

SAN FRANCISCO

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Database Self Service Patching

using EM 13c Fleet Maintenance

CON5186: Achieve Enterprise Scale for Database Patching: Customer Case Study

Sep 16, 2019

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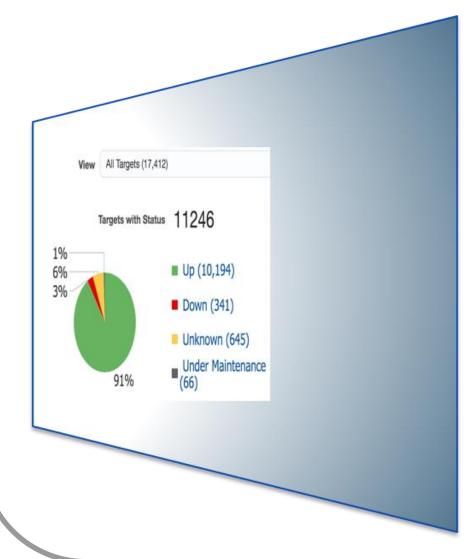


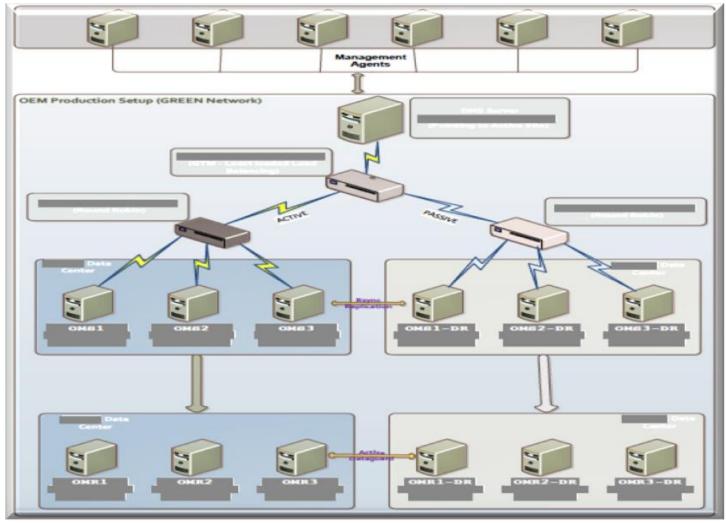
Agenda

- Company Overview
- Evolution of Oracle Enterprise Manager at Comcast
- Traditional Database Patching Strategy and need for automation
- EM13c DB Patching Orchestration overview
- Automated Database Patching Strategy using fleet maintenance
- Overview of Comcast's homegrown self service portal



Comcast's Level-4 HA-DR OEM Architecture







OEM Evolution at Comcast: One Tool, Many Usage



#1 Performance
Troubleshooting
tool for
troubleshooting
Oracle database
performance issues



Monitoring and
Alerting of 12,000
targets using
monitoring
templates, metric
extensions and
notifications



Analytics &
Reporting ability of
OEM helps in
compliance, capacity
management and
problem
management

