

Welcome to Luxembourg Oracle User Group

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Agenda

		Room 1		Room 2	
8:00	9:00	LuxOug - Registration			
9:00	9:05	LuxOUG Welcome - Opening of the event			
9:05	9:50	Nelson Calero - ACED	Terraform tips and tricks	Patrick Barel - ACED	A Collection's a Collection, no matter how small
9:50	10:15	Break	Break	Break	Break
10:15	11:00	Edelweiss Kammermann - ACED	FAW in a Nutshell	Christian Gohmann - ACE	xTTS - Lesson(s) learned
11:00	12:00	Vassilios Kakarakis	Common Challenges in Data Analytics and Data Governance	Nelson Calero - ACED	Oracle databases on Kubernetes 101
12:00	13:00	Lunchtime	Lunchtime	Lunchtime	Lunchtime
13:00	13:45	Patrick Barel - ACED	Get to know your program by instrumentation	Philippe Bovy	Oracle ExaC@C at Kyndryl Luxembourg
13:45	14:30	Osama Mustafa - ACED	Containerization101	Edelweiss Kammermann - ACED	OAC: ML and AI Features and Integration
14:30	15:15	Kai Yu - ACED	Oracle In-database Machine Learning with OML4SQL/OML4Py in Oracle Autonomous Databases	Sandesh Rao - Oracle employee	Analysis of Database Issues using AHF and Machine Learning
15:15	15:45	Break	Break	Break	Break
15:45	16:30	Lino Schildenfeld - ACE	JavaScript in APEX for PL/SQL developers	Osama Mustafa - ACED	Automate Oracle using DevOps Tools
16:30	17:15	Kosseila Haddalene - ACE	Script Your Way Into the Cloud Using Cloud CLI (OCI/Azure/AWS) and Interactive Shell Scripts	Kai Yu - ACED	Eliminating database I/O latency with Oracle 21c/19c Persistent Memory features
17:15	17:30	LuxOUG Closure of the event			

kyndryl™

Kyndryl Overview





kyndryl™

A multi-billion-dollar technology services company with 90,000 skilled practitioners, we design, build, manage and modernize the mission-critical technology systems that the world depends on every day.

- Trusted by customers with vital systems
- Deep domain expertise: 30+ years of IT services eminence
- Recognized leader by industry analysts
- Largest infrastructure implementation and managed services provider¹
- Innovating at scale with intellectual property and a portfolio of 3,000+ patents
- Unleashing our full potential with partners to deliver exponential outcomes for customers
- Expanding investments in the skills and innovation our customers need
- Delivering in nimble and responsive ways with decision-making close to the customer

30+ years of designing, building and managing mission-critical IT environments for our customers

Our people:

90,000

Skilled professionals

247,000

Skills badges earned, including:

- 61,000 in cloud
- 43,000 in agile
- 43,000 in analytics
- 42,000 in AI
- 38,000 in Design Thinking

31,000

Vendor-recognized certifications in Microsoft Azure, VMware, Cisco, Red Hat, AWS and more

2.9M

Hours of training in first half 2021

Powering mission-critical technology systems across essential industries



5/5
top airlines
by revenue
passenger
miles (RPM)



45%
of passenger
cars made
by our
customers



61%
of assets under
management by
the top 50 banks
managed by our
customers



4/5
largest
retailers



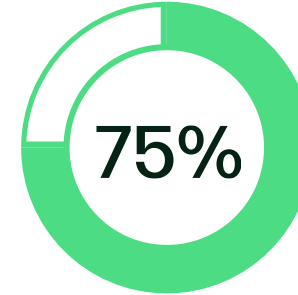
49%
of mobile
connections
managed by
our customers

*2019 numbers

Empowering thousands of customers

4,000

Global customers,
including:



...of the Fortune 100
and more than half
of the Fortune 500

Providing undisputed leadership



6.1M mainframe
installed MIPS



300K network
devices managed



5,200+ WAN
devices managed



3.5M LAN
ports managed



67K+ VMware
systems managed



14K+ SAP
instances managed



3.5+ exabytes of customer
data backed up annually

Kyndryl Strategy

To be our customers' most vital and trusted services partner, we will:

- Bring together the best talent, the right technology, insights and operating models to help minimize risk and gain maximum business value from IT
- Help accelerate their unique business transformation
- Create frictionless engagement

Creating differentiated business value through...

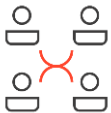
Full IT stack perspective



6 global practices

Integrated, to support transformation goals.

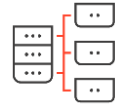
Data/IP driven differentiation



Unique offerings

Using Data and IP garnered over years of experience.

Technology



Broad ecosystem

The right tech, integrated, from any source.

