Cloud Financial Management
A New Way to Plan

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- Cloud Budgeting and Forecasting
- Cloud Business Value
- Finance Team Processes, Tools, and Organization

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- Cloud Cost Optimization and Value Attainment
- Cloud Governance and Cultural Transformation
- IT Team Organizational Strategy

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Agenda

- Introduction to the Cloud
- Cloud Financial Management
  - Business Case Development & Planning
  - Cost & Usage Forecasting/Budgeting
  - Accounting for Cloud Spend
  - Cost Optimization
- Next Steps

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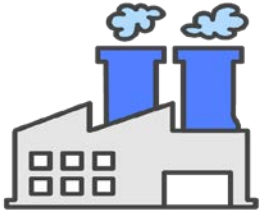
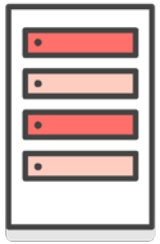
Cloud – The New Operating Model

Industrial Revolution



Shift to on-demand power

Cloud Revolution



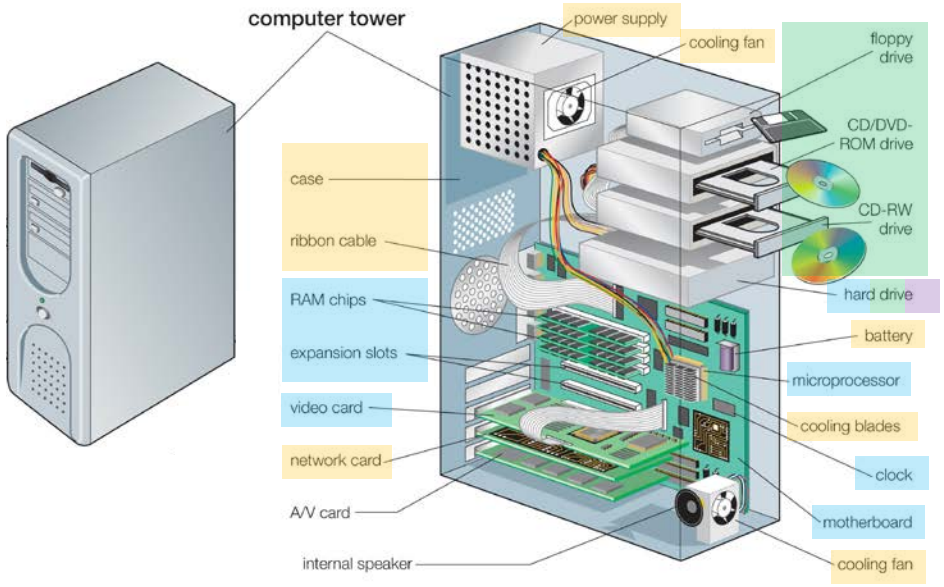
Shift to on-demand computing

- No upfront investment
- Pay for what you use
- No lengthy procurement cycle
- Ongoing innovation
- No maintenance/ repair
- Focus on higher value add

Cloud computing is the on-demand delivery of compute power, database storage, applications, and other IT resources through a cloud services platform via the internet with pay-as-you-go pricing.

