

# Private Cloud Appliance X11

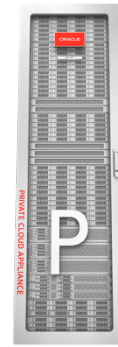
Oracle Private Cloud Appliance X11 enables customers to efficiently consolidate business critical middleware and application workloads. Private Cloud Appliance is a rack-scale engineered system delivering Oracle Cloud Infrastructure (OCI) compatible APIs, SDKs, and management tools on-premises, making workloads, user experiences, tool sets and skills portable between private and public clouds.

## OCI Compatible Infrastructure services in a Disconnected Mode

Private Cloud Appliance delivers OCI compatible compute, storage, and networking constructs on-premises. It enables rapid deployment of applications, middleware, and workloads that are cloud-compatible via automation in an OCI-like environment while being disconnected from the public cloud.

Private Cloud Appliance is designed for customers who want a cloud-like development and deployment experience while also meeting data residency requirements.

- Compatible APIs, SDKs, and management tools for public and private cloud
- Consistent infrastructure constructs across private and public clouds: compute, network and storage
- Disconnected from the public cloud: Identical capabilities as the Oracle Compute Cloud@Customer offered via a CAPEX model where the customer owns the infrastructure, manages it, and does not pay for consumption.
- Compatible tools: Target infrastructure deployment for either Oracle Private Cloud Appliance X11 or the Oracle Cloud with the OCI designer and visualization toolkit ([OKIT](#))
- Cloud Portability: Migrate infrastructure configurations, workloads, and data between Private Cloud Appliance X11, Compute Cloud@Customer, and the Oracle Cloud with little or no modification



Oracle Private Cloud Appliance X11 delivers OCI compatible infrastructure services on-premises easing private-public cloud portability

## Related services

The following services support Oracle Private Cloud Appliance:

- Advanced Customer Services
- Oracle Premier Support for Systems
- Oracle Platinum Services
- Oracle Consulting Services
- Oracle University

## Related products

- Oracle Cloud Infrastructure
- Oracle Compute Cloud@Customer
- Oracle Compute Cloud@Customer Isolated
- Oracle Roving Edge Infrastructure
- Oracle Exadata and Exadata Cloud@Customer

## **Ideal for Applications and Middleware with cloud-like operational benefits**

Oracle Private Cloud Appliance is an Oracle Engineered System that provides a highly resilient, modern application environment. The Private Cloud Appliance can be paired with Oracle Exadata or Oracle Database Appliance to create an ideal infrastructure for scalable, multi-tier applications. It's direct connection to Oracle's database platforms provides extremely low latency and high throughput between applications and databases in a full-stack application environment.

Customers using the Private Cloud Appliance X11 realize "cloud-like" operational benefits, including single-vendor support for their full-stack environment and Trusted Partitions that enables efficient software licensing for Oracle software based on the size of the VMs used.

## **Oracle Cloud Infrastructure Kubernetes Engine (OKE)**

OKE - simplifies the operations of enterprise-grade Kubernetes at scale. OKE lets you deploy Kubernetes clusters and ensure reliable operations for both the control plane and the worker nodes with automatic scaling, patching and security updates. OKE on Private Cloud Appliance brings basic cluster capabilities on-premises delivering reduced overall utilization, modernization and consolidation and lower total cost of ownership.

## **GPU Expansion Options for Oracle Private Cloud Appliance**

[Oracle Private Cloud Appliance featuring NVIDIA L40S GPUs](#) is a pivotal addition to Oracle's suite of on -premises cloud solutions. Oracle Private Cloud Appliance can scale up to 48 NVIDIA L40S GPUs and is the ideal choice for organizations seeking high-performance compute without the need for a full cloud region on-premises. Oracle brings AI/ML acceleration and scalable compute power to enterprises in a flexible, cost-effective solution, catering to all deployment scales and requirements of customers.

