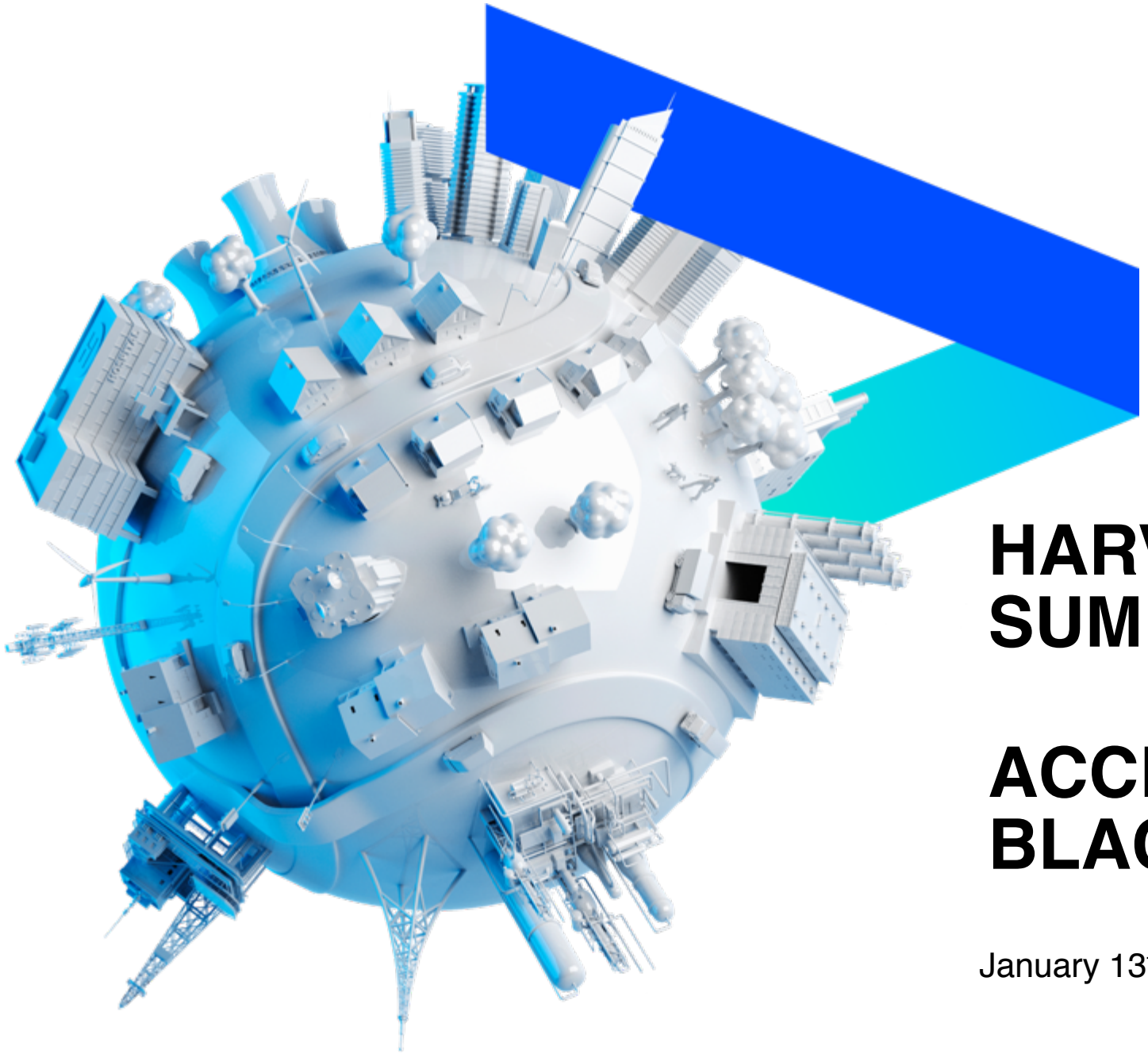

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HARVARD SMART CITIES SUMMIT

ACCENTURE, ORACLE, BLACKSANDS

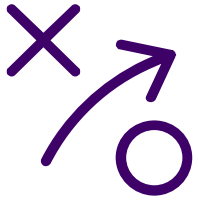
January 13th, 2020

WHILE SMART CITIES ARE MOVING FORWARD, MULTIPLE BARRIERS HAVE SLOWED PROGRESS; WE SEE FOUR MAJOR ADOPTION CHALLENGES

CAUSE		EFFECT
VENDOR-FIRST MENTALITY, with limited customer & resident engagement	→	**LIMITED OUTCOMES** and/or lack of user adoption
LACK OF SUSTAINABLE FINANCING within City Hall and beyond.	→	**PILOT PARALYSIS**, with inability to scale solutions
INABILITY TO DEVELOP STRATEGIC, LONG-TERM PLANS across jurisdictions & stakeholders (i.e. governments, academia, anchor institutions)	→	**UNCOORDINATED DECISION MAKING** and disconnected, siloed point solutions
EXCLUSIVE FOCUS ON FINANCIAL ROI, and limited focus on societal benefits	→	**RELATIVE DISREGARD FOR SOCIAL / RESIDENT ROI**, with implementation of solely financially attractive initiatives

SMART CITY PARTNERSHIP FRAMEWORK
OVERVIEW

Smart Cities requires leadership, coordination & sustained commitment, capacity building, capital investment, and the right ecosystem.



LONG-TERM STRATEGIC PLANNING

- **Up front strategy** looking **holistically across city needs**
- Near-term **quick wins**
- Mid-long term focus on ROI
- Looks to **eliminate the protracted course of pilots**

GOVERNANCE & PROGRAM MANAGEMENT

- **'Safe Harbor'** with convening power
- **Governance model to ensure streamlined decision-making**
- Limited exposure to political turnover

SUSTAINABLE FINANCING

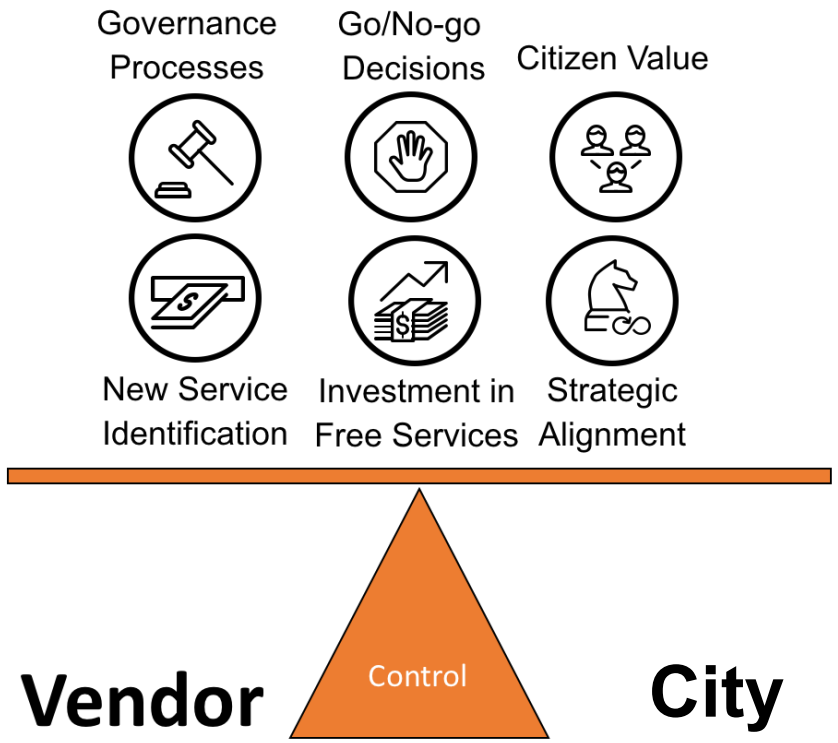
- Holistic approach using **private sector funds**
- Identify **upfront funding commitments**
- **Zero cost to the City**