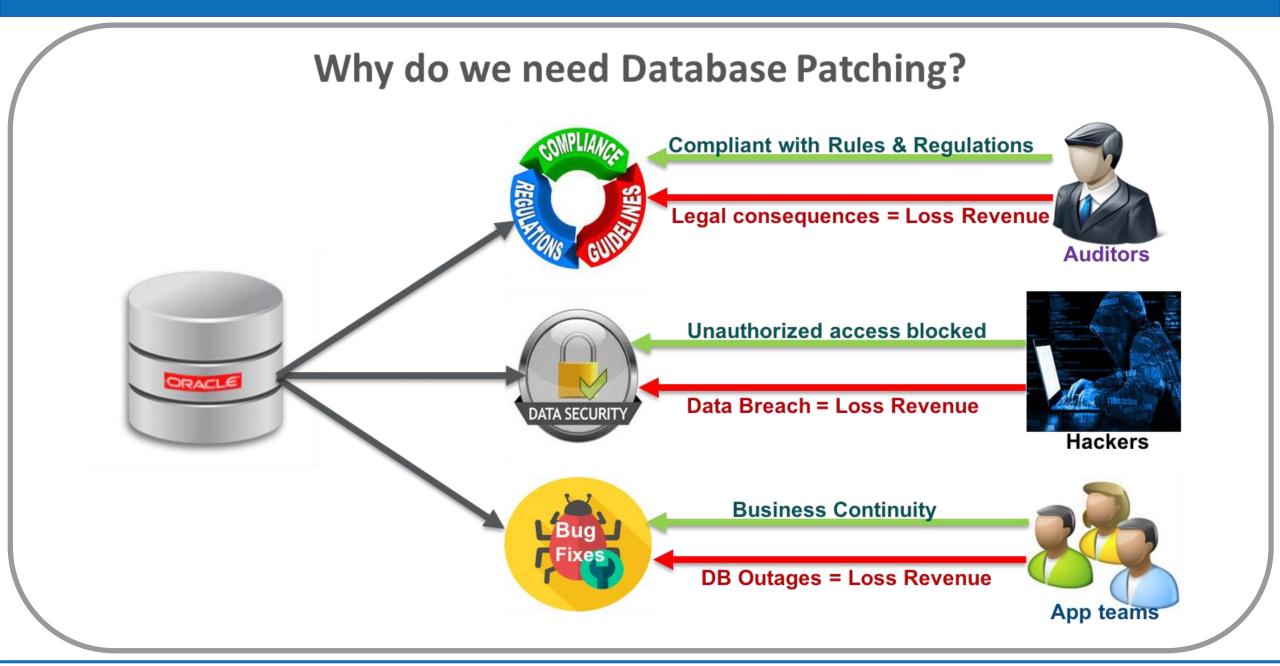


DBaaS self service portal is used to provision pluggable databases on private cloud



Automation
capability of OEM
simplifies some of
the complex activities
such as patch
management, agent
deployment etc.

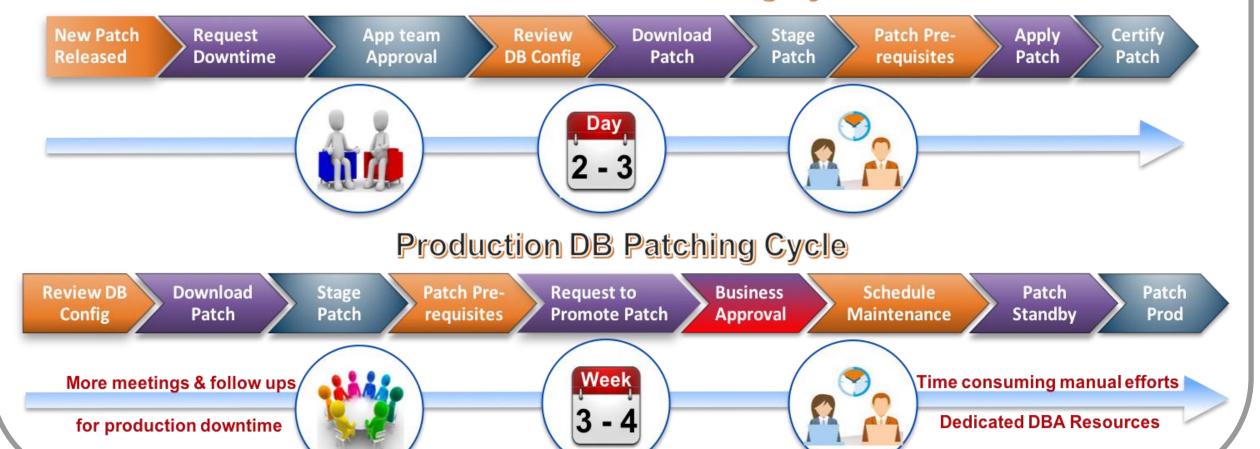






Traditional Database Patching Strategy

Non Production DB Patching Cycle





Why do we need Database Patching Automation?

