

# SLA (Service Level Agreement)

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# General service description

This document is the service description of croit GmbH with its registered office in Munich, Germany – hereinafter referred to as “croit”, “solution provider”, or “provider”.

## General conditions and descriptions

Unless otherwise agreed, the following service level agreements apply to the provision and operation of all products and services of the solution provider. Unless otherwise specified, all services in the overview are provided worldwide.

The customer shall provide croit with at least one technically competent contact person with a telephone number and e-mail address. E-mail address who will be available as a contact person during the contractual relationship. At of a change in the contact person, the customer must inform the provider immediately.

## Technical support

During the following support hours, the provider offers technical support as remote support via the electronic ticket system, where general inquiries and any malfunctions can be reported. The execution of work at the customer's location by the provider is only against payment of the costs and depends on availability and feasibility.

The general support hours are as follows:

Date of request	Support hours
Monday to Friday	9am to 5pm
Saturday	-
Sunday	-
Public holidays	-

All times and public holidays are always based on the Europe/Berlin timezone.

E-mail contacts are as follows:

General inquiries and sales	<a href="mailto:contact@croit.io">contact@croit.io</a>
Accounting	<a href="mailto:billing@croit.io">billing@croit.io</a>
Support Team	<a href="mailto:support@croit.io">support@croit.io</a>

## Disruption classes

The provider will process all service requests based on the severity of the incidents and the faults described. The severity level results from the relative impact of an incident on the systems and determines the respective response times with the understanding that the provider will make an economically justifiable effort to provide an initial response as quickly as possible depending on staff availability.

## Response times

During support hours, the customer reports malfunctions and other irregularities by opening a ticket with graded malfunction classes via our in-house ticket system. The customer service (support) processes the tickets with a typical response time of 30 minutes to a maximum of 240 minutes. However, these figures are internal targets and not binding commitments. The reaction time begins with the receipt of the fault report during the support times by the customer.

## Availability in general

The provider provides the customer with the respective selected product or renders the respective selected service according to the product-specific SLAs.

## Subject to change

We are entitled to make necessary functional, content-related, technical, methodological and organizational changes or deviations (e.g. due to legal changes) to our products and services, provided that these do not substantially change the benefit of the product or service for the customer.

## Service delimitation

The solution provider generally does not assume any responsibility for the completeness and correctness of the licenses for server operation. This includes the licenses of all applications installed on the systems, unless the procurement of licenses by the provider is contractually agreed.

Services provided in the provider's data center end at the provider's last router before the data leaves the provider's network.

# General definitions

For the contractual and business relationship, the following definitions and understandings of terms are taken as a basis:

