



swisscom

Service Description

Dynamic Computing Services

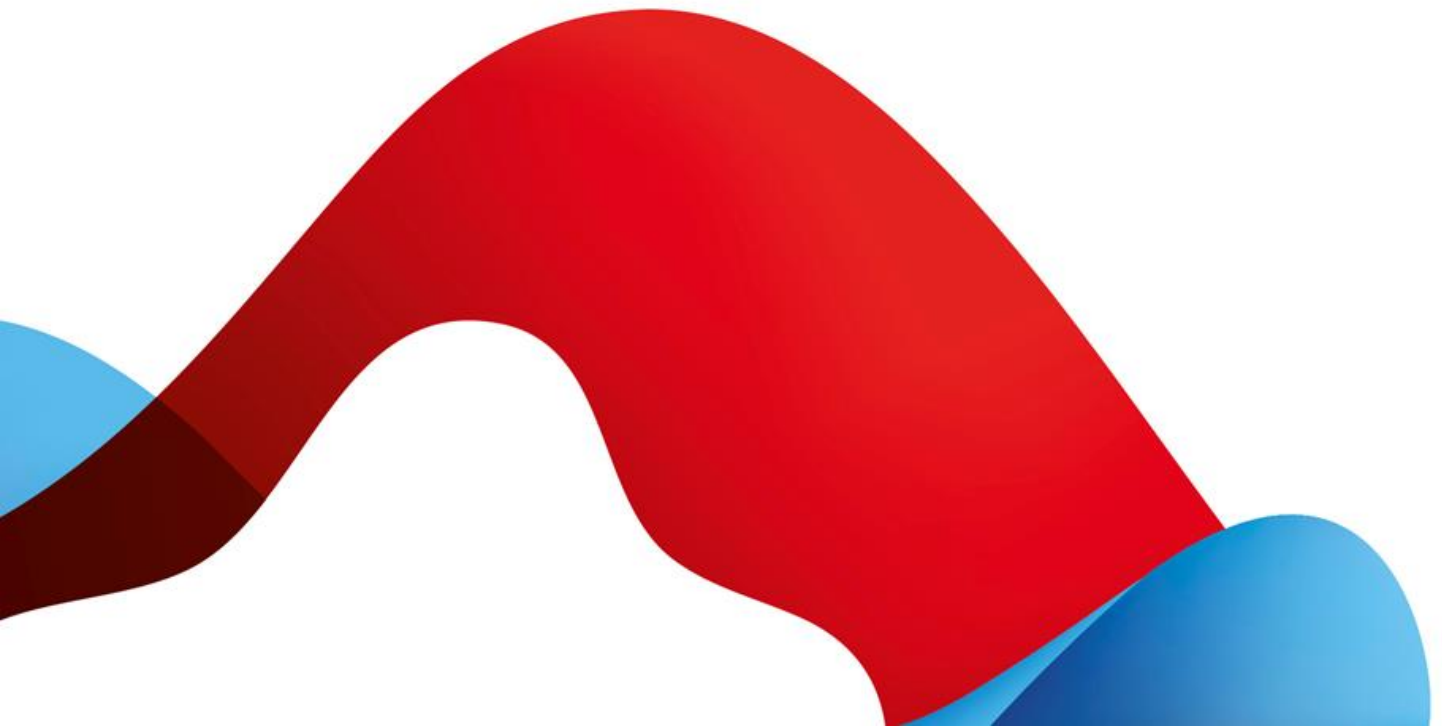




Table of contents

1	Service overview	3
2	Definitions	4
2.1	Service Access Interface Point (SAIP).....	4
2.2	Other service-specific definitions.....	4
3	Variants	5
3.1	Definition of variants and service classes.....	5
4	Service description and responsibilities	6
5	Service level and reporting	9
5.1	Service level	9
5.2	Service level reporting	10
6	Billing and quantity report	10
6.1	Billing	10
6.2	Billing models	10
6.2.1	Pay-as-you-go model.....	10
6.2.2	Allocation pool model	10
6.2.3	Dedicated Host	10
6.3	Quantity report	10
7	Special provisions	11
7.1	Miscellaneous	11