Configuration Pollution

10.2.0.4.6

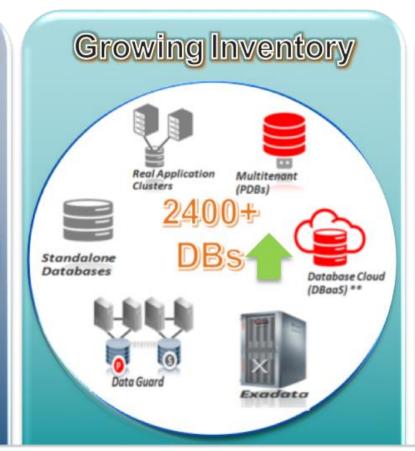
11.2.0.3.5 11.2.0.3.2

Multiple DB Versions

11.2.0.4.6

12.1.0.2.0

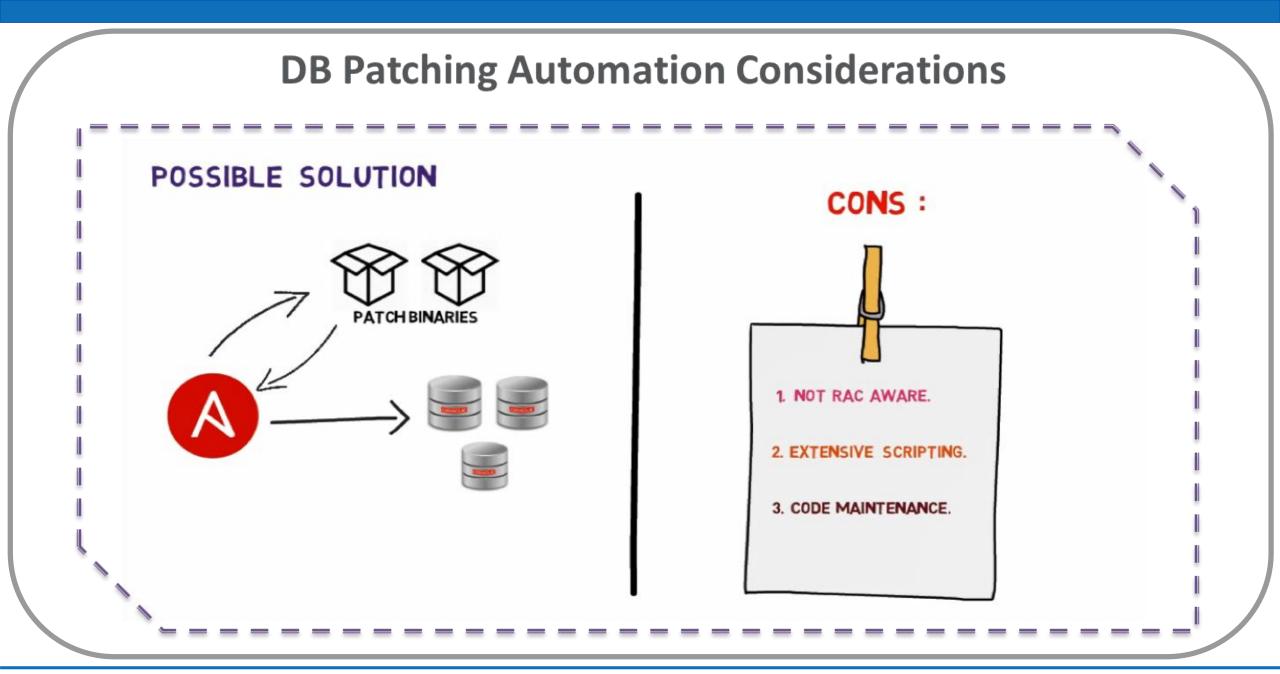
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Configuration Pollution + Growing Inventory = Struggle catching up quarterly patching cycle







EM13c DB Patching Orchestration – Fleet Maintenance

Create Gold Image

- Identify standard Configurations: SI, GI, RAC, Standby etc.
- Prepare reference environment and apply desired patches to each standard configuration
- Create GI image for each standard configuration

Subscribe Targets to GI

- > Subscription based model
 - multiple targets of same configuration for mass deployment

Push GI to Targets

- Shadow home or Inactive home will be provisioned using specific Gold Image on desired target host(s).
- Databases will be still running from the Active Oracle home which will remain un-affected

Switch Home

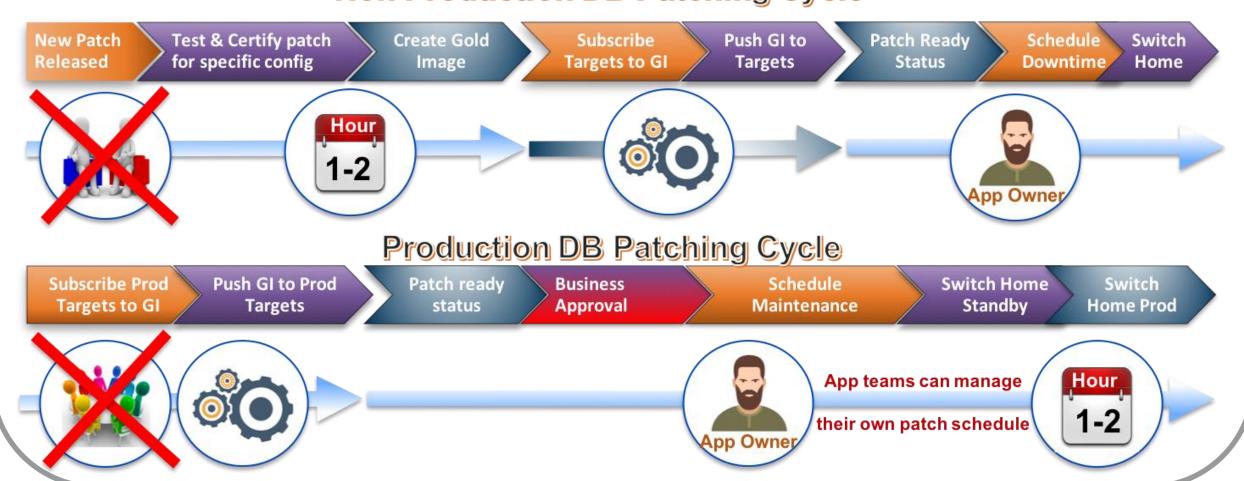
- Switch associated targets from Active Oracle Home to
 Newly Provisioned Oracle Home
- Requires minimum downtime

Cleanup
Inactive
Home

 Cleanup old oracle home once the database is switched to newly provisioned oracle home

