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Cloud Maturity, Best Practices and Eight Steps to Build Great Customer Experiences in Government Cloud

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Agenda

- Introduction to Cloud Computing
- Maturity Model and Key Capability
- Oracle Government Cloud Solution
- Eight Steps to Great Customer Experiences for Government Agencies
- Summary

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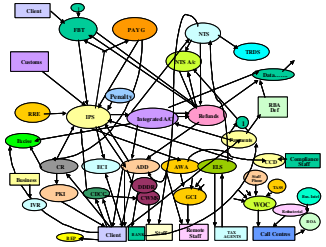
Silo



- ต่างคนต่างทำ แล้วมาเชื่อมกันทีหลัง
- ระบบงานกระจัดกระจาย เชื่อมต่อกันขาดมาตรฐาน
- เปลี่ยนแปลงยาก
- ขยายระบบยาก
- ใช้เวลามากในการจัดการ และแก้ปัญหา
- มีความเสี่ยงสูง

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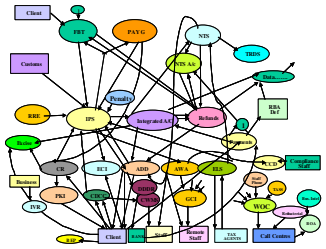
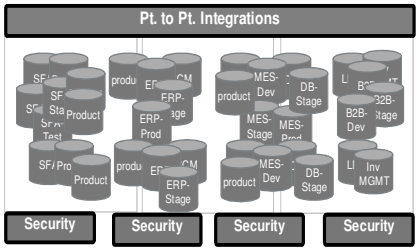
Silo → Standardized





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- มีมาตรฐานในการรับส่งข้อมูล
- ประหยัดค่าใช้จ่ายด้าน SW License และ support
- ลดต้นทุนด้าน IT project time/costs/risks

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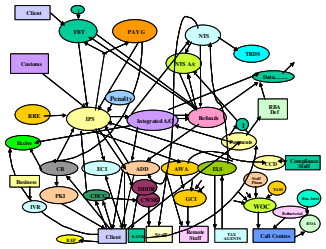
Silo → Standardized → Optimized Core



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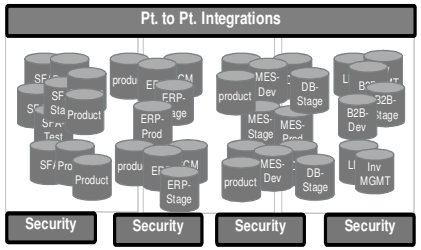

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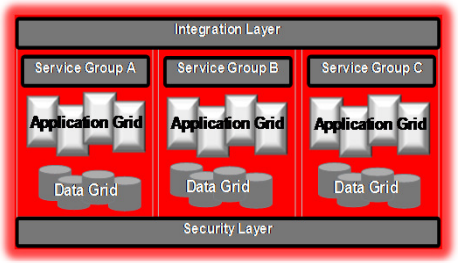

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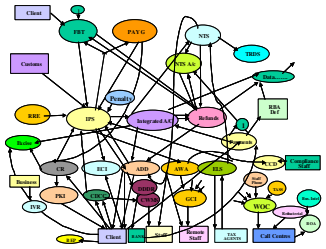
Silo | Standardized | Optimized Core | Bus Modularity



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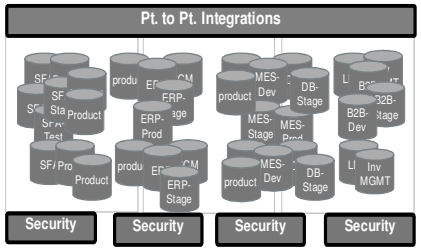

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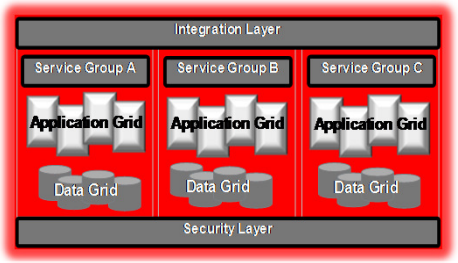

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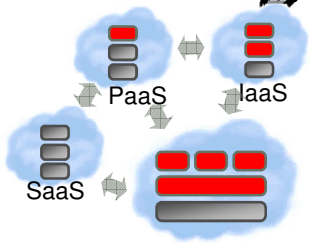
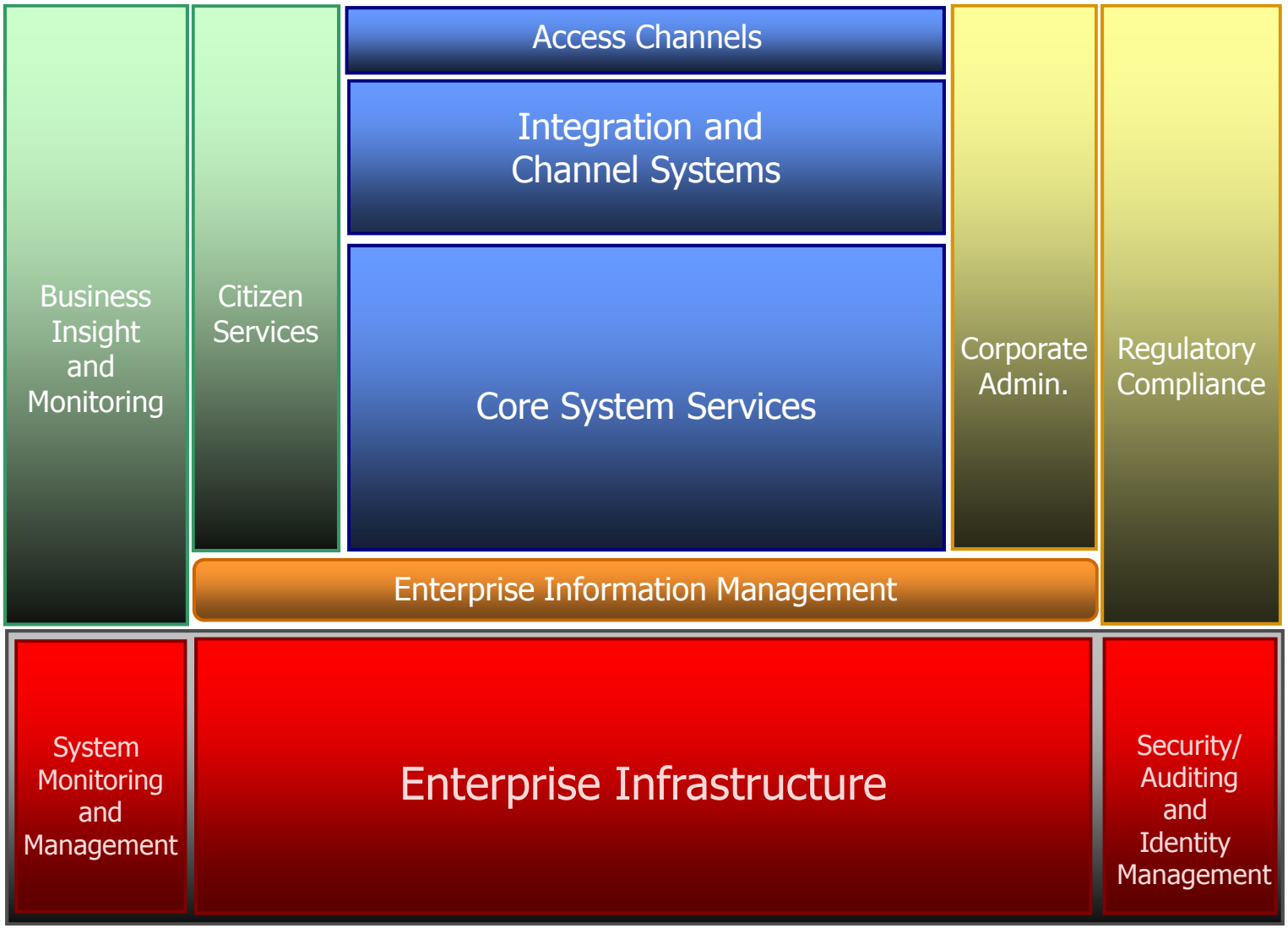


