

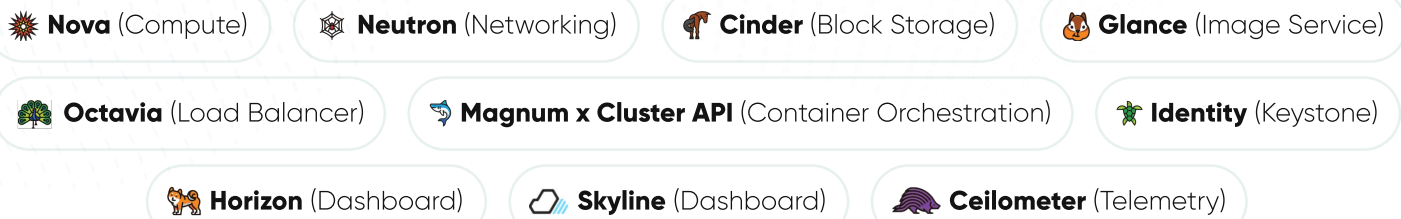
# Private Cloud Virtualization



A cloud computing environment that is exclusively dedicated for a single entity or a service. Private clouds prove to be more cost-effective, Secure and elastic than public clouds when running workloads in the long term and at scale.

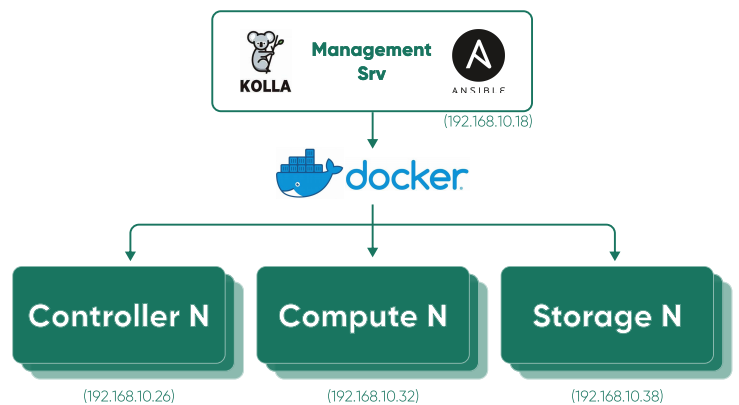


OpenStack is a powerful toolkit for creating and managing cloud computing platforms. What makes OpenStack particularly compelling is its flexibility and adaptability. Whether you're a startup or a multinational enterprise, OpenStack offers scalability and versatility to accommodate your evolving demands.



## Deployment

We have successfully deployed OpenStack for customers across numerous industries. Organizations benefit from Xconnect OpenStack deployment by utilizing the adoption process and tooling, broken down into the following five phases :

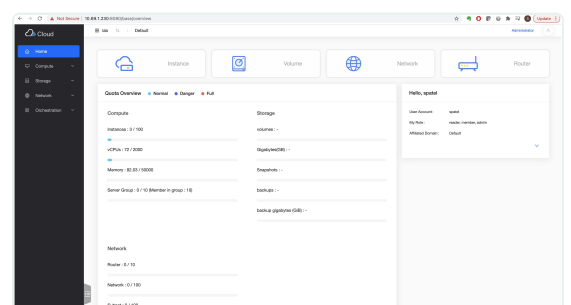


Kolla Ansible is a robust tool for deploying OpenStack environments with simplicity and flexibility. It streamlines the adoption of OpenStack through automation and user-friendly interfaces. It also facilitates the integration of Docker containers within OpenStack environments, enhancing scalability and resource management.



## Access

Interaction with your OpenStack cloud is straightforward. via command-line tools for managing your cloud environment, allowing for detailed administration tasks. Additionally, for those who prefer a graphical interface, OpenStack Horizon / Skyline dashboard provides various tools for operation.



Package	Xconnect Private Cloud (Xpc)	Xconnect Private Cloud +	Add-ons
Minimum node count	12 (Hyperconverged) from Approved BOMs	Architecture-dependent	
Containerised Control Plane	Included		
High Availability	Full L2-based OpenStack HA		
Monitoring and Performance Trending	LibreNMS, Prometheus, Grafana		Integration with custom monitoring systems
Security & Services	Centralized Management Package Management Security Patching Access Control Offline Environment Support	Everything in Xpc and User Interface Customization System Inventory Management Automation and Orchestration Package Repository Management	
Log Aggregation	Included, powered by Elasticsearch (SSPL) and Greylog Open		Custom log integration
Upgrades	Included with Managed Service		OpenStack and OS upgrade services available
Disaster Recovery	Guaranteed Control Plane rebuilds included with Managed Service		Full DR Plan with automation
Workshop	Included (remote)	Included (on-site)	
Architecture	Hyperconverged	Custom Architecture (standard components only) with optional offline deployment	Custom bundle with add-on components
Hypervisors	KVM	KVM	
Live Migration	Yes		
Identity	Keystone	Keystone with LDAP or Active Directory backends	SAML federated identity services
Core Block Storage	Ceph RBD with 3x replication and bcache acceleration		
Additional Storage Options	RADOSGW Object Storage*	RADOSGW or Swift	Other third-party SAN and NAS integration
Virtual Networking	Neutron/OVS/OVN with VxLAN & GRE tunnelling	Adds Provider Networks, Neutron BGP, Neutron DVR	Third-party SDN Integration (CPlane, Juniper Contrail, Cisco ACI)
Network Topology	NIC bonding, up to 4 segregated underlay L2 networks	NIC bonding, unlimited underlay L2 network segregation	
Tuning Options	As standard	CPU Pinning Huge Pages	SR-IOV DPDK-enabled, OVS, OVN, GPU passthrough, Infiniband and more
Encryption	No Encryption	Control Plane &Storage (Ceph, at rest)	HSM support (via OpenStack Barbican)
Security Extensions	Apparmor MAC-based	Apparmor MAC-based	
Handover Documentation	Design Overview Tenant Onboarding Plan Charm Bundle Deployment Guide	Design Overview Tenant Onboarding Plan Charm Bundle Low Level Design Deployment Guide	
OpenStack Services	<ul style="list-style-type: none"> <li>• Neutron- Gateway/API</li> <li>• CEPH OSD/MON</li> <li>• Nova Cloud controller</li> <li>• Ceilometer</li> <li>• Nova KVM</li> <li>• Keystone</li> <li>• Rabbit MQ</li> <li>• Designate</li> <li>• Aodh</li> <li>• Gnocchi</li> <li>• Heat</li> <li>• Horizon</li> <li>• Cinder</li> <li>• Glance</li> <li>• Skyline</li> <li>• MySQL</li> </ul>		