



PREPARED FOR:

ACOnet laaS+ Kickoff Webinar

PRESENTED BY:

Barbara Lang, barbara.lang@a1.at

29.04.2021

PRESENTATION CLASSIFICATION: RESTRICTED



CHAPTER N°1

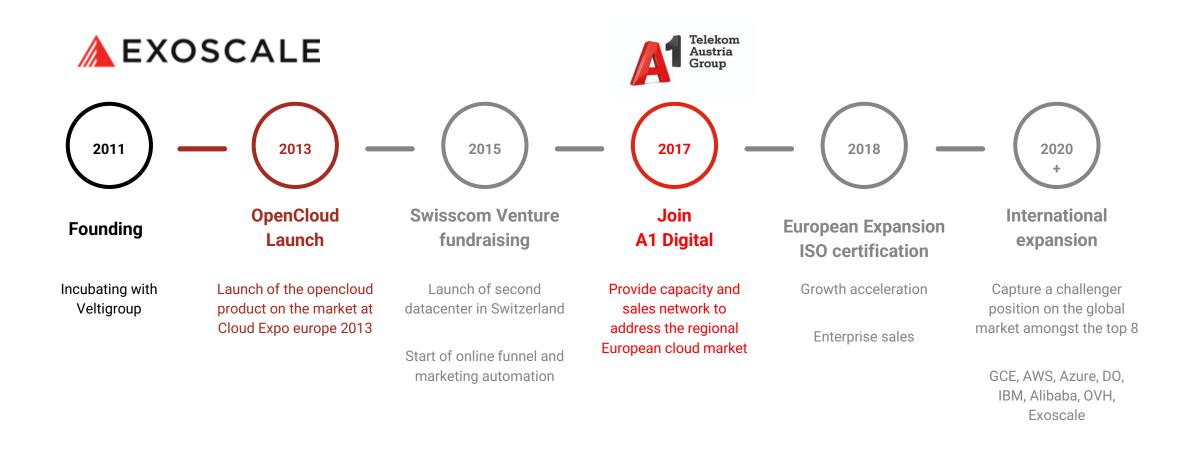
About Exoscale





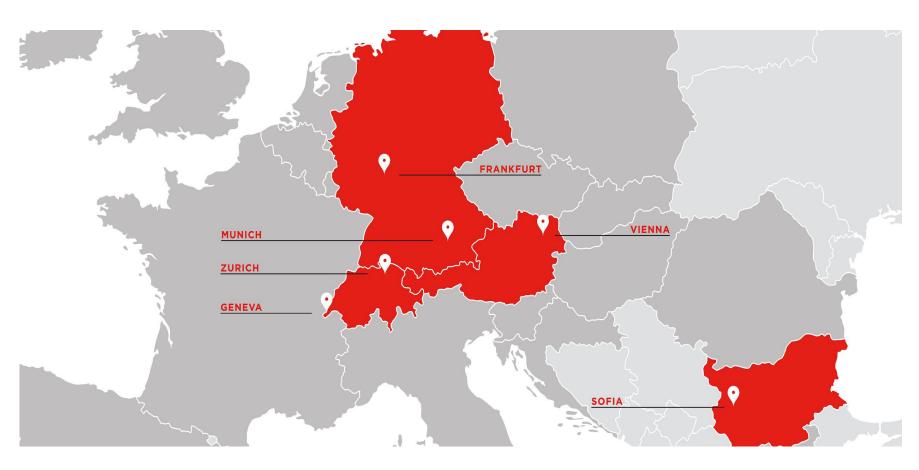


Timeline



A

Exoscale – part of A1 group



- Designated Account teams
- Direct contact for OCRE inquiries (Barbara Lang)
- Local contract & invoice
- Local support team
- Local cloud architects for presales consulting
- Test accounts and POCs through A1 Austria



CHAPTER N°2

European Cloud Provider





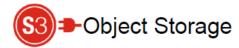


PRODUCTS: Infrastructure as a Service (laaS+)



Compute

- High performance SSD cloud servers
- Dual 25 Gbps secure private networking
- Self-sustained zones for resilient deployments

