



Service Description

Cloud Avenue

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1 Definitions

In addition to the definitions in the **General Terms** and the **Cloud Specific Terms**, the following specific definitions apply to this Service Description.

Application Programming Interface (or **API**) refers to the programming interface for programmatic access to the vDC resources.

Bandwidth refers to the data transfer capacity made available to the Customer to transfer data between the hosting platform and the Internet or Intranet network.

Terms and Conditions refers to the general terms and conditions relating to the Provider's Cloud Services.

Domain Name Service (or **DNS**) refers to the system for establishing a correspondence between an IP address and a domain name

Disaster Recovery as a Service (or **DRaaS**) refers to a disaster recovery solution implemented between the Customer's infrastructure and the Cloud Avenue platform. In this document, DRaaS also refers to a method of billing for computing power.

High Availability Dual Room (or **HADR**) refers to a Feature that allows a vDC to have a very high level of availability thanks to a distribution of its resources over two rooms and the use of metrocluster.

Infrastructure refers to a set of resources (Virtual Machines, servers, firewall, load balancer...) set up by the Service Provider to provide the Service.

Customer License(s) refers to the Third-Party Software licenses subscribed by the Customer to be used on the Infrastructure.

Local Area Network (or **LAN**) means a local computer network such that the participating terminals (computers, etc.) send frames to each other at the link layer without the use of an intermediate router. LANs are interconnected by means of switches.

New Urba Platform (or **NUP**) refers to the historical platform of the Cloud Avenue offer created in 2016.

Next Generation Platform (or **NGP**) refers to the new platform created for the Cloud Avenue offer.

Virtual Machine (or **VM**) refers to a software computer that, like a physical computer, runs an operating system and applications. The virtual machine consists of a set of specification and configuration files and is supported by the physical resources of a host. Each virtual machine has virtual devices that provide the same function as the physical hardware.

Organization (or **vOrg**) means a virtual private space provided by the VMware vCloud Director application, the software on which the Cloud Avenue service is based. The Organization includes all the Virtual Datacenters (vDC) deployed by the Customer to host its VMs.

Virtual Private Network (or **VPN**) is an extension of local networks that preserves the logical security that can be had within a local network. It corresponds in fact to an interconnection of local networks via a "tunnel" technique.

Service means the Cloud Avenue service provided for an Organisation.

Operating System (or **OS**) means a central set of programs on a computing device that serves as an interface between the hardware and the application software

Virtual Application (or **vApp**) means a logical envelope in which VMs are deployed; this envelope allows for the consistent and simplified management of a set of VMs that have a reason to be grouped together (functional or security reason). A VM can only be created in a vApp

Virtual Central Processing Unit (or **vCPU**) is a virtual component of the computer that runs computer programs

Virtual Datacenter (or **vDC**) is the VMware logical object of the same name. A vDC corresponds to a pool of computing resources (CPU power, RAM memory capacity), storage, and virtualised networks (Internet and VPN access, firewall, load balancer) allowing a secure network architecture to be defined. An Organisation groups together one or more vDCs.

2 Purpose

The purpose of this Service Description is to define the conditions under which the Service Provider provides the "Cloud Avenue" service (hereinafter the "Service") to the Customer.

This description is governed by the Cloud Specific Terms.

3 Service Overview

3.1 Overall description

The Service is a managed virtual Datacenter offering that meets the needs of the Customer who wishes to manage the definition and sizing of its infrastructure and IT resources with maximum flexibility. It is an Infrastructure as a Service (IaaS) service.

The Service is provided on 2 distinct and independent platforms:

- The NUP platform
- The NGP platform

These two platforms cover a different functional spectrum, and certain functionalities will be offered either on one or both platforms.

3.2 Geographic footprint

The Service is available at the Val-de-Reuil and Rueil-Malmaison Datacenters in France.

An Organization is subscribed for a Datacenter, chosen by the Customer at the time of the initial Order.

The number of rooms available on the different datacenters is given in the table below:

NUP	Datacenter	Number of rooms
	Val de Reuil	2
	Rueil Malmaison	1

NGP	Datacenter	Number of rooms
	Val de Reuil	2
	Chartres	Available soon (02/2023)

4 Terms of use

4.1 Prices

The prices of the Service are set out in the Cloud Avenue Service Price Sheet and on the <https://cloud.orange-business.com/documents-contractuels-applicables-en-france/> website.

The prices of the Service are subject to review under the conditions set forth in the General Conditions and the Cloud Specific Terms, and may be updated monthly. The new prices apply to current Contracts. The Customer will be informed of the new prices by publication on the User Interfaces or by any other means, no later than the date on which the new prices come into force. In the event of a price increase for an existing Functionality, the Customer will be informed by e-mail or by any other means no later than 30 days before the new prices come into force. The prices in force on the Activation Date may differ from those communicated at the time of subscription.

4.2 Scheduled maintenance

The recurring maintenance slots are as follows:

- NUP platform: every first Wednesday of the month, from 00:00 am to 6:00
- NGP platform: the last 3 Wednesdays of the month, from 00:00 am to 6:00.

The maintenance operations do not impact the functioning of the Customers' VMs.

Exceptionally, maintenance operations may be carried out between 12:00 and 14:00 from Monday to Thursday. In the event of a risk of impact on the Service, the Customer will be notified in accordance with the terms and conditions set out in the **Terms and Conditions**.

5 Service Access

5.1 Portals

5.1.1 VCD portal

Access to the administration of the Service is via the vCloud Director Administration Portal (VCD). Detailed information about this portal is available at this link:

https://wiki.cloudavenue.orange-business.com/w/index.php/VCloud_Director

5.1.2 Accessing the VCD portal and API

Access to the VCD portal and the VCD APIs are protected by an application firewall (WAF), which by default allows access from the Internet. These accesses can be closed by OBS at the request of the Customer via a change request on the Cloud Customer Area, for each Organization.

The VCD portal and the VCD APIs can be accessed without WAF filtering from the VPN Gallery access subscribed by the Customer.

5.1.3 Cloud Customer Space

The Cloud Customer Space is an area reserved for the Customer, allowing him to manage his Cloud Avenue contract(s).

The online documentation of the Customer Space is accessible from this link:

<https://cloud.orange-business.com/en/offers/cloud-customer-space-user-guide-presentation-of-the-cloud-customer-space/>

IMPORTANT

Communications about the Service are only made towards Users declared in the Cloud Customer Space. The Customer is responsible for adding the Users to be notified. Users must keep their information up to date (email, mobile and landline numbers).

6 Service Content

6.1 Virtual Datacenter

A Virtual Datacenter (vDC) is a pool of resources including:

- Compute capacity, expressed in GHz or vCPU, and in the amount of RAM,
- Storage capacity,
- External network connections (internet or VPN)

The compute (CPU + RAM) and Storage capacities are available into several classes of services.

