

Managing Oracle Cloud With Enterprise Manager

EXECUTIVE SUMMARY

ORACLE WHITE PAPER | DECEMBER 2015



Oracle Cloud Operational Summary

54,000+ Devices
700 PB+ Storage



19 Tier 4 Data Centers
New: Toronto, Frankfurt, Calgary, Munich



33 Billion+ Transactions/Day



Managing at scale would not be possible without Oracle Enterprise Manager.

Nara Gogineni, Sr Director, Cloud Operations

Copyright © 2015 Oracle and/or its affiliates. All rights reserved. 8

Executive Summary

Cloud computing is a significant advancement in the delivery of information technology and services. Oracle defines Cloud computing as a style of computing based on shared, elastic resources delivered to users in a self-service, metered manner using Web technologies. Yet, if you ask five people “what is cloud computing?” you can expect five different answers. Why? Because what matters to them is not what Cloud computing is, but what it does for them. Efficient Cloud management empowers Oracle Cloud to help organizations drive innovation and business transformation by increasing business agility, lowering costs, and reducing IT complexity.

Traditionally deployments require applications to be bound to a particular infrastructure. This results in low utilization, diminished efficiency, and inflexibility. Cloud brings in capabilities to allow applications to be dynamically deployed onto the appropriate infrastructure at runtime. While Cloud’s elastic aspect allows applications to scale and grow on demand without needing traditional patches or upgrades, the Cloud itself requires continual capacity checks.



IT departments and infrastructure providers are under increasing pressure to provide computing infrastructure at the lowest possible cost. To do this, the concepts of resource pooling, virtualization, dynamic provisioning, utility and commodity computing could be leveraged within a public Cloud or create a private Cloud that meets these needs. Customers driven by concerns over security, regulatory compliance, control over Quality of Service (QoS), and long-term costs, will build internal private Clouds. Private Clouds allow internal IT providers and application development team greater control of data security to meet their governance regulations. There are also a growing number of public Cloud providers that are looking for ways to build a versatile Cloud Infrastructure to support their clientele. However, as the technology matures and these concerns ease, we will see more customers adopting a hybrid Cloud model that makes use of both private and public Clouds using the most suitable of the hybrid strategies. Whether it is the public cloud, the private cloud or the hybrid cloud, a cloud's successful management involves standardization, integration, risk management and automation.

Oracle Cloud, industry's broadest and most integrated public cloud, offers best-in-class services across software as a service (SaaS), platform as a service (PaaS), infrastructure as a service (IaaS), and data as a service (DaaS). Enterprise Manager, Oracle's flagship Systems and Applications Management product, is used to provide 24x7 management of Oracle Cloud to ensure 99.99% availability of Cloud Services. Enterprise Manager provides an overview of tenant cloud usage, service availability, health of service and service infrastructure on Service Dashboards. It also provides incident and problem management, service life cycle management, gold standards for service configuration, compliance scoring of service/infrastructure vis-à-vis CPU patches and STIG compliance. Additionally operational tasks like management of security certificates and password expiry, monitoring cloud access management and Oracle Cloud service provisioning are automated for Cloud Agility using Enterprise Manager restful APIs and Jython EMCLI.



A tenant user gets just a simple portfolio of business application cloud services presented in unified environment providing flexible cloud infrastructure whilst Enterprise Manager obscures the complexity of managing the powerful standards-based cloud platform in 19 worldwide tier 4 datacenters.

A Cloud solution portfolio that illustrates the following characteristics requires the stringent compliance to standards and complete automation provided by Enterprise Manager:

- A broad spectrum of business applications to support the core business processes and operations. Examples include Sales, Marketing, Financials, Human Capital Management, and Supply Chain Management.
- Platforms and frameworks to develop and run custom processes, applications, and integration components.
- Reliable and highly available infrastructure components to support the quality of service requirements of the business.
- Capabilities to support the build-time and runtime Cloud management operations including business management, operations management, model management, orchestration, provisioning, security and policy management.
- Choice of architecture in terms of deployment and engineering. Deployment choices should include on-premises and off-premise deployment models..

Operational Management

Enterprise Manager has reduced administration and operational management costs by at least 35% for Oracle Cloudops (Cloud Operations team) besides increasing productivity, improving collaboration and simplifying proactive Cloud management. The use of Enterprise Manager in Oracle Cloud management can be briefly categorized as follows:

- » Service Availability Management
- » Application Performance Management
- » Cloud Security, Standardization & Risk Management
- » Service Lifecycle Management
- » Cloud Automation





Service Availability Management

Enterprise Manager provides comprehensive, robust and integrated monitoring of diverse Oracle Cloud assets - from applications to middleware, database, operating systems and hypervisors to hardware components; rolled up as services. It also provides tenants with visibility into all the activity in their accounts, by service, for optimum usage, availability and application performance. Service Dashboards and Reports present SLA breakdowns to executive, devops and CloudOps line management, with drill downs to specifics of a service outage.

