consoleconnect

Ultimate guide to
cloud cost
optimisation_

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Introduction

The recent rise in inflation and supply chain challenges are having a knock on effect for businesses in terms of cloud adoption and network usage.

While the perception is that cloud offers unlimited scalability and lower costs by only charging for the resources you use, the truth is that customers pay for the resources they order, whether they use them or not.

This is a significant issue, and according to **Gartner**, over 60% of IT infrastructure leaders have experienced public cloud cost overruns that negatively impact their budgets.

And with **IT costs on the rise**, there's never been a more important time to keep an eye on your cloud expenditure.

In this e-book, we review the reasons for rising IT and cloud costs, and provide top tips and technology solutions to help reduce cloud expenditure for enterprises.

Technology spending is going up

As industry analyst **Gartner** has identified in its most recent global technology spending forecast, prices are going up across the board as IT service providers deal with a mix of talent shortages and higher pay.

What's known as **'utilisation rates'** in IT services firms - or the percentage of total hours employees spend on billable projects - are generally kept between 75% and 88%, because higher rates mean burnout and talent attrition.

But the analyst thinks utilisation rates are now in the mid-90s, which translates into higher costs for the company, then passed on to customers.

Another area incurring higher costs is **security**, with greater focus from the public and at the executive level, combined with increasing regulatory pressure, IT services vendors and tech-centric organisations are being forced to spend more to stay safe.

Thirdly, enterprise **cloud spend** is going up - in terms of both storage and compute. We've already seen movement from Google to **increase storage costs** on **Google Cloud Platform** by 25% to 50% with API calls to storage increasing over 100%, which may seem alarming when cloud costs have only been on a downward trajectory for as long as anyone can remember.
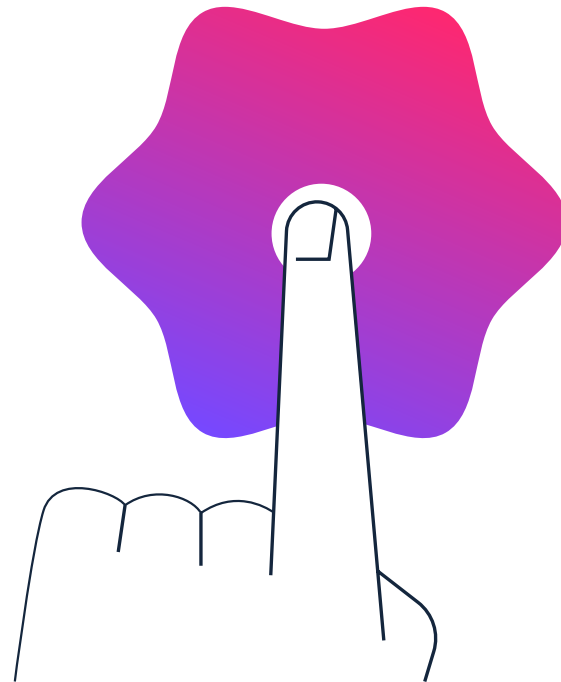
Watching out for rising cloud costs

But when it comes to the cloud, it's not so simple, and it's long been posited that one of the most significant concerns when it comes to cloud cost is that variation of compute, storage, and consumption models between different providers, which can be complicated, and often misunderstood.

In fact, in its **2022 State of the Cloud Report**, Flexera estimated that 30% to 35% of all spend in the cloud was wasted usage access cycles, like leaving the lights and heating on in an unoccupied home, or running the car engine in the driveway. Except the power never goes out and the gas never gets to empty, but the bills keep coming.

One of the main draws of the cloud in terms of business agility, was that any function outside of IT could spin up a public cloud instance and get to work on a new project. However, it's now thought that there are lots of abandoned projects out there that have dropped 'off radar' but are still being paid for.

The other trap about the all-you-can-eat-buffet that is the cloud, is that engineers are tempted to gobble up as many resources as they can in the name of innovation and experimentation without necessarily having any return to show on that investment.

Tips for reducing cloud costs

In Flexera's 2022 State of the Cloud report, the company found that organisations are trying to better understand cloud costs in order to bring them down, with 64% focusing on maximising resource utilisation, and 50% engaging in deleting or removing unused or idle resources.

