

FinOps as a discipline

Establish a practice with observability, AI-enabled automation, policy-driven governance and self-service communication.

As organizations increasingly invest in the cloud, they realize how important Cloud Financial Management is for their cloud-enabled businesses. FinOps is a discipline that derives from Cloud Financial Management. According to [FinOps Foundation](#), “it is the practice of bringing financial accountability to the variable spend model of cloud, enabling distributed teams to make business trade-offs between speed, cost, and quality.”

In other words, FinOps is a complex discipline that requires close attention to cloud usage and costs amongst cross functional teams in IT, Finance, Product and more. In order to gain financial control and predictability in the cloud, you need to consider augmenting these cross-functional teams with a proper FinOps platform like Aquila Clouds.

In this paper, we will look into multiple perspectives of FinOps and how a proper FinOps platform can be crucial in enabling them:

1. FinOps is more than just cost optimization
2. FinOps is a practice in both non-production and production environments
3. FinOps can be much more effective with AI-enabled forecasts
4. FinOps is crucial for effective project management
5. FinOps should be enabled by self-service

FinOps is more than just cost optimization

Many organizations start their FinOps practice in the area of cost optimization. This is a natural move because their cloud costs can skyrocket if they do not figure out a way to contain the wastage and unnecessary costs. And yet FinOps is a lot more than just cost optimization. According to [FinOps Foundation](#), FinOps covers the following areas:

- Understanding cloud usage and cost (**Observability**)
- Performance tracking and benchmarking (**Observability**)
- Real-time decision making (**Optimization and automation, governance**)
- Cloud rate optimization (**Optimization and automation**)
- Cloud usage optimization (**Optimization and automation**)
- Organizational alignment (**Communication**)

At Aquila Clouds, we divide the aforementioned areas into 4 categories of capabilities: observability, optimization and automation, governance, and communication

Observability

Aquila Clouds FinOps platform enables cloud organizations to observe the cloud usage and cost, along with the performance and utilization metrics of each of the resources in **one single pane of glass**. FinOps practitioners do not have to go between different consoles to see the cost trends and match them with the performance trends for each of the cloud resources. Our Explorer hugely reduces the complexity of observability and shows the data in near real time.