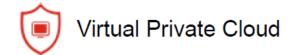


- ✓ Highly available multi-redundancy object storage
- Low latency, high bandwidth public or private secure HTTPS access
- S3 compatible API for simple tooling integration
- CDN, based on Akamai network



GPU Servers

- From 1 up to 4 Tesla P100 or V100 NVIDIA GPU cards
- Direct passthrough access for maximum performance
- ✓ All the advantages of a regular Compute server



- Cherry-pick Private networking, Dedicated hypervisors and Private Connect
- Available with low committment on both shared and dedicated hypervisors



- Anycast DNS network for low latency resolution
- Geo-replicated redundancy for optimal uptime



- Hosted status dashboards for devops teams
- Transparency for service incidents and scheduled maintenances





Why Exoscale?











Compliant GDPR, PCI-DSS, FINMA, & more

% Affordable
30-40% lower costs than big hyperscalers

Fast Startup Times
New Virtual Machines in under 30 seconds













Safe and standard compliant



Cloud Control Matrix maps to the following selected frameworks:

- COBIT
- HIPAA / HITECH Act
- ISO/IEC 27001-2005
- NISTSP800-53
- FedRAMP
- PCI DSSv2.0
- BITS Shared Assessments
- GAPP







ISO 27001

Managing information security.

ISO 27018

Protecting personal data.

CSA Star

Securing cloud computing environments.



We adopt the WISE framework risk assessment methodology SCI version 2, in order to offer continuous and trustworthy services for the Research and -Infrastructures communities.



We are compliant to Swiss FINMA requirements and regulations, allowing you to securely deploy your financial products and services on us.



We strictly enforce GDPR regulations and best practices to all our clients, no matter their geographical provenance..



Under the Eurocloud Austria umbrella, we comply with the Austrian Cloud Staraudit program to provide our Austrian customers with a fully trusted and reliable cloud plattform.





Data Privacy: Facts about Legal Framework

EU GDPR

General Data Protection Regulation **US CLOUD Act**

Clarifying Lawful Overseas
Use of Data Act

 Requirement:
 Protect Personal Data
 Hand over Personal Data to the US Government

 Non-Compliance:
 Up to 20.000.000 € or 4% of global turnover
 Fines or Prison

 US Cloud Providers:
 Must Be Compliant
 Affected

 Exoscale:
 Must Be Compliant
 Not Affected



Simple Pricing



- One simple hourly price, prorated to the second.
- Industry leading price performance ratio.
- True pay per use.



- Cluster friendly traffic pricing.
- Free internal traffic between all your instances.
- Free in-bound and 1 TB/month free out-bound per instance.

| | RAM | CPU Cores | Local Storage | Price (EUR) |
|-------------|--------|-----------|-------------------------|---|
| MICRO | 512 MB | 1 Cores | min 10 GB max 200 GB | 0.00631 / Hour 4.54 / Month |
| TINY | 1 GB | 1 Cores | min 10 GB max 400 GB | 0.01263 / Hour 9.09 / Month |
| SMALL | 2 GB | 2 Cores | min 10 GB max 400 GB | 0.02020 / Hour 14.55 / Month |
| MEDIUM | 4 GB | 2 Cores | min 10 GB max 400 GB | 0.04040 / Hour 29.09 / Month |
| LARGE | 8 GB | 4 Cores | min 10 GB max 400 GB | 0.08082 / Hour 58.19 / Month |
| EXTRA-LARGE | 16 GB | 4 Cores | min 10 GB max 800 GB | 0.16163 / Hour 116.38 / Month |
| HUGE | 32 GB | 8 Cores | min 10 GB max 800 GB | 0.32327 / Hour 232.75 / Month |
| MEGA | 64 GB | 12 Cores | min 10 GB max 800 GB | 0.64652 / Hour 465.50 / Month |
| TITAN | 128 GB | 16 Cores | min 10 GB max 1.6 TB | 1.29304 / Hour 930.99 / Month |
| JUMBO | 225 GB | 24 Cores | min 10 GB max 1.6 TB | 1.93957 / Hour 1,398.49 / Month |



Local SSD storage is billed 0.01818 EUR / GB month.



Object storage is billed 0.01800 EUR / GB month.