Skills & thought leadership



Mission-critical expertise

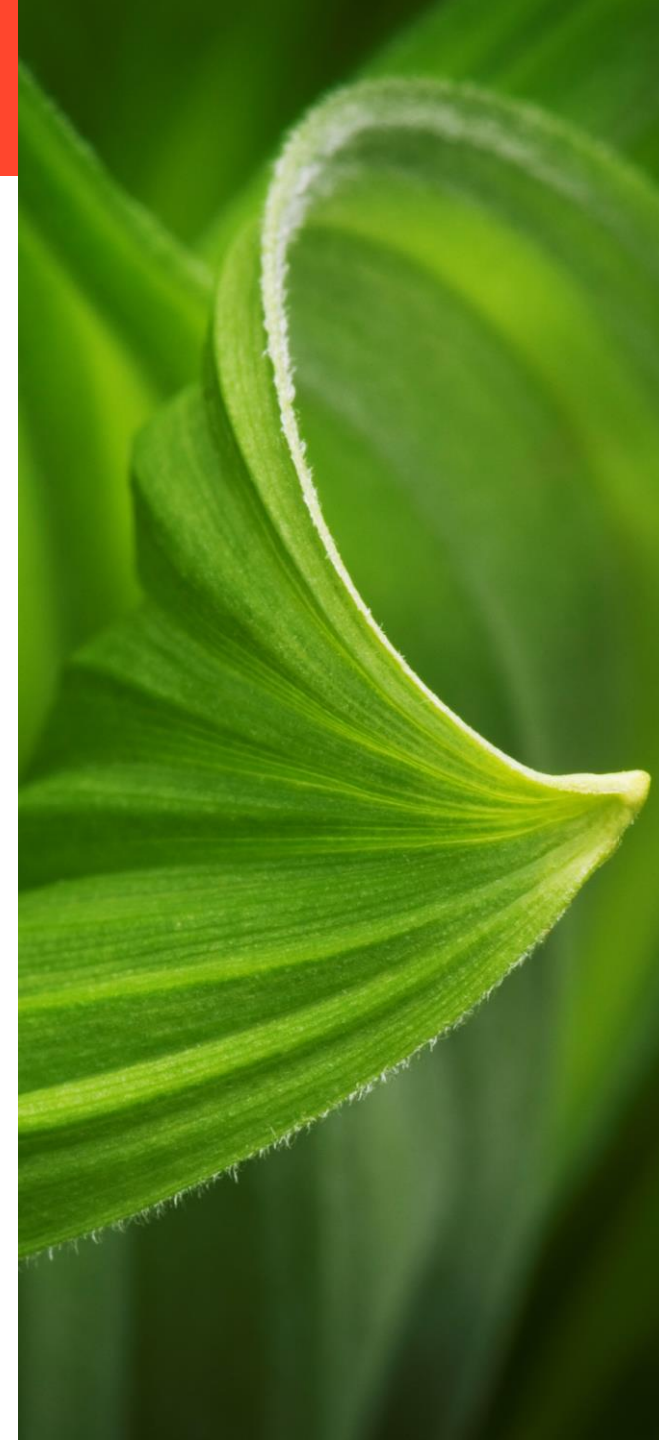
Focused talent acquisition, positioning us as employer of choice.

Predictive efficiency



Platform-enabled automation

Optimizing our delivery models.



How we deliver

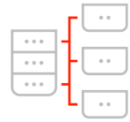
An **integrated portfolio of solutions** to help you reach your transformation goals



Cloud

Enable digital transformation with a controlled, expert-led transition through cloud modernization

- Deliver operational agility and flexibility with a clear focus on business outcomes
- Reduce risk of failure with proven processes and methodologies



Core Enterprise & zCloud

Manage mission-critical workloads seamlessly by modernizing mainframes to handle high-volume, always-on computing

- Benefit from secure, compliant and resilient environments, end to end – with a global leader in IBM Z and IBM managed services
- Capitalize on expertise of 8,000+ practitioners managing 61% of the IBM Z MIPS in the service provider market ¹



Digital Workplace

Enhance user experience and work location flexibility by providing a consumer experience to employees

- Reduce device management and support costs
- Shorten time to process service requests
- Speed up device deployment



Application, Data & AI

Improve business outcomes through data management and AI-infused operations that yield intelligent insights

- Ensure seamless migration with an end-to-end program management
- Reduce risk with a proven service design backed by years of experience



Security & Resiliency

Maintain business continuity and constantly adapt to new threats and regulatory standards

- 80% lower cost of business risk, lost productivity and revenue¹
- 800+ predefined recovery automation patterns for faster implementation, reliability and scalability



Network & Edge

Prepare for the next wave of cloud with 5G-enabled edge and software-defined networking (SDN)

- Adopt a modern, agile approach focused on software-driven virtualization and cloud adoption across access, edge and core
- Build strong, carrier-neutral solutions with a highly programmable network

Advisory Services

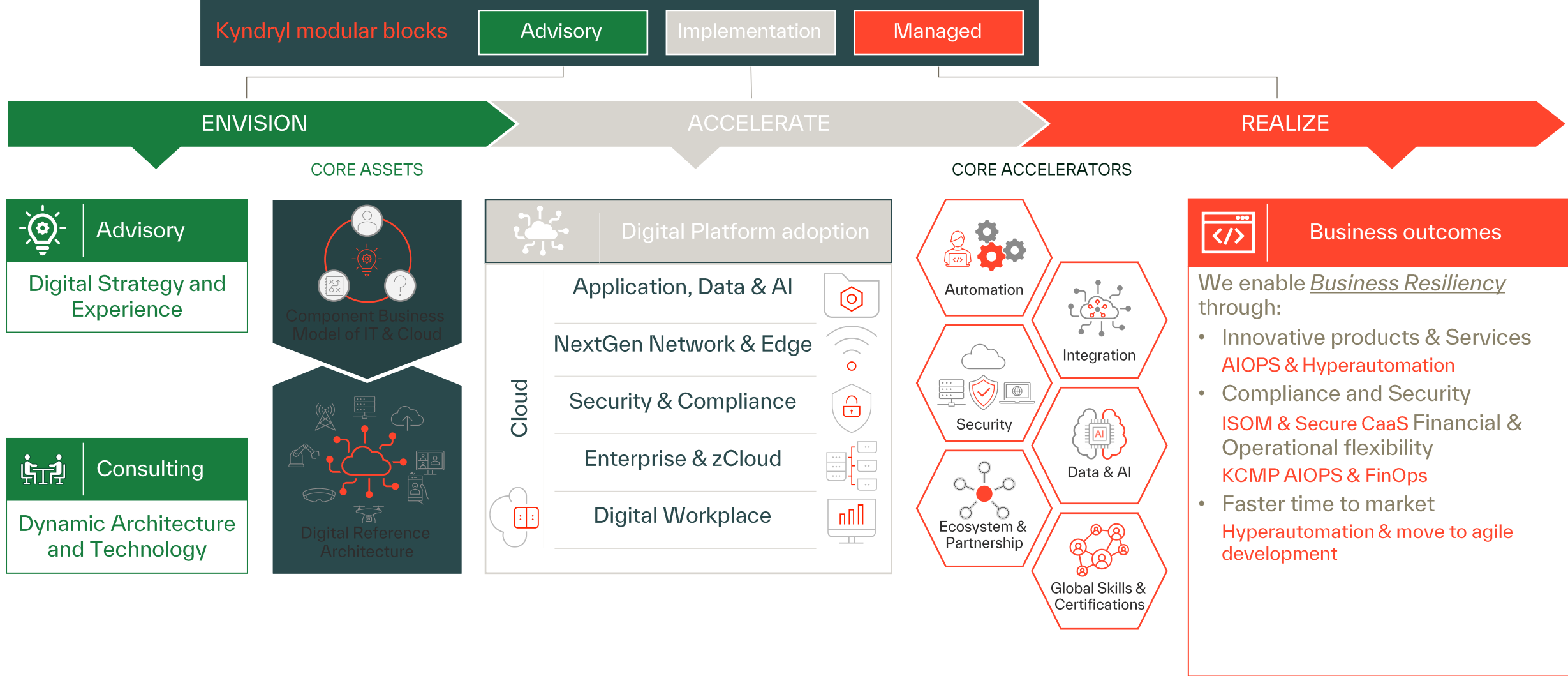
Implementation Services

Managed Services

Source:
¹ Critical Capabilities for Data Center Outsourcing and Hybrid Infrastructure Managed Services. Gartner, July 2021
² The Business Value of IBM's DRaaS and Resilience Orchestration Services. IDC, March 2020

