Safe Harbor Statement

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.

# Privacy, Security and Beneficial Use of Data Optimization not Balance

Joseph Alhadeff
VP Global Public Policy
Chief Privacy Strategist, Oracle

February 10th, 2017

Disclaimer

- Actually, I'm more of a policy wonk...
- There are other Oracle folks here who can answer technical questions for you.
- Some slides are of Oracle products and are meant to be illustrative, because I suck at PPT and can't recreate them.

DAMMIT JIM, I'M A NETWORK ENGINEER NOT AN ORACLE DBA
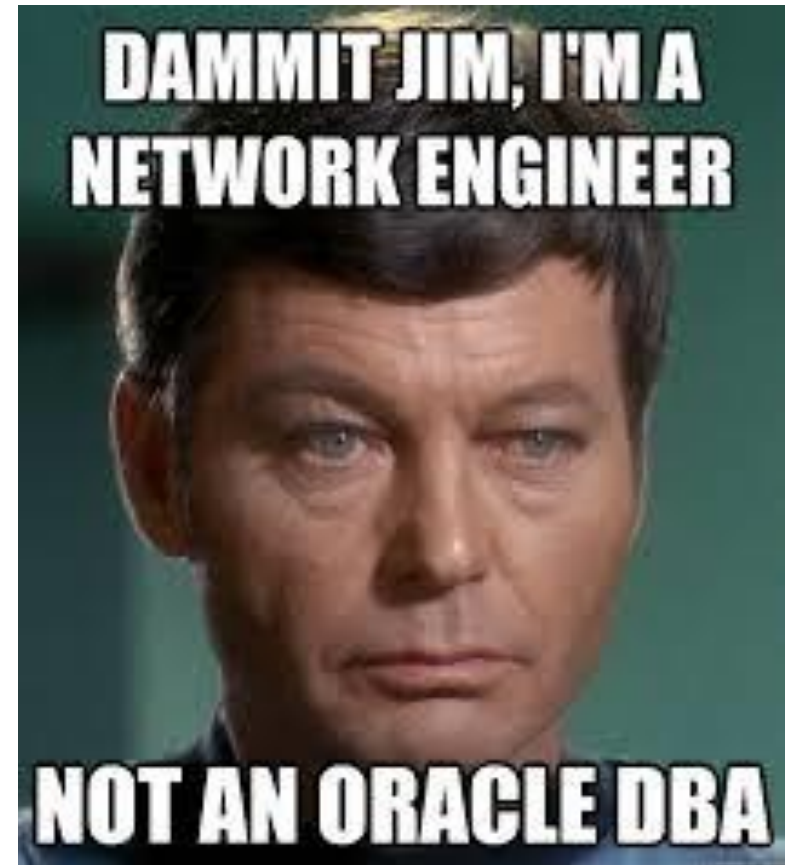
Enhanced, beneficial and responsible data use
The new normal

- More data: direct, observed, inferred and created - across more sources

- Improved correlation and analysis lead to linkages and insights

- How to enable innovation and seize its benefits while addressing the possible risks

- Need appropriate legal and organizational frameworks

POLICIES
We may need to update these at some point.

Driving the Change…

- Pressure to share and use data more productively

- Pressure to increase efficiency and decrease costs

- Enhanced concerns over security breach

- Enhanced awareness of privacy

ORACLE®

Drivers for Government Cloud Adoption

Business Drivers

Improve citizen services and experiences.
Many governments are looking for ways to providing better, more integrated and targeted services to their constituents, while reducing long term cost of delivery.

Overcome budget cuts and rising costs.
In the current economic climate, governments all are faced with declining tax revenues and other incomes, while the costs for running the country are generally rising.

Deliver more innovation.
Agencies have a need to deploy personalized solutions for their line of business unique demands. Furthermore there is a need to do so, in a much more rapid fashion than ever before.

Operational & IT Drivers

Reduce escalating operational costs.
Adopt technology solutions that reduce costs such as maintenance, power, cooling, rack and floor space and staff.
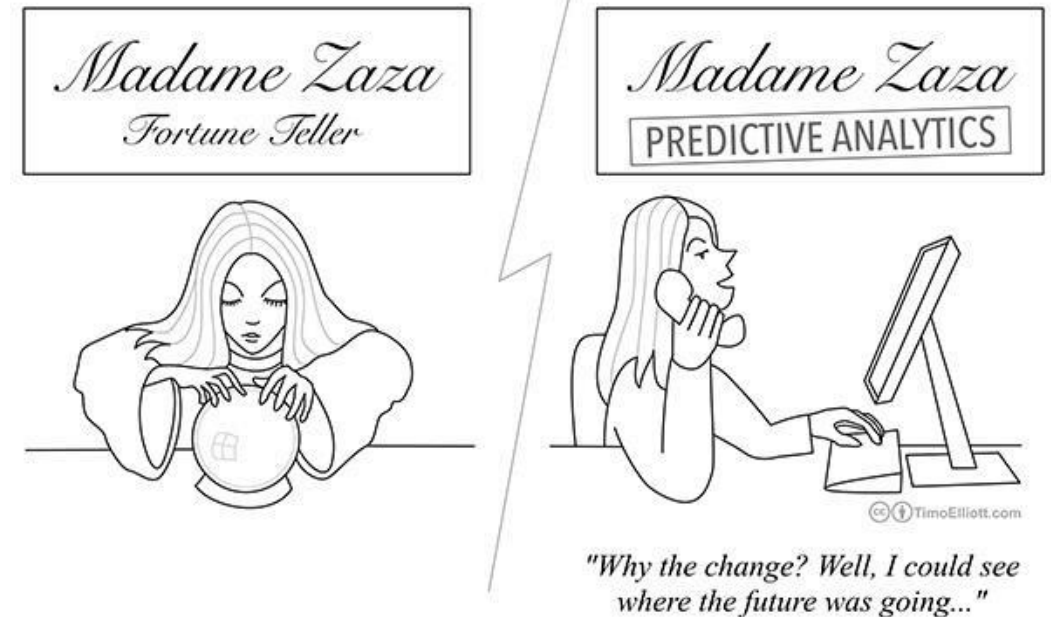
Enable process improvement.
Deliver business capabilities that provide improvements in overall costs and effectiveness of government processes.

Improve service levels
around performance, availability, security and compliance. Provide regular cadence of smaller upgrades, which are less disruptive and less costly.

ORACLE®

Unleashing Data to Do Good, Responsibly…

- Organizations rarely optimize the use of the data they have internally or along the value chain (or across the whole of government).

- How do you make more and better use of the data while still keeping it secure and maintaining privacy?

- Optimization also has to include beneficial and productive use of data

Madame Zaza
Fortune Teller

Madame Zaza
PREDICTIVE ANALYTICS

ⓒⓘTimoElliott.com

"Why the change? Well, I could see where the future was going…"

Not Security or Privacy, But How to Better Use Data Responsibly…

- Binary concepts reduce options for enhanced use of data that can result in both organizational and user benefits

- We are just now coming to terms on how to deal with broader questions of societal concern and benefit (ethics, etc).

