

ORACLE®

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle. Release timing for Oracle Database 12c is planned for Calendar Year 2013.



# Security Inside Out

## Latest Innovations in Oracle Database 12c

Guy Chiasson  
Security Solution Specialist  
Oracle

Oracle Security Solutions





**67%**

**76%**

**69%**

**97%**

Records breached  
from servers

Breached using weak  
or stolen credentials

Discovered by an  
external party

Preventable with  
basic controls

**ORACLE**

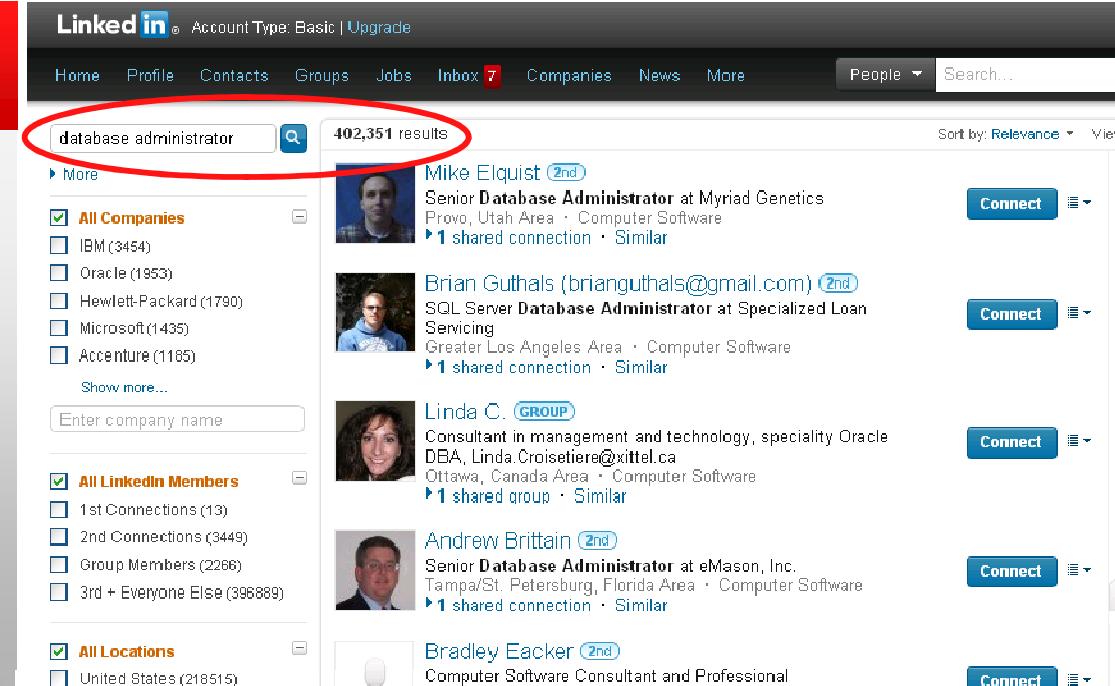
# Targets Increasing as Attacks Evolve

DBAs, OS Admins, Developers, Multiple Copies of the Data, etc.

## Anatomy of an Attack

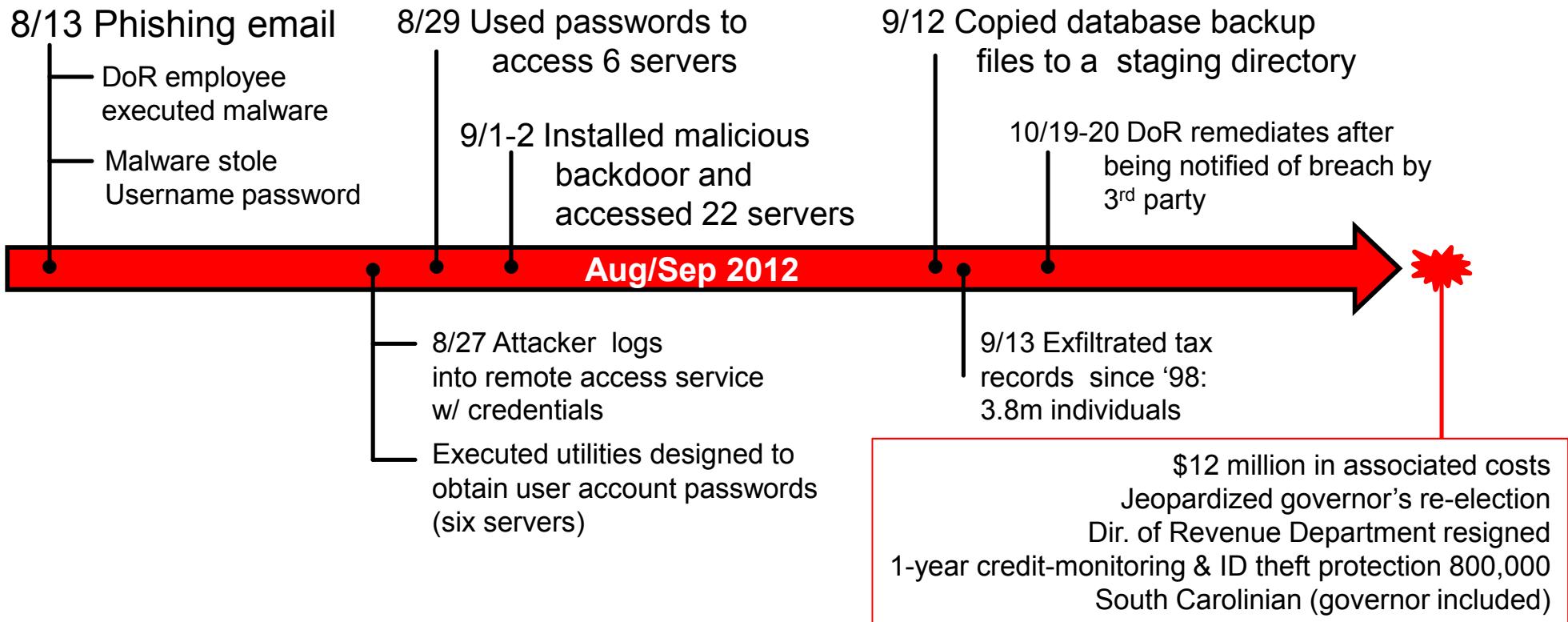
*“You don’t bother to just simply hack the organization and its infrastructure; you focus much more of your attention on hacking the employees....”*

