

Modern Cloud Economics

Unlocking business value of cloud for enterprise mission critical workloads

A C-Suite's guide to build and execute the Enterprise Cloud Strategy that delivers cloud's full business value potential

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Contents

Executive Summary	3
Cloud Adoption as a Mandate	4
Challenges of Adopting Cloud in Mission Critical Domains	6
Principles of Modern Cloud Economics	8
<i>Technology principles</i>	9
<i>Operational principles</i>	10
<i>Commercial principles</i>	11
<i>Value Management principles</i>	11
Modern Cloud Economics Enablers of Oracle Cloud Infrastructure (OCI)	13
<i>OCI enablers for Technology principles</i>	13
<i>OCI enablers for Operational principles</i>	14
<i>OCI enablers for Commercial principles</i>	15
<i>OCI enablers for Value Management principles</i>	16
Enterprises Adopting Modern Cloud Economics Enablers of OCI	17
The Path Forward	18
References	19
About Oracle Insight	19
About the Authors	19

Executive Summary

The current circumstances have accelerated the pace of digitization across every industry. In the 'new normal', cloud adoption is no more bracketed as a technologically forward move for progressive enterprises. It has become an imperative for all enterprises to survive, innovate and grow. And the interest and focus of cloud adoption in enterprises are now steered towards mission critical domains as a next logical step in their digital transformation journey.

Adopting cloud in mission critical domains is, however, proven to be challenging due to the requirements and risks unique to these domains. Large majority of enterprises lack confidence that they have the right guiding principles and capabilities to overcome challenges to achieve the expected value outcome. In absence of these drivers for success, a decision to adopt cloud in mission critical still largely depends upon the will and risk appetite of C-suite toward making trade-off between higher returns and higher risks. This suggests that adhering to the generally accepted principles of cloud economics underpinning cloud's benefits and costs as well as risks and returns advantages, is no longer adequate for enterprises to unlock full business value potential of cloud across the broader business and functional domains.

The hyperscale cloud providers are not standing by in the sideline. Their second-generation cloud offerings are being built to enable enterprises to apply the extended principles of cloud economics, that is, the **principles of Modern Cloud Economics**, for addressing the unique requirements, challenges and concerns of adopting cloud in mission critical. When applied in concert, these principles, and the associated enablers, can break the barriers for cloud adoption in mission critical, thereby raising organizational capability to unlock full business value potential of cloud across the enterprise.

Oracle's second-generation cloud, Oracle Cloud Infrastructure (OCI), has been recognized as the most mature among such offerings in the market today, providing the enablers across all principles of Modern Cloud Economics. OCI has been built ground-up by embedding these principles into the core designs of its technology, operational, commercial and value management enablers; therefore, making a holistic adoption of cloud and business value realization achievable.

Cloud is a business value creator, not a cost center, and the primary focus of cloud adoption in enterprises is on achieving full business value potential created by cloud spend, instead of reducing the IT cost per year or month. Achieving full business value potential of cloud for mission critical domains remains to be a challenging undertaking for any enterprise. Success requires embracing the principles of Modern Cloud Economics and shifting of the organization to new technology, operational and financial management practices, that is, the practice of DevSecFinOps. Any enterprise cloud strategy encompassing mission critical, therefore, must adopt these principles as a base framework for target operating model design. And the cloud sourcing strategy must ensure the selection of cloud service provider offering the enablers across all principles of Modern Cloud Economics.

Cloud Adoption as a Mandate

The appetite for cloud adoption in enterprises is at an inflection point. Adopting cloud is no longer an option, but it is a mandate. And adopting cloud in mission critical domains is the next logical step for enterprises to gain competitiveness in the ‘new normal’.

In the last few years, enterprises have experimented with adopting cloud across the peripheral applications for team collaboration, back-office efficiency, and front-office enablement. Based on the proven benefits from this phase, C-suite is now looking at cloud as an enabler to answer many top-of-mind questions, such as:

- **Achieving greater cost efficiencies** by leveraging cloud’s variable cost and consumption-based model, built-in elasticity, and ability to lower unit cost through economies of scale;
- **Launching new services faster** to grow customer base, provide a personalized experience to take a larger share-of-wallet, and capture a larger market share;
- **Improving operational resilience** of business-critical applications;
- And **staying ahead** of ever rising cybersecurity risks and tightening regulations.

Technological advancements in cloud have also brought in nuanced capabilities to address a larger base of applications and workloads. In fact, the question of ‘on-premise vs. cloud’ is no longer relevant. Taking Oracle’s Dedicated Region Cloud at Customer offering as an example, enterprises now have an option to buy as-a-service and deploy a full public cloud region on-premise in their datacenters.