Here are nine top tips on how to reduce cloud expenditure for enterprises:

1. Locate unused resources

One of the biggest areas for overspend is resources that were spun up temporarily or are no longer in use. Some of the biggest culprits are when a developer spins up an instance or server to perform a single function, but forgets to spin it down when the job is done. Or when an administrator forgets to terminate the storage attached to an instance that has been closed.

Without a process for identifying and removing unused resources, they will still appear on the bill, eating into your budget.

2. Consolidate idle resources

It used to be that when IT operations were all run out of private data centres, idle capacity was built in by design. It was expensive and time consuming to add new resources, so overhead was built in to account for sudden traffic spikes or busy seasons.

With the auto-scaling and on-demand capabilities of the cloud however, new resources can be added in real time, meaning you can eliminate any idle instances with no performance penalty. If you have a virtual server that only has a CPU utilisation of 5% for example, you will still be billed for 100% of that CPU. So hunt down all these underused resources and consolidate jobs onto fewer instances and maximise their load.

3. Right sizing

A natural extension of the above, a significant cost driver with cloud adoption is over-provisioning. You need to adopt a mind-set of only ordering what you need, so you only pay for what you use. The cloud requires IT teams to think differently about capacity planning and resource management, making good use of network resource modelling and discovery tools to build in optimisation and efficiencies from the start.

4. Establish a governance model

One of the great benefits of the cloud is one of its greatest challenges. Almost anyone in any function can spin up cloud instances that can quickly become mission critical. Ownership has moved out of the IT department and into the hands of the masses, so you need to establish a governance model up front that will dictate approvals for adopting new cloud resources as well as monitoring usage to make sure it doesn't spiral out of control.

5. Spot instances and reserved instances

If you run a lot of batch jobs or jobs that can be easily interrupted and restarted, you can look into spot instances. This is spare compute capacity that is made available by the cloud provider and auctioned off in real time so they can maximise usage of their own assets. These typically have a much lower cost than on demand instances, but be warned that they go as easily as they come and will be terminated if that capacity is needed elsewhere.

For businesses that have a much more predictable utilisation pattern or are able to commit longer term, you can pre-pay for reserved instances, which can give much larger discounts by spending up front.

6. Adopting a hybrid cloud strategy

Each cloud has its own strengths and weaknesses and enterprises can take a best of breed approach by choosing the best cloud for the job, while simultaneously reducing the lock-in to a single vendor and potentially lowering the overall cost.

An IBM **report** found 79% of IT executives place high importance on cloud cost management tools that run across multiple clouds, maximising value by avoiding unnecessary costs and giving a holistic picture of the organisation's cloud footprint.

7. Adopt a new financial mindset

Companies are currently adjusting their financial mindsets, and teams, to better work in an on-demand world. Cloud no longer requires capital planning and budgeting annually or even quarterly, because by the time the finance team has booked a meeting room the economics have already changed. There's even a new movement dedicated to it called **Finops**.

8. Automation

Armed with a rich menu of APIs and the ability to create automated workflows, many CIOs and IT managers see cloud automation as one of the single most important methods for reducing cloud costs.

A simple view might be that most non-production systems do not need to run overnight or during weekends. With some simple automated scripts, you could shut these down and immediately see a significant cost reduction. Automation can also be used to supplement right sizing and dealing with over-provisioning of resources, **including networks**.

9. Dedicated connectivity

Although most cloud providers let you upload as much data as you like for free, accessing and extracting that data can come with significant costs. Companies can keep egress fees low by investing in private, dedicated connections to their multiple clouds, allowing you to pull large amounts of data for a reduced cost but also improving performance and security.

Keeping an eye on e-gress charges

When it comes to cloud expenditure, understanding e-gress charges is also important.

Whenever you move data into or out of a cloud, the traffic crosses one or more networks, potentially resulting in transfer charges.

These are known as ingress (moving data into the cloud) and egress (moving data out of the cloud) charges - and there's incentives in most of the pricing models by cloud service providers (CSP) to encourage an organisation to use a direct connection to transfer data, rather than go via the public internet.

In general however it's almost always very low-cost or even free to move data into the cloud, the cost is associated with getting data out of the cloud.