IMPORTANT

A vDC has a performance class and a billing model, which defines the resource allocation mode (PAYG or Allocation Pool). It is not possible to change the resource allocation mode of a vDC after its creation. If the Customer wishes to change the resource allocation mode of their vDC, then they must order a new vDC and migrate their vApp/VMs to it

6.1.1 vDC specifications by service class

Class of performance		Eco	Standard	High Perf.	VOIP
NUP	VM limits (vCPU / RAM / Storage)	4 vCPU / 16G 4 To	8 vCPU / 64G 4 To	32 vCPU / 256G 6 To	32 vCPU / 256G 6 To
	Usage	Low-need production in CPU, dev, test, labs	Prod, test, dev	Prod, Big Data, real time	IPBX, real time
	Allocation modes	PAYG et Allocation Pool	PAYG et Allocation Pool	Allocation Pool	Reservation Pool
	One Room	●	●	●	●
	Dual Room	●	●	●	●
	HA Dual Room	○	●	●	○
	Billing model available	PAYG, Reserved et DRaaS	PAYG, Reserved et DRaaS	Reserved	Reserved
	vCPU frequency	PAYG or DRaaS	Idem physical CPU	N/A	N/A
		Reserved	1,2 GHz mini	2,3 GHz	2,6 GHz

Class of performance		Eco	Standard	High Perf.	VOIP
NGP	VM limits (vCPU / RAM / Storage)	6 vCPU / 16G 4 To	8 vCPU / 64G 6 To	40 vCPU / 128G 6 To	32 vCPU / 128G 6 To
	Usage	Low-need production in CPU, dev, test, labs	Tout	Big Data, real time, intensive computing	IPBX, real time
	Allocation modes	PAYG et Allocation Pool	PAYG et Allocation Pool	Allocation Pool	Reservation Pool
	One Room	●	●	●	●
	Dual Room	●	●	●	●
	HA Dual Room	○	●	●	○
	Billing model available	PAYG, Reserved and DRaaS	PAYG, Reserved and DRaaS	PAYG, Reserved	Reserved
	vCPU frequency	PAYG or DRaaS	2,2 GHz	2,2 GHz	3 GHz
		Reserved	1,2 GHz mini	2,2 GHz	3 GHz

For the detailed specifications of each class of service, go to the wiki at this address:

https://wiki.cloudavenue.orange-business.com/w/index.php/Virtual_Datacenter

6.1.2 Availability classes

Several availability classes are possible for a vDC, according to the datacenter:

- One Room
- Dual Room (with 1 or 2 vDC)
- HA Dual Room, aka HADR.

For a full description of the availability classes, go to the wiki at this address:

https://wiki.cloudavenue.orange-business.com/w/index.php/Availability_classes

6.1.3 VDC resource management

The resource allocation of a vDC is chosen by the Customer. This allocation can be configured when the vDC is ordered, and can then be modified online by the Customer in the cloud customer area.

The resource allocation of a vDC constitutes a "physical" limit that the VMs cannot exceed in order to run.

For a detailed explanation of vDC resource management, please visit the wiki at this address:

https://wiki.cloudavenue.orange-business.com/w/index.php/Virtual_Datacenter#vDC_resource_management

6.1.4 Billing mode

Three billing modes are available.

NUP & NGP	Billing mode	PAYG	Reserved	DRaaS
	VMware resource allocation	PAYG	Allocation Pool	PAYG
	Billing	resources allocated to running VMs	100% of the vDC resources	resources allocated to running VMs

6.1.4.1 "PAYG" and "DRaaS" Billing

NUP & NGP	PAYG & DRaaS	Compute	RAM
	Billed resources (WU)	vCPU	GB
	Billed quantities	Number of vCPU allocated to each running VM X Number of minutes per day	Quantity of RAM allocated to each running VM X Number of minutes per day

Usage time is billed by the minute.

A vDC in DRaaS mode is used in the case of VM replication between the Customer's private infrastructure (On Premise) and one of the **Cloud Avenue** platforms.

6.1.4.2 "Reserved" Billing

In this model, all the vDC's GHz and RAM resources are charged at a flat rate.

NUP & NGP	Reserved	Compute	RAM
	Billed resources (WU)	vCPU	GB
	Billed quantities	Quantity of GHz allocated to the vDC X Number of days per month	quantity of GB allocated to the vDC X Number of days per month

6.1.5 vDC on a dedicated cluster

6.1.5.1 Main

For certain use cases, or to meet certain regulatory constraints, the Customer may choose to host its VMs on dedicated physical servers. The management of resources in the VCD portal will be identical, however the available resources will be limited by the number of servers that the Customer has subscribed to.

For more details on dedicated clusters, go to the wiki at this address:

6.1.5.2 High availability

The Provider recommends a configuration that takes into account a hot spare blade. A defective blade will be replaced by the Provider within 48 hours. However, within this time frame, the VMs must be able to run on a cluster with one blade removed without significant impact on the performance of the hosted applications. **This sizing is the Customer's responsibility.**

6.1.5.3 Capacity management

Capacity management is at the Customer's initiative. The Provider will provide the Customer with VMware metrics to monitor the overall performance of the cluster, as well as the performance of the VMs.

Important: the decision to change the size of the cluster is the responsibility of the Customer.

The deadline for the installation of a blade by the Provider is 1 week maximum from the date of the Order. For any request for more than 5 servers, the maximum delay is 6 months.

6.1.5.4 Subscription

The minimum size for a cluster is **two servers** of the same type.

The billing is done monthly based on the number of physical servers reserved, and according to their characteristics.

The Provider uses physical servers of the "blade" type, with the following specifications:

NUP	Specifications	
	CPU	Intel Xeon
	CPU frequency	2,3 GHz
	Nb of CPU	2
	Nb of core/CPU	18
	Nb of vCPU / lame	36
	Ram	512 GB
	Allocation mode of the vDC	Allocation Pool

NGP	Specifications	P_Type 1	P_Type 2	NSX_Type 1
	Use case	Dedicated cluster	Dedicated cluster	Dedicated cluster of NSX-T infrastructure
	CPU	Intel Xeon 6238R	Intel Xeon 6248R	Intel Xeon 6238R
	CPU frequency	2,2 GHz	3 GHz	2,2 GHz
	Nb of CPU	2	2	2
	Nb of core/CPU	28	24	28
	Nb of vCPU / blade	56	48	56
	Ram	576 GB	256 GB	256 GB
	Allocation mode of the vDC	Allocation Pool	Allocation Pool	N/A

A blade added during the month is billed on a pro rata basis for the number of days it is active during the month.

6.2 vCenter On Demand (aka vCoD)

6.2.1 Overview

The vCenter On Demand service consists of the following components:

- a dedicated cluster, based on physical HPE Synergy "hyper-converged" servers
- storage directly attached to the servers (1.92 TB SSDs)
- a management infrastructure entirely dedicated to a vCoD
- a VMware vSphere virtualization layer and the vCenter management module
- vSAN, for storage virtualization

The management infrastructure (the control plane) includes different software from the VMware suite to provide the necessary functionality for optimal operation of a dedicated infrastructure.

Visit the wiki page for more information about the vCenter On Demand service:
https://wiki.cloudavenue.orange-business.com/w/index.php/VCenter_On_Demand

6.2.2 Availability

The service is available in the Val de Reuil datacenter. As this datacenter has several rooms, it is possible to request a "dual room" deployment, to increase the resilience of the infrastructure and to accept the loss of a room.

By default, the proposed configuration is in "One Room" mode.

Dual room configuration is only possible if the following conditions are met:

- The number of nodes is at least 6
- The nodes are evenly distributed across the two rooms, implying an even number of nodes in the cluster.

6.2.3 Subscription

The subscription to the vCenter on Demand service is made through the Customer's usual sales contact.

The Customer must order:

- A "starter kit", including a minimum pack of 4 servers (or nodes)
- One or more additional nodes, depending on the desired target configuration
- One of three storage packages: 4 disks per node, 8 disks per node, and 10 disks per node
- Optional software options.

6.2.4 Capacity management

The Customer is responsible for managing the capacity of the cluster, both in terms of computing power and storage.

The Customer can, at any time, add or remove one (or more) node(s) to its cluster, from the Cloud Customer Space. He can also "upgrade" his storage package from 4 disks per node to 8 or 10 disks per node, for all the nodes in the cluster.

6.2.5 Limits

It is not possible to have different node configurations; all nodes in the same cluster must be of the same type (see the list of available types on the price list).

It is not possible to have different disk packs within the cluster: all nodes have exactly the same disk pack configuration: 4, 8 or 10 disks per node.