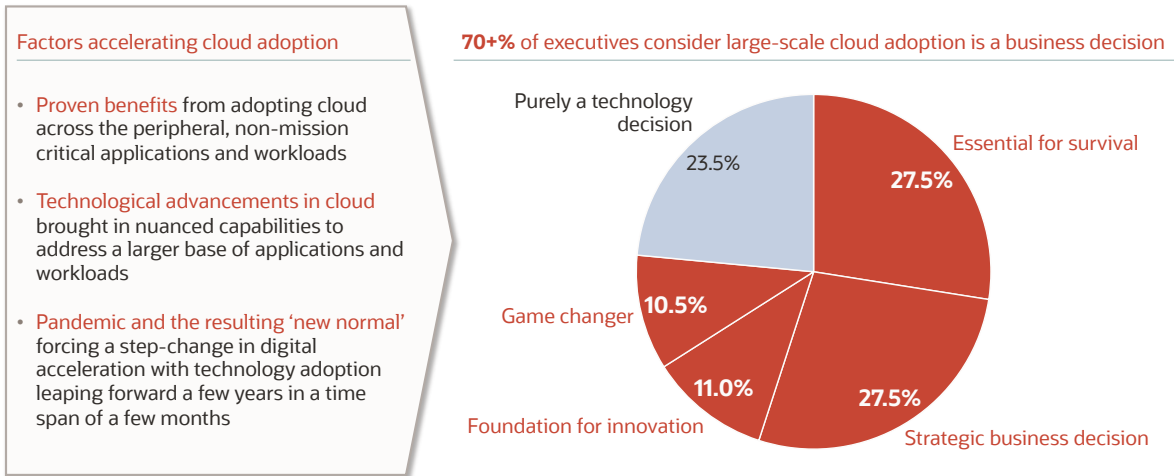
And then came the pandemic in 2020. The resulting ‘new normal’ has forced a step-change in digital acceleration with technology adoption leaping forward a few years in a time span of a few months^(*1). This means the post COVID-19 world will likely pose an even starker divide between digital leaders and laggards. Enterprise technology demand has surged especially for cloud infrastructure, security and collaboration tools^(*2) to respond to the disruptions caused by the pandemic – enabling remote workforce, scaling rapidly, amongst others. This coupled with the mandate to drive higher efficiency and effectiveness from ‘every dollar spent’, due to revenue headwinds, have forced enterprises to explore cloud adoption in a more holistic manner.

Today adopting cloud is no longer an option, but it is a mandate – over 70 percent of executives consider large-scale cloud adoption to be a strategic business decision for survival, innovation and competitive differentiation^(*3).

Exhibit 1

Adopting cloud is no longer an option, but it is a mandate

Over 70% of executives consider large-scale cloud adoption is a business decision



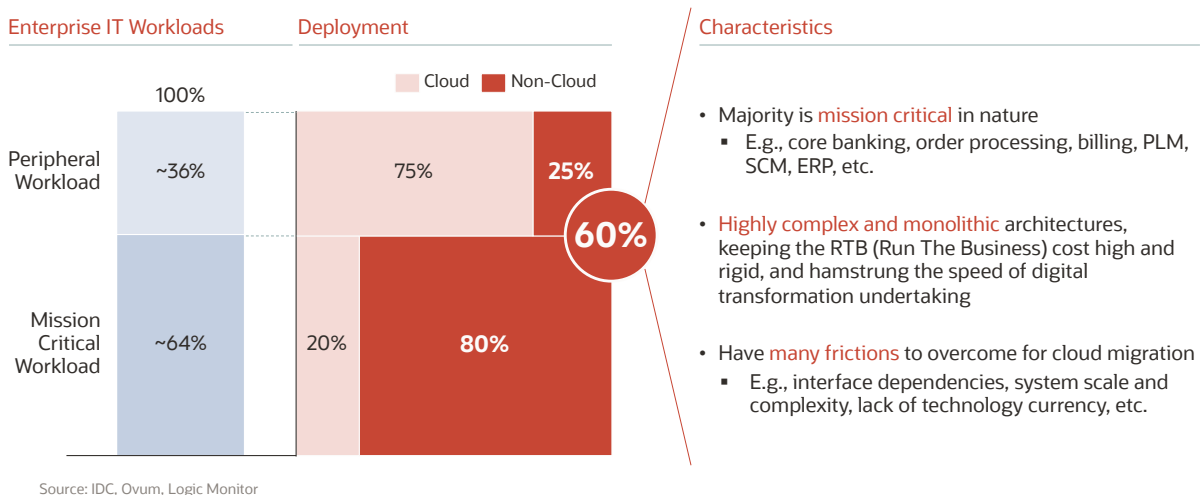
Source: IDC

But for many enterprises, approximately 60 percent or more of applications and workloads still remain on-premise (*4), and a majority of which is mission critical in nature, be it core banking, order processing, billing, product lifecycle management, supply chain management, enterprise resource planning, and many others. And because of their highly complex and monolithic architectures, these on-premise mission critical applications and workloads have kept cost of running the business high and rigid, and hamstrung the speed of digital transformation undertaking.

Exhibit 2

60% of workloads still remain on-premise, and majority is mission critical

Kept the RTB cost high and rigid, and hamstrung the speed of digital transformation



Source: IDC, Ovum, Logic Monitor

Therefore, enterprises are staring at a very real challenge to adopt cloud in mission critical domains in order to break structural cost rigidity as well as long innovation lead time in these domains and realize cloud's full business value potential.

Challenges of Adopting Cloud in Mission Critical Domains

Adopting cloud in mission critical is, however, proven to be challenging for most enterprises due to the requirements and risks unique to these domains. Adhering to the generally accepted principles of cloud economics is no longer adequate to achieve the expected value outcome.

While cloud's potential to unlock multi-dimensional business value is unquestionable, adopting cloud in mission critical domains remains to be a challenging undertaking for many enterprises. Full value realization is proven to be more challenging than originally expected. Today just 37 percent of enterprises has fully achieved their expected value outcomes from cloud, basically holding steady from 35 percent in 2018^(*5). This stagnation may be because many have not yet made serious attempts to adopt cloud in these domains – among those enterprises most affected by the pandemic, only 30-40 percent plan to move new types of workload to the cloud through lift and shift, decommission and replace on-premise with SaaS, refactor or rebuild^(*6). But even those high cloud adopters seem to be struggling, with over half reporting they have failed to achieve the expected business value from their large-scale cloud transformation initiatives^(*5).