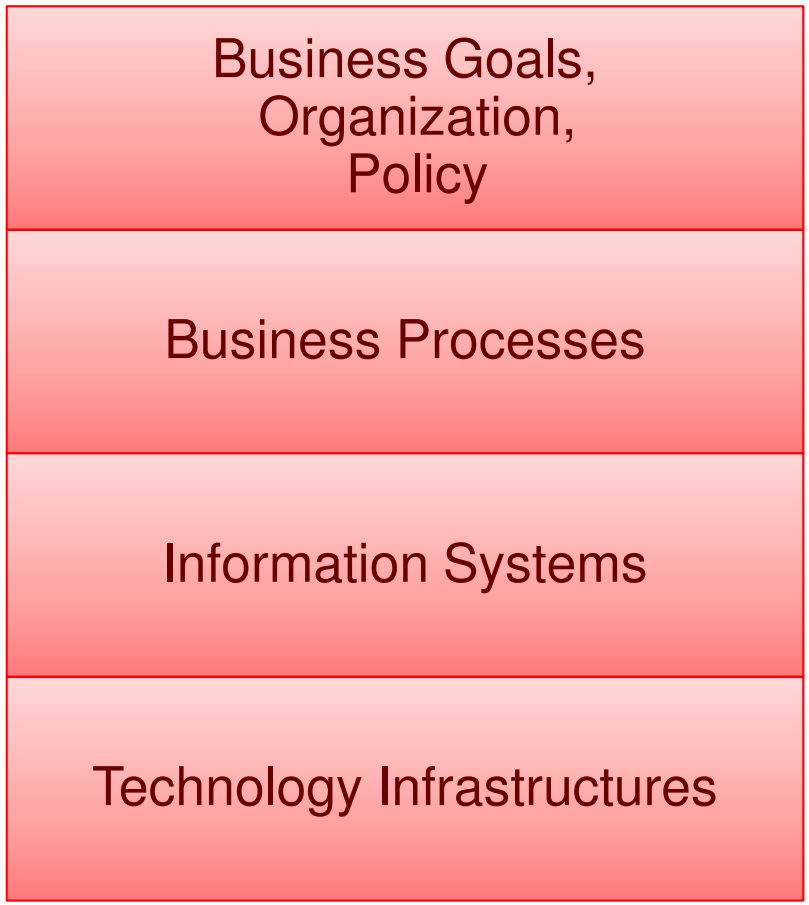
- แบ่งกลุ่มบริการทางด้านไอทีโดยมุ่งการต่อยอดบริการใหม่ๆ ให้เร็วที่สุด
- ผลิตบริการได้เร็วและปลอดภัย
- การวางแผนทาง IT ทำควบคู่ไปกับการวางแผนทางธุรกิจ
- เจ้าหน้าที่ไอทีทำงานได้เต็มประสิทธิภาพ

The Enterprise Reference Architecture



ส่วนประกอบที่สำคัญทั้ง 4

Business and IT Alignment



Key Deliverable:-

To address business visions and missions

To create business performance and conformance

To support automated tasks and tracking by IT applications, all reports processing

To support all data assets, enterprise security, including integration technology

NIST Definition of Cloud Computing

Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model promotes availability and is composed of:

5 Essential Characteristics
- On-demand self-service
- Resource pooling
- Rapid elasticity
- Measured service
- Broad network access

3 Service Models
- SaaS
- PaaS
- IaaS

4 Deployment Models
- Public Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

Source: NIST Definition of Cloud Computing v15

Architecture Overview

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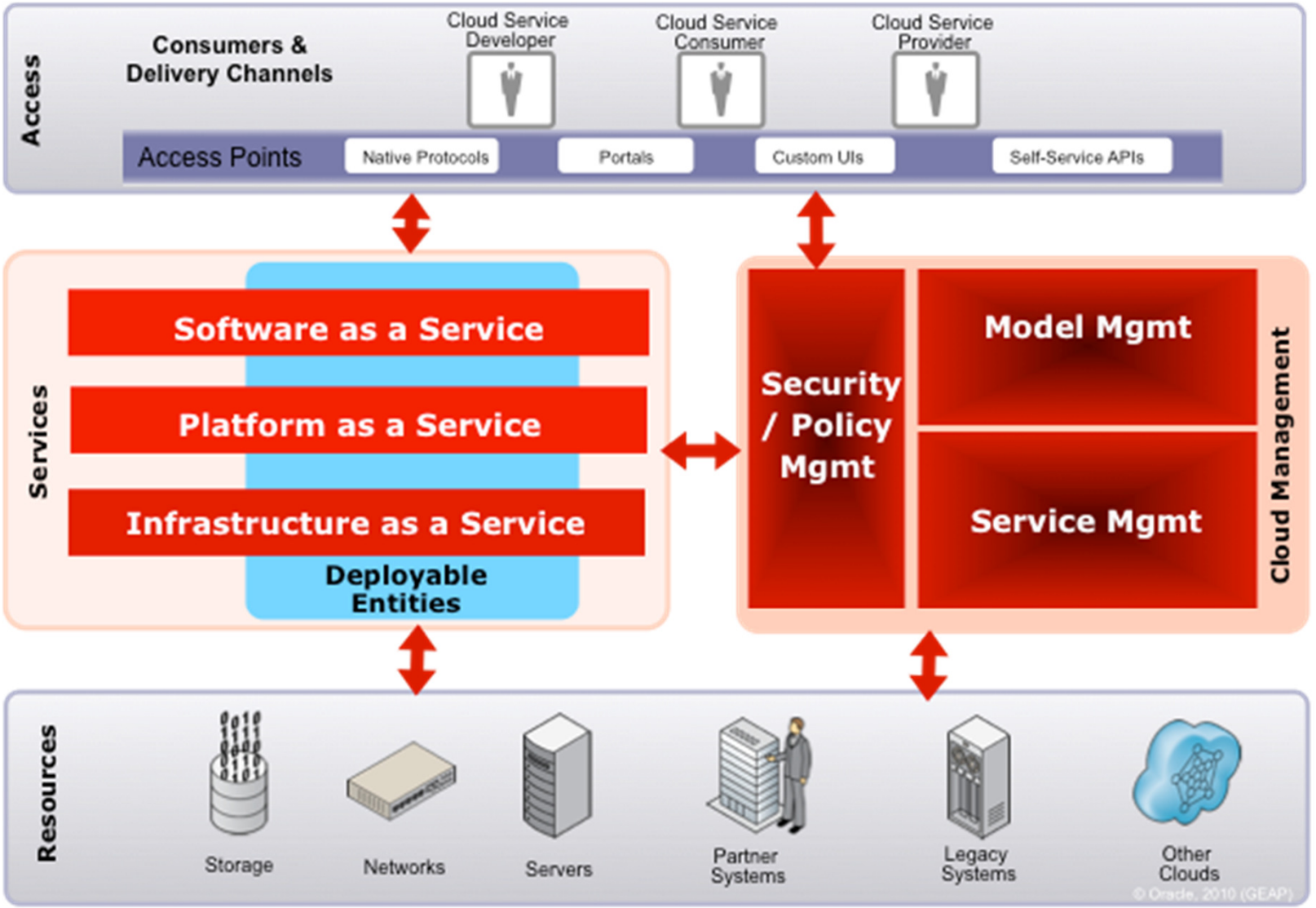
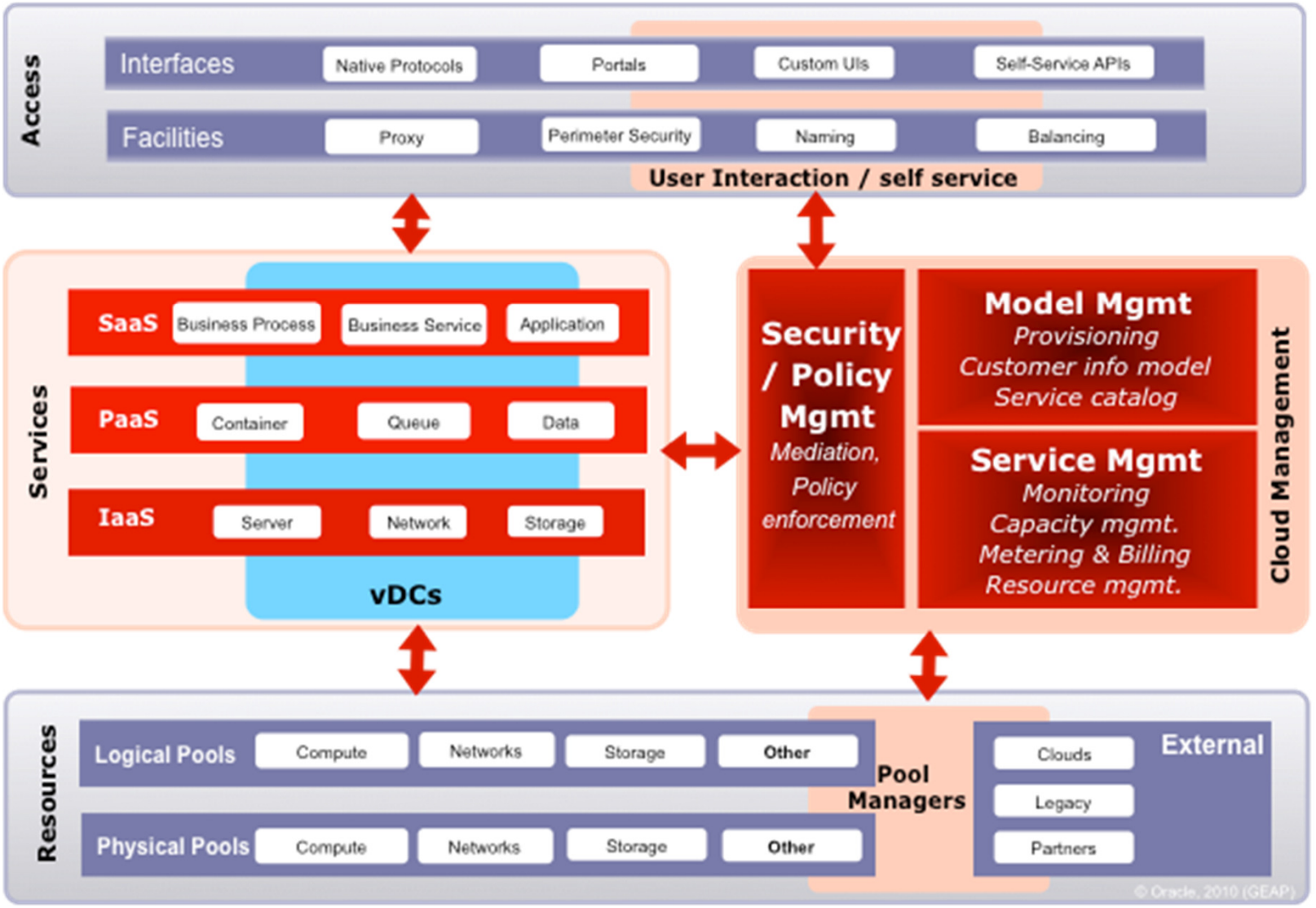
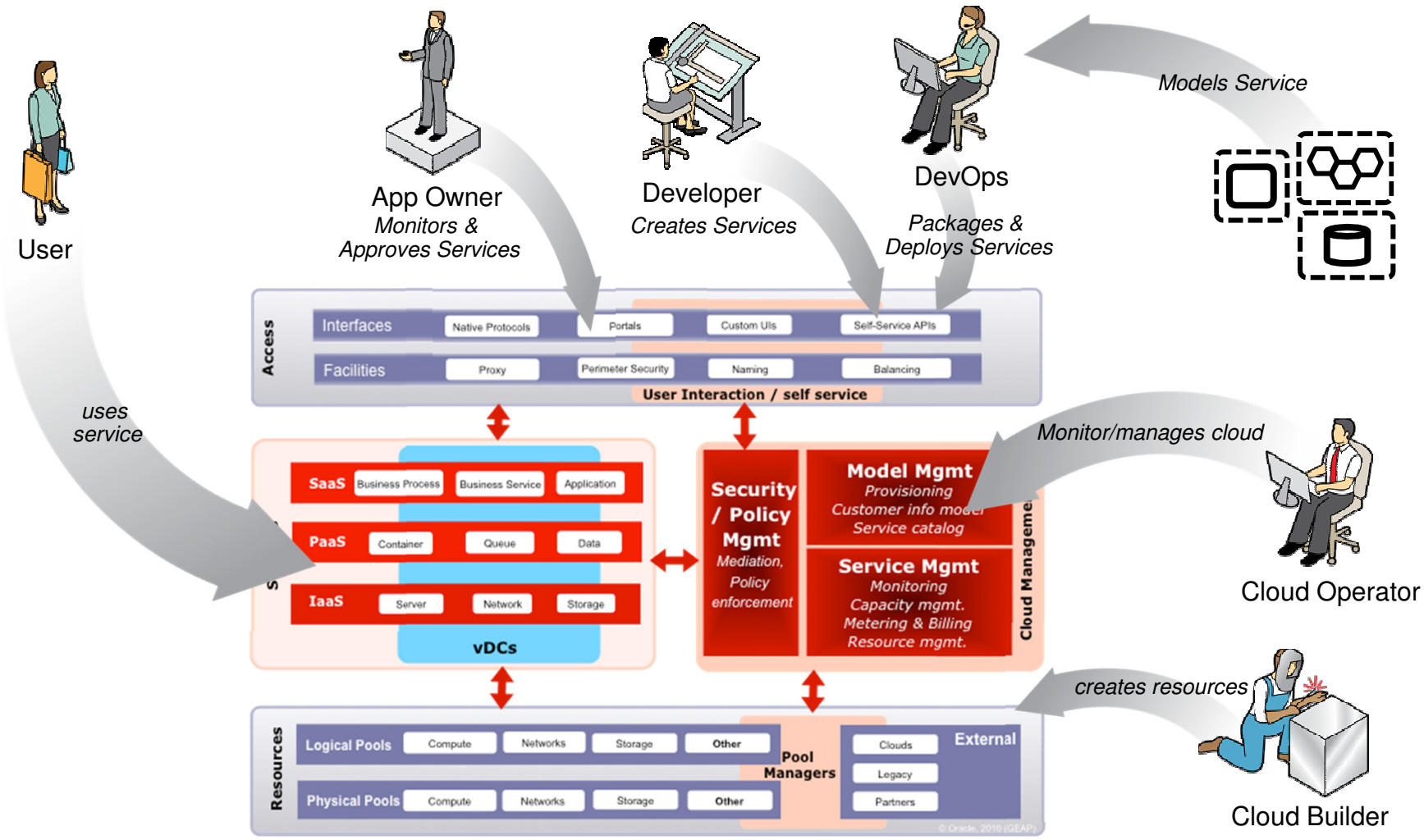
Cloud Architecture - Conceptual View



