Cloud Native Infrastructure

Powered by OpenStack®, UKCloud's Cloud Native Infrastructure provides a full suite of modern, highly scalable and flexible IaaS services that address the needs of DevOps and WebOps communities. Using the ease and openness that OpenStack provides, Digital by Default services and solutions can be delivered on an assured hyperscale cloud platform.

Cloud Native Infrastructure from UKCloud is engineered specifically for organisations embracing digital transformation and delivering true cloud-native applications; facilitating the creation of elastic infrastructure as code which can be built once and run anywhere at any time, to take full advantage of the benefits of cloud.

Our Cloud Native Infrastructure service perfectly complements our Enterprise Compute Cloud service, by extending our proven, highly resilient cloud solutions to offer a platform that meets the requirements of digital, cloud-native applications, yet provides all the security, assurance and connectivity benefits synonymous with UKCloud.

Information assurance and connectivity

The UKCloud assured cloud platform is designed and optimised to meet the unique information assurance needs of UK public sector organisations.

- Deploy on an established, trusted Assured or Elevated OFFICIAL cloud platform
- Connect via the internet, or via PSN, RLI, N3 or JANET networks
- UK-based telephone service desk and NOC function, with 24/7 support for high-priority incidents, including access to UKCloud's technical subject matter experts
- Platform optimised for OFFICIAL and fully aligned with the 14 CESG Cloud Security Principles
- Multiple secure tier 3 UK data centres separated by more than 100km and securely connected by high-bandwidth, low-latency dedicated connectivity
- Extensive independent validation by recognised UK public sector authorities enhances the platform's suitability for especially sensitive workloads for organisations such as health, police and defence
- UK sovereignty — assured cloud platform delivered across two UK sites by a UK-based company with UK government security-cleared staff
- Platform that hosts workloads exclusively for the UK public sector, creating a known and trusted community of neighbours
- A mature and expansive partner ecosystem, including system integrators, managed service providers, software development houses and consultants specialising in transformation projects

Key differentiators

- A cloud platform that's designed around the needs of digital communities, and engineered to facilitate true cloud-native applications, controlled by a familiar API
- 100% compatibility with OpenStack, allowing access to a global ecosystem of tools and support, accelerating development of and supporting cloud-native applications
- Choice of multiple availability zones coupled with cloud load balancer options to facilitate horizontally scaling environments with resilience built in to the application layer

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Features and benefits

Feature	Benefit
Powered by OpenStack, the open source software-data centre	The most widely adopted and understood open source cloud platform
Globally backed familiar cloud platform	Active open source community of 6,000 individuals and 1,000 organisations
Truly open, vendor neutral	Supports the UK public sector's desire to avoid vendor lock-in
Access to a vast catalogue of free open source tools	Accelerate cloud development and reduce cost through sharing code
Compatible with AWS CloudFormation via HEAT templates	Leverage your existing investment in AWS technologies
Span your infrastructure across on-premises, private cloud and Crown Hosting	Support your hybrid and multi-cloud cloud strategies whilst reducing risk

What the service can help you achieve

- Deliver digital transformation projects with high levels of trust and assurance, combined with flexibility and scalability
- Develop cloud-native applications in line with the Twelve-Factor App architecture on a cloud platform built specifically for this purpose
- Enable seamless, automated deployment and control of services using your existing continuous deployment tools such as Jenkins and Ansible
- Leverage existing investments in AWS CloudFormation (infrastructure as code) using OpenStack's AWS-compatible HEAT templates
- Integrate with Infrastructure as Code tools such as Terraform and SaltStack
- Rapidly deploy and scale disposable environments that facilitate the horizontally elastic nature of web and mobile front-ends and IoT termination platforms
- Support your hybrid and multi-cloud cloud strategies; span across on-premises, private cloud and Crown Hosting environments
- Reduce the risk of vendor lock-in — build your environment once and run it anywhere that supports OpenStack
- Test and deploy emerging technologies such as big data analytics and containerisation natively on a cloud platform
- Support and facilitate agile project delivery in line with the GDS Service Design Manual

Technical features

- Based upon Liberty, the 12th release of OpenStack
- The following OpenStack projects/services are available:
  - Nova Compute
  - Glance Image Service
  - Cinder Block Storage
  - Keystone authentication
  - Neutron Networking Services
- Interact with OpenStack programmatically using its native API, or drive it via the Horizon dashboard
- Persistent and resilient block storage capabilities delivered using Ceph

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Use cases

- Implementation of hybrid/multi cloud strategies. Due to the openness and ever growing adoption of OpenStack, organisations can choose to deliver their cloud native applications and digital workloads using a common OpenStack framework to span on-prem, private cloud and public cloud environments, helping to reduce risk associated with using a single vendor or environment.

- Recycle your investment with Amazon Web Services. OpenStack's API provides EC2-compatible features, allowing you to control both environments via a single API. In addition, OpenStack's HEAT and AWS CloudFormation templates are cross compatible, enabling you to create Infrastructure as Code which can be ported to either cloud platform.

- Increase business agility and innovation. Through the adoption of agile practices, developers can build software faster than ever before; yet still face all the traditional challenges of obtaining infrastructure, operating system and any other provisioning or configuration dependencies prior to releasing code in to production, creating delay and frustration both to the developer and the end-customer. OpenStack's fully self-service capabilities provide a programmatic mechanism directly to developers to provision or tear down virtual infrastructure in seconds rather than weeks, helping to remove any delay in moving software through its lifecycle to live.

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