One reason for this is because enterprises are presented with not only far stringent requirements around service levels (availability, performance, and manageability), security, data sovereignty and regulatory compliance, but also real concerns over the risks of losing architectural, operational, and financial controls.

Examples of the voices heard from C-suite include:

Loss of architectural control

- “Moving my mission critical system will make my architecture more complicated since I need to integrate cloud with the surrounding subsystems still running on-premise.”
- “I will lose portability in the future. I will also lose openness to integrate with external ecosystem players.”

Loss of operational control

- “I will expose my mission critical systems and data to the increased risk of non-authorized access, data theft, and data tampering.”
- “I will lose control over infrastructure operations. But I am still the one who has to bear the reputational damage and the financial burden when service level is not met.”

Loss of financial control

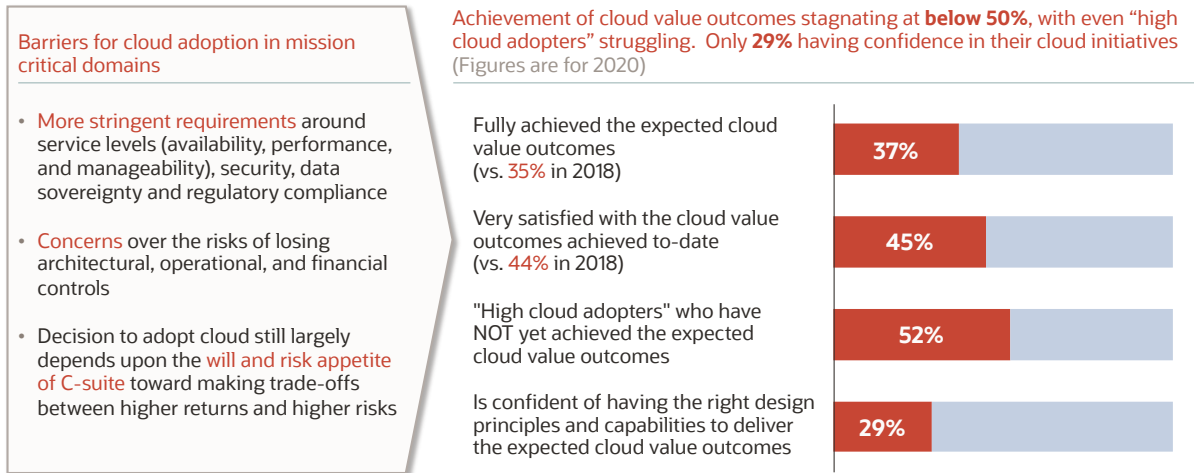
- “My actual cost becomes unpredictable, and I will lose plannability of IT spend unless I restrict usage or gain precise knowledge upfront about the usage requirements.”
- “I have invested so much to build and maintain what I have now on-premise. But the cloud provider does not let me leverage my on-premise spend for the same system.”

Only 29 percent of enterprises have confidence that, in their cloud transformation initiatives, they have the right guiding principles and capabilities to address concerns, overcome unexpected complications in migration, and deliver the expected value with the expected speed ^{(*)5}. In absence of these drivers for success, a decision to adopt cloud in mission critical domains still largely depends upon the will and risk appetite of C-suite toward making trade-offs between higher returns and higher risks.

Exhibit 3

Achieving cloud outcome in mission critical is proven to be challenging

Adhering to the generally accepted principles of cloud economics is no longer adequate



Source: Accenture

This suggests that adhering to the generally accepted principles of cloud economics underpinning cloud's benefits and costs as well as risks and returns advantages, is no longer adequate for the enterprise to unlock full business value potential of cloud across the broader business and functional domains.

Principles of Modern Cloud Economics

Second-generation cloud is being built to enable enterprises to apply the principles of Modern Cloud Economics to mission critical domains, thereby raising organizational capability to unlock full business value potential of cloud across the enterprise

The hyperscale cloud providers are not standing by in the sideline. Their second-generation cloud offerings are being built to enable enterprises apply the extended principles of cloud economics, that is, the principles of Modern Cloud Economics, for addressing the unique requirements, challenges and concerns of adopting cloud in mission critical domains.

So, what are the principles of Modern Cloud Economics? Before addressing this question, let's set the baseline by recapping on the generally accepted principles of cloud economics.

The generally accepted principles of cloud economics have been helping enterprises change technology and business value management approach to be more real time, collaborative and outcome oriented. These principles leverage the management best practices like Lean, Agile and Design-to-Value, and although it can be granularized, it is summarized into the following:

- Right-size
- Optimize usage continuously
- Optimize rate continuously
- Create real time transparency on usage, costs and allocation
- Collaborate cross-functionally to drive decision by business value.