Automated Database Patching Strategy

Non Production DB Patching Cycle



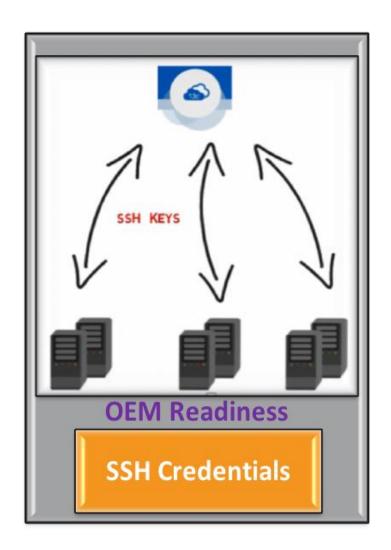


Prerequisites for fleet – Inventory Standardization 11.2.0.4.5 11.2.0.4.160419 #12.2.0.1.171017 **11.2.0.4.7 11.2.0.2.12 12.1.0.2.170418 11.2.0.4.0** ■11.2.0.4.3 **112010 11.2.0.3.15 ■11.2.0.4.6 12.1.0.2.181016 12.1.0.2.180116 11.2.0.4.160119 12.2.0.1.4** #11.2.0.4.180717 ■12.1.0.2.170718 **11.2.0.4** $\equiv 12.2.0.1$ **12.1.0.2** Reality Expectations Solve **Enforce Configuration Pollution DB Version Standards**



Prerequisites for fleet – Infrastructure Readiness

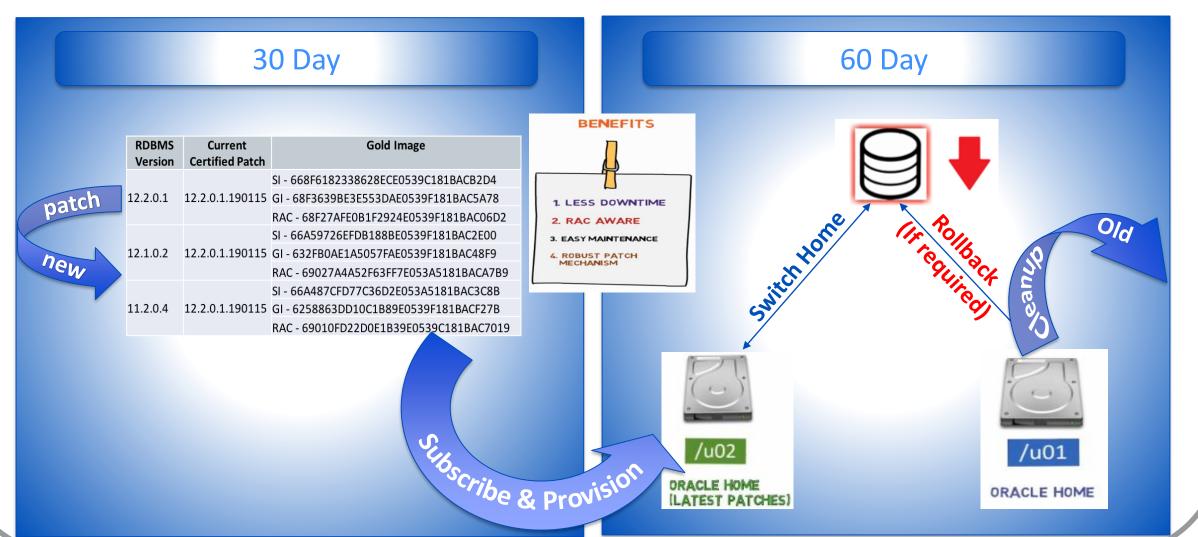








90 Days (N-1) Database Patching Strategy





Extending Self Service functionality to DevOps Team

Empower 300+ Application team to manage their own patching schedule

Self service functionality extended to Application teams using common interface/tools to maintain familiar user experience

