**What’s included in cloud services pricing**

A big driver of the challenges associated with managing the cost of cloud services is quantifying everything an enterprise is billed for. The major components of these costs include:

•Compute - Cloud compute costs consist of the virtual machines, containers, and serverless functions that run workloads. AWS EC2 instances are the textbook example of cloud compute resources, but anything that provides processing power falls into this category. Exactly how much cloud compute will cost you varies significantly depending on your workload requirements. For example, AWS EC2 Reserved Instances are up to 72% cheaper than comparable EC2 on-demand instances. Spot instances are also significantly reduced in price relative to on-demand instances. Furthermore, the type of hardware you request has a dramatic impact on your cloud compute costs. Using instances equipped with powerful GPUs will be significantly more expensive than using lightweight instances with a single CPU core.

•Storage - Cloud storage costs cover all the data an enterprise stores in the cloud. The cost of cloud storage varies depending on the amount of data stored and how it is stored. “Hot” storage – which can be immediately accessed – tends to cost more than “cold” storage that takes seconds to hours to access. Similarly, SSD storage tends to cost more than HDD storage because of the differences in hardware costs. The type of storage (file, object, or block) also influences the cost of cloud storage.

•Networking - In addition to egress (outbound) traffic costs, there are a variety of other network charges related to the cost of cloud services. Everything from CDNs to load balancers to public IP addresses can lead to charges on a cloud bill.

•Licensing - Licensing costs are often overlooked when computing the cost of cloud services, but they can have a significant impact. For example, licenses for enterprise staples like SAP, Oracle, and Windows products are often a big part of cloud bills.

•Backups - Cloud backups are a game-changer from a resilience and disaster recovery perspective. From a cost perspective, they’re a combination of storage, network, and licensing costs. At the very least, enterprises will need to pay for backup storage. When restoring a backup on a new platform, network egress fees also come into play. For enterprises with terabytes of data on their servers, those fees can rack up fast. Furthermore, many backup and recovery services come with license costs of their own.

**Estimating the cost of cloud services**

To create reliable forecasts and make well-informed business decisions, enterprises need to reasonably estimate the cost of cloud services. For the major public cloud providers, online calculators – like those from AWS, Azure, and GCP – are a great first step in the process. In fact, for basic use cases, they may be all you need[1].

However, for many enterprises, architecture complexity, security, operational costs, and usage variability often mean calculators alone aren’t enough for reasonably predictable billing and estimation. Further, calculating the cost of cooling, power, and ongoing maintenance for enterprises that host private cloud infrastructure on-premises creates additional estimation complexity.

Often, this means estimating the cloud costs is a mix of calculators, license and subscription costs, and internal estimates making their way into a spreadsheet. Done right, creating these estimates can provide enterprises with a reasonable forecast for cloud services, but it takes some discipline and effort.

Want to take the complexity out of cloud cost management? Explore Divio’s simple pricing model for public, private, and multi cloud environments.

Sanity testing your cloud cost estimates

If you’re just getting started with estimating the cloud costs, David Linthicum’s CloudOps formula is a useful baseline to sanity-check your estimates. That formula is:

CloudOps annual costs = ((NW\*CW)\*COM)+((NW\*CW)\*SR)+((NW\*CW)\*MR)

Where:

• NW = Number of workloads

• CW = A complexity multiplier from 1.01-2.0

• SR = Security requirements rated on a 100-500 scale

• MR = Monitoring requirements rated on a 100-500 scale

• COM = A “cloudops multiplier” based on resources including cost of services and human costs on a 1,000-10,000 scale.

Estimates based on this formula will not be precise, but they are a good reference for the full cost of cloud services.