



Preliminary Root Cause Analysis: CN-74663

Overview

Category	Details
Service(s) Affected	All Oracle Cloud services and Legacy Managed DNS.
Region(s) Affected	All regions
Impact	Query requests to Oracle public DNS authoritative servers could not be processed, preventing access to Oracle resources via DNS records.
Root Cause Type	Software Failure

Timeline (24 Hour UTC)

Date and Time	Details
2021-03-10 23:37	Impact Start - Requests to Oracle Public name servers begin to timeout when attempting to resolve DNS entries.
2021-03-10 23:39	Impact Detection - System alarms detect failures with DNS infrastructure.
2021-03-11 00:00	Mitigation Start - To mitigate the issue, engineers restart DNS nameservers and continue to closely monitor service health to validate that impact is no longer occurring.
2021-03-11 00:40	Impact End - System health monitoring confirms that service is restored.
2021-03-11 00:47	Identified Issue - The DNS engineering team discovers a configuration issue with a recently deployed version of DNS nameserver software.

Root Cause

Category	Details
Identified Issue	An update to Oracle's public DNS nameserver infrastructure included a software defect that caused a negative interaction with a rarely used configuration update command, causing the running service to halt.
Mitigation	The process which caused the conflict was identified and stopped. A restart was performed on all nameservers to restore service health.
Root Cause	As part of a routine update, engineers executed a command to refresh DNS steering data, which is utilized to customize DNS responses based on customer-defined criteria. This command caused an assertion failure with the authoritative service, and the authoritative service failed as a result.

Corrective Actions

Oracle is taking the following corrective action(s) to reduce the likelihood of this event happening in the future:

Category	Details
Process improvement	To limit the potential scope of impact from this type of change, we're reviewing our DNS update processes and implementing changes to ensure that DNS subcomponents are deployed in a rolling fashion in the future.
Code Fix	We're preparing a code fix to correct the issue that caused the assertion failure with the resolution service.
Testing and Validation	We are expanding the scope of automated testing procedures to ensure edge cases like this are detected as part of routine testing processes.

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