*Uri Rivner  
CTO, RSA (Security Division of EMC)*



The screenshot shows a LinkedIn search results page with a red circle highlighting the search bar and the results count. The search bar contains the text 'database administrator'. To the right of the search bar, it says '402,351 results'. The results list several profiles of database administrators, each with a thumbnail, name, title, and a 'Connect' button. The profiles include Mike Elquist, Brian Guthals, Linda C., Andrew Brittain, and Bradley Eacker. The LinkedIn navigation bar at the top includes Home, Profile, Contacts, Groups, Jobs, Inbox, Companies, News, and More. The search bar at the top right is empty.

# Example: South Carolina's Data Breach

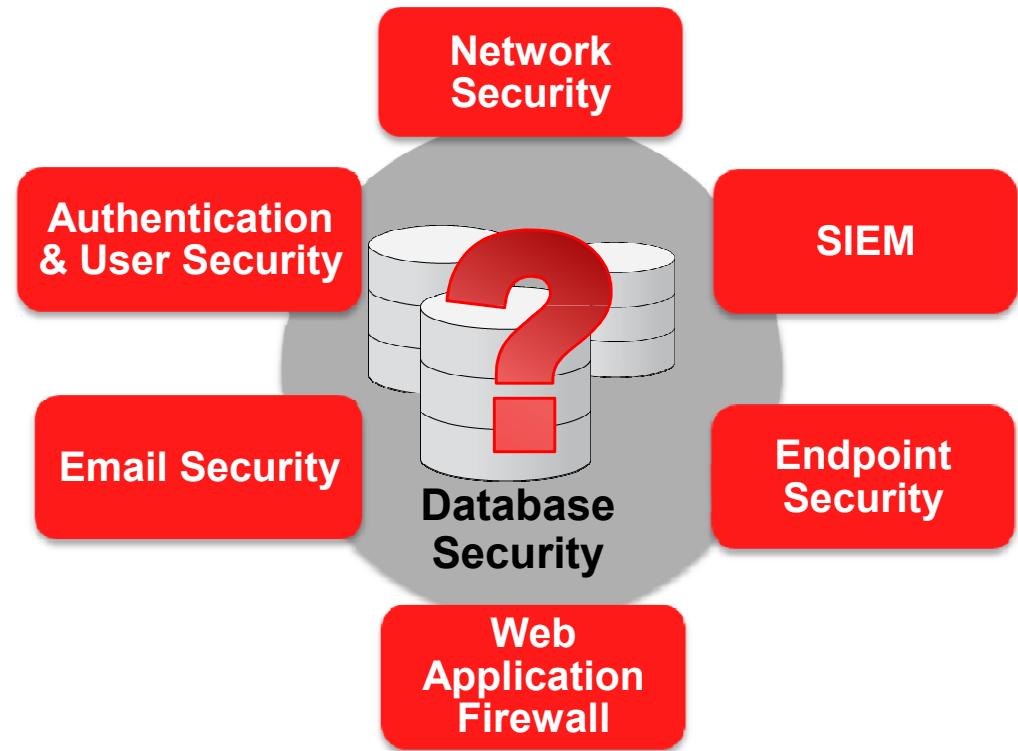


# Why Are Databases So Vulnerable?

80% of IT Security Programs Don't Address Database Security

## Forrester Research

*“Enterprises are taking on risks that they may not even be aware of. Especially as more and more attacks against databases exploit legitimate access.”*



