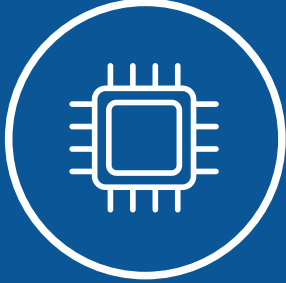


Servium



5 STEPS TO OPTIMISING YOUR INFRASTRUCTURE STRATEGY

From capacity planning to
budgeting and backups



Hewlett Packard
Enterprise



The perpetual challenge of IT infrastructure

Step 1: Capacity planning

Are you making the best use of the infrastructure you have invested in, and is your environment right-sized?

Step 2: Performance

Are your workloads performing as well as you need them to? And can you see opportunities to address this if not?

Step 3: Cost

Are you optimising your infrastructure spend? Is inadvertent overprovisioning of resources costing you money?

Step 4: Visibility

Are you able to truly see the makeup of your infrastructure across on-prem and cloud in real-time?

Step 5: Backups

Have you got a true handle on how your backup environment fits within your current infrastructure and disaster recovery strategy?

The solution: HPE CloudPhysics

A single tool that delivers real-time insights to support continuous optimisation and streamlined infrastructure management.

Infrastructure and capacity planning are critical challenges that organisations of all sizes and across industries must grapple with in today's dynamic business landscape. As businesses increasingly rely on digital systems and distributed applications to drive operations and revenue, the ability to effectively manage and optimise IT infrastructure becomes paramount.

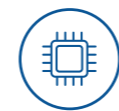
At the core of this challenge lies the need to strike a delicate balance between ensuring adequate capacity to support current and future business demands while avoiding the pitfalls of overprovisioning or underutilising resources. Overprovisioning can lead to significant financial waste, as organisations invest in unnecessary hardware, software, cloud resources and maintenance costs. Conversely, underprovisioning can result in performance bottlenecks, service disruptions, and ultimately, dissatisfied customers and lost revenue opportunities.

Another key aspect is the complexity introduced by the adoption of hybrid and multi-cloud environments. As organisations embrace a mix of on-premises infrastructure, public cloud services, and private

cloud deployments, managing and optimising resources across these diverse environments becomes increasingly intricate. Siloed operations, disparate management tools, and a lack of visibility can quickly lead to inefficiencies, redundancies, potential security vulnerabilities and escalating costs.

Furthermore, the rapid pace of technological innovation and shifting business requirements necessitate a proactive and agile approach. Organisations must be able to anticipate and respond to changing workload demands, new application deployments, and ever-evolving customer expectations promptly. Failure to do so can result in missed opportunities, competitive disadvantages, and suboptimal resource utilisation.

The ability to truly see the makeup of your IT infrastructure across on-premises and cloud environments in real-time is no longer a luxury but a necessity for organisations striving to remain competitive and future-proof their operations. Here, we share our five-step journey to address these challenges using a holistic and data-driven approach underpinned by the right technology.



1 Capacity planning

Capacity planning is an essential discipline for ensuring your technology environment is properly sized and your infrastructure investments are being maximised. It starts with comprehensive visibility across your entire hybrid infrastructure - whether on-premises, or in the cloud. You need granular telemetry into resource consumption metrics such as compute utilisation, storage footprint, network bandwidth, database load, and more. As such, monitoring tools that provide unified observability across this full stack are foundational.

With this cross-domain visibility, you can analyse resource usage patterns over time and model future demand based on business drivers like new application rollouts, data volume growth, and user population increases.

However, simply reacting to topline growth numbers is insufficient. Capacity planning must examine resource utilisation at a workload-by-workload level to identify constraints and inefficiencies. This often exposes instances of over-provisioning, where infrastructure lies severely underutilised due to inaccurate projections or the provision of oversized workload bundles in the cloud.