Because cloud storage is relatively cheap and organisations are producing more and more data, it's very tempting to keep all the data produced and to put lots of data analytics into the mix, potentially moving data between different clouds.

The challenge is to understand how these actions relate to cost, because an enterprise can run up a significant and unexpected bill this way.

What to watch out for:

- Depending on how your infrastructure is set up, applications, workloads, and users may be able to extract considerable amounts of data from your cloud instances and run up hefty bills before anyone realises quite how expensive it is.

- It can be particularly challenging to monitor and manage data egress fees if you are a large organisation with a global spread of offices and multiple cloud instances.

- Although each CSP has its own pricing framework for egress fees, generally speaking, egress fees will vary depending on the volume of data you're moving and where it goes. The more data you move, the more expense, but you will typically benefit from lower per-gigabyte charges.

- Location and geography is also important to note. Transferring data between availability zones or within regions will result in lower fees, while transferring data across different regions or continents will present the highest fees.

- A good way to avoid unexpected e-gress charges is to privately interconnect to the cloud. Many cloud providers offer a significant reduction on e-gress fees for a direct connection between their platform and your private network.

# Benefits of NaaS for cloud connectivity

There are, of course, costs associated with connecting to the cloud and the need to make networks more agile, scalable, and adaptable is more apparent now than ever.

Legacy WAN architectures are typically very cloud unfriendly and put considerable burden on the organisation to maintain. Appropriate connectivity for SaaS, IaaS, and PaaS is not easily achieved on traditional infrastructure and a suboptimal WAN can actually degrade the performance of cloud-based applications and adversely affect the end-user experience, as well as being expensive.

Especially useful for multi-cloud environments, **Network-as-a-Service** interconnection fabrics like Console Connect now have Points of Presence in so many cloud data centres it's possible to spin up **Layer 2** and **Layer 3** connections into those clouds almost instantaneously to meet demand.

And finally, using a private on-demand network for cloud connectivity helps sidestep egress charges – in some cases reducing e-gress charges by as much as 50%.

In a high performance, cloud centric environment, this is a major saving at a time when many businesses need it most.
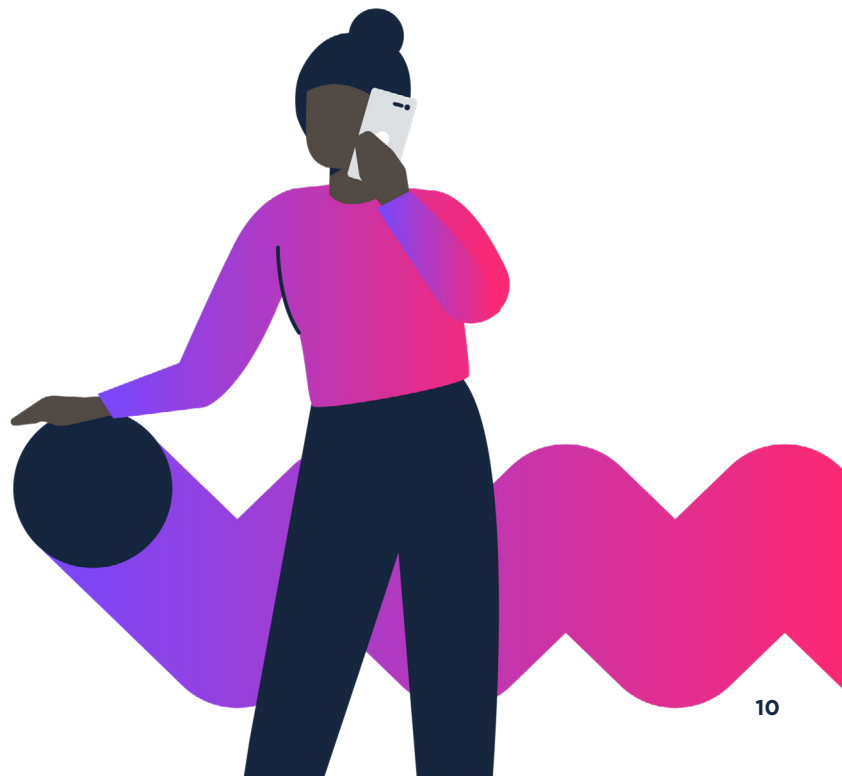
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