Oracle edge cloud solutions - Retail and Hospitality

Step-by-step for deploying Oracle Xstore on Oracle Roving Edge Infrastructure

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Purpose statement

This document provides step-by-step instructions to deploy Roving Edge for Retail Xstore

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Industry Requirements and Challenges

Changing consumer expectations	Economic uncertainty	Supply chain disruptions	Improving customer experience	Loss Prevention and Shrinkage
Al use-cases in-store	In-store operational disruptions	Hyperlocal Analytics and personalization	Executing on sustainability goals	Staffing Optimization

- Agility, Market Conditions and Consumer Expectations Difficult to quickly expand, grow, and adapt to market opportunities and consumer demands
- Resilient Business Continuity Lack of central oversight, location inconsistencies compromise continuity and risk disruption
- Operational Inefficiencies

Duplication in resources, processes, costs, inefficient store productivity can erode profitability

Loss Prevention

Retailers lose more than \$110 billion a year to shrinkage. Inventories decrease because of shoplifting, vendor fraud, employee theft, and other non-sales reasons

- Modernize Customer Experience
 Without unified view, experience can vary widely by store, product, pricing, confusing customer
- Hyperlocal Analytics and Personalization

Retailers want to understand customer trends in-store to run discounting, improved inventory management and regional customizations

• Staffing Optimizations

Retailers at times struggle with efficiently staffing stores to deal with increased footfall, crowd and queue management leading to increased wait times, poor checkout and customer experience

• Sustainability

Retailers globally are looking for technology solutions that can help them consolidate in-store platforms enabling more power efficiency

Solution Overview, Business Value & TCO Views

Oracle Cloud Infrastructure offers a robust distributed cloud portfolio that spans <u>public cloud</u>, <u>multicloud</u>, <u>Cloud@Customer</u>, and <u>edge deployments</u>. Oracle's edge portfolio delivers the same OCI IaaS – compute, storage, and networking capabilities at both connected and disconnected locations – in a customer's datacenter or at the edge. With a globally consistent cloud consumption model, customers can truly benefit from cloud economics, standardized deployment methodologies and user experience at a location of their choice, cloud economics, standardized deployment methodologies

Oracle's edge portfolio of products help retailers optimize and modernize infrastructure to support the requirements of Stores and Distribution Centers of the future.

- Oracle edge cloud platforms (In Customer Store/DC)
 - Oracle Compute Cloud@Customer rack scale infrastructure in customer datacenters
 - Oracle Roving Edge Infrastructure server scale infrastructure in-store and edge locations
- OCI AI and PaaS Services
- Partner Solutions & Integrations



Figure-1

Key highlights of our solution include:

- Extend Oracle Cloud Infrastructure capabilities all the way to the edge
- Run your in-store operations in connected/intermittently connected or disconnected locations
- Address latency and potential data residency concerns
- Faster deployment, build once and deploy across distributed sites to support growth
- Lower ~45% TCO and leverage existing investments
- Centralized operations, security and monitoring
- Enable retail store innovations using Oracle Cloud, AI and Edge Technology (e.g., Loss prevention Reduce shrinkage, Friction less shopping, Smart inventory replenishment, Contactless checkouts)





Edge Infrastructure Modernization and Automations for Stores

OCI's laaS capabilities and platform services with unmatched processing power, reliable connectivity, and top-tier security at the network edge – even in disconnected or offline environments.

Roving Edge Device is ideal for retailers looking to consolidate in-store workloads spanning inventory management, PoS, analytics, security and AI applications while addressing data residency and latency requirements.

Improve Operational Efficiencies

OCI's distributed infrastructure enables a singular platform to develop, deploy, centrally manage and operate as well as receive insights into multiple locations

Low-Latency Transaction Processing

Ensures fast and seamless transaction processing, even during peak sales periods. Improves the customer experience at the point of sale with quick checkouts and real-time inventory updates.

