# Capacitas DevOps Cloud Forecast  Guide

Cloud costs are not always easy to manage, which can be a challenge for your business and affect longer-term cost predictability. At Capacitas, we have created a structured approach to understanding cloud spend both in the immediate and longer term.

This approach will help your team create accurate, actionable cloud forecasts that optimise cloud usage, minimise costs, and improve operational efficiency.

We also recommend continuous review and agile adjustments along the way to make your forecasts more reliable and cost-effective over time.

## 1 Baseline Data Collection

To create an accurate cloud forecast, you begin by gathering essential baseline data. This provides a clear picture of current resource usage and spending patterns:

Historical cloud usage data:
- **CPU usage:** Understand how much CPU power your systems consume over time to ensure accurate allocation.
- **Memory usage:** Track memory utilisation to prevent over-allocation and reduce costs.
- **Storage consumption:** Assess data storage needs to avoid underutilisation or over-provisioning.
- **Network traffic:** Understand inbound and outbound traffic costs, especially for bandwidth-intensive applications.

Current resource allocation:
- **High-Cost accounts/subscriptions:** Focus on analysing resource usage within the most expensive accounts or subscriptions first. By investigating these, you gain a deeper understanding of where resources are allocated inefficiently or could benefit from rightsizing or cost optimisation strategies.
- **Instance types:** Analyse the types of virtual machines (VMs) or instances currently in use (e.g., compute-optimised, memory-optimised), as well as storage devices, databases, networking resources and more. Ensure the instances are appropriately sized for your workloads.
- **Long term commitments vs. on-demand instances:** Evaluate the ratio of long-term commitments (e.g., Reserved Instances or Saving Plans) vs. on-demand (for flexible needs). Ensure that reserved instances are fully utilised to maximise cost savings, while maintaining flexibility for dynamic workloads.



## 2 Key Assumptions

You can ensure your cloud forecast is realistic and aligned with future business goals by outlining key assumptions that will shape your projections. These assumptions serve as the foundation for creating an accurate and adaptable forecast, especially in dynamic cloud environments:



- **Business growth:** Estimate projected increases in workload or user base, factoring in upcoming expansions, customer acquisition efforts, and new service rollouts. Consider any seasonal trends that may drive temporary or sustained demand for cloud resources and adjust accordingly.
- **Application changes:** Predict resource consumption based on upcoming application features, performance improvements, or code refactoring. Feature additions or optimisations could increase or decrease resource usage, depending on how they impact compute power, memory, or storage needs. Changes to the application architecture should also be accounted for.
- **Infrastructure changes:** Consider expected infrastructure upgrades, such as adopting new cloud services, transitioning to more efficient instance types, or expanding into new regions for better performance and reliability. Anticipate any costs related to scaling the infrastructure to meet growing demands or improve disaster recovery.
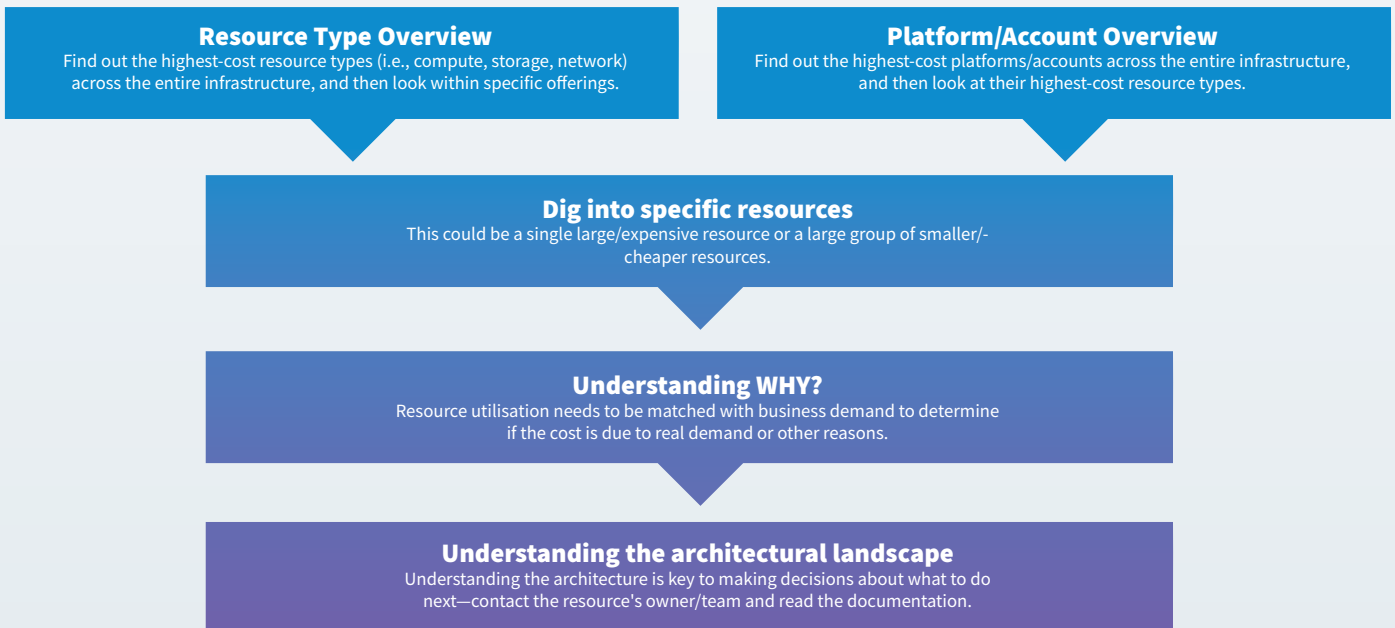
## 3 Scenario-Based Forecasting

Creating various forecast scenarios will help you plan for different future outcomes.