END-TO-END ECOSYSTEM

- Bring a **"Dream Team"**
- Establish an end-to-end ecosystem

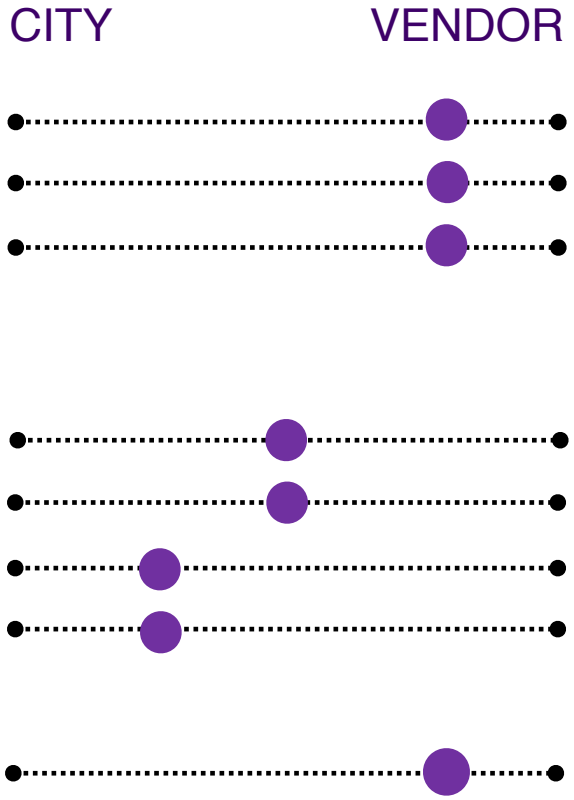
SMART CITY PARTNERSHIP FRAMEWORK
BALANCED SELF-FUNDED MODEL

A balanced self-funded commercial model is one that seeks to create mutually beneficial incentives between the vendor and the City. To do this, Accenture recommends creating contractual mechanisms that force action toward mutual decision making and in some cases even tips the scale toward the City. Potential contractual triggers: Revenue, Investment level, minimums, timing and effort.



BALANCED SELF-FUNDED MODEL

- **Risk Factors:** Vendor assumes majority of risk because of investments and unknown of service transactions
- **Control Factors:** Contractual triggers provide more balance
- **Financial Reward Factors:** Vender realizes majority reward from investment reward



RISK FACTORS

Initial Infrastructure Investment

Initial Development Costs

Ongoing Operational Costs

CONTROL FACTORS

New Service Identification

Investment in Free Services

Strategic Alignment/Value

Constituent Value

REWARD FACTORS

Revenue Stream

SMART CITY PARTNERSHIP FRAMEWORK
GOVERNANCE & PROGRAM MANAGEMENT

A **governance structure** is needed **to ensure streamlined decision-making**, with the proper incentives and operating model.

STRATEGIC HOST

SMART REGION ADVISORS

ENGAGEMENT PARTNERS

GOVERNMENT RELATIONS & POLICY

PUBLIC RELATIONS & OUTREACH

STEERING COMMITTEE

Board of Directors
- Vision and ultimate decision maker on initiatives
- Members include Regional Entities, Funders, PMO, and Strategic Host

Main Responsibilities
- Program Oversight

PROGRAM MANAGEMENT OFFICE

Main Responsibilities
- Manage the program day-to-day
- Execute roadmap and CONOPS
- Oversee and coordinate teams leading initiatives

INITIATIVE TEAMS

Main Responsibilities
- Ideate, design, and propose projects
- Deliver identified initiatives
- Coordinate day to day project work w. stakeholders

FIDUCIARY ENTITY

Main Responsibilities
- Fund Management
- Escrow, Disbursements

SMART CITY PARTNERSHIP FRAMEWORK
LONG TERM PLANNING & PHASED EXECUTION

	PHASE 1 Months 0 - 9	PHASE 2 Months 10 – Year 5	PHASE 3 Year 5 - 30
STRATEGY & PLANNING	Initial strategy and planning, visioning, CONOPS, etc.	Annual strategy and planning refresh	
	Prioritize, roadmap, and scope all Initiatives in the Program	Ongoing PMO of the Initiatives	
	Stand-up the PMO and initiate the Board of Directors		Establish an Innovation practice to evaluate new Initiatives
PROJECT EXECUTION	Stand-up and launch Wave 1 Initiative Teams	Run, Monetize and enhance Wave 1 Initiatives	Run, Monetize, and enhance planned Initiatives
	Fully solution Wave 1 Initiatives	Fully solution the road mapped initiatives in Waves	Identify, design, and propose new Initiatives
	Go-live with Wave 1 Initiatives	Go-live with the road mapped Initiatives	Fully solution and go-live with new Initiatives, as approved
		Run, Monetize, and enhance the road mapped Initiatives	Run, Monetize, and enhance new Initiatives

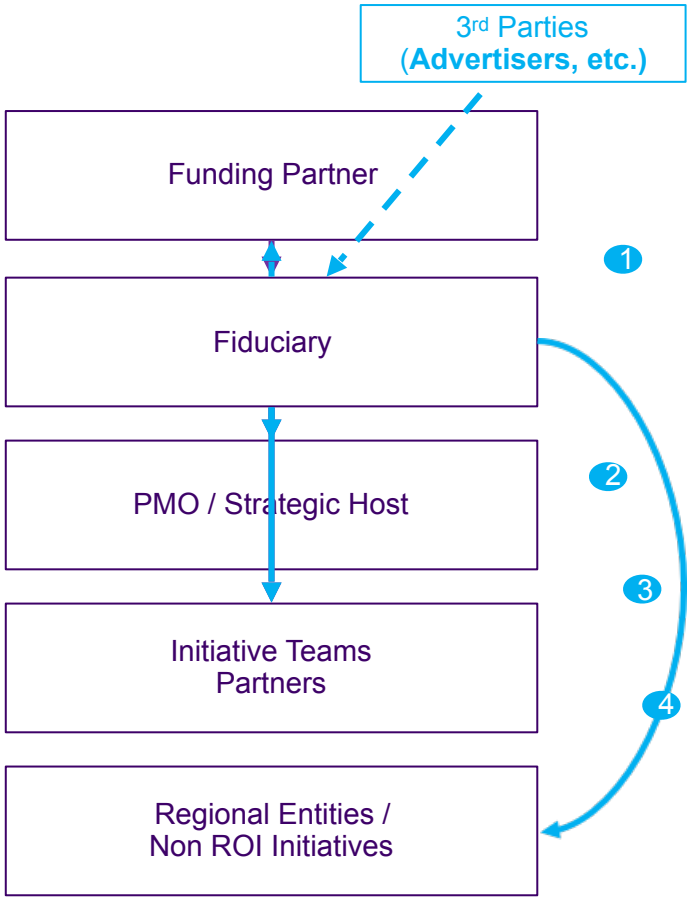
SMART CITY PARTNERSHIP FRAMEWORK
SUSTAINABLE FINANCING

START UP FUNDING

Release Triggers
The process starts with the release of funds by the Financial Partners
- Board of Directors Approvals
- Initiative fund release schedule date reached

PMO
- T&M or FFP scheduled payment for strategy & PMO services

Initiative Teams
- Predefined process for Fiduciary to release funds
- PMO submits Initiative specific funds release report
- Fiduciary reviews and approves the Initiative funds release report



REVENUE DISTRIBUTION

Monetization
Monetized revenue is captured by the PMO and held in arrears by the Fiduciary for distribution

The Region
- Revenue generated and cost savings share payments
- Grant funds received through the Program
- Cost take out and revenue to be repurposed for ongoing PMO functions and partial TCO support for future Use Cases

Initiative Teams
- Right-of-way scheduled payments
- Access schedule payments

3rd Parties
- Advertising revenue share payments, data monetization payments, App revenue share payments, etc.