Resilience in Limited Connectivity Environments

Stores in remote locations or areas with poor network infrastructure can function without disruptions. Transactions, inventory updates, and customer interactions are processed locally and synchronized to the cloud when connectivity is restored.

Enhanced Security and Data Compliance

Ensures compliance with local data protection regulations by keeping data on-site. Protects customer and transaction data with Oracle-grade encryption and security controls.

• Scalability and Portability

Rapid setup of Point of Service and other store applications in new locations with minimal configuration. Flexibility to scale edge infrastructure based on store size or transaction volume.

Cloud & AI for Retail Innovations and Competitive Differentiation

Enable retail store innovations using Oracle Cloud, AI and Edge Technology (e.g., Loss prevention – Reduce shrinkage, Frictionless shopping, Smart inventory replenishment, Contactless checkouts)

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Roving Edge for Retail – Reference Architectures

The reference architecture below illustrates <u>Xstore Point of Service</u> on Roving Edge devices deployed at Retail store locations. Roving Edge for Retail deployments connect to a "parent" OCI region for centralized management, monitoring and governance. The OCI region also hosts Xstore Point of Service Non-production environments, and DevOps platform for automated build and deployment pipelines of services deployed to Edge devices.



Figure-3

Retail application services like Xstore Point of Service can be deployed in one of the following configurations depending on business requirements for performance, availability and resiliency.



Option 1 Edge Deployment with DR in OCI



Figure-4

Option 2 – Hybrid Deployment – Edge + Cloud



Figure-5

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Option 3 – Edge Deployment with DR in OCI



Figure-6

Deployment Options and Differentiators

	Edge Deployment with DR in OCI	Hybrid Deployment – Edge + Cloud	Cloud Deployment
Latency	 Ultra-low latency ensured through edge processing 	 Ultra-low latency ensured through edge processing 	 Latency is a function of network proximity and service availability
Scalability	 Scalable instantly up to capacity limits on Edge Edge capacity can be scaled out through multi-node clustering 	 Scalable instantly up to capacity limits on Edge Supports rapid elastic capacity expansion in Cloud to augment edge to address time bound needs like seasonal peaks and events 	 Provision services instantly in Cloud Supports rapid elastic capacity expansion in Cloud to augment edge to address time bound needs like seasonal peaks and events
Resilience	 High resiliency ensured at edge through clustered deployments DR site in nearest Cloud region for business continuity 	 High resiliency ensured at edge through clustered deployments DR site in nearest Cloud region for business continuity 	 Primary and Secondary region deployments in Cloud ensure business continuity

Table-1

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Getting Started – Deploying Oracle Roving Edge for Retail Xstore

<u>Oracle Roving Edge Infrastructure</u> is a cloud-integrated service that makes Oracle Cloud Infrastructure services available at the edge where business data is generated and consumed. This allows for highly efficient transaction and data processing at edge locations and brings to bear cloud scale, agility and economic benefits to stores, distribution centers, events and other Retail and Hospitality business formats and locations. In this section, we describe the steps to deploy Oracle Roving Edge Retail at a store location and deploy Oracle Xstore Point of Service at the edge compute location with instructions and related diagrams below.

Roving Edge Infrastructure consists of two types of devices that can be deployed at Edge:

- Roving Edge Ultra (Ultra): A single device contained in a backpack-like transporter that an individual can carry. Ultra doesn't require a separate power source.
- Roving Edge device (RED): A portable high-powered server that has been ruggedized to operate in remote and austere environments.

Pre-Requisites

The following pre-requisite tasks must be completed prior to deploying Roving Edge Devices:

- An OCI tenancy is required to subscribe to Roving Edge device nodes
- Identify the number of Roving Edge devices nodes to be deployed at Store locations
- Obtain an image of Oracle Retail Xstore Point of Service configured for deployment to Store locations. This image includes the Xstore Oracle database and Xstore application services.