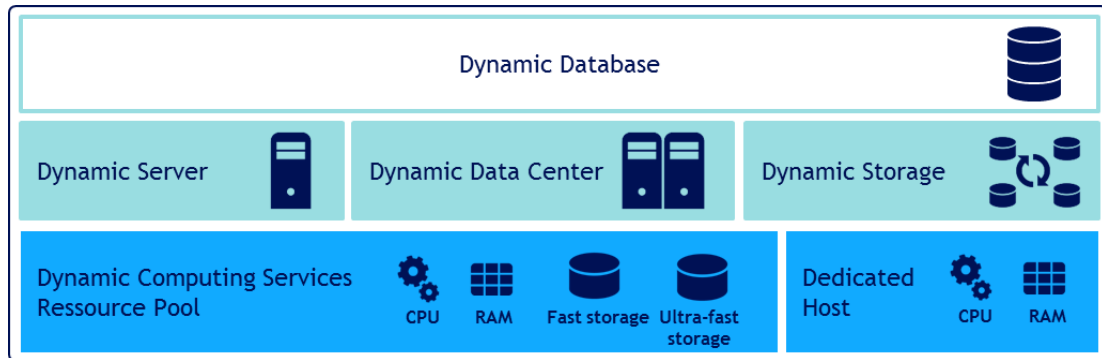
1 Service overview

The Dynamic Computing Services (DCS) comprise services in the area of Infrastructure as a Service (IaaS). They provide the customer and partner (hereinafter also “customer”) with the option to procure virtualised IT infrastructure resources such as processing power, memory capacity and networks from the Swisscom data centres in Switzerland in a flexible manner.

Using these resources, the customer can develop and operate its own IT solution in a flexible and independent fashion. The Dynamic Computing Services are highly flexible and have a scalable structure, meaning the resources can be reduced and expanded at any time. Swisscom provides the services on hardware units which are used by several customers. CPU power, RAM and memory capacity can be used flexibly.

Following the initial activation (onboarding), the customer uses the services via the network connection of its choice and manages the services via the customer extranet and the Self-Service Portal.

The services include the following elements:



The services are divided into the Dynamic Server, Dynamic Data Center and Dynamic Storage sub-products. The customer can configure these in a simple and flexible manner in the Self-Service Portal. With just a few clicks of the mouse, virtual servers, networks and memory capacity are made available for the relevant applications.

Dynamic Server

- Suitable for the simple operation of applications.
- Virtual servers are available in eight different performance classes. A performance class includes CPU power, memory and storage.
- Direct internal network connection with the cloud or optionally via the Internet.
- Easy to use.

Dynamic Data Center

- Suitable for the operation of demanding IT solutions.
- Autonomous creation and administration of the distributed IT architectures in the Self-Service Portal.
- Maximum flexibility thanks to the free configuration of virtual servers, networks, firewalls and other security components.
- Complex IT solutions can be realised thanks to comprehensive functions.

Dynamic Storage

- External, object-oriented and georedundant memory capacity for the secure transferring of data.
- Memory capacity can be obtained in any volume within a matter of minutes.
- Data is always saved in Switzerland in a secure and highly available manner.
- Access via the Internet or through the internal Storage Connect connection via the API protocols provided.
- Independent management of the storage areas by the customer in the Self-Service Portal.