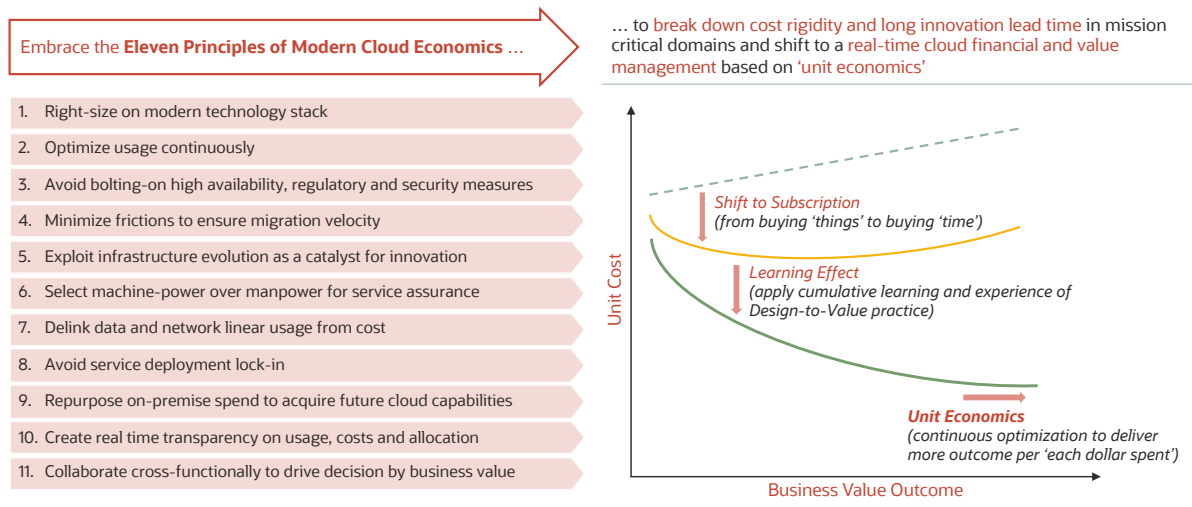
By adhering to these principles, enterprises have been able to adopt fundamentally new ways of working, shifting to new technology, operational and financial management practices, and embedding new capabilities and a sense of accountability across the organization. Specifically, enterprises have been able to:

- Change forward-looking capacity planning and purchasing practice on guesstimated future demand to continuous usage and rate optimization practice based on real demand;
- Attach cloud spend to a business value, such as new accounts opened, orders fulfilled, shipments made, subscribers acquired, operational equipment utilization increased, etc., and change the nature of technology value conversation from reducing TCO (total cost of ownership of software, hardware, labors, and facilities and utilities) to increasing business value of time ownership;
- Move ownership and accountability of technology, operational and financial decision making out to the edge of the organization;
- Shift the focus of financial management from saving money to making money by managing cloud spend and value outcome based on 'unit economics', that is, business value per 'each dollar spent' for cloud now and in future – a paradigm shift from today's prevailing practice of managing aggregate spend without linking to business value in quarterly and fiscal budget planning;
- And bring together executives, business users, development, operation, information security, finance, procurement and cloud service provider ... the entire stakeholder community to collaborate frictionlessly using a common vocabulary of technology business management.

Exhibit 4

Embrace the principles of Modern Cloud Economics (MCE)

To break the barriers and unlock more business value from unit cloud spend



Now, to break the barriers for cloud adoption (in traditionally harder-to-touch and harder-to-move mission critical domains) and replicate the aforementioned changes to make cloud adoption become truly transformative, enterprises must embrace the principles of Modern Cloud Economics. Furthermore, enterprises must implement the associated enablers of second-generation cloud.

So, let's look into each principle of Modern Cloud Economics.

Technology principles

Technology principles enable enterprises to apply the Design-to-Value and Lean management practices across the end-to-end cloud deployment life cycle from planning to provisioning to optimization to recycling. Aligning to technology principles help enterprises exploit the enablers of second-generation cloud, such as a wider range of standardized service instance families and supported virtualization modes, higher consolidation density of workload cores, vertical and horizontal auto-scaling, built-in high availability and security, etc.

The principles are the following:

1. **Right-size on modern technology stack:** Many of on-premise mission critical systems lack technology currency and have overprovisioned capacity statically provisioned for peak loads. Therefore, upon sizing these mission critical systems toward cloud deployment, enterprises must use a modern technology stack implemented in second-generation cloud as baseline for applying the right-sizing levers such as consolidating core units, 'variablizing' core run-time hours, substituting aged technologies and products, and auto-scaling between peak and off-peak.
2. **Optimize usage continuously:** In cloud, 'you only pay for what you use' is actually a myth, not the truth. You must pay for what you provision whether you actually use the provisioned instances or not. Therefore, as a base economic principle of operating in the cloud, enterprises must adopt a practice of continuously optimizing usage through removing, moving and resizing, such as terminating idle instances, removing idle and orphaned storage volumes, moving archived data to a lower-cost storage service, downsizing oversized instances, and changing the instance shape to the one matching the workload profile.

- 3. Avoid bolting-on high availability, regulatory and security measures:** To help prevent enterprises from falling into many of the pitfalls that come from 'bolting-on' the required high availability, regulatory and security measures in mission critical workloads, the second-generation cloud intentionally build-in high availability, regulatory and defense-in-depth security enablers. These built-in enablers are continuously enhanced based on the latest best practice designs and often provided with no additional costs by the second-generation cloud provider like Oracle. This means enterprises no longer need to spend extra costs for 'bolting-on' the necessary measures to, e.g., keep up with ever-rising regulatory requirements and cybersecurity threats. Enterprises must, therefore, validate the maturity of built-in high availability, regulatory and security enablers upon selecting a second-generation cloud provider for mission critical domains.

Operational principles

Operational principles enable enterprises to strike the optimal balance between human-led and machine-led tasks in migration, service delivery and service operation.