**Table 1: Oracle Private Cloud Appliance: Infrastructure Features**

	INFRASTRUCTURE	OCI INTEROPERABILITY
<b>OCI Services and Features</b>	<p><b>Compute VM Shapes</b></p> <ul style="list-style-type: none"> <li>Flex Shapes: 1-96 OCPUs, 1-64 GB per OCPU, up to 960 GB per instance</li> <li>Supported guest operating systems include: Oracle Linux, Oracle Solaris, 3rd Party Linux and Microsoft Windows. See product documentation for guest requirements.</li> </ul> <p><b>Storage</b></p> <p><b>Block</b></p> <ul style="list-style-type: none"> <li>“Balanced” and (optional) “Performance” pools</li> <li>On-demand and policy-based backups</li> </ul> <p><b>File</b></p> <ul style="list-style-type: none"> <li>NFS v3, v4.1, SMB 3.1/2.0</li> <li>Snapshots</li> </ul> <p><b>Object</b></p> <ul style="list-style-type: none"> <li>OCI object store</li> </ul> <p><b>Network</b></p> <ul style="list-style-type: none"> <li>VCNs, Subnets, Gateways, Security Lists, Route Tables, ...</li> </ul> <p><b>Governance</b></p> <ul style="list-style-type: none"> <li>Integration with OCI IAM and Active Directory</li> </ul>	<p><b>User &amp; Administrative Access</b></p> <ul style="list-style-type: none"> <li>OCI API, CLI and SDK</li> <li>OCI Designer Toolkit (OKIT)</li> <li>OCI user interface</li> <li>Terraform</li> </ul> <p><b>Portability</b></p> <p>Seamless movement to and from OCI</p> <ul style="list-style-type: none"> <li>Infrastructure configuration</li> <li>VM images</li> <li>Terraform scripts</li> <li>Infrastructure-as-code (Software defined compute, storage and networking)</li> </ul> <p><b>Load Balancer</b></p> <ul style="list-style-type: none"> <li>Load Balancer as a Service (LBaaS)                             <ul style="list-style-type: none"> <li>Application Load Balancer</li> <li>Network Load Balancer</li> </ul> </li> </ul>
<b>Available OCI Resources</b>	<p><b>Compute</b></p> <ul style="list-style-type: none"> <li>552 – 6072 OCPUs</li> <li>6.7 – 73.7 TB memory</li> </ul> <p><b>Storage</b></p> <ul style="list-style-type: none"> <li>150 TB – 3.65 PB Combined Balanced Block, File, and Object storage</li> <li>Up to 1.2 PB Performance Block storage</li> </ul>	<p><b>Governance</b></p> <ul style="list-style-type: none"> <li>OCI IAM integrates with customer tenancy and can be further partitioned using compartments</li> </ul>

**Table 2 – Oracle Private Cloud Appliance: Technical Specifications**

The Oracle Private Cloud Appliance is available in these SKU configurations in the base rack:

ITEM	3-NODE	6-NODE	9-NODE
Number of Available OCPUs	552	1104	1656
Memory Available for Guest VMs (TB)	6.7	13.4	20.1
Usable storage capacity (TB)	150	150	150

**Table 3 – Oracle Private Cloud Appliance: Expansions**

The Oracle Private Cloud Appliance configurations can be expanded using these expansion SKUs

ITEM	CONFIG
Compute Expansion	3-nodes, 552 OCPUs, 6.7 TB Memory
Balanced Storage Expansion	175 TB usable
Performance Storage Expansion	60 TB usable

**Table 4 – Oracle Private Cloud Appliance: Environmental Specifications**

METRIC	3-NODE	6-NODE	9-NODE
Height	78.66 in, 1998 mm (42 RU)		
Width	23.62 in, 600 mm		
Depth	47.24 in, 1200 mm		
Weight	1302 lbs, 592 Kg	1476 lbs, 671 Kg	1650 lbs, 750 Kg
Maximum power usage Watts	10759	14659	18559
Typical power usage <sup>1</sup> Watts	7531	10261	12961
Cooling at maximum usage BTU/Hr	36710	50017	63323
Cooling at typical usage BTU/Hr	25696	35011	44325
Airflow at maximum usage <sup>2</sup> CFM	1700	2316	2932
Airflow at typical usage <sup>2</sup> CFM	1190	1621	2052