A free tier of up to 1.42 GB / hr is granted per-Instance (equivalent to 1 TB / mo per-Instance). Outbound traffic to Internet is billed 0.01818 EUR / GB for the part exceding the free tier. Inbound and internal traffic is always free.





Marketplace – Extend with 3rd parties





























A

Tools and Integrations Support









































egoscale

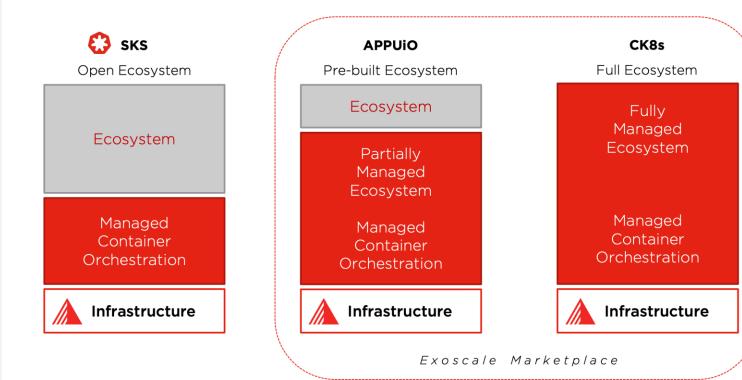




Managed Services: Kubernetes Strategy

- We at Exoscale provide as of today three options for your managed Kubernetes requirements.
- Exoscale SKS (New)
- VSHN APPUiO
- Elastisys CK8s

https://www.exoscale.com/syslog/introducing-scalable-kubernetes-service/



CHAPTER N°3

Focus on our customers and partners







Customers references













- "Hybrid cloud initiative for science across Europe"
- Exoscale contributed 10,000 CPU core
- 1.7 million scientists
- Virtual environment for storing, managing, analysing and reusing research data



Hosting of Parity QC compiler



 Blockchain as a Service on Exoscale





 Machine Learning projects on Exoscale



CHAPTER N°3

Service offering in detail





Cloud Server







Scalable, On-demand Cloud Servers



Instances for any need

High-performance KVM powered virtual machines for any workload. Select from our pre-defined instance sizes to configure your cloud server's CPU cores and memory. From 1 core and 512MB up to 24 cores and 225GB memory.



Linux and Windows support

Select from Ubuntu, Debian, CentOS, Atomic or Container Linux, Windows or even OpenBSD. Easily run your cloud server on the operating system of your choice.



100% local SSD storage

All our instances are powered by enterprise-grade local SSD RAID10 storage for insane I/O performance and ultra low latency. And if you run our of space you can easily scale you storage any time.



Anti-affinity groups

Use <u>anti-affinity groups</u> to launch virtual machines on different physical hypvervisors ensuring high availability.



Virtual machine snapshots

Take a snapshot of your cloud server to backup your data and configuration. Easily restore your instance to any snapshot with the click of a button. You can also convert a snapshot to a virtual machine template.



Custom Templates

Upload your custom configured template for your own usage. Quickly create new Instances customized to fit your needs, without having to configure them out from scratch.



Cluster friendly traffic

Inbound traffic is 100% free. And if you run a cluster, all traffic between your nodes is free too and your loadbalancers get 1 TB of outbound traffic per node in the cluster.



Live migrations

Our live migration feature makes sure that we can always keep the hypervisors upto-date, improving performance and security without requiring reboots of your VMs



Builtin-in IAM

Granular Identity and Access Management gives you full control on what API keys can or cannot do.



Instance Pools

Provision groups of identical Compute instances automatically, for High Availability and improved Elasticity



GPU Cloud Server







Optimized for machine learning, HPC, and Data Visualization



From 1 to 4 GPUs

Our GPU instance profiles let you choose from 1 GPU / 12 CPUs / 56 GB RAM to 4 GPUs / 48 CPUs / 225 GB RAM. Each card is provided direct with no resource sharing for bare metal performance.



Latest generation GPU cards

Choose from NVIDIA's cutting edge Tesla V100 with 5120 Cuda cores as well as 640 Tensor cores or robust Tesla P100 with 3584 Cuda cores and 16 GB RAM for each card.