- Optimization is the extensible solution

Avoid "two dimensional thinking"…

- **Trekkies - ?**
- Binary is not a holistic view; it's a limited analysis that doesn't incorporate innovation and is not extensible
- Start with the objective as opposed to the obligation
- The use of data must be compliant but, compliance should not be the driver of the use of data
- Compliance becomes enabler, not handcuffs

Star Trek fans doctor image of former PM on Canadian $5 bill to look like Leonard Nimoy (but the bank's not happy)
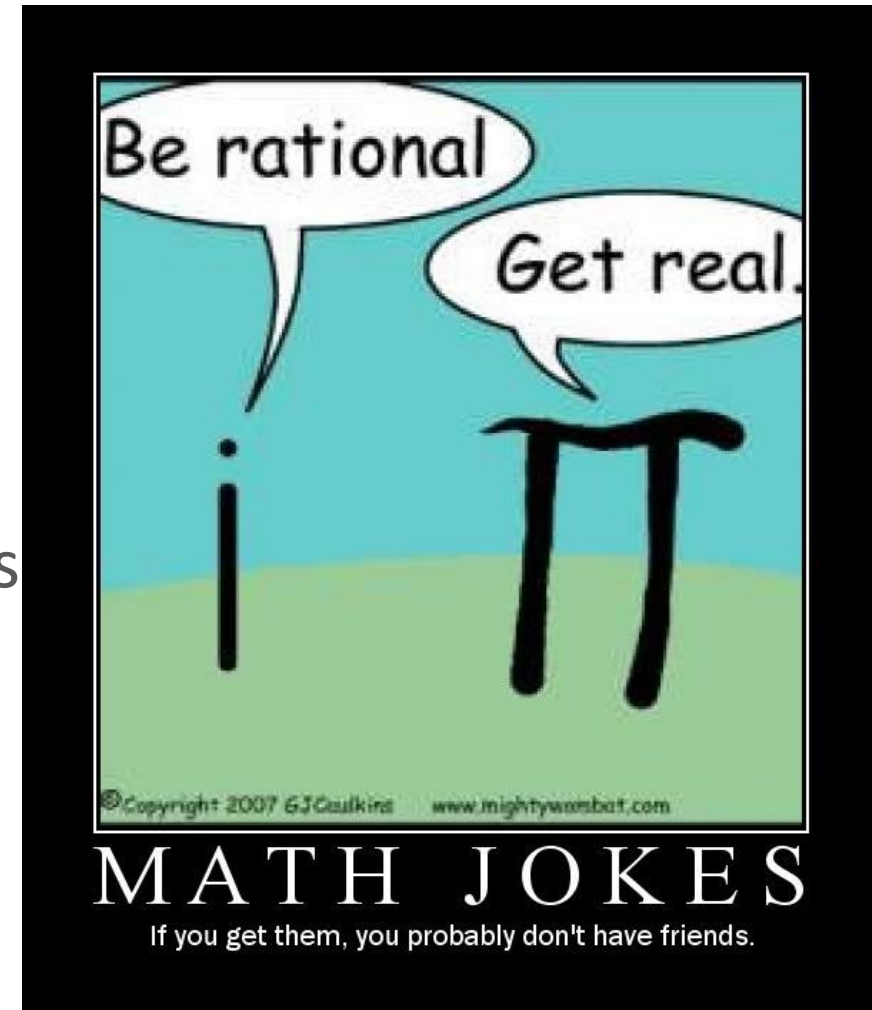
© Twitter/Robert Estes

Tribute: Scrawled images of Mr Spock have started appearing on Canadian $5 bills, with Star Trek fans defacing the former prime minster in honor of actor Leonard Nimoy.

© Twitter/Design Canada

Long-running tradition: The act of giving Sir Wilfrid Laurier - who was head of government from 1896 to 1911 - Spock's pointy Vulcan ears, sharp eyebrows and signature bowl haircut is apparently nothing new

ORACLE®

The new math is not a zero sum game: the whole is greater than the sum of the parts…

- Security and Privacy need to be considered together as mutually reinforcing and can be optimized together.

- Security and privacy regulation is overlapping in jurisdiction and impact

- Security and privacy professionals don't always know how to interact or speak the same language

- Visible at C-level

- This is the Privacy *and* Security Conference…

Be rational

Get real.

i π

MATH JOKES

If you get them, you probably don't have friends.

©Copyright 2007 GJCaulkins   www.mightywombat.com

But there's More…

- Also support User-centricity, customization and the 360 degree view
- For Government effective and efficient citizen services delivered across all IT-enabled services
- For companies both customer relationship management and customer managed relationships
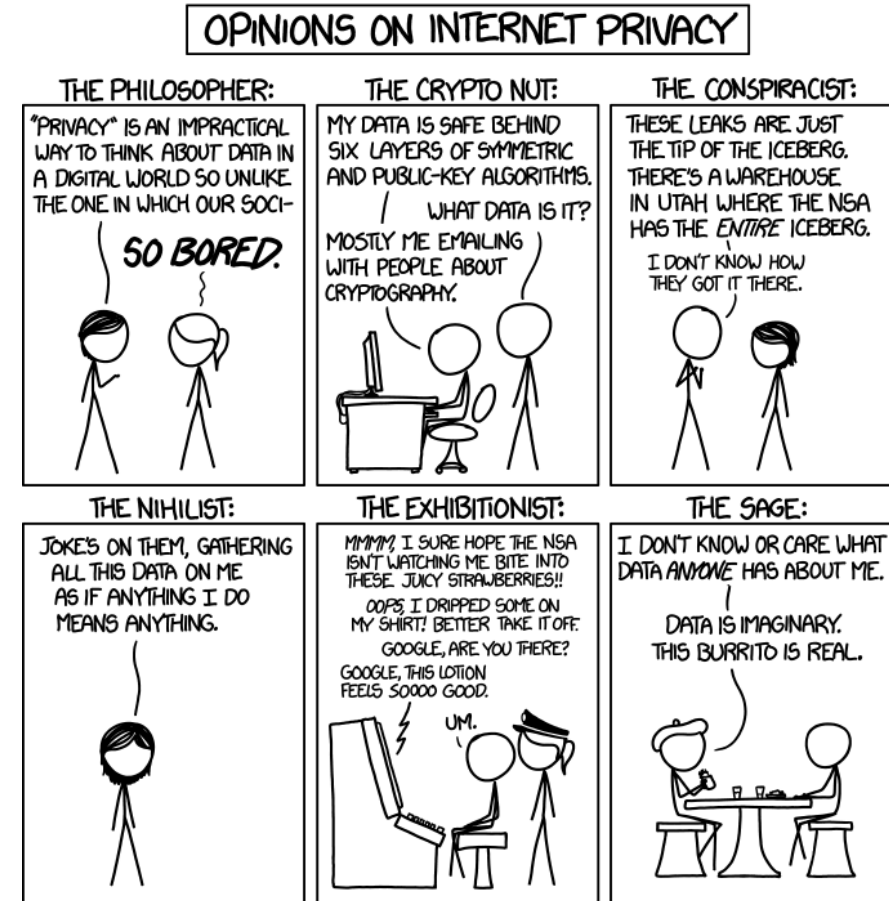
The New Normal: Multifactor Optimization...