Cloud Architecture - Logical View

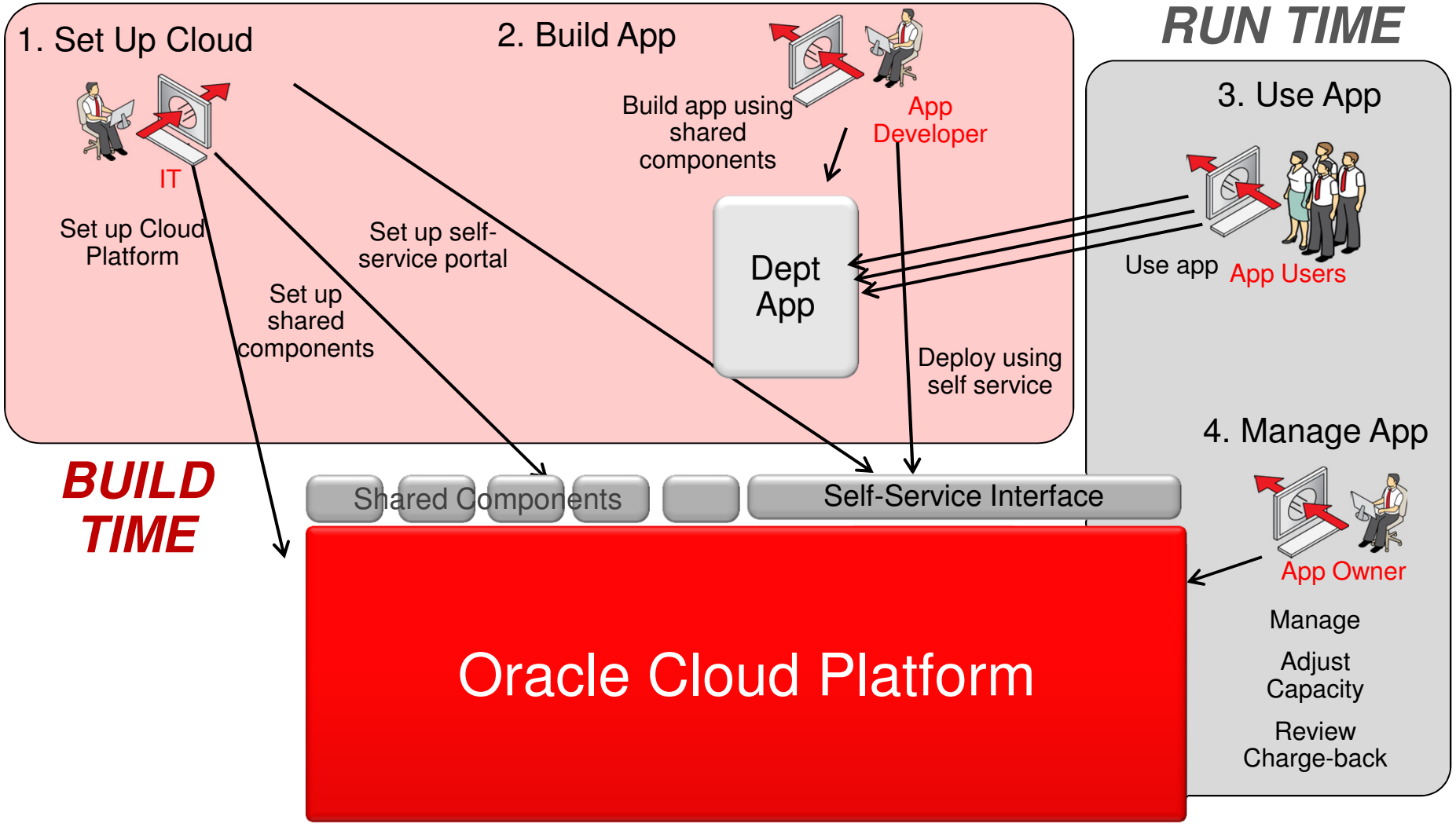


Cloud Roles and Interactions



Example of Build vs Run Time

– Oracle Virtual Assembly Builder roles



Cloud Migration and Oracle GoldenGate

Continuous Availability

- **Zero Downtime Migration**
  Migrate to Database or upgrade latest application version with no downtime
- **Disaster Recovery & Data Protection**
  Create live standby for failover, avoid and repair block corruptions
- **Data Distribution**
  Synchronize hub & spoke or distributed systems