Large SSD storage

GPU instances come with large SSD storage up to 1.6 TB to accommodate any kind of data.



Available as dedicated

GPU instances are available on shared and dedicated hypervisors for improved isolation.



- From 1 up to 4 NVIDIA Tesla P100 per GPU instance
- 3584 Cuda cores per card
- 16 GB of dedicated RAM per card
- > Up to 48 CPUs per GPU instance
- > Up to 1.6 TB of SSD local storage



- From 1 up to 4 NVIDIA Tesla V100 per GPU2 instance
- 5,120 Cuda cores per card
- > 640 dedicated Tensor Cores per card
- 16 GB of dedicated RAM per card
- Up to 48 CPUs per GPU2 instance
- > Up to 1.6 TB of SSD local storage



Object Storage







An S3 Compatible Object Storage to store your assets, files, and metadata at a competitive price



S3 compatible API

Easily integrate our Object Storage solution in your apps using S3 compatible libraries. Or connect with a GUI or CLI tool. Simply set a new endpoint and credentials.



H/A Object Storage replication

We replicate data stored in our Object Storage on three different high-available nodes, in order to keep your important data safe. Our Object Storage SLA is covered by our general 99.95% availability SLA.



Direct HTTP/s access

Serve files directly from low latency, high bandwidth object storage via HTTP or HTTPS and keep your own servers free to do more important things.



ACL and CORS support

Set per bucket policies to manage permissions and control access. Or configure cross origin headers to use object storage from browser based applications and websites.



Metadata support

Store additional information about your objects in key-value pairs and easily access this metadata through HTTP headers in every Object Storage response.



Keep your data in your country

All data and replicas of our Object Storage service are stored in the country of your chosen zone, and the offering is available in every zone across Europe.



Content Delivery Network







Enable CDN on your SOS bucket



World-class Delivery Availability

Align your brand with service predictability amidst increasing consumer expectations, our CDN will serve your content 100% of the time



Improve download completion rates

Through better, reliable, and secure performance



Modern Protocol Support

Ability to leverage HTTP/2 to provide better efficiency, performance and security as well as IPv6 for traffic routing across the Internet



QUIC Support

Address the fundamental challenges of delivery over the Internet to create a more engaging experience for all end users



Leveraging the Akamai Intelligent Platform

Instantly serve your assets from the most pervasive, highly-distributed CDN with approximately 300,000 servers in 136 countries and nearly 1,600 networks around the world



Powered by Ducksify

We have partnered with the CDN experts from Ducksify, member of the Akamai NetAlliance Partner network to provide you with a simple and integrated service to Akamai Edge Delivery Network





Virtual Private Cloud







A Virtual Private Cloud to Scale your On-premises Infrastructure to a Hybrid Cloud



Virtual private cloud

Optionally combine private networking, private connect and dedicated hypervisors to build your own virtual private cloud.



Teams friendly

Contribute with your coworkers on your vpc environments. Invite others to join as Owners, Tech or Admin roles.



2-factor authentication

Enforce 2 factor authentication to access your virtual private cloud portal with Exoscale.



Low commitment

Private networks are available on shared and dedicated hypervisors for improved isolation. Grow your vpc gradually.



Aggregated billing

Manage multiple organizations from the same account and receive a consolidated bill. Great for large enterprises with multiple departments.



Direct connectivity

Select from a variety of options to configure direct network connectivity to Exoscale with Private Connect, Equinix Direct Connect or VPN options.



Domaine Name Server







Simple, Low-latency DNS Zone Hosting



GEO replication

All your zones are replicated to over 40 servers worldwide. This makes sure your DNS is always available from anywhere in the world and queries can be anycast routed.



Anycast DNS

Speed up your sites with faster DNS resolution. Anycast DNS answers your user's DNS queries from the geographical closest server. Shaving off valuable milliseconds from each request.



ALIAS support

ALIAS records provide CNAME like behaviour for root or apex domains. Giving you the flexibility of a CNAME record but behaving like a A record for your users.



Easy redirects

Use URL records to redirect users without having to configure your web server. This can be useful to redirect the www to the non-www version of your site.



All common records

All common DNS records are supported. You can easily setup MX, TXT, SRV records and many more. Full control over your DNS is key for any cloud native infrastructure.