Privacy

Security

Economic and Social Benefit

Organization Need

Manage Threats and Risks

Flexible, Credible Outcome-based policy and regulation

Security Policies and Controls

Data Governance

Privacy Management and Compliance Programs

Information Lifecycle

Trust

Ethics

ORACLE®

Consider Data and Its Use Holistically including related obligations

- Think about needs of your organization, as well as its employees and users

- Think across data sources and uses

- Enable innovative solutions and uses of data

- Understand legal, Societal and ethical obligations

LET'S SOLVE THIS PROBLEM BY USING THE BIG DATA NONE OF US HAVE THE SLIGHTEST IDEA WHAT TO DO WITH

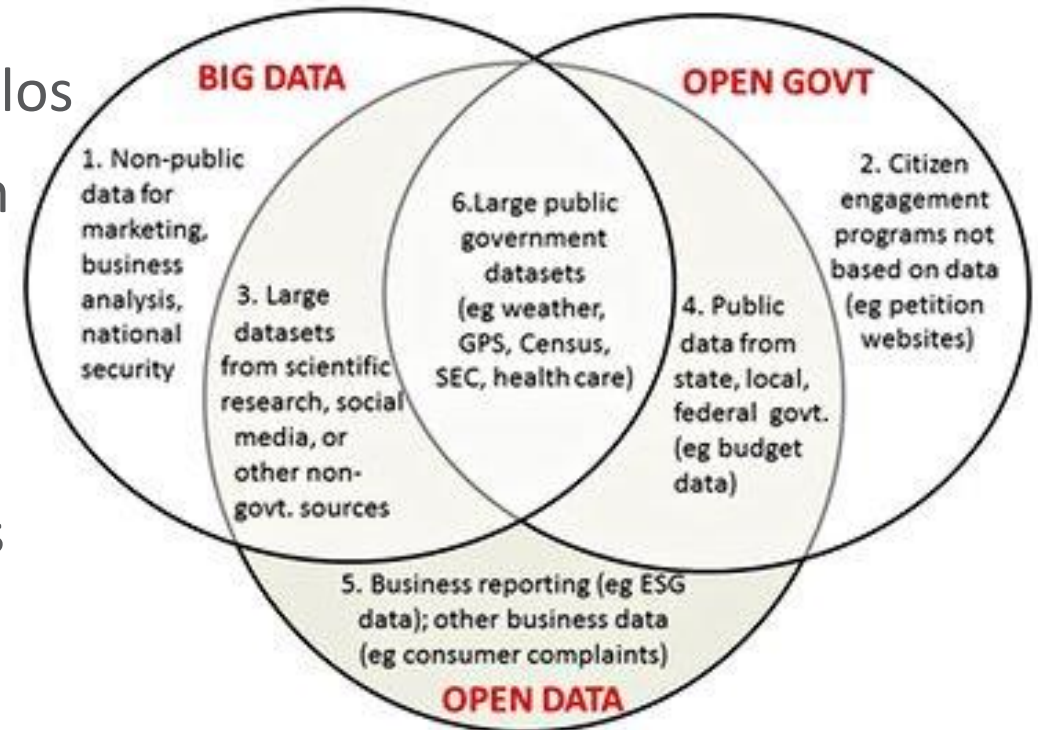TOM FISH BURNE

©marketoonist.com

ORACLE®

Global Nature of the Conversation

- B20/G20 (Germany)
  - Infrastructure
  - Trust
  - Security
  - Digitalization
  - Industry 4.0/II
  - AI
- OECD
  - Horizontal project on digitalization
  - Council Recommendation on health data
- EU
  - DSM – Data flows
- India
  - Digital India
  - Smart Cities
  - Aadhaar (978M)

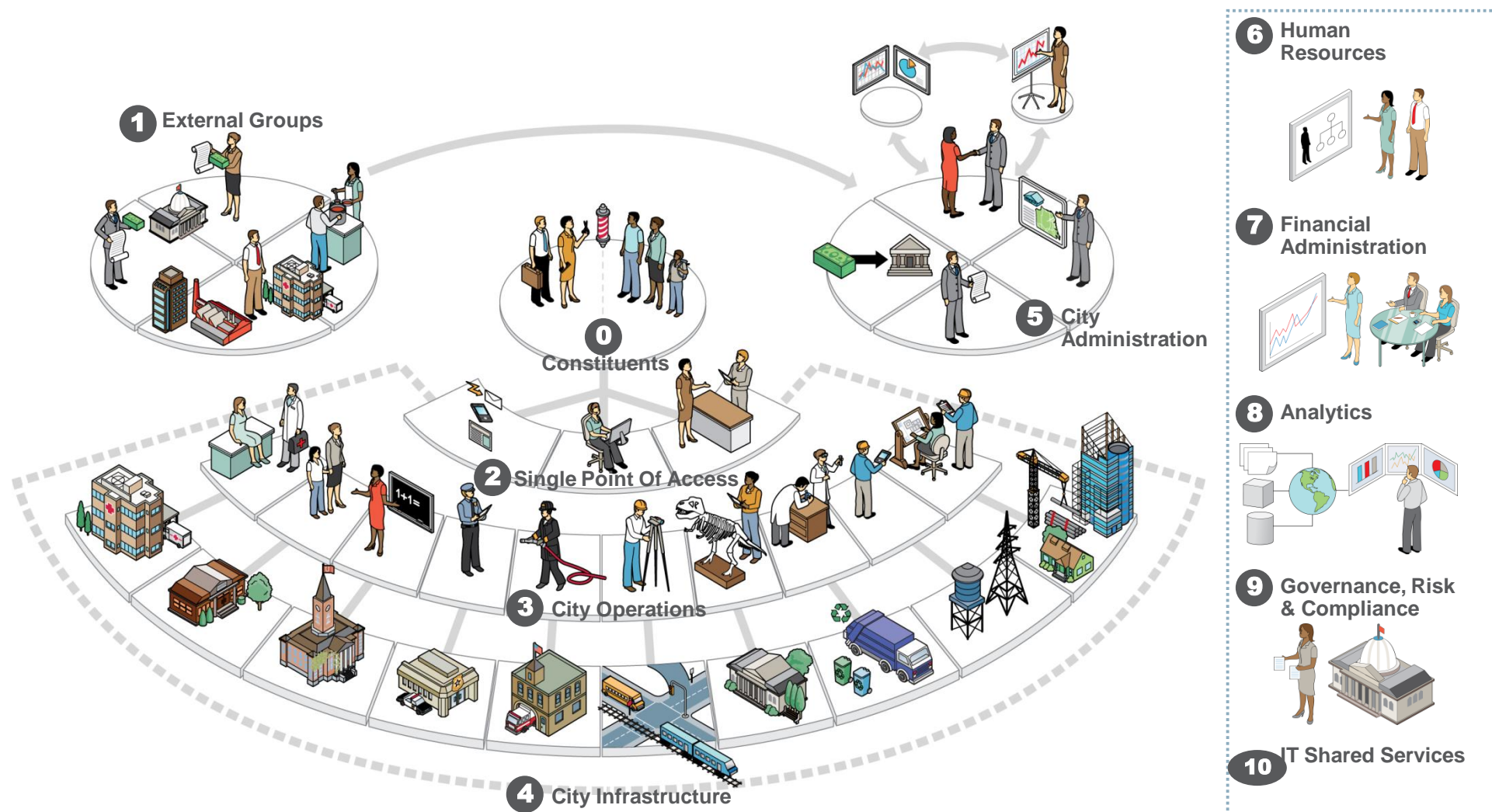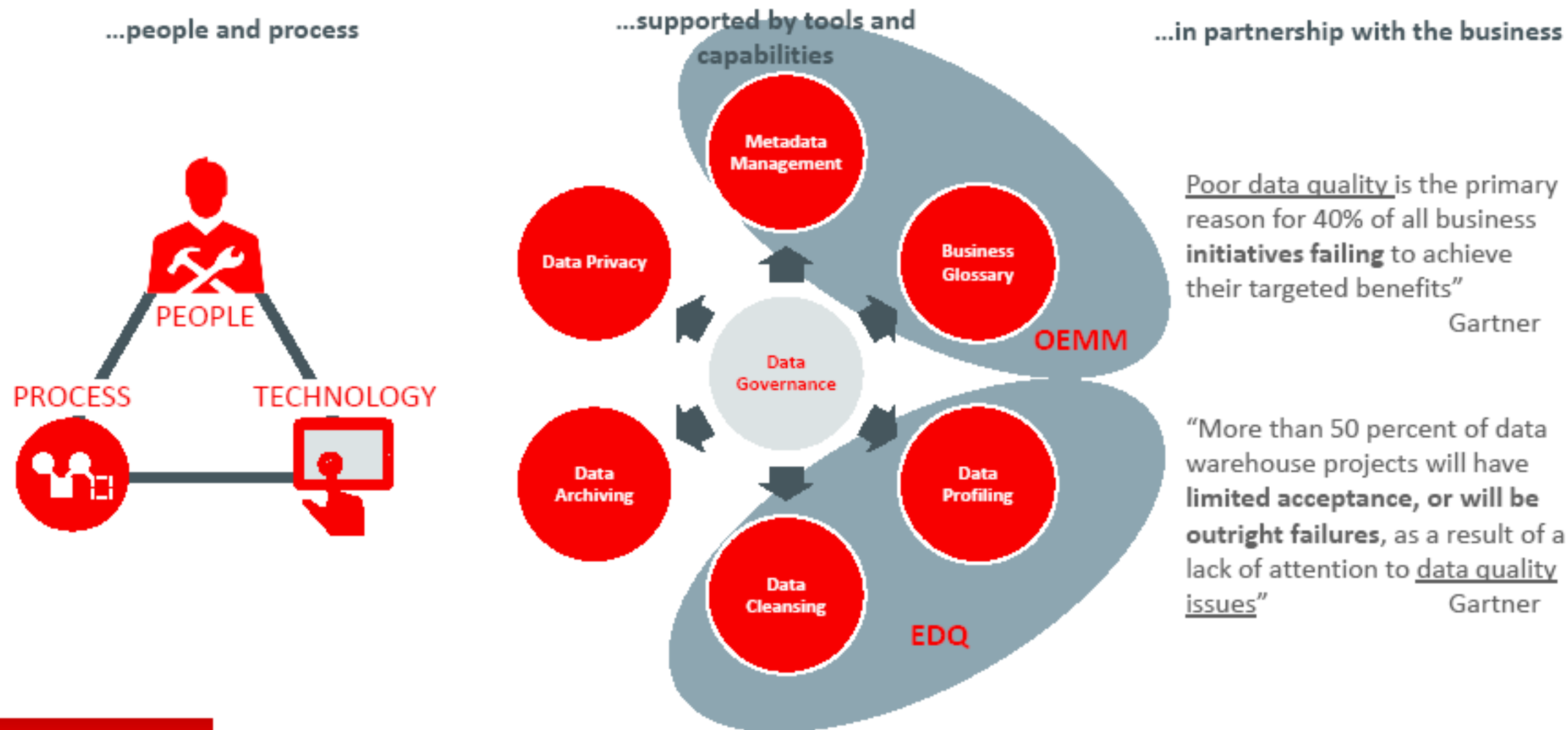# Whole-of-Government Ways of Managing Data