Dedicated Host

- Exclusive cloud hardware stack (one tenant on physical host)
- Fully integrated into the DCS portal
- Addresses requirements such as licensing or regulatory requirements and specific security regulations
- Can be ordered for Dynamic Data Center via the portal upon request

Dynamic Database

(Optional service not included as part of this service - see separate service description)

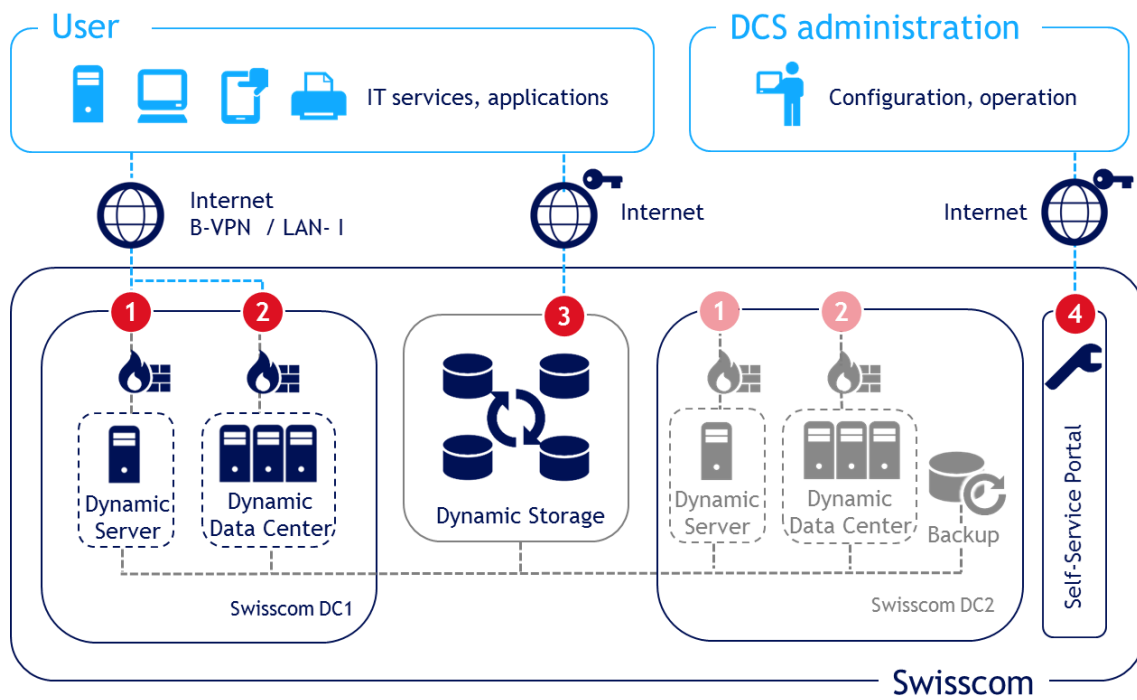
- Fast provision of Oracle databases
- Scalable database resources and itemised billing
- Data stored redundantly and/or at various locations in Switzerland

2 Definitions

2.1 Service Access Interface Point (SAIP)

The Service Access Interface Point (SAIP) is the contractually agreed, geographical and/or logical point at which a service is provided to the customer and monitored.

The following diagram illustrates the Dynamic Computing Services and the service components used within them:



- 1 Dynamic Server SAIP
- 2 Dynamic Data Center SAIP
- 3 Dynamic Storage SAIP
- 4 Self-Service Portal SAIP

2.2 Other service-specific definitions

Term	Explanation
Self-Service Portal	The Self-Service Portal allows for the technical and commercial administration of services and includes the detailed description of the necessary configuration parameters (e.g. IP addresses, licences, managed services, etc.)
VMware vCloud Director	Technical portal for the administration of the ordered Dynamic Data Center.
Resource pool	The resource pool is the virtual operating platform. All available CPU, RAM and storage resources are allocated on this platform.