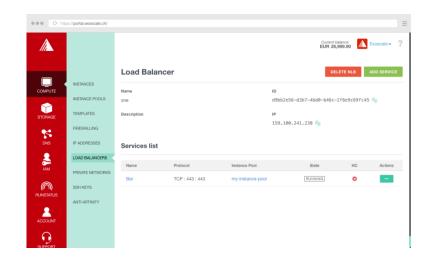


Powered by Dnsimple

We have partnered with the DNS experts from Dnsimple to provide you a simple but powerful DNS service fully integrated into our interface.



Networking



Networking for your instances







Secure private networks for your instances with an optional DHCP server. Additional IPs for your instances, with optional health-checks support.



An easy way to configure L2/L3 firewalling for your instances.



One-Click IPv6 activation for your instances.



Scalable Kubernetes Service - by Exoscale







Scalable, On-demand Kubernetes Clusters



Access to all compute instance types

Your cluster, your terms. Size the NodePools as needed, using all instance types available. Attach one NodePool with Memory-Optimized instances and another one with CPU-Optimized ones.



Full cluster lifecycle management

Kubernetes is a fast changing platform and versions rollout fast. SKS has builtin commands to upgrade your control plane, seamlessly minimizing downtimes and errors.



Integration with NLB and Instance pools

Manage ingress traffic with Exoscale Network Load Balancer support directly integrated in SKS management. Scale pools from Kubernetes using instance pools.



High-Availability control plane

With the Pro SKS plan, benefit from a resilient HA Kubernetes control plane so your workloads are always up.



All zones

Deploy your cluster where you need to, in the region that suits your latency, privacy or redundancy strategy. Limited availability with a full rollout during Q1 2021.



Simple and transparent pricing

With a free Starter version and an affordable Pro plan, SKS provides straighforward pricing. Nodes are charged their usual rate with no extra cluster management fee.



Customs templates

 Exoscale provides various Compute Instance templates to choose from, however it is very likely that you might want to customize your systems to fit your needs.

- You can create your own customized templates and deploy Instances ready to go with minimal start-up configuration.
- You can also use a cloud-init configuration via an Instance's user data, or use a configuration management tool such as Puppet or Ansible.





















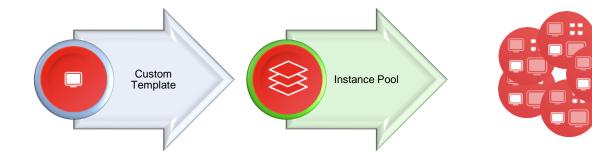
 Upload your custom configured template for your own usage. Quickly create new Instances customized to fit your needs, without having to configure them out from scratch.

Instances Pools

You can define a number of instances in the pool, and the service keeps the required number of instances up and running for you in order to achieve:

- High availability: using an Instance Pool ensures that the target quantity of Compute instances is running.
- Elasticity: Instance Pools can be scaled up and down dynamically, allowing the number of instances to match actual load and be more cost-efficient.

 Instance Pools is an Exoscale service allowing users to provision groups of identical Compute instances automatically.



- Create your new custom template, or convert a snapshot in Template
- Use your custom Template and the instance pool feature to provision groups of compute instances
- Change multiplicity on demand: x5 → x50

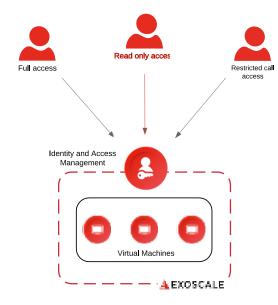


Identity and Access Management

- You have one root account to access your whole services.
- IAM gives you the ability to set up user accounts with granular permissions to your services.



 Manage API Keys with granular access, allowing only specific services, to maintain isolation and optimal security



Instance backup

- Using Instance backup and Custom Template allow you to
 - Store your snapshot on Simple Object Storage
 - Create / restore your instance on a new organisation
- The custom template is not linked to your virtual machine. If your delete your instance you can keep your Custom Template

Instance backup and restore

Take a snapshot of your cloud server to backup your data and configuration. Easily restore your instance from a snapshot in one click.