- New sources of data

- Thinking, accessing and managing across silos

- PII, non-PII and the possibilities in between

- Data Classification – confidentiality and security

- Understanding what can be identified and how to consider its risk in the context of its use

- Security and privacy controls applied to facilitate use while securing and assuring privacy

It's Not Just the Ecosystem, It's the Digital Nervous System…

1 External Groups

0 Constituents

2 Single Point Of Access

3 City Operations

4 City Infrastructure

5 City Administration

6 Human Resources

7 Financial Administration

8 Analytics

9 Governance, Risk & Compliance

10 IT Shared Services

ORACLE®

Governance is Not Just a Technology Problem

...people and process

PEOPLE

PROCESS   TECHNOLOGY

...supported by tools and capabilities

Metadata Management

Data Privacy

Business Glossary

Data Governance

OEMM

Data Archiving

Data Profiling

Data Cleansing

EDQ

...in partnership with the business

Poor data quality is the primary reason for 40% of all business **initiatives failing** to achieve their targeted benefits"
Gartner

"More than 50 percent of data warehouse projects will have **limited acceptance, or will be outright failures**, as a result of a lack of attention to data quality issues"
Gartner

Comprehensive Data Integration & Governance Capabilities

Real-Time Data Movement
– **Low impact capture, stage in Hadoop**
– **Continuous data availability**

Data Transformation
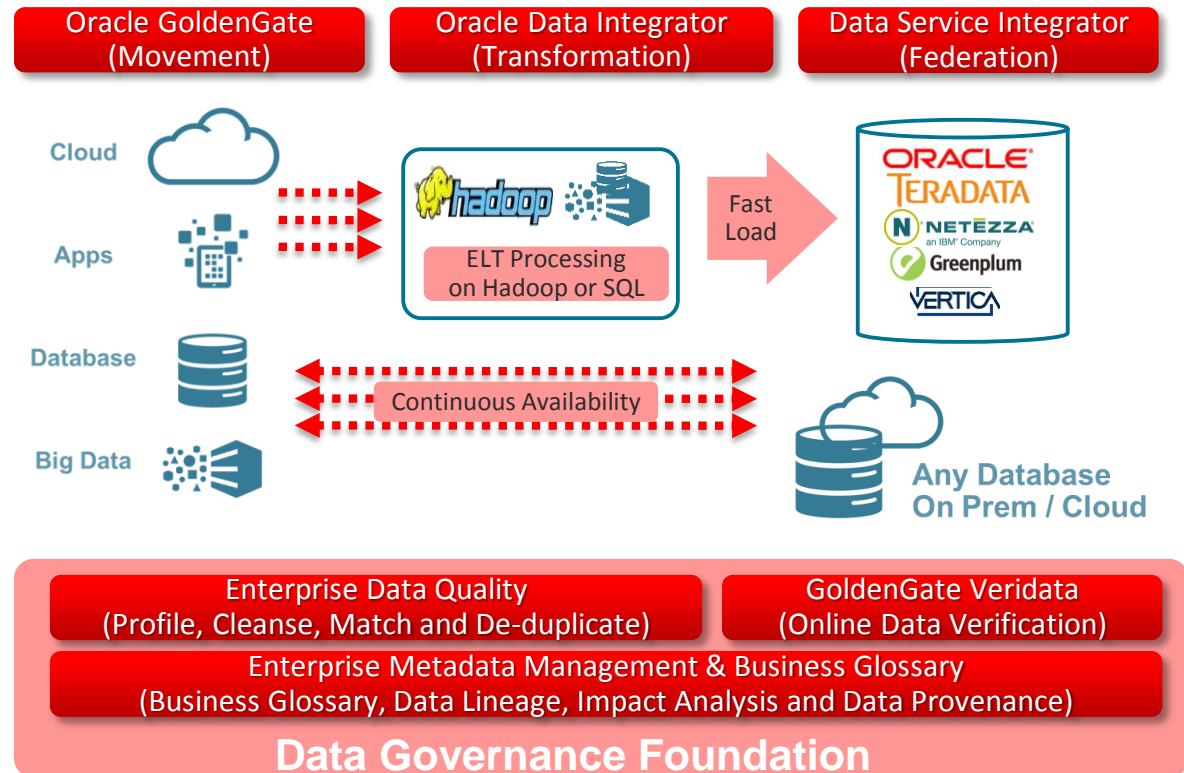– **Bulk data movement**
– **Pushdown data processing**

Data Federation
– **Virtualized Data Services**

Data Quality & Verification
– **Fix quality at the source**
– **Verify data consistency**
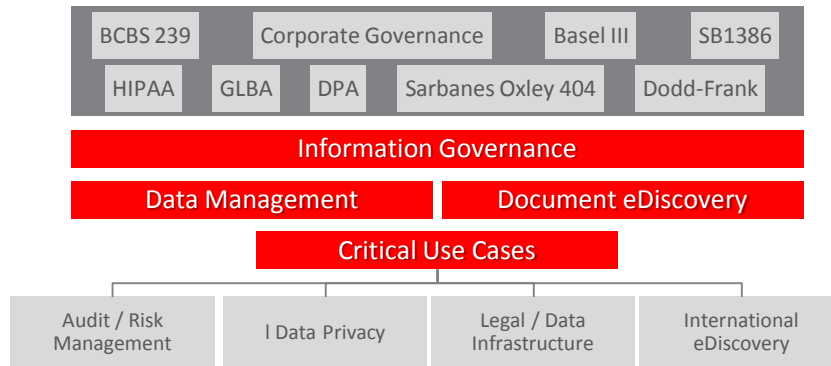
Metadata Management
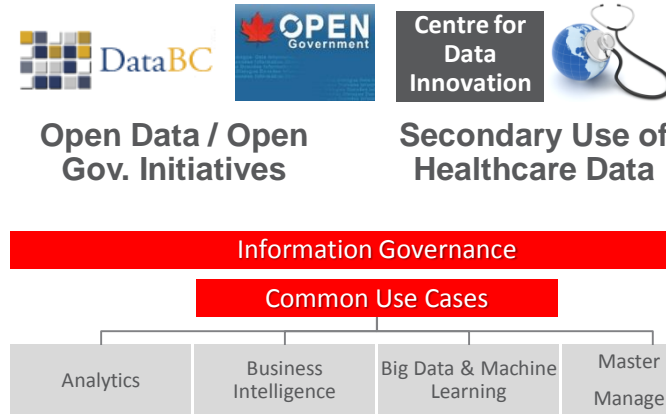– **Lineage and Impact Analysis**
– **Business Glossary Semantics**

Governance: Defense *and* Offense

Regulatory and Corporate Compliance

Data Driven Initiatives

| BCBS 239 | Corporate Governance | | Basel III | SB1386 |
| HIPAA | GLBA | DPA | Sarbanes Oxley 404 | Dodd-Frank |

Information Governance

| Data Management | Document eDiscovery |

Critical Use Cases

| Audit / Risk Management | I Data Privacy | Legal / Data Infrastructure | International eDiscovery |

Open Data / Open Gov. Initiatives

Secondary Use of Healthcare Data

Information Governance

Common Use Cases

| Analytics | Business Intelligence | Big Data & Machine Learning | Master Data Management |

Risk "and" Rather than "vs." Benefit

- Today risk benefit ignores the benefit and focuses on eliminating risk.

- Without considering benefit, mitigation is undertaken without context.