# Oracle Database Security Solutions

## Defense-in-Depth for Maximum Security

### PREVENTIVE

Encryption

Redaction and Masking

Privileged User Controls

ORACLE®



### DETECTIVE

Activity Monitoring

Database Firewall

Auditing and Reporting

ORACLE®



### ADMINISTRATIVE

Privilege Analysis

Sensitive Data Discovery

Configuration Management

ORACLE®



ORACLE®

# Oracle Database Security Solutions

## Defense-in-Depth for Maximum Security

### PREVENTIVE

Encryption

Redaction and Masking

Privileged User Controls

ORACLE®



### DETECTIVE

Activity Monitoring

Database Firewall

Auditing and Reporting

ORACLE®



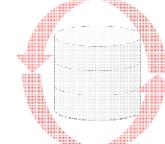
### ADMINISTRATIVE

Privilege Analysis

Sensitive Data Discovery

Configuration Management

ORACLE®



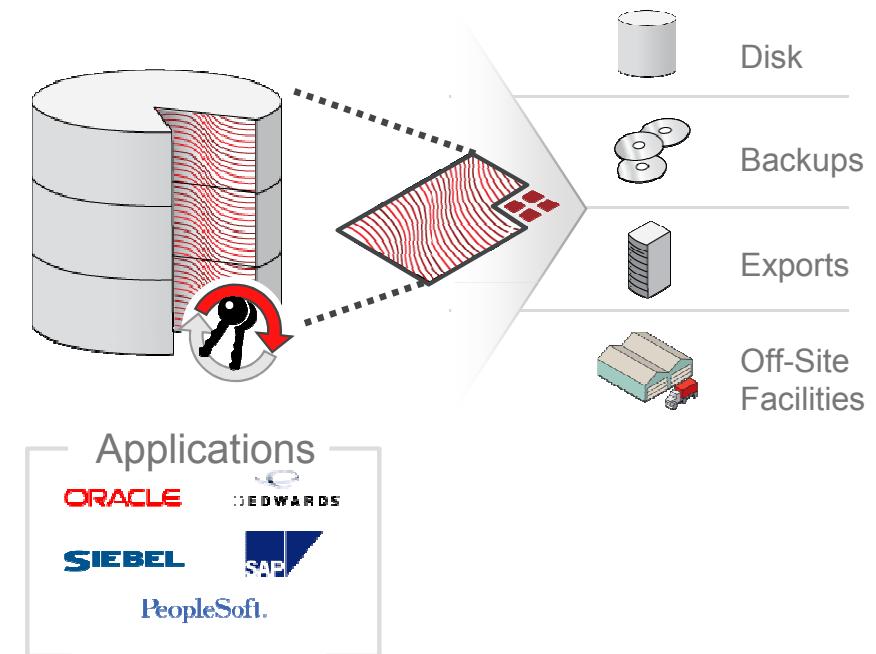
ORACLE®

# Encryption is the Foundation

## Preventive Control for Oracle Databases

### Oracle Advanced Security

- Transparent data encryption
- Prevents access to data at rest
- Requires no application changes
- Built-in two-tier key management
- “Near Zero” overhead with hardware
- Integrations with Oracle technologies
  - e.g. Exadata, Advanced Compression, ASM, Golden Gate, DataPump, etc.

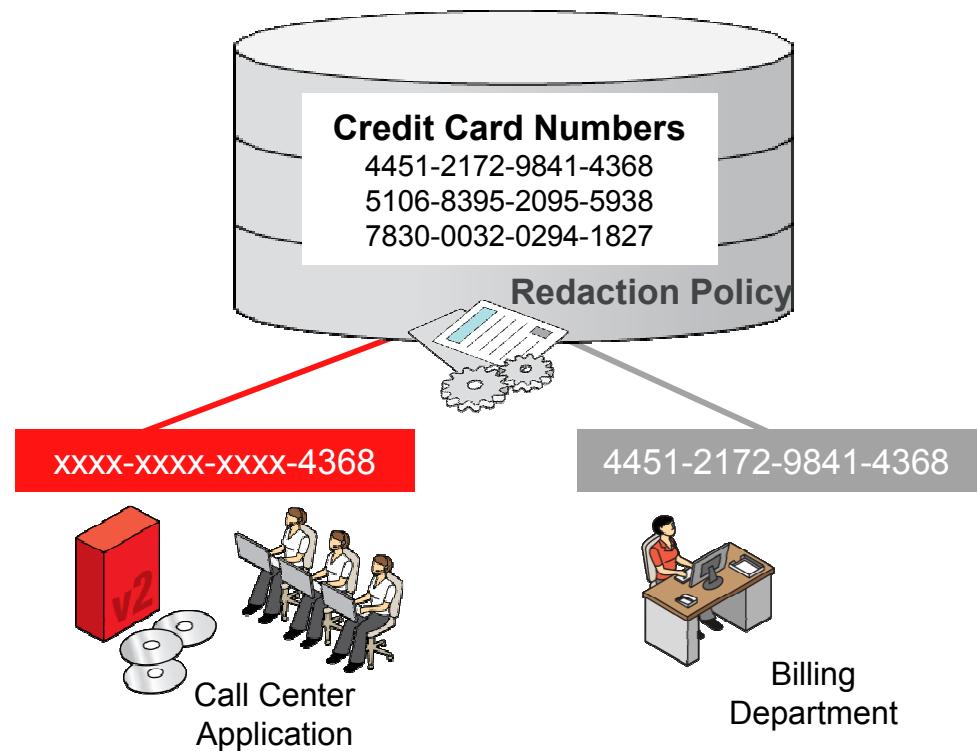


# Redaction of Sensitive Data Displayed

## Preventive Control for Oracle Database 12c

### Oracle Advanced Security

- Real-time sensitive data redaction based on database session context
- Library of redaction policies and point-and-click policy definition
- Consistent enforcement, policies applied to data
- Transparent to applications, users, and operational activities



