refresh cycle; reusing will be good
  - The customer wants OpenShift for virtualization and container workloads
  - The customer wants to use new container & application management technologies to manage virtual machines (gitops, etc.)
  - 20% of the workloads are telco network workloads:
    - vEPC
    - vRAN
  - 80% of the workloads are IT workloads, including:
    - JBOSS servers , Databases (Microsoft SQL Server) , .NET 8.x applications

Red Hat

Scenario 3: Government Agency

Ask

The customer wants to migrate their current virtualized environment to a new platform due to financial pressures from the current vendor.

Current Environment Specifications

Software & Data Center Config

- VMware Cloud Foundation
- 4 Physical data centers
- 3 main DCs
  - Westeros
  - Pentos
  - Dorne
- 1 Disaster Recovery DC
  - Winterfell

Hardware

- Total of 820 hypervisors
- Mix of Cisco Servers and HPE

Connectivity

- Mix: Cisco Nexus / Dell PowerSwitch
- CLOS leaf-spine topology
- Servers:
  - 2x 10gbps NIC
    - management
  - 4x 25 gbps NIC
    - data

Storage

- Multiple NetApp NAS
- Multiple IBM SAN (iscsi)

Workloads

- ~25K workloads
- Mix of Operating Systems
  - 50% windows
    - Windows Server 2K - a few…
    - Windows Vista - 2%
    - Windows XP - 3%
    - Windows Server 2003 - 10 %
    - Windows 2016 - 45 %
    - Windows Server 2019 - 20 %
    - Windows Server 2022 - 20 %
  - 45% Linux
    - RHEL 7 - 35%
    - Ubuntu Server - 15 %
    - RHEL 8 - 30 %
    - RHEL 9 - 10%
    - SLES - 5%
    - Other Linux - 5%
  - 5% Other
    - Solaris various (30%)
    - Other Unix (80%)

Other Considerations

- Other things to consider:
  - NSX is in use
  - No hardware to be procured
  - The customer wants OpenShift for virtualization and container workloads. Wants proposal for container workload virtualized and in bare metal.
  - Microsegmentation is a must as part of the proposal
  - High Availability is a must for all components of the design (no SPOF)
  - Some specific workloads:
    - SAP
    - Datagrid
    - MongoDB workloads
    - NodeJS

Red Hat

Scenario 4: Large Automotive Manufacturer

Ask

The customer wants to migrate their current virtualized environment to a new platform due to financial pressures from the current vendor.

Current Environment Specifications

Software & Data Center Config

- VMware Cloud Foundation
- 2 main DCs
  - motor-city
  - wind-city
- 16 in-factory Data Centers
  - Running all production workloads for the factory (including the assembly line)

Hardware

- Total of 1500 hypervisors
- Mix of Cisco Servers and HPE

Connectivity

- Mix: Cisco Nexus / Dell PowerSwitch
- CLOS leaf-spine topology
- Servers:
  - 2x 10gbps NIC
    - management
  - 4x 25 gbps NIC
    - data

Storage

- Multiple NetApp NAS
- Multiple Pure Storage SAN

Workloads

- ~75K workloads
- Mix of Operating Systems
  - 40% windows
    - Windows Server 2K - a few…
    - Windows Vista - 2%
    - Windows XP - 3%
    - Windows Server 2003 - 10 %
    - Windows 2016 - 45 %
    - Windows Server 2019 - 20 %
    - Windows Server 2022 - 20 %
  - 55% Linux
    - RHEL 7 - 35%
    - Ubuntu Server - 15 %
    - RHEL 8 - 30 %
    - RHEL 9 - 10%
    - SLES - 5%
    - Other Linux - 5%
  - 5% Other
    - Solaris various (30%)
    - Other Unix (80%)

Other Considerations

- Other things to consider:
  - NSX is in use
  - No hardware to be procured
  - The customer wants OpenShift for virtualization and container workloads. Wants proposal for container workload virtualized and in bare metal.
  - Microsegmentation is a must as part of the proposal
  - High Availability is a must for all components of the design (no SPOF)
  - Some specific workloads:
    - SAP
    - Datagrid

Red Hat

Scenario 5: Healthcare Provider Company

Ask

The customer wants to migrate 4400 hypervisors to a new platform due to financial pressures from the current vendor and to have an opportunity to modernize.

Current Environment Specifications

Software & Data Center Config

- VMware vSphere Foundation
- 8 physical data centers (2 per network zones)
- 4 vSphere vCenter
- Divided into network zones:
  - Malaga
  - Madrid
  - Barcelona
  - Vigo

Hardware

- Total of 4400 hypervisors
  - Equally distributed between all data centers
- Various hardware technologies being used

Connectivity

- Juniper Fabric
- CLOS Leaf-Spine topology deployed
- Servers:
  - 2x 1gbps NIC
    - management/oob network
  - 2x 10 gbps NIC
    - 1 - data

Storage

- Various types of storage, including:
  - Pure FlashArrayX
  - VMware VSAN

Workloads

- ~80K workloads
- Mix of Operating Systems
  - 60% windows
    - Windows Vista - 2%
    - Windows XP - 3%
    - Windows Server 2003 - 10 %
    - Windows 2016 - 45 %
    - Windows Server 2019 - 20 %
    - Windows Server 2022 - 20 %
  - 35% Linux
    - RHEL 7 - 35%
    - Ubuntu Server - 25 %
    - RHEL 8 - 30 %
    - RHEL 9 - 10%
  - 5% Other
    - Solaris various (30%)
    - Other Unix (80%)

Other Considerations

- Other things to consider:
  - New hardware can be procured with a refresh cycle; reusing will be good
  - The customer wants OpenShift for virtualization and container workloads
  - The customer wants to use new container & application management technologies to manage virtual machines (gitops, etc.)

Red Hat