It is not possible to downgrade the disk pack configuration from 8 to 4 disks per node, for example.

6.2.6 Billing mode

The Cloud Avenue Rate Sheet specifies the units of work invoiced.

These work units are billed monthly. A change in cluster configuration during the month will be taken into account in the billing, on a prorata temporis basis.

6.2.7 Commitment and Termination

There is no time commitment for the Customer. Customer may add or remove nodes and increase the number of disks per node in its cluster at any time.

The Customer may terminate the vCenter On Demand service (i.e., the entire cluster and its options) at any time via the Cloud Customer Space. The request will be processed at the beginning of the month following the request.

6.3 Licenses

The Customer undertakes to use the Software, in particular the operating systems, in compliance with the "Intellectual Property" article of the Terms and Conditions.

All Windows and RedHat operating system licenses must be subscribed as part of the Cloud Avenue offer. The price list specifies the prices and billing methods for each license.

Important: when a Customer imports a VM via the VCD interface or APIs, and this VM includes a Windows or Redhat Operating System, the Virtual Machine will be automatically identified as carrying a billable license, and will be subject to normal billing the month following its import.

For more explanations on the available licenses and their use, go to the wiki at this address:

<https://wiki.cloudavenue.orange-business.com/w/index.php/Licenses>

6.3.1 Microsoft licenses

6.3.1.1 Overview

Microsoft licenses are available from VM templates available in the public catalog visible in the vCloud Director portal. The following software can be obtained in this way:

- Microsoft Windows
- Microsoft SQL Server

The Customer can:

- either subscribe to Microsoft Software licenses from the Service Provider in rental mode
- or bring licenses subscribed by him directly to Microsoft or a third-party reseller in mobility mode, according to the conditions of use applicable to each Software, available at the following address

<https://www.microsoft.com/fr-fr/Licensing/product-licensing/products.aspx>

Customer's use of Microsoft Software must comply with the terms of use associated with the Microsoft Service Provider License Agreement (SPLA). <https://www.microsoft.com/en-us/licensing/licensing-programs/spla-program>

6.3.1.2 Billing Model

The Microsoft licenses offered by the Provider are in rental mode, the Customer must not use the corresponding licenses for any other use than the use of the Service subscribed to the Provider.

NUP & NGP	Licenses	Work unit	Minimum unit of work invoiced	Calculation basis for invoicing
	Windows	VM vCPU	Day	Number of active VM vCPUs by performance class
	Windows	Physical server (blade)	Month	Number of physical server cores
	SQL Server	VM vCPU	Month	Number of VM vCPUs, with a minimum of 4 vCPUs billed, and necessarily a multiple of 2.

6.3.1.3 License mobility (BYOL)

Microsoft license mobility, for software previously acquired by the Customer, is possible in accordance with the "License Mobility" or "Qualified Multi-Tenant Host" (QMTH) endorsements of the SPLA contract, depending on the Software concerned.

It is reminded that the Customer must, in particular, in order to benefit from the Service:

- to have subscribed to the "Software Assurance" (SA) from Microsoft, when required by Microsoft, which is an additional license to enable mobility.
- for License Mobility, declare the mobility to Microsoft, indicating ORANGE's references as a mobility partner, via a specific form published by Microsoft and provided to the Customer by the Service Provider on request.
- for QMTH, declare to the Service Provider the number of Users for each Software concerned.

To use the Windows software under its own SPLA contract with Microsoft on Cloud Avenue, the Customer must subscribe to a dedicated cluster to host the VMs that will carry these licenses. The Customer must provide Microsoft with the hardware inventory on which the licenses are used.

6.3.1.4 Software licenses to be provided by the Customer

Licenses not provided by the Service Provider's SPLA contract are deemed to be provided by the Customer. This includes Microsoft Office and Microsoft Remote Desktop Service (RDS) licenses, which are no longer in the Cloud Avenue catalogue since December 2021.

Customers currently hosted on the NUP platform and who still have such licenses, provided by Cloud Avenue before December 2021, will have to bring their own licenses when they decide to migrate to the NGP platform.

6.3.2 Redhat licenses

6.3.2.1 Overview

Redhat licenses are available from the vendor based on VM templates available in the public catalog visible in the vCloud Director portal.

6.3.2.2 Billing model

NUP & NGP	Licenses	Work unit	Minimum unit of work invoiced	Calculation basis for invoicing
	Redhat	VM Small	Day	VM with 1 to 4 vCPUs
	Redhat	VM Large	Day	VM with more than 4 vCPUs

6.3.2.3 License mobility (BYOL)

The mobility of Redhat licenses is not possible on Cloud Avenue. The Customer must subscribe to Redhat licenses from the Provider.

6.4 Network and security

6.4.1 Overview

Network and security settings are configured by the Customer in the vCloud Director portal. These features are carried by infrastructure VMs (NSX Edge Gateways) and carry a network and security context dedicated to each Customer.

Visit the wiki at this address: <https://wiki.cloudavenue.orange-business.com/w/index.php/Network> for the detailed description of the functionalities, and the possible architectures.

6.4.2 Billing model

The NUP platform is based on VMware NSX-V technology. All the functionalities integrated in this software are available at no extra cost for the customer, as soon as the first vDC is subscribed.

Note : A vDC Edge Gateway (VE) is provisioned by default when the first vDC in the organization is created.

	Edge gateway	Connectivity	Specifications	Billing
NUP	Provider-level Edge Gateway (PESG)	Internet ou VPN	Attached to the organization	Included into the in the purchase of connectivity
	vDC Edge gateway (VE)		1 minimum per organization; attached to a vDC Exists in standalone (only one VM) or in HA (a cluster of two VM)	Price per month and per gateway

The NGP platform is based on the VMware NSX-T technology. All the basic functionalities integrated in this software are available at no extra cost for the Customer, as soon as the first vDC is subscribed. Additional features are available as an option depending on the choice of the gateway type.

For a detailed description of the features and functionality of the NSX-T gateways, go to the wiki at this address:

<https://wiki.cloudavenue.orange-business.com/w/index.php/Network>

	NSX Edge Gateway	Class of service	Billing
NGP	First T0 VRF	Standard	Included in connectivity purchase
	Additional T0 VRF	Standard	Per month and per gateway
	T0 VRF	Premium	
	Dedicated T0	Medium	
	Dedicated T0	Large	
	T1	Standard	
	T1	Premium	
	Dedicated T1	Medium	
	Dedicated T1	Large	

	NSX-T Security Context	Billing
NGP	First vDC group	Included in connectivity purchase
	Additional vDC group	Per month and per vDC Group

6.5 Internet access

6.5.1 Overview

The Internet connection is shared by all the vDCs of the Organization. The Provider sets up an NSX Edge Gateway in the Provider Edge zone. This gateway is called Provider Edge Service Gateway Internet (**PESGi**) on NUP, and **T0** VRF on NGP.

6.5.2 Billing model

The reserved bandwidth corresponds to a maximum achievable bandwidth rate.

Description	Work unit	Billing basis	NUP	NGP
Reserved bandwidth Limit chosen by the Customer	Mpbs	Maximum subscribed speed in Mbps	●	○
PAYG bandwidth 1 Gbps limit by default, can be set to several Gbps if needed.	Mpbs	Maximum flow rate based on the 95th percentile	●	●

Only outgoing bandwidth is charged.

6.5.2.1 PESGi in PAYG

The outgoing bandwidth is not limited. The bandwidth value invoiced is the 95th percentile of the set of values sampled every 5 minutes during the month (value such that 95% of the measurements are below it and 5% are above it).

In this subscription mode, the incoming bandwidth limit is set at 1 Gbps and can be adjusted on demand.