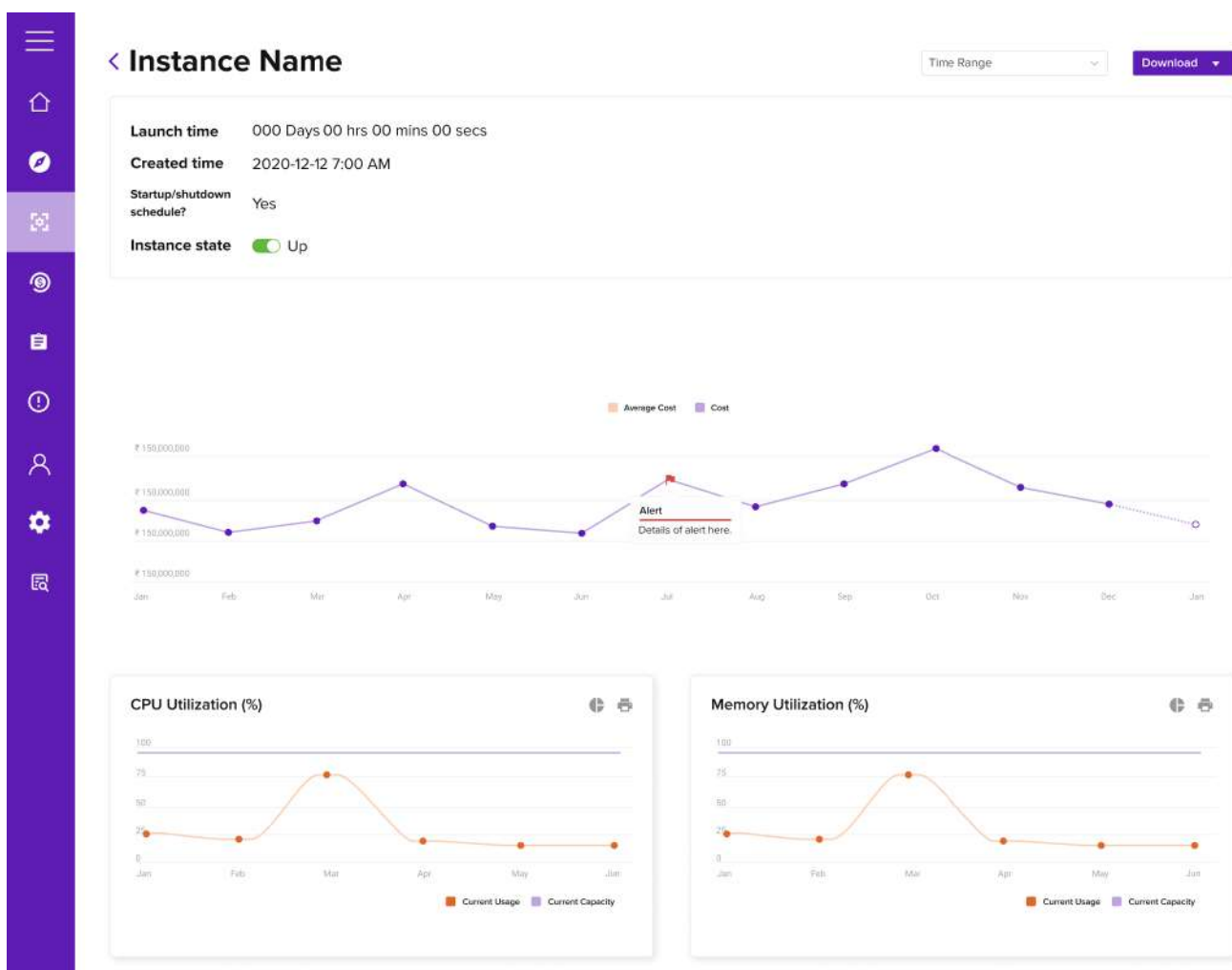


Fig. 1 - Trends of costs and resource utilizations of one instance shown in one single pane of glass

At Aquila Clouds, observability is enhanced by our **real-time alerting mechanism**. We are integrated with ticketing systems such as **ServiceNow**, alerting systems such as **PagerDuty** to send notifications to the right personnel, and email systems. That being said, our platform sends an alert to the proper stakeholders when there are any anomalies in cloud usage, e.g. when there

is an unusually high expense incurring in the last day within a certain department. The surge of cloud usage can signal a rogue user or an unexpected hack. Either way the organization is better off catching the anomaly earlier than later. Aquila Clouds can help.

Optimization and automation

Cost optimization is often front and center in FinOps discussions, and optimization can take various forms, for example:

- Rightsize resources such as cloud instances, storage and more
- Minimize unused resources, e.g. unattached volumes, unused snapshots, unused IP addresses, etc.
- Establish start up and shutdown schedules to reduce idle resource hours
- Purchase reserved instances and savings plans according to forecasted usage and capacity planning
- Use instances in your reservation portfolio to maximize the utilization of your reservation plans
- Dynamically configure the min/max/desired number of nodes in auto-scaling groups
- Change the reservation of resources in your Kubernetes pods

Aquila Clouds makes optimization recommendations according to our AI/ML-driven analyses of your cloud usage data, and we provide automation mechanisms for you to execute the optimization directly on our platform at the time you desire. We can also integrate with your organization's approval workflow so that the changes can be carried out in the proper chain of command.