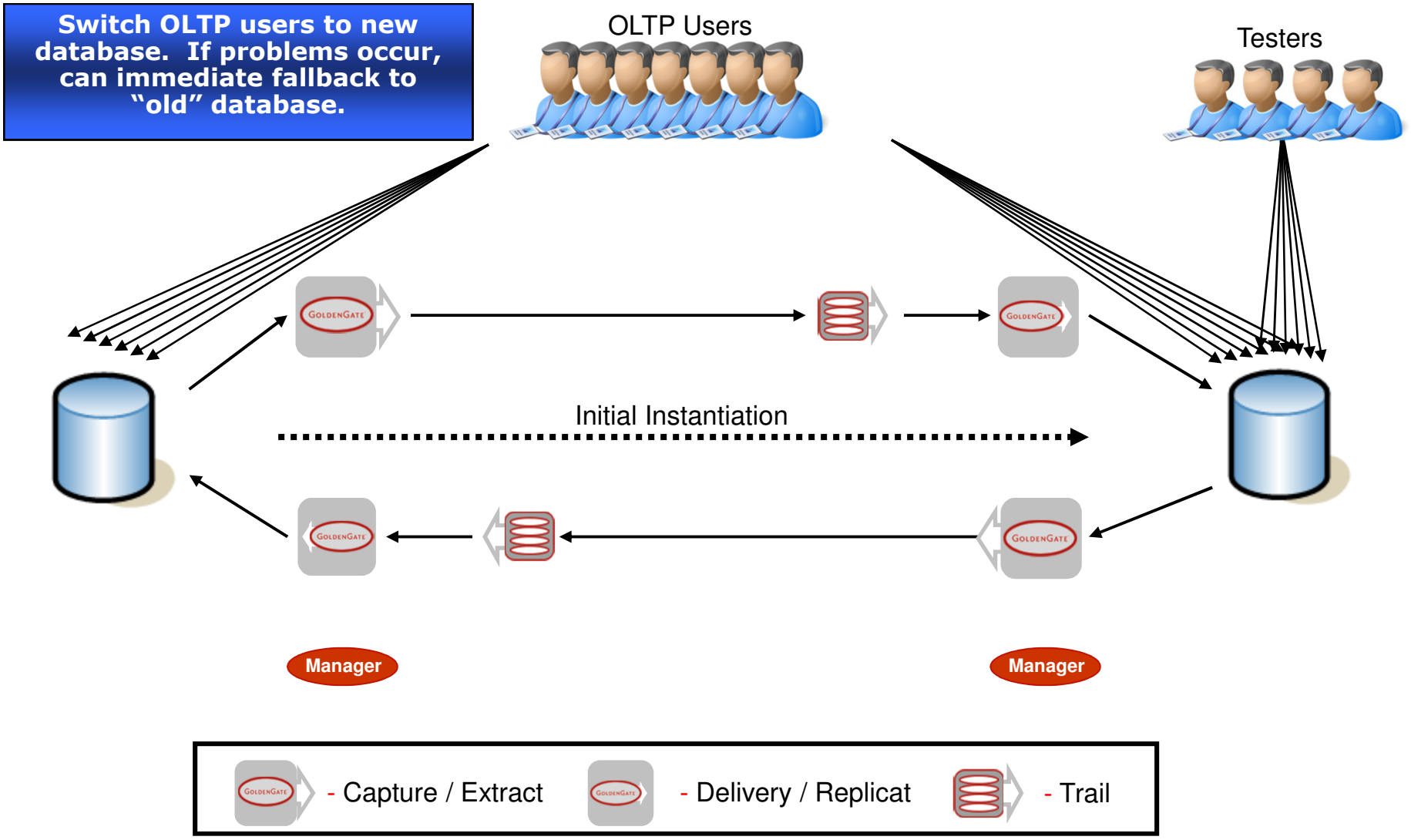
Real Time Data Integration

- **Operational Reporting**
  Quickly report on transaction system data with no source impact
- **Real Time Business Intelligence**
  Understand current metrics in historical context

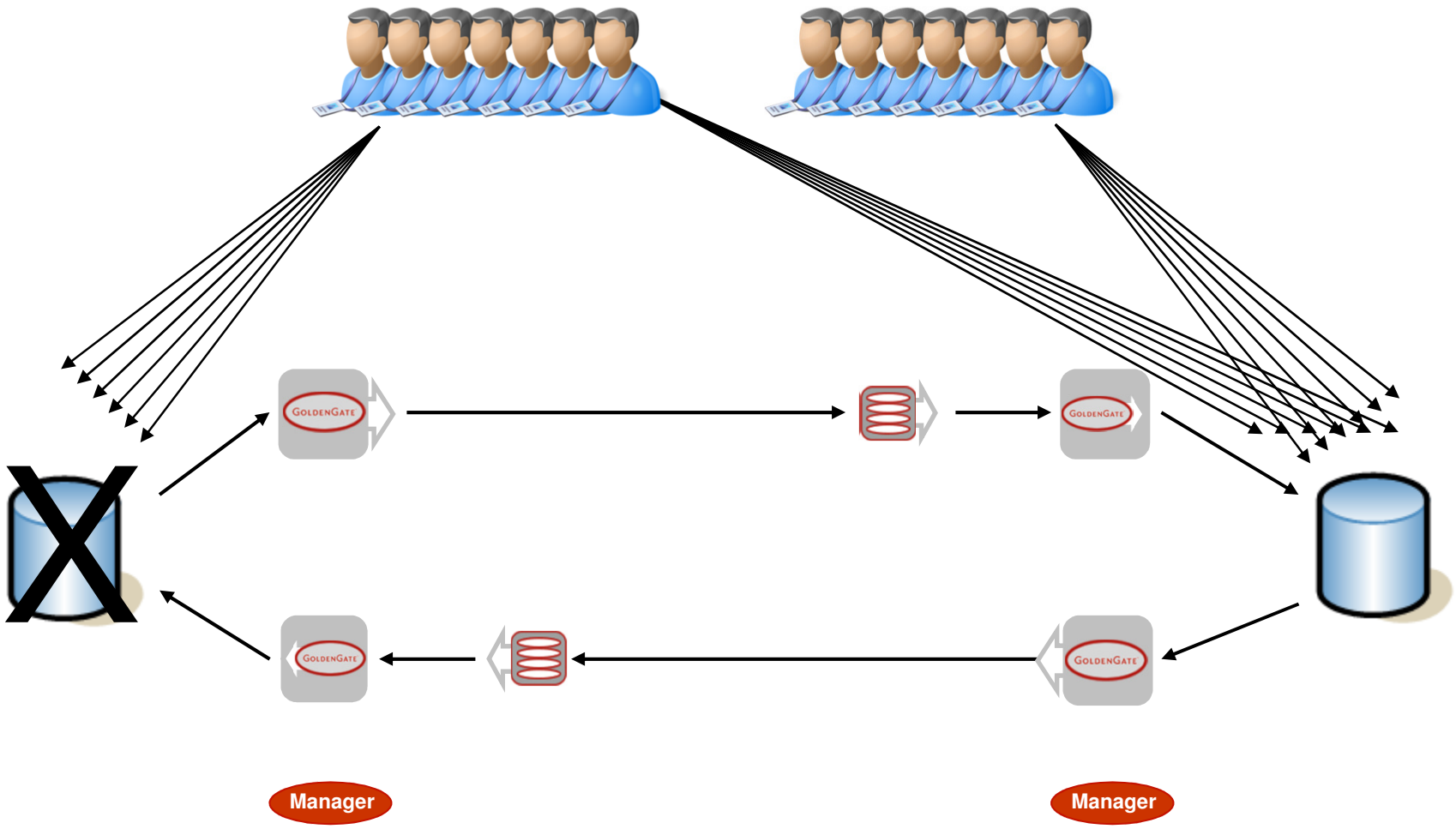
Query Offloading

- **Cost Reduction**
  Move reads to lower cost systems
- **Resource Utilization**
  Use physical standby for reads

GoldenGate Usage – Zero Downtime Migration



GoldenGate Usage – Active-Active Disaster Tolerance



Load Balanced – No Single Point of Failure

Cloud Data Center
Maturity Model & Roadmap Process

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Stage 1: Ad Hoc

In this stage, government begins the exploration process to increase its awareness of cloud technology options, key considerations, and cloud's contribution toward IT efficiency. There is limited enterprisewide awareness of these activities, and some instances may be unauthorized, characterized as "shadow IT." Some are turning to cloud because of the immediacy of the need and the ability to procure capacity with minimal monthly or one-time investments that require little or no formal approval.