6.5.2.1 PESGi in Reserved

The bandwidth is limited and reserved. The bandwidth value invoiced is the one reserved by the Customer. It does not include an automatic burst mechanism.

This bandwidth can be modified via a change request in the Customer Area. The bandwidth is billed monthly for the number of Mbps reserved. If the bandwidth is changed during the month, the bandwidth is billed on a pro rata basis.

In this subscription mode, the incoming bandwidth value is aligned with the outgoing bandwidth value.

6.5.2.2 Public IP addresses

Public IP address ranges are billed by the day, starting from the date they are set up in the Customer's configuration. A change request allows public IPs to be restored. They are then no longer billed as soon as they no longer appear in the Customer's configuration.

Public IP addresses can be ordered on the Customer Area or on the change request management portal.

6.6 Storage

6.6.1 Overview

Two types of storage are available:

- datastore storage, for VMDK files
- network storage, with NFS and CIFS protocols

The different types of storage and their classes of service are specified in the Price List and described on the wiki at this address: <https://wiki.cloudavenue.orange-business.com/w/index.php/Storage>

6.6.2 Datastore storage

Datastore storage is made available to VMs in a vDC through storage profiles, which VMs can draw from to provision their disks. The size of a VMDK file is limited to 2 TB. When a VM needs more than 2TB of storage, multiple VMDK files must be added to the VM to reach the target size.

External storage is made available to VMs via IP addresses and according to the protocols chosen by the Customer.

Datastore storage is provided in two modes:

- shared storage (default),
- dedicated storage, with performance guarantee.

6.6.2.1 Service classes

For each vDC performance class, one or more storage performance classes can be associated; the compatibility matrix describes them in the following table:

	Performance class	Maximum IOPS limit	Available for vDC			
			Eco	Standard	High Perf	VOIP
NUP	Silver	600 IOPS / TB	●	●	●	●
	Gold	1000 IOPS / TB	●	●	●	●
	Platinum 3K	3000 IOPS / TB	○	●	●	●
	Platinum 5K	5000 IOPS /TB	○	●	●	●
	Platinum 10K	10.000 IOPS / TB	○	○	●	●

Certain classes of service are available in Dual Room to offer the choice of room, and in HA Dual Room on the storage MetroCluster, spread over two rooms in Val de Rueil.

The specifications and availability of these service classes are detailed in the following table:

	Performance class	Maximum IOPS limit	Available for vDC		
			One Room	Dual Room	HA Dual Room
NUP	Silver	600 IOPS / TB	●	●	○
	Gold	1000 IOPS / TB	●	●	●
	Platinum 3K	3000 IOPS / TB	●	●	●
	Platinum 5K	5000 IOPS /TB	●	○	○
	Platinum 10K	10.000 IOPS / TB	●	○	○

	Performance class	Maximum IOPS limit	Available for vDC			
			Eco	Standard	High Perf	VOIP
NGP	Silver	600 IOPS / TB	●	●	●	●
	Gold	1000 IOPS / TB	●	●	●	●
	Platinum 3K	3000 IOPS / TB	○	●	●	●
	Platinum 7K	7.000 IOPS / TB	○	●	●	●

	Performance class	Maximum IOPS limit	Available for vDC		
			One Room	Dual Room	HA Dual Room
NGP	Silver	600 IOPS / TB	●	●	○
	Gold	1000 IOPS / TB	●	●	●
	Platinum 3K	3000 IOPS / TB	●	●	●
	Platinum 7K	7.000 IOPS / TB	●	●	●

Several storage profiles can be associated with a single virtual machine. The IOPS resources are shared between all the VMs using the Datastore on which the Customer deploys its VMs.

6.6.2.2 Billing

6.6.2.2.1 Shared datastore in PAYG

The storage considered is the maximum space occupied during a day by:

- each VM, including the space used by the VM and by the snapshot possibly made by the Customer
- the Templates and ISO images present in the Customer's private catalog
- The technical files of the VM such as the VMware swap file also consume space, but are not charged.

The storage sizing of a vDC ordered by the Customer must consider:

- the virtual disks of the VMs that will be created in this vDC
- the RAM of the VMs
- possibly space to perform a snapshot.

6.6.2.2.2 Shared datastore in subscription

The storage considered is the average storage allocated to the vDC during the reference month.

6.6.3 Network storage

6.6.3.1 Overview

Network storage is shared by the Customer's organization VMs. Network storage is systematically provided in dedicated mode.

6.6.3.2 Service classes

NUP & NGP	Service classes	Maximum IOPS limit	Available for vDC		
			One Room	Dual Room	HA Dual Room
	Silver	600 IOPS / TB	●	○	○
	Gold	1000 IOPS / TB	●	○	○
	Platinum 3K	3000 IOPS / TB	●	○	○

The amount of IOPS delivered is the amount of storage ordered times the number of IOPS/GB of the subscribed class of service.

Example:

500GB of Platinum 3K network storage enables 1500 IOPS to be used permanently, regardless of the number of VMs using the storage.

6.6.3.3 Billing

The storage considered is the average storage reserved by the Customer during the reference month.

The quantity of IOPS provided corresponds to the volume of storage ordered times the number of IOPS/Gb of the subscribed class of service.

6.6.3.4 Backup

The Customer can set up the snapshot policy for its network storage. The space used by the snapshots is deducted from the quota subscribed by the Customer. Depending on the policy chosen, the Customer can reserve between 5 and 20% of the total storage quantity subscribed to for snapshots. However, snapshots can be activated even without reserved space.

6.6.3.5 Management portal

A self-service portal is provided to the Customer for network storage management (only for NUP, in roadmap for NGP), accessible from the Customer Space.

6.6.4 Dedicated datastore

6.6.4.1 Overview

A datastore is dedicated to a Customer, meaning that only the VMs chosen by the Customer will be able to use this storage space, allowing the Customer to make the best use of the available IOPS.

This type of storage is available:

- In One Room and, for some classes, in Dual Room or in HA Dual Room (on a storage Metrocluster)
- With or without data encryption (for NUP only)

6.6.4.2 Service classes

The order of a dedicated datastore is possible for all the following service classes:

	Service classes	Performance	Minimum size	Availability for vDC			Encryption available
				One Room	Dual Room	HA Dual Room	
NUP	Silver	600 IOPS / TB	8 To	●	●	○	●
	Gold	1000 IOPS / TB	6 To	●	●	○	●
	Gold MetroCluster	1000 IOPS / TB	6 To	○	○	●	●
	Platinum 3K	3000 IOPS / TB	4 To	●	●	○	●
	Platinum 3K MetroCluster	3000 IOPS / TB	4 To	○	○	●	●
	Platinum 5K	5000 IOPS / TB	4 To	●	○	○	○
	Platinum 10K	10.000 IOPS / TB	4 To	●	○	○	○

	Service classes	Performance	Minimum size	Availability for vDC		
				One Room	Dual Room	HA Dual Room
NGP	Silver	600 IOPS / TB	8 To	●	●	○
	Gold	1000 IOPS / TB	6 To	●	●	○
	Gold MetroCluster	1000 IOPS / TB	6 To	○	○	●
	Platinum 3K	3000 IOPS / TB	4 To	●	●	○
	Platinum 3K MetroCluster	3000 IOPS / TB	4 To	○	○	●
	Platinum 7K	7000 IOPS / TB	4 To	●	●	○
	Platinum 7K MetroCluster	7000 IOPS / TB	4 To	○	○	●

The quantity of IOPS delivered is the amount of storage ordered times the number of IOPS/GB of the subscribed class of service.

Important: For a dedicated datastore, the deduplication mechanisms embedded in the storage devices benefit the Customer. That is why, if the Customer deploys multiple VMs based on the same template, it will significantly increase the deduplication rate, and consequently limit the total amount of storage charged to the Customer.

