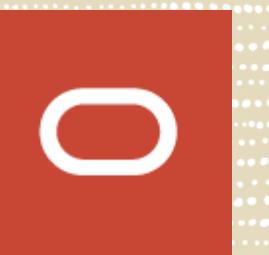


Oracle Database@Azure Deep-Dive

Student Guide
S1107120GC10

Learn more from Oracle University at education.oracle.com



Copyright © 2024, Oracle and/or its affiliates.

Disclaimer

This document contains proprietary information and is protected by copyright and other intellectual property laws. The document may not be modified or altered in any way. Except where your use constitutes "fair use" under copyright law, you may not use, share, download, upload, copy, print, display, perform, reproduce, publish, license, post, transmit, or distribute this document in whole or in part without the express authorization of Oracle.

The information contained in this document is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

Restricted Rights Notice

If this documentation is delivered to the United States Government or anyone using the documentation on behalf of the United States Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs) and Oracle computer documentation or other Oracle data delivered to or accessed by U.S. Government end users are "commercial computer software" or "commercial computer software documentation" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, reproduction, duplication, release, display, disclosure, modification, preparation of derivative works, and/or adaptation of i) Oracle programs (including any operating system, integrated software, any programs embedded, installed or activated on delivered hardware, and modifications of such programs), ii) Oracle computer documentation and/or iii) other Oracle data, is subject to the rights and limitations specified in the license contained in the applicable contract. The terms governing the U.S. Government's use of Oracle cloud services are defined by the applicable contract for such services. No other rights are granted to the U.S. Government.

Trademark Notice

Oracle®, Java, MySQL, and NetSuite are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Inside are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Epyc, and the AMD logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

Third-Party Content, Products, and Services Disclaimer

This documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

Table of Contents

Module 1	8
Introduction to Oracle Database@Azure	8
Multicloud	9
OCI- Azure Interoperability	10
Oracle Database@Azure	11
Oracle Database@Azure Service Overview	12
Oracle Database@Azure Easy Adoption	13
Oracle Database@Azure Operational Responsibilities	14
Oracle Database@Azure – Use Case Scenarios	15
Migrate Workloads from On-Premises	16
Migrate Database Workloads from Non-Oracle Cloud	17
Oracle Database@Azure - Architecture	18
Physical Data Center Level Architecture	19
Oracle Database@Azure - Onboarding	20
Subscribe and Onboard Oracle Database@Azure	21
Subscribe To Oracle Database@Azure	22
Oracle Database@Azure Resource	23
Onboard Oracle Database@Azure	24
Oracle Database@Azure Identity	25
Identity – Azure Roles	26
Groups and Roles in Azure	27
Groups and Roles in OCI	28
Oracle Database@Azure Networking	29
Oracle Database@Azure network requirements	30
Client Subnet IP address requirements	31

Backup Subnet IP address requirements	32
Usable IPs for Client & Backup subnets by CIDR size	33
Subnet Delegation in Azure VNet	34
Subnet Delegation Benefits	35
Local VNet Topology	36
VNet Peering Topology	37
Hub-spoke VNet Peering topology	38
Connect OCI application or service in same VCN	39
Oracle Database@Azure - Provisioning	40
Operational Interfaces	41
Provision Oracle Database@Azure Resources	42
Provision Oracle Exadata Infrastructure	43
Provision Oracle Exadata VM Cluster	44
Provision Oracle Exadata Database	46
High Availability & Disaster Recovery with Oracle Database@Azure	47
Objectives	48
Automatic Backup to OCI Object Storage	49
Configure Automatic Backup in OCI Console	50
Disaster Recovery - Configuring Local Standby	51
Disaster Recovery - Configuring Remote Standby	52
Automated Data Guard Deployment	53
Configure Data Guard or Active Data Guard in OCI Console	54
Configure Hybrid Data Guard with Oracle Database@Azure	55
Oracle Database@Azure - Operations	56
Operational Resources	57
Monitoring Resources in Azure	58
Module 2	59
Exadata X9 Overview	59

Agenda	60
Exadata X9M: Extreme Performance Scale-out Database Platform	61
Latest Flash Creates Significant Bottleneck for Shared Storage	62
Exadata Uniquely Achieves Memory Speed with Shared Flash	63
Exadata Smart System Software Highlights	64
Fastest OLTP	65
Fastest OLTP Database Machine	66
Fastest Analytics	67
Fastest Analytics Database Machine	68
Best Consolidation	69
Exadata X9M Elastically Scales with No Down Time	70
Agenda	71
Remote Direct Memory Access (RDMA) for Extreme Performance	72
Internal Network Fabric: RDMA over Converged Ethernet (RoCE)	73
Persistent Memory (PMem)	74
Persistent Memory Data Accelerator	75
Persistent Memory: Automatic Commit Accelerator	76
Exadata Maximum Availability Architecture (MAA)	77
Industry Hardened Full-Stack Security	78
Exadata Advantages Increase Every Year	79
Agenda	80
Exadata System Software 21.2 Highlights	81
Persistent Storage Index	82
Persistent Columnar Cache	83
Smart Scan Metadata Sharing	84
ACFS IO Caching in Flash Cache	85
IORM Cluster Plan	86
Smart Scan Fast Decryption	87
Smarter System Management	88

Summary	90
Exadata Database Service Overview	91
Objectives	92
Exadata Database Service	94
What Is Exadata Database Service?	95
Exadata in Oracle Cloud: Most Complete Database Service Available	96
Database Services on Exadata in Oracle Cloud	97
Exadata Database Service: Service Details	98
Exadata Database Service on Dedicated Infrastructure	99
Exadata Database Service on Cloud@Customer	100
Exadata Database Service: High Availability	101
Exadata Database Service	102
Oracle Exadata Database Service Cloud Architecture	103
Database Server Architecture	104
Hybrid Cloud: Public Cloud Simplicity and Elasticity Behind Your Firewall	105
Exadata Database Service Cloud@Customer Architecture	106
Exadata Database Service	107
Elastic OCPU Scaling: Pay Only for What You Use	108
Module 3	109
Microsoft Entra ID	109
Microsoft Entra ID	110
Azure Subscription	111
Azure Subscription	112
Azure Resource Groups	113
Microsoft Entra Roles vs Azure Roles	114
Microsoft Entra Roles	115
Azure Roles	116
Azure Virtual Network	117

Azure Virtual Network	118
Azure Virtual Network Creation : Basics	119
Azure Virtual Network Creation : IP addresses	120
Azure VNet Routing	121
System Routes	122
Custom Routes	123
Azure VNet Security	124
Network Security Groups	125
Network Security Groups – Default Rules	126
How Network Security Groups filter Network Traffic?	127