The majority of cloud exploration occurs in workloads that do not involve PII risk. This stage is characterized as the IT and departmental staff learning more about the cloud without incurring risk.

Stage 2: Opportunistic

In this stage, government organizations are experimenting with more standardized offerings and developing short-term improvements regarding access to IT resources via cloud. As government manages this experimentation, it also starts to promote buy-in to cloud computing across the organization and acknowledges the need for an enterprisewide approach. In this stage, government is testing its ability to transition workloads from existing traditional in-house or outsourced IT deployments as well as new ones. Datacenter consolidation may provide an impetus for moving agency databases and business applications to cloud computing, but at the opportunistic stage, this is accomplished without cross-agency strategic plans. IT considers private cloud for computing environments with minimal impact on existing business processes, lower implementation costs, and/or faster delivery for commodity resources; however, the inability to access and acquire new skill sets may gate the velocity of IT innovation. Some experimentation may occur in private and public clouds.

Stage 3: Repeatable

Government enables more agile access to IT resources through aggressive standardization and in this stage makes good use of internal private cloud use. IT organizations are increasing governance, particularly concerning secure access and use of data.

- Retaining the integrity of the files for the duration required by agency records schedules
- Allowing the agency to destroy (truly delete) all copies or renditions of records from the cloud when appropriate
- Allowing the agency to capture records that are appropriate for permanent preservation

Departmental and IT users are beginning to rely on self-service portals to access cloud services based on cost and quality of service as well as to automate approvals and workflows that are necessary to rapidly provision and activate services. Users have access to a wider range of resources with more predictability, transparency into the cost of those resources, and the ability to more easily forecast their IT resource requirements.

Stage 4: Managed

In this stage, government is automating workflows and routine administrative tasks and providing service-based offerings that expand the boundaries of how and why they use cloud. There is a consistent best practice enterprisewide approach to cloud, speeding iterative improvement cycles to increase cloud adoption and business value in the private cloud as well as the use of hybrid and public cloud to enable more agile business practices and seamless access to information.

Stage 5: Optimized

Government organizations at this stage are driving business innovation through seamless access to IT resources from internal and external service providers and making informed decisions based on the true total cost of ownership and value to mission of cloud solutions.

IT is an equal partner in achieving mission goals and measuring outcomes. IT is responsible for ensuring the successful delivery of IT capabilities throughout the life cycle of those technologies.

Cloud Maturity in Technology Perspective

	Stage Names				
Dimensions/ Sub-Dimensions	Ad hoc	Opportunistic	Repeatable	Managed	Optimized
Technology ▪ Infrastructure ▪ Platform ▪ Software	▪ Early public cloud use generally relies on a single vendor stack (combination of infrastructure, platform, and software). ▪ Early private cloud use often focuses on the datacenter. ▪ Public cloud may require customization, and vendor's details of technology, policies, and processes show gaps.	▪ Cloud investments test use cases for cloud deployment models and IT and business needs. ▪ Evaluations of cloud begin to link with other IT efficiency efforts, such as consolidation, virtualization, IT resource rationalization, and application reviews. ▪ Cloud projects remain fairly independent from the broader IT environment.	▪ The focus is on rapid scale up or scale down for IT agility, flexible pricing models, and more complementary services. ▪ Testing new services becomes routine, with increasing attention to supporting mission-critical requirements. ▪ Cloud-based services increasingly combine vendors and technologies.	▪ Service investments and delivery performance are associated with economic value. ▪ Service-based access to IT capabilities crosses vendor, technology, and deployment model boundaries. ▪ Offerings manage risk with reward and enable innovation across the portfolio of IT assets.	▪ New technology is brought into the self-service portal to maximize innovation. ▪ Self-service becomes a core competency across public and private cloud. ▪ Offerings achieve a mix of completeness, consistency, and coherence.