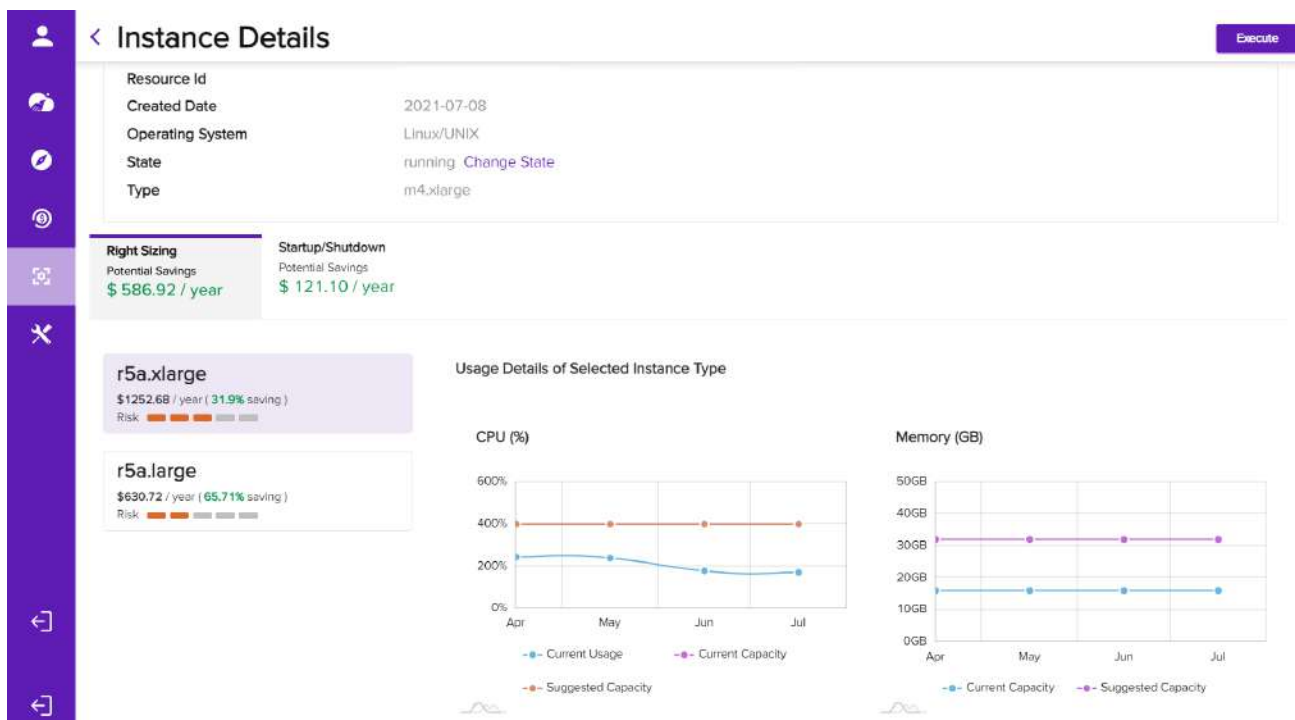


Fig. 2 - Rightsizing recommendations facilitated with resource utilization trend graphs for users to make a conscious decision for rightsizing.

Governance

In large cloud organizations, managing the cloud spend for different departments and projects can be a huge task amidst the dynamism of cloud deployments. You need a clear delineation of cloud resources being used by your organizational units. Allocation of costs in cloud resources and services needs to be usage-based, instead of plain ownership based. Budget alerts can then be effective and fair. Aquila Clouds provides a construct called Financial Domains for this purpose.

Financial Domains can have a hierarchical structure, respecting the federated model of policies, such as **budget allocations, chargebacks, provisioning and entitlements, as well as security policies**. Aquila Clouds can also customize the policies for organizations with specific policies that are not available out-of-the-box.

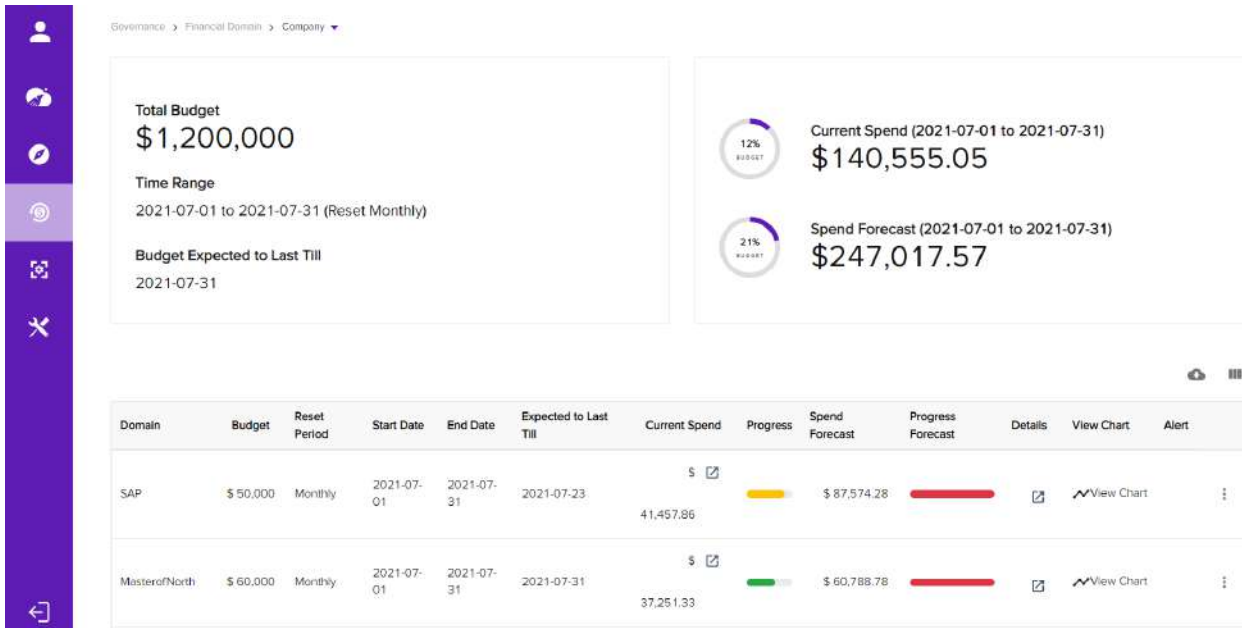


Fig. 3 - Budget controls in Aquila Clouds Financial Domains

Communication

Organizational alignment across IT, Finance, Product and other organizational units is crucial for the success of FinOps. For instance, IT and Finance typically have diverging goals. IT wants to have more resource buffers to ensure their service level agreements, whilst Finance would like to be as lean as possible to reduce the cloud expenses and boost profitability. To align them, you need a platform that can facilitate effective communication across teams.