# Masking Data for Non-Production Use

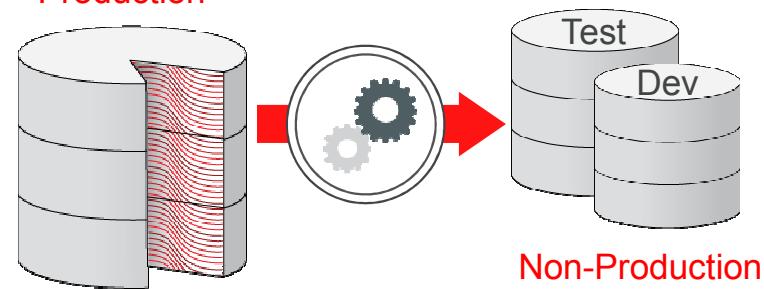
## Preventive Control for Oracle Databases

### Oracle Data Masking

- Replace sensitive application data
- Referential integrity detected/preserved
- Extensible template library and formats
- Application templates available
- Support for masking data in non-Oracle databases

LAST_NAME	SSN	SALARY
AGUILAR	203-33-3234	40,000
BENSON	323-22-2943	60,000

Production



LAST_NAME	SSN	SALARY
ANSKEKSL	323-23-1111	60,000
BKJHHEIEDK	252-34-1345	40,000

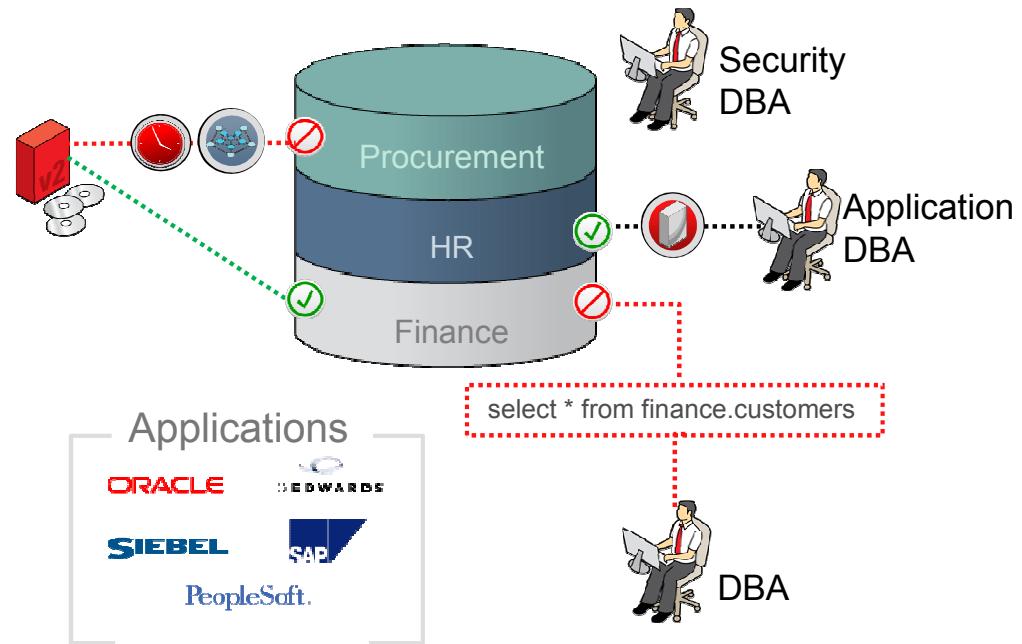
ORACLE

# Privileged User Controls

## Preventive Control for Oracle Databases

### Oracle Database Vault

- Limit DBA access to application data
- Multi-factor SQL command rules
- Realms create protective zones
- Enforce enterprise data governance, least privilege, segregation of duties
- Out of the box application policies

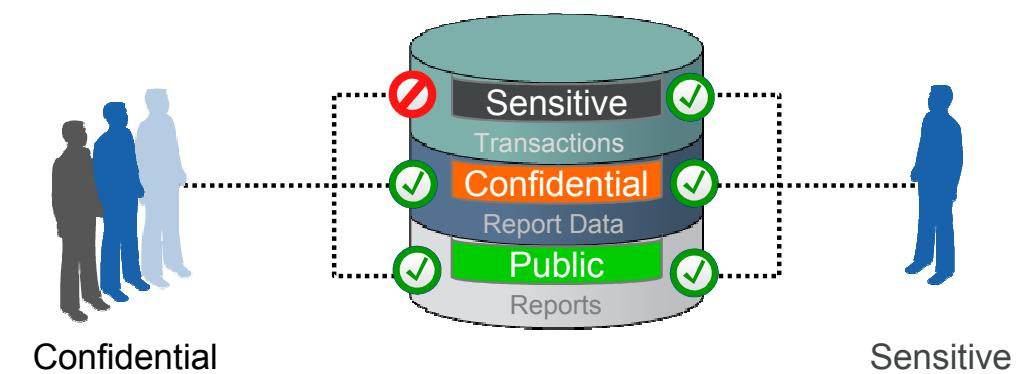


# Label Based Access Control

## Preventive Control for Oracle Databases

### Oracle Label Security

- Virtual information partitioning for cloud, SaaS, hosting environments
- Classify users and data using labels
- Labels based on business drivers
- Automatically enforced row level access control, transparent to applications
- Labels can be factors in other policies