Term	Description
Ceph	Ceph is an open-source software storage platform, implements object storage on a single distributed computer cluster, and provides 3in1 interfaces for object-, block- and file-level storage. Ceph aims primarily for completely distributed operation without a <a href="#">single point of failure</a> , scalable to the exabyte level, and freely available.
OSD	<b>ceph-osd</b> is the object storage daemon for the Ceph distributed storage system. It is responsible for storing objects on a local file system and providing access to them over the network.
MON	<b>ceph-mon</b> is the cluster monitor daemon for the Ceph distributed storage system. One or more instances of <b>ceph-mon</b> form a <a href="#">Paxos</a> part-time parliament cluster that provides extremely reliable and durable storage of cluster membership, configuration, and state.
MGR	The Ceph Manager daemon ( <b>ceph-mgr</b> ) runs alongside monitor daemons, to provide additional monitoring and interfaces to external monitoring and management systems.
RADOS	Ceph's foundation is the Reliable Autonomic Distributed Object Store (RADOS), which provides your applications with object, block, and file system storage in a single unified storage cluster.
RGW / Rados Gateway	<a href="#">Ceph Object Gateway</a> is an object storage interface built on top of <code>librados</code> to provide applications with a <a href="#">RESTful</a> gateway to Ceph Storage Clusters.
NFS	<b>Network File System (NFS)</b> is a <a href="#">distributed file system</a> protocol originally developed by <a href="#">Sun Microsystems</a> (Sun) in 1984, allowing a user on a client <a href="#">computer</a> to access files over a <a href="#">computer network</a> much like local storage is accessed.
SMB/CIFS	In <a href="#">computer networking</a> , <b>Server Message Block (SMB)</b> , one version of which was also known as <b>Common Internet File System (CIFS)</b> is a network <a href="#">communication protocol</a> for providing <a href="#">shared access</a> to <a href="#">files</a> , <a href="#">printers</a> , and <a href="#">serial ports</a> between nodes on a network. It also provides an authenticated <a href="#">inter-process communication</a> mechanism.
S3	Is a <a href="#">RESTful</a> protocol from <a href="#">Amazon Web Services</a> that got widely adopted from multiple companies on the market. It provides Object based Storage using the <a href="#">HTTP</a> protocol.
CPU	A <b>central processing unit (CPU)</b> , also called a <b>central processor</b> or <b>main processor</b> , is the <a href="#">electronic circuitry</a> within a <a href="#">computer</a> that executes <a href="#">instructions</a> that make up a <a href="#">computer program</a> .
CPU Core	Some computers employ a <a href="#">multi-core processor</a> , which is a single chip or " <a href="#">socket</a> " containing two or more CPUs called "cores".
SMT / HT / Hyper-threading	<b>Hyper-threading</b> is <a href="#">Intel's proprietary simultaneous multithreading</a> (SMT) implementation used to improve <a href="#">parallelization</a> of computations (doing multiple tasks at once) performed on <a href="#">x86</a> microprocessors.
HDD	A <b>hard disk drive (HDD)</b> , <b>hard disk</b> , <b>hard drive</b> , or <b>fixed disk</b> is an electro-mechanical <a href="#">data storage device</a> that uses <a href="#">magnetic storage</a> to store and retrieve <a href="#">digital data</a> using one or more rigid rapidly rotating <a href="#">platters</a> coated with magnetic material. The platters are paired with <a href="#">magnetic heads</a> , usually arranged on a moving <a href="#">actuator</a> arm, which read and write data to the platter surfaces. Data is accessed in a <a href="#">random-access</a> manner, meaning that individual <a href="#">blocks</a> of data can be stored and retrieved in any order. HDDs are a type of <a href="#">non-volatile storage</a> , retaining stored data even when powered off.
SSD	A <b>solid-state drive (SSD)</b> is a <a href="#">solid-state storage</a> device that uses <a href="#">integrated circuit</a> assemblies to store data <a href="#">persistently</a> , typically using <a href="#">flash memory</a> , and functioning as <a href="#">secondary storage</a> in the <a href="#">hierarchy of computer storage</a> .
Erasure Coding Profile	An <b>erasure code</b> is a <a href="#">forward error correction</a> (FEC) code under the assumption of bit erasures (rather than bit errors), which transforms a message of $k$ symbols into a longer message (code word) with $n$ symbols such that the original message can be recovered from a subset of the $n$ symbols. The fraction $r = k/n$ is called the <a href="#">code rate</a> . The fraction $k'/k$ , where $k'$ denotes the number of symbols required for recovery, is called <a href="#">reception efficiency</a> .
WAL	In <a href="#">computer science</a> , <b>write-ahead logging (WAL)</b> is a family of techniques for providing <a href="#">atomicity</a> and <a href="#">durability</a> (two of the <a href="#">ACID</a> properties) in <a href="#">database systems</a> . The changes are first recorded in the log, which must be written to stable storage, before the changes are written to the database.
Exabyte (EB)	The <b>exabyte</b> is a multiple of the unit <a href="#">byte</a> for <a href="#">digital information</a> . The unit symbol for the exabyte is <b>EB</b> . 1 EB = $10^{18}$ bytes = $1000^6$ bytes = $1000000000000000000$ B = 1000 <a href="#">petabytes</a> = 1 <a href="#">million terabytes</a> = 1 <a href="#">billion gigabytes</a> .
Petabyte (PB)	A <b>petabyte</b> is $10^{15}$ <a href="#">bytes</a> of <a href="#">digital information</a> . The unit symbol for the petabyte is <b>PB</b> . 1 PB = $1000000000000000$ bytes = $10^{15}$ bytes = 1000 <a href="#">terabytes</a>

