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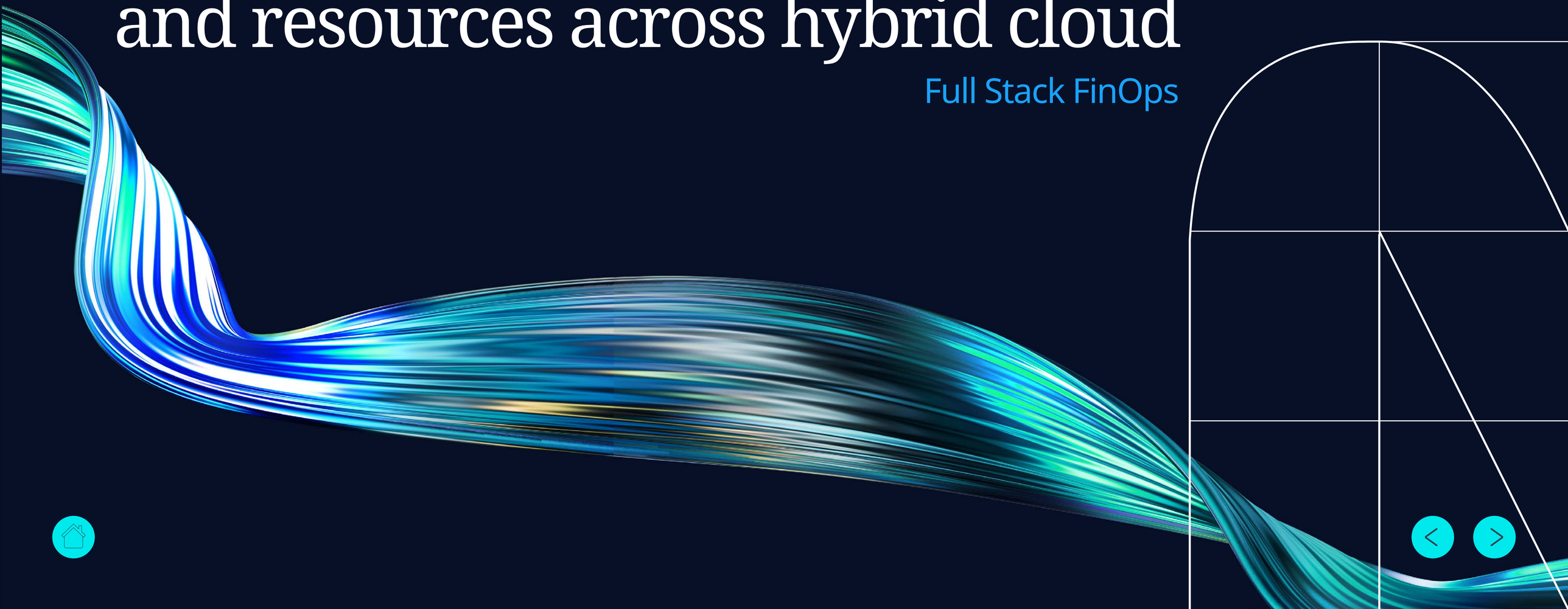
Effectively managing cost and resources across hybrid cloud

Full Stack FinOps



Challenge and change

The cost dilemma

Communication Service Providers (CSPs) are competing in a market being transformed by rapid technology and social change. They have a set of common challenges:

- Continued investment is needed to deliver data and video services. Yet customers are not prepared to pay more for these services. A survey by analyst firm Omdia suggests that each consumer account will rise from 8GB to 22GB as a norm between 2022 and 2027.
- Meanwhile, as CSPs move workloads to public cloud, using the scalability and elasticity inherently provided, they find it harder to track costs – which can grow unexpectedly with demand.

CSPs are facing higher expectations and higher costs, while revenues are stagnant. Cost cutting alone won't be enough. To ensure a prosperous future, they will need a new approach and capabilities for sustainable operational growth.

The industry will see transformation on an unprecedented scale in the next five years.