# Oracle Database Security Solutions

## Defense-in-Depth for Maximum Security

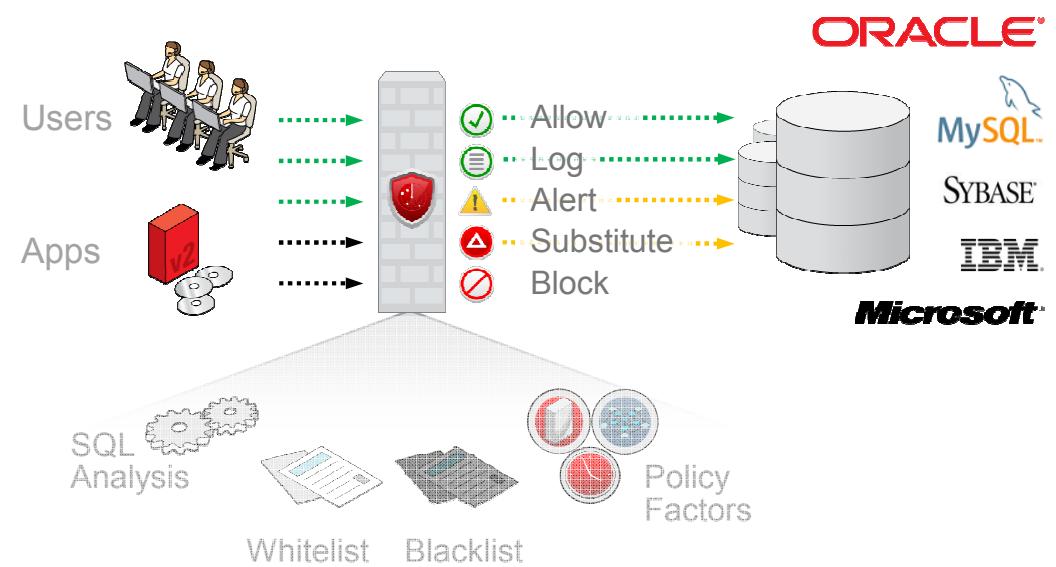


# Database Activity Monitoring and Firewall

## Detective Control for Oracle and non-Oracle Databases

### Oracle Audit Vault and Database Firewall

- Monitors network traffic, detect and block unauthorized activity
- Highly accurate SQL grammar analysis
- Can detect/stop SQL injection attacks
- Whitelist approach to enforce activity
- Blacklists for managing high risk activity
- Scalable secure software appliance