CU	A CU (“Compute Unit”) denotes the processing power that is available to a vCPU. A CU corresponds to a performance unit of 0.1 GHz with reference to the physical CPU.
CPU	CPU (“Central Processor Unit”) denotes the physical processing power that is available to the platform. The physical processing power is assigned to the virtual CPUs (vCPU for short) via the “Compute Unit” (CU for short) defined for this service.
vCPU	The vCPUs are assigned to the virtual servers (hereinafter also referred to as VM). The number of vCPUs per Dynamic Server corresponds to the defined service categories. In a Dynamic Data Center, the number of vCPUs is based on the individually created configuration of the VMs.
VM	VM stands for virtual machine and replicates the computing architecture of a computer that actually exists as hardware. The abstraction layer between the real computer (on which the virtual machine is run) and the virtual machine is referred to as the hypervisor.
RAM	Denotes the working memory available.
Connectivity	Access to the variants used by the customer is provided via Internet connectivity with public IP addresses. It includes the link between DCS and the Swisscom backbone. The connectivity between DCS and the customer sites is not part of the Swisscom services. The connection via LAN-I or Business VPN can optionally be used as access to the Dynamic Server and/or Dynamic Data Center products.
CIFS-ECS	CIFS-ECS is software that is available for Windows systems. After being installed, the software creates a virtual drive which is linked directly to the Dynamic Storage. CIFS-ECS includes encryption and stubbing functions.

3 Variants

The Dynamic Computing Services are available in the following variants:

Variant	Dynamic Computing Services
Dynamic Server	●
Dynamic Data Center	●
Dynamic Storage	●

● = Option can be selected (included in the price)

The description of the variants and their parameters can be found in the Self-Service Portal where the relevant configuration is also performed.

3.1 Definition of variants and service classes

Variant	Definition
Dynamic Server	Standardised virtual servers. The servers are made available by Swisscom on a dedicated virtual operating platform provided for the customer.
Dynamic Data Center	A Dynamic Data Center (DDC for short) is equivalent to a logically isolated operating platform in which virtual servers and networks can be set up and operated by the customer.
Dynamic Storage	Dynamic Storage is object-based storage that is accessed via an Application Programming Interface (API). The data access is authenticated using a 32-character subtenant ID, an account ID (for S3: access key ID) and a 28-character shared secret (for S3: secret access key) generated by the system. Each request for Dynamic Storage is signed with these keys (keyed-hash messaging authentication code, HMAC). Swisscom generally recommends file sizes of up to 5 GB (multi-part size parameter = 5 GB).

The Dynamic Server and Dynamic Data Center variants are available in three different service classes:

- Basic service class: Suitable for development environments and non-critical applications.
- Standard service class: Suitable for business applications.
- Advanced service class: Suitable for business-critical applications.

The service class is selected upon creating one of these two variants. The Basic and Standard service classes are each operated at a single data centre location (DC1 or DC2). Should, contrary to expectations, an outage be experienced at the Swisscom data centres, the ordered variants are thus quickly put back into operation. For the Advanced service class, the variants are given priority in being put back into operation at an alternative data centre in the event of a disaster. Thanks to the storage mirroring, any loss of data is minor.

The Dynamic Storage variant is only available in the Advanced service class.

4 Service description and responsibilities

Non-recurring services

Activities (S= Swisscom/C=Customer)	S	C
Provision of services		
1. The description of the service classes is for information purposes. Service objects (Dynamic Server, Dynamic Data Center and Dynamic Storage) are to be ordered via the DCS self-service portal. The customer must stipulate the service class required for each service object when placing an order.		✓
2. The services are provided on a hardware unit used by several customers (shared infrastructure). Despite the multiple usage of the hardware (CPU, RAM, storage) and software components (hypervisor software, management software), the processing power, storage capacity and network of the individual customers are logically separated from one another. Swisscom takes the appropriate technical measures (virtualisation of infrastructure) to ensure that a customer cannot see or access the data of other customers without receiving the relevant authorisation. In the case of Dedicated Host, the services are provided on a customer-specific platform (one tenant per dedicated host).	✓	
3. Administration and configuration: Swisscom provides the customer with access to the customer extranet and the associated DCS cloud Self-Service Portal for the administration of services. In order to take account of the stringent security requirements, access is protected by a two-factor authentication process. The Self-Service Portal allows the customer to develop, configure and operate its own IT environments.	✓	
Other non-recurring activities		
1. Onboarding: The activation of services by Swisscom on the basis of the details provided by the customer during the activation process. The activation process comprises the following individual services: <ul style="list-style-type: none"> ▪ Customer onboarding: Configuration and commissioning of the customer extranet and the Self-Service Portal for the administration of the services. ▪ Network onboarding (optional): Activation of customer-specific private network connections for the inclusion of the services in the customer network (Swisscom LAN-I and Business VPN products). 	✓	
2. Dynamic Storage is object-based storage that is accessed via an S3-compatible Application Programming Interface (API). Authentication of the data access is via 34-character namespace ID, a freely selectable account name and a 28-character, system-generated Secret Access Key. Each request for Dynamic Storage is signed with these keys (keyed-hash messaging authentication code, HMAC). The provision of sufficient storage space and processing power for the installation and operation of the CIFS-ECS application is the responsibility of the customer. The minimum requirements for the operation of the CIFS-ECS application are as follows: <ul style="list-style-type: none"> ▪ Server-class hardware with at least a 2 GHz processor and 2 GB of RAM. ▪ Recommended minimum memory capacity is 200 GB with active cache support or 100 GB with inactive support. 		✓