- Blunt mitigation can eviscerate benefit

RISK VS. REWARD
Choose wisely

Risk Benefit Process – Adding Context

- Identify and Understand the benefit
- Understand and identify the related risk
- Mitigate the risk while preserving the benefit
- Determine whether residual risk is acceptable
- If not, further targeted mitigation till acceptable

I wish my life had background music so I could understand what the hell is going on.

VIA 9GAG.COM
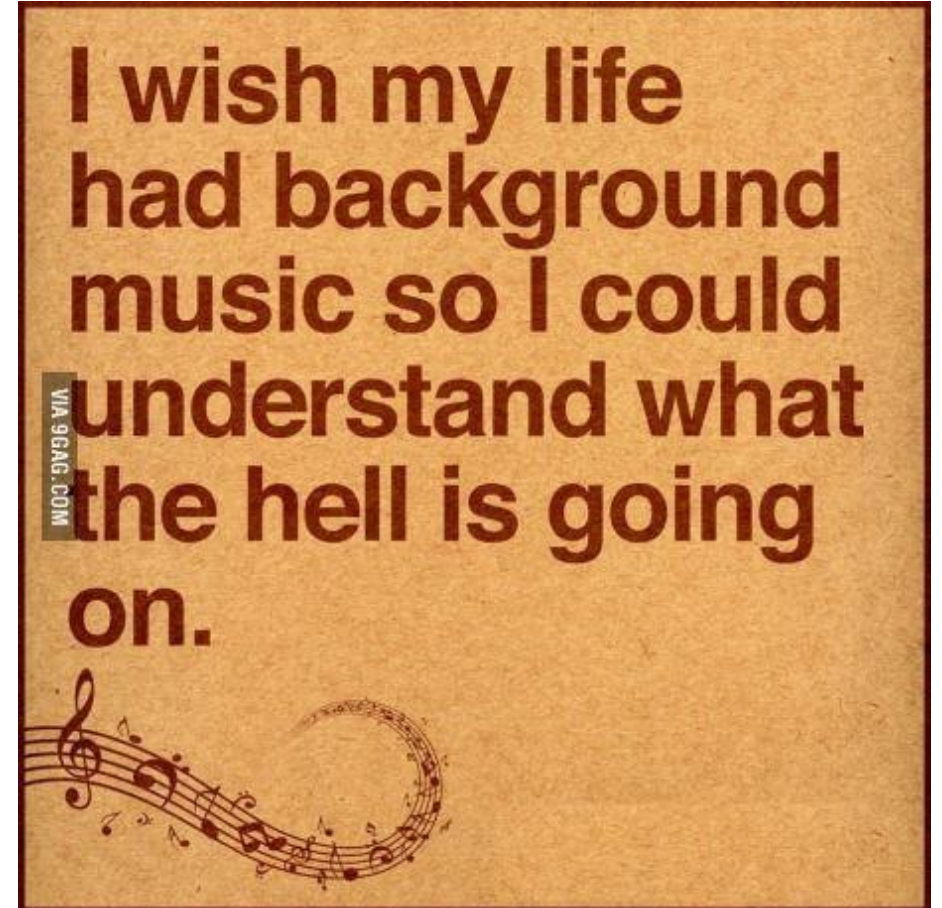
Why Context Matters

- **Zombie apocalypse takes center stage in Canadian Parliament**

The Canadian Parliament tackled the critical issue of an impending zombie invasion from America a day after a hoaxer hacked into a Montana television broadcast to warn that the dead were rising from their graves.

The Access Control Question

- Security question: How do I keep the bad guys out?

- Privacy Question: How Can I make sure that only the **RIGHT** good guys get in to use the data **THEY NEED** for **APPROVED** purposes?

- Tools that accomplish both:
  - Appropriate role definition and privilege management
  - Row level and role-based access controls,
  - Fine grain audit,
  - VPD and Label security

KEEP CALM AND USE DATA WISELY

ORACLE®

Context and Content Aware Access Control

» Context-Aware Authorization: Security policies need access to contextual identity information. For example, an application should disable a business function if the requester's device (e.g., a smart phone) can't be trusted; a web service request should be denied if the requester's risk score computed during log-in is too high; Database queries should be rewritten to not return sensitive or private information (e.g., social security #) if the requester's level of assurance established during authentication is below an acceptable limit.

» Content-Aware Authorization: Securities policies are based on the content of a protected resource, as shown in Figure 9. Entitlements Server provides seamless integration with document management systems such as Oracle WebCenter and Microsoft SharePoint.

Name	Sensitivity	Department
World Domination Strategy.ppt	Top Secret	Strategy, Development
Cost Analysis.xls	Secret	Accounting
Planning Assumptions.doc	Top Secret	Development
Progress Report.ppt	Top Secret	Strategy
Public Statement.ppt	Public	Marketing

Fine-Grained Access Policy:

```
Permit read access to documents
if    document.sensitivity <= employee.clearance_level
and   document.department  = employee.department
and   user.authenticationType = 'Multifactor'
```