Terrabyte (TB)	The <b>terabyte</b> is a multiple of the unit <b>byte</b> for <b>digital information</b> . The unit symbol for the terabyte is <b>TB</b> . 1 TB = 1000000000000 bytes = $10^{12}$ bytes = 1000 <b>gigabytes</b> .
Gigabyte (GB)	The <b>gigabyte</b> is a multiple of the unit <b>byte</b> for digital information. The unit symbol for the gigabyte is <b>GB</b> . 1 GB = 1000000000 bytes = $10^9$ bytes = 1000 <b>megabytes</b> .
Megabyte (MB)	The <b>megabyte</b> is a multiple of the unit <b>byte</b> for digital information. The unit symbol for the gigabyte is <b>MB</b> . 1 MB = 1000000 bytes = $10^6$ bytes = 1000 <b>kilobytes</b> .
Kilobyte (KB)	The <b>kilobyte</b> is a multiple of the unit <b>byte</b> for digital information. The unit symbol for the gigabyte is <b>KB</b> . 1 KB = 1000 bytes = $10^3$ bytes = 1000 <b>bytes</b> .
Byte	The <b>byte</b> is a <b>unit of digital information</b> that most commonly consists of eight <b>bits</b> . Historically, the byte was the number of bits used to encode a single <b>character</b> of text in a computer and for this reason it is the smallest <b>addressable</b> unit of <b>memory</b> in many <b>computer architectures</b> .
Gbit/s (Gbps) Mbit/s (Mbps) Kbit/s (Kbps)	In <b>telecommunications</b> , <b>data-transfer rate</b> is the average number of <b>bits</b> ( <b>bitrate</b> ), characters or symbols ( <b>baudrate</b> ), or data blocks per unit time passing through a communication link in a data-transmission system. Common <b>data rate units</b> are multiples of <b>bits</b> per second (bit/s) and <b>bytes</b> per second (B/s).
NOC	Network Operations Center, a team of experts for the operation of the infrastructure
SOC	Service Operations Center, a team of experts for infrastructure safety
Ticket System	Interface for customer communication between the provider and the customer
Incident	A disruption or a reduction in quality in the operation of a service provided
Consultant	A consultant is usually an expert or an experienced professional in a specific field and has a wide knowledge of the subject matter.
Consulting	Implementation of consulting services of any kind by a consultant
SLA	A Service Level Agreement describes the service defined between the contracting parties
Uplink capacity	The technically provided bandwidth at the transmission point in Mbit/s or Gbit/s which is available to the customer. The bandwidth actually made available is defined in the Commitment.
Rack	A 19" rack in a data center with typically 42 rack units (U or HE) without power consumption and network cabling and traffic
Circuit	Power connection for a rack protected by a 16A fuse. Please note that the power consumption per rack is limited to a specific kW value and that the fuse is used above the provided rack power
Power feed (A + B)	Power supply from two separate circuits (A + B Feed). Here, individual and separate circuits are terminated on two different power distribution units (PDU).
VLAN (Virtual LAN)	A Virtual Local Area Network (VLAN) is a logical subnetwork within an entire physical network. A VLAN separates physical networks into subnetworks by ensuring that VLAN-enabled switches do not forward the frames (data packets) of one VLAN to another VLAN (although the subnetworks may be connected to shared switches)
Virtual Network Identifier (VNI)	A virtual network identifier (VNI) is a logical subnetwork within an entire physical network. A VNI separates physical networks into subnetworks by ensuring that VNI-enabled switches do not forward the frames (data packets) of one VNI to another VNI (although the subnetworks may be connected to common switches). At interfaces that enter or leave the provider network, the data packets are en- or decapsuled between the VNI and VLAN
Optical fibre cables	Optical fibre network cable for the transmission of data streams
Copper cables	Copper network cable for the transmission of data streams
Traffic	Traffic is the flow of <b>data</b> within a network. Common measurements of traffic are total volume, in units of multiples of the <b>byte</b> , or as transmission rates in bytes per certain time units.
Incoming/Inbound Traffic	Inbound data traffic in a network.
Outgoing/Outbound Traffic	Outbound data traffic out of a network.
Backbone	All network-relevant components (routers, switches, etc.) that are necessary to transfer data traffic volumes to an Internet transfer point and over which the provider has direct influence with its own access rights
NBD	Next business day