6.6.4.3 Billing

The storage considered is the average storage reserved by the Customer during the reference month.

6.6.5 Object storage

6.6.5.1 Overview

The object storage service allows the storage of objects composed of data and metadata in a storage account associated with the Customer's organization. These objects are accessed securely from the Internet or from the vDC of the organization via an internal network. Objects are stored in compartments (buckets).

Storage and handling of objects and compartments is possible via a REST S3 API powered by Scality© and compatible with Amazon Web Services or via the VCD console object storage menu (menu exposed by OSE plugin, VMware Cloud Director Object Storage Extension). Access security to the storage account is managed through users, groups and access control via the REST IAM API compatible with Amazon Web Services.

This object storage service is also natively integrated with other services provided by VCD, such as VM image import, private image backup, or snapshot storage. Once the object storage option is enabled, these services will by default store the data necessary for their operation on the object storage rather than on the «datastore» storage.

6.6.5.2 Subscription

Each Cloud Avenue Customer has potential access by default to the object storage option. The option is automatically enabled when the Customer accesses the object storage menu in the organization's vCloud Director (VCD) console.

This action will create an object storage account with the name of the relevant Organization as the account name. From then on, it will be possible to create buckets (compartments) to store the Customer's data and to share them, if necessary, between the different vDC of the organization.

6.6.5.3 Availability

The service is available at the Val de Reuil datacenter.

The architecture of the service ensures very high data resilience. The durability rate of the objects is 99.999999999% (11 9s), which is a probability of losing 1 object every 100,000 years per million objects (apart from severe losses affecting several bays).

6.6.5.4 Capacity management

The capacity management of the subject storage account is the responsibility of the Customer.

The scalability of the stored volume is almost unlimited (several Peta bytes/ Customer account).

6.6.5.5 Limits

Internet access is by default open to data from the object storage account. It is the Customer's responsibility to ensure that this possibility meets its requirements and to apply a policy of filtering Internet access if necessary.

6.6.5.6 Billing model

Billing is monthly and pay as you go.

It is carried out at least according to the average hourly volume expressed in GiB.

The Cloud Avenue Rate Sheet specifies the invoiced work units.

6.6.5.7 Commitment & termination

There is no time commitment for the Customer in a usage-based billing model.

The customer is solely responsible for the stored data. They must have deleted all objects, compartments, users, groups, security policies, etc. and have a blank account before requesting a termination of the option.

6.7 Services in the ADMIN zone

The ADMIN zone is a service zone, accessible by the VMs through a specific Organization network, and carrying several services:

- Sophos Antivirus
- Windows and RedHat license activation
- Update of Windows and RedHat OS
- Access to backup servers (for backup/restore of VMs using an agent)
- Access to mail relay gateways
- NTP server

The availability of these devices allows to avoid the internet exposure of the VMs.

Note: All virtual machines in a single Organization (vOrg) can be connected to this service area via an organization network shared by all vDCs in the Organization. The connected virtual machines have a second IP interface (virtual Ethernet card) and share the same IP addressing plan. They can technically communicate with each other. If the Customer wants to keep

the trust zones set up on the other Organization networks on this ADMIN network, the Customer must configure security rules using the configurable distributed firewall for each vDC in the Organization.

6.7.1 Antivirus

Each Windows template includes a Sophos agent, which automatically updates its signature database from the central console not accessible to the Customer.

6.7.2 License Activation

The ADMIN area hosts a KMS server for Windows license activation. The Windows templates of the Cloud Avenue public catalogue are preconfigured and can be easily activated. For VMs imported or created from the VCD catalogues, a procedure is provided to the Customer so that he can perform the operations manually to make the operating system activatable via the ADMIN zone. This procedure is available on the wiki at this address:

[https://wiki.cloudavenue.orange-business.com/w/index.php/Activer_la_licence_Windows_%27%27\(KMS\)%27%27](https://wiki.cloudavenue.orange-business.com/w/index.php/Activer_la_licence_Windows_%27%27(KMS)%27%27)

For Redhat VMs, the ADMIN zone hosts an RHN infrastructure to activate and update the operating systems.

6.7.3 OS update

The ADMIN zone includes a WSUS server that allows Windows VMs to be kept up to date. Similarly, for Redhat VMs, the RHN infrastructure present in ADMIN gives access to the Redhat repository.

6.7.4 Access to backup servers via the NetBackup agent

In case a NetBackup agent is installed, the VM must have access to the ADMIN zone for the agent to communicate with the NetBackup servers.

6.7.5 Access to SMTP gateways

The ADMIN area also hosts a complete infrastructure of SMTP relay servers. These servers are protected by antivirus software.

With a change request, the Customer's servers can benefit from this infrastructure.

The service is:

- **paid and billed** to the IP address of the "client" server of this service,
- **limited** to 200 mails sent per day and per IP.

This service cannot be used for mass mailing.

6.8 Backup Service (NUP platform)

6.8.1 Overview

The Backup option of the Cloud Avenue service is a self-service backup option, provided by the NetBackup Self-Service solution. This option provides several features:

- Control of the solution via a web portal (NSS portal)
- Backup of VMs according to several predefined policies. The backup is local, i.e., the data is backed up on the datacenter where the VM is located.
- Restore VMs and files via the NSS portal
- Externalization of backups via a replication on a remote site
- Backup and restore in agent mode (outside the NSS portal) via the local interface
- Service weather report (daily report).

This functionality is active as soon as the Customer's organization is created, in VM mode only. A change request is required to activate the agent mode.

6.8.2 NetBackup Agent and NSS Portal Features

	without agent	With agent
Backup of the envelope (VMDK)	●	○

	without agent	With agent
Backup of a file, a file system or a partition	○	●
Restore an entire VM (including the envelope)	●	○
Restore a file, a file system or a partition	○	●

6.8.3 VM Backup and Restore

Via the NSS portal, it is possible to:

- View the protected / unprotected VMs in your organization
- Protect VMs by applying a predefined backup policy
- Restore (completely or partially) a locally backed up VM
- Unprotect a VM
- Perform an immediate backup of a VM
- View the volume of data backed up per VM and the overall volume occupied by its backups

A policy has different specifications:

- a local backup frequency
- a local retention time
- a backup range
- an off-site option (replication on a remote site).

The available backup modes, frequency and retention values are as follows:

Backup policy	Description
Policy #1	[DAILY-6] 1 backup / day, 6-days retention
Policy #2	[DAILY-30] 1 backup / day, 30-day retention
Policy #3	[WEEKLY-4] 1 backup / week, 4-week retention
Policy #4	[MONTHLY-3] 1 backup / month, 3-month retention
Policy #5	[DAILY-6] + [WEEKLY-4]
Policy #6	[DAILY-6] + [WEEKLY-4] + [MONTHLY-3]
Policy #7	[DAILY-6] + [MONTHLY-3]
Policy #8	[DAILY-30] + [MONTHLY-3]
Policy #9	[WEEKLY-4] + [MONTHLY-3]
Policy #10	[MONTHLY-12] 1 backup / month, 12-month retention
Policy #11	[DAILY-6] + [MONTHLY-12]
Policy #12	[DAILY-30] + [MONTHLY-12]
Policy #13	[WEEKLY-4] + [MONTHLY-12]
Policy #14	[DAILY-6] + [WEEKLY-4] + [MONTHLY-12]
Policy #15	[DAILY-60] 1 backup / day, 60-day retention
Policy #99	[SPOT] 1 one-time backup by the customer, 31-day retention
Policy #nX	Idem policy #n (except #99) but with a replication of the local backup to a remote site, allowing to meet the offsite backup requirement.
Policy #nZ	Idem policy #n (except #99) but with backup encryption

A daily report called "service weather" is sent each day to an email address (preferably generic) of the Customer and presents the status of the backups performed the previous night.