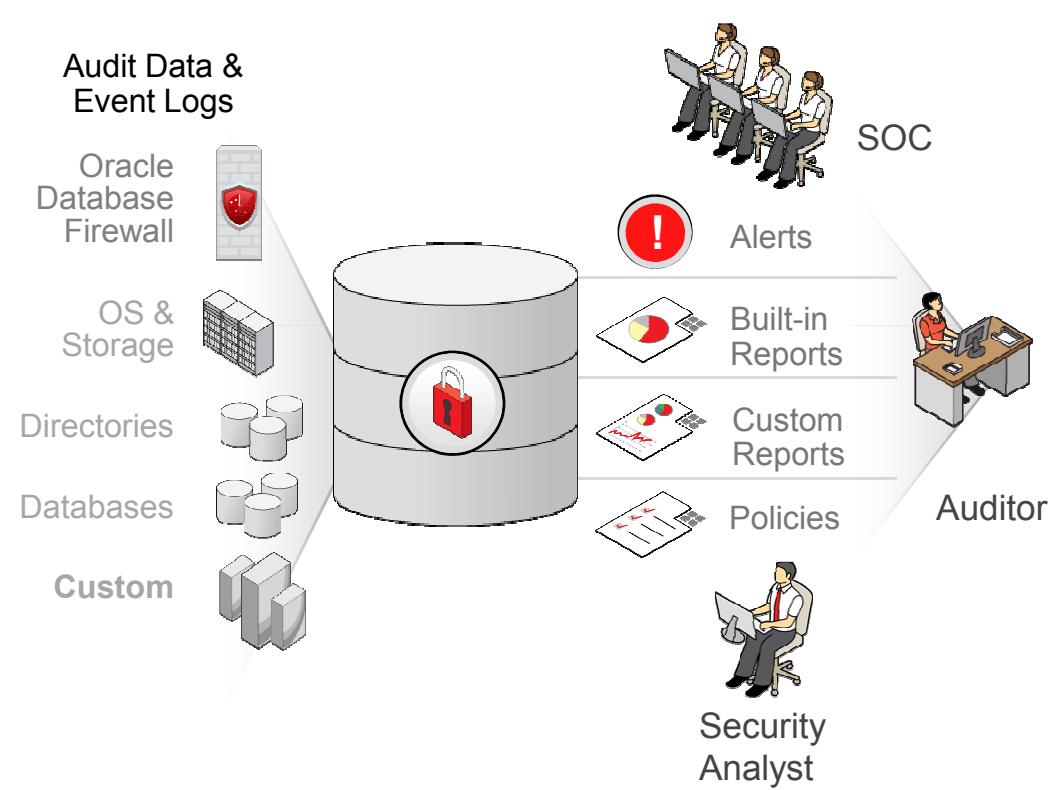


# Audit, Report, and Alert in Real-Time

## Detective Control for Oracle and non-Oracle Databases

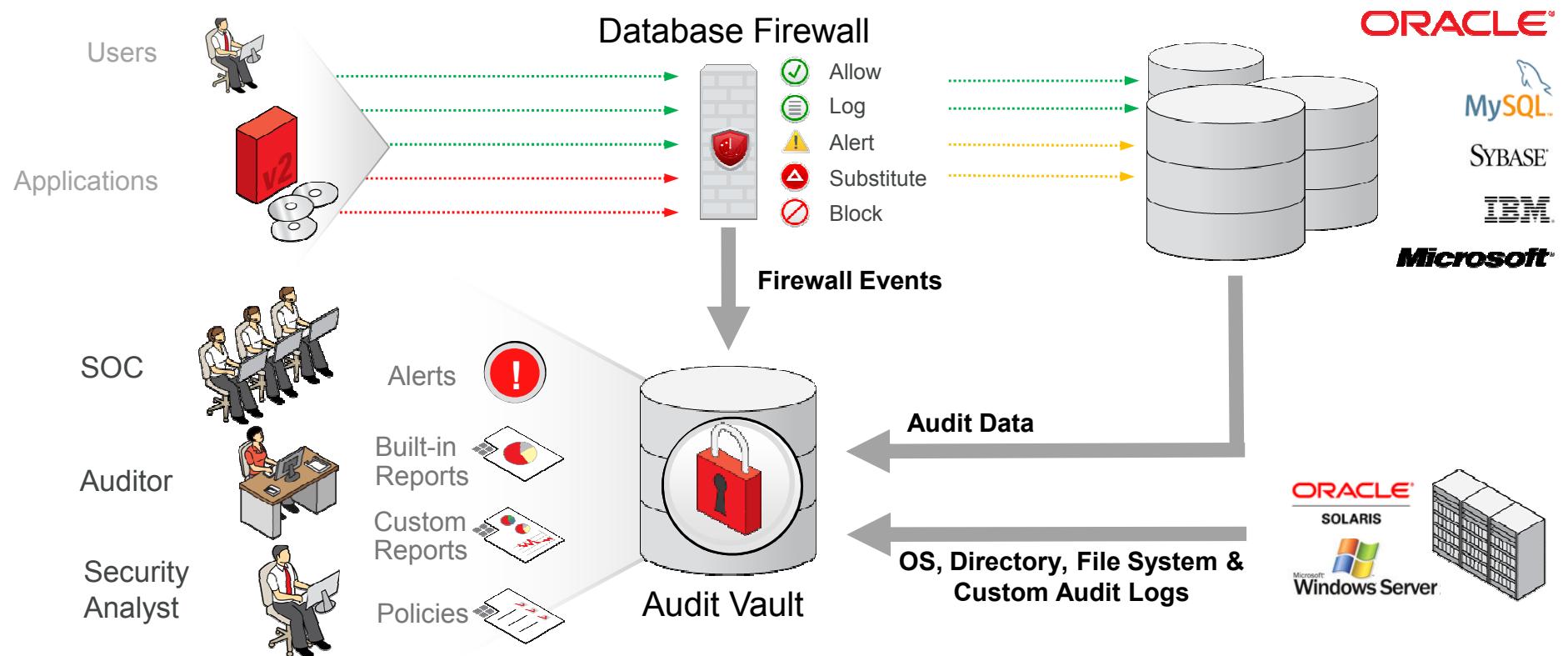
### Oracle Audit Vault and Database Firewall

- Centralized secure repository delivered as secure, scalable software appliance
- Powerful alerting - thresholds, group-by
- Out-of-the box and custom reports
- Consolidated multi-source reporting
- Built-in fine grain segregation of duties