Setting up Roving Edge for Stores/Edge Locations

This section describes the steps to procure a Roving Edge Ultra device:

1. Logon to the OCI Console and request for a Roving Edge Node by navigating to Home > Hybrid > Roving Edge Infrastructure > Nodes

	Search resources, services, documen	tation, and Marketplace	✓ US East (Ashburn)	ច្ច ជុ	9 0	°C
Q Search	ත Hybrid					
Databases	Oracle Exadata Database Service on Cloud@Customer	Roving Edge Infrastructure	Dedicated Region Cloud@Customer			
Analytics & Al	VMware Solution	x Nodes	Oracle Compute			
Developer Services	Software-Defined Data Centers		Cloud@Customer			
Identity & Security						
Observability & Management						
Hybrid						
Migration & Disaster Recovery						
Billing & Cost Management						
Governance & Administration						
Marketplace						
OCI Classic Services						

Figure-7

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- 2. Select "Create Node" option, specify the following details and click on the "Create Node" button to submit request for a new edge device.
 - a. Device Name, Shape, Case Type (Figure-8)
 - b. Shipping Details Contact and Mailing Address (Figures 9a/9b)
 - c. Initial administrator credentials and Certificate details (Figures 10a/10b)

Roving Edge Infrastructure	Nodes		Create Node		Help
Overview	A <u>Node</u> is an Oracle Clo	ud Infrastructure se	Create a Node to request a Roving Edge Device. After the Node is created, attach	Object Storage and Compute Workloads to run on the Roving Edge Device.	_
Nodes	Create Node		Basic information		
List soons	Name	State	Name		
List scope			red-ultra-store1		
Compartment			Create in compartment		
sandbox		111000000	sandbox	0	
orasenatidpitdevopsnetv02 (root)/JukkaTeam/RamakrishnanVenkataraman/sandbo	x		crasenatdpitdevopsnetw02 (root)/JukkaTeam/Ramakrishnan/Venkataraman/sandbox Shape		
Tag filters add I clear			ULTRA.USB.1.RX2.12		0
no tag filters applied			12 core Intel Xeon D, 128 GB memory, 1 Gbps network bandwidth, 1 USB 3.x controllerfalse		
Filters		3111116	Enclosure Type		
State			Ruggedized case	No case	
Any state			Standard ruggedized case	✓	
			Super user password (i)		
			Confirm super user password		
		MULLE	Unlock passphrase		
		101111111111	Unlock passphrase		

Figure-8

Roving Edge Infrastructure	Nodes	Create Node	<u>Help</u>
Overview Nodes	A Node is an Oracle Cloud Infrastructure so	Unlock passphrase Confirm unlock passphrase	
List scope	Name State		
Compartment sandbox orasentalphote-opparetw02 ecolulukationer/Verkaturamen/sandbox Tag filters add i clear no tag filters filters State Any state	х	Choose a shipping method Shipped by Oracle Point of contact Ram Venkataraman Care of Optional Recipient phone	
		1111111 Recipient email red.admin@oracle.com Address line 1 123 Main Ave)]]

Figure-9a



Overview			
Nodes		Create Node	
List scope		Name	State
Compartment			
sandbox	\$		
orasenstdpildevopsnetw02 (root)/JukkaTeam/RamakrishnanVer Tag filters no tan filters applied	nkataraman/sandbo add clear	×	
orassenatoptidevopsnetw02 (root/JukkaTean/RamakrishnanVer Tag filters no tag filters Applied Filters	nkataraman/sandbo add clear	x	
orsevrate/pit/devogsnetw02 (root/Julika/Team/PamakrishnanVer Tag filters no <i>tag filters applied</i> Filters State	skataraman/sandbo add clear	×	
oraenatightitoucopretend2 pock/JukkaTeam/Remainshnankke Tag filters en lag filters Filters State Any state	nkataraman/sandbo add clear		
oraenatightitionoganetvid2 pool/JukkaTeam/Remainthean/Ver Tag filters en lag filters State Any state	nkatsraman/sandbo add i clear		