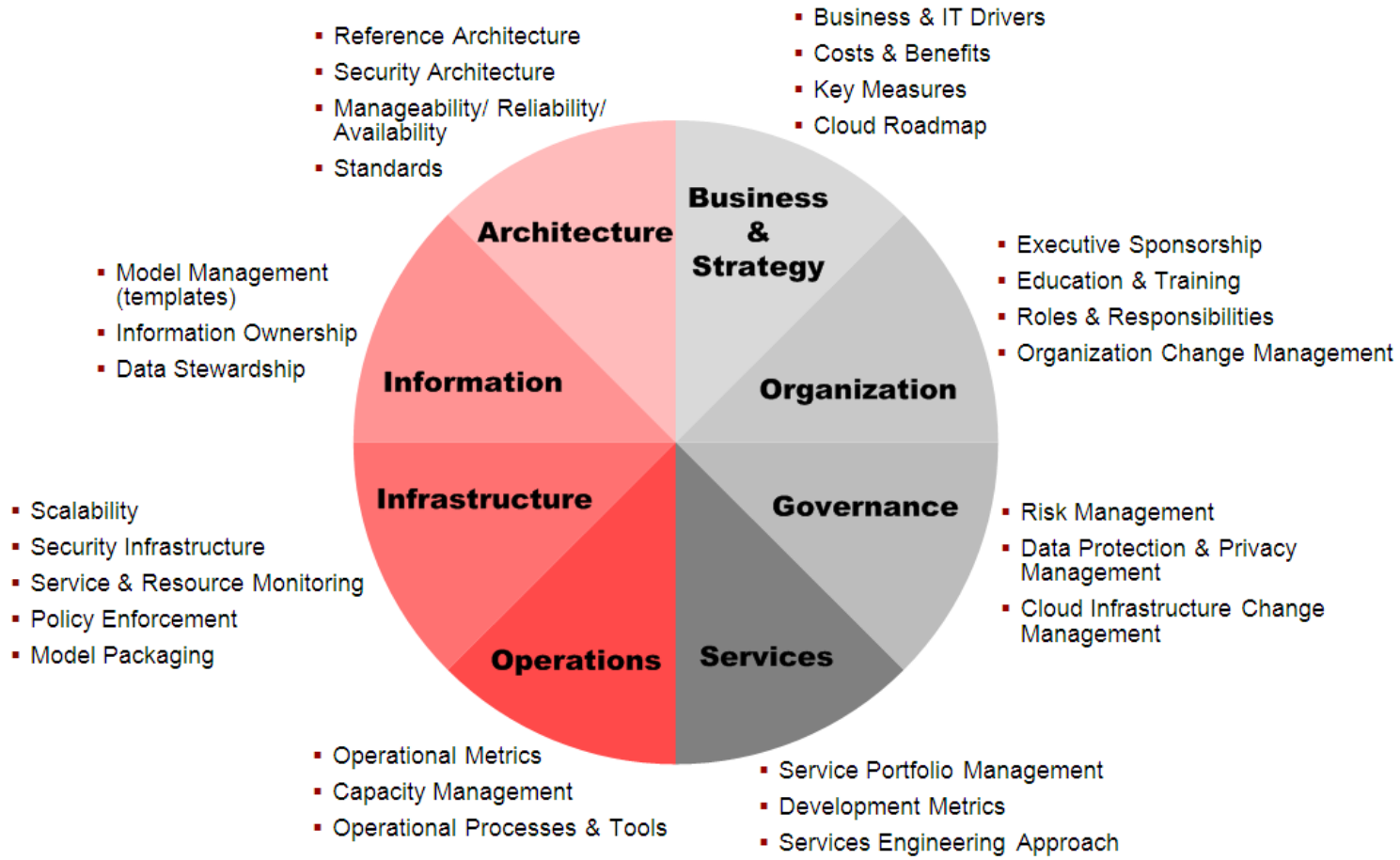
Cloud Maturity in Process Perspective

	Stage Names				
Dimensions/ Sub-Dimensions	Ad hoc	Opportunistic	Repeatable	Managed	Optimized
Process ▪ Cloud vendor management ▪ Cloud service management ▪ Architecture, security, and integration	▪ IT has a traditional vendor management strategy with little to no input from business units. ▪ Multiple service catalogs and configuration templates are developed for single projects, with only basic support for internal standards. ▪ There is minimal consideration for impact on architecture, but there is recognition that planning is required for security, risk, and compliance concerns.	▪ Inconsistencies in procuring cloud services and defining contracts persist. ▪ Favored workloads for cloud emerge (generally for new IT resource requirements and tactical needs), standard configurations and reusable blueprints are shared, and the adoption of automated provisioning and deployment begins. ▪ Traditional IT practices, like IT management, are applied to cloud, and enterprise architecture starts to play a role in RFPs, but cloud-related data management and security still need attention.	▪ Procurement occurs through a centralized and increasingly automated process: Vendor and contact reviews reflect service delivery, architecture, and other policy requirements. ▪ Service-level agreements expand, performance measurement accelerates, and services extend to ongoing operations of newer and more strategic investments. ▪ IT architects enforce key requirements and security standards (internal and external) for service delivery, and cloudware IT practices extend across all IT resources.	▪ Vendor management embraces risk management to balance IT cost efficiency and agility with business continuity and innovation. ▪ Service delivery and management encompass the entire IT environment, with end-to-end monitoring and ongoing optimization. ▪ IT architects ensure a dynamic provisioning of workloads between internal and external IT resources securely, providing workload portability as well as data control and governance.	▪ Vendor management uses well-documented requirements and performance measurement, with processes for bringing in alternative providers (internal or external). ▪ Service management and service catalogs minimize the value of existing IT resources with processes to support new service requests and associate cost with consumption and service levels. ▪ IT architects ensure seamless access across IT resources and the ability to take advantage of new technologies that will benefit the mission.

Cloud Maturity in People Perspective

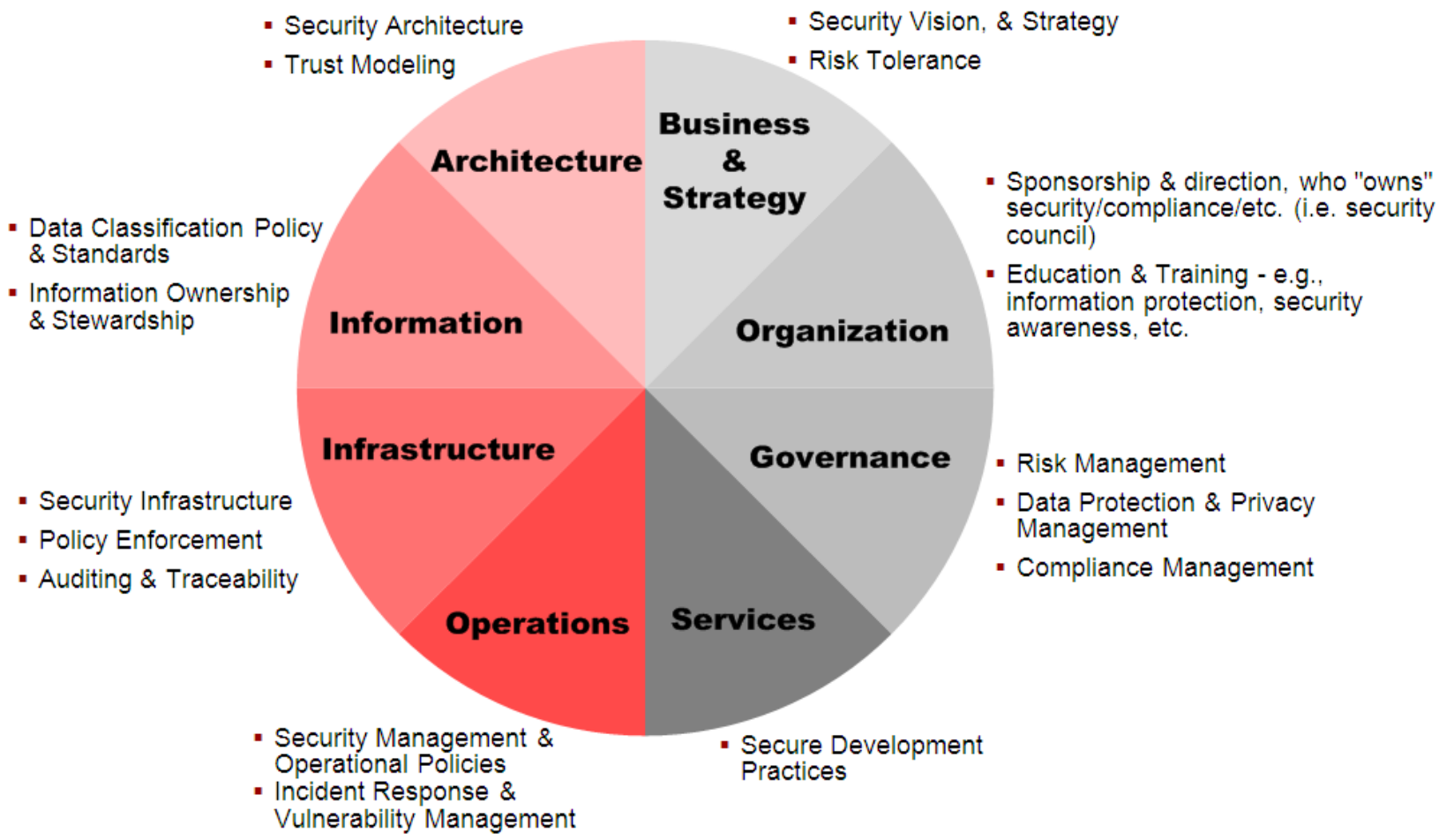
	Stage Names				
Dimensions/ Sub-Dimensions	Ad hoc	Opportunistic	Repeatable	Managed	Optimized
People ▪ IT roles ▪ Business roles	▪ Traditional IT and business roles persist ▪ Cloud skills development scattered across the organization ▪ No cloud coordination	▪ New IT roles develop to support cloud and identify priorities ▪ IT and business groups make independent decisions but share knowledge and requirements ▪ Cloud leaders begin to emerge within IT and business	▪ IT reorganizes with cloud-focused roles and leaders ▪ Skills acquisition becomes a process, increasing transparency and consistency in decision making ▪ Coordination between IT and LOB strengthens	▪ IT roles reflect service culture to deliver IT resources ▪ IT and business collaborate on service management strategy ▪ Processes accelerate learning and knowledge sharing (including needs and capabilities) between IT and business	▪ The IT and business organizations collaborate to empower mission delivery with cloud, achieving goals efficiently, driving innovation, and satisfying regulatory requirements

Cloud Capabilities by Domain



- The eight domains, although interrelated, are sufficiently distinct.
- To succeed at Cloud services adoption, an organization must adequately progress in all of these domains.