# Oracle Audit Vault and Database Firewall

## New Solution for Oracle and Non-Oracle Databases

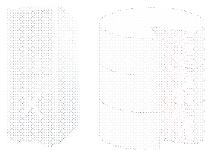


# Oracle Database Security Solutions

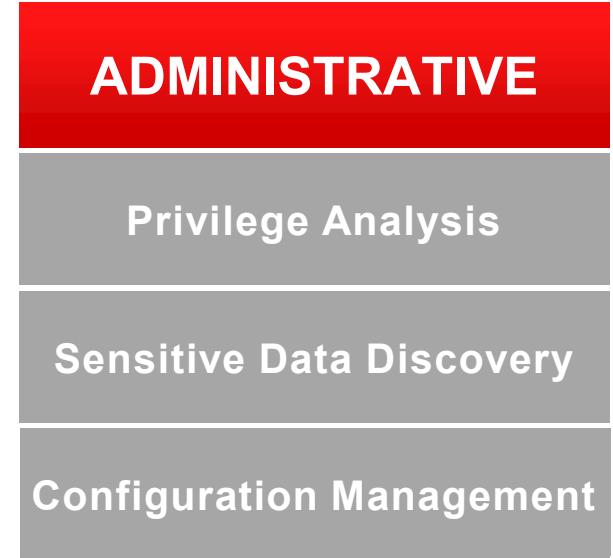
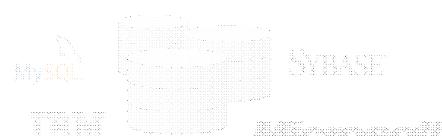
## Defense-in-Depth for Maximum Security



ORACLE®



ORACLE®



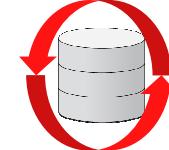
ADMINISTRATIVE

Privilege Analysis

Sensitive Data Discovery

Configuration Management

ORACLE®



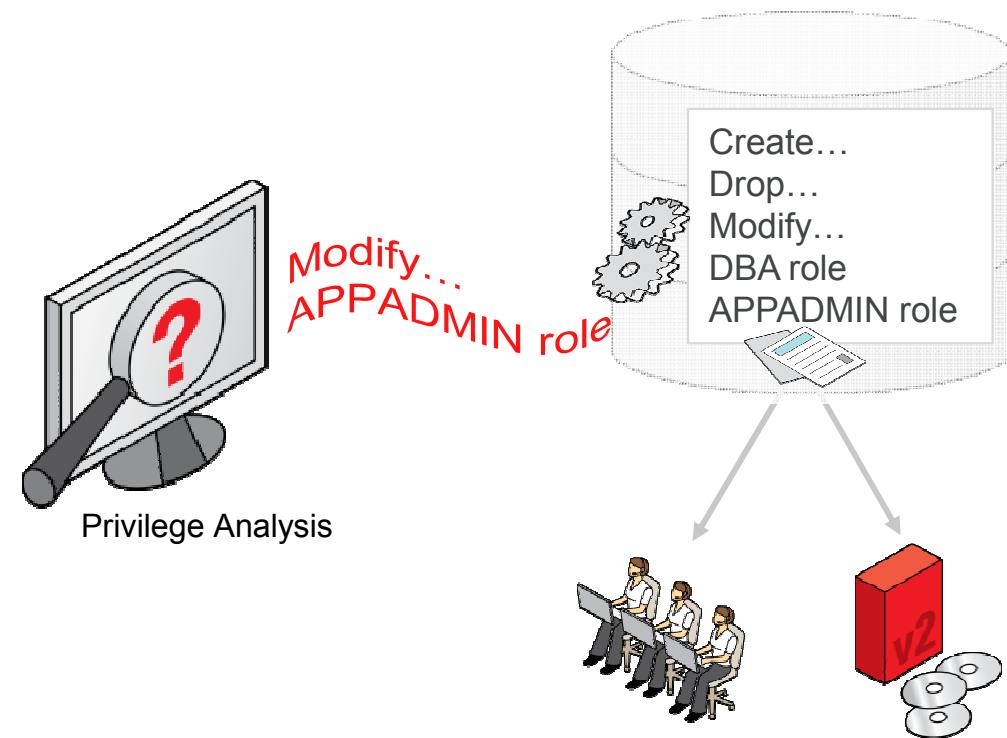
ORACLE®

# Discover Use of Privileges and Roles

## Administrative Control for Oracle Database 12c

### Oracle Database Vault

- Turn on privilege capture mode
- Report on actual privileges and roles used in the database
- Helps revoke unnecessary privileges
- Enforce least privilege and reduce risks
- Increase security without disruption