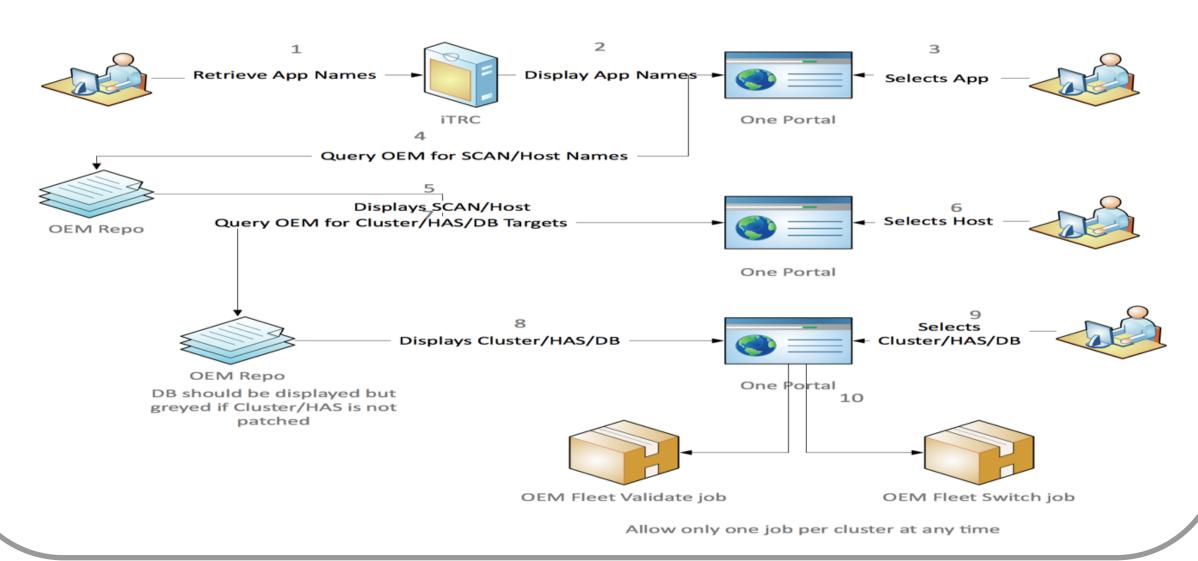
Push button functionality to submit database patching requests