Figure 9: Content-Aware Fine-Grained Authorization

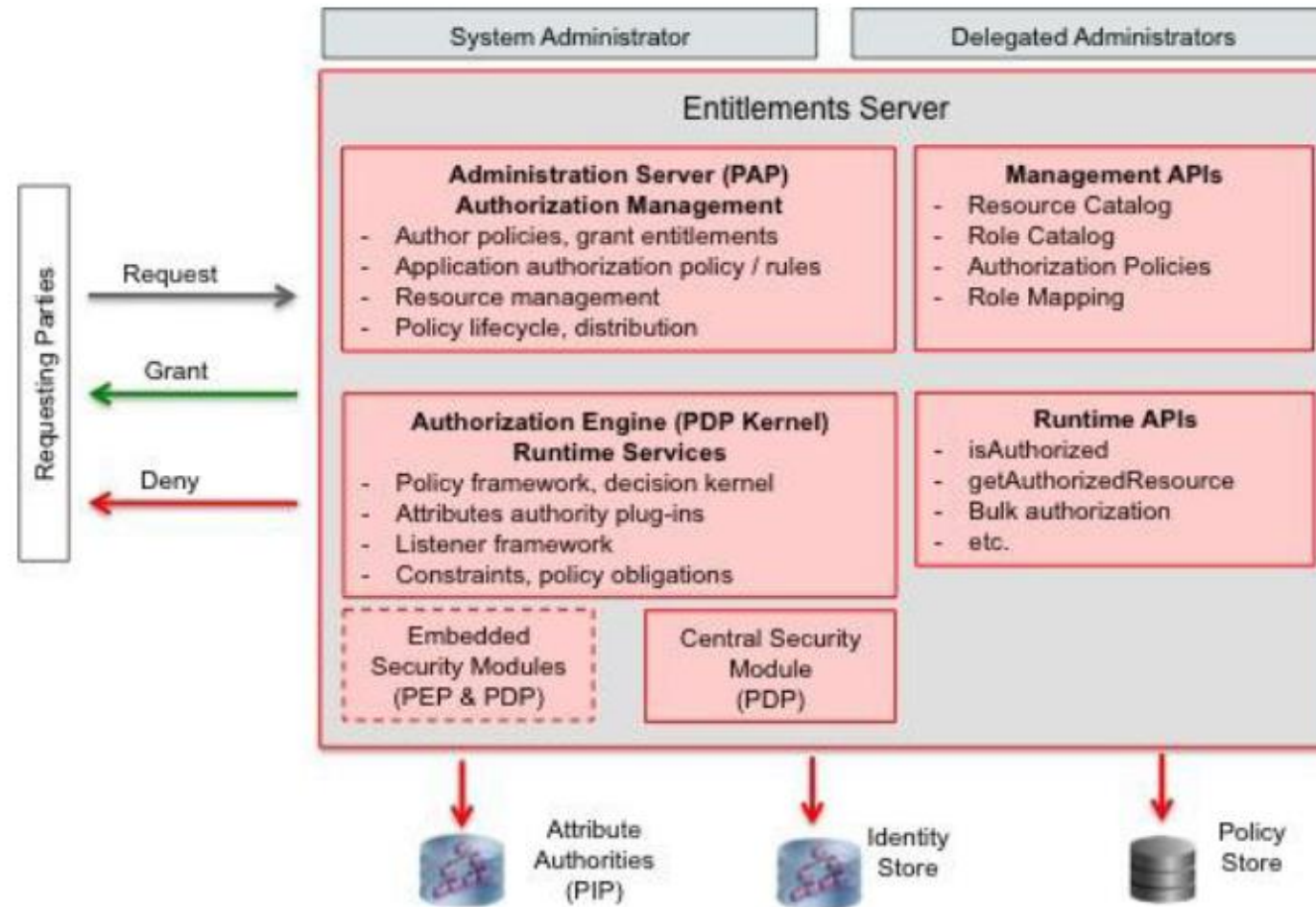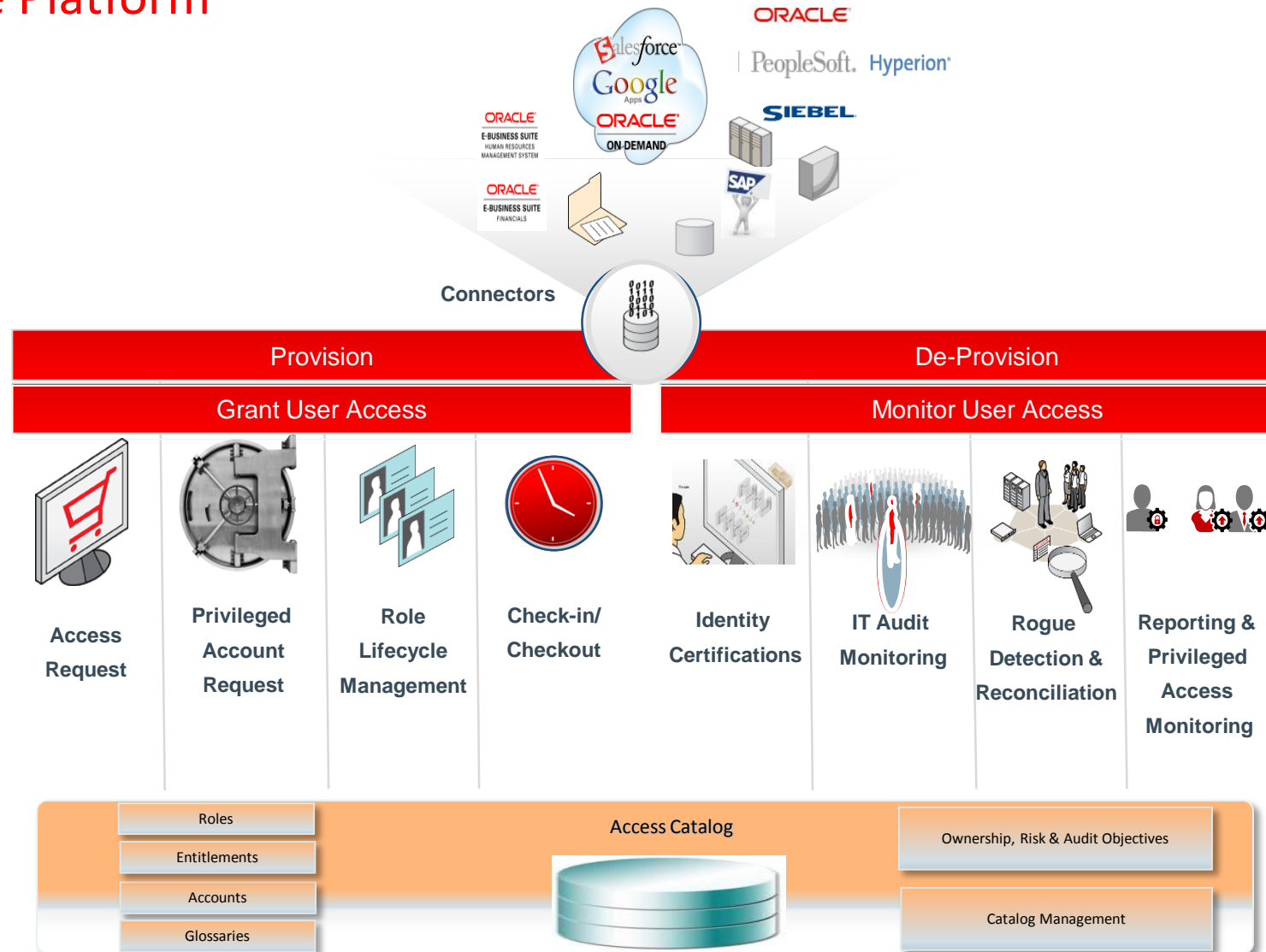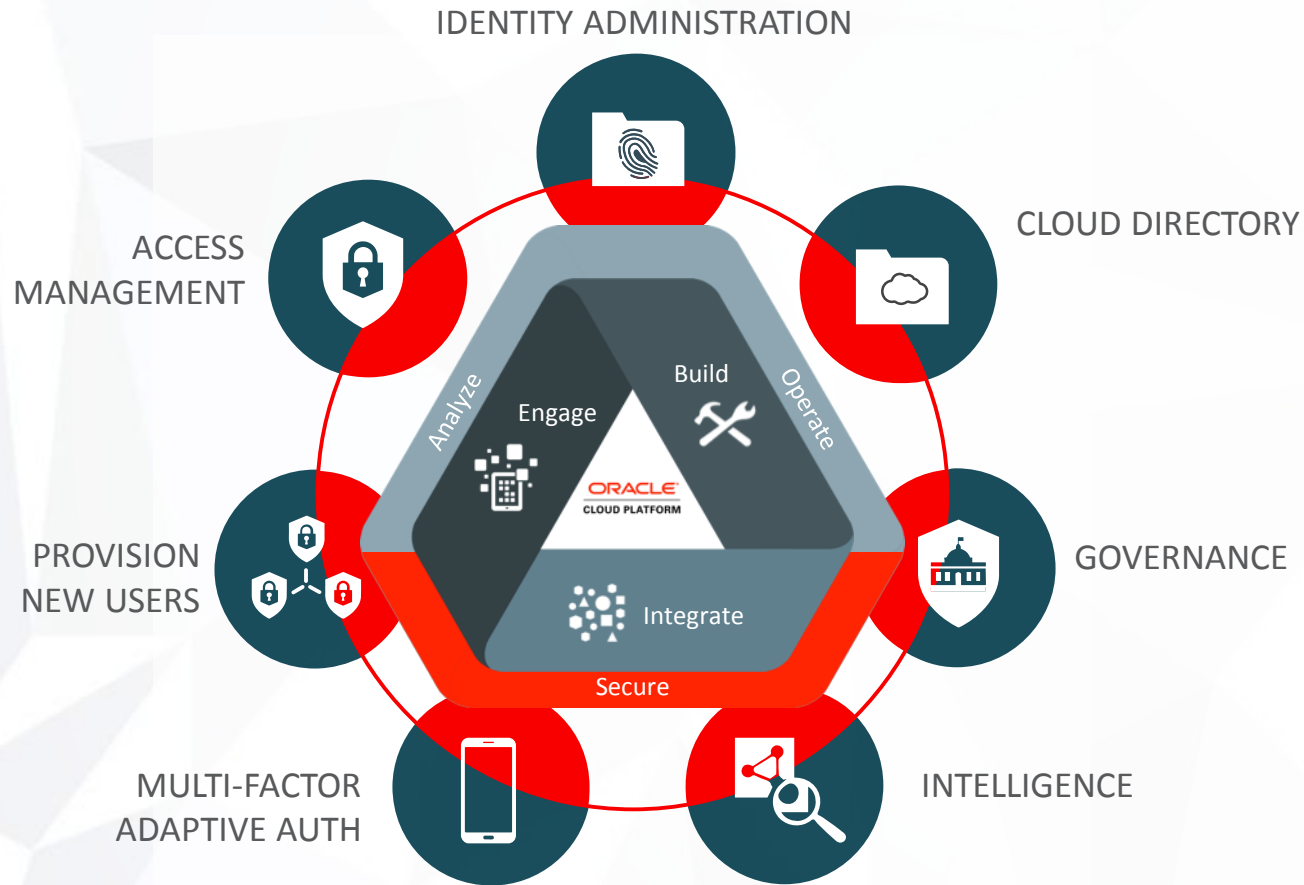# In Order to Share and Leverage Data Properly Managed Access is Key