Distribution Waterfall
Clearly defined process and milestone trigger points for each initiative for the Fiduciary to make payments on a pre-specified apportioning bases in the following order:
1. **Funders** – Investment repayment stream
2. **Strategic Host and PMO** – Ongoing strategy and PMO refresh functions
3. **Initiative Teams** – Funding the TCO for delivery of all use cases over the 25 year lifecycle
4. **Regional** – Net positive revenue generation

SMART CITY PARTNERSHIP FRAMEWORK
CURRENT ACCENTURE "DREAM TEAM" ECOSYSTEM PARTNERS

Accenture is working with a variety of entities across the Smart City landscape, some of whom may be valuable partners in helping the City achieve its goals

Tier 1 **MACRO PARTNERS**	ORACLE, blacksands, Microsoft, wsp, SMART CITY CAPITAL, mastercard, verizon, AT&T, AECOM, SIEMENS, meridiam
Tier 2 **PROJECT PARTNERS**	SMART CITY MEDIA, Itron, GE Lighting, Hitachi Vantara, esg, miovision, intel, Homebase AI, Archangel Systems, Marketplace.city, SMART CITY MEDIA, CenterPoint Energy, MACHINE HALO, cisco, Intersection, suez, xaqt
Tier 3 **ALLIANCE PARTNERS**	aws, G, tableau, NOKIA, esri

▼ Topic for deep-dive today

SMART CITY PARTNERSHIP FRAMEWORK
ECOSYSTEM APPROACH

PROGRAM GOVERNANCE – WRAP-AROUND

FINANCING
The City will require financing to support the program and begin breaking ground. A finance partner will be needed to bring to bear investment notes for the purposes of smart city projects / infrastructure (i.e. > $200 M, through a combination of debt-equity, service monetization, and other models.

STRATEGY, DESIGN, & PLANNING
Define the vision, strategy, and smart city program operations. Identify and prioritize smart city use cases / services, and the associated infrastructure investments needed to improve City operations and residents' quality of life.

SMART CITY TECHNOLOGIES & POINT SOLUTIONS
The City will require a number of technologies / solutions / products to bring use cases to life.

SMART CITY PROGRAM

A&E AND INFRASTRUCTURE PMO
A&E capabilities to plan and execute projects within the City's right of way. PMO services will be needed to manage the large-scale infrastructure projects.

CONNECTIVITY
A Connectivity partner (i.e. fiber, small cells, etc.) will be foundational to the smart city program.

▼

CYBERSECURITY
End-to-end security architecture, covering physical devices (IoT) and digital components to ensure resilience and privacy.

SMART CITY DATA PLATFORM & SYSTEMS INTEGRATION
To bring a smart city to life, systems must be stitched together and interface with one another, passing data back and forth seamlessly. City will need a data + analytics platform. This will centralize data and be the bridge between infrastructure investments and the smart city services.

ADDITIONAL PARTNERS ACROSS THE ECOSYSTEM

- Academia
- NGOs
- Startup community
- Transit
- Other local organizations

ORACLE

Data – Asset or Liability

Securing Assets with Database Security

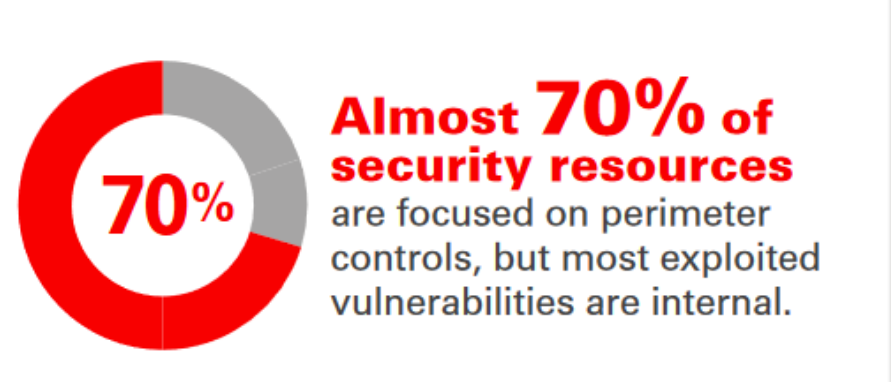
Franco Amalfi
Director of Innovation

Oracle Public Sector North America
13 January 2020

The Situation

We are in the midst of a data breach epidemic, fueled by a lucrative information black market

The perimeter security most IT organizations rely on has become largely ineffective



Ransomware may have cost the US more than $7.5 billion in 2019

The money

- The potential cost of ransomware in the United States last year was over $7.5 billion, according to a recent report from the cybersecurity firm Emisoft that attempted to estimate the impact of a very opaque set of incidents.

The victims

- 113 governments and agencies, 764 health-care providers, and up to 1,233 individual schools affected by ransomware in America. Big cities including Baltimore and New Orleans were both struck by ransomware attacks last year.

The why

- One root cause, according to an October 2019 report from the State Auditor of Mississippi, is a “disregard for cybersecurity in state government.”
- Others agree: Research from the University of Maryland published earlier in the year concluded with admirable directness “that most American local governments do a poor job practicing cybersecurity.”

Source: https://www.technologyreview.com/f/615002/ransomware-may-have-cost-the-us-more-than-75-billion-in-2019/?utm_source=newsletters&utm_medium=email&utm_campaign=+the_download.unpaid.engagement

Who Wants Your Data?

Insiders

Nation States

Criminals

Hacktivists

Personal Data
Financial Data
Trade Secrets
Regulated Data

Former Employees

Curiosity Seekers

Customers

Competitors

Attack Tools and Techniques Exploding

Stolen Credentials

Phishing

SQL Injection

Buffer Overflow

Privilege Escalation

App Exploits

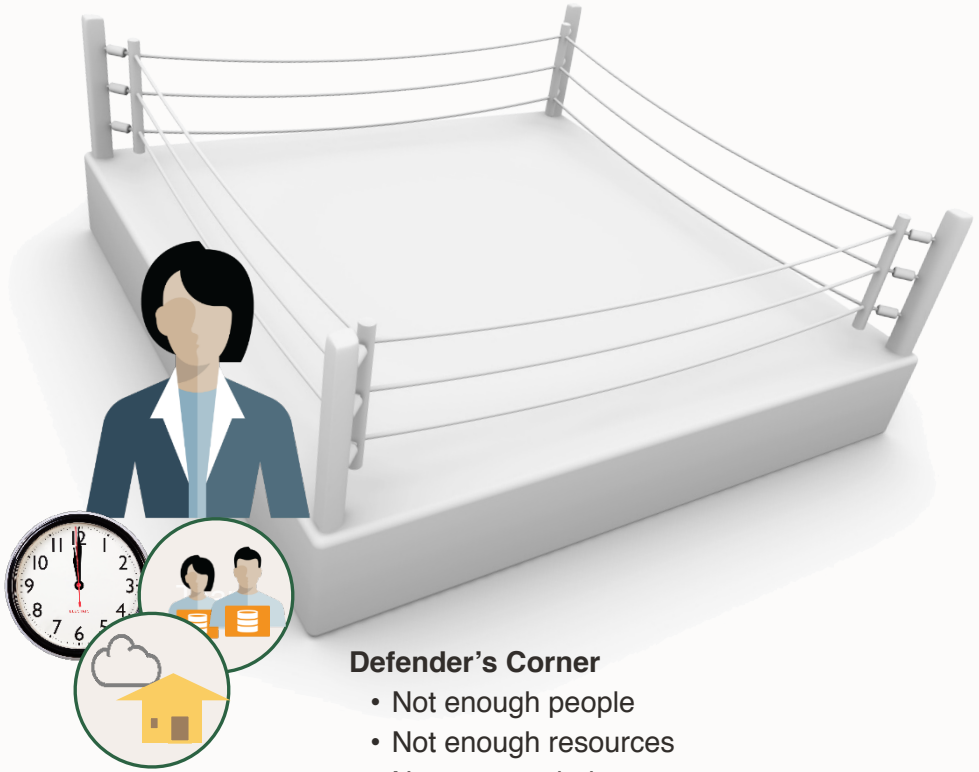
XSS Attacks

Unpatched Systems

Asymmetric Warfare

Challenger's Corner

- All the infrastructure



Defender's Corner

- Not enough people
- Not enough resources
- Never enough time

Why Focus on Databases?