Parts of these definitions come from Wikipedia and can be found at <https://en.wikipedia.org/>.

# Service profile: Consulting

## Service description

The provider offers consulting services which he provides through internal or, if necessary, external personnel.

Depending on the consultant, the consulting services cover multiple topics and can vary due to the deployment of personnel. The provider tries to provide the most suitable personnel for the respective topic. However, there is no entitlement to individual consultants or, in particular, appointments with individual consultants.

## Fields of consulting

- Ceph Software
- croit Software
- Linux Operating System
- Network
- Hardware

## Procedure

The responsible consultant is either remotely connected via a video conferencing solution, or comes personally to the client's location upon request. In the first step, he or she will review the current status and needs to determine which further steps are necessary to achieve the desired result.

For the implementation of changes by the consultant himself, a secure SSH connection is required. This must be provided by the client. In case of emergency, and only with strong limitations of the performance of our consultants, other remote solutions are possible.

At the end of the consultation, at the request of the customer and against payment of time, a protocol is drawn up in which the situation, measures, solutions or actions are described.

## Obligations to cooperate

The client must provide the consultant with the necessary access. The access for the execution of technical tasks must be enabled by means of the SSH protocol. Furthermore, an operating system neutral solution for communication is necessary. This will be provided by the consultant on request.

## Settlement of travel expenses

As far as the client wishes a personal consultation on site, all arising costs as well as the time expenditure until the consultant is back at his home location will be charged.

This includes in particular costs for taxi, rental car, public transport, 1<sup>st</sup> class train tickets, flight tickets (business), hotel with usually 4 stars.

## Accounting method

Time spent by the executing personnel is recorded and round up to the next full half hour.

## Billing method

At the request of the customer or at the request of the provider, the working hours accrued up to that point will be invoiced.

## Availability and SLA

There is no guarantee on the availability of consultants. In addition, in rare exceptional cases, it may happen that a consultation appointment does not take place if the assigned consultant is called in for an urgent emergency and no adequate replacement is available. In such cases, there is no claim for reimbursement of any costs incurred by the client, but of course no working hours of the consultant will be charged for the appointment. Should an appointment be cancelled due to travel problems of the consultant, any expenses incurred will be passed on to the client.

The not guaranteed, but usual availability of consultants is within one week.

## Insurance and liability

In the event that the consultant makes a mistake, the provider has a financial loss insurance. Any damages beyond this or not covered by this insurance are at the sole expense of the client, who fully indemnifies the consultant and provider from all further claims.

## Service delimitation

Only consulting services are provided. This is provided by the consultant to the best of his knowledge and belief. Notwithstanding this, the client must check the consultancy in order to prevent possible errors, for example due to missing information.

Any installations carried out in this context must be licensed independently and correctly by the client. At the request of the customer if possible and against separate invoice, this can be done by the provider.

# Service profile: croit Software

## Service description

The company croit GmbH is developer of an innovative software solution of the same name for the administration of Ceph based open source software defined storage. This software is operated on a dedicated management server.

## What is the software

The software includes a container distributed using docker which is delivered together with other open source software components in addition to the developments of croit GmbH. The software offers all necessary services to equip the management server with a web based frontend. The software includes a variety of components that are managed and configured semi-automatically.

## What is the software not

The software does not perform any data management tasks. It also does not create backups of data.

