10 Practical Tips for Cloud Optimization
Cloud Adoption

Change. Despite its inevitability, it is not a concept often looked at in a positive light. In the world of IT, the vote seems to be split. First and foremost between those holding on to the traditional ways of running a business and those who have jumped on the cloud computing bandwagon. The gains that we have experienced as a result of this change in IT approaches have turned many companies into strong cloud computing believers. The dawn of cloud computing was brought about as the result of constant setbacks in traditional IT environments. The pace of doing business and catering to end users was simply developing much faster than what traditional data centers could manage. What’s more, unused machines left companies paying for much more than mere utilization costs.

The cloud has proven to be a cheaper, easier, and more efficient alternative to building a data center from scratch or expanding one that has already been established. The level of agility it provides enables near seamless integration with systems of all kinds, quick configuration and deployment, as well as limitless scalability in a flash. Startups find great appeal in the options that the cloud offers with on-demand growth, and enterprises see how the cloud matches up with present business operations, better preparing them for the future.

Real Life in the Cloud

The reality is that while the cloud has created a myriad of opportunities for companies of all sizes in every stage of their business development, rogue usage that leads to exorbitant costs is more common than you think. The notion that the cloud would be able to generate and maintain optimized machine usage and utilization was disregarded by many enterprises and organizations. Rather, focus was put on its self-service manner and endless capacity, which brought about seemingly limitless flexibility.

The Cloud Sprawl

The concept of DevOps culture came to light with the cloud, accompanied by tools that automatically launched, reconfigured, and moved instances from one point to another. The combination of these new approaches to IT operations and running businesses led people to believe that the cloud was the ultimate way to remove data center inefficiencies. However, many things happen behind the scenes, such as purchase of oversized servers, unused resources and a general lack of visibility, accountability and control. All combined this has resulted in the phenomenon of cloud sprawl.
3 Cloud Control Challenges

IaaS works in such a way that cloud vendors pick the level of visibility consumers may have, depending on the service they choose for their environment. While many IaaS APIs provide visibility into the actual services being used, current IaaS out-of-the-box tools are still limited and don’t reveal the available stack of resources entirely.

1. Transparency

Greater control comes from transparency. Once you know what is taking place behind the scenes, you can better assess what is actually going on and take action accordingly.

The following three features impact transparency:

- **A dynamic environment**: the extensive number of changes that happen on a daily basis create a greater challenge
- **Aspects of cloud management**: including cost optimization, security and, availability
- **The fragmentation and granularity of an environment**: each resource has its own cost, utilization level, and life-cycle

Transparency is the key to achieving the cloud’s full benefits. Down-to-the-hour usage, together with real-time visibility, measurement, and insights, all enable actions that can instantaneously align the cloud with its underlying business needs, cost optimization and compliance.

2. Governance

The cloud’s environment is complex, as is, without the added headache of additional strict regulations and compliance provisions. There are two sides of a coin, and while the user’s side of the cloud undergoes specific procedures to ensure compliance measures are met, they have no governance over what happens on the cloud vendor’s side. At the end of the day, both sides need to see eye to eye. The cloud shares the responsibility of both sides to maintain a solid environment from the ground up. Public cloud consumers are responsible for the operating system all the way up to the application. SLAs need to be defined and supported by internal organization rules and procedures. Then, once in place, all operations need to be documented and analyzed by means of periodic performance and status reports.

3. Predictability

Efficient cloud usage, utilization, and capacity planning stems from staying abreast of cloud consumption. IT customers typically prefer to be able to predict spend, especially when it comes to the need to run cost allocation procedures and build their quarterly/yearly IT budget.
In principle, public cloud compute costs are completely predictable due to the fact that each specific machine (VM/instance type) has a set cost per hour that enables tracking and forecasting trends and anomalies. However, the right tools need to be in place. As a result, billing surprises vanish and cost allocation is a breeze. Monitoring and assessing business unit consumption allows you to more accurately predict cloud usage and better plan future consumption. This enables IT organizations to justify the upfront costs and commitment that accompany reserved capacity purchases while mitigating the risks of redundant capacity and unused resources.

Cloud Optimization in Action

Modern IT organizations are made up of multiple complex components, each of which requires its own manner of cost control. As a result of the cloud’s intricate environment, cost allocation calls for policies that encourage all department managers and team leaders to become more aware of and accountable for their cloud consumption and expenses.

10 Cloud Optimization Guidelines to Keep in Mind

When it comes to cost optimization, there are a few areas of focus that need to be considered. Beginning with simply choosing an instance that is best suited for your business’ needs, taking memory and virtual cores into consideration. The next step would be to look for IOPS storage requirements. Once all of the requirements are met with the appropriate software and services, you should monitor the environment and adjust instance and compute cluster sizes according to your demand in order to ensure optimal utilization.