Most business data is in databases

- Manage large amounts of data
- Easy to retrieve, search and analyze
- High performance

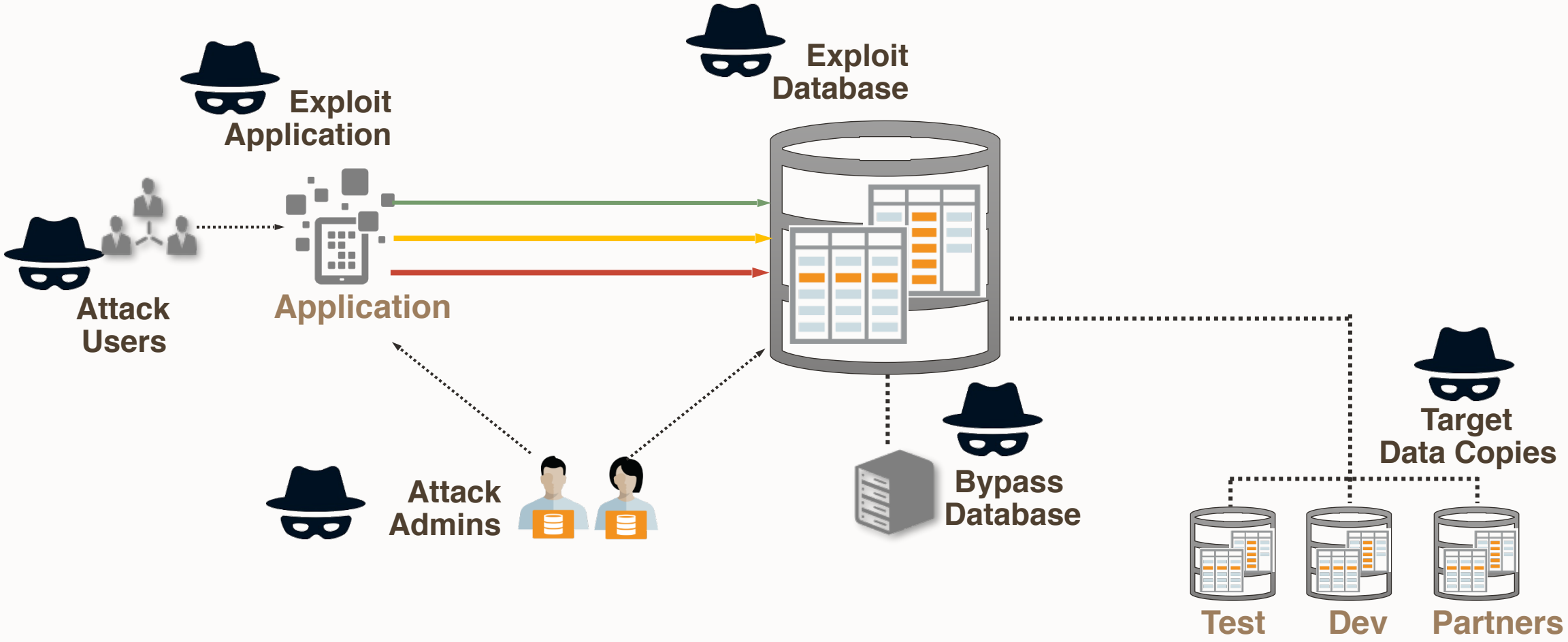
Verizon Breach Report 2018

- Top asset breached: database (20%)
- Internal actors involved: 28% (up 12%)
- 57% of internal attacks on databases

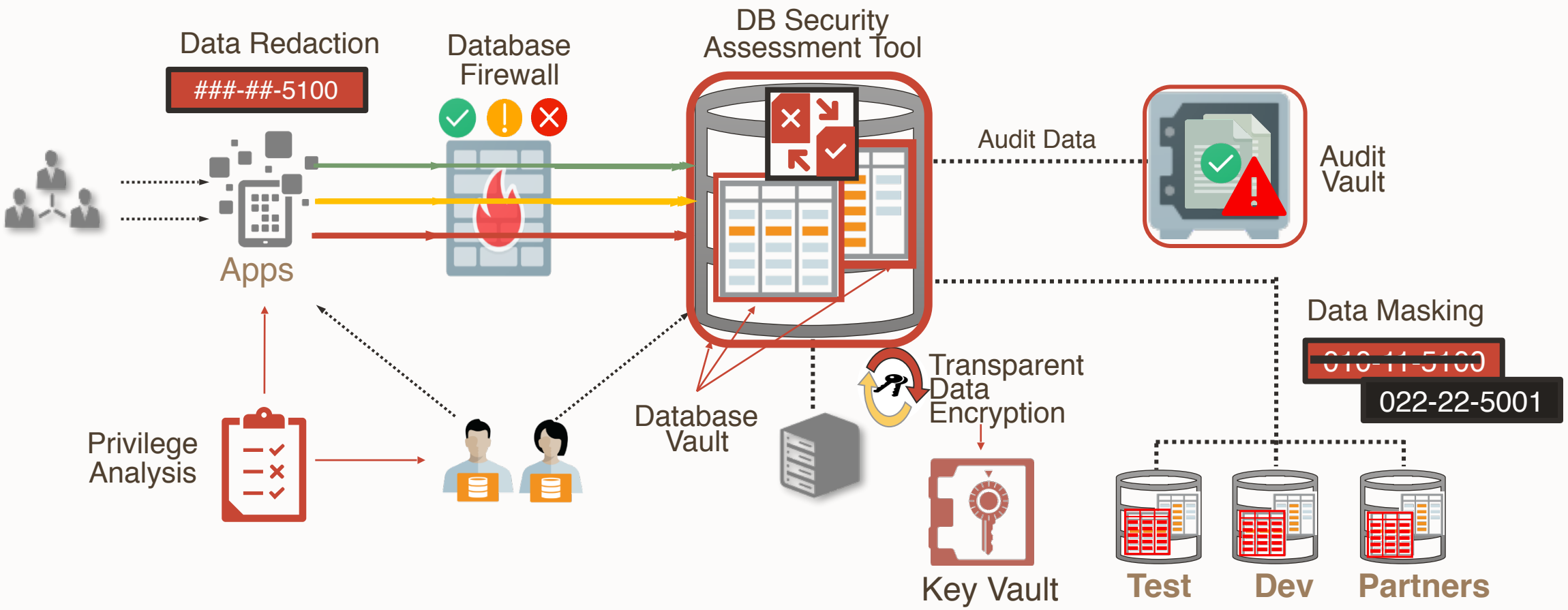
Databases may be your most valuable information asset

Databases may be one of your greatest liabilities

How Hackers Attack the Database?