METRIC	E6 COMPUTE	STORAGE ENCLOSURE DE3-24C	STORAGE ENCLOSURE DE3-24P
Height	3.42 in, 86.9 mm (2 RU)	6.89 in, 175 mm (4 RU)	3.42 in, 86.9 mm (2 RU)
Width	17.52 in, 445 mm	19 in, 483 mm	19 in, 483 mm
Depth	29.76 in, 756 mm	24.8 in, 630 mm	24.8 in, 630 mm
Weight	58 lbs, 26.3 Kg	101.41 lbs, 46 kg	52.91 lbs, 24 kg
Maximum power usage Watts	1300	285	238
Typical power usage <sup>1</sup> Watts	910	200	167
Cooling at maximum usage BTU/Hr	4438	973	812
Cooling at typical usage BTU/Hr	3105	875	568
Airflow at maximum usage <sup>2</sup> CFM	205	45	40
Airflow at typical usage <sup>2</sup> CFM	144	32	28

1) Operating temperature / humidity: 5 °C to 32 °C (41 °F to 90 °F), as measured by an industry grade temperature measurement device directed at the front bezel of the servers, 10% to 90% relative humidity, non-condensing

2) Operating altitude: Up to 3,048m, max. ambient temperature is de-rated by 1 °C per 300m above 900m.