Role based access to submit patching request

60 Days window to switch home to newly provisioned oracle home to satisfy our 90 Day (N-1) patching standard



Patching Workflow for Self Service Portal

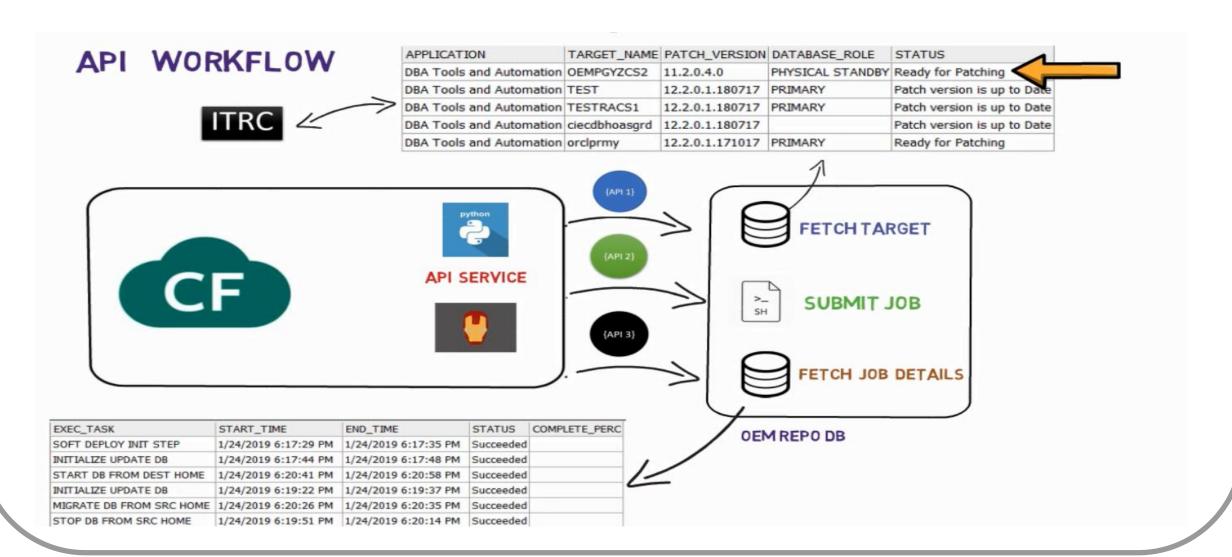




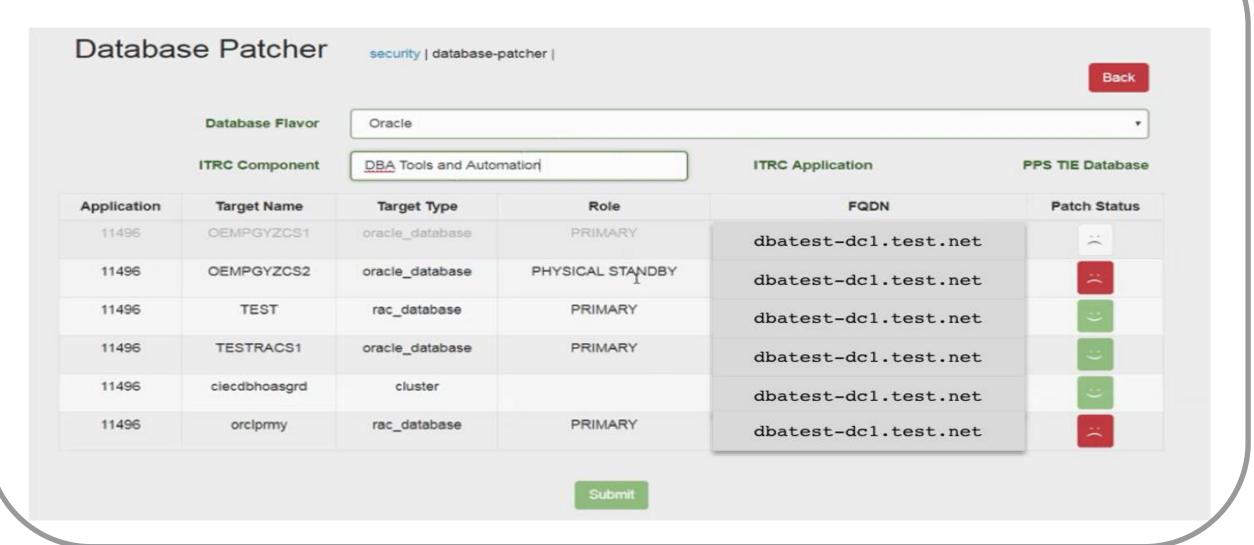
Self Service Portal – How Patch Status is determined? Database record All Target Patch version Yes Patch status is up to Date ? Fetch - API Already applied (GREEN smiley) No Patch status No Yes Not Ready Is Target Type is Cluster Patched? rac_database for Patching (GREY smiley) No yes Target Type is s Database have oracle_database Standby ? yes No Patch status yes Is Standby DB Ready Patch? for Patching

(RED smiley)