Create Node

Address line 1
123 Main Ave
Street address to send the appliance to
Address line 2 Optional
Identifying address details like building, suite, unit, or floor information
City/Locality
Nashville
State/Province/Region
TN
Zip/Postal code
54321
Country ①
United States of America
Roving Edge orders can only be shipped to specific countries depending on where the order is placed. Contact your Oracle account representative for more information
 Certificate options (optional)

To use OCI Certificates Service, provide the certificate information below. Additional policies are needed in order to use the OCI Certificates Service. Learn more about the policies required.

Holr

Figure-9b

Quandani		A NOUE IS all Oracle	oloud initastructure
Overview			
Nodes		Create Node	
List scope		Name	State
Comportment			
Comparament			
sandbox orasenatdpitdevopsnetw02 (root/JukkaTeam/Ramakrish	ananVenkataraman/sandbo	x	
sandbox orasenatdpitdevopsnetw02 (root/JukkaTeam/Ramakreh Tag filters no tag filters applied	CananVenkataraman/sandbo add i clear	x	
sandbox orasenaldpildevopanetw02 (rootl/JukkaTeam/Pamakrieh Tag filters no tag filters applied Filters	Canal State	α.	
comparament sandbox orasenat/pildevopenetw02 (rood/JukkaTeam/Ramakinet Tag filters no tag filters applied Filters State	≎ nanVenkataraman/sandbo add I clear	A.	

Create Node	Help
 Certificate options (optional) 	
To use OCI Certificates Service, provide the certificate information below. Additional policies are needed in order to use the OCI Certificates Service. Learn more about the policies required.	
Common Name	
red-store	
Issuer Certificate Authority in sandbox ① (Change compartment)	
sbx-root-ca	\$
t is recommended to choose a subordinate Certificate Authority	
Certificate Validity End Date ①	
Dec 31, 2025	-
Certificates are valid from the time at which they are generated.	
Signature Algorithm	
SHA256_WITH_RSA	0
Key Algorithm	
R\$A2048	\$
Certificate Compartment ①	_
sandbox	2
crasenatdpitdevopanetw02 (root)/JukkaTeam/Ramakrishnan/Venkataraman/sandbox	

Figure-10a

Roving Edge Infrastructure	Nodes		Create Node	Help
	A Node is an Oracle Cid	ud Infrastructure se	red-store	
Overview			Issuer Certificate Authority in sandbox (i) (Change compartment)	
Nodes	Create Node		sbx-root-ca	\$
	Name	State	It is recommended to choose a subordinate Certificate Authority	
List scope	Name	State		
			Certificate Validity End Date ①	
Compartment			Dec 31, 2025	Ħ
sandbox		2011/00/00/00	Certificates are valid from the time at which they are generated.	
orasenatdpitdevopsnetw02 (root)/ lukkaTeam/RamakrishnanVenkataraman/sandt	oox		Signature Algorithm	
			SHA256 WITH RSA	ĉ
Tag filters				
			Key Algorithm	_
no tag filters applied			RSA2048	0
Filters		31111	Certificate Compartment	
State			sandbox	0
Any state 🗘			orasenatdpltdevopsnetw02 (root)/JukkaTeam/Ramakrishnan/Venkataraman/sandbox	
			Show Tagging octions Ordering Oracle Roving Edge Infrastructure resources requires important terms and conditions to be understood and acknowledged prior to taking pour session. Please continn that these terms and conditions have been included as part of your Oracle Cloud agreement. Once we have also validate your resources will be provisioned and available for possession.	ed this,