<sup>1</sup> Typical power usage varies by application load

<sup>2</sup> Airflow must be front-to-back

**Table 5 – Oracle Private Cloud Appliance: System Hardware**

SERVERS	STORAGE SUBSYSTEM <sup>6</sup>	NETWORKING	RACK <sup>6</sup>
<p><b>Compute Nodes (3 to 9)</b> <i>Compute Enclave</i></p> <ul style="list-style-type: none"> <li>CPU: 2x AMD EPYC® processors 96C/2.6GHz/400W</li> <li>DRAM: 2.25TB, 24x 96GB DDR5-6400</li> <li>Boot: 2x M.2 480GB NVMe SSD</li> </ul>	<p><b>Controllers (2)</b></p> <p><b>Oracle ZFS Storage Z11-2</b> Dual-controller HA cluster</p> <ul style="list-style-type: none"> <li>CPU: 2x 2x AMD EPYC® processors 32C/2.95GHz/210W</li> <li>DRAM: 1.5TB, 24x 64GB DDR5-6400</li> <li>Boot: 2x U.2 3.84TB NVMe SSD</li> </ul>	<p><b>Leaf Switches (2)</b></p> <p>100 Gbps flexible speed switch using QSFP28 ports</p> <p><b>Spine Switches (2)</b></p> <p>100 Gbps flexible speed switch using QSFP28 ports</p> <ul style="list-style-type: none"> <li>QSFP+ transceivers (0 to 4)</li> <li>QSFP28 transceivers (0 to 4)</li> </ul>	<p><b>Physical Dimensions</b></p> <ul style="list-style-type: none"> <li>Height: 42U, 78.66 in 1998 mm</li> <li>Width: 23.62 in – 600 mm</li> <li>Depth: 47.24in –1,200mm</li> </ul> <p><b>Power (Watts)</b></p> <ul style="list-style-type: none"> <li>Maximum (Base/Full): 9,288 / 17088</li> <li>Typical (Base/Full): 6,502 / 11962</li> </ul> <p><b>Cooling (BTU/Hr.)</b></p> <ul style="list-style-type: none"> <li>Maximum (Base/Full): 31,691 / 58,304</li> <li>Typical (Base/Full): 22,183/ 40,813</li> </ul> <p><b>Airflow in CFM</b></p> <ul style="list-style-type: none"> <li>Maximum (Base/Full): 1,467 / 2699</li> <li>Typical (Base/Full): 1,027 / 1889</li> </ul> <p><b>Weight</b></p> <ul style="list-style-type: none"> <li>Rack Weight with Shipping Pallet (Base/Full): 679.09 kg (1493.33 lb) / 916.36 kg (2016lbs)</li> <li>Installed Rack Weight (Base/Full): 559 kg (1229.8 lb) / 717 kg (1578)</li> </ul>
<p><b>Management Nodes</b></p> <ul style="list-style-type: none"> <li>CPU: 2x 2x AMD EPYC® processors 32C/2.6GHz/210W</li> <li>DRAM: 1.5TB, 24x 64GB DDR5-6400 RDIM</li> <li>Boot: 2x 480GB M.2 NVMe</li> <li>Storage: 2x 3.84TB NVMe SSD</li> </ul>	<p><b>Storage</b></p> <p><b>High Capacity (DE3-24C)</b></p> <ul style="list-style-type: none"> <li>Minimum 1, maximum 20 disk enclosures</li> <li>20x 22TB, SAS-3, 3.5-inch, 7200 RPM HDDs</li> <li>2x read SSD accelerator</li> <li>2x write SSD accelerator</li> </ul> <p><b>High Performance ( DE3-24P)</b></p> <ul style="list-style-type: none"> <li>Up to 20 disk enclosures</li> <li>20x 7.68TB SAS-3 2.5-inch SSDs</li> <li>2x write SSD accelerator</li> </ul>	<p><b>Management Switch</b></p> <p>48-port 1/10 Gbps Ethernet Switch</p>	
OPERATING ENVIRONMENT	REGULATIONS <sup>3,4,5</sup>	CERTIFICATIONS <sup>3,4</sup>	EUROPEAN UNION DIRECTIVES <sup>5</sup>
<ul style="list-style-type: none"> <li>5 degrees Celsius to 32 degrees Celsius (41 degrees Fahrenheit to 89.6 degrees Fahrenheit), 10% to 90% relative humidity, non-condensing</li> <li>Altitude operating temperature: Up to 10,000 feet (3,048m), maximum ambient temperature is derated by 1 degree Celsius for every 300 m above 900 m, except in China where regulations may limit installations to a maximum altitude of 6,560 feet (2000 m)</li> </ul>	<p><b>Safety</b></p> <ul style="list-style-type: none"> <li>UL/CSA 60950-1, EN 60950-1, IEC60950-1 CB Scheme with all countries deviations</li> <li>UL/CSA 62368-1, EN 62368-1, IEC62368-1 CB Scheme with all countries deviations</li> </ul> <p><b>EMC</b></p> <ul style="list-style-type: none"> <li>Emissions: FCCCFR47Part15, ICES-003, EN55032, EN61000-3-11, EN61000-3-12</li> <li>Immunity: EN55024, KN35 condensing</li> </ul>	<ul style="list-style-type: none"> <li>North America (NRTL)</li> <li>CE (European Union)</li> <li>International CB Scheme</li> <li>HSE Exemption (India)</li> <li>BSMI (Taiwan)</li> <li>RCM (Australia)</li> <li>EAC (EAEU including Russia)</li> <li>KC (Korea)</li> <li>UKCA (United Kingdom)</li> </ul>	<ul style="list-style-type: none"> <li>2014/35/EU Low Voltage Directive</li> <li>2014/30/EU EMC Directive</li> <li>2011/65/EU RoHS Directive</li> <li>2012/19/EU WEEE Directive</li> </ul>

<sup>3</sup> All standards and certifications referenced are to the latest official version. For additional details, please contact your sales representative.

<sup>4</sup> Other country regulations/certifications may apply.

<sup>5</sup> Regulatory and certification compliance were obtained for the shelf-level systems only

<sup>6</sup> Compliance number ESY910 for the rack and the Add on Storage is shipped under SE42U and SE44U

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