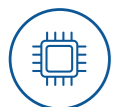
Conversely, capacity planning illuminates areas of under-sizing that degrade performance and threaten availability. Maybe you're pushing database servers to their IOPS limits due to rapid data ingestion. Or certain network segments are saturated,

causing unacceptable latency. Proactive resource augmentation in these hotspots will ensure reliable service delivery.

Furthermore, optimally matching workload profiles to the most appropriate underlying infrastructure is key. The needs of containerised cloud-native applications differ vastly from those of traditional monolithic workloads. Analytics jobs have different I/O and throughput demands than transactional databases. Capacity modelling aligns each workload to infrastructure configurations - bare-metal, virtualised, storage types, cloud instances - tuned for its characteristics. This maximises price/performance efficiency.

Armed with this insight, intelligent capacity planning allows you to maintain an agile, right-sized technology footprint across your full hybrid ecosystem. Infrastructure spend stays aligned to demand curves while service levels are assured and workloads are intelligently mapped to infrastructure builds optimised for their needs.

In an era of volatile business conditions and accelerating digital initiatives, maintaining this equilibrium is paramount for IT to be an enabler of organisational agility rather than a constraint. Disciplined capacity planning promotes a responsive, efficient and resilient technology foundation - ensuring you consistently maximise your infrastructure investments.



2 Performance

Infrastructure performance directly impacts business productivity, customer experience, and bottom-line revenues. Even brief degradations in application responsiveness or service disruptions can have severe repercussions. As such, it's critical to continuously monitor workload performance across your hybrid infrastructure and identify areas for optimisation.

Effective workload performance management begins with establishing comprehensive observability across your full technology stack - from applications and virtualisation layers to operating systems, databases, networks and storage systems. This visibility ensures you can detect and remediate performance issues wherever they originate in the infrastructure stack.

With granular telemetry data flowing into monitoring solutions, you can set benchmarks for acceptable workload behaviour based on metrics like application response times, transaction throughput, resource utilisation levels, storage IOPS, network latency and more. Intelligent analytics can then identify real or potential deviations from these performance thresholds and guide troubleshooting.