This is not just a case of maintaining margins but of survival.

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Strategies for evolution

In this rapidly evolving market, CSPs are focused on driving revenue growth, while understanding and controlling costs, prioritising:

- **New services to boost customer retention**
- **Additional business lines to grow revenues**
- **New options for managing CAPEX and OPEX**
- **Automation to increase operational efficiency**
- **Use of GenAI to enhance customer experience**
- **Cloud transition for greater agility and flexibility**

Infrastructure requirements are certain to keep rising, yet costs must be controlled and managed to grow profit margins. ***So how can this be achieved?***

Optimising cloud consumption

Core telecom applications are becoming more cloud native: tuned for optimal hosting in the elastic infrastructure of cloud and suited to rapid orchestration across a fully virtualised operating environment. Applications are now becoming increasingly agile to dynamically consume resources as and when needed from a shared pool. This is key to cloud-native operations, potentially delivering both better efficiency and quality of service. CSPs appreciate this, and are investing substantially in cloud-native transformation initiatives. According to Precedence Research, telecom cloud spending is expected to reach $105.7 billion by 2030, at a CAGR of 14.45%.

CSPs have also invested heavily in private cloud builds. To meet sustainability and financial targets, these need to be optimised by making more efficient use of hardware. Using fewer servers to manage the required workloads reduces energy costs and carbon emissions – yet there is a limit to the improvements we can make by private cloud optimisation alone.

Is a larger scale move to public cloud the answer? Not on its own, due to the way the public cloud consumption model makes it easy to incur extra costs without careful forward planning, with additional issues around visibility and cost governance. The goal is to integrate and manage operations across hybrid cloud infrastructure, using both private and public clouds. So how can we achieve this?

For end-to-end optimised performance, a Full Stack FinOps approach is needed.

Full Stack FinOps optimises costs for private and public clouds

End-to-end optimisation

FinOps is a financial and cost management framework, originally designed to help organisations understand and manage costs in the public cloud. Yet to fully govern and optimise costs, CSPs must approach cloud cost management holistically. That's why Full Stack FinOps is so important, as it covers all cloud hosting environments:

- **Private cloud on-premise**
- **Public cloud**
- **Hybrid – combining both private and public clouds**

CSPs will continue to manage hybrid cloud environments whilst balancing costs for investment (CAPEX) and operations (OPEX). We also expect them to keep developing and committing to new cloud-native services, including private cloud-hosted cloud-native network functions (CNFs), Edge compute and OpenRAN.

In this complex, increasingly dynamic technology landscape, CSPs need complete visibility and the ability to manage complexity through integrated, multi-disciplinary FinOps teams and a near-real-time single source of truth. That's what Full Stack FinOps delivers.

FinOps FOUNDATION Premier Partner

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Moving FinOps to Full Stack

NTT DATA is a Premier Partner of the FinOps Foundation, and is an acknowledged global leader in developing Full Stack FinOps built on this concept to align FinOps across public, private and hybrid clouds. This requires significant new developments.

In February 2024, the FinOps Foundation presented a change to recognised FinOps concepts, incorporating FinOps across "cloud" rather than "public cloud".

Our new approach to Full Stack FinOps is based on a growing awareness that existing FinOps practices are simply not sufficient to face the challenges of the market as it evolves.

Extend your FinOps practice to the full stack

The starting point

The original public cloud FinOps approach provided standardised capabilities across four FinOps domains:

1. **Understanding cloud usage and cost,** gathering all information needed, making it available for review and building a detailed analysis for stakeholders.
2. **Quantify business value,** mapping usage costs to budgets, using historical data for future forecasts, then establishing and measuring performance indicators. This also helps stakeholders to make better decisions, faster, by providing data refined for roles and personas, while aligning organisational processes to the realities of operating in cloud.
3. **Optimise cloud usage and cost,** helping to define pricing goals, using historical data to make pricing adjustments, while actively managing the prices of the cloud services used and matching resource allocation to workload demands, predictively rightsizing resources and closing them when not needed.
4. **Manage the FinOps practice,** automating and managing usage in line with other finance activities, while aligning to existing organisational processes and technologies.