Application Performance Management

Oracle Cloud provides the best service levels for Cloud applications through business-driven application management using Enterprise Manager. Daily reports chart varied business metric trends for CloudOps to proactively catch anomalies like latency increases by a millisecond, or Identity Management (IDM) account creation has increased 20%. Real User Experience (RUEI) complements infrastructure monitoring with measurements of the actual application usage and response, as experienced by the end user for issue analysis and usage tracking. Service beacons are defined to perform synthetic tests of some basic transaction flows to ascertain service availability and performance. Performance issue diagnosis is performed using WebLogic Server and Database diagnostic interfaces with drill downs to poor-performing SQL or Java code.

Cloud Security, Standardization & Risk Management

Configuration compliance is an important aspect of managing the Cloud. Most security breaches happen owing to faulty configuration such as default passwords, relaxed file permissions, an open port or an old techstack. Compliance inherently demands certain disciplines be submerged in the entropy of Cloud. To manage compliance, Oracle Cloud administrators have created gold Service baselines and gather configuration collections in Enterprise Manager for Oracle Cloud Services. Any deviations from the baselines triggers compliance violation notifications to be addressed to mitigate risk. Compliance scores for CPU patches and STIG standards are used to prioritize compliance projects targeted to mitigate risk.

Service Lifecycle Management

Enterprise Manager has a complete cloud lifecycle management solution to quickly set up, manage and support Oracle Cloud Services. Incident management, Problem Management, Change Management and day-to-day operational tasks of SaaS and PaaS services are performed in Enterprise Manager. Cloudops manage Cloud scale by managing exceptions reported in daily/weekly reports like “Configuration drifts from standard Service Gold Image”, “Service Pod Health Check Reports”, “Service SMTP health check”, “Patch Status of Services”, “Service Diagnosis reports”, “Password Randomization Jobs”, “Upgrade/Patch Logs Analysis”, “Business Metrics trend charting” etc.

Cloud Automation

Like any enterprise cloud, Oracle Cloud is managed by total automation. From service provisioning, service maintenance to service sale out, all service lifecycle management tasks are automated. Oracle Cloud administrators make extensive use of Enterprise Manager extensibilities like EMCLI, metric extensions, the Job system, dynamic procedures and configuration extensions for large-scale operations on thousands of tenant



services. Cloud operations like “Service DR setup” or “Scale-up WebLogic cluster” or “Enable synthetic monitoring on a Service” are all orchestrated through Enterprise Manager.

Conclusion

Oracle Cloud is efficiently managed by Enterprise Manager, which provides complete, integrated and business-driven enterprise Cloud management solution. Enterprise Manager scales to manage:

- » Thousands of concurrent self-service users
- » Tens of thousands of tenants, 25 million users
- » Hundreds of thousands service instances
- » 7 Million+ infrastructure targets
- » 2 Million + automation job executions per day
- » 11 Million+ Synthetic tests per day
- » 3 Million+ events processed/day
- » Tens of thousands of Compliance Evaluations per day
- » Five-Nine (99.999%) availability
- » Full disaster recovery

References

1. [MOS Note 1553342.1 - Oracle Enterprise Manager 12c Configuration Best Practices](#)
2. [MOS Note 1929586.1 – Patch Set and Critical patch Update](#)
3. [MAA Best Practices Document](#)
4. [Whitepaper: Deploying a highly available Oracle Enterprise Manager 12c](#)
5. [Whitepaper: Strategies for Scalable, Smarter Monitoring using Oracle Enterprise Manager Cloud Control 12c](#)
6. [Patching Agent : Follow Blog: Simplified Agent and Plug-in Deployment](#)
7. [Website: Cloud.oracle.com](#)
8. [Enterprise Manager Cloud Control Advance Installation guide](#)



Oracle Corporation, World Headquarters

500 Oracle Parkway
Redwood Shores, CA 94065, USA

Worldwide Inquiries

Phone: +1.650.506.7000
Fax: +1.650.506.7200

CONNECT WITH US

-  blogs.oracle.com/oracle
-  facebook.com/oracle
-  twitter.com/oracle
-  oracle.com

Integrated Cloud Applications & Platform Services

Copyright © 2015, Oracle and/or its affiliates. All rights reserved. This document is provided for information purposes only, and the contents hereof are subject to change without notice. This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document, and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission.

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

Intel and Intel Xeon 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, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group. 0615

White Paper Title : Oracle Cloud Management by Enterprise Manager
December 2015
Author: Akshai Duggal
Contributing Authors: [OPTIONAL]