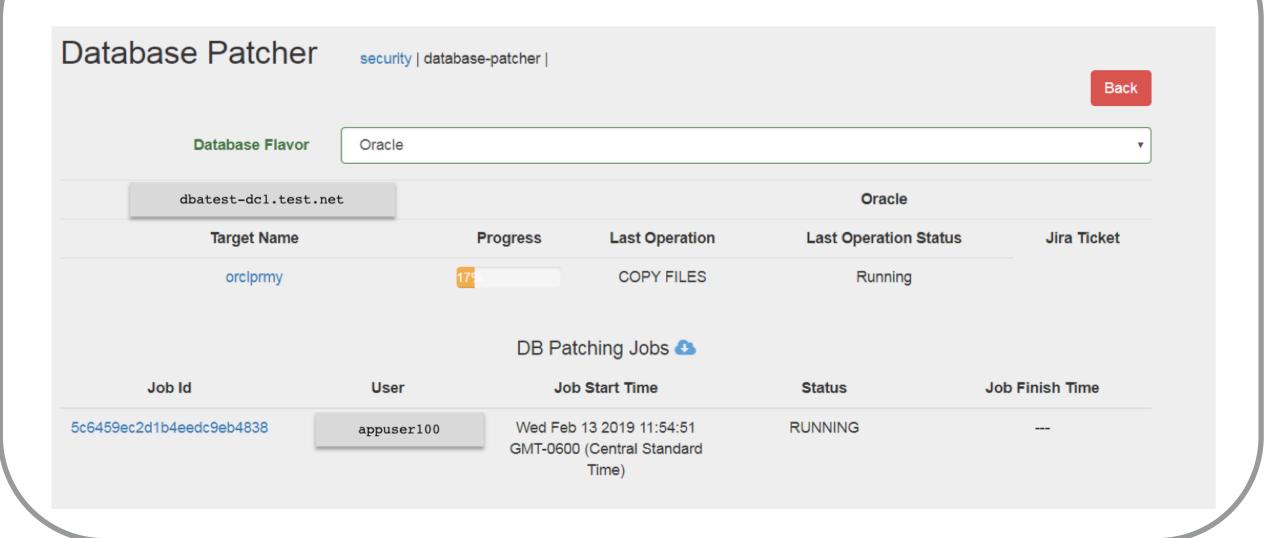




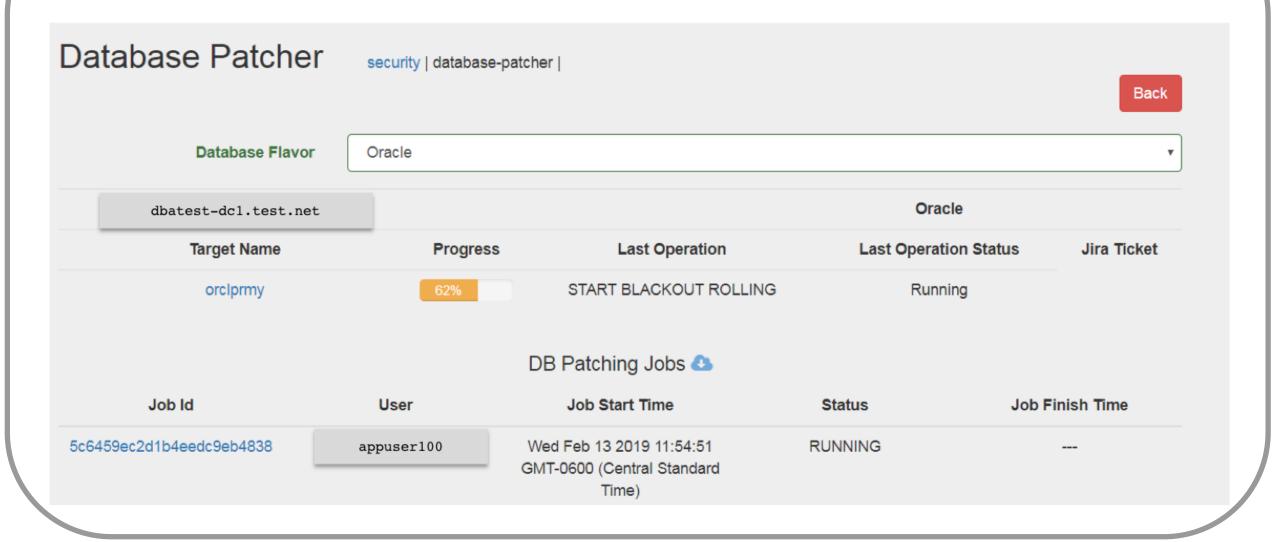




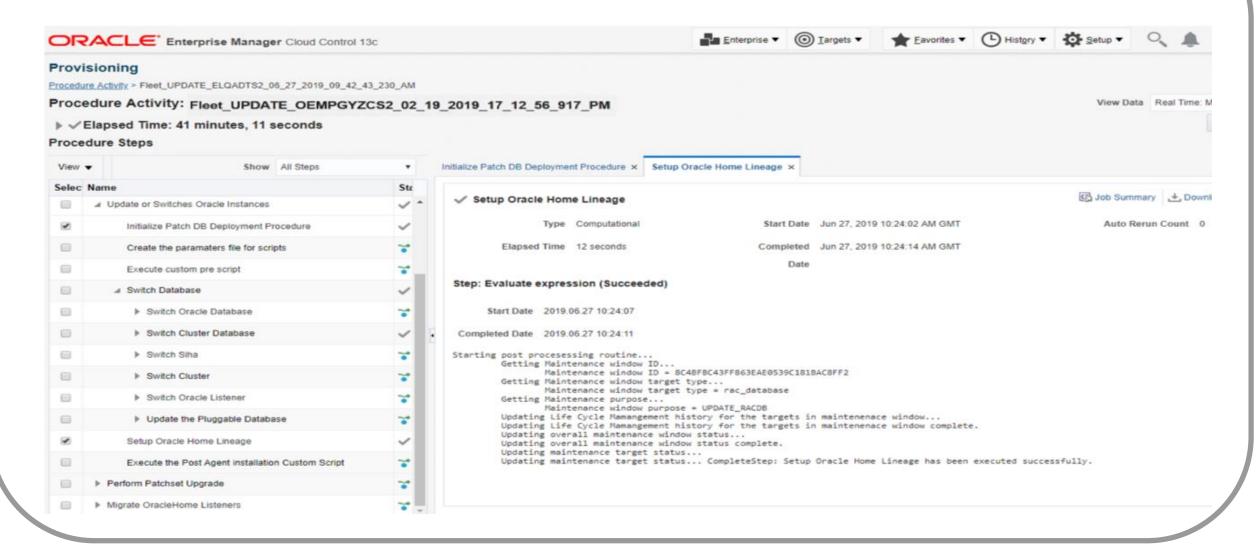




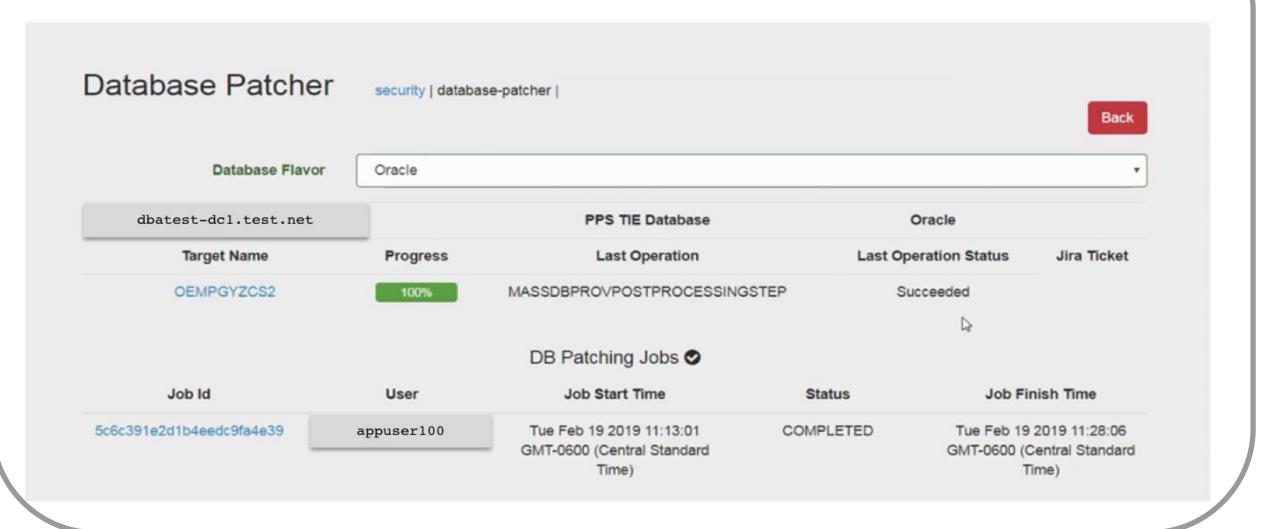














Benefits of Self Service Database Patching portal

- 2000 + databases getting patched every quarter
- 80% Reduced resource overhead for patching activities
- Total database downtime requirement for patching reduced drastically
- Push button automation empowered App teams to manage their own patching schedule
- Complete database patching orchestration reduced the human error
- Inventory standardization







Why this matters

Secure data and application ensures business integrity and continuity.

Our Goal

Database Patching is **critical**, our goal is to enable all DB DevOps to incorporate patching as a cyclic automated activity.



Recommendations for adoption

- Focus on Standardization
- Onboarding needs PoC/Testing