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In a hybrid environment, we must adapt and build on these capabilities and extend them to cover all aspects of cloud usage and costs, including:

- **Data ingestion with normalised data** (consistent data format); a foundation for decision-making such as identifying the best cost value platform to host workloads
- **Managing shared costs across platforms**
- **Reporting and analytics** to give all participating teams a clear breakdown of their costs across all environments
- **Measurement of unit costs** (for example, how much from a business perspective is the cost per user or other unit for a given service)

An integrated approach, enabled by Full Stack FinOps, delivers ***alignment between toolsets, processes and governance,*** simplifying management and optimisation, while permanently reducing costs and maximising the potential of existing investments. ***FinOps for public cloud, which is essential for managing OPEX in a scalable environment, already covers around 90% of the investment needed to implement Full Stack FinOps.***

Integrated Full Stack FinOps

CSPs need a consolidated, agnostic view of all the hosting options for their workloads, enabling more logical bundling, the ability to switch hosts when indicated and a rapid move towards efficiency-based outcomes. They need to consider such factors as:

- **Cost.** What is the lowest cost hosting solution, and how can we track changes as new options appear?
- **Value.** What additional factors influence value, such as rapid low-cost scaling and access to specific technical requirements?
- **Sustainability.** How can we accurately measure hosting options from an ESG, regulatory and environmental perspective?

Full Stack FinOps is one of three critical control points which CSPs must adopt to progress operational transformation and achieve levels of operational excellence equivalent to those practiced by large cloud services providers.

Radical improvements through xOps

Enabling this approach requires more than a single discipline. Management of a hybrid cloud approach using Full Stack FinOps is a key part of the solution. However, an integrated management approach is needed to truly deliver radical improvements in how CSPs handle cloud operations. We call this xOps, combining FinOps, DevSecOps and AIOps, to deliver a large-scale operational transformation.

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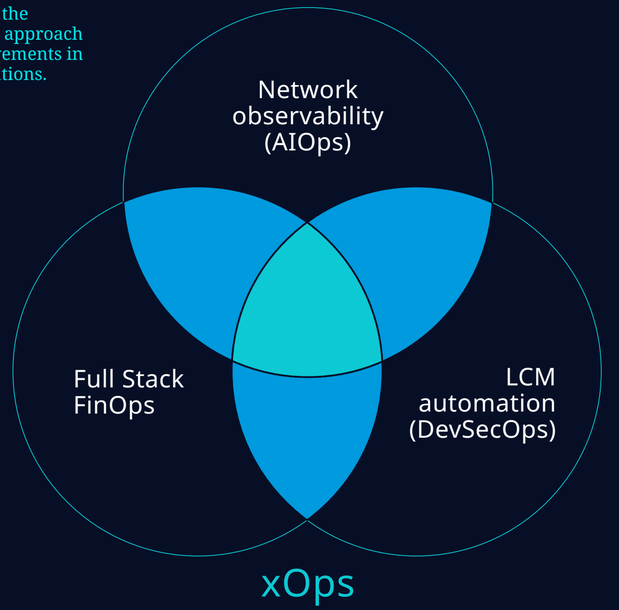
Full Stack FinOps brings accountability and cost management together. However, to be really effective, end-to-end network observability and lifecycle management (LCM) automation are also needed. By combining different data types, network observability provides holistic awareness of the health posture and resource utilisation of hybrid cloud infrastructure and associated hosted components.

By adopting a DevSecOps mindset, LCM automation streamlines Day 0, Day 1 and Day 2 operations of hybrid cloud infrastructure, hosted applications and services.

This diagram shows xOps and the requirement for an integrated approach to truly deliver radical improvements in how CSPs manage cloud operations.