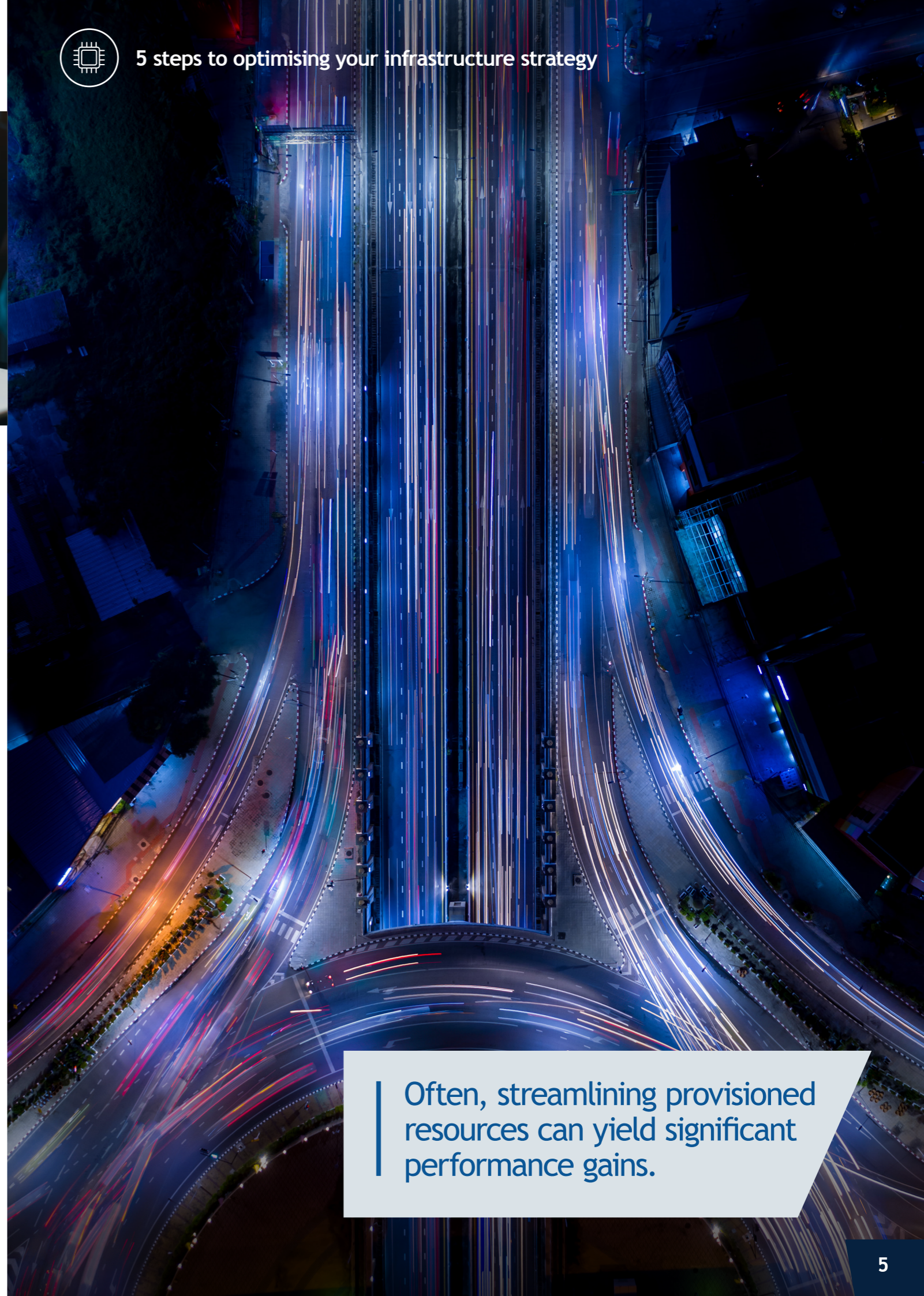
Often, streamlining provisioned resources can yield significant performance gains. For example, running performance-intensive workloads in virtual machines with dedicated resources rather than oversubscribed environments. Or migrating workloads to a newer infrastructure that supports higher IOPS and throughput capabilities. Likewise, tuning operating system configurations, database parameters or application connections can rapidly resolve bottlenecks.

However, to unlock peak performance you must examine workload behaviour across the entire stack. This full-stack observability allows the correlation of inter-dependencies that impact end-to-end performance. For instance, you may find that while individual tiers such as the database or web servers seem fine, chattiness between them is inducing latency. Or perhaps an unexpected spike in automated batch workloads is starving resources from customer-facing services.

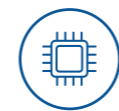
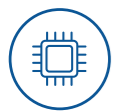
With this unified observability, performance modelling can map workload profiles to the optimal underlying infrastructure configurations. The resource footprints of cloud-native apps differ vastly from monolithic legacy apps, and analytics jobs have different throughput needs than transactional databases. The goal is to match each workload's distinctive characteristics to infrastructure tailored for its access patterns, I/O profile, and scale requirements.

Furthermore, holistic workload performance management must extend beyond real-time operations into full lifecycle optimisation. Correlating performance against business drivers such as new releases, campaigns, or data growth enables accurate capacity forecasting.

Ultimately, comprehensive workload performance management promotes more resilient and cost-effective digital services that scale with your business. With unified observability, intelligent performance analytics, and full-stack lifecycle tuning, you can maximise the value delivered by your hybrid infrastructure.



Often, streamlining provisioned resources can yield significant performance gains.



3 Cost

Organisations are faced with the challenge of keeping up with the latest innovations while simultaneously managing their IT infrastructure costs effectively.