Economics of the Cloud

Cloud Services



Applications and Operating Systems

Compute

Storage

Infrastructure

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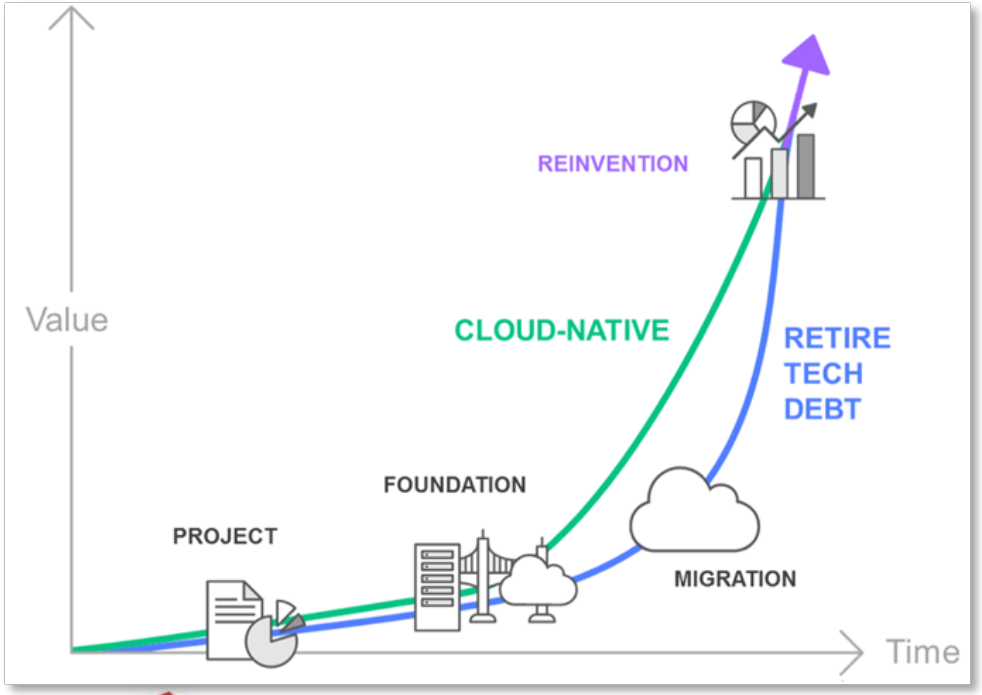
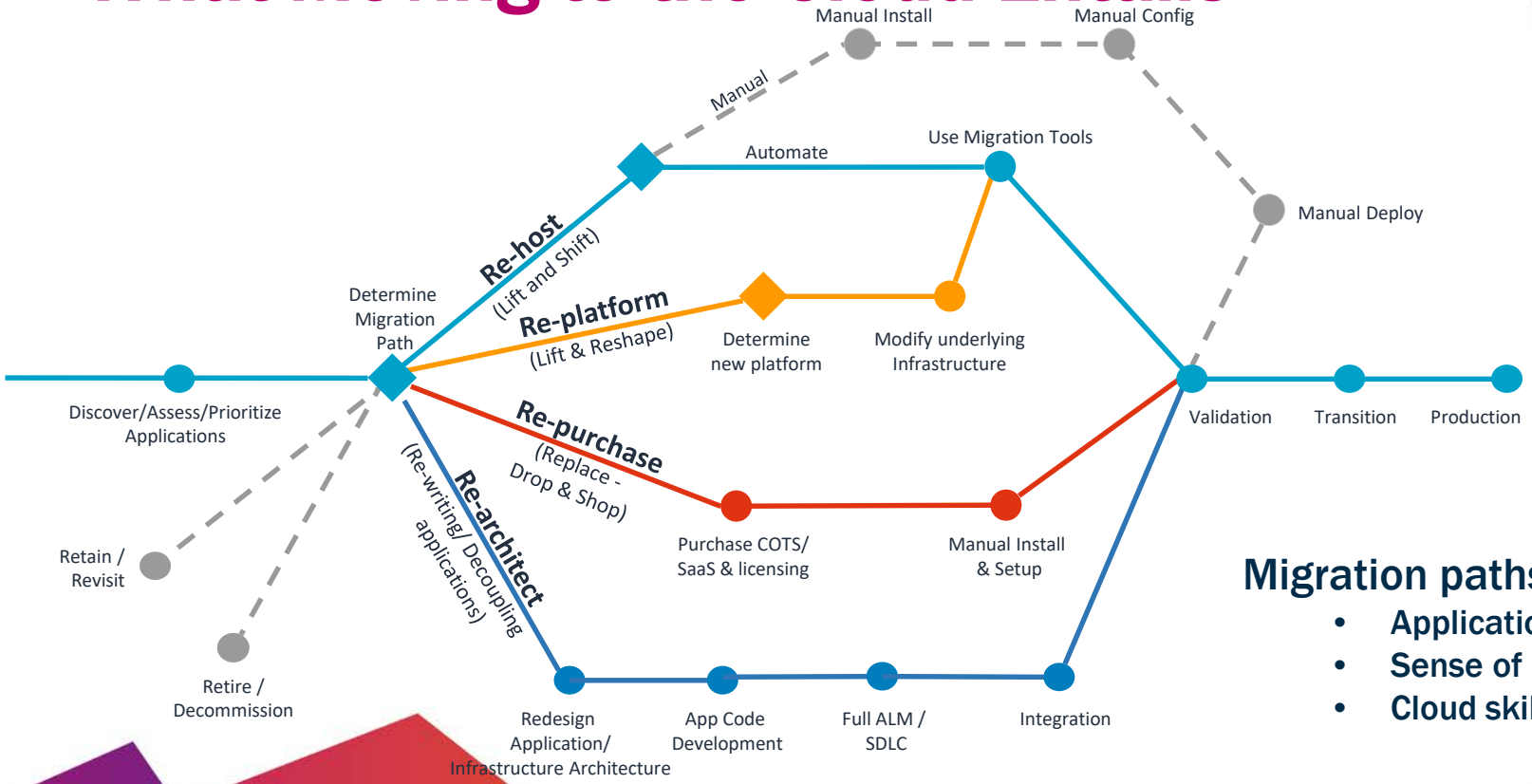
Working Backwards from IT



What Moving to the Cloud Entails



Migration paths reflect:

- Application portfolio
- Sense of urgency
- Cloud skills

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How IT Feels About the Cloud

Product Dev. Teams, Software Developers, IT Team, Data Scientists, Infra. Engineers, DevOps Engineers, Technical Operations, ….

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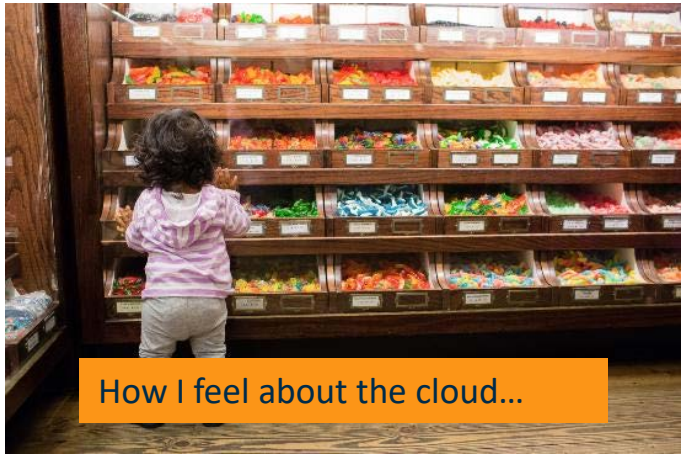
IT and Finance Alignment



VS

Product Dev. Teams, Software Developers, IT Team, Data Scientists, Infra. Engineers, DevOps Engineers, Technical Operations, ….

Financial Planning & Analysis Teams, Procurement/Sourcing, Accounts Payable, Strategic Finance, CFO Office

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