Security Topic in Cloud Capability



- Some key concerns (e.g., security) are best approached across multiple domains

Key Related Product Architecture Detail

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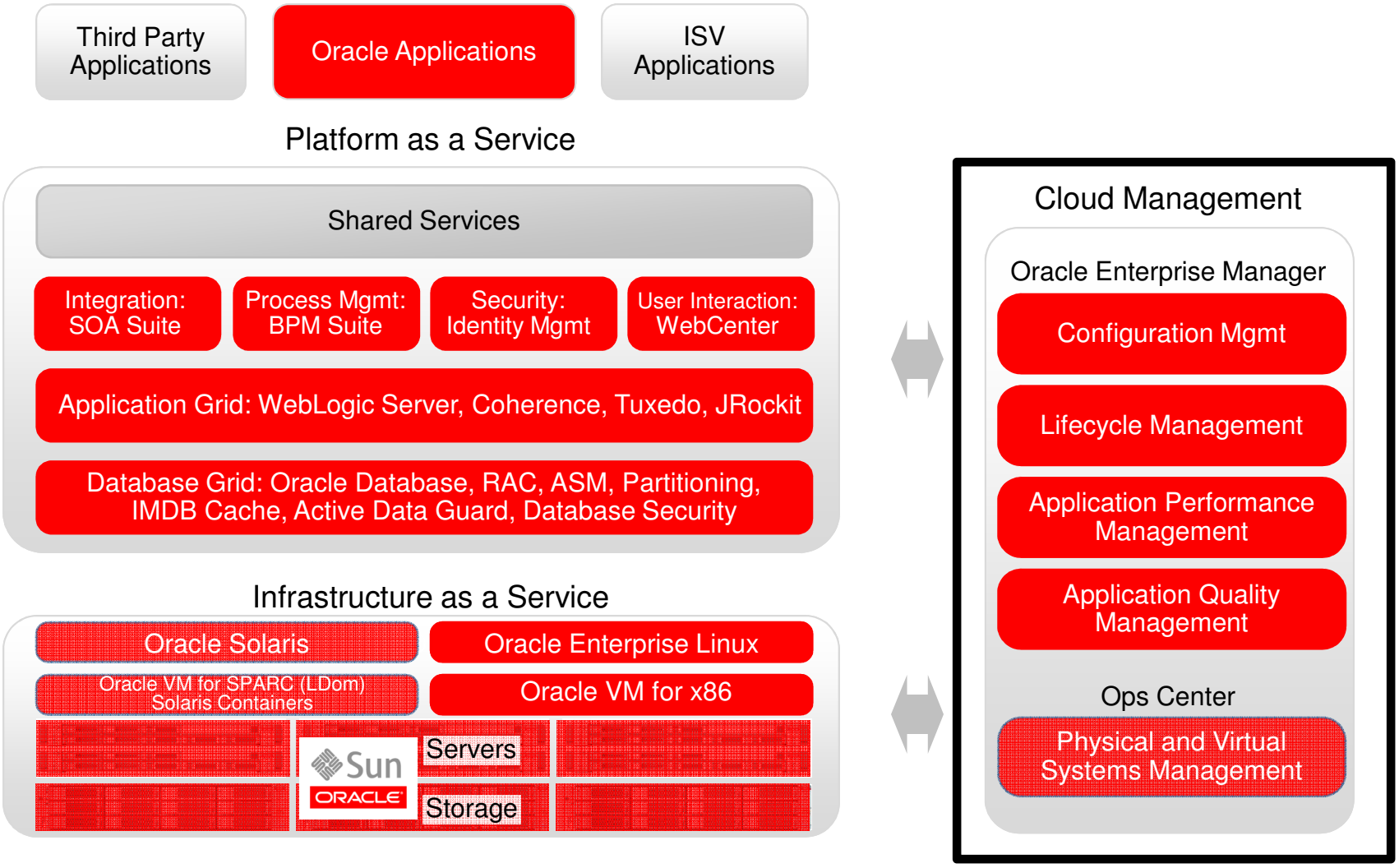
Oracle Cloud Platform for PaaS

Cloud Management



Engineered Systems in the Cloud
– extreme performance PaaS services

- *Consolidate applications and databases*
- *Run existing applications*
- *Extreme performance*
- *Simplified deployment*
- *Lower overall cost*
- *Providing enterprise scale shared services into a high performance Cloud PaaS*

Build fast, Run Fast

Oracle Government Cloud

http://www.oracle.com/us/industries/public-sector/government-cloud/index.html

Oracle Announces Oracle Government Cloud for North America

Public Sector Cloud Offers Simple, Flexible Solutions to Improve Government Operations and Enhance Constituent Services

Redwood Shores, Calif. – September 4, 2013

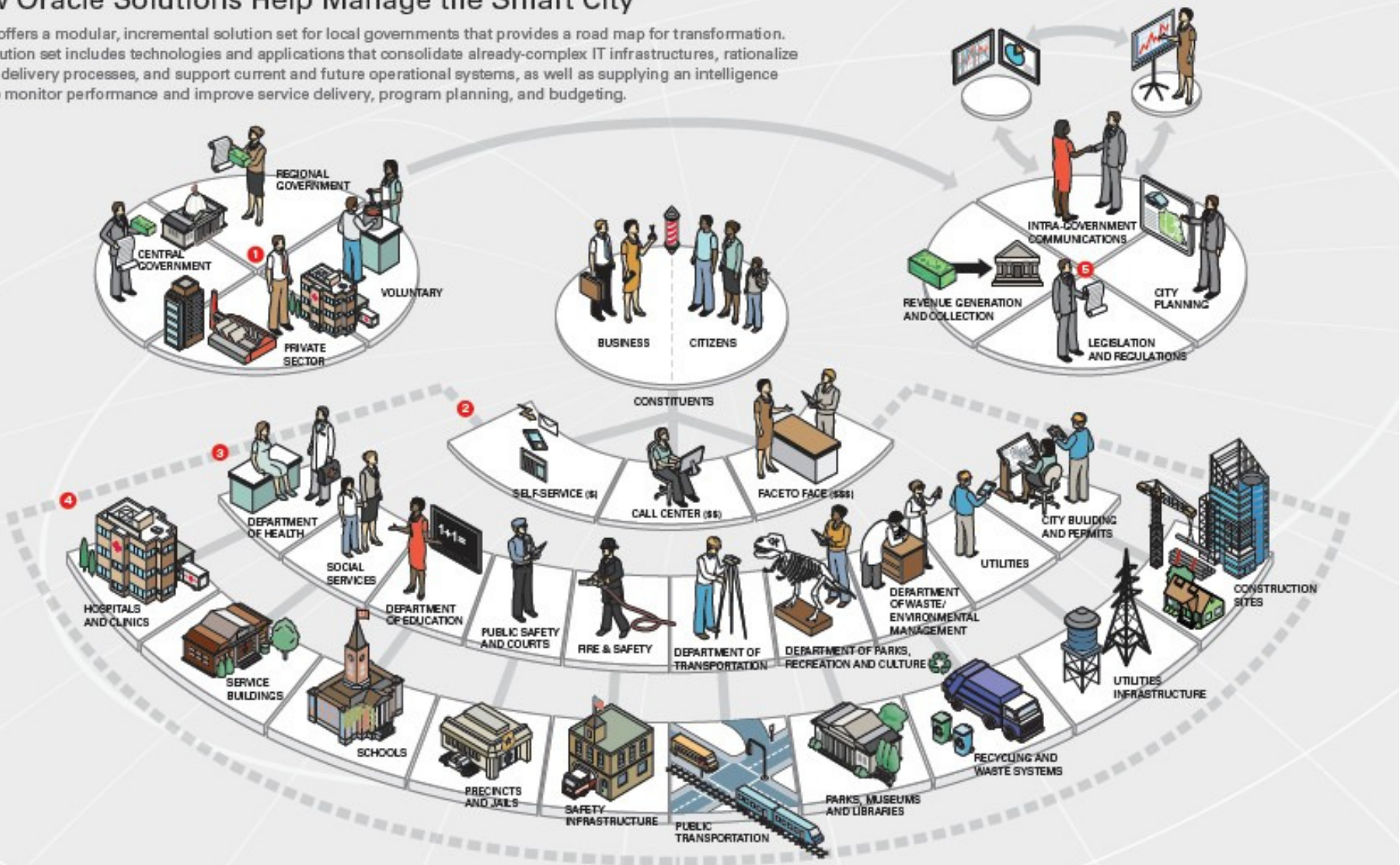
News Summary

Today's fiscal reality and the US Federal government's Cloud First policy require government agencies to consider cloud computing as a means to improve IT flexibility and responsiveness, while reducing the cost and risk involved in technology deployment and management. Oracle launched Oracle Government Cloud to give its government customers more agility and options as they move mission-critical applications to the cloud, enabling them to focus on improving operational efficiency and enhancing constituent service.

http://www.oracle.com/us/corporate/press/2005750

How Oracle Solutions Help Manage the Smart City

Oracle offers a modular, incremental solution set for local governments that provides a road map for transformation. The solution set includes technologies and applications that consolidate already-complex IT infrastructures, rationalize service delivery processes, and support current and future operational systems, as well as supplying an intelligence layer to monitor performance and improve service delivery, program planning, and budgeting.



1 EXTERNAL GROUPS

Cities not only manage and deliver their own services to citizens and businesses, they also engage with agencies and partner organizations in the private and nonprofit sectors. By providing secure, federated access controls to facilitate data sharing and application connectivity, Oracle enables you to fully automate the full lifecycle of service delivery within and outside the city. There are additional modules of the solution set that can support the grants process, managing contracts, and evaluating results of external stakeholders.

2 SINGLE POINT OF ACCESS

Users of all abilities and capabilities can initiate contact and interact with city government through a variety of channels—including e-mail, Web, short message service, face-to-face at a government office, in the field, and by proxy through a constituent care center. Users can move seamlessly between channels over the course of service delivery. All these methods of citizen interaction share the same underlying set of applications and data repositories to maintain consistency in how requests are handled and resolved.

3 CITY OPERATIONS

All operational systems can be more effective and efficient by referencing a common data-handling process for citizens, businesses, assets, and locations, which ultimately improves processes. This provides greater user satisfaction and increases employee productivity and job satisfaction.

4 CITY INFRASTRUCTURE

By consolidating technology—hardware, operating systems, applications, middleware, databases, and networks—business processes can be streamlined for more-effective use of resources. This helps promote best practices and enable cost savings while delivering better, transparent services to more citizens.