Aquila Clouds enable our users to easily share the views and reports on our platform using an RBAC-backed URL. This way they can freely exchange information with a single record of truth in real time without having to wait until a long-awaited meeting to take proper FinOps actions.

FinOps is a practice for both non-production and production environments

Some cloud organizations focus their FinOps practices in their production environments. Keep in mind the following. According to a study conducted by a FinOps vendor, 44% of cloud resources are for non-production systems, and a daunting 76% of the corresponding workloads are idle because of many reasons such as release cadences, and negligence on the part of developers.

If your organization puts FinOps energy into your non-production environments and gets rid of the idle resource hours, you will be able to **save up to one-thirds of your cloud costs**. This can be very significant depending on your overall cost spend size.

Aquila Clouds provides the capability to suggest a suitable startup and shutdown schedule for an individual instance or a group of interdependent instances (what we call a Service Domain), and puts the schedule in execution per your instructions.

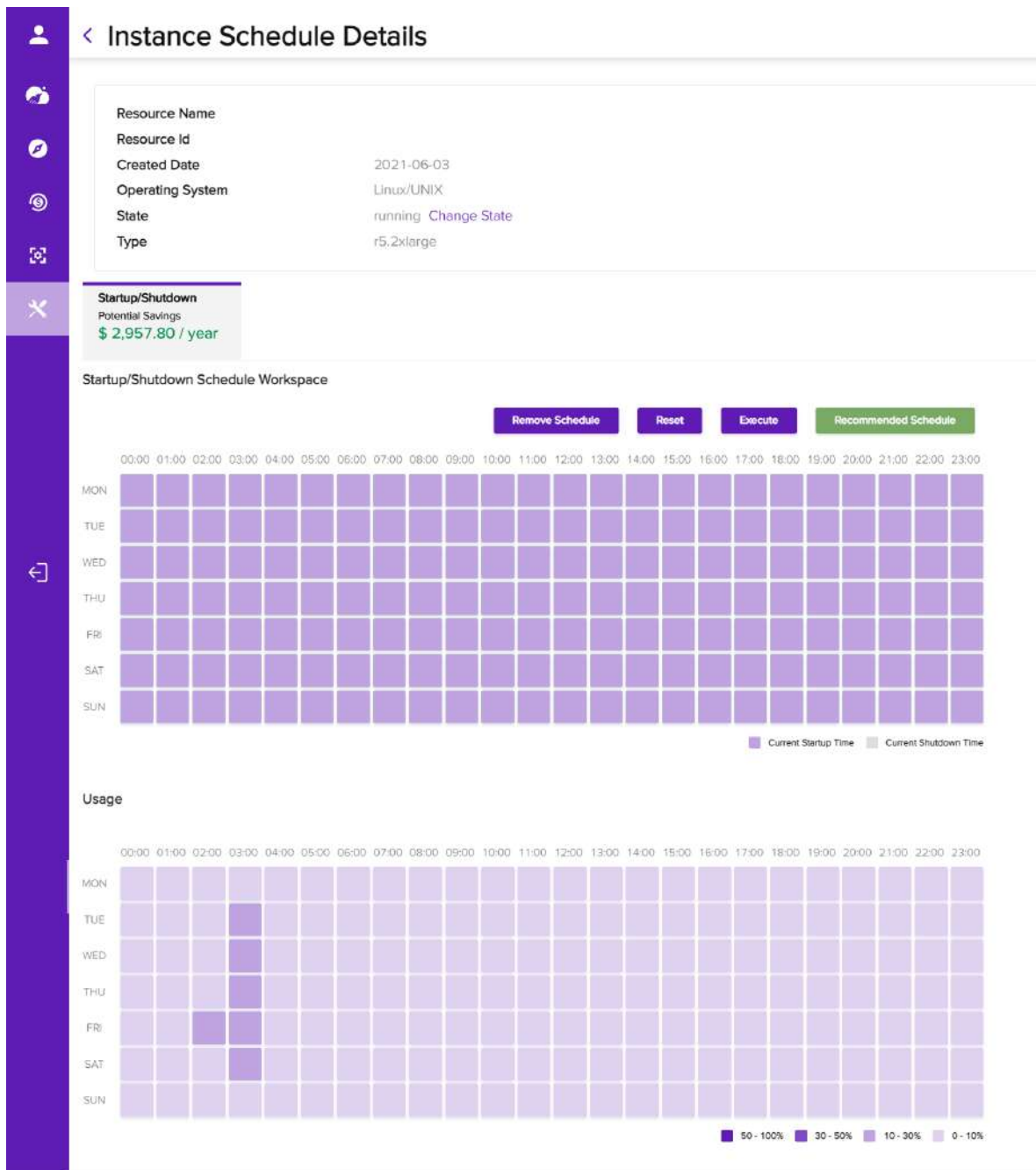


Fig. 4 - Formulation of startup and shutdown schedules with usage heat map

FinOps can be much more effective with AI-enabled forecasts

FinOps is enabled by deep analysis of huge amounts of time-series data pertaining to costs and performance. We think of FinOps as a Big Data problem that can be solved by AI/ML analyses. Historic cost metrics coupled with utilization metrics such as CPU usage, memory usage, bandwidth usage can give us a broad picture of what happened in the past, and can help us make certain decisions on how to react in the future. To make these decisions more future proof, Aquila Clouds employ AI/ML models to predict for example:

1. The future trends of each of the cost metrics collected
2. The future trends of each of the utilization metrics collected
3. The future trends of each of the application specific metrics collected

AI/ML models can help us tremendously in predicting the future trends and help our analyses in providing recommendations for **capacity planning, rightsizing of resources, negotiating reservation plans, and more**. They can also help us pick out data patterns leading to **anomalies** in our future releases as well. A well-established FinOps practice should employ a FinOps platform, e.g. Aquila Clouds, which is enabled with AI/ML models.

FinOps is crucial for effective project management

Project Managers tell us that they need to achieve a project within a time horizon and a budget. To ensure timely delivery of projects, they can enable developers to self-provision cloud resources. And yet this creates more dynamism for cloud costs and utilization of the best rates.

For effective project management, there needs to be checks and bounds for the following:

- Project budget across project time horizon needs to be observed
- Project costs should be known at any given time