The principles are the following:

- 4. Minimize frictions to ensure migration velocity:** Ensuring migration velocity is the first line of defense against the risks of value leakage and ROI meltdown in migrating mission critical workloads to cloud. The probability of unexpected problems, delay and failed migration are far higher in mission critical because of the existence of many friction factors in on-premise baseline, such as interface dependencies, system scale and complexity, and lack of technology currency. Enterprises must, therefore, leverage the zero-downtime migration approach and factory-scale tools during the migration planning phase to identify and address all friction factors prior to the migration execution phase.
- 5. Exploit infrastructure evolution as a catalyst for innovation:** Second-generation clouds natively integrate platform capabilities such as streaming, data catalogue, data flow and many others, into a core infrastructure technology stack, thereby allowing enterprises to leverage infrastructure as a catalyst to drive business innovation faster. By exploiting infrastructure evolution as a platform for innovation, enterprises no longer need to wait for IT to build necessary platform capabilities before being able to drive innovation. Today, the needs and interests of enterprises for data-driven innovation are shifting to mission critical core business domains. Therefore, instead of leveraging cloud infrastructure as a means only for ensuring stability in service operations, enterprises must exploit the evolving capabilities of second-generation cloud infrastructure as a platform for innovative service delivery and business value.
- 6. Select machine-power over manpower for enterprise-grade service assurance:** The complexity, scale and security requirements of today's mission critical workloads are no longer manageable cost effectively with human-led semi-automated operation. By leveraging built-in AI, Machine Learning and autonomous capabilities of second-generation cloud, enterprises can reduce a major sources of cost rigidity in mission critical domains, that is, high 'cost of service assurance' i.e., maintenance and patching, enhancement releases, incident detection, disaster recovery and problem resolution. Enterprises also gain ability to auto-maintain technology currency behind deployed cloud services. Therefore, especially for mission critical domains, enterprises must shift from human-led semi-automated operation to machine-led autonomous operation to elevate business continuity while minimizing total cost of service assurance.

Commercial principles

Commercial principles enable enterprises to continuously leverage the optimal commercial frameworks of cloud service provider, based on the changing usage profiles and deployment requirements, thereby de-risking unexpected cost overruns as well as maximizing the combined financial productivity of on-premise licenses, annual license support and cloud subscription.

The principles are the following:

- 7. *Delink data and network linear usage from cost:*** ‘Data-driven’ has become a critical requirement for digitalizing mission critical business and enterprise domains. Exponential and distributed growth nature of data and network usage can lead to unexpected cloud cost overrun due to increased usage. Enterprises must, therefore, select a cloud service provider that offers commercial enablers delinking unpredictable increases of data and network usage from cost and ensuring cost plannability and predictability.
- 8. *Avoid service deployment lock-in:*** In mission critical domains, enterprises must retain flexibility to move workloads from cloud back to on-premise deployment or public cloud to on-premise public/private cloud deployment in the event of post-migration issues or tightening data sovereignty requirements. In the event of sudden surge of load, enterprises must also attain agility in acquiring necessary cloud services and scalability without precise upfront knowledge of workload usage pattern. Enterprises must, therefore, select a cloud service provider offering a flexible and fungible commercial framework covering all deployment models and cloud services as well as month-by-month usage fluctuation.
- 9. *Re-purpose on-premise spend to acquire future cloud capabilities:*** In addition to the standard cloud rate optimization constructs, such as usage-based or time-based volume discount, custom pricing agreement, reservation and commitment, and Bring Your Own License (BYOL), some second-generation cloud providers like Oracle offer commercial constructs that repurpose annual license support spends as a subsidy for future cloud capability acquisition. Enterprises must, therefore, leverage such commercial constructs smartly to maximize total financial productivity of on-premise spend and cloud subscription.

Value Management principles

Value Management principles enable enterprises to adopt real-time cloud financial management based on ‘unit economics’, that is, measuring cloud spend against business value metrics and making better informed decisions with speed. Value Management principles also inculcate a culture of cross-functional collaboration as well as joint ownership and accountability over cloud financial management.

The principles are the following:

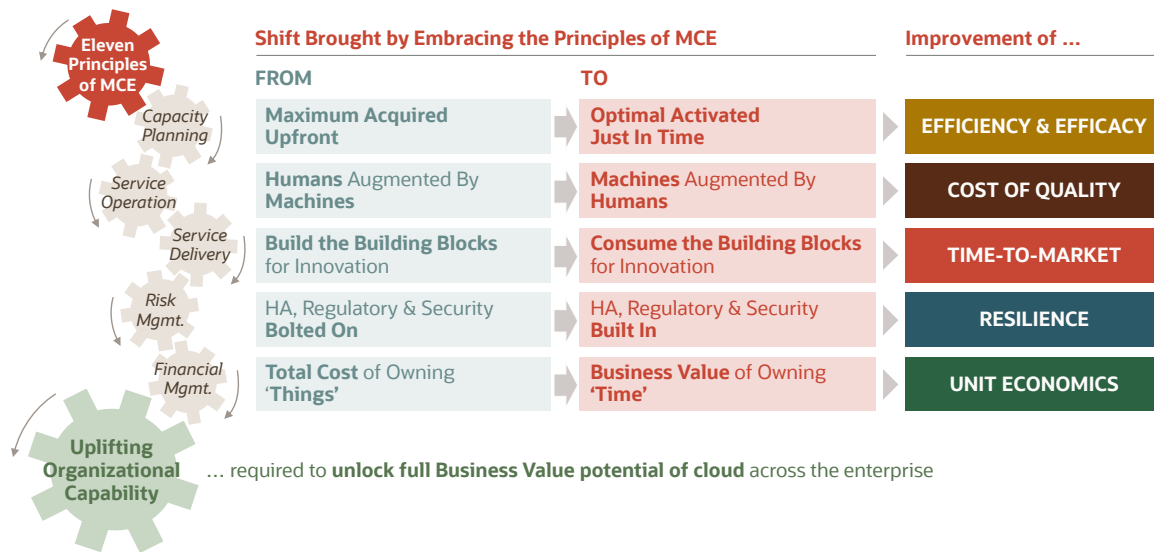
- 10. *Create real time transparency on usage, costs and allocation*** to create a fast feedback loop for continuous usage optimization. Enterprises must maintain visibility into fully loaded costs for operating in the cloud and ensure cloud financial management decisions are based on fully loaded costs mapped and allocated to costs centers, applications, business units, and functional lines of business. Additionally, through showback and chargeback mechanisms, enterprises must provide guide rails for business users to understand their portion of cloud costs and usage behind it, and take accountability over spend, usage and cost recovery.
- 11. *Collaborate cross-functionally to drive decision by business value:*** Cloud is a business value creator; not a cost center. Hence, the focus needs to be on increasing marginal benefit for ‘each dollar spent’ for cloud. To maintain this focus on maximizing the business value created by cloud spend, instead of minimizing the cost per year or month, cross-functional collaboration among executives, business units, IT, finance, procurement, and cloud service providers is critical. Therefore, enterprises must put in place the agreed-upon business value metrics for cloud usage and the cross-functional governance mechanism for driving decision based on the cost per business value metric.