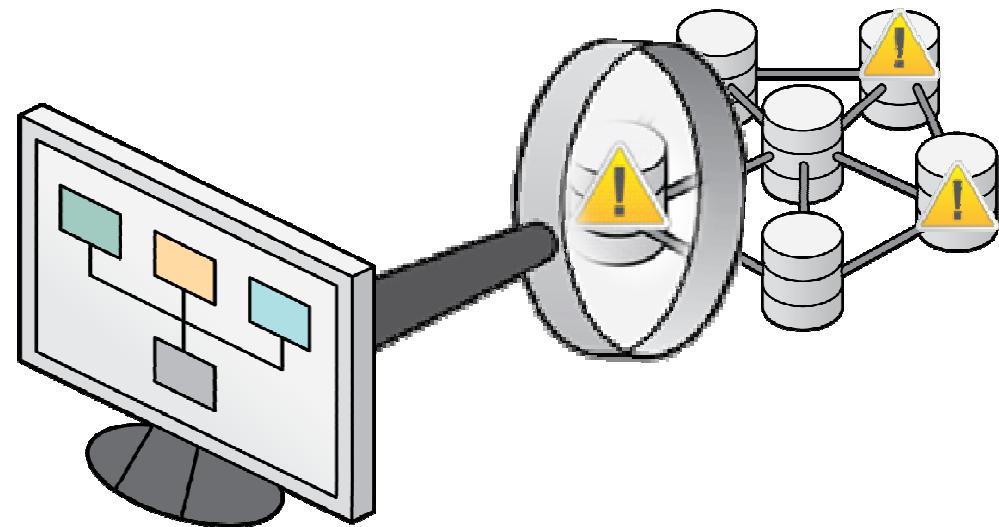


# Discover Sensitive Data and Databases

## Administrative Control for Oracle Database 12c

### Oracle Enterprise Manager 12c

- Scan Oracle for sensitive data
- Built-in, extensible data definitions
- Discover application data models
- Protect sensitive data appropriately: encrypt, redact, mask, audit...



# Configuration Management

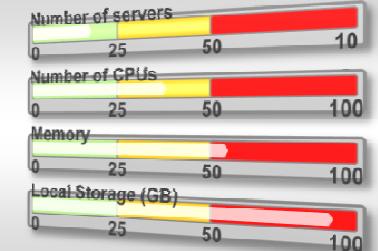
## Administrative Control for Oracle Databases

### Oracle Database Lifecycle Management

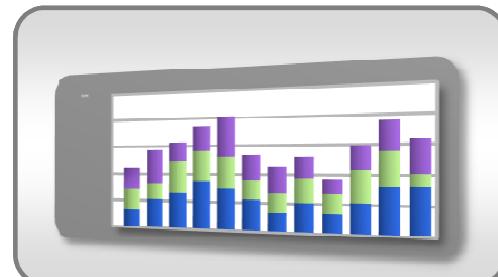
- Discover and classify databases
- Scan for best practices, standards
- Detect unauthorized changes
- Automated remediation
- Patching and provisioning



Discover



Scan & Monitor

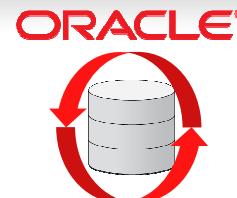


Patch

# Oracle Database Security Solutions

## Defense-in-Depth for Maximum Security

PREVENTIVE	DETECTIVE	ADMINISTRATIVE
Encryption	Activity Monitoring	Privilege Analysis
Redaction and Masking	Database Firewall	Sensitive Data Discovery
Privileged User Controls	Auditing and Reporting	Configuration Management



ORACLE

# Oracle Database Security Customers

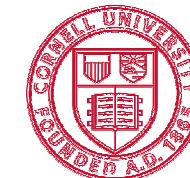
## Customers Worldwide Rely on Oracle

### Customer Benefits

- Enterprise ready
- Security and compliance
- Simple and flexible
- Speed and scale

[oracle.com/goto/database/security-customers](http://oracle.com/goto/database/security-customers)

...T...Mobile



**Sabre**

**BBVA** **Compass**



**BE THE MATCH**

**ST. JUDE MEDICAL**  
MORE CONTROL. LESS RISK.

**ORACLE**

# Oracle Database Security Resources

[www.oracle.com/database/security](http://www.oracle.com/database/security)



The screenshot shows the Oracle Database Security homepage. At the top, there's a navigation bar with links for Sign In/Register for Account, Help, Select Country/Region, Communities, I am a..., I want to..., a Search bar, and the Oracle Technology Network. Below the navigation is a breadcrumb trail: Products and Services > Oracle Database > Database Security > Resources. The main header is 'Oracle Database Security' with the tagline 'Security Inside Out'. Below the header is a red banner featuring a video player showing a man speaking, with the text 'Video: Customers Discuss Oracle Database Vault (1:29)'. The page is divided into several sections: 'Oracle Audit Vault and Database Firewall', 'Advanced Security', 'Database Vault', 'Label Security', and 'Data Masking'. Each section has a thumbnail, a 'What's New' link, and a 'Customer Highlights' video thumbnail. There are also 'Events' and 'More' links. At the bottom, there are tabs for 'Overview' and 'Resources', and sections for 'Featured Resources' (with links to PDFs like 'Cost Effective Security and Compliance with Oracle Database 11g') and 'Data Sheets' (with links to PDFs like 'Oracle Audit Vault and Database Firewall', 'Oracle Exadata Database Machine: Security Overview', and 'Oracle Advanced Security'). On the right, there's a 'Live Sales Chat' button, a phone icon with 'Oracle 1-800-633-0738', and links for 'Have Oracle call you' and 'Global contacts'.

- Data Sheets
- Whitepapers
- Webcasts
- Case Studies
- Events
- News
- and more...

# Q&A

ORACLE

Oracle Security Solutions



**SECURITY  
INSIDE  
OUT**

ORACLE

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle. Release timing for Oracle Database 12c is planned for Calendar Year 2013.

ORACLE®