



Trusted Cloud for OCRE Service Catalogue

www.100percentit.com

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Introduction

100 Percent IT is a UK ISP founded in 2000. We provide cloud platforms on both VMware and OpenStack to offer a complete solution to our Government and Academic customers.

100 Percent IT has more than a decade of experience of running and managing public clouds. This expertise has been used to develop a highly reliable system – so much that it has not had any unscheduled downtime in the past five years.

We have invested a significant amount of time and money customising and improving the Open Source code in the OpenStack suite including publishing some of these changes to the upstream repositories to create a fully managed, ultra-reliable, self-healing cloud platform “Public Cloud” which combines the flexibility and cost-savings of a public cloud with the security, privacy and performance of a private cloud.

Overview of the Service

All 100 Percent IaaS services are provided as elastic servers with guaranteed resources and persistent storage. They are provisioned automatically on an ultra-reliable and resilient network based in UK data centres. Backup and Disaster Recovery services can be provisioned in geographically diverse datacentres if required. All data remains in the UK at all times.

All Cloud Servers have:

- ✓ Automatic Physical Compute Host Failover
- ✓ Persistent Storage
- ✓ All data stored with triple redundancy duplicated across multiple storage arrays
- ✓ All data stored in UK only Tier 3 data centres accredited to ISO27001
- ✓ 100% Service Level Agreement with 100x Service Credits
- ✓ Software Defined Networking
- ✓ Customisable firewall protection
- ✓ 1 Gbps Network Speed

Our portal allows you to:

- ✓ Provision servers and have them live in just a few clicks
- ✓ View all your servers and see Key Performance Indicators at a glance via your personal dashboard
- ✓ See real time and historic server performance statistics
- ✓ Easily upgrade or downgrade your server’s resources with immediate effect
- ✓ View your account and payment history
- ✓ Order new servers
- ✓ Generate automatic alerts sent to your email when your resources near capacity

This service is built on OpenStack and hosted in our secure, resilient UK-based infrastructure with 100% up-time SLA. This flexible, scalable, self-healing and self-managing cloud is designed with users firmly in mind. It is easy to use and administer reducing administration overheads and providing excellent value for the IT budget.

This storage is not just reliable but very fast with guaranteed levels of IOPS. The basic storage comprises spinning disks and enhanced storage is tiered with SSDs to provide rapid access to mission critical data.

100 Percent IT follows ISO27001 standards so we understand the importance of keeping your data secure. Our network has been designed by engineers not accountants with no expense spared when it comes to provisioning the most reliable network possible.

Trusted Cloud

Against a background of increased threats to cybersecurity, and continually strengthening legislation concerning data security in the EU, IT security has become a major topic for many organisations. One small slip in security can result in significant damages and loss of reputation. Many high profile examples of hacking have hit the news media over the last 2 years.

In response to these threats, 100 Percent IT has developed a new 'Trusted Cloud' security technology to significantly improve the security of virtual and physical servers within a datacentre. Co-developed with the University of Oxford, our 'Trusted Cloud' platform provides secure virtual servers and storage utilising 100 Percent IT's patent-pending technology to detect intrusions into the platform and take appropriate action.

The benefits of 100 Percent IT's 'Trusted Cloud' technology are:

1. **Our technology is virtually impervious to hacking.** Our intrusion detection software makes use of hardware encryption modules, built into most commercially-available servers, to prevent any unauthorised software from running on the servers.
2. **Secure your servers from human errors and security lapses.** The technology uses a distributed verification architecture which can be administered by multiple independent people. This eliminates any single point of human failure, securing the service not only from external attacks, but also from accidental security lapses and malicious intent your own employees.
3. **Verify the integrity of your servers independently of the cloud provider.** The technology allows a company to independently verify that their servers are secure, not only from external attacks, but also from security lapses or malicious intent from the cloud service provider.

Trusted Cloud from 100 Percent IT is an affordable, reliable and easy way to provision and manage cloud servers. 'Trusted Cloud' technology can be provisioned on any Linux-based servers, and our portal allows users to provision their servers in just a few clicks and have them live almost instantly.

Trusted Cloud has been designed to be ultra-reliable and user friendly right from the start. It is truly elastic and you can increase and decrease resources in just a few clicks. Your Cloud servers all run on an ultra-reliable network solely in UK based data centres. Each instance runs on a compute host and automatically fails over to run on another compute host in the unlikely event of a problem with the first. Data is persistently striped across multiple storage arrays and even the very rare event of a simultaneous failure of two arrays it would not result in data loss.

If you would like more information on our Trusted Cloud, please contact us and we can provide you with more information on the service and the technology that under-pins it.

Available Services

The following is a list of products and services available on 100 Percent IT's IaaS platform:

Compute Resources

Compute servers can be provisioned with any number of virtual CPUs and any required quantity of RAM up to the limit specified in your quota. Available resources are:

- vCPU
- RAM
- Standard performance disk (up to 650 IOPS)
- NVMe Flash disk (up to 10,000 IOPS)
- IPv4 public IP address
- GPU resource

Networking

- Virtual Routers
- Virtual Firewalls
- Load Balancers
- Advanced Software Defined Networking
- DDOS protection

Operating System

- Windows Server 2012 R2 or 2016
- Ubuntu or CentOS Linux

Trusted Cloud

All Linux servers can be configured with 'Trusted Cloud' patented security technology to protect valuable data. Any servers provisioned with this technology will be linked to a hosted verification platform to provide trust verification services.