Oracle Database Maximum Security Architecture

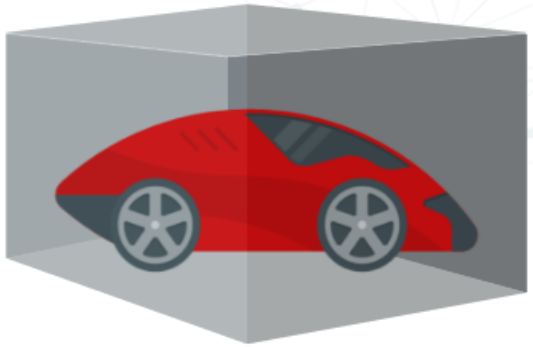


World’s First Autonomous Database

SELF-DRIVING

Automates database and infrastructure management, monitoring, tuning

SELF-SECURING

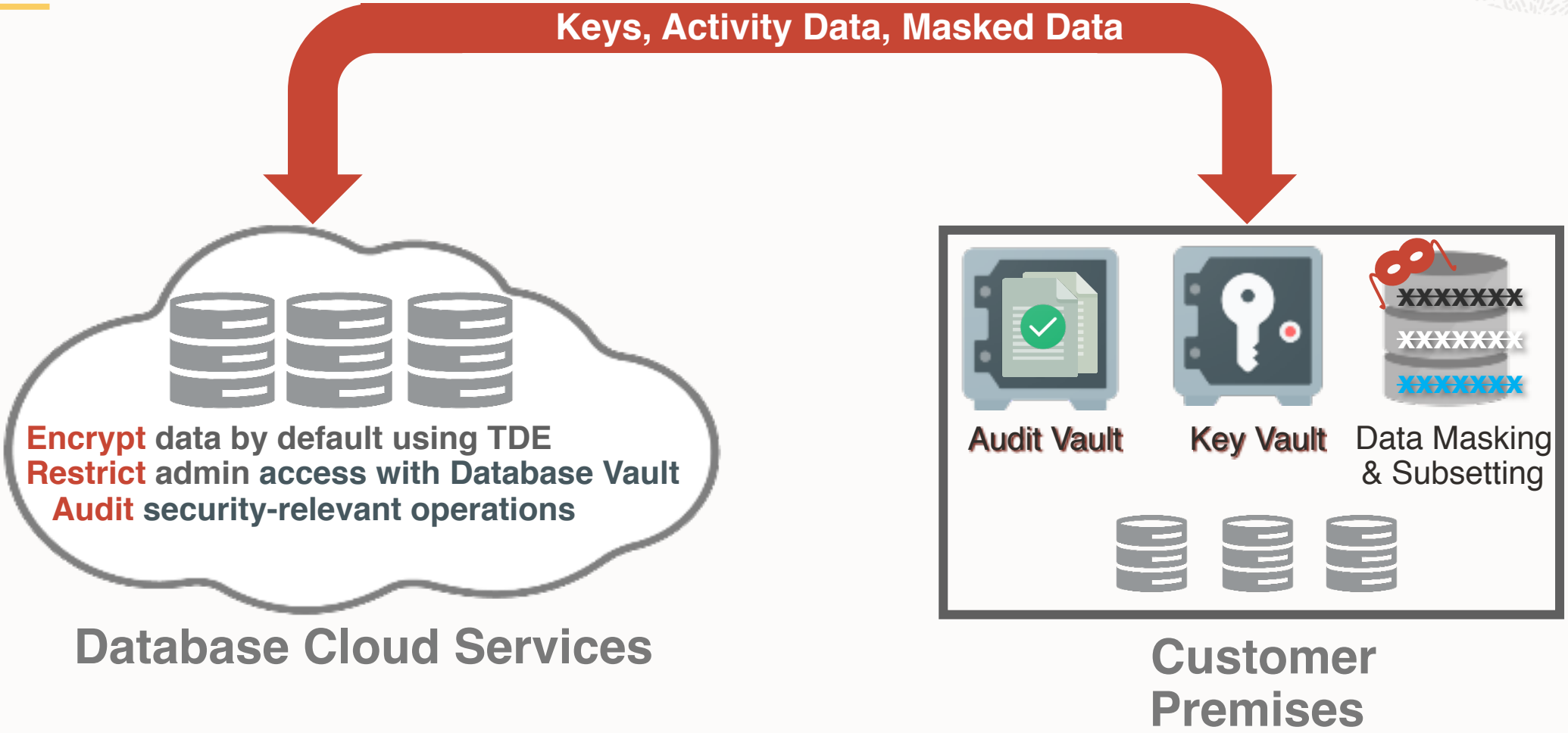


Protects from both external attacks and malicious internal users

SELF-REPAIRING

Protects from all downtime including planned maintenance

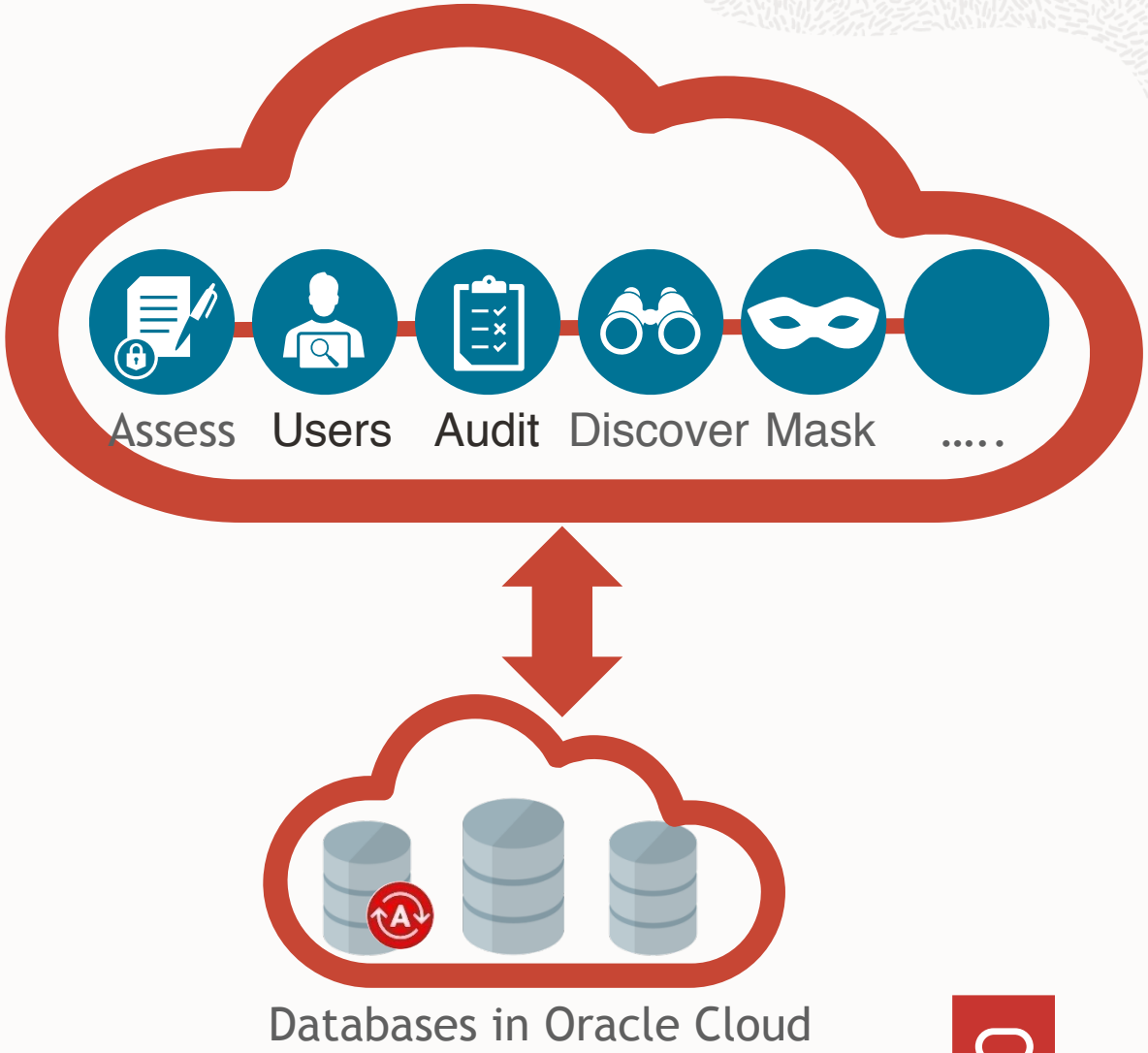
Maintain Control and Visibility on Cloud Databases