The resulting effects of embracing these eleven principles of Modern Cloud Economics and implementing the associated enablers of second-generation cloud, would be:

- Breaking down cost rigidity and long innovation lead time in mission critical domains;
- Improving all dimensions of enterprise IT performance metrics, from efficiency and efficacy to cost of quality, time-to-market, resilience and unit economics;
- And raising organizational capability required to unlock cloud's full business value potential across the enterprise.

Exhibit 5

Resulting effect – Uplifting organizational capability required to unlock full business value potential of cloud across the enterprise



Depending on the amount of stranded capacity existing in on-premise workload(s) baseline, enterprises may also be able to reduce TCO. This, however, is secondary to the business value realization and continuous 'unit economics' improvement.

Modern Cloud Economics Enablers of Oracle Cloud Infrastructure (OCI)

Oracle Cloud Infrastructure (OCI) is the most mature among the second-generation clouds in the market today, providing the enablers across all principles of Modern Cloud Economics.

While OCI provides competitive offerings to serve peripheral domains in the same way other hyperscale cloud providers do, what differentiates OCI is its unique capabilities to help enterprises break the barrier for cloud adoption in mission critical domains. This is because OCI has been built ground-up by embedding the principles of Modern Cloud Economics into the core designs of its technology, operational, commercial and value management enablers, therefore making a holistic adoption of cloud and business value realization achievable for the enterprises.

Exhibit 6

Modern Cloud Economics Enablers of Oracle Cloud Infrastructure (OCI)

Maximizing value when applied in concert and across multiple workloads

NON-EXHAUSTIVE

	11 Principles of Modern Cloud Economics	Key OCI Enablers
Technology	1. Right-size on modern technology stack	• Simplified Operating Environments and Shapes (Compute, Storage, Exadata) • Network Fabric with 1M+ ports and Cluster Network implementation on it
	2. Optimize usage continuously	• Cloud Advisor • Auto-scaling and smart, granular service billing
	3. Avoid bolting-on high availability, regulatory and security measures	• Off-box Network Virtualization and Compartment segmentation • 'Core to Edge' defense-in-depth security mechanisms
Operational	4. Minimize frictions to ensure migration velocity	• Migration Factory Tooling • Oracle Cloud Lift Services
	5. Exploit infrastructure evolution as a catalyst for innovation	• Modular Core Platform Services
	6. Select machine-power over manpower for enterprise-grade service assurance	• Autonomous Services and Smart Security Services • Integrated Observability and Manageability platform for all telemetry
Commercial	7. Delink data and network linear usage from cost	• Network: (outbound) 70+% lower than other clouds, (inbound) free-of-cost • Database: per-second billing for Autonomous Database
	8. Avoid service deployment lock-in	• Universal Credits Model
Value Mgmt.	9. Repurpose on-premise spend to acquire future cloud capabilities	• ULA-to-Cloud
	10. Create real time transparency on usage, costs and allocation	• Compartments, Tags, Triggers • Unified Billing and Billing Extensions
	11. Collaborate cross-functionally to drive decision by business value	• Oracle Insight Program

OCI enablers for Technology principles

The architects of OCI have had a good understanding of the shortfalls of the first-generation clouds. They started with a clean slate after gathering requirements from over 200 enterprises. The OCI end-result was based on exceeding the demanding requirements expected by enterprises for deploying and operating their mission critical workloads in cloud.

The following are the key 'built from the ground up' enablers comprising the OCI foundations:

1. Right-size on modern technology stack:

- **Simplified standard operating environments and shapes** for Compute, Storage and Engineered Systems to deliver the high value benefits of continuous technology refresh cycles and currency;
- **Next-generation Network Fabric** designed for high speed and extremely low latency. Comprising over one million ports and Cluster Network implementation on top of it to achieve supercomputer equivalent network speed/throughput (1.5 microsecond latency).