Figure-10b

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- 3. When the device is received at the Store location, perform the following steps to prepare and install the device:
 - a. Navigate to Hybrid > Roving Edge Infrastructure on the OCI console and select the compartment for the device. Click on Manage Nodes and confirm the Device Request shows "Delivered" status. Also, verify the serial number and delivery date and time.
 - b. Unpack, visually inspect the device shipping container for any damage, tampering, and verify that the serial number matches the number displayed on the OCI console.
 - c. Mount and cable the device using the instructions provided in the documentation.
 - d. Setup Terminal Emulation and power on the device.
 - e. Connect Roving Edge to the store network by completing network configuration including assigning a Device IP Address, subnet and gateway, and setting up DNS and NTP services.
 - f. Using Terminal Emulator, unlock the device by providing the secure passphrase created while requesting for the device node.
 - g. To access the Roving Edge console, download and install the Root CA Certificate following the steps described <u>here</u>.
 - h. Add an entry into the hosts file mapping the Roving Edge device IP address and hostname to start with. This entry can be added to the DNS later if an enterprise DNS is used for name resolution within the store network.
 - i. Open the Roving Edge console using a web browser, the URL is https://<red-hostname>:8015/. Logon using the initial administrator credentials provided while requesting for the device.

ORACLE Roving Edge Infrastructure	
3	SIGN IN
	Sign in with your Oracle Cloud Infrastructure credentials USER NAWE IXER PASSINGRD





Figure-12

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j. After logging in, you are taken to the RED Infrastructure homepage. The next step is to create a Virtual Cloud Network and subnets within which Xstore Point of Service and other workloads are deployed. Navigate to Networking > Virtual Cloud Networks on the menu to create a VCN and subnets. Assign a non-overlapping private IP address range that is accessible within the store network.

ORACLE Roving Edge Infrastructure							
Compute	>						
Block Storage	>	Virtual Cloud Networ	ks				
Object Storage	>	Virtual Cloud Networks are virtual, private	networks that you set up in Oracle	data centers. It closely resembles a traditional network, wit	h firewall rules and specific types of	communication gateways that you	J
Networking		Virtual Cloud Networks					
Identity Management		Public IPs					
Node Management	>	Name	State	CIDR Block	DNS Domain Name	Created -	
Data Sync						Wed Aug 9 2023 13:41:18	
Events	>	vcn1	Available	10.0.0/16	vcn1.oraclevcn.com	UTC	-
						Showing 1 item < 1 of 1	>

Figure-13

k. At this stage, the Roving Edge product is ready to start deploying Xstore and other applications to the edge device at the store.

Setting up Applications/Xstore on Roving Edge

Oracle Retail <u>Xstore Point of Service</u> is a point-of-sale application that provides the capabilities to carry out day-today transactions and conduct daily store activities. Tasks such as scanning items, applying price adjustments, tendering, and printing receipts as well as processing returns, and web orders can be performed. Store operations including opening the store, managing registers and tills, and closing the store can be handled through Oracle Retail Xstore Point of Service (POS).

Xstore POS supports a fully containerized deployment option as depicted in the illustration below, this container will be deployed to the Roving Edge compute platform to enable registers and terminals running in the store.



Figure-14



Figure-15

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- 1. To deploy Xstore Point of Service at the edge, the first step is to obtain a container or VM image of Xstore that packages all solution components including services, interfaces, configurations and database.
- 2. This image file (in OCI or VMDK format) is transferred to an Object Storage bucket on the edge using the OCI CLI for Roving Edge.

ORACLE' Roving Edge In	frastructure		\$	xstore	Logout
Object Storage > Bucket Details					
	xstore-edge-demo Ceitte				
D	Bucket Information				
D	General	Features			
	OCID:ghhhna5q Show Copy Namespace: rover-namespace Created: Fri, Nov 29, 2024, 16:01:34 UTC	Object Versioning: Enabled			
Resources	Objects				
Objects	Upload Delete	Show Deleted Ob	jects Q Search by pr	efix	
	Name/Version ID	Last Modified	Size		
	Xstore-NRF-LC-20241218	Sat, Dec 21, 2024, 16:26:56 UTC	55.53 GiB	~	< :
	xstore-red-oci-20241129-1108	Sun, Dec 1, 2024, 00:56:53 UTC	18.26 GiB	~	< :



3. A custom image is created on the Roving Edge using the image file in the bucket – this image then becomes the source to create Xstore instances.