Note: By default, the NSS portal allows to restore a VM without agent. For a more granular restore (file, directory), it is necessary to install the NetBackup agent in the VM. This installation is performed by the Customer, using the user guide provided in the FCA offer reference documents.

6.8.5 NSS Backup Run Window

By default, the backup jobs (except for the "backup now", i.e. policy #99) are executed in a time window between 10:00 pm and 6:00 am.

In some cases, the Customer may want some of its backup jobs to be executed in a shorter time window (2 hours), to better control its production schedule. In this case, the Service Provider provides customized policies allowing to choose the time slot adapted to the Customer's constraints.

6.8.5 Backup encryption

Policies suffixed with a Z are policies whose backups are encrypted directly on the backup storage. This feature meets certain security requirements attached to the Customer's obligations to its own end customers.

6.8.4 Offsite backup

Backup policies whose number is suffixed with an X are policies for which the local backup is replicated on a remote site. In this case, there are two recovery sources: one local and one remote.

The restoration of replicated data on a remote site is not available in the NSS portal in self-service and will be activated by the Service Provider at the Customer's request.

6.8.6 Agent-based policies

In some cases, the Customer may use the NetBackup agent to provide backups of its VMs. The frequency of backups is at the Customer's discretion, via a schedule set by the Customer in the VM's operating system, or via a third-party tool. Retention is supported by the policies listed in the following table:

	Frequency	Retention
Agent policy #1	1 backup on demand	6 days
Agent policy #2		1 month
Agent policy #3		3 months
Agent policy #4		12 months

Important: Agent-based backups and restores are performed directly from the VM carrying the agent, not through the NSS portal.

The agent has two operating modes: command line and graphical interface.

6.9 Backup (NGP platform)

6.9.1 Overview

The backup solution offered on the Cloud Avenue NGP platform is a shared solution available to all Customers using the following services:

- Virtual Datacenter
- vCenter On Demand

The solution is located on the Val de Reuil Datacenter, in a room separated from those where the customer's VM are located.

Important: Backups are systematically encrypted for all Customers using the standard solution.

6.9.2 Operating principle

The solution allows you to apply one (or more) backup policy to a VM, vApp or vDC (the VMs contained in these containers will inherit the policy set up).

The solution is available in self-service through a dedicated portal called Netbackup Self-Service (NSS), accessible from the Cloud Customer Space. The features offered by the portal are also available via an API, documented in the Cloud Avenue wiki.

The Customer will be able to restore either the whole VM or a part of it (a directory, a file), from the NSS portal, without the need to install an agent.

From a list of predefined elementary policies, the Customer will be able to build his own backup plan adapted to his needs.

Visit the wiki at this address for more information on the Cloud Avenue backup service:

<https://wiki.cloudavenue.orange-business.com/w/index.php/Backup>

6.9.3 Billing model

Several elements are considered:

- The number of protected VMs
- The total disk size of each VM
- The total volume occupied by the backup sets kept on the backup storage, depending on the backup policies chosen by the Customer.

The Price List specifies the units of work invoiced for this service.

6.9.4 Commitments

The Quality-of-Service Appendix describes the commitments made by the Provider concerning the availability of the Backup service.

6.10 VM replication with Zerto (NUP only)

6.10.1 Overview

This feature provides disaster recovery capabilities for the Cloud Avenue service by replicating VMs from the primary Cloud Avenue site to a backup Cloud Avenue site. This solution is based on Zerto Virtual Replication (ZVR) software. The replication technology may evolve in the future.

The solution comes with a self-service portal available to the Customer.

This functionality allows:

- protect all or part of its virtual machines
- manage the switchover and recovery between the nominal site and the backup site

This functionality also brings the following advantages:

- the ability for the Customer, in complete autonomy, to switch his environments according to his own timing
- application and infrastructure agnostic data protection, thanks to the protection of virtual machines at the hypervisor layer.

Important: Zerto does not protect against data corruption, since it will replicate even corrupted data from the source VM. To be able to revert to the data prior to an event that corrupted the data, the only solution is to restore a backup.

6.10.2 Self-service protection

At any time, the Customer can increase the number of Virtual Machines to be protected. The fees applied by the Provider are adjusted, as and when required, to the quantity of VMs protected.

The finest level of protection is the vApp. The customer can self-service add and remove VMs to a vApp. Any VM added to a protected vApp is automatically protected.

Customers configure their vApp through the provided web portal based on the Zerto Self-Service Portal (ZSSP).

This Functionality does not include any service from the Service Provider to help in the selection of VMs to be protected, nor for the implementation of these protections. These tasks are the exclusive responsibility of the Customer. However, the Service Provider can offer, upon quotation, additional services to meet the Customer's support needs.

6.10.3 Disaster Recovery Testing

The self-service Zerto portal allows the customer to test and execute "blank" failovers of protected applications.

The organization and conduct of disaster recovery tests, as well as tests to restore activity on the nominal site, are the responsibility of the Customer. These tests do not generate any additional costs for the Customer related to the use of this functionality, apart from the possible additional use of the Cloud Avenue Service.

Moreover, upon quotation, the Service Provider may also assist the Customer in the organization, conduct and analysis of these tests. However, the Customer retains overall responsibility for the configuration, testing and validation of disaster recovery and restoration according to its needs.

6.10.4 Recovery Environment

The recovery environment is configured by the customer through the VCD web portal dedicated to this site. The customer is free to set up his backup VCD.

The administration portals and the backup virtual machines (with a public IP address) will be accessible by the customer directly through the Internet.

The storage profile chosen in the recovery environment can be different from the one chosen for the nominal environment. For example, data stored on a Gold storage environment can be replicated to Silver storage.

6.10.5 Physical servers

VM replication only protects the vApp of the nominal Cloud Avenue site and not any co-located physical servers that may be associated with Cloud Avenue.

If the Customer wishes to have a DRP between its colocation spaces, it is the Customer's responsibility to deploy the required tools and to organize this DRP. However, the Service Provider may offer, upon request, additional services to meet the Customer's specific needs.

6.10.6 Enabling the VM Replication Option

To take advantage of the VM replication feature, Customer must have at least one Organization on the nominal site and one Organization on the backup site.

The VM replication option is part of the Cloud Avenue Service at the nominal site.

Upon activation of the functionality, the Service Provider will provide the Customer with access credentials to the Zerto self-service portal and a user guide.

Note: this "VM replication" option must be subscribed to for each of the nominal Cloud Avenue Organizations that participate in the DRP that the customer wishes to implement.

6.10.7 Billing

The option is charged according to 3 units of work:

- A monthly fee for each protected VM,
- A monthly fee for the protection storage. This is the amount of storage used by the protected VM and replicated to the backup site,
- A fee for the bandwidth used each month by the replication of the modified data on the nominal VM.

6.11 Veeam Cloud Connect

6.11.1 Overview

The Veeam Cloud Connect option is a feature that leverages Veeam technology, and allows an on-premise installation protected by Veeam Backup & Recovery:

- Replicate local backup sets to Cloud Avenue; this is the **Cloud Repository for Backup** feature.
- Replicate the Customer's virtual machines running on its infrastructure to Cloud Avenue; this is the **Disaster Recovery as a Service** feature.

6.11.2 Prerequisites

Customer must:

- Have an "on-premise" infrastructure backed up by Veeam Backup & Recovery software, and running on VMware technology.
- Have an internet link or BVPN Gallery link to connect its infrastructure to Cloud Avenue
- Sign a Cloud Avenue contract.