2. *Optimize usage continuously:*

- **Continuous enhancement of Cloud Advisor**, a single interface providing a look into the health of provisioned cloud resources and offering cost management and security recommendations, with the benefits and the action steps, based on logic tuned to the specific enterprise needs and risk profile;
- **Auto-Scaling** to provide on demand horizontal and vertical scaling of Compute instances;
- **Smart, granular service billing** (e.g., per-second billing for Compute and Autonomous Database) which allows continuous small adjustments in cloud usage to eliminate charges for idle usage.

3. *Avoid bolting-on high availability, regulatory and security measures:*

- **Separate and interoperable Fault and Availability Domains** to deliver power, cooling, and network connectivity that provides redundancy and eliminates parallel core infrastructure sources of failure;
- **Segmented Virtual Cloud Networks and Resources** across Fault and Availability Domains backed up by separate, concurrently maintainable facility infrastructure to avoid business disruption by design;
- **Secure by design** with Off-Box Network Virtualization (instead of traditional server virtualization approach) and Compartment segmentation within tenancy to achieve a complete virtualized network separation of the control plane, the data plane and the management plane;
- **‘Core to Edge’ defense-in-depth security mechanisms**, augmented by policy-based user access to ensure service, data, and compartment access protections which are ‘always on’ by default;
- **Secure supply chain** to ensure mission critical workloads run on reliable infrastructure and minimizes risk of security breach at hardware level.

OCI enablers for Operational principles

OCI offers a range of operational enablers that help transform the operational practice while handling the highest level of security and performance requirements for enterprise mission critical domains. These enablers allow OCI to provide financially backed service level agreements (SLA) not only for availability but also for performance and manageability. This level of SLA coverage and commitment is not offered today by any other cloud infrastructure providers.

The key enablers are:

4. *Minimize frictions to ensure migration velocity:*

- **Continuous investment in Migration Factory tooling**, such as Zero Downtime Migration, Oracle Cloud VMware Solution, and Cloud Manager for Oracle E-Business Suite, Siebel and Peoplesoft, to minimize friction associated with migrating complex enterprise workloads and data to fast-track migration outcomes;
- **Oracle Cloud Lift Services** in which a dedicated group of Oracle Cloud experts, specialized by workload type (i.e., packaged Oracle applications, custom applications built on Oracle database and middleware, Oracle Data Warehouse and Analytics, Exadata Cloud at Customer, VMware, High Performance Computing workloads, Cloud Native applications), to assist from planning through go-live activities in weeks, thereby accelerating time to value from cloud migration.

5. *Exploit infrastructure evolution as a catalyst for innovation:*

- **Modular core platform services** which can be assembled rapidly into technology platform solutions like Data Mesh Architectures, that enable enterprises to deliver high value outcomes at speed to their end customers.

6. *Select machine-power over manpower for enterprise-grade service assurance:*

- **Evolving Autonomous and Automation services**, such as Autonomous Database, Autonomous Linux, Terraform Resource Manager, to eliminate operations overhead and increase productivity and focus on activities that deliver business value;
- **Smart Security services** such as Cloud Guard which detects misconfigured resources and insecure activity across tenants and automatically remediate the identified security problems using security recipes;
- **Integrated Observability and Manageability platform** for all telemetry (metrics, logs, traces) enabling seamless traversal as well as AI and Machine Learning powered operational analysis of all software components and data types deployed on applications, database and infrastructure across OCI, other public clouds and on-premises.

OCI enablers for Commercial principles

OCI offers a range of commercial enablers to optimize rate, de-risk cost overruns and maximize financial productivity across the investments in Oracle on-premise licenses and cloud subscriptions.

The key enablers are:

7. *Delink data and network linear usage from cost:*

- **Best price performance guarantee** in the market across Compute, Network, Storage and Database. This advantage is particularly stark in:
 - **Network:** OCI's outbound networking costs are lower than other hyperscale cloud providers like AWS by 74 percent and inbound networking service is free of cost;
 - **Database:** OCI offers per-second billing model for Autonomous Database while other providers offer per-hour billing model for database.

8. *Avoid service deployment lock-in:*

- **Universal Credits with Annual Flex Model** offering true fungibility and flexibility of utilizing these credits across any of the OCI services offered, instead of limiting the enterprises to an exact service commitment which requires high level of predictability in the usage pattern.

9. *Re-purpose on-premise spend to acquire future cloud capabilities:*

- **Bring Your Own License (BYOL)** pricing, at a fraction of the total price, for those enterprises already owning Oracle database and middleware licenses;
- **ULA-to-Cloud** option for those enterprises on unlimited license agreements (ULA) with Oracle to repurpose the license support spend into Universal Credits.

OCI enablers for Value Management principles

Oracle and its partners (e.g., Neos) offer a range of value management enablers that help link unit cloud spend to a business value metric, thereby making cloud a driver for innovation, growth and competitive differentiation.

The key enablers are:

10. Create real time transparency on usage, costs and allocation:

- **Compartmentalization within a cloud tenancy** which provides the ability to allocate cloud usage and associated spend to compartment owners (project teams) within a single cloud tenancy (organization), thereby driving accountability and informed decisions balancing cost, quality and speed;
- **Self-serviced cloud economics management** with fine grain instrumentation and measurement combined with Compartments, Tags and Triggers as a foundation to empower enterprises to self-manage the capacity and economics of their tenancies and individual workloads, policies, and services;
- **Unified Billing** which reduces the risk of wasting committed Universal Credits spending by sharing a single subscription with other linked tenancies and centrally managing cost and usage information across multiple tenancies with a single invoice and OCI Console;
- **Billing Extensions** which allow multi-cloud management platforms to source, compile and manage OCI usage and spend information through API and display a single-pane-of-glass view into cloud usage, budget thresholds and organization hierarchy.