= ORACLE Roving Ed	dge	Infrastructure				🗘 xstore	Logout
Compute		Instances					
Block Storage		Custom Images					
Object Storage		Boot Volumes virtual hard drive. It de	termines the operating system and other software f	or an instance. You can <u>create custom images, exp</u>	ort and import images across tenancie	es and regions	
Networking		and <u>bring your own image</u> to the cloud.					
Identity Management		Import Image					
Node Management		Name	State	Original Image	Created	-	
Data Sync		Nvidia-nvaie	Available	•	Sun, Feb 2, 2025, 17:45:29 UTC		-
Events		ubuntu-2204-minimal-kubeedge	Available		Fri, Jan 17, 2025, 14:42:23 UTC		:
		ms-node-03	Available		Thu, Jan 9, 2025, 13:01:15 UTC		:
		ol8-gluster-rover	Available	•	Thu, Jan 9, 2025, 12:33:08 UTC		:
		kd-oci-ams-win-2019-s-gen	Available	•	Wed, Jan 8, 2025, 15:21:56 UTC		:
		kd-oci-ams-win-2019-s-nongen	Available	·	Wed, Jan 8, 2025, 13:28:34 UTC		:
		kd-win-2019-standard-generic-red	Available	•	Tue, Jan 7, 2025, 15:07:32 UTC		:
		xstore-nrf-demo-20241218	Available	•	Sat, Dec 21, 2024, 16:34:50 UTC		:
		Oracle-Linux-8.10-2024.10.31-0	Available	•	Thu, Dec 12, 2024, 09:56:20 UTC		:
		xstore-oci-image-20241201-0658	Available	-	Sun, Dec 1, 2024, 11:59:11 UTC		:
		xstore	Available	-	Thu, Nov 28, 2024, 02:34:59 UTC		:
		secluster-02	Available	-	Fri, Nov 8, 2024, 20:26:21 UTC		:
		6100	Available	20	Tue, Nov 5, 2024, 18:26:59 UTC		:

Figure-17



	e Infrastructure					🗘 xstore Lo		
Compute > Custom Image Details								
	xstore-nrf-demo-2	20241218						
	Create Instance Edit Details	Export Delete						
CI	Custom Image Information							
	Custom Image Infor	mation						
	OCID:u4gl7q Show Copy			Launch Mode: PARAVIRT	UALIZED			
AVAILABLE	Original Image: -			Created: Sat, Dec 21, 202	4, 16:34:50 UTC			
				Compatible VM.Standard. Shapes: VM.Standard. VM.GPU.1.RE	RED1.1, VM.Standard.RED1.2, VM RED1.8, VM.Standard.RED1.16, VI ED1.2, VM.GPU.1.RED1.4, VM.GPU	.Standard.RED1.4, M.GPU.1.RED1.1, J.1.RED1.8, VM.GPU.1.RED1.16		
	Launch Options							
	Launch options include the netw launching a virtual machine insta	vorking type and boot volu ance. <u>Learn more</u>	ume attachment type used when					
	NIC Attachment Type: PARAVIRTUALIZED			Firmware: UEFI_64				
	Remote Data Volume: PARAVIF	RTUALIZED		Boot Volume Type: PARA	VIRTUALIZED			
Resources	Work Requests							
	A work request is an activity log that	it tracks each step in an a	synchronous operation. Use work re-	quests to monitor the progress of	f long-running operations.			
Work Requests	Operation	State	% Complete	Accented	Started	Finished		

Figure-18

4. The next step is to provision one or more Compute instances using the Xstore VM image. With support for containerized deployments at the edge, these could also be deployed as container images deployed to a Kubernetes cluster. To spin up an instance, navigate to Compute > Instances on the menu and select "Create Instance". Use the custom image created in the previous step as the source image, select the shape, network and storage size, and click "Create" to spin up the Xstore instance.