6.11.3 Cloud Repository for Backup (CR4B)

By subscribing to this service, the customer will be able to replicate the backup sets on Cloud Avenue, on a storage space dedicated to him.

The service is subscribed to online, from the Cloud Customer Space.

6.11.4 Disaster Recovery as a Service (DRaaS)

By subscribing to this service, the Customer will be able to replicate virtual machines on Cloud Avenue, in a virtual datacenter (vDC) previously created, from the Cloud Customer Space.

For a detailed description of the different possibilities, go to the wiki at this address:

https://wiki.cloudavenue.orange-business.com/w/index.php/Veeam_Cloud_Connect

6.12 Cross Connect

This option, available only at the Val de Reuil Datacenter, allows the connection of a customer's physical equipment located in an Orange Cloud Avenue Datacenter.

The Service Provider provides several types of connection:

- One 1 Gbps link
- Two 1 Gbps links in nominal/backup
- Two 1 Gbps nominal/backup links with link aggregation, bringing the nominal throughput to 2 Gbps
- One 10 Gbps link
- Two 10 Gbps nominal/backup links
- Two 10 Gbps nominal/backup links with link aggregation, bringing the nominal throughput to 20 Gbps

6.12.1 Prerequisites

Customer must:

- Already have an operational hosting area, in one or more rooms of the Datacenter
- Have the necessary network equipment to connect to the Service Provider's infrastructure
- Provide the necessary information for the physical connection (room / bay / equipment name / port) requested in the Order.
- Provide the configuration elements necessary for the proper functioning of the entire link chain.

6.12.2 Activating the "Cross Connect" option

The activation of this option is done in collaboration between the Customer's technical teams and the Provider's technical teams for the parameterization of the whole link chain. It can be ordered in the initial Order or requested via the Cloud Customer Space.

6.13 QoS Appliance

6.13.1 Overview

Quality of Service (QoS) refers to a mechanism for prioritizing the most important flows within a limited bandwidth.

Customers who use their BVPN access to connect to their CA-hosted information system may experience contention issues when the subscribed bandwidth on the site's BVPN access is limited.

Real-time" applications, most of the time communication applications (IP telephony, videoconferencing, etc.) will suffer greatly from this contention and will have a significant drop in sound and image quality.

To avoid this, Quality of Service mechanisms must be put in place to prioritize the most critical ones.

6.13.2 Proposed Solution

Cloud Avenue offers an Appliance to perform this task of prioritizing the most critical flows. Each "QoS Appliance" is dedicated to one Organization, and one QoS is required per BVPN link.

There are three models of "QoS Appliance", sized to handle all flows within a maximum bandwidth.

QoS Appliance model	Max throughput of the Appliance
Small	50 Mbps
Large	500 Mbps
X-Large	2 Gbps

6.13.3 Prerequisites

The Customer must have a PVAG (Virtual Gallery Access Socket), as well as an Orange Business VPN Gallery contract with its usual Sales Agency.

The Customer's applications must use DSCP marking of network packets.

6.13.4 Billing model

Billing is done on a monthly basis, prorated to the number of days in the month that the QoS Appliance was active, based on the current rate card.

6.13.5 Setting up

The QoS Appliance is set up from the Cloud Customer Area. It is hosted in a secure area of the Cloud Avenue platform and maintained in operational conditions by the Provider's Operations teams.

The Cloud Customer Space provides dashboards to monitor indicators that allow the Customer to visualize

- The correct sizing of the bandwidth subscribed to on the BVPN side
- The distribution of the various flows and the processing of these flows by the QoS Appliance

These elements are not binding on the Service Provider but allow the Customer to ensure that its service is functioning correctly.

6.13.6 Limitation of liability

The Provider is committed to the availability of the QoS Appliance, in the same way as the rest of the Cloud Avenue infrastructure made available to the Customer. See the Quality-of-Service Appendix for details.

The Service Provider shall not be held responsible for a poor quality of service **if the bandwidth subscribed by the Customer** for its Orange BVPN access **is undersized**.

6.14 Use IT Cloud portal (NUP only)

6.14.1 Overview

Use IT Cloud is a web portal developed by our technology partner Prologue, which allows you to manage most public cloud offerings in a single portal (multi-cloud functionality), with a simple, unified, and powerful interface. It is also a PaaS (Platform as a Service) engine and an orchestrator.

6.14.2 Proposed Solution

Cloud Avenue provides a virtual appliance dedicated to each Customer, containing the latest version of Use IT Cloud validated by our teams.

6.14.2 Prerequisites

Be a Cloud Avenue customer.

6.14.3 Billing model

Billing for the Service is based on two indicators:

- The pro rata number of days in the month that the Use IT Cloud Appliance has been active.
- The number of virtual machines (VMs) created on Cloud offerings other than Cloud Avenue and Flexible Engine.

Billing is done monthly, based on the current price list.

VMs created on the Provider's offerings (Cloud Avenue and Flexible Engine) are not invoiced.

6.14.4 Setting up

The Use IT Cloud Appliance is set up from the Cloud Customer Space. It is hosted in a secure area of the Cloud Avenue platform and maintained in operational conditions by the Service Provider's Operations teams.

6.14.5 Limitation of liability

The Service Provider commits to the availability of the Use IT Cloud Appliance, in the same way as the rest of the Cloud Avenue infrastructure made available to the Customer. See the Quality-of-Service Appendix for details.

7 Support

The following table describes the support offering for the Cloud Avenue Service.

The Beta Features do not give rise to any support commitment on the part of the Provider.

Support offer for the Cloud Avenue service	STANDARD	BRONZE	SILVER	GOLD
Customer Service				
Cloud Avenue documentation on the wiki	included			
Account and billing questions	Business hours			
Technical Support				
Datacenter supervision 24x7	included			
Ticket via the Cloud Customer Space	ticket received 24x7			
Ticket via telephone	yes			
Privileged access to experts (e-mail or telephone)	no	yes, the first 3 months	yes	yes
Number of hours of expertise included in the package	n/a	2h / month, the first 3 months	2h / month	4h / month

8 Supporting and expertise services

The Provider offers support and expertise in virtualization, system, and network. These services can be ordered via the Cloud Customer Space, and are described in the table below:

Supporting services	vCloud Director on CA: level 1	vCloud Director sur CA: level 2	API VCD on CA
Duration	2 hours of theory + 4 hours of assistance / coaching	2 hours of theory + 2 hours of assistance / coaching	2 hours of theory + 2 hours of assistance / coaching
Content	Discovering the VCD interface Organization Configuration VM Deployment Network connection Catalogs Using vApp vApp Deployments User and Rights Management Basic Edge Gateway Configuration Connecting ADMIN administrative tools	What's new in VCD Advanced configuration of Edge gateways (NSX) Distributed FW (micro- segmentation) & vDC design VPNs Load balancing Implementing imports with the OVFTool Unitary connection to ADMIN administration tools	API Overview Using the API in RESTful Learning by example Presentation of the use of an SDK Example of a project using the API
Audience	New customers	FCA customers	all
Type	webinar	webinar	webinar
Prerequisites	Knowing the logic of virtualization, ideally VMware, have notions of network	Knowing VCD	Knowing VCD

Supporting services	Zerto on CA	NSS on CA
Duration	3 hours	3 hours
Content	Prerequisites Presentation of the use of the portal Setting up protection groups Switching test Switching	Introduction to the use of the portal Backup policies Protecting a VM Restoring a VM Granular File Restore NetBackup Agent Installation
Audience	All	All
Type	Webinar	Webinar
Prerequisites	No	No

Expertise services	Description
Solution Development (POC)	Includes vCloud Director on CA Level 1 support Weekly 1-hour follow-up by phone 4h/month technical expertise package
Dedicated Solution Manager	Personalized assistance and advice from a virtualization expert. (Based on 2 days/month minimum)
Flexible Expertise	Assistance in the act of virtualization expertise. Assistance in deploying your complex solution on Cloud Avenue. Assistance with performance optimization.
Scheduled work	Provision of an expert during an operation normally carried out independently by the Customer
Expertise on call	Putting an expert on call during an operation normally carried out independently by the Customer

9 Service Limitations

9.1 VCD access security

Access to the vCloud Director portal is from the Internet. The standard (default) security level is password protection.