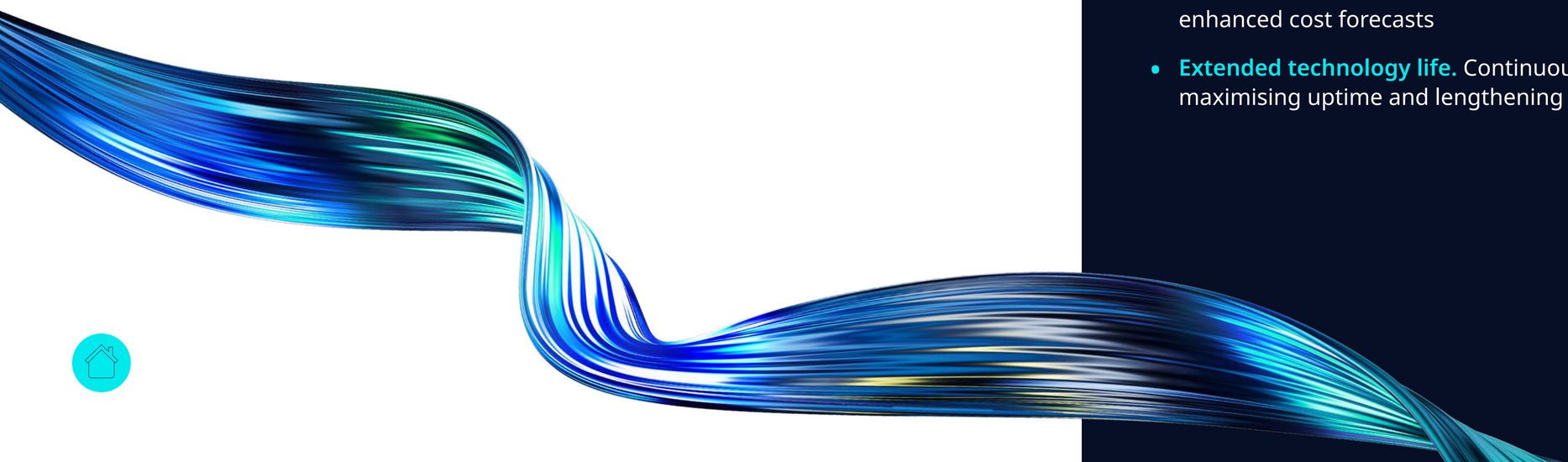


Sustainability enhancements

CSPs are strongly focused on cost management, but sustainability is also an increasingly important management priority. Although we are at an early stage of delivering a true sustainability revolution, it is clear that managing cloud environments holistically is the key to driving both improved efficiency, which reduces costs as a direct result, and optimised operations through reduced energy usage.

Use of FinOps has successfully reduced carbon emissions attributed to CSP operations in public cloud, and can potentially deliver even greater benefits in private clouds. Taken together, we expect cloud-native applications and transactions to make better use of the available infrastructure, which can play a part in improved sustainability performance.

In this way we move from the old "vicious circle" (high costs, low margins) to a new, "virtuous circle" of carefully controlled costs, with potential for higher margins.



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Ready to reap the benefits

By 2030, all leading CSPs will have both enterprise and telco-grade applications and processes in cloud-native form and will use the cloud to deliver revenue growth and increased efficiencies. Full Stack FinOps will be a basic necessity, delivering major improvements in:

- **Sustainability.** Better visibility over all infrastructure components, with analytical tools to show which can safely be closed to reduce energy use and emissions
- **Capacity release and reuse.** Make better use of available private cloud capacity, covering new demand from existing investments, reducing OPEX, achieving as close to 100% utilisation of active infrastructure as technically possible
- **Cost avoidance.** Identify spare capacity and reallocate it to transactions, reducing the need for further investment
- **ROI management.** Map applications against capacity, identify real application costs and candidates for termination, then improve planning through enhanced cost forecasts
- **Extended technology life.** Continuous optimisation for optimal efficiency, maximising uptime and lengthening the useful life of each item

Transformation and growth

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Most CSPs are actively adopting FinOps, not just for better cost management but to improve service quality through increased resource performance, visibility and optimisation. Improving resource allocation and cost management, while raising quality, increases customer retention and helps develop new revenue streams.

To accelerate transition to Full Stack FinOps, a trusted advisor is needed to guide decision-making and solution development. NTT DATA offers a comprehensive set of solution accelerators to deliver lean hybrid cloud infrastructure management:

- **Support for cloud-native transformation of applications and infrastructure**
- **Consulting expertise, covering organisation, process, governance and culture, as well as technology**
- **Practical guidance to getting maximum return from cloud partnerships and investments**
- **Process alignment between the public and private cloud components of hybrid cloud infrastructure**
- **LCM automation, cost allocation to services, cost anomaly detection, and resource usage optimisation**

Stage-by-stage approach

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It is critically important to avoid disruption to existing operations and implement what may be a challenging new approach in a phased manner. NTT DATA applies the FinOps Foundation's proven three-phase cycle framework, adding value through our own accelerators and methodologies.

1. Inform: identifies all data sources for cloud cost, usage and efficiency. Uses tagging to enable tracking and forecasting, based on agreed KPIs, helping technology and management teams to understand their current levels of efficiency and build strategies for enhancement.

2. Optimise: builds on the Inform phase to develop opportunities for improved cloud efficiency. This covers everything from utilisation rates charged by hosting providers, to enabling the business to view and manage its utilisation more efficiently, and align dynamically with market and technology changes.

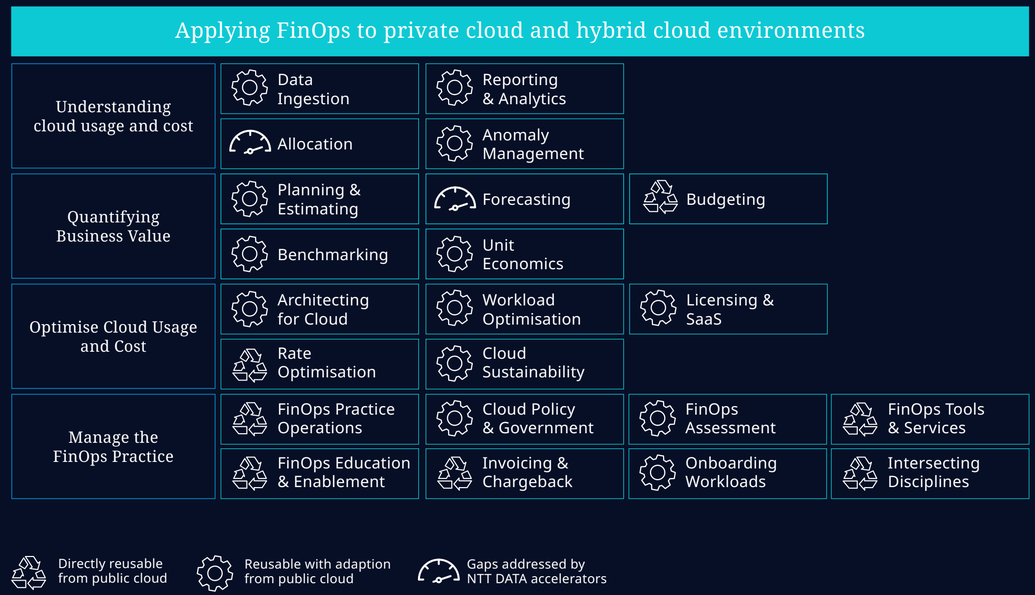
3. Operate: focuses on continuous improvement, based on strong governance and compliance, supported by a culture of collaboration and accountability, in which different teams across engineering, finance and business work closely together.

NTT DATA's unique set of accelerators effectively address those areas where additional work is needed for private and hybrid environments, as shown in the diagram on the right. We have identified areas in which capability gaps exist within the current framework. In these areas we have built tools to make it easier for CSPs to implement Full Stack FinOps and accelerate benefits realisation.

Full Stack FinOps, covering public, private and hybrid clouds.

We have identified 13 areas in which changes are needed to extend our existing public cloud FinOps solutions and two where entirely new solutions are required to fulfil fundamental FinOps capabilities for private and hybrid clouds.

By building on best practice, NTT DATA supports, extends and adds value to its already proven framework. Full Stack FinOps is a catalyst of positive change across all aspects of business operations for CSPs.



Case study: Enterprise telco

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NTT DATA provided a FinOps framework and ongoing cost optimisation service to a Tier 1, UK provider

Task

The client had the goal of reducing costs by the equivalent of $3.5 million each year, supported by leadership, process and culture change across the supplier ecosystem. NTT DATA responded with a FinOps framework based on processes, policies and KPIs that had clear targets and measurable outcomes.

Challenge

FinOps culture was new to the organisation and not understood or embedded in the ecosystem: there was no supplier buy-in. Systems architecture patterns were not optimised, and there was a lack of governance and accountability.

Outcomes

The targeted annual savings were delivered in just two weeks. Savings over the year were many times the original target. Governance model was designed, deployed and delivered, with internal client capability built up. Long-term FinOps and cost optimisation was put in place.

Ensured rapid automated change, in a way that is safe and reliable, with optimisation tailored to application specific requirements.

Full Stack FinOps starts with identifying your current level of maturity across people, processes and technology
Set up a complimentary Full Stack FinOps assessment

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Case study: Leading insurer

NTT DATA helped a multi-national insurance client to establish an internal FinOps capability aligned with key client objectives

Task

The client needed to address cloud cost and governance issues across both public and private clouds at a point where enterprise-scale multi-cloud operations were being introduced. NTT DATA provided rapid development of improved cost controls, allocation, budget management and evolving FinOps maturity across multi-cloud and the full stack.

Challenge

Traditional infrastructure management practices were being used with little understanding of how FinOps brings effective governance and cost benefits across cloud platforms. Established long-term internal and supplier teams had not bought in to it and were not knowledgeable about modern governance and FinOps approaches or the benefits that can be realised.

Outcomes

A set vision and applied FinOps Foundation Framework was combined with the NTT DATA Full Stack FinOps methodology to identify and redefine processes, governance and working practices. Full support was given for FinOps adoption, including education, briefings, evangelism and an effective plan for cultural and knowledge development. An effective strategy for moving to multi-cloud operations was defined.

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Set up a complimentary Full Stack FinOps assessment

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Case study: Luxury automotive manufacturer

NTT DATA delivered specialist optimisation around SAP and cloud infrastructure to a luxury automotive manufacturer

Task

The client had a requirement to increase cost efficiency of SAP and associated infrastructure services on the cloud while transferring infrastructure service operations for SAP to a trusted partner.

Challenge

These were operational and customer-facing services requiring high availability and zero service impact. Service stability issues were impacting on the business.

Outcomes

NTT DATA delivered a highly optimised SAP environment, reducing cloud costs by 20% as part of a managed service. This was achieved with zero service impact and improved application performance and availability.

Full Stack FinOps starts with identifying your current level of maturity across people, processes and technology
Set up a complimentary Full Stack FinOps assessment

NTT DATA is a $30 billion+ trusted global innovator of business and technology services. We serve 75% of the Fortune Global 100 and are committed to helping clients innovate, optimise and transform for long-term success. We invest over $3.6 billion each year in R&D to help organisations and society move confidently and sustainably into the digital future. As a Global Top Employer, we have diverse experts in more than 50 countries and a robust partner ecosystem of established enterprises and start-up companies. Our services include business and technology consulting; data and artificial intelligence; industry solutions; as well as the development, implementation and management of applications, infrastructure, and connectivity.
We are also one of the leading providers of digital and AI infrastructure in the world. NTT DATA is part of NTT Group and headquartered in Tokyo.

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> Implementing true cost transformation is a complex challenge. Moving from strategy to delivery and adoption is the key for success.


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