## Features

The croit Ceph based Software Defined Storage Management solution is available in two versions As free Community Edition, or as paid Enterprise Subscription. The free community version contains all basic functions to run a Ceph cluster. Additional functions have to be installed by hand or purchased through an Enterprise Subscription.

In the following a list of the functions. Please note that the functionality of the software is regularly extended, improved and optimized. This list may therefore differ slightly from the actual functions of the respective software version.

Category	Feature	Feature description	Available in our free version
Installation and Updates	Automatic security updates	We insure maximum security and stability with automatic security updates	yes
	100% pure Ceph	There is 0% vendor lock-in, since we ship 100% pure open-source Ceph!	yes
	GUI based cluster deployment	Deploy your cluster in minutes with our super simple GUI	yes
	Cluster wide update management	Automated OS and (minor) Ceph updates	yes
	Automated Ceph release migration	Easy upgrade to new (major) Ceph releases, with the click of a button	yes
Administration	S3 Management	Manage access to object storage	no
	RBD Management	Manage access to block storage	yes
	Manage Pools	Easily create, edit and delete new storage pools	yes
	Manage PG	Easy placement group maintenance (recover, backfill, ...)	yes
	Manage OSD	Reliable OSD deployment and management (create, delete, start, stop, ...)	yes
	Manage MON	Reliable MON deployment and management (create, delete, start, stop, ...)	yes
	Manage MGR	Automated MGR deployment and management	yes
	Manage MDS	Reliable MDS deployment and management (create, delete, start, stop, ...)	yes
	Maintainance mode	Easy cluster maintenance and management of Ceph flags (noout, noup, ...)	yes
	Simple Hardware Management	Keep track of your storage hardware inventory	yes
	CRUSH Map Administration	GUI based management of your data distribution. No verbose editing of text files	yes
Web based shell access	Shell access to all your cluster nodes, enables you to do everything right from the GUI	yes	
Efficiency	LACP Network connections	Single and multiple network connections via LACP and arbitrary bandwidth enable high availability within your existing ethernet infrastructure	yes



	LACP Load Balancing	Highly available network connection with LACP based network loadbalancing	yes
	Static LAG	Manage static link aggregation groups	yes
	S3 Explorer	Direct management of the object store without additional software	no
	Replicated pools	Reduces the IO requirement for better performance	yes
	Erasure coded (EC) pools	Reduces space requirements and thus saves costs	no
	Hardware Independent	No vendor lock-in, commodity hardware can be used	yes
	Disk performance benchmark	Tools to benchmark disk performance, right from the GUI	yes
	Diskless Server boot via PXE	Convenience, optimized data density and reduced costs	yes
	CephFS Explorer	Direct management of the CephFS POSIX filesystem	no
Reliability and Availability	High-Availability (HA) SMB	Highly available SMB with CTDB for increased reliability and availability of data	no
	High-Availability (HA) S3	Highly available S3 with keepalived. Saves resources and costs of load balancers	no
	High-Availability (HA) NFS	Highly available NFS with keepalived for increased reliability and availability of data	no
	High-Availability (HA) iSCSI	Highly available iSCSI for reliable integration with proprietary solutions	no
	High-Availability (HA) Groups	Increased availability for mission critical usage	no
	Cluster configuration auto tuning	Optimize performance and reduce costs	no
	Automatic management node backup	Easy recovery in case of loss of the management system	no
	Export statistics to Grafana	Easy integration in existing Grafana installations	yes
Integration	100% pure restful API	Seamless integration into your existing solutions	yes
	Okta single sign on (SSO)	Central independent cloud based user management	yes
	LDAP Users & Groups	Easy integration in your existing environment	yes
	Event hook scripts	Modify and extend your cluster to your needs	yes
Monitoring and Statistics	Centralized logging	All log files in one place and protected against manipulation.	yes
	Smart disk status	SMART disk checks to detect disk failures as soon as possible and improve reliability.	yes
	Nagios Plugin	Easy integration with your existing monitoring system.	yes
	Graphite Database	Easy integration with external tools like Grafana.	yes
	Pre-Built Grafana Dashboards	Deep insights into your clusters state at a glance.	no
Protocols and APIs	S3	High-performance S3 API compatible object storage	no
	S3 over NFS	Access to modern object storage from proprietary solutions	no
	Swift via RGW	Vendor independent object storage	no
	RBD (RADOS block device)	RADOS block device, the newest and fastest way of accessing block storage	yes
	RBD export via iSCSI	Vendor independent block storage integration	no
	CephFS	Scale-out posix file system	no
	CephFS via SMB	Windows compatible scale-out file system	no
	CephFS via NFS	Vendor independent network file system	no
Security	VLAN Based network configuration	Seperate client and storage traffic and increase network security by isolation	yes
	User Management	Control access to your storage management system	yes
	Audit Log	Trackable and auditable system changes	yes
Service and Support	Basic Service & Support	Our croit/Ceph experts help free of charge for simple problems and questions	no