When the first administrator account is created by the Provider, the password is created according to the password security policy defined by the Provider (e.g., 14 characters, etc.). On the other hand, the Customer is totally autonomous to create new VCD accounts.

We recommend that you configure passwords in a secure manner:

- In accordance with your security policy.
- Or by referring to the password security guide proposed by the ANSSI (National Agency for Information Systems Security): https://www.ssi.gouv.fr/uploads/IMG/pdf/NP_MDP_NoteTech.pdf

The configuration of password security is the responsibility of the Customer's administrators.

9.2 Strengthen the security of access to the VCD portal

The vCloud Director portal includes a feature to delegate authentication to an external identity provider, managed by the Customer. The Provider recommends using this feature for security reasons.

Some "identity provider" software may also include "strong authentication" functionality, which may be necessary in some cases to meet the requirements of the Customer's general security policy.

This setting is made by the Customer in the configuration of its organization. The documentation on this subject is described in detail in the chapter "Enabling your organization to use a SAMLv2 access provider" in the user guide:

<https://docs.vmware.com/fr/VMware-Cloud-Director/9.7/com.vmware.vcloud.tenantportal.doc/GUID-1F1F3EFD-55C5-4BF7-8683-FD93184A02F.html>

Some of our customers are already successfully using the following software:

- In-Webo
- Microsoft ADFS

9.3 VM sizing

The number of vCPUs in a VM must be a whole number (a VM cannot have, for example, 1.5 vCPUs). In PAYG, the vCPU frequency is aligned with the physical CPU frequency, following VMware best practices, to guarantee the best performance to the Customer.

Important: Virtual machines created by the Customer must comply with the limits specified in the paragraph "Characteristics of vDCs according to service classes". VMware's best practices recommend avoiding large VMs, as they will have a much harder time obtaining their resource quota when compared to smaller VMs. The Service Provider recommends that multiple VMs be preferred over one large VM, when the application architecture allows.

If the Customer does not respect the limits, the Service Provider will not be able to provide support services under the terms of the Agreement.

When a customer wishes to host very large VMs (> 8 vCPUs), it will be necessary to consider a "high performance" class vDC, or a vDC built on a dedicated cluster.

9.4 VM storage

A VM is created with a minimum amount of storage space that is required to support the Operating System, called the "root disk". This minimum space cannot be changed or deleted and is tied to the Operating System installed on the VM. If the available disk resources of the vDC are not sufficient to support this minimum space, then it is not possible to create the Virtual Machine.

9.5 Limit of a virtual disk (vmdk)

A VM virtual disk should not exceed 2TB. Beyond this limit, the VM will continue to function normally, but the efficiency of the high availability and load balancing mechanisms will be affected, or even severely disrupted. The backup will also work normally. However, restores will not work. Therefore "out-of-gauge" VMs can only benefit from "Best Effort" support.

9.6 Supported operating systems

The current version of Cloud Avenue is based on ESXi version 6.7 or higher on NUP, and version 7 on NGP.

The following link allows you to validate the compatibility of the supported Guest OS.

<https://www.vmware.com/resources/compatibility/search.php?deviceCategory=software&testConfig=16>

9.7 Backup and VM size

The backup system proposed in the Cloud Avenue offer is designed for VM sizes respecting the authorized limit of 6 TB. This value is the maximum allowed. If a VM's storage exceeds the limit, it is possible that this VM cannot be backed up within the time window reserved for running backups (10:00 pm - 6:00 am).

Any VM backed up that exceeds the limit will not be considered in the calculation of the service level agreement. The customer may be asked to withdraw the protection of this VM, on the grounds that the backup of this VM could have negative consequences on the backup of other VMs.

9.8 Mandatory up to date "Vmware tools" software

The backup mechanisms (excluding the backup agent) are based on the VMware layer and require the VM to have an up-to-date version of the "VMware tools" software. Most backup failures are due to outdated versions of VMware tools. It is therefore the Customer's responsibility to keep the VMware tools software up to date.

In case of repeated failure of the backup of a VM due to an obsolete version of VMware tools, and this despite several reminders to the Customer from the operating teams of the platform requesting this update, the Provider will be obliged to disable the protection attached to the virtual machine, which will then appear in the list of unprotected VMs in the NSS console.

The Provider cannot be held responsible for any data loss if the VM is not properly backed up due to an outdated version of the "VMware tools" software.

9.8 Network Storage (NFS)

The minimum value of an NFS volume is 500 GB.

The maximum value of an NFS volume is 8 TB.

9.8 Unsupported Hardware Features in VMs

The virtual servers provided in the Cloud Avenue offer do not support the following hardware elements

- graphics card (GPU)
- sound card

These hardware elements are often required to use the virtual machine as a workstation (VDI), a feature not currently available in the Cloud Avenue offer.

9.9 Edge gateway (NUP only)

When using an IPsec VPN or L2Sec VPN on an Edge gateway, it is not possible to implement an SSL Plus VPN on the same gateway (VMware limitation).

9.9 Cryptographic calculation (SSL Offload and IPsec)

For NUP platform, encryption for Advanced Encryption Standard New Instructions (AES-NI) is performed directly by the NSX Edge virtual appliances.

9.9 Security rules on the administration network (ADMIN)

The VMs of the same Organization connected to the ADMIN administration network are by default all in communication with each other, even if trust zones have been set up on the other network interfaces. It is the Customer's responsibility to set up filtering rules for the administration network using the distributed firewall, so that no data is accessible to an unauthorized User. It is the Customer's responsibility to set up this configuration correctly.

9.10 Dual Room

The Dual Room feature is only available on the Val de Reuil site.

9.10 Data location

By default, all a customer's data is located in a single datacenter. To outsource data to another datacenter, the customer must subscribe to one of the following services, depending on the desired RTO:

- Outsourced backup policies
- VM replication service with Zerto on NUP
- VM replication service with VCDA on NGP

9.10 Protection against data corruption

By default, Customer data is not backed up. It is the Customer's responsibility to take the necessary measures to protect against data corruption, regardless of the source of the corruption.

In the event of a corrupted VM, if the Customer has not implemented a VM backup plan, the Service Provider will not be able to restore the data before corruption.

VM replication is not a protection against data corruption.

Cloud Avenue's integrated backup solution is available to all Customers and allows them to restore all or part of a VM in the event of VM corruption.

The operating procedures for backup on Cloud Avenue are available here: https://wiki.cloudavenue.orange-business.com/w/index.php/Fiches_pratiques

9.10 Confidentiality

The Service Provider does not provide any information to third parties concerning the services provided to its customers or the data of its customers, except with the express written consent of the customer concerned.

9.10 Data Access

By default, the Provider does not have access to the customer's data. The Service Provider cannot access the VM content, nor connect to the VM administration console, once the default password has been changed.

The virtual disks of the VMs are not readable other than by the VM itself, and therefore under the total and exclusive control of the Customer.

10 Reversibility

The Customer is responsible for recovering all or part of the data hosted on Cloud Avenue.

Several means are available on Cloud Avenue:

- Exporting VMs in OVA format, from the vCloud Director portal or via API
- Replication of VMs to another VMware infrastructure that supports vCloud Director Availability

It is possible to subscribe to support services for a reversibility project with the Provider.