- **Best-case scenario:** Assume optimal resource utilisation and efficiency where instances are right-sized, long-term commitments are maximised, and traffic remains stable. Costs are kept to a minimum due to ideal resource allocation and minimal disruptions.
- **Worst-case scenario:** Account for potential inefficiencies, such as underutilised resources, unexpected traffic spikes, or unanticipated infrastructure upgrades that drive up costs. This scenario prepares for higher cloud expenditures due to unexpected changes in workload or resource management delays.
- **Likely scenario:** A balanced forecast based on historical data, business growth projections, and current cloud usage trends. It assumes moderate risks and steady growth, allowing for occasional inefficiencies but generally reflecting a manageable cost trajectory with realistic resource planning.

## 4 Cost Breakdown and Optimisation Opportunities

Detailed cost analysis is crucial for analysing and reducing cloud spending:

**Resource Type Overview**
Find out the highest-cost resource types (i.e., compute, storage, network) across the entire infrastructure, and then look within specific offerings.

**Platform/Account Overview**
Find out the highest-cost platforms/accounts across the entire infrastructure, and then look at their highest-cost resource types.

**Dig into specific resources**
This could be a single large/expensive resource or a large group of smaller/-cheaper resources.

**Understanding WHY?**
Resource utilisation needs to be matched with business demand to determine if the cost is due to real demand or other reasons.

**Understanding the architectural landscape**
Understanding the architecture is key to making decisions about what to do next—contact the resource's owner/team and read the documentation.

## 5 Risk Assessment and Mitigation

Cloud costs can be unpredictable without proper planning. To overcome this, you need to assess the risks and plan mitigation strategies, including:

**Potential risks of cost overrun:**
- Increased traffic without scaling optimisations.
- Unforeseen application growth that demands more resources.
- Ignoring resource wastage or failing to decommission idle instances.

**Mitigation strategies:**
- Establish strict cost governance policies.
- Regularly review and adjust usage patterns for better control over cloud costs.
- Collaborate closely with client teams to identify and resolve blockers that may hinder optimisation efforts, ensuring smoother implementation of cost-saving measures.

# 6 Data Visualisation and Reporting

Choose clear, visual communication of forecast data to ensure stakeholder understanding and facilitating decision-making. In addition, prioritise the use of best data visualisation practices to make complex information accessible and actionable.

**Graphs and charts:**
- Carefully choose the most effective visual formats for the data being presented, as well as apply best practices, such as using consistent colour scheme, minimising clutter, and highlighting key data points to ensure the visuals are easy to interpret.

**Regular reporting and review sessions:**
- Hold regular meetings with stakeholders to allow for in-depth discussion of the forecasts, giving stakeholders the opportunity to ask questions and gain insights into the data. This regular communication will help keep everyone aligned on cost management strategies and enables more informed, timely decision-making.

# 7 Review and Provide Continuous Updates

Cloud forecasts are dynamic, and you should regularly review them to ensure accuracy as business needs and cloud usage evolve.

**Regular forecast review:**
- You should review forecasts on a monthly or quarterly basis, incorporating the most recent data and adjusting projections to reflect new trends or any changes in business strategy. By doing so, you ensure that forecasts remain aligned with current operations, allowing for better budgeting and cost control as resource demands fluctuate.

**Continuous feedback and adjustment:**
- Gather feedback from stakeholders during review sessions. This helps identify any gaps or misalignments in the forecast and enables you to fine-tune the models. By staying agile and responsive to changing needs, you can ensure that the forecasts not only remain accurate but also drive more strategic cloud management.

# 8 Tools and Technologies

Effective cloud forecasting relies on a combination of cloud-native tools and data analysis platforms to provide accurate insights and projections.

**Cloud provider tools:**
- Utilise built-in tools like AWS Cost Explorer or Azure Cost Management to track cost usage and predict future spend.
- You can also use cloud-native tools like AWS CloudWatch and Azure Monitor to monitor and review resource utilisation, allowing you to understand current resource demands and optimising allocations.

**Data analysis and forecasting tools:**
- You can use tools such as Excel for building detailed forecasting models and performing scenario analysis based on historical data. Power BI can help you visualise forecast data with interactive dashboards and reports, making complex information clearer. Datadog and other APM tools provide advanced monitoring and analytics, combining performance metrics with cost trends to refine forecasts and enhance resource management.

**DevOps automation tools:**
- As part of estimating the costs of change, tools such as advanced Terraform capabilities can be used to estimate cost prior to deployment of environments. Simple models can be used to predict the costs of new features and applications based on architectural decisions being made, which can then feed into your detailed forecasting models.

## Ready to Optimise Your Cloud Costs?

Discover how integrating cost management into every stage of your product lifecycle can maximise ROI and drive smarter cloud investments.

**Make cost a business advantage—start today!**

Get a Free Cost Efficiency Assessment