5 CITY ADMINISTRATION

Empowering city officers and department managers with superior tools and service delivery capabilities makes it easier to budget, respond to demand, and allocate/schedule city resources. In turn, a highly responsive administration is more popular with the electorate and can better address the goals of serving their community and helping it grow more prosperous.

Oracle Government Cloud

City of Atlanta Creates 311 System—Consolidates 23, Siloed Departments and Offices with Cloud-Based Solution

Established in 1837, the City of Atlanta is the capital of and the most populous city in the state of Georgia. The city is the cultural and economic center of the Atlanta metropolitan area, home to more than 5 million people, and the ninth-largest metropolitan area in the United States.

Oracle Customer: City of Atlanta
Location: Atlanta, Georgia
Industry: Public Sector
Employees: 8,400

Printer View

Previously, the City of Atlanta's decentralized organizational structure resulted in isolated silos of legacy information systems that gave citizens limited visibility into city operations. As a result, the city, which receives 1 million calls annually, used Oracle's Siebel CRM using Oracle Managed Cloud Services to deploy a 311 system that consolidated call centers and service information for the city's 23, siloed departments and offices.

A NEW ERA OF CYBER WAR

So just how close are we to a full on cyber war?

Former CIA Director Leon Panetta recently stated that "The next Pearl Harbor could very well be a cyber attack that cripples our government, security, and financial systems." (June, 2011)

That's an incredibly scary future to envision to say the least! What do the experts have to say?

A 2012 SECURITY DEFENSE AGENDA REPORT OF GLOBAL SECURITY EXPERTS SHOWS:

36%

believe an arms race is taking place in cyberspace.

43%

believe cyber security is more important than missile defense.

45%

identified damage or disruption to critical infrastructure with wide economic consequences as the greatest single threat posed by cyber attacks.

57%

believe that cyber security is as important as border security.

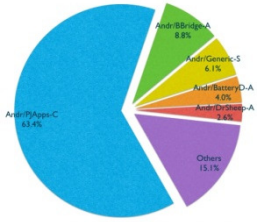
The United States' state of cyber readiness ranked behind smaller countries such as Israel, Sweden, and Finland (23 countries ranked in report).

Top 10 Topics in Cyber Security

1. Analyzing and Enhancing Mobile Workforce Access Management Security
2. Analyzing and Advising Senior Government Officers who are most active in Social Network Web sites
3. Government Web Sites Ports Scan Detection
4. DDOS Pattern Detection using Hadoop and Flume for Government Web Site Log Streaming and Real-time Analytics
5. Trojan Detection by Hadoop Weblog Analytics
6. Detecting Top E-Commerce Web Sites Hacker
7. Analyzing SME Cloud Migration Security
8. Detecting Security Thread on SmartTV User Agent, Motion Censor
9. Analyzing Jail-Break and Root Mobile Device
10. Detecting New Cyber Criminals in New Technology eg. Near Field Communications (NFC)

Cyber Security Solution

Top Mobile Malware (Jail-Break)



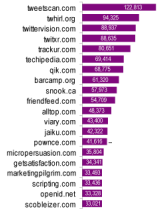
Top Executive Posted each Social Network

	Facebook	Twitter	Foursquare	Hyves	YouTube
Aanvondigingen doen	5	5	2	5	2
Meestyren documenten	3	3	1	3	1
Dialoog	5	5	2	5	2
Multimedia	2	3	1	3	2
Statuupdates	3	4	5	3	4
Analyseroogstkhedin	4	4	2	4	4
Usability	5	3	5	3	5
Sociability	5	5	5	2	3
Schaalbaarheid	3	5	5	5	1
Technische eisen	5	2	4	2	3
Beheer	3	3	5	3	2
Kosten	4	3	5	3	4
Totaal	49	45	42	41	34

Top Trojan on Public Smart TV or Public Smart Device

Family	Threat Count	Machine Count
Taterf	544,662	463,000
Renos	308,789	228,973
Alureon	249,101	211,441
FakeRean	219,359	162,328
Bancos	173,134	158,152
Koobface	274,769	134,139
Frethog	140,218	132,827
Cutwail	166,284	110,840
Rustock	98,673	90,788
Tibs	93,175	84,081

Top No SSL E-Commerce



Big Data

Hadoop

Mobile Workforce, Jail-Break Smart Devices

Social Network Web Sites

Government Web Sites

Top E-Commerce Web Sites/ SaaS Providers

Future Public Smart Devices

Oracle Government Cloud

Guangzhou Municipal Human Resources and Social Security Bureau Speeds up Healthcare Transactions by 5x for Services to 14 Million Citizens

Guangzhou Municipal Human Resources and Social Security Bureau (Guangzhou HRSSB) is an administrative department of the Guangzhou municipal government in China that manages labor and social security information for approximately 14 million citizens. The department's primary functions include implementing national, provisional, and municipal laws, regulations, and policies; drafting, organizing and implementing human resource (HR) flow policies; promoting employment and professional training; and ensuring that the social security system covers the needs of workers in urban and rural areas.

广州市人力资源和社会保障局

Oracle Customer: Guangzhou Municipal Human Resources and Social Security Bureau

Location: Guangzhou, China

Industry: Public Sector

It enabled 80% of the process social security applications and other related business through the cloud service.

Oracle Government Cloud

Eight Steps to Build Great Customer Experiences in Government Cloud

1. Establish a knowledge foundation.
2. Empower your customers.
3. Empower your frontline employees.
4. Offer multichannel choice.
5. Listen to your customers.
6. Design seamless experiences.
7. Engage customers proactively.
8. Measure and improve continuously.

Group Workshop – Enterprise Architecture for Cloud Roadmap

Write down your existing enterprise architecture foot print

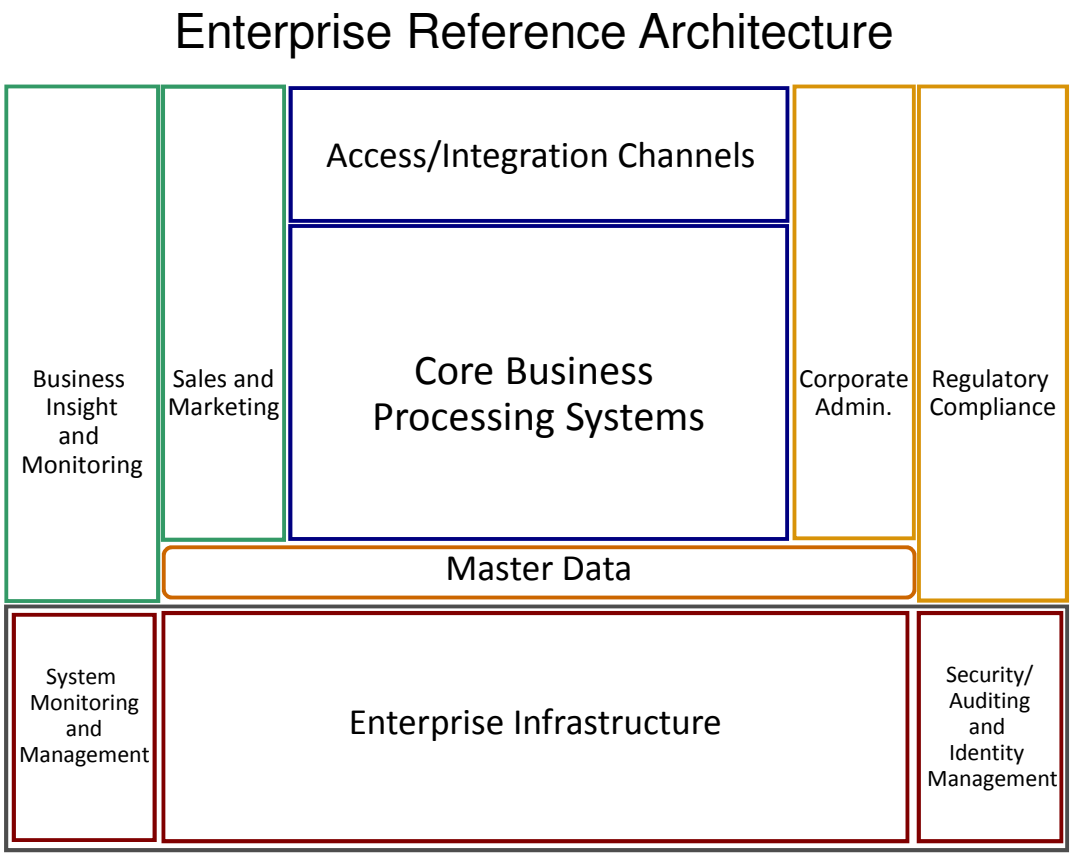
Team Name: *xxx*

1. Name, Company, E-mail

2. Name, Company, E-mail

3. Name, Company, E-mail

4. Name, Company, E-mail



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