For example, taking a more granular approach by utilizing twice as many small instances as large instances may prove to be more cost effective. Similarly, making use of Reserved Instances and turning off unused instances can significantly lower costs and simultaneously make you more aware of your overall cloud usage.

10 guidelines that every cloud consumer needs to follow on an ongoing basis:

- **Instance sizing**: Select an instance that best fits your initial basic requirements. If future usage and utilization monitoring and analyses show that those requirements change with time, you can always adjust the size on demand.
• **Auto scale:** By using the cloud, you are embracing a dynamic environment that changes with demand. Auto scale is an important and basic cloud feature that lets you define your minimum and maximum sized instance pools as well as fundamental scaling metrics (e.g. CPU utilization rate).

• **Instances are disposable:** Terminate unused capacity based on pre-defined metrics and rules (e.g. CPU utilization < 10%). Use the stop/start option to make sure that you automatically capture instance images and volume snapshots to perform recovery at any moment.

• **Use reserved capacity:** Estimating demand and planning your capacity can drive greater efficiencies, committing to and leveraging reserved and spot instance capacity (with AWS) at lower rates.

• **Your SLA counts:** You may be able to utilize cheaper compute resources, with spot instances or by deploying in cheaper regions (EC2 prices vary between regions), for example, based on your service’s required availability.

• **Leverage cheaper storage:** Be sure to continually move data from expensive disk volumes to cloud storage based on your defined storage policy and SLA. Additionally, leveraging archive services (e.g. Glacier in the case of AWS cloud) can significantly decrease storage costs.

• **Re-evaluate your architecture:** The simple move from a typical data transfer to utilizing a CDN service can generate great efficiencies and better performance. As the environment changes, so should your cloud. Be sure to revisit your initial architecture on a periodic basis.

• **Cloud capabilities:** Stay up to date with your IaaS vendor’s capabilities. Cloud vendors tend to introduce new applications and features every month. For example, using database managed services, such as AWS RDS, can greatly enhance your application’s performance and remove many hassles from your IT operations. The evolution of your cloud vendor’s platform can greatly impact the efficiency and performance of your cloud operations.

• **Consolidated view:** If you use the AWS cloud, be sure to use Consolidated Billing. Building a distributed cloud environment can support cost allocation and chargeback. However, complete transparency is a must, with a consolidated view of all cloud accounts.

• **Management and optimization tools:** Be sure to select and integrate tools that generate transparency as well as enable you to make fast decisions and take action. Don’t wait for your environment to grow, make sure these are put in place right from the start. In the cloud, time is money.
The 11th Guideline: Cost Allocation and Resource Tagging

On a more granular level, leveraging categorization and tagging practices easily arranges resources by subject. Organizing your cloud expenses into types and categories, by means of a consistent tagging policy, allows you to track, analyze and conserve cloud costs. This process should be continuously performed throughout multi-cloud deployments, making cross cloud cost allocation simple to perform. Learn more.

Summary

Ultimately, the cloud provides a great deal of business benefits, including no upfront capital expenditure costs, lower TCO, quicker access to and utilization of resources, no geographical limitations, and no capacity guesstimations. All in all, these advantages allow you to focus on your core capabilities rather than on how and if everything is working behind the scenes.

5 Questions You Need to Answer

- Am I really leveraging the cloud’s flexibility and scale?
- Is my current cloud in tune with my business needs and user demands?
- Do my services comply with my defined SLA?
- Are my systems secure with the cloud?
- Do my current cloud tools enhance my cloud on an ongoing basis?
Final Note

The cloud has become a sort of savior for companies and organizations of all kinds, turning potentially tricky, time consuming situations that involve far too many individuals into simple tasks with a few mouse clicks. Both the private and public clouds save precious time and money. However, it doesn’t stop there. Many environments are made up of a variety of components, including a private cloud, a public cloud, an on-premises IT environment, as well as a colocation data center. With this and the diverse collection of new types of resources, the only way to obtain and maintain full control of your overall environment would be with a bird’s eye view of the systems involved.

Start Optimizing Your Cloud Deployment today. View your entire AWS deployment in one place and identify opportunities for greater cloud-efficiency. Gain full transparency, accountability and control.

About Cloudyn

Founded in 2011, Cloudyn is the leading cloud monitoring, analytics and optimization solution for multi-cloud deployments. The company’s industry award-winning SaaS solution delivers unprecedented insights into usage, performance and cost, coupled with custom prescriptive actions for enhancing performance and reducing cloud spend. With more than 12,000,000 virtual instances monitored, Cloudyn helps businesses select the right mix of cloud vendors, increase operational performance, reduce cloud costs to bring them under optimum control, and capitalize on customer choice. More than 2,400 customers use Cloudyn’s technology worldwide including F500 industry leaders in aerospace, infrastructure, consumer online travel services, IT management consulting, and manufacturing.