New - Oracle Data Safe

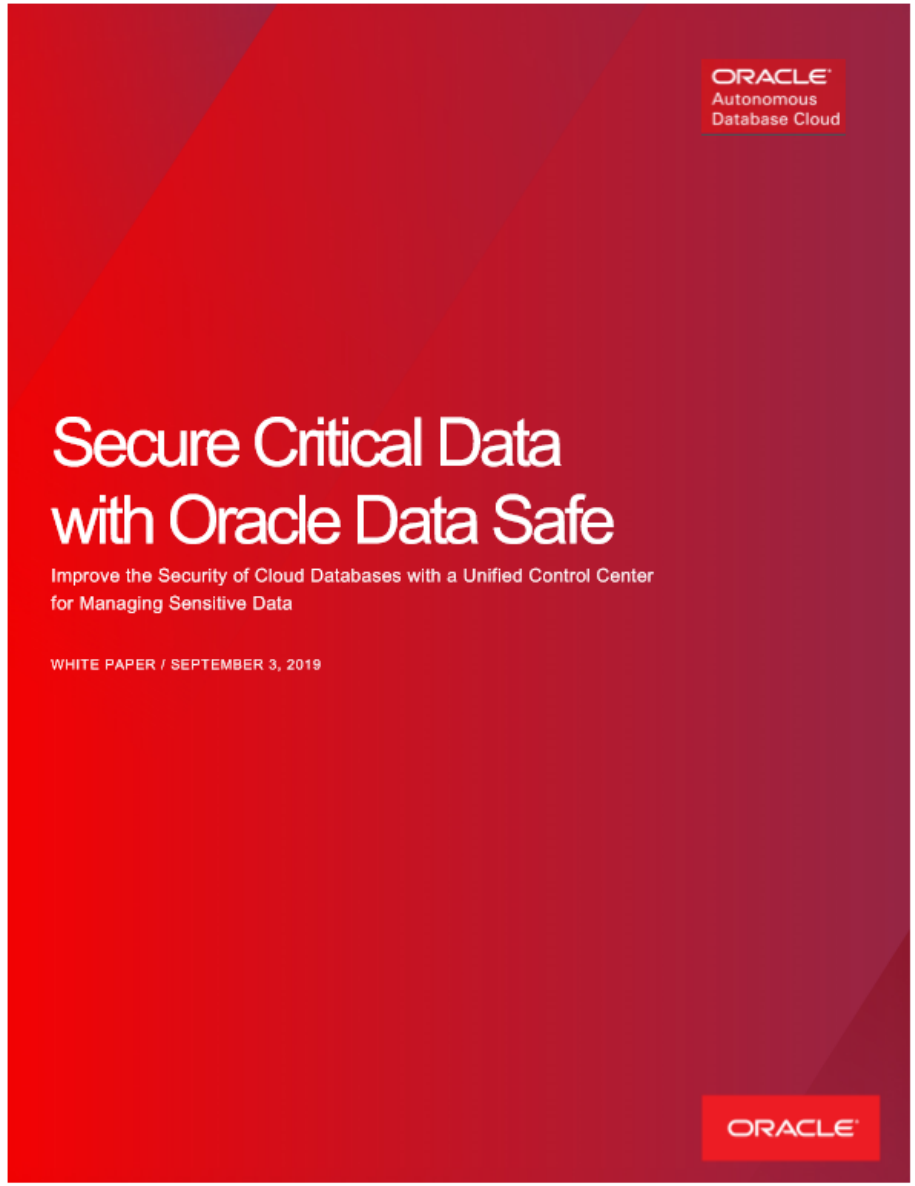
Security for Cloud Databases

- Unified Database Security Control Center
  - Security Assessment
  - User Assessment
  - User Activity Auditing
  - Sensitive Data Discovery
  - Sensitive Data Masking
- Saves time and mitigates security risks
- Defense in Depth for all customers
- No special security expertise needed



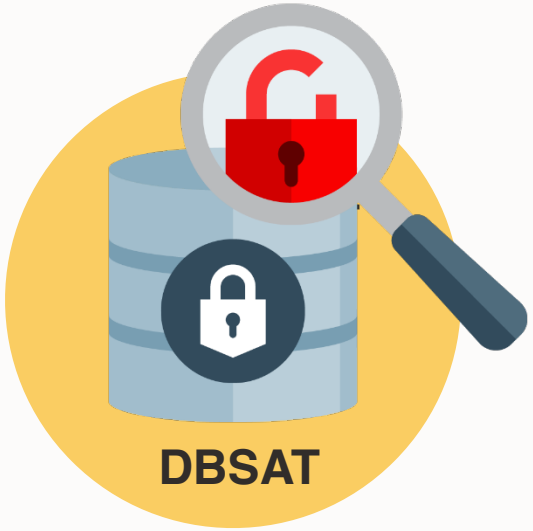
More Information

Download the **Oracle Data Safe White Paper**, from https://www.oracle.com/database/technologies/security.html



Assess Your Database Security Before Hackers Come Knocking

Know Your Sensitive Data



Know Your Overall Database Security Posture

Stand-alone lightweight tool: quick and easy
FREE to current Oracle customers

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Our Approach to Oracle Database Security – 4 Pillars

INTRODUCTION

The Accenture Database Security Service Catalog includes Discovery, Engineering, Implementation and Education offerings

THE FOUR PILLARS OF SOLUTION TO DATABASE SECURITY

- Discovery phase of the project includes pre assessment of environment and listing of the violations
- For repeatable and scale out approach on solutions the engineering of the Security ecosystem is mandatory
- Implementation of Security features are delivered using a blended support model which is a cost effective solution for the clients
- Training, Security Workshops and Publications enable better education and support of the platform

DISCOVERY

- Pre Assessment
- Security Health Check
- Data Analysis
- Recommendations

ENGINEERING

- Security & Compliance Model
- Oracle Advanced Security
- Third Party Applications
- Oracle Engineered Systems

IMPLEMENTATION

- Pre Assessment
- Deployment / Run Books
- Support (Level 1, 2, 3, 4)
- OEM 12c Security

EDUCATION

- Training
- Security Workshops
- Publications

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Database Security Health Check

INTRODUCTION

The Health check for Oracle database identifies the security risks which include violations to Access Control, Auditing, Authentication, Encryption, Integrity Controls and Application Security.

MAJOR SECURITY ISSUES IDENTIFIED?

Identifies

- Default ports for database and cluster ware listeners
- Access Control violations and Authentication violations
- Elevated access violations
- Cross site scripting violations
- Default passwords and violations to best practices for password management
- Analytics and reports of database auditing information

DISCOVERY PHASE

Deploy Scripts

Questionnaire (OR)
Pre-Assessment

VALIDATION PHASE

Access Violations

Authentication Violations

Elevated Access

Encryption (PII Data)

Auditing Analytics

REPORTING PHASE

Generate Reports

Reports (OR)
Compliance Number

blacksands

Blacksands SCaaS solution provides the foundation to deploy, manage, secure and audit your platforms to ensure your Smart City stays Smart

DIGITAL TRANSFORMATION

Single New Connection

- 10 - 15 Applications & Systems
- 2-3 Months
- Full Project Team
- Dedicated Budget