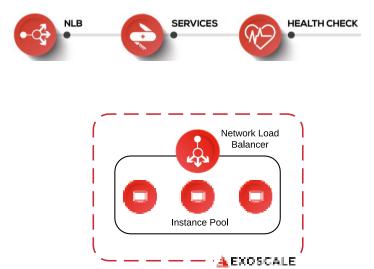
- Take a snapshot of your virtual machine
- Export your snapshot to SOS
- Convert a snapshot in a Custom Template



Network Load Balancer

- Network Load Balancer features:
- Dispatches incoming traffic on instance pool
- Health check instance pool members
- LB strategies: Round robin, source hash
- Preserved source IP

 The Network Load Balancer is a core Exoscale product allowing users to provision a scalable and highly available transport-level (TCP/UDP) load balancer that can be used to distribute incoming traffic to compute instances.





Scalable Kubernetes Service - by Exoscale

- A privacy-minded public cloud to host from simple applications to complex architectures.
- Deploy a production ready cluster in 90 seconds and manage it with a simple web portal, CLI, API or your choice of tools like Terraform.

https://www.exoscale.com/sks/

| Ехо | scale SKS | STARTER | PRO |
|-------------------|-------------------|---|---|
| | Usage | for K8s in the development pipeline and proof of concepts | for all workloads that need flexibility and full protection |
| C ontrol Plane | Features | Portal API CLI Terraform | Portal API CLI Terraform |
| | High Availability | no | yes |
| | Backup of etcd | no | Min. Daily |
| | SLA | no | 99.95% |
| | Price | Free | 0.05 € / hour |
| W orker Nodes | Instance Types | All | All |
| | Price | No Overcharge | No Overcharge |



CHAPTER N°5

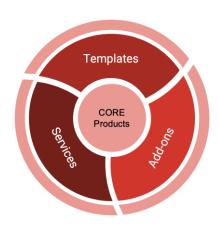
Marketplace





Market Place

- Scale up your application
- Access a curated collection of solution templates, services and components to boost your productivity and strengthen your application development.



https://www.exoscale.com/marketplace/



Check Point CloudGuard IaaS R80.20 - BYOL

Editor: Check Point Maintainer: A1 Digital Version R80.20

cisco

Cisco Adaptive Security Virtual Appliance 9.10.1 (ASAv) - BYOL

Editor: Cisco Maintainer: A1 Digital Version ASAv 9.10.1



F5 BIG-IP™ 14.1.2.2 Virtual Appliances - BYOL

Editor: F5 Maintainer: A1 Digital Version Big-IP 14.1.2.2



F5 BIG-IQ™ Virtual Appliances - BYOL

Editor: F5 Maintainer: A1 Digital Version BIG-IQ 7.0.0

F#RTIDET

FortiGate™ Virtual Appliances 6.2.0 - BYOL

Editor: Fortinet
Maintainer: A1 Digital
Version FortiGate 6.2.0



VyOS 1.2 - Rolling

Editor: VyOS Maintainer: A1 Digital Version 1.2 Rolling

Suse Enterprise



https://www.exoscale.com/marketplace/listing/suse-linux-enterprise-server/

- Simplifies multimodal IT environment by bridging traditional and software-defined infrastructures
- Make traditional IT infrastructure more efficient with a Modular+ architecture
- Accelerate the transition from developer setups to production deployments



SUSE Linux Enterprise Server

Improve uptime, increase efficiency, and accelerate innovation with best-of-breed performance and reduced risk.



IPFire Open Source Firewall - (PAYG)



https://www.exoscale.com/marketplace/listing/lwl-ipfire-open-source-firewall-payg/

• IPFire is a hardened, versatile, state-of-the-art Open Source firewall based on Linux. Its ease of use, high performance in any scenario and extensibility make it usable for everyone.



Security

Security is the highest priority in IPFire. It is hardened to protect itself from attacks from the Internet and prevents attacks on your network.



Firewall

Its powerful firewall engine and Intrusion Prevention System protects your network against attacks from the Internet and Denial-of-Service attacks.



Open Source

IPFire is free software and developed by an open community and trusted by hundreds of thousands of users from all around the world.