Microsoft Software

100 Percent IT is a Microsoft SPLA partner and can provide any Microsoft software as required, including the following standard products:

- Exchange Standard Mail Box per user
- Windows Remote Desktop per user
- Office Standard per user
- Office Professional Plus per user
- SQL Server Standard per user
- SQL Server
 - SQL Web licenses
 - SQL Standard licenses
 - SQL Enterprise licenses

Antivirus / Antispam / Firewall

- Sophos Antivirus Server Endpoint Security
- Sophos PureMessage for Exchange

Provisioning Services

Virtual machines are ordered and provisioned via the secure portal. The server is immediately configured using the image selected during set up. Most servers are live and ready for you to log into in less than 2 minutes using the username and password or SSH key supplied during setup.

During the provisioning process, we have a range of images in the portal to choose from. If you would prefer to supply your own, we can arrange this manually.

While the portal allows you to specify, provision and install your server (instance) automatically, you can always call our UK Engineering team at any point and we'll be happy to discuss your requirements or help in any way we can.

Support

In the unlikely event that you do need support on the system, users can call the UK based engineering team during office hours. Out of hours support via a telephone helpline is available for an additional monthly fee.

100 Percent IT is responsible for the infrastructure (hardware and management software) that your Public Cloud server runs on and the portal that you use to manage your servers. You are responsible for the operating system and all software running on the server. We can provide support with other aspects of your server. Please see the SIFA rate card for details of support charges.

Availability:

Public Cloud Servers are available 24 hours a day subject to scheduled maintenance. Failure of an instance resulting from failure of a compute host will usually be automatically fixed as the instance will be brought up on a new host. Persistent storage as standard means that the instance will act as though it was a physical machine that had lost power and then been turned back on.

Failure of one or two storage arrays should not be detectible from the instances. The highly unlikely event of failure of three arrays will require restoration from the DR site.

Back up and Disaster Recovery

Public Cloud servers are run on an ultra-reliable redundant network. The instances automatically failover between compute hosts in the event of a problem. Data is stored with triple redundancy across multiple storage arrays.

Additional one-off snapshots can be taken by the customer and these are kept indefinitely subject to sufficient storage space being available on the customer's account.

Definitions:

Elastic / Burstable resources

Public Cloud is an elastic service configurable by users through the portal. CPU, Disk space and RAM can all be configured independently for each server. CPU and RAM can be increased or decreased at any point from the portal. The boot disk remains constant for any instance and additional volumes can easily be specified, mounted and un-mounted at any time from the portal.

Open Standards

100 Percent IT uses standard OpenStack and VMware software for virtualisation and as such supports the upload and download of QEMU and VMDK disk images. 100 Percent IT supports other open standards such as Microsoft office and PDFs.

Open Source software

100 Percent IT both uses and supplies Public Cloud servers running the Linux operating system. Public Cloud is based on VMware and on the OpenStack platform with the KVM hypervisor.

Compatibility

100 Percent IT's cloud storage is based on Ceph which provides compatibility with Amazon S3 and OpenStack Swift APIs. 100 Percent IT can provide an OCCl interface for users that require this.

Guaranteed and Non-Guaranteed Resources

Memory and CPU are contended at a maximum of 1.5x i.e. each instance is guaranteed 66% of the ordered capacity. Our engineers have specified compute servers that are significantly larger than standard (e.g. they

have Intel Xeon 8 Core CPUs as standard) as the increased resources mean that the probability of nonguaranteed resources not being available when required is greatly reduced.

Persistence of Storage

All instances have persistent storage as standard. Instances can be rebooted and migrated between compute hosts (live-migration or to recover from a host failure) without any loss of data.

Hypervisor

Public Cloud uses the Linux KVM Hypervisor. VMware is also available for manually provisioned Cloud Servers.

API interface

The OpenStack REST based API is available via a TLS secured connection. This API is compatible with commonly available orchestration and automation tools such as Ansible, Chef, SaltStack, Puppet and Terraform. 100 Percent IT can provide an OCCL interface for users that require this.

Virtual Machine Images

We offer Windows Server 2012 R2 in Web, Standard and Enterprise. We also offer CentOS Linux and Ubuntu. If you would prefer to supply your own image, we can arrange this manually.

Service Management

An SSL protected web front end is used to manage virtual servers. This allows the customer to create a new virtual machine, reboot their virtual machine, take snapshots, view usage statistics and manage it from its console if they cannot get to its network interface.

Maintenance

Scheduled maintenance windows will be published at least one week in advance. The distributed nature of the Public Cloud means that maintenance is rarely service affecting. Maintenance notifications will be sent via the email address specified during the sign up process. Emergency maintenance may be carried out with little or no notice if it is required. All reasonable efforts will be made to carry out such maintenance with as little disruption as possible.

Training

The customer is responsible for ensuring that all people that access their Public Cloud server are suitably trained. 100 Percent IT is not responsible for any training in operating system management etc. The portal is very self-explanatory but video guides on how to provision and manage servers will be available shortly.

In addition extensive online resources are available for OpenStack including:

<https://docs.openstack.org/draft/training-guides/>



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