Hyper-Converged Hybrid Networks

EXPONENTIAL GROWTH IN CONNECTIONS

Data Access and Sharing

Building Automation

IoT Connected Cities

Smart City Applications

Mobile Workforce

DIGITIZATION COMPLEXITY

Deploy

Long Deployment Times

Manage

Increasing IT Personnel

Secure

Too Much Access

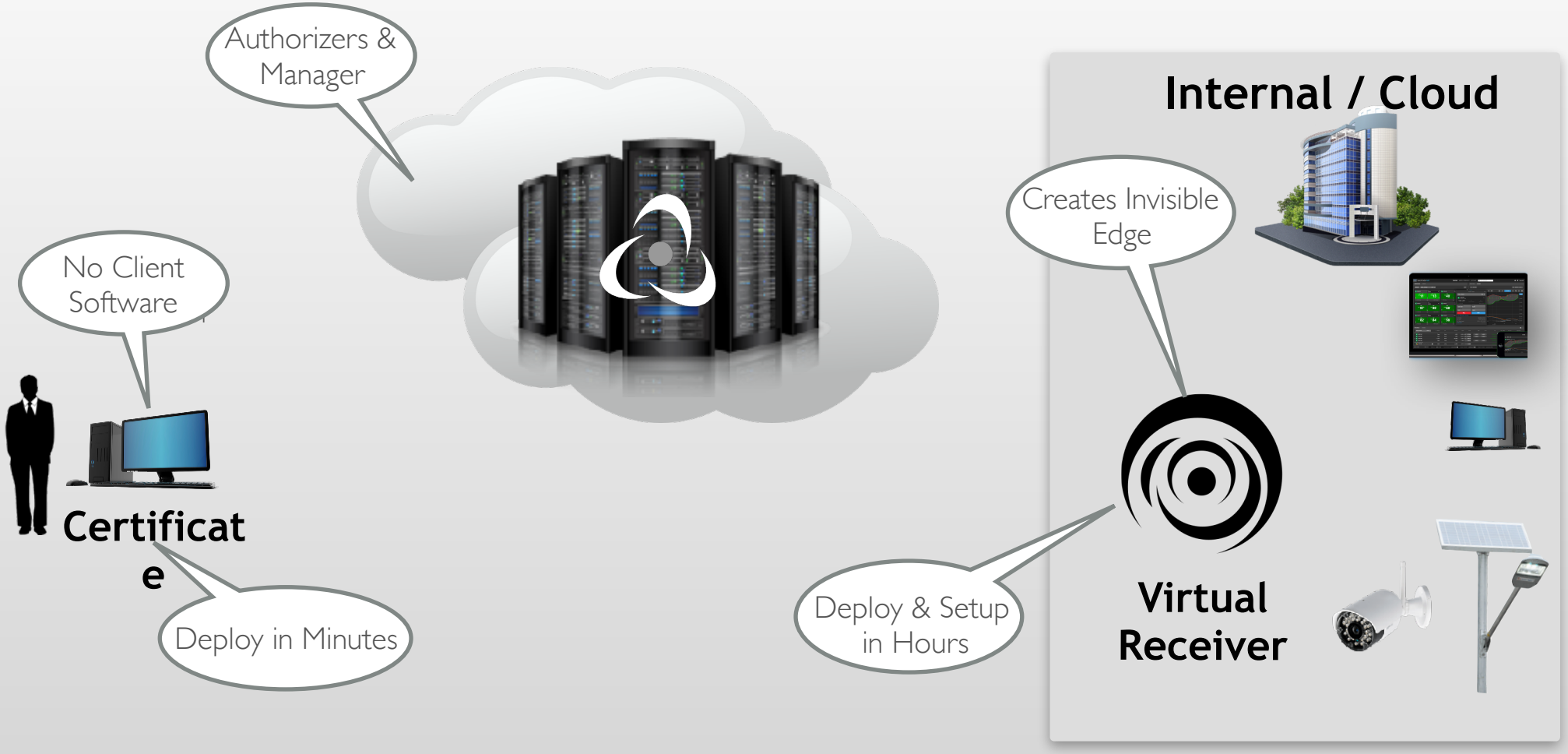
Audit

No Visibility

INCREASED COST & INCREASED SECURITY RISK WITH EVERY CONNECTION

SIMPLE, SECURE, SCALABLE CONNECTIVITY

SECURE CONNECTION AS A SERVICE



ZERO TRUST ARCHITECTURE

Separation of Powers Architecture

SECURE CONNECTION AS A SERVICE

ZERO TRUST ARCHITECTURE

Separation of Powers Architecture

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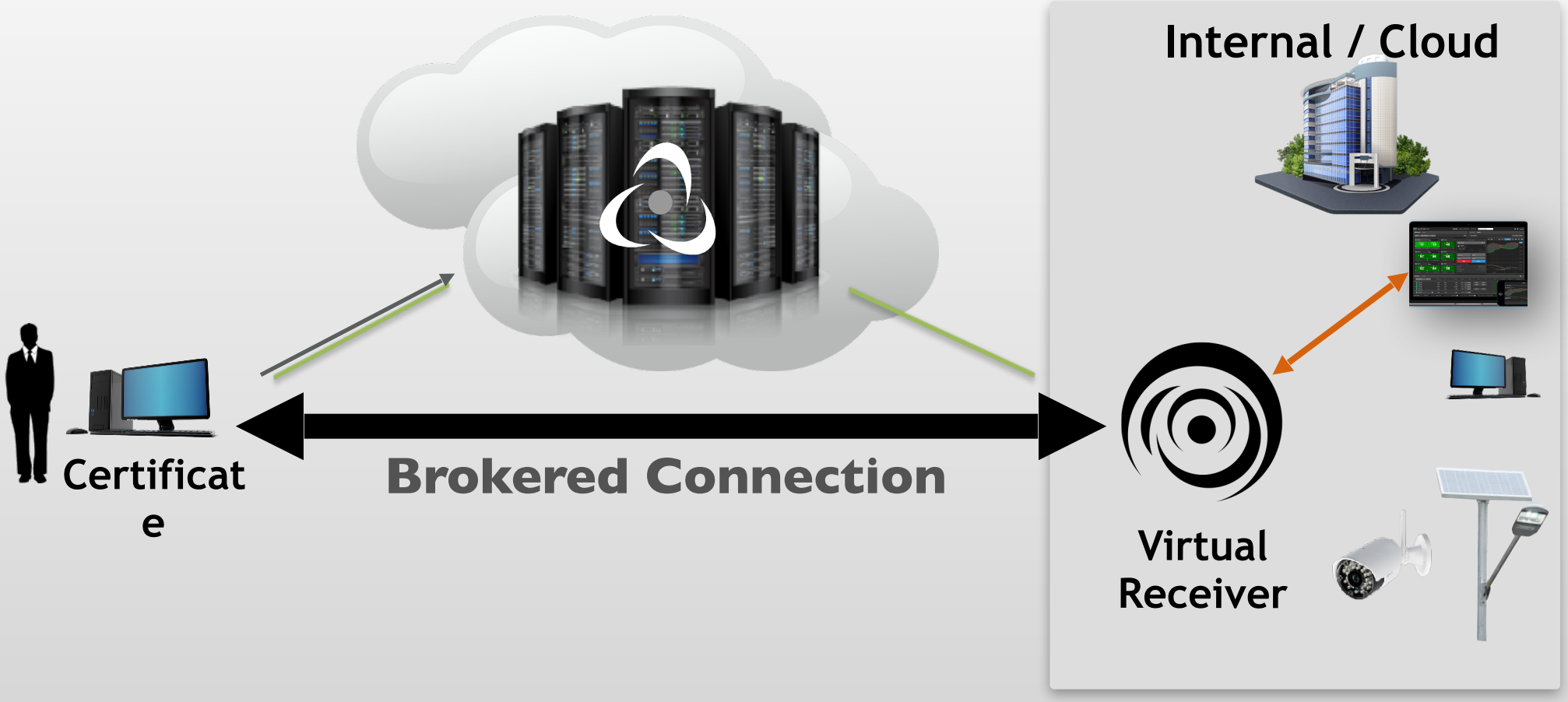
Separation of Powers Architecture