	24*7*365 Service & Support	Support for your operations around the clock	no
Usability and Comfort	SSH Access	Conveniently manage your keys for all cluster nodes and access any one of them without restriction.	yes
	Cross Platform	Check and manage your cluster on every device	yes
	Complete Lifecycle Management	Complete lifecycle management of all Ceph services. No shell required.	yes
	Pre-built key performance indicators	KPIs help to detect premature errors or bottlenecks.	yes

## Subscription

To get the full functionality, it is necessary to purchase a license. This is valid for one month and can be purchased in advance for longer periods such as 6, 12, 24 or 36 months. The longer the period, the higher the discount we give on the license.

You can easily and conveniently find out the exact price on our website at [croit.io/pricing](https://croit.io/pricing). It depends on the number of OSDs, i.e. hard drives used to store data. For special cases we also offer a volume based model, please contact our sales department.

## Verified performance

The solution developed by croit is generally able to manage hundreds of servers with thousands of hard drives. However, there are technical limitations due to Ceph which we would like to point out here. We recommend not to exceed these limits, as otherwise a malfunction in operation may occur. Such disturbances due to exceeding the released performance values do not give reason for claims of any kind.

Deviations from these recommended limits can be checked separately within the framework of a test and associated consultation.

## RBD (RADOS Block Storage)

Description	Value
Maximal number of RBD Images per Pool	100.000
Maximal Snapshots per RBD Image	100
Configured RBD object size	4 MB

## CephFS (Posix FileSystem)

Description	Value
Maximal file size	20 TB
Maximal number of snapshots per Cluster	100
Maximal number of files per folder	100.000
Maximal number of files per Cluster	300.000.000
Maximal number of simultaneous open files	1.000.000
Memory consumption per open file	64 KB
Minimum kernel client version	4.19
Minimum fuse client version	14.2 (Nautilus)
Metadata backing storage	fast SSD / NVMe
Multiple active MDS	experimental
Using Snapshots	experimental
Minimum used file size on HDD	64 KB per chunk/copy
Minimum used file size on SSD	16 KB per chunk/copy

## S3 (RGW)

Description	Value
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Maximal objects per Bucket	10.000.000
Maximal buckets per User	1.000
Maximal buckets per Cluster	10.000
Metadata backing storage	fast SSD / NVMe
Support for ACLs	yes
Support for Object versioning	yes
Support for multipart upload	yes
Life cycle processing policy's	100.000.000 objects in the Cluster
Multisite setup	yes
Multisite resharding support	no
Multisite shard configuration	per Zone
Multisite num shards	200.000
Minimum used file size	64 KB per chunk/copy

## End User License Agreement

The End User License Agreement (EULA) valid version supplied with the software applies.

### Availability in general

The provider does not guarantee the availability of the software installed at the customer.

### Service delimitation

The service exclusively comprises the software for installation by the customer. Service and support are separate products that can be purchased separately and individually. In some cases, the licenses for the software may include support packages. However, these are then based on the corresponding service profile.