34

VMware SD-WAN - by VeloCloud Virtual Edge (BYOL)



https://www.exoscale.com/marketplace/listing/vmware-sd-wan-by-velocloud-virtualedge-byol/

- Software-Defined Wide Area Networking (SD-WAN) is a transformational approach to simplify branch office networking and assure optimal application performance.
- Unlike traditional WANs, SD-WAN delivers increased network agility and cost reduction. Software-Defined WAN has its roots in Software-Defined Networking (SDN), the underlying principle of which is to abstract the network hardware and transport characteristics from the applications that use the network.



Application Quality >

Ensures the performance and availability of missioncritical applications from the office, home, or anywhere.



Operational Simplicity ->

Streamlines operations and reduces support complexities by unifying networking and security.



Intrinsic Security →

Provides comprehensive security by unifying network, endpoint, identity, and cloud security control points.



Cloud-First →

Designed with a cloud-first approach for operational efficiency and future readiness that simplifies connectivity to cloud and SaaSbased applications.



35

QuTScloud, Cloud NAS - by QNAP



https://www.exoscale.com/marketplace/listing/qnap-qutscloud/

- For organizations which have stored most of their data on the cloud but lack a good management system to capitalize their digital assets, QuTScloud, as a cloud NAS can provide an excellent data management solution in assisting organizations in optimizing their cloud data and maximizing the value of the cloud.
- Main features of QuTScloud:
 - Storage expansion: Use HybridMount to mount object storage to QuTScloud and expand storage
 - Data sharing: Supports standard NAS data sharing protocols like SMB/CIFS, NFS, AFP and iSCSI in the cloud
 - Efficient data backup: QNAP's QuDedup technology empowers backup tasks with source-side deduplication
 - Data security: QNAP's proprietary VPN protocol, QBelt, helps to build a secure connection between your LAN and QuTScloud

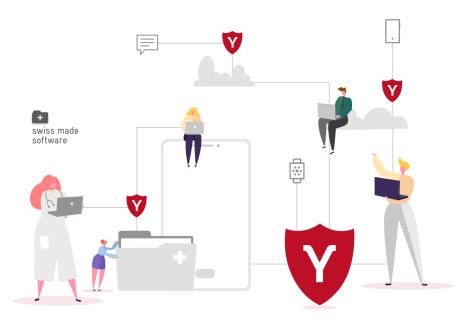


Open Pryv.io - personal data management



https://www.exoscale.com/marketplace/listing/open-pryv-io/

- Open Pryv.io delivers a free, full production, easy-to-install open-source solution for the collection and management of personal data.
- It comes with must-have consent management tools to help you keep compliant with existing and forthcoming regulations.





Managed Services: Snapshooter

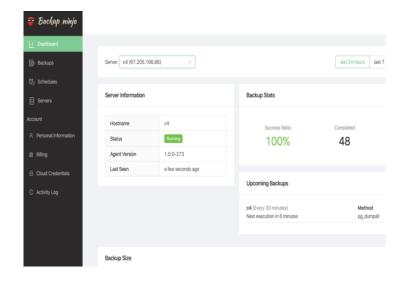


https://www.exoscale.com/marketplace/listing/snapshooter-scheduled-backup/

- SnapShooter is a backup service that specializes in cloud backups. Supporting provider based snapshot backups as well as on server, database, file system and application backup support.
- Frequent Backups: Schedule backups with granularity from every hour to every day, in your timezone.
- Archive Backup: Advanced backup rotation retention policies allows you to keep as many daily, weekly and monthly backups as you want.
- Fast Recovery: Get back online fast if the worst should happens.
 Restoring whole server snapshots is easy and we can get you running in no time.
- Secure: Your data never leaves your control, you decide where the data is stored.