- Developers can provision only necessary resources and utilize reserved resources
- Project expenses should be able to be charged back to the project owners

You can use Aquila Clouds Financial Domains to track the resource usage in your projects. We provide near real time showback of project costs and send out alerts when projects are about to cross a threshold of cost boundary, and when they are out of budget. In the same view, we also provide an assessment of reservation utilization for each project so that you can ensure that the project members are good corporate citizens who contribute to the full utilization of reserved resources.

FinOps should be enabled by self-service

Many cloud organizations only allow a few administrators to have access to their cloud usage data. This kind of practice does not enable multiple teams to have access to the same information to make FinOps a collaborative practice. Since there is limitation in information sharing, root cause analysis and time to resolution becomes a lengthy process.

Information should be democratized in FinOps, and shared within the whole FinOps practice. For example, finance managers should be able to check on the cloud usage without having to rely on IT administrators to provide reports only at the end of a billing period. Self-service needs to be enabled for effective FinOps.

That said, we cannot allow just everyone to have access to any project information. Aquila Clouds implements role-based access to project information. Administrators can assign stakeholders access privileges to different projects according to their roles. This way proper stakeholders can get the information they need without having to “wait in line” while rogue users cannot gain access to important information.

Summary

FinOps is an evolving practice that requires practitioners to have real-time observability to the organization’s cloud usage so that they can react to unexpected situations, and also proactively implement bounds and checks to avoid unnecessary cost spending.

FinOps practitioners will only have more responsibilities going forward: utilization of the best cloud rates, optimization of resource usage, allocation of shared costs, aligning cross-functional teams, planning for future capacity, and more. They need a platform that can cover the four pillars of capabilities, namely **1) Observability, 2) Optimization with automation, 3) Governance, 4) Communication**. This way they can “make business trade-offs between speed, cost, and quality” in real time and create a competitive advantage in this cloud-dominant business environment.

About Aquila Clouds

At Aquila Clouds we embrace the paradigm of Continuous Monitoring and Continuous Optimization (**CMCO**). Regardless of where you are in your cloud development and deployment, we provide you with the capabilities to ensure a smooth daily operation. Whether you are a CFO or finance manager at an enterprise company looking for better finance governance, or you are a cloud reseller looking for better billing productivity and profitability, or you are a cloud operator looking to improve your daily workflows, Aquila Clouds has you covered.