One of the primary concerns in this regard is the issue of overprovisioning resources, which can lead to significant financial waste. Not only does it result in unnecessary expenditure on hardware, software, and maintenance, but it can also lead to inefficient energy consumption, increased operational complexity, and a higher risk of security vulnerabilities. Additionally, underutilised resources represent missed opportunities for cost savings and optimisation.

To address this challenge, organisations must adopt a proactive approach to IT infrastructure management. This includes implementing robust monitoring and analytics tools that provide real-time visibility into resource utilisation patterns. By analysing these data points, businesses can identify areas of overprovisioning and take corrective action, such as scaling down resources or migrating workloads to more cost-effective platforms.

Another crucial step is to embrace cloud computing and virtualisation technologies. These solutions enable organisations to provision resources on-demand, scaling up or down as needed, and

paying only for what they consume. This approach eliminates the need for upfront capital expenditures on hardware and allows for greater agility and flexibility in meeting changing business requirements.

Furthermore, organisations should consider adopting a hybrid cloud strategy, which combines on-premises infrastructure with public cloud services. This approach enables businesses to leverage the benefits of both environments, such as maintaining control over critical workloads while taking advantage of the scalability and cost-effectiveness of public cloud offerings.

By taking a proactive and strategic approach to IT infrastructure management, businesses can not only optimise their spending but also position themselves for long-term success in an increasingly competitive and resource-constrained business landscape. Failure to address the issue of over/underprovisioning can result in missed opportunities, competitive disadvantages, and ultimately, financial strain.

Organisations must adopt a proactive approach to IT infrastructure management.

4 Visibility

As organisations continue to embrace hybrid and multi-cloud strategies, the complexity of managing and optimising resources has increased exponentially. Without a clear and up-to-date understanding of your IT infrastructure, you hamper your ability to respond quickly and accurately to all kinds of issues - from investment decisions to security measures.