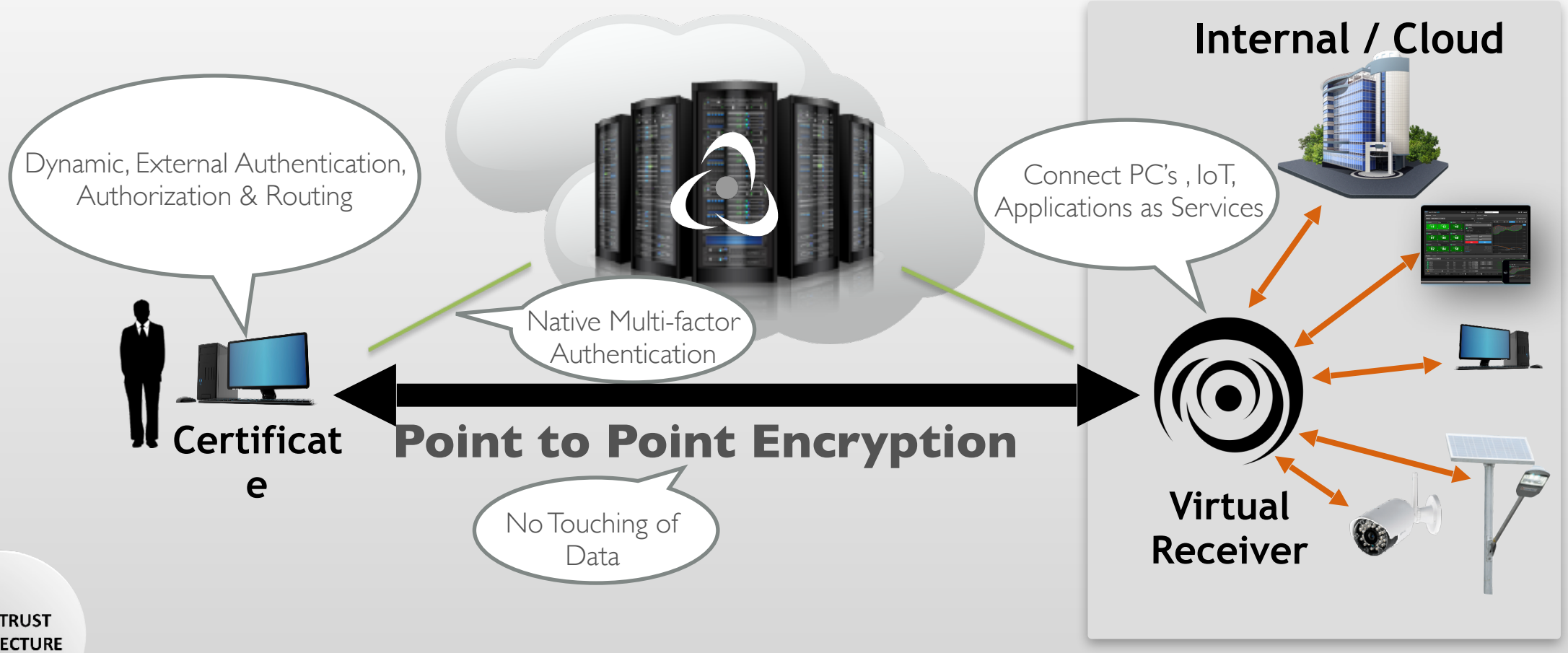
SECURE CONNECTION AS A SERVICE



ZERO TRUST ARCHITECTURE

Separation of Powers Architecture

SECURE CONNECTION AS A SERVICE



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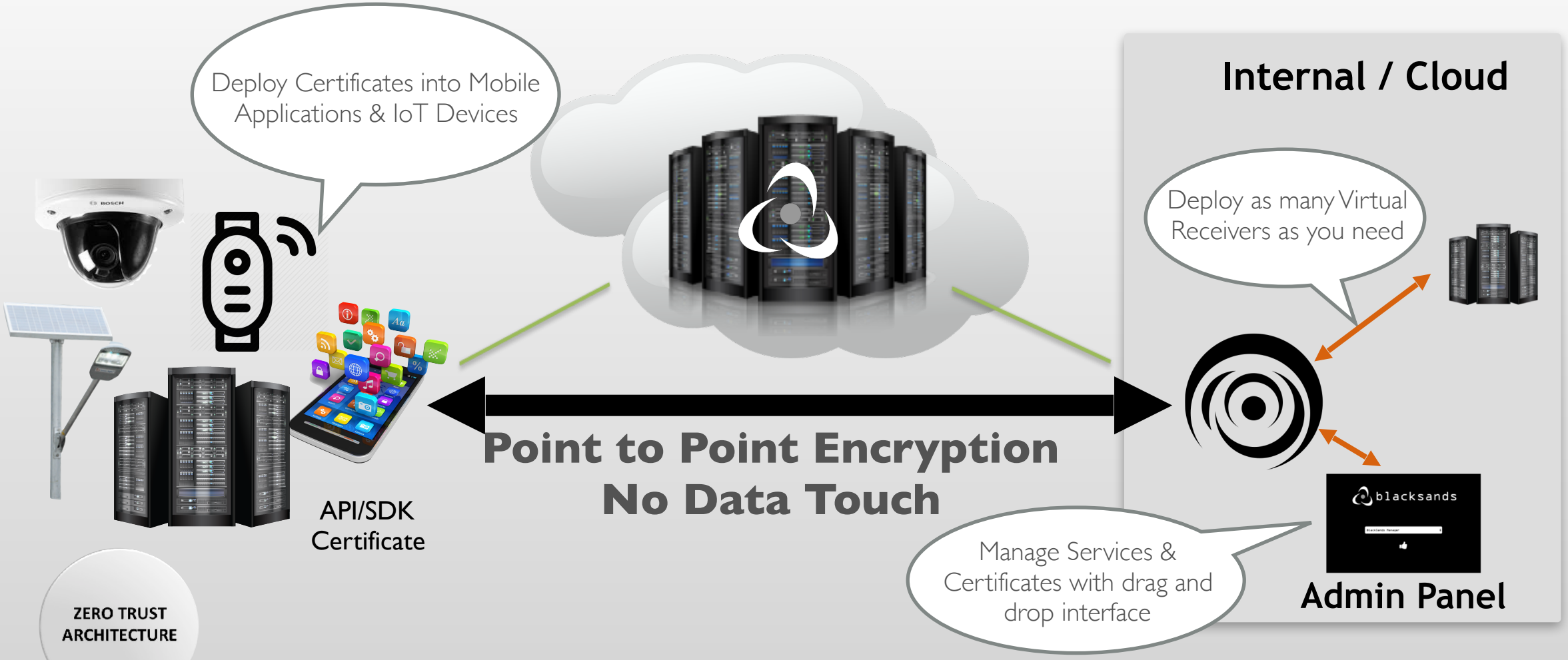
Separation of Powers Architecture

SECURE CONNECTION AS A SERVICE



Separation of Powers Architecture

SIMPLE PRICING

- **Monthly Recurring Services**
- **Banded Pricing**

✓Certificates
✓Services

Download Pricing & Customer Cost Forecast Model when Registering for Pilot

Reduce Deployment Time

From Months to Minutes

- Self Provisioning Receivers
- No User Client
- Automated Certificate Installation

Reduce Personnel

No Specialized Training

- Simple UI
- Distributed Stakeholder Management

Increase Security

Granular Visibility & Control

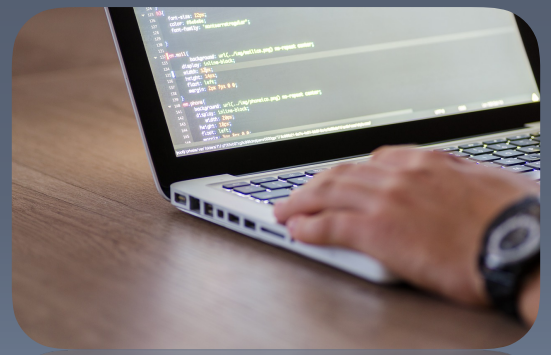
- Invisible Edge
- Encrypted Point-to-Point Connections
- No Data Touch

Tell The Full Story

Full Audit Logs

- Who
- What
- Where
- When

Deploy



Manage

Secure

Audit

FREE PILOT

IMMEDIATE VALUE

SIMPLE, SECURE, SCALABLE CONNECTIONS

- Employees
- Other Departments
- External Agencies
- Vendors
- Contractors
- Consultants
- Local or Cloud

CONNECTED

PCs - Connect Full KVM or View Only

Applications - Connect Web Applications (SSO)

IoT - Connect to individual devices or IoT control systems

IT Infrastructure - Connect (SSH) to individual servers, network devices, and IoT

NEXT STEPS

1. Sign Up Online
2. Schedule One Hour Meeting with Accenture, Oracle & Blacksands
3. Deploy Blacksands (2 Hours)

SIGN UP

SCAN ME