Addressing market trends

How we bring it all together with industry leading core capabilities, assets and accelerators



What drives our passion

Digitization continues to accelerate

65%

of the global GDP will be digitized by 2022 ¹

Enterprises face unique transformation challenges

20%

of executives rate their digital transformation strategies as effective ²

Growing risk requires increased security

1/3

of CEOs say they plan to increase security investments by double digits ³

Top challenge: IT infrastructure

62%

of CEOs at out-performing companies say IT infrastructure is their biggest challenge ⁴

Barriers to transformation: Complexity & skills shortages

1 of 3

top impediments to successful IT transformation is lack of skills ⁵

with
kyndryl.

Capitalize on pace of technology change

Drive transformation and agility

Enhance resiliency

Enable workload portability

Increase operational efficiency

1. Worldwide Digital Transformation Predictions: IDC, 2020
2. State of Digital Adoption 2021. Harvard Business Review
3. 24th Annual CEO Survey: PwC 2021
4. 2021 CEO Study: IBM Institute for Business Value
5. Access to talent driving managed services: 451 Research, 2020

Why partner
with Kyndryl

An integrated
solution approach



Cloud portfolio



Advise

Move / Build

Manage

Program & Solution Architecture Management / Governance

Hybrid Cloud Strategy & Transformation	Fullstack Engineering & DevSecOps	Security & Resiliency Design & Build	Hybrid Cloud Operations & Automation Design & Build	Applications & Integration Modernize & Migrate	Application Modernization Assistance & Full Application Platform Hosting	Seamless, Integrated Multi-Cloud Management in a Hybrid Model		
Hybrid Cloud Architecture								
Build / Modernize / Migrate								
Cloud Operating Model / DevSecOps							Data & AI Platforms & Design	Security & Resiliency Operations
Cloud Security & Resiliency								
Integrated Service Management / Cloud Brokerage							Hybrid Cloud Platforms	Network & Edge Operations
Economic Model / ROI / FinOps								



Apps, Data and AI Portfolio

Application Services

Data and AI Services

Application & Data Consulting

Application Modernization Strategy & Roadmap

Application Architecture & Design

Data & AI Strategy & Roadmap

Data & AI Architecture & Design

Application Implementation Services

Migrate and modernize enterprise apps. Rapidly assess the needs of existing ERP and other applications

Managed ERP Applications

Simplify with managed services from IaaS to ERP and continue to innovate after go-live with on-prem, cloud, up-the-stack solutions like data/AI, SAP Rise Extensions, and hyperscaler IaaS/SaaS

Enterprise Services

Manage your application workloads on Cloud/non-Cloud Data Centers by using Client specific tooling/processes

Data Modernization

Data lake / data warehouse transformation
(Cloud green field, cloud brown field, on-premises)

Data Platform Management

Data lake / data warehouse
Data@Edge Management

Enterprise AI Services

AI for Business

Enterprise AI for IT

IT Environment Discovery and Analysis Services

Managed SAP and S/4 on AWS, Azure, Google, IBM

Managed ERP deployed on-Premise/Traditional DC

DataOps@Edge

Data reliability management
(Observability, DataOps, Quality)

ERP (SAP and ORACLE) migration and modernization

Managed Oracle Solutions on OCI, AWS, Azure and IBM Cloud

Managed Middleware Applications on-Premise / Traditional DC

DataOps enablement

Data governance, privacy and security management, compliance

Enterprise Application migration and modernization

ERP Projects, PMO, Cloud Adoption, Enhancements

Managed Databases deployed on-Premise/Traditional DC

Next generation data integration

Data integration management

Enterprise workload takeover – AnyCloud

HyperS Extensions – IaaS, SaaS, PaaS, Data/AI

Meets client-specific requirements including tools/process

(Standalone data integration tools)

(Standalone data integration tools)

Infrastructure and Management platform transformation

Service Adders – Batch, Ransomware, Resiliency

Services delivered across multiple country delivery units / CICs

OnDemand Data Management Services

Powered by Kyndryl augmented data and analytics console

(Intelligent Data Fabric Control and Operations)

Powered by scalable AI*



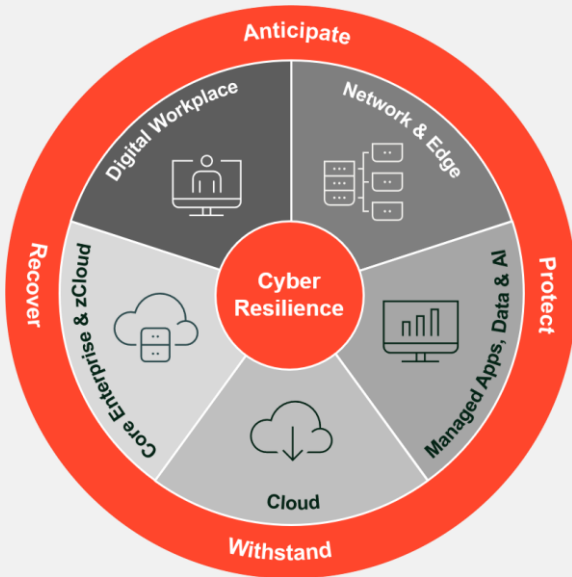
Cyber Resilience Portfolio

cyber resilience

[sahy-ber ri-zil-yuhns, -zil-ee-uhns]

noun

The ability to anticipate, protect against, withstand and recover from adverse conditions, stresses, attacks and compromises of cyber-enabled business.