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# Service profile: croit Software Support

## Service description

The provider takes over the technical support of the offered software solution if commissioned. This support is only available for licensed installations. Support is only offered for the latest available stable version of the software.

## Software Support

The provider assumes the elimination of software errors and provides software updates at irregular intervals, as required and at the free decision of the provider. These updates include updates to the operating system of the servers, in some cases new functions or security updates. The customer is obligated to install these updates, otherwise any claim to the extent that they are available at all shall lapse.

To this end, the customer must obtain information via suitable channels and independently plan and carry out the update. Upon request and against a separate order, the customer may commission a consulting service for the execution of such tasks.

Support is officially only provided through the ticket system via the e-mail [support@croit.io](mailto:support@croit.io). Of course, the customer can also try to contact the provider via another channel, but there is no guarantee from the provider.

## Technical support

The service is provided in 3 different categories

	Pro	Business	Enterprise
Service hours	9am - 6pm	9am - 9pm	24 * 7
Response time	within 2 business days	next business day	4 hours
Workdays	yes	yes	yes
Saturday, Sunday or public holidays	no	no	yes

All times and public holidays are always based on the Europe/Berlin timezone.

## Obligations to cooperate

The client must provide the consultant with the necessary access. The access for the execution of technical tasks must be enabled by means of the SSH protocol. Furthermore, an operating system neutral solution for communication is necessary. This will be provided by the consultant on request. At the request of the provider, the client must install any software updates.

## Accounting method

Time spent by the executing personnel is recorded and round up to the next full half hour.

## Billing method

At the request of the customer or at the request of the provider, the working hours accrued up to that point will be invoiced.

## Service delimitation

Errors within croit's own software will be solved and removed as part of the support. For all other components, the provider undertakes to do his best to solve them. However, there is no claim that croit will solve errors in any third party software or hardware components. This includes, but is not limited to, the Debian operating system, Linux kernel, Ceph open source software and any libraries involved.

## Service profile: croit Software Cloud Backup

### Service description

As long as the selected software version offers this function, it is possible to perform an automated, fully encrypted backup of the management node configuration. The user has the possibility to create a login to the offered customer panel and set the cluster to backup to this account.

### Backup Interval

Once the function is activated, a daily and automated backup of the current state of the management solution configuration is performed. In addition, a manual backup can be performed at any time within the user interface.

### Derivative time

The period in which backups are available on the servers of the provider is specified with at least 4 weeks. Usually backups are kept for years, but there is no guarantee.

### Obligations of the user

The customer is obliged to check the backup for function and content at regular intervals. In addition, he must ensure that the encryption key is carefully secured and, in particular, immediately correct any documentation if the key is changed.

### Accounting method

The use of the feature is free of charge as long as it is available in the selected version.

### Service delimitation

No warranty is offered for the recoverability of the configuration. Furthermore, the software does not create any backup of cluster data, but only of configuration settings.

# Service profile: Training

## Service description

The provider offers training services for croit and/or Ceph software defined storage which he provides through internal or, if necessary, external personnel.

## Training types and formats

croit offers two types of training, open and in-house trainings. Both, the open and in-house training, are available as classroom and remote format.

## Training service overview

	Open training (classroom)	Open training (remote)	In-house training (classroom)	In-house training (remote)
Location	organized by croit	participants office or homeoffice	provided by the customer	participants office or homeoffice
Number of participants	4 to 8	4 to 8	up to 8	up to 8
Virtual training lab (Ceph cluster)	provided by croit for each participant			
Computer/Laptop	Each participant requires a notebook/laptop that is capable of establishing a ssh connection to the croit virtual training lab. This is the responsibility of the participant or the participants company.			
Wifi/internet access	provided by croit	provided by the participant	provided by croit or the customer	provided by the participant or customer
Training material	digital and printed handout	digital handout	digital and printed handout	digital handout
Catering	provided by croit: <ul style="list-style-type: none"> <li>• soft-drinks, coffee, tea</li> <li>• snacks</li> <li>• lunch</li> </ul>	participants own responsibility	provided by the customer: <ul style="list-style-type: none"> <li>• soft-drinks, coffee, tea</li> <li>• snacks</li> <li>• lunch</li> </ul>	customers or participants own responsibility
Accommodation	Usually not included, but croit can make hotel recommendations at the event location or, after consultation with croit, offer overnight accommodation and charge in addition to the seminar price.			