- Fleet Maintenance Pre/Post scripts for customizations and automation
- Ask for help Oracle Support & Product Management

High Returns for efforts



What's Ahead

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Monday

10:00 10:45 Patch and Upgrade Oracle Multitenant with Fleet Maintenance [Room 205]

1:45 2:30 Achieving Database Patching Success: Fleet Maintenance Best Practices[Room 212]

HOL5264: Stay Protected, Patch Often with Oracle Enterprise Manager Fleet Maintenance[West 3022A]



9:00 10:00 HOL5264: Stay Protected, Patch Often with Oracle Enterprise Manager Fleet Maintenance

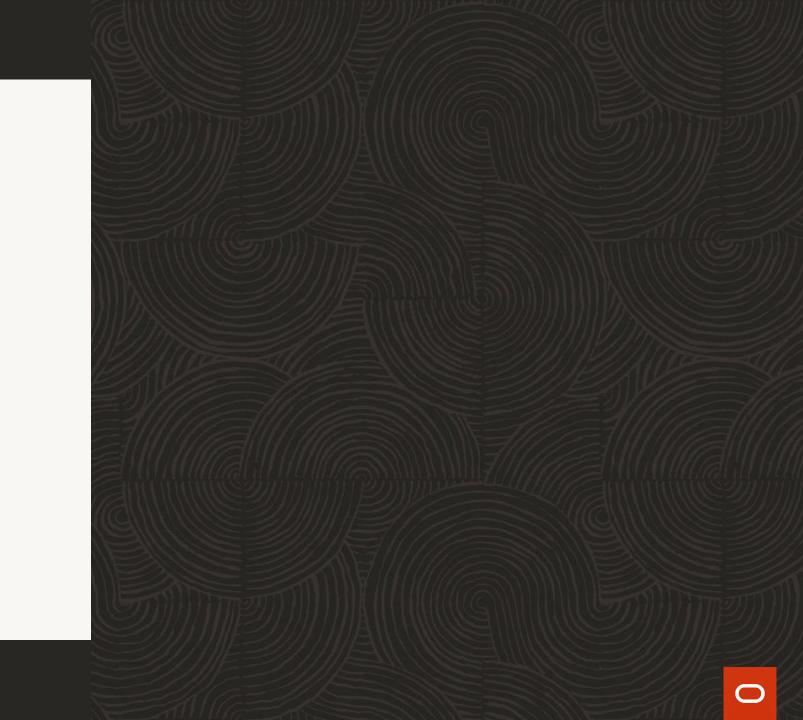
Demo Grounds: OMC-002 - Database

Mon-Wed Lifecycle Management, DBaaS, and
Snap Cloning with Oracle Enterprise
Manager 13c

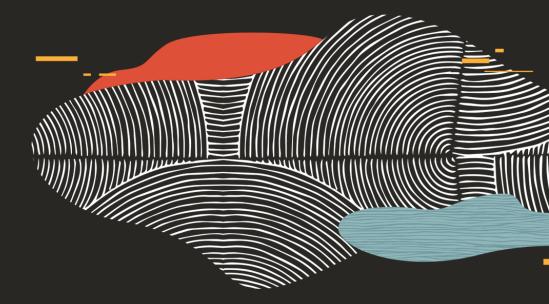
Thank You

Product Management Team

Oracle Enterprise Manager
Database Lifecycle Management &
Cloud Management Pack



Q&A



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