The CIFS-ECS usage license is included in the Dynamic Storage fee. For further use, Swisscom refers customers to the current specifications of the manufacturer EMC.		
Termination of service		
1. The customer shall be responsible for the timely backing up of its data prior to the termination of the agreement. The customer must also release the resources in the Self-Service portal prior to this date. After releasing the resources, the customer data will no longer be available. Data deleted by customers cannot be retrieved by Swisscom.		✓
Recurring services		
Activities (S= Swisscom / C = customer)	S	C
Standard services		
1. The platforms (IT infrastructure, network connection, virtualisation platform and Self-Service Portal) are monitored on an ongoing basis (24/7 monitoring). The data centres and DCS platforms operated and monitored by Swisscom have the following certification as standard: ISO 9001, ISO 14001, ISO/IEC 20000, ISO/IEC 27001.	✓	
2. In order to perform its operational tasks, Swisscom is authorised to provide external partners with restricted access to the platform areas essential for operations. This access can also be carried out from outside of Switzerland on a controlled basis. Swisscom takes various technical, organisational and contractual measures in order to prevent the risk of data processed and saved by the customer being accessed without authorisation.	✓	
3. Swisscom provides the customer with support services for the rectification of faults as well as in connection with the configuration and use of services. If the support service is not linked to a fault caused by Swisscom or if the customer requires special configuration support, the support service will be billed to the customer. If the fault does not affect the Dynamic Computing Services (e.g. server outage at customer), Swisscom can refer the customer to an IT partner for further support. The costs for this on-site support are borne by the customer. DCS Support is made available to the customer via the "online web form" from the Self-Service Portal. Alternatively, customers can obtain DCS Support by calling 0800 526 526. In the event that it is necessary for a fault to be rectified, the customer will, to the extent possible, actively participate in the analysis of the error. The customer is responsible for notifying users of faults.	✓	
4. The administration and configuration of the service is performed independently by the customer using the customer extranet and the Self-Service Portal. The customer designates employees who are responsible for the administration and configuration and authorises these employees in the customer extranet. The customer can also define functional accounts which allow for direct access to the technical cloud portal (VMware vCloud Director) via API. There is thus the option to directly administer (add, modify, delete) virtual systems that are operated in a DDC. Access is gained using the functional accounts by entering a user name and password.		✓
5. The customer is responsible for the accuracy and completeness of its data. The customer is also responsible for the safe use of access information and passwords. In particular, the customer ensures that confidential information such as user identifications, passwords and keys are not made accessible to unauthorised third parties.		✓
6. The customer is responsible for the design, implementation, commissioning, decommissioning and migration of customer solutions (including configurations, network topologies, virtual machines, operating systems, middleware, applications). The provision of customer hardware for the DSC platforms is not possible. Direct access to hardware interfaces is also not possible (e.g. serial ports, parallel ports, FireWire connection, USB). If required, the customer can also make use of Swisscom support services. Such professional services are offered and billed for by Swisscom separately.		✓