ORACLE' Roving	Edge Infrastr	ucture						Q =	kstore
ompute ock Storage piect Storage	> Ins	tances ompute service helps you provision	on VMs to meet yo	ur compute and application req	uirements. An <u>instanc</u>	is a compute host. T	he image that you use	to launch an instance determines its oper	ating
entity Management	> (i)	Resources 19 CPUs Used						13 CPUs A	/ailable
de Management a Sync) (228 GB Memory Used			32 CPUs Tot	1		156 GB Memory A	ailable
લાાડ		esta Instance			384 GB Memory	Total			
	Nan	10	State	Shape	OCPU Count	Memory (GB)	Fault Domain	Created	•
	nvid	iagpu.C3	Running	VM.Standard.RED1.2	2	24	FD-1	Sun, Feb 2, 2025, 17:50:58 UTC	:
	kd-k	ubeedge-rover-pdm	Running	VM.Standard.RED1.1	1	12	FD-1	Fri, Jan 17, 2025, 15:38:00 UTC	:
	ms-	node-03	Running	VM.GPU.1.RED1.2	2	24	FD-1	Thu, Jan 9, 2025, 13:51:58 UTC	:
	018-	gluster-red3	Running	VM.Standard.RED1.2	2	24	FD-1	Thu, Jan 9, 2025, 12:53:05 UTC	:
	xsto	re-nrf-demo-vm01	Running	VM.Standard.RED1.2	2	24	FD-1	Sat, Dec 21, 2024, 23:13:30 UTC	:
	insta	ance-20241203-1739	Running	VM.Standard.RED1.2	2	24	FD-1	Wed, Dec 4, 2024, 00:39:47 UTC	:
	mas	ter3.os.oci-poc.net	Running	VM.Standard.RED1.4	4	48	FD-1	Wed, Oct 30, 2024, 08:25:44 UTC	:
	<u>os-t</u>	emp	Running	VM.Standard.RED1.1	1	12	FD-1	Wed, Oct 30, 2024, 01:33:55 UTC	:

Figure-19



Create Compute Instance	Browse All Images	
Name xstore-edge-vm Fault Domain	An image is a template of a virtual hard drive that determines the operating system and other software for an instance. Platform Images Custom Images Boot Volumes Image OCID Custom Images Custom Image Could be used to be	Information
Let Oracle choose the best fault domain	Custom images created or imported into your Oracle Cidod iminastructure environment. See <u>Managing Custom mages</u> for mor	e information.
Image or operating system (i)	Custom Image Name	Created
	xstore-oci-image-20241201-0658	Sun, Dec 1, 2024, 11:59:11 UTC
No image selected	xstore-nrf-demo-20241218	Sat, Dec 21, 2024, 16:34:50 UTC
	xstore	Thu, Nov 28, 2024, 02:34:59 UTC
2 ² EHide Shape, Network, Storage Options	win2019ServerStandard	Wed, Jul 10, 2024, 13:51:17 UTC
Shape ()	ubuntu-2204-minimal-kubeedge	Fri, Jan 17, 2025, 14:42:23 UTC
VM.Standard.RED1.1	secluster-02	Fri, Nov 8, 2024, 20:26:21 UTC
virtual maunine, i fore our o, re do memory, 2:30 dops network bandwidth	sd_wan_uefi_key	Thu, Jun 27, 2024, 03:05:04 UTC
Configure networking	sd_wan_cleint	Thu, Jun 27, 2024, 02:12:21 UTC
Select a virtual cloud network	rhel_anderson	Wed, Oct 16, 2024, 17:32:48 UTC