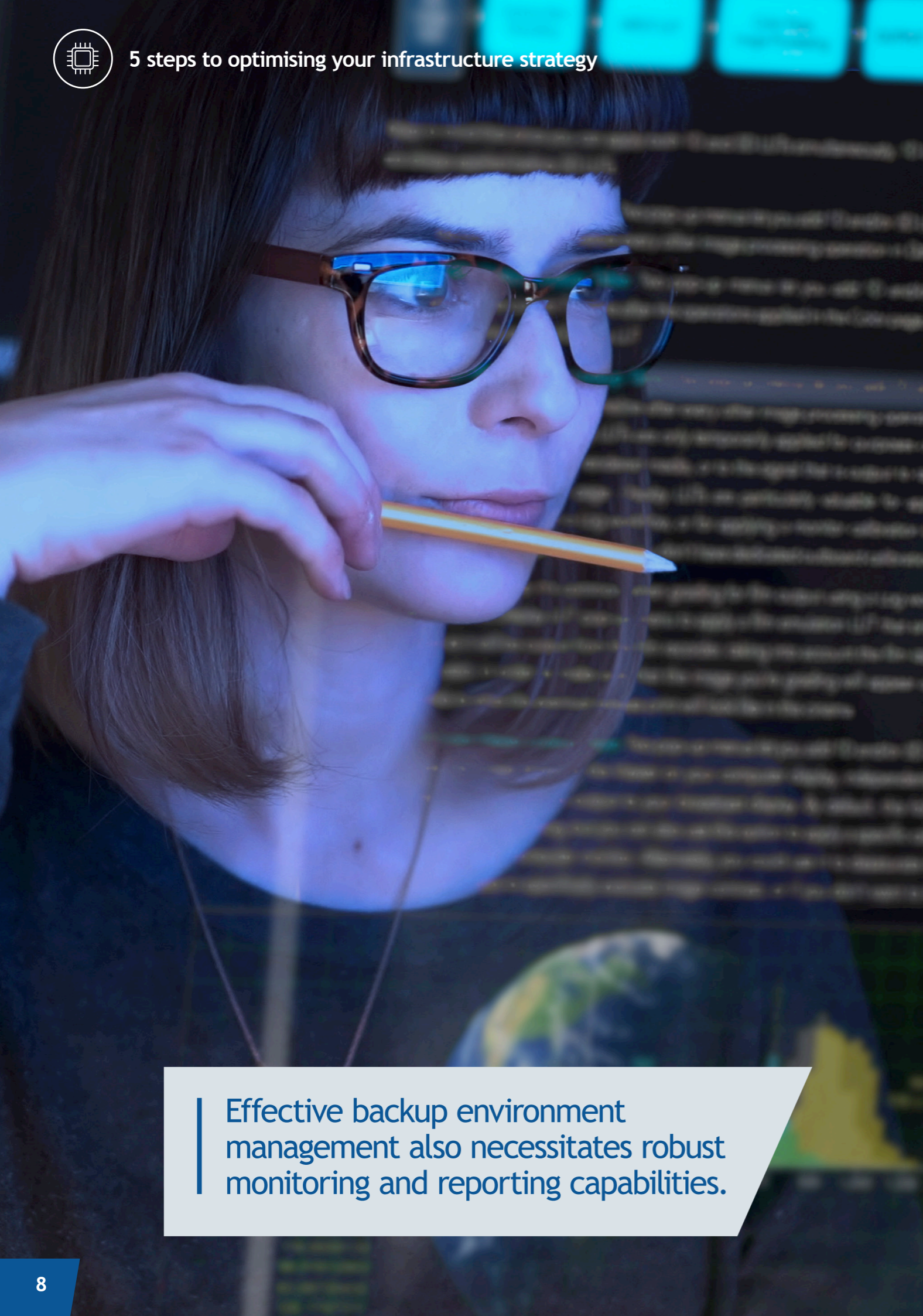
The ability to truly see the makeup of your IT infrastructure in real-time is a critical capability that can provide numerous benefits. Firstly, it enables organisations to identify and address resource underutilisation or overprovisioning promptly. By having visibility into the actual usage patterns of compute, storage, and network resources across on-premises and cloud environments, businesses can right-size their infrastructure, ensuring that they are not paying for unnecessary resources or experiencing performance bottlenecks due to insufficient capacity.

Furthermore, real-time visibility into IT infrastructure allows for proactive capacity planning and informed decision-making. With a comprehensive view of resource utilisation trends, organisations can anticipate future demands and make strategic decisions about scaling up or down, migrating workloads, or adopting new technologies. This proactive approach not only optimises costs but also ensures business continuity and minimises the risk of service disruptions.

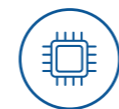
Another significant benefit is enhanced security and compliance. By having a clear understanding of the entire infrastructure, businesses can quickly identify potential vulnerabilities, misconfigurations, or unauthorised access attempts across their on-premises and cloud environments. This enables immediate action to mitigate risks and ensures compliance with industry regulations alongside security best practices.

However, achieving real-time visibility across a hybrid IT infrastructure is not a trivial task. It requires the implementation of robust monitoring and analytics tools that can seamlessly integrate with various on-premises and cloud platforms. These tools must be capable of collecting and aggregating data from diverse sources, providing a unified view of the entire infrastructure landscape.

Additionally, organisations must overcome challenges such as data silos, disparate management interfaces, and the complexity of managing heterogeneous environments. This often necessitates the adoption of advanced technologies, such as artificial intelligence and machine learning, to analyse vast amounts of data and provide actionable insights.



Effective backup environment management also necessitates robust monitoring and reporting capabilities.



5 Backups

Having a true handle on how your backup environment fits within your overall infrastructure strategy is crucial for maintaining business continuity, ensuring data integrity, and minimising the risk of costly downtime.