Activities (S= Swisscom / C = customer)	S	C
7. The customer is obligated to comply with applicable laws, rules and regulations relating to the management and administration of electronic data. The customer is responsible for the content of all data that it processes and saves using DCS. Illegal or objectionable contents as well as contents that lead to the distress or personal harassment of third parties are forbidden. Swisscom is authorised to immediately isolate virtual servers and/or storage areas of customers that it deems, at its own discretion, to breach this requirement. It is also permitted to urge legally and contractually compliant use by customers / terminate agreements without notice and compensation and/or, where applicable, demand compensation for damage.		✓
8. The encryption of data for data storage and in network traffic (between individual virtual systems in the cloud as well as external systems) as well as key management is the responsibility of the customer. If the customer “loses” the key, the data is also irretrievably lost.		✓
9. The customer is responsible for the complete operation (incl. maintenance, monitoring, patching, support) of its customer solution from and including the operating system level. This includes the required middleware (e.g. VMware tools), databases and applications. In particular, the customer is also responsible for the implementation and operation of corresponding security measures such as anti-virus software and firewall configurations. The customer is responsible for backing up any application data (databases, etc.), as well as all matters relating to connectivity (e.g. domain names, DNS, SMTP).		✓
10. The customer provides Swisscom with a commercial and technical contact person. These contact persons maintain contact with Swisscom and represent the customer in accordance with the defined role (orders, configuration, operation and support). The customer informs Swisscom in advance of any extraordinary activities on its part such as load tests or hacking. Swisscom decides on a case-by-case basis whether the requested action can be performed.		✓
11. The services require a network connection on the customer side with a sufficiently high bandwidth for the transmission of data, access to the customer extranet and - depending on the selected network connection - access to the services themselves. The required bandwidth depends on the customer solution.		✓
12. Swisscom has no influence on the quality, availability and safety of third-party services used by the customer (e.g. third-party networks, other cloud providers, software). Swisscom accepts no responsibility in this regard.		✓
Provision of software licences		
1. All Windows and Linux Redhat instances operated in the cloud are automatically licensed by Swisscom and billed to the customer accordingly. The customer's own Windows and Linux Redhat licences cannot be taken into consideration. There are several operating system variants in each case.	✓	
2. The customer is completely responsible for ensuring the correct licensing of all software installed on the virtual servers (with the exception of the operating system licence for Windows or Linux Redhat).		✓
3. As part of the “DCS Licence Shop”, Swisscom offers licences which can be ordered and procured via the Self-Service Portal. Software and licenses that are rented through Swisscom can only be installed on a virtual server within the Swisscom data centre. Any local or other installations (e.g. end-user devices or servers at the customer's premises) are strictly forbidden. The customer is obligated to correctly report the license usage to Swisscom (within the portal) in accordance with the licensor's specific license terms. The customer agrees to indemnify Swisscom in full should it breach a licence. The applicable licence provisions of the respective software provider must be adhered to.		✓

5 Service level and reporting

5.1 Service level

The following service levels relate in principle to the agreed support time. Definitions of terms (operation time, support time, availability, security and continuity) and the description of the measurement method and reports are based on the other contract elements (e.g. “SLA Definitions”).

The following service levels shall be provided for the variants (see section 3). If several service levels are available for each variant, the service level is selected in the service contract.