Figure 7: Fine-Grained Authorization Service (Entitlements Server)

Oracle Identity Governance
Governance Platform

Connectors

Provision	De-Provision
Grant User Access	Monitor User Access

Access Request	Privileged Account Request	Role Lifecycle Management	Check-in/ Checkout	Identity Certifications	IT Audit Monitoring	Rogue Detection & Reconciliation	Reporting & Privileged Access Monitoring

Access Catalog

- Roles
- Entitlements
- Accounts
- Glossaries

Ownership, Risk & Audit Objectives

Catalog Management

Oracle Cloud Platform: For Enterprise Security & Identity

IDENTITY ADMINISTRATION

CLOUD DIRECTORY

ACCESS MANAGEMENT

GOVERNANCE

PROVISION NEW USERS

INTELLIGENCE
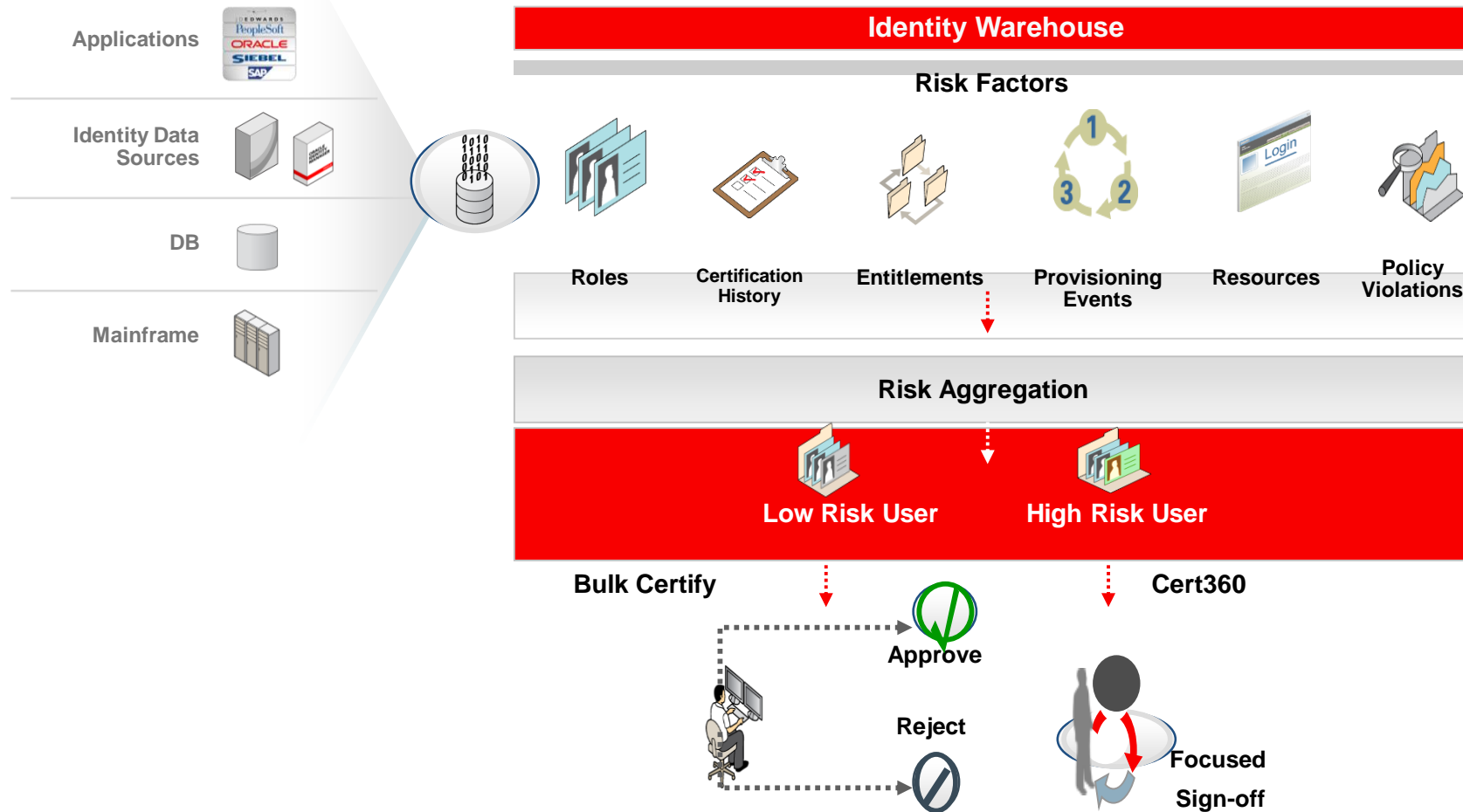
MULTI-FACTOR ADAPTIVE AUTH

Analyze — Build — Operate — Secure — Integrate — Engage
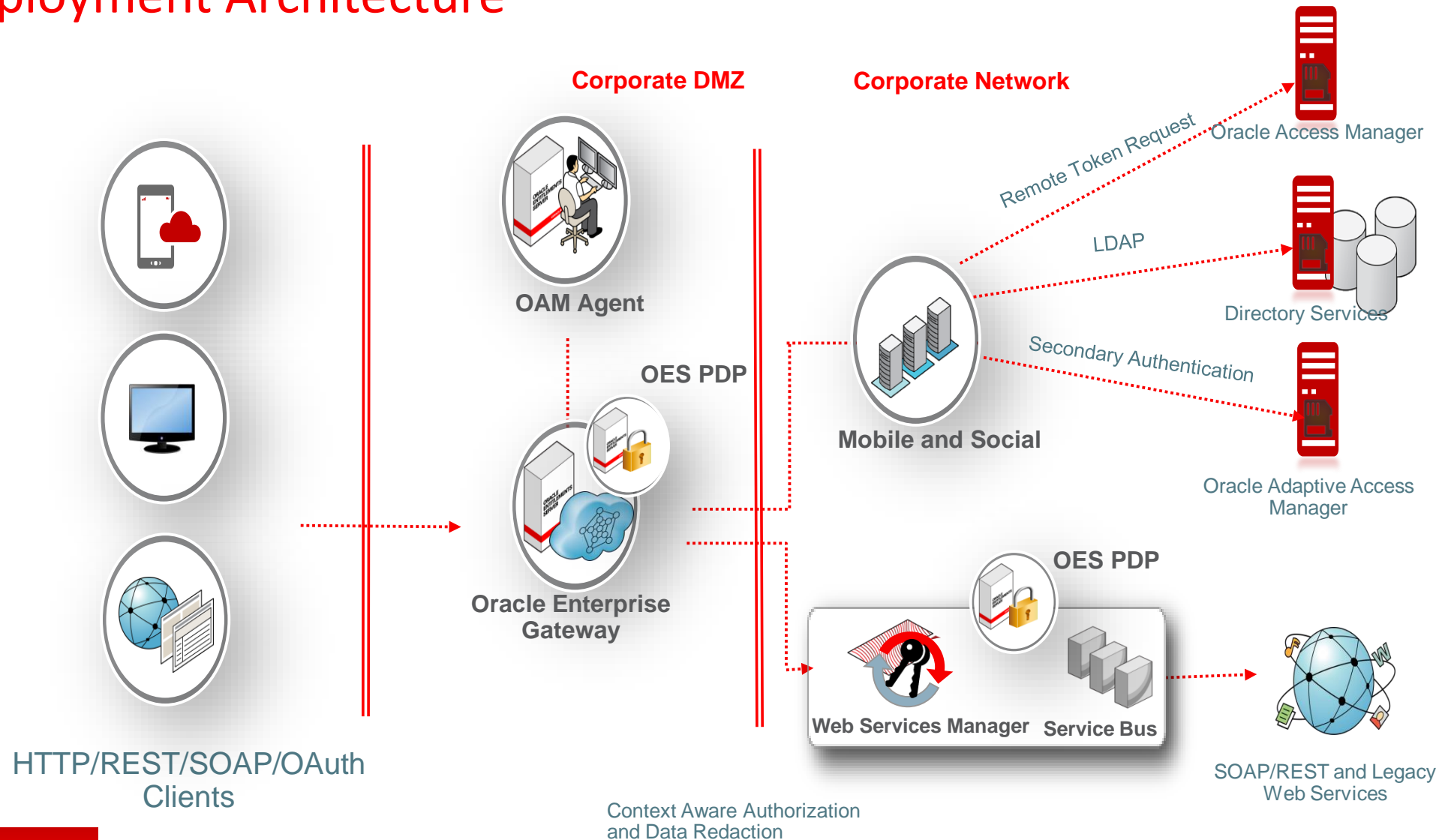
ORACLE CLOUD PLATFORM

- **Sign In Across Clouds**
  - For consumer login experience

- **User Centric**
  - For where network edge fails

- **Complete**
  - Detect, secure, sense, respond

- **Hybrid Identity**
  - For both cloud & on-premises

ORACLE

Risk Based Certification

Oracle Mobile & Social Access Management
Deployment Architecture

Corporate DMZ

Corporate Network

Remote Token Request

LDAP

Secondary Authentication

OAM Agent

OES PDP

Mobile and Social

Oracle Enterprise Gateway

OES PDP

Web Services Manager   **Service Bus**

Oracle Access Manager

Directory Services

Oracle Adaptive Access Manager

SOAP/REST and Legacy Web Services

HTTP/REST/SOAP/OAuth Clients

Context Aware Authorization and Data Redaction

The 80/20 Rule

- Do you create new rules and compliance programs or build on and extend existing ones?