Cyber Resilience Framework

Security Assurance Services

Assess and benchmark resilience maturity, gain visibility into significant threats and vulnerabilities, manage compliance

- Security, Strategy & Risk Management
- Offensive Security Testing
- Compliance Management

Zero Trust Services

Protect critical business data and applications in a security-rich infrastructure

- Digital Identity Services
- Data & Application Protection
- Cloud Security
- Zero Trust & SASE
- Infrastructure Protection*

SOC & Response Services

Discover and respond to a detected security incident

- Advanced Threat Detection
- Incident Response and Forensics

Incident Recovery Services

Mitigate impact of disruption with capabilities to automatically recover critical business processes and data

- Cyber Incident Recovery
- Managed Backup Services
- Hybrid Platform Recovery
- Data Center Design & Facilities

Anticipate

Protect

Withstand

Recover

Cybersecurity



Recovery

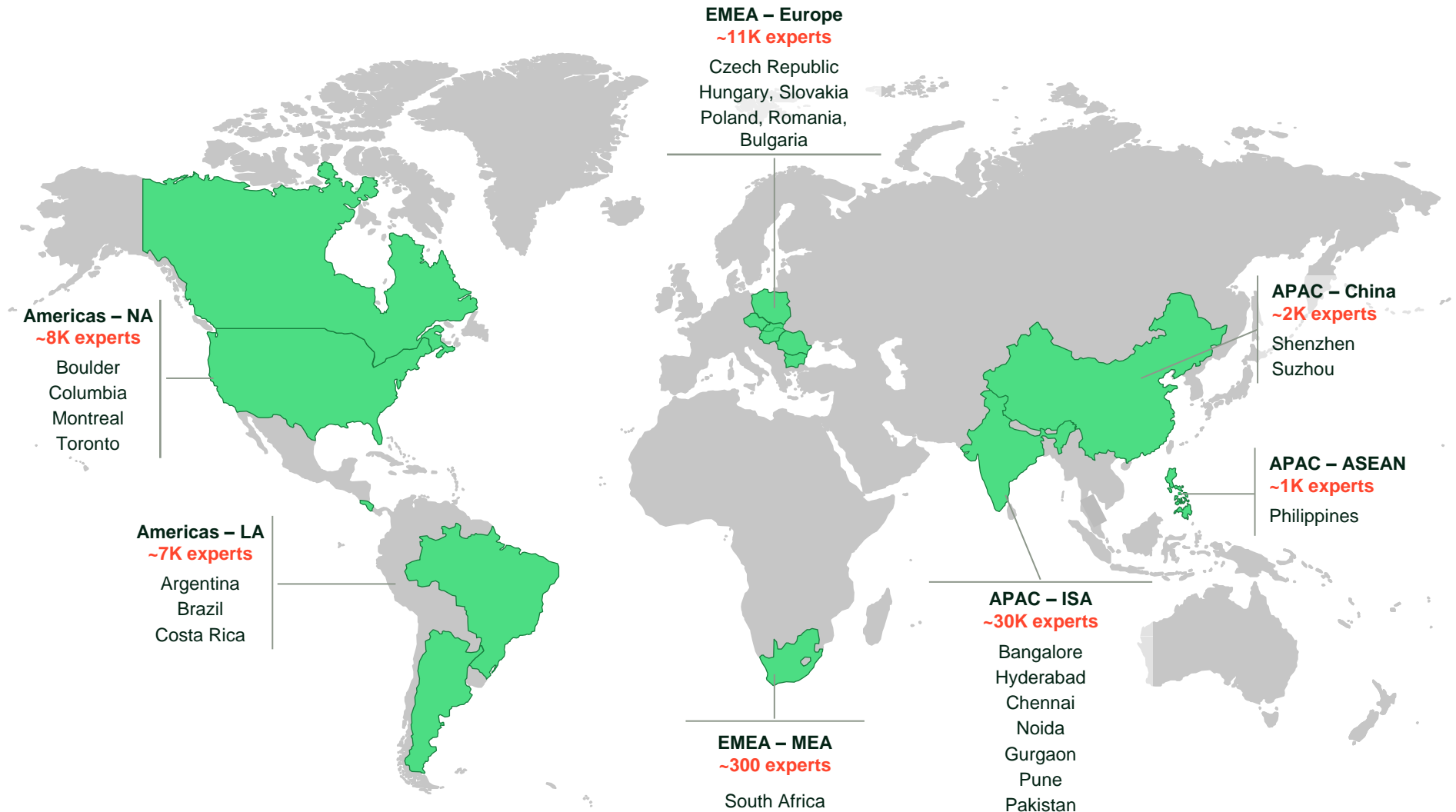
Deep expertise

Proven Processes

Intelligent automation

Enabling global and local delivery

Customer Innovation Centers bring our experts closer to customers



Delivery & Integrated Ops

Employees	80K
Years of experience	600K

Quality

SLAs managed	29K
SLA monthly achievement	99.68%
Changes executed yearly	1.2M

Managed Assets

Managed virtualized servers	750K
Mainframes	990
Mainframe installed MIPS	6.1M
Storage devices	30K
Installed storage	1.9 PB
Network devices	300K

Security

Patches installed yearly	>7.5M
Health checks performed yearly	11M

Data Centers

Kyndryl managed	459
Renewable generation energy	67%
Tapes managed	6M
Vendors managed	1,400
ISV products managed from	1,300 vendors

Broad ecosystem

Kyndryl unleashes possibilities for customers by combining our expertise and IP with capabilities across ecosystems and with emerging technology partners

Practice Areas

Ecosystem

 Cloud Services



 Core enterprise and zCloud



 Applications, Data and AI



 Digital Workplace Services



 Security and Resiliency



 Network & Edge



kyndryl™

Kyndryl capabilities for Oracle



**Kyndryl's
Oracle
Expertise At-
A-Glance**

One of the
Largest managed
Oracle customer
base in the world

75 of Fortune
100 Companies are
Kyndryl customers

1.5K+
Oracle
SMEs

500+
Oracle clients
(including license
resales)