Service level & target values		Dynamic Computing Services		
		Dynamic Server	Dynamic Data Center	Dynamic Storage
All service classes				
Operation time				
Operation time	Mon-Fri, 24 hours a day		●	
Provider maintenance window ¹	Sun, 12 midnight to 4 a.m.		●	
Provider maintenance window ²	Wed-Thur, 7 p.m. to 1 a.m.		●	
Support time				
Fault acceptance	Mon-Sun, 24 hours a day		●	
Availability				
Service Availability ³ (Self Service Portal)	99.5%		●	
Service Outages ³	1		●	
Security				
	Basic (ITSLB)		●	
Basic service class				
Support time				
Support time ³	Mon-Fri 7 a.m. to 6 p.m.			
Availability				
Service Availability ³	99.5%	●	●	–
Continuity				
	RTO/RPO Best Effort			
Standard service class				
Support time				
Support time ³	Mon-Sun, 24 hours a day			
Availability				
Service Availability ³	99.9%	○	○	–
Continuity				
	RTO/RPO Best Effort			

¹ The use of a coordinated maintenance window will be announced to all DCS administrators via e-mail with at least seven days' notice.

² Maintenance work on the management components affects, for example, the Self-Service Portal, the vCloud Director and the customer extranet.

³ per month

Service level & target values		Dynamic Computing Services		
		Dynamic Server	Dynamic Server	Dynamic Server
Advanced service class				
Support time				
Support time ³	Mon-Sun, 24 hours a day			
Availability				
Service Availability ³	99.9%	○	○	●
Continuity				
	RTO≤4 h RPO near 0 h			

● = Standard (included in the price) ○ = For an additional fee — = Not available

5.2 Service level reporting

Service level reporting is not provided as standard.

6 Billing and quantity report

6.1 Billing

Services are billed to the customer retroactively for the previous month. The values for the effectively used resources are calculated proportionately on an hourly basis and billed in accordance with the billing methodology in the current price list.

6.2 Billing models

The effectively used resources are billed differently depending on the service object (Dynamic Server, Dynamic Computing and Dynamic Storage) and resource procurement model. There are two resource procurement models, which differ in their handling of available and reserved resources. CUs (compute units, basis for vCPUs), RAM, storage and licences are all considered to be resources.

6.2.1 Pay-as-you-go model

When reserving resources, the occupied storage and the licences are billed directly. The available resources (CUs, RAM) are not billed until the virtual machines that have been set up are started up. If the virtual machines are switched off again, the available resources (CUs, RAM) are no longer billed. Reserved resources (storage and licences) continue to be billed, however.

This model applies for Dynamic Server and optionally for Dynamic Datacenter (an alternative here would be the allocation pool model).

6.2.2 Allocation pool model

When reserving resources, all resources selected (CUs, RAM, storage, licences) are immediately reserved and billed, irrespective of the status of the virtual machine(s) (i.e. on/off).

This model applies for Dynamic Storage and optionally for Dynamic Datacenter (an alternative here would be the pay-as-you-go model).

6.2.3 Dedicated Host

With Dedicated Host, CUs (basis for vCPUs) and RAM are not billed separately, as they are covered by the product fees. Other resources (e.g. licences, storage) are billed as and when used.

6.3 Quantity report

The used quantities can be viewed at all times in the Self-Service Portal. The quantities for the prior month are reported together with the bill.

7 Special provisions

7.1 Miscellaneous

- Liability: Swisscom shall accept no liability for:
 - Restrictions in availability due to the insufficient dimensioning of resources.
 - Outages for which the provider is not directly responsible, in particular external DNS routing problems, virtual attacks on the provider's network infrastructure (DoS/viruses) and outages experienced by parts of the Internet outside the control of the provider which lead to misinterpretations by the customer.
 - Outages for which the customer is at fault, in particular outages caused by incoming/outgoing hacker attacks (DoS) owing to erroneous or insufficient maintenance of the customer software.
 - Outages that occur because the systems have not been installed, operated and maintained in accordance with the guidelines of the manufacturer or provider (e.g. virus protection service).
- Swisscom is entitled to move virtual machines between ESX hosts that are in the same VMware cluster in the event of faults or maintenance work.
- Swisscom uses a standard Host LifeCycle of several years within DCS, so there may be different host versions in use. Contractual basis are the consumed virtual resources, not the underlying hardware. The placement of the VMs is automated by DCS, a manual placement is excluded.
- Swisscom reserves the right to amend this service description at any time.