Managed Services: Backup Ninja - Database



https://www.exoscale.com/marketplace/listing/backup-ninja-by-severalnines/

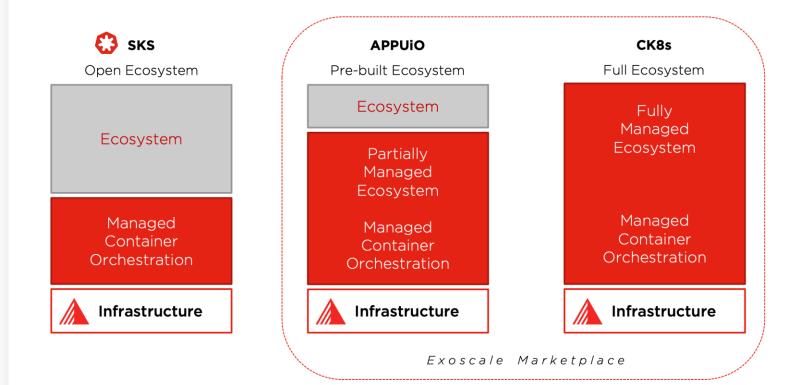
- Backup Ninja is a simple, secure, and cost-effective SaaS service you can use to backup the world's most popular open source databases; locally or in the cloud. It easily connects to your database server through the "bartender" agent, allowing the service to manage the storage of fully-encrypted backups on the cloud storage provider of your choosing.
- Supported DB: MySQL, PostgreSQL, mongoDB, MariaDB, Timescale, Percona,



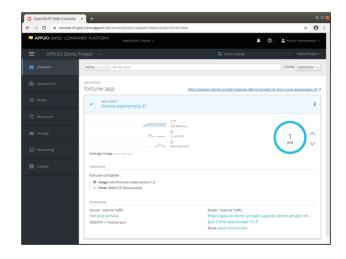
Managed Services: Kubernetes Strategy

- We at Exoscale provide as of today three options for your managed Kubernetes requirements.
- Exoscale SKS (New)
- VSHN APPUiO
- Elastisys CK8s

https://www.exoscale.com/syslog/introducing-scalable-kubernetes-service/



APPUIO OpenShift Container Platform - by VSHN



https://www.exoscale.com/marketplace/listing/appuio-container-platform/

 Leading OpenShift Container Platform when it comes to design, development and operation of applications. Based on reliable Open Source concepts such as Docker and Kubernetes

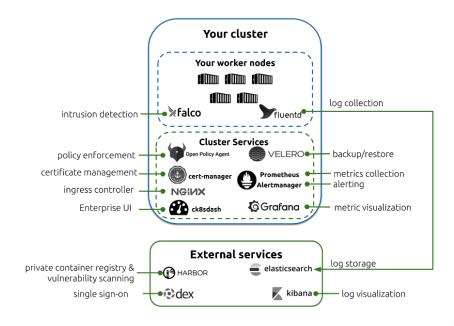
APPUIO:

- is the platform for the containerization of applications
- improves the cooperation between software developers and business organization (DevOps)
- is OpenShift-as-a-Service
- increases speed through shorter lifecycles, automation & selfservice
- allows you to concentrate fully on the business the application



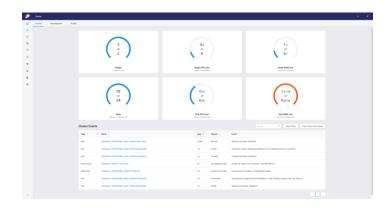


Compliant Kubernetes - by Elastisys



https://www.exoscale.com/marketplace/listing/compliant-kubernetes-by-elastisys/

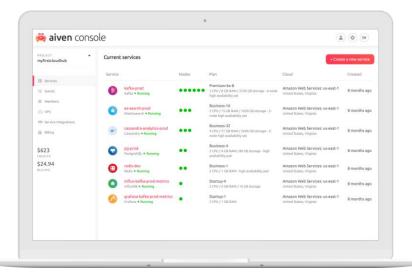
- Elastisys Compliant Kubernetes (CK8s) is a container platform built for strong security and full lifecycle compliance with ISO-27001, GDPR and PCI-DSS.
- Compliant Kubernetes is a proven, stable and a cost-efficient Kubernetes platform that is managed by <u>Elastisys</u> and fully built on cloud-native open-source components.







Coming Soon: Database as a Service - by aiven





 Aiven enables you to accelerate application innovation through a modern, fully-managed open source data infrastructure immediately deployable on Exoscale



Barbara Lang

- +43 664 662 0352
- Barbara.lang@a1.at
- Exoscale@a1.at

Thank you!