- Do you build once and use multiple times?
  - Deliver services into an established governance framework

- I will never diminish the importance of a fishing permit again…

ORACLE®

The New Normal Take-Away Concepts

- ***Enhanced, Responsible*** Information Sharing is essential
- More innovative and productive use of data
- Privacy and security are essential elements of trust and governance.
- Security and privacy need to be discussed in the context of organization and user needs
- Solutions must be context and content aware and appropriate
- Lifecycle and Ecosystem

Develop value propositions for compliance beyond compliance

Establish Identity and Protect Applications, Workloads and Sensitive Data Stored Across Cloud Services

Oracle Identity Cloud Service

Palerra LORIC

USERS	APPLICATIONS & APIs
CONTENT & DATA	INFRASTRUCTURE
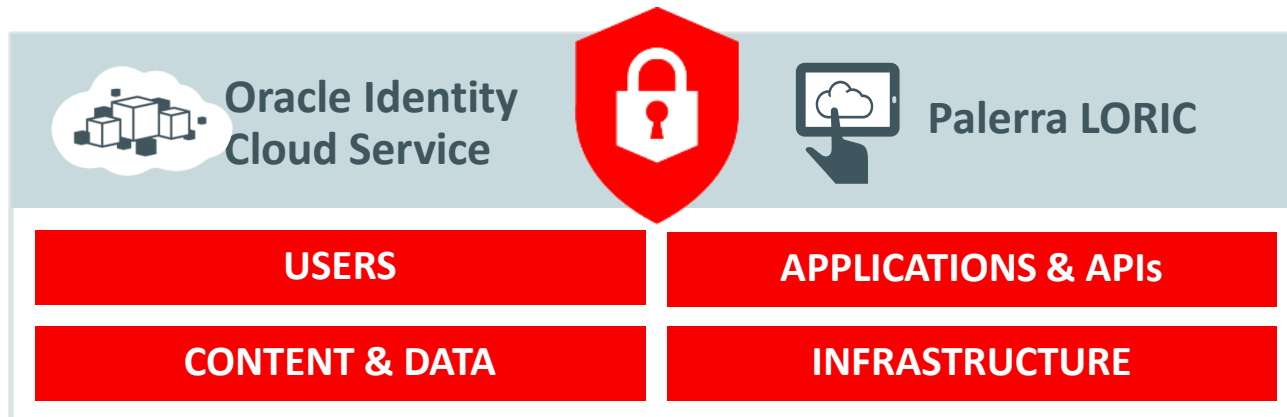
- Cloud Usage Visibility

- Automatically Configure Security

- Strongly Authenticate Users

- Protect Applications and APIs from Unauthorized Access

- Detect Anomalous User Behavior

- Protect Sensitive Data

- Compliance with Regulations and Security Policies

- Automatic/Real-Time Incident Response

ORACLE®

Application Modernization, Digital Transformation and Increased Connectivity Demands are Driving API Proliferation

Businesses   **Partners**   **Consumers**

APIs

Legacy Applications   **Cloud Applications**   **Connected World**
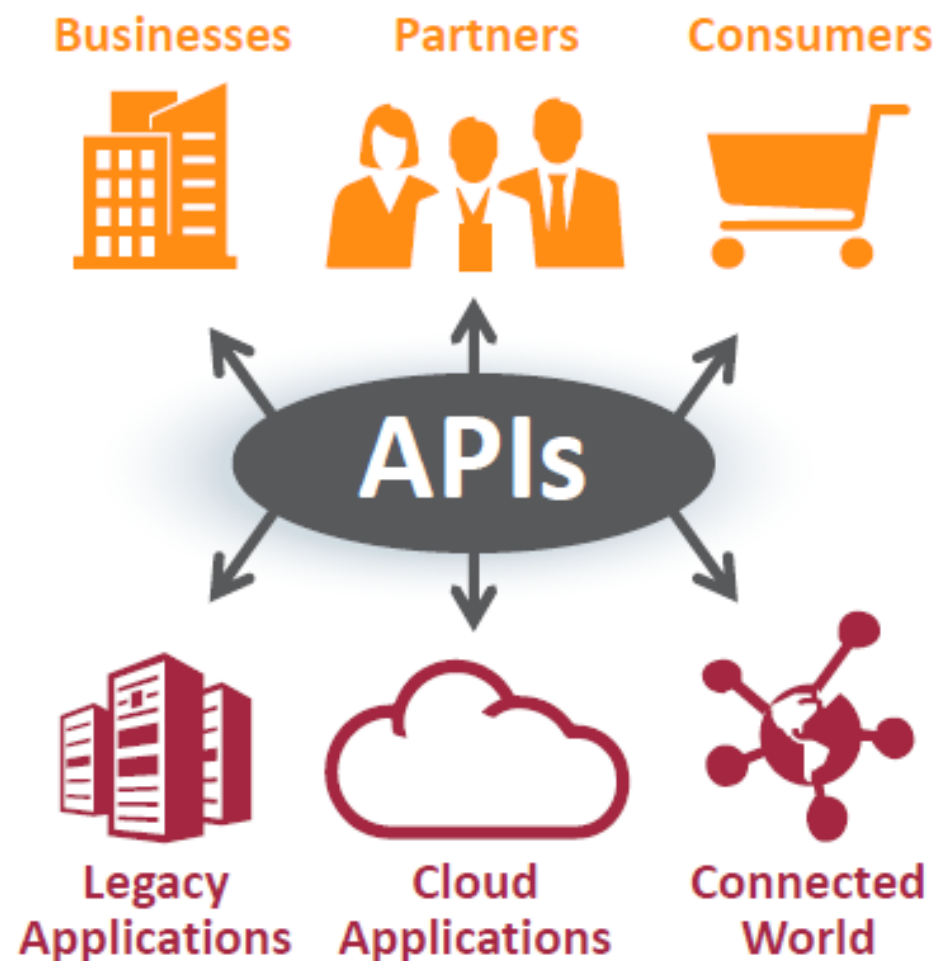
Disparate Approaches Produce
Unwieldy API Portfolios

Resulting in
Inefficient and High-Risk
Business Environments

- Security Exposures
- Technical Debt
- Lack of Scale
- Inability to Tackle Complex Integrations

ORACLE®

API Management Provides a Common API Layer

Enables Companies to Focus on Innovation by Imparting Control and Increased Agility

API Management Platform

Design	Leverage industry standards to accelerate API design and creation while collaborating with key stakeholders on API specifications
Govern	Establish consistency and compliance with company-wide standards
Secure	Ensure security for digital assets with API-specific policies and granular provisioning
Consume	Orchestrate API discovery and consumption through developer portal
Monetize	Improve agility to meet customer demand and rapidly monetize API portfolio via payment provider integrations
Analyze	Gain clarity through embedded analytics and dashboards to better leverage existing APIs to meet business goals

API-First Strategy

- Accelerates digital transformation
- Delivers rich and targeted experiences
- Provides greater consistency
- Encourages collaboration
- Lowers development cost

ORACLE

Questions...

Integrated Cloud

Applications & Platform Services