300+
Production Oracle
customers on Public Cloud

30K+
Middleware
Instances
managed

50K+
Oracle Databases
Managed

One vendor for all
services with a
**Single Point
Accountability**

75+ successful
Go-lives on Cloud in 2021

kyndryl™

Kyndryl & ExadataC@C



Customers want to move database workloads to the cloud

- Simplified, automated management
- Pay-as-you-go economics
- With high performance, availability, scalability and security



But not every organization or workload can easily use the public cloud



Data Residency and Security

- Regulations or policies require data to be local
- Requirements to protect data in specific ways



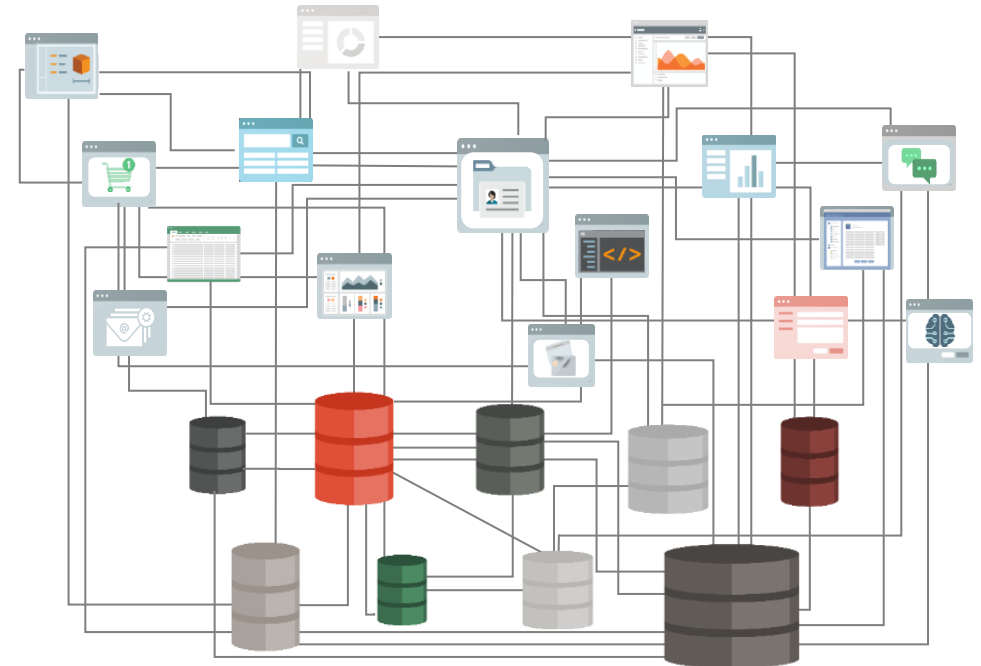
Response Time

- Real-world systems require low latency
- Hard to disentangle one system from others



Perceived Risk

- Concerns about cloud provider access to data



Database cloud services in customer data centers address critical needs

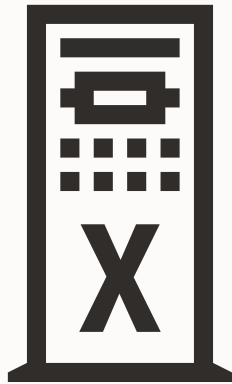
- High security and full data residency behind customer-controlled firewalls
- Low latency connectivity with existing applications and data center resources
- Reduced management and self-service for database developers via cloud automation
- The same consumption model and economics as the public cloud



Simplest for Deploying Mission-Critical Databases Where You Need Them

Traditional On-Premises

Exadata Database Machine



Customer Data Center
Purchased
Customer Managed

Public Cloud or Dedicated Region

Exadata Cloud Infrastructure



Oracle Cloud
Subscription
Oracle Managed

Cloud@Customer

Exadata Cloud@Customer



Customer Data Center
Subscription
Oracle Managed



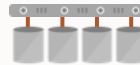
Oracle Exadata Database and Platform Innovations



Multitenant



In-Memory DB



Real Application Clusters



Active Data Guard



Partitioning



Advanced Compression



Advanced Security, Label Security, DB Vault



Real Application Testing

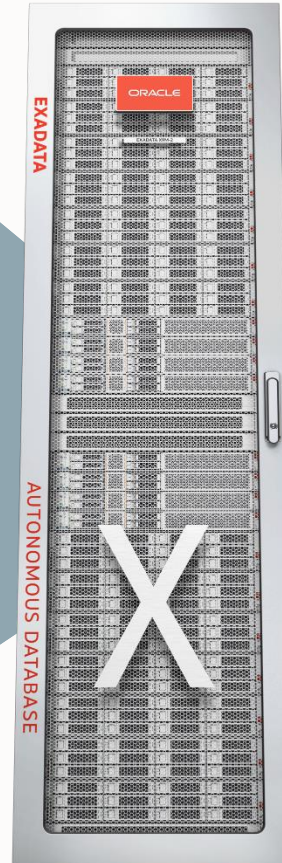


Advanced Analytics, Spatial and Graph



Management Packs for Oracle Database

All Oracle Database Innovations



All Exadata Innovations

Offload SQL to Storage



RoCE Fabric



100 Gbs

PMEM Commit and Data Accelerators



Smart Flash Cache



Storage Indexes



Columnar Flash Cache



Hybrid Columnar Compression



10:1

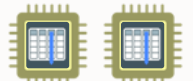
I/O Resource Management



Network Resource Management



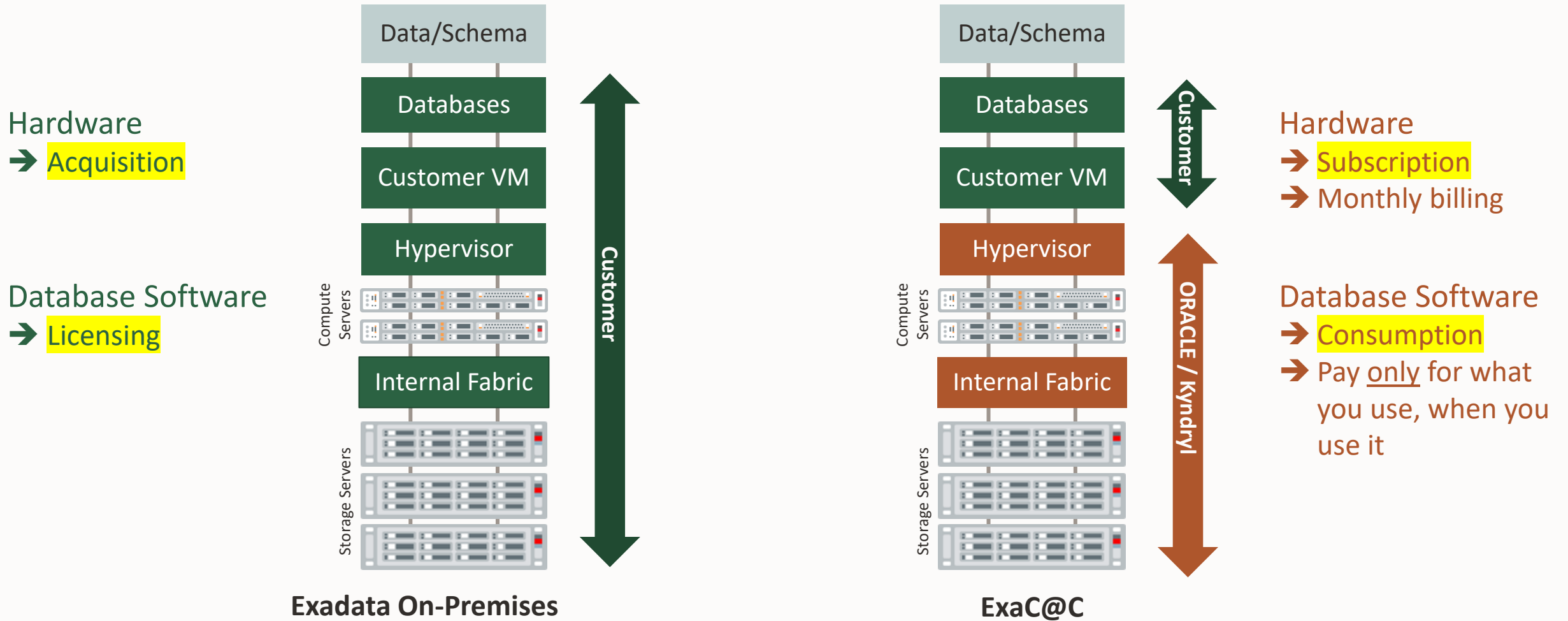
In-Memory Fault Tolerance



Exafusion Direct-to-Wire Protocol



The Cloud Billing Model : From CAPEX to Full OPEX



Exadata Cloud@Customer is Easy to Adopt

The simplest way for mission-critical apps to use cloud databases

Maintain **governance** and **control** at all times

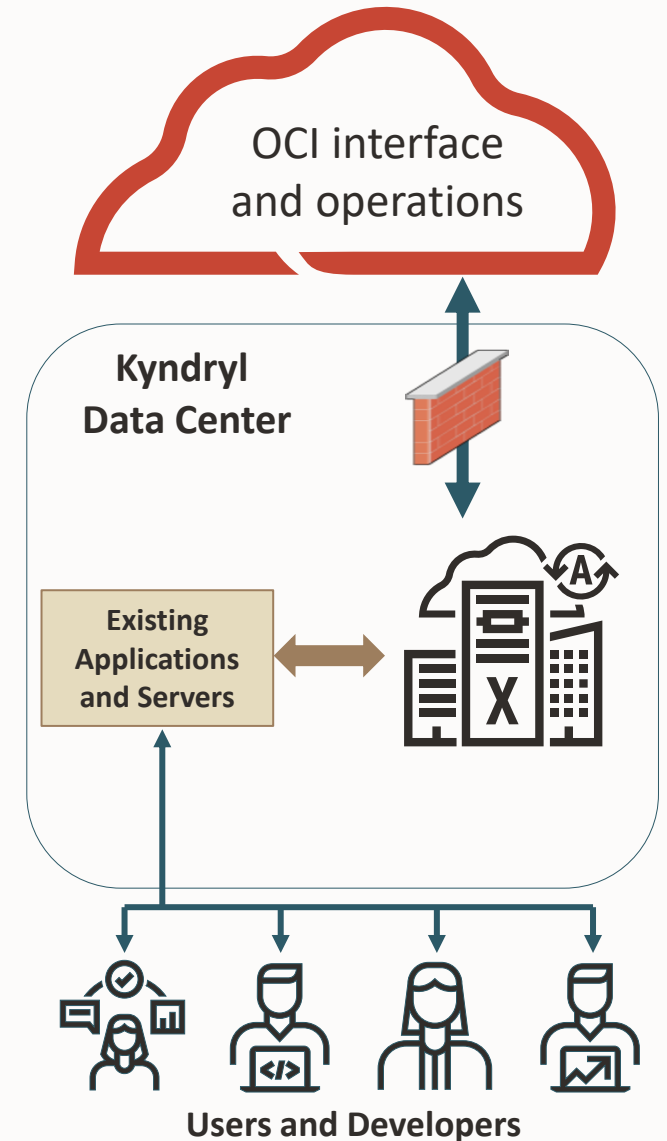
- Data in customer data centers, behind customer firewalls
- Centralized governance and security applied to all databases
- Oversight over patch timing and remote Oracle cloud operators

Lift-and-shift **existing** on-premises databases

- Existing applications simply connect and run
- No application or database changes needed
- Runs Autonomous Database and Exadata Database concurrently

Accelerate **time to value**, **convert** CapEx to OpEx, and **reduce TCO**

- Online consumption scaling for pay-per-use vCPU economics (automated with Autonomous Database)
- No infrastructure administration
- Self-service database cloud for developers

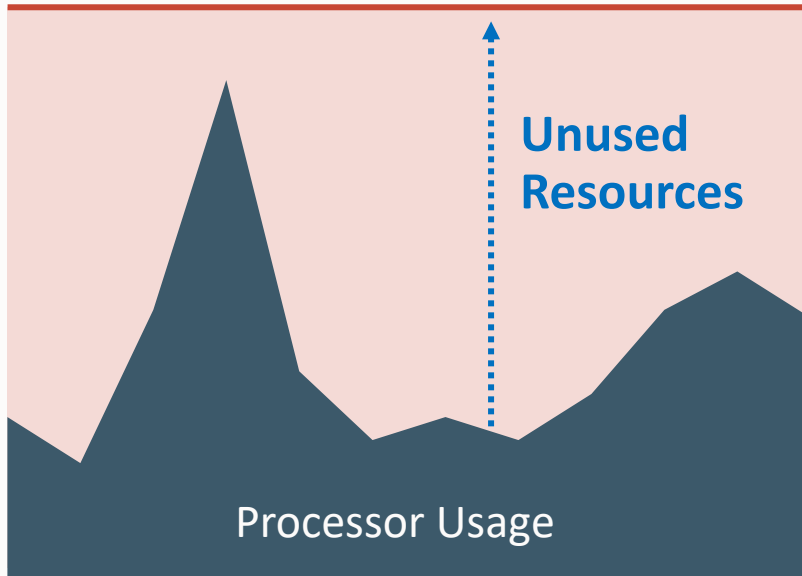


Online, Elastic Scaling with Exadata Cloud@Customer

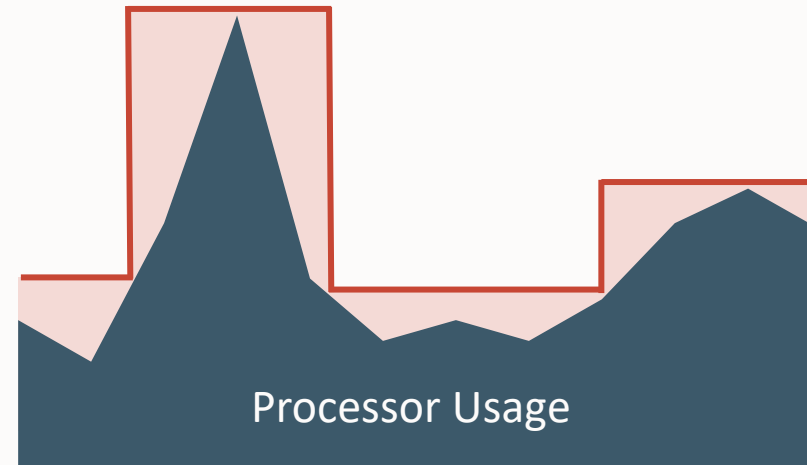
Pay Only for What You Use



Total Processor Resources



Manually Scaled vCPUs



On-Premises – Static




Purchase server processors and software licenses for **highest projected peak load**

Exadata Cloud – Elastic

Adjust enabled vCPUs to match **actual workload** via APIs and web UI - vCPUs are charged **per second**



Analysts Agree – Exadata Cloud@Customer Delivers Significant Advantages

	<p><i>“Exadata Cloud@Customer X9M delivers and is unrivaled through lower costs, and blended OLTP/OLAP workload optimization that AWS and Azure are unable to counter.” – Futurum</i></p>
	<p><i>“Compared to Oracle Autonomous Database on Exadata Cloud@Customer, the cost of running the same large mission-critical Oracle-based workloads in a traditional IT datacenter is 96% higher and on AWS RDS on Outposts is 90% higher.” – Wikibon</i></p>
	<p><i>“IDC quantifies the value that study participants are achieving through their use of Oracle Exadata Cloud@Customer at an average of \$1.93 million per organization per year over five years.” – IDC</i></p>

40% lower IT infrastructure costs

69% more efficient IT infrastructure staff

47% lower total operating costs

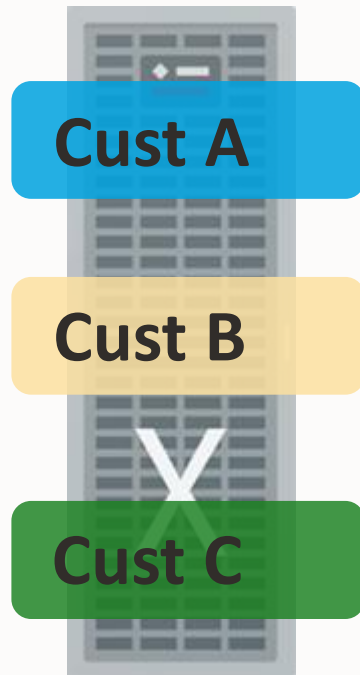
73% less unplanned downtime

40% faster time to market

Based on the IDC Business Value study



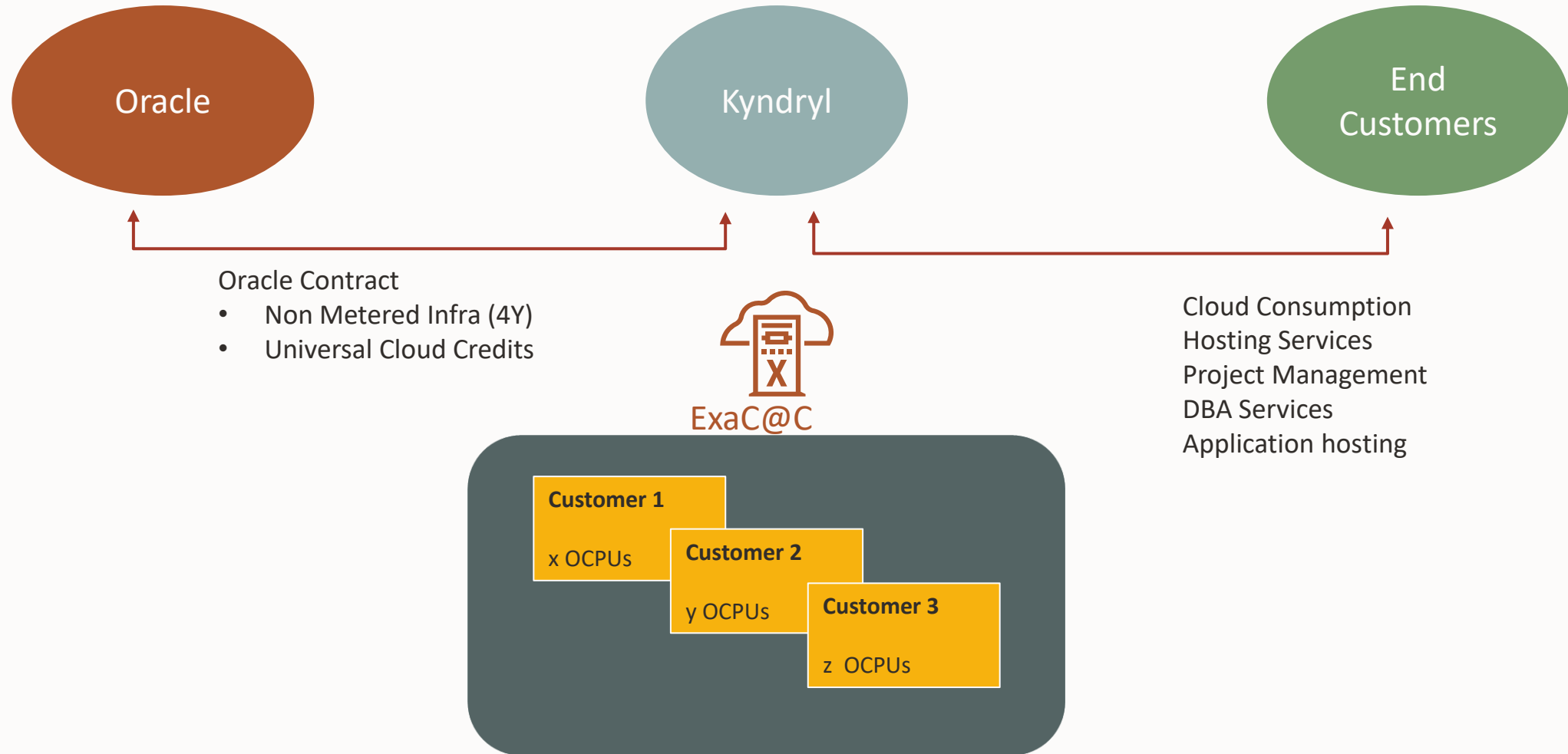
Multi-Customer on ExaC@C



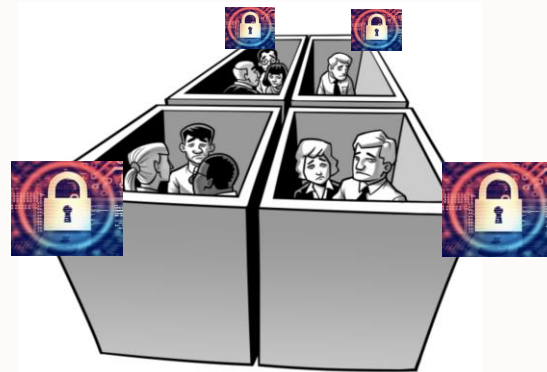
Allow **Hosting Service Providers** like **Kyndryl** to host **multiple customer** workloads on the **same ExaC@C machine**



Commercial relationships ExaC@C Multi-Customer PaaS



Core Multi-Customer Environment Requirements



REQUIREMENTS

ExaC@C

1. Segregate customers on the same machine
2. Security and isolation of segregated environments
3. Identity and Access Management Controls For Hosted Customers
4. Administrative Controls
5. Customer Billing and Usage Reporting

YES

YES

YES

YES

YES

Kyndryl capabilities for Exadata Cloud@Customer



Consulting

- Cloud Architecture
- Consolidation Planning
- Customer cloud-readiness assessment
- Service definition and catalog design
- Installation Preparation



Implementation

- Network and security preparation
- Database Installation and Configuration
- Database / Application Migration
- HA, Security, Storage Optimization
- Backup and Recovery
- Applications and Middleware, Guest VM/OS



Administration, Maintenance and Monitoring

- Database Administration
- Monitor, Manage, Support all tenant contents
- Patching
- Testing
- Audits
- Security
- Database Tuning
- Applications and Middleware, Guest VM/OS
- Upgrades

Oracle Exadata at Kyndryl

A clear operating model

	Domain	IT Services	Responsibility	Key activities
Governance / Definition of operating model (Kyndryl)	Application integration	Business application management	Client	
		End-to-end application performance management	Kyndryl (or Client)	Provide technical assistance and subject matter expertise for the in-scope activities to Customer application developers and Third-Party vendor support
	Database transformation	Database migration / modernisation	Kyndryl (or Client)	Migration E2E DB2 Mainframe to Exadata Redesign & redevelop DB apps Redesign Schema Data migration
	Database operations	Database management	Kyndryl	Open, track and manage to Resolution all database Problems Perform database reorganizations to optimize performance
		Database maintenance	Kyndryl	Execute all database system-level Changes Patch database Software as needed on the Exadata compute node
		Database administration back-up & monitoring	Kyndryl	Proactively monitor Prevent out-of-Capacity situations Define database backup schedules, retention periods, levels
	Storage / Compute	ExaC@C monitoring / Troubleshooting	Oracle	Oracle Infrastructure Monitoring via Control Plane
		ExaC&C IaaS management (Up to Hypervisor)	Oracle	Patch and update Oracle Infrastructure (Compute nodes, Storage, Control Planes etc.). Ps: Updates can be scheduled by Kyndryl to start at a time agreeable to all hosted customers
	Data Center	Infrastructure Hosting	Kyndryl	Hosted in Kyndryl Data Centers

Oracle Exadata at Kyndryl

How can we help ?

- Kyndryl has a well established **Global alliance with Oracle** since more than 8 Years
- Kyndryl has **certified Oracle experts** with following expertise
 - Oracle Cloud Infrastructure Certified Architect Professional
 - Oracle Exadata Database Machine and Cloud Services Certified Implementation Specialist
 - Oracle Certified Administrator (Oracle Certified Master)
 - Oracle Certified Expert, Oracle Real Application Clusters and Grid Infrastructure Administrator
 - Oracle Enterprise Manager Certified Implementation Specialist
 - Oracle Autonomous Database Cloud Certified Specialist
- Kyndryl is managing more than **100 Terabytes** on different Oracle environments
- Kyndryl operate **Tier4 data centers in Luxembourg under supervision of Financial Authority** (PSF status)
- As integrator, Kyndryl is vendor-agnostic. Kyndryl Luxembourg can leverage its **Global and Local ecosystem of partners** to integrate technology components and align with specific client requirements.
- Kyndryl has a strong **Advisory and Implementation practice** to help organizations to define infrastructure roadmap and build agile and secure infrastructure whether hybrid cloud or on-premises

Thank You

For any question
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