Create Compute Instance	
Shape 🕖	
VM.Standard.RED1.1 Virtual Machine, 1 core OCPU, 12 GB memory, 2.56 Gbps network bandwidth	Change Shape
Configure networking	
Select a virtual cloud network vcn1	0
Subnet untrusted-2 (Regional)	•
Assign a public IP address O Do not assign a public IP address	
loot volume	
Specify a custom boot volume size Volume certomacce wartes with volume size. Default boot volume size: 200 08	
Boot volume size (in GB)	
200 Integer between 200 GB and 6,144 GB (6 TB). Must be larger than the default boot volume size for the selected image.	
Use in-transit encryption Encrypts data in transit between the instance and the boot volume	
Create Cancel	

Figure-21

5. When the Xstore instance is up and running, connect to the environment using a remote client to access the Xstore user interface. Xstore POS can be configured to connect with thin client and peripheral devices at the store, including terminals, printers, scanners, payment devices, mobile devices and others.



CRACLE Roving Edge In	frastructure	🖓 xstore Logou					
Compute > Instances > Instance Details							
	xstore-nrf-demo-vm01						
	Start Stop Reboot Terminate More actions -						
	Instance Information						
	General Information	Instance Access					
	Fault Domain: FD-1	Public IP Address: 10.145.142.184 Copy.					
RUNNING	Region: orei-1	Username: opc					
	OCID:eb6i2a Show Copy	Initial Password: - (i)					
	Launched: Sat, Dec 21, 2024, 23:13:30 UTC						
	Instance Dataila	Primary VNIC					
	Instance Details	Private IP Address: 10.0.6.19					
	Virtual Cloud Network: vcn1	Internal FQDN: xstore-nrf-demo-vm01 Show Copy					
	Image: xstore-nrf-demo-20241218	Subnet: untrusted-2					
	Launch Mode: PARAVIRTUALIZED	Launch Ontions					
	Shape Configuration	NIC Attachment Turge PARAVIRTI AL IZED					
	Shape: VM.Standard.RED1.2 (1)	Remote Data Volume: PARAVIRTUALIZED					
	OCPU Count: 2	Firmware: UEFL 64					
	Memory (GB): 24	Boot Volume Type: PARAVIRTUALIZED					
	Local Disk: Block Storage Only						
	Cross Numa Node: No						





Figure-23



Redwo Associate John Smith	od Ret	ailer			ORAC	:LE		Start Sale Item Lookup	
(j) Home	¥Ξ Tasks	Goals	Messages	& Orders	[]] Schedule	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		Customer	
Messages	for 11 Fe	ebruary, 2	025		Sort By ▼ 🗦 🗄 Manage I	Messages		Orders Engagement Activity	
Don't For Items Av	rget Your U ailable at 1	Jp-Sells! - A Fill Point	Add On				•	Price Inquiry Balance Inquiry Flash Sales	
Register 1	l 🔗 Sou	thampton 444	Till Ø Online			John Sm	nith	18/12/2024 08:15 PM	=

Figure-24

Administration – Operations and Monitoring

Roving Edge devices can be monitored and managed using the OCI Roving Edge console, that provides a consistent user experience and capabilities similar to the OCI Console for public cloud infrastructure. On the Roving Edge console, the System Health page provides details on resource utilization and available capacity. Devices can generate and stream metrics on device performance and health regarding block volume storage. These metrics are stored in an InfluxDB database setup in OCI. For more details, see <u>Roving Edge monitoring documentation</u>.

Roving Edge deployment fleet also support centralized monitoring and management using OCI Cloud monitoring and management infrastructure. The diagram below illustrates centralized fleet monitoring and management using OCI Observability & Management services. A Utility VM running on the edge device with Prometheus for monitoring, Loki for log aggregation and Grafana for visualization enables capture and streaming of monitoring metrics and logs to OCI.



Figure-25

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