## Obligations to cooperate

The customer must provide the required infrastructure or services listed in the table above (especially for in-house and remote trainings). This can be done in consultation with croit. The customer must provide names and contact information of the participants for croit to share information or tasks before the training, organizational information (locations, dates, times, links, etc.), and to prepare certificates.

## Settlement of travel expenses (only in-house classroom training)

Travel expenses incurred for the trainer's arrival and departure and accommodation at a location requested by the customer will be invoiced additionally. This includes in particular costs for taxi, rental car, public transport, 1st class train tickets, flight tickets (business), hotel with usually 4 stars.

## Accounting method

The open training is accounted on a per seat basis. The in-house training is accounted on a per training basis.

## Billing and Payment

The training will be invoiced at the latest one month before the first day of the training and is immediately payable in full.

## Cancellation by the participant or customer

### Open training

In case of cancellation of the registration the following conditions apply:

- up to 21 days before the start of the event: free of charge
- up to 14 days before the event: 25% of the participation fee charged
- up to 7 days before the event: 50% of the participation fee charged
- from 6 days before the event: 75% of the participation fee charged
- for non-appearance on the day of the event: 100% of the participation fee charged
- cancellations require the written form

If the participant is not able to attend the booked training due to illness, a new date for the same training can be arranged once after sending a medical certificate.

### **In-house training**

In case of cancellation of an in-house training the following conditions apply:

- up to 21 days before the start of the event: free of charge
- up to 14 days before the event: 25% of the training fee charged
- up to 7 days before the event: 50% of the training fee charged
- from 6 days before the event: 75% of the training fee charged
- for non-appearance on the day of the event: 100% of the training fee charged
- cancellations require the written form

### **Cancellation by croit**

We reserve the right to cancel the event no later than 7 days before the planned date of the event due to failure to reach a minimum number of participants or for important reasons for which we are not responsible (e.g. sudden illness of the trainer, if the trainer cannot be replaced, force majeure).

Participation or training fees already paid by will of course be refunded in this case.

Further liability and compensation claims are excluded, unless there is intent or gross negligence on our part. Please also take this into account when booking hotels, flights or train travel.

## Service profile: Hardware

### Service description

The provider acts as a reseller for server systems of all kinds. Especially optimized and adapted systems for ceph storage are offered. These systems are handled by either a German distributor or a supplier located near the customer.

The components specified by the customer or the configuration recommended by the consultant are compiled and offered to the customer.

The hardware selection is independent of the manufacturer. This guarantees the customer the best possible price performance.

### Procedure

After specification of the technical requirements, the supplier will promptly prepare an offer for the components. The offer is limited in time and the delivery availability depends on the components.

The delivery takes place either by forwarding agency or by delivery service.

### Obligations to cooperate

The customer is obliged to accept the hardware delivery. In addition, he shall be obliged to provide a suitable delivery point.

At the request of the Supplier, the Customer must install firmware, drivers or software updates in the event of a complaint. Otherwise, no exchange of hardware will take place.

### Billing method

Unless otherwise agreed before receipt of the order, the hardware will be invoiced before delivery. This invoice is to be paid promptly, within the specified payment period.

### Hardware replacement

Unless otherwise stated, all systems are offered with 3 years NBD (next business day) hardware replacement. The customer also has the option of being offered an extension to 5 years before ordering. A subsequent change of the warranty period is not possible.

To make use of the hardware exchange, the error must be described in detail to the provider. The provider will then have the opportunity to suggest necessary changes or updates. If all other measures fail, the hardware replacement is initiated.

### Service delimitation

Only hardware components are provided as part of this service. The assembly, licensing, installation or operation of the hardware is not part of the service provision and can be ordered by the client against separate invoice.