11. Collaborate cross-functionally to drive decision by business value:

- Implementation of **new cross-functional cloud financial and value management operating model** bringing together business units, finance and IT in the form of a central control tower or a cloud value management board and cascading the agreed optimization actions to the edge of organization. For those enterprises committed to implement with the OCI enablers, **Oracle Insight Program** can help design the target cloud financial and value management operating model.

Enterprises Adopting Modern Cloud Economics Enablers of OCI

More and more enterprises, around the globe, are migrating their mission critical workloads to OCI and starting to achieve the expected business value of cloud and the 'unit economics' improvement

Although still at a nascent stage considering the total addressable base of mission critical workloads, more and more enterprises, around the globe, are migrating their mission critical workloads to OCI and starting to achieve the expected business value of cloud and the 'unit economics' improvement. Some examples include:

- Scaling to meet surging demand for a cloud-based video conferencing solution, exceeding 20 million monthly active users, while simultaneously saving 80 percent on Network outbound costs;
- Supporting 500,000 security events per second across 600,000 data sources for a cloud-based security solution, while simultaneously reducing implementation time by ten times from 30 days to 3 days;
- Providing better user experience, performance and time-to-market for cloud-based engineering solution suites, while achieving 25 percent 'unit economics' improvement;
- Improving operational resilience and business continuity of core mission critical retail applications encompassing PLM (Product Lifecycle Management), Merchandizing and ERP, by making fail-over speed thirty times faster from 10 minutes to 20 seconds.

Some of these enterprises have even migrated from the first-generation clouds, be it public cloud or private cloud, because of their limited offering for the Modern Cloud Economics enablers.

The leading IT solution provider in Asia is one of these enterprises who decided to leverage OCI for core business growth, instead of continuing to maintain and enhance their own private cloud for it. The company has been leveraging the OCI enablers of Modern Cloud Economics to drive the growth of their core managed service business for domestic financial institution customers, that accounts for nearly half of their overall revenue. In evaluating the several options for infrastructure modernization, the company has found selecting OCI as the best way forward.

Besides OCI's ability to fulfill stringent service assurance requirements demanded by the domestic financial institutions and the regulatory authority, the company has found a number of key built-in OCI enablers (summarized below) that would help them embrace what they considered as the two most important principles of Modern Cloud Economics: 'Avoid bolting-on high availability, regulatory and security measures'; and 'Minimize frictions to ensure migration velocity'. They've also realized that OCI, deployed as a dedicated on-premise public cloud region by leveraging its Dedicated Region Cloud at Customer offering, would not introduce any unwanted trade-offs around the loss of architectural, operational and financial controls for adopting cloud.

Avoid bolting-on high availability, regulatory and security measures

- Adherence to data sovereignty and global compliance certification requirements
- Support for SOC reporting requirement based on local security standards for financial service industry
- Resilience engineering best practices built-in by design, e.g., Off-box Network Virtualization, 'Core to Edge' defense-in-depth security

Minimize frictions to ensure migration velocity

- Tooling to enable friction-less workload migrations from various on-premise platforms, e.g., Zero Downtime Migration, support for multiple virtualization modes (Native, Paravirtualized and Emulation)

Eliminating risks of losing architectural, operational and financial controls as a result of cloud adoption in mission critical

- Full replication of functionality and service levels of public cloud region to on-premise
- Separation of the control plane, the data plane and the management plane
- Control and flexibility in deciding the timing of applying patches and security fixes
- Retention of cloud cost plannability and predictability.

But above all else, what eventually pushed them forward was a growing realization of the shifting source of competitive differentiation for their core business. That is, their own recognition that their source of competitive differentiation is no longer about building and maintaining infrastructure on their own. They realized that it would be better off to leverage OCI since its built-in enablers were far more advanced than what they could bolt-on.

The Path Forward

To unlock business value of cloud for mission critical, enterprises must embrace the principles of Modern Cloud Economics as a base framework for target operating model design and select the cloud service provider offering the enablers across all principles.

Cloud is a business value creator, not a cost center, and the primary focus of cloud adoption in enterprises is on achieving full business value potential created by cloud spend, instead of reducing the IT cost per year or month. Achieving full business value potential of cloud for mission critical domains remains to be a challenging undertaking for any enterprise. Success requires embracing the principles of Modern Cloud Economics and shifting of the organization to new technology, operational and financial management practices, that is, the practice of DevSecFinOps. The resulting effect would be:

- Breaking down cost rigidity and long innovation lead time in mission critical domains;
- Improving all dimensions of enterprise IT performance metrics, from efficiency and efficacy to cost of quality, time-to-market, resilience and unit economics;
- And raising organizational capability required to unlock cloud's full business value potential across the enterprise.

Any enterprise cloud strategy encompassing mission critical, therefore, must adopt these principles as a base framework for target operating model design. And the cloud sourcing strategy must ensure the selection of cloud service provider offering the enablers across all principles of Modern Cloud Economics.

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Oracle Insight is an executive engagement and business value advisory team in Oracle. The team comprises of enterprise strategists with points of view and expertise in the leading and emerging technology business management practices. The team directly engage customer C-suite to identify unmet needs, paint the future state, identify what matters to move the needle, and jointly define a roadmap to achieve the expected business value from technology investments.

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