At the heart of this challenge lies the need to align your backup environment with your broader infrastructure goals and objectives, while ensuring that critical data and systems can be rapidly recovered in the event of a disruptive event, such as a cyber-attack, natural disaster, or hardware failure. This requires a holistic approach that considers not only the technical aspects of data backup and recovery but also the operational, compliance, and financial implications.

One of the key considerations is understanding the varying backup requirements across your diverse infrastructure components. From mission-critical applications and databases to file servers and virtualised environments, each component may have unique backup needs in terms of frequency, retention periods, and recovery objectives. Failing to account for these nuances can lead to inefficient resource utilisation, inadequate data protection, or excessive costs.

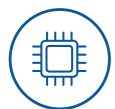
Furthermore, as businesses continue to embrace cloud computing and hybrid infrastructure models, the complexity of backup strategies increases. Ensuring seamless integration between on-premises

and cloud-based backup solutions is essential to maintaining a consistent and reliable data protection strategy. This often requires carefully evaluating the capabilities and limitations of various backup solutions, as well as addressing potential challenges such as data sovereignty, regulatory compliance, and network performance.

Effective backup environment management also necessitates robust monitoring and reporting capabilities. Having real-time visibility into backup routine success rates, storage consumption, recovery point objectives (RPOs) and recovery time objectives (RTOs) is critical for identifying potential issues and taking proactive measures. This data can also inform capacity planning and resource allocation decisions, enabling organisations to optimise their backup infrastructure and adapt to changing business needs.

Additionally, businesses should consider the role of automation and orchestration in streamlining backup processes. By leveraging advanced technologies such as policy-based management, intelligent load balancing, and self-healing capabilities, organisations can reduce manual interventions, minimise human errors, and improve overall backup efficiency.

By understanding how your backup environment fits within your current infrastructure strategy, organisations can mitigate the risks associated with data loss, ensure business continuity, and optimise resource allocation.



The solution

As businesses continue to grapple with the complexities of managing hybrid and multi-cloud environments, HPE CloudPhysics emerges as a valuable tool for simplifying infrastructure management and ensuring efficient resource utilisation.

It's a powerful, software-as-a-service (SaaS) platform that provides organisations running VMware with comprehensive visibility and insights into their IT infrastructure, enabling effective capacity planning and optimisation.

One of HPE CloudPhysics' key strengths lies in its ability to collect and analyse data from various sources, including on-premises infrastructure, public clouds, and private clouds. By integrating seamlessly with a wide range of platforms and technologies, it offers a unified view of an organisation's entire IT infrastructure landscape that helps:

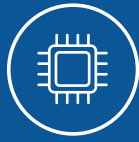
- Assess current resource utilisation to inform capacity management.
- Interrogate the performance of critical workloads to proactively identify and address constraints.
- Build a clear picture of your current infrastructure to inform investment decisions.
- Compare the cost of migration to public cloud with real-time predictions for major hyperscalers.
- Assess your backup estate and inform planning with five-year requirement predictions.

Empowered with historical data, real-time insights and predictive analytics, IT teams are better positioned to spot right-sizing opportunities that help unlock cost savings and improve operational efficiency while ensuring that critical applications and workloads have access to the necessary compute, storage, and network resources.

In addition to its core capabilities, the platform's user-friendly interface and intuitive reporting capabilities empower IT teams to communicate effectively with stakeholders, facilitating informed decision-making and fostering collaboration across the organisation.



One of HPE CloudPhysics' key strengths lies in its ability to collect and analyse data from various sources.



5 steps to optimising your
infrastructure strategy

Try HPE CloudPhysics for FREE

To kick-start your strategy and remove the guesswork from your planning, speak to the experts at Servium - a leading IT solutions provider helping businesses to confidently innovate and deliver consistently better IT experiences that grow business value faster.

Get in touch today for expert guidance and a free trial of HPE CloudPhysics that will transform your IT infrastructure strategy for good.

To learn more or discuss the solution in more detail, simply speak to your Account Manager, email us at hello@servium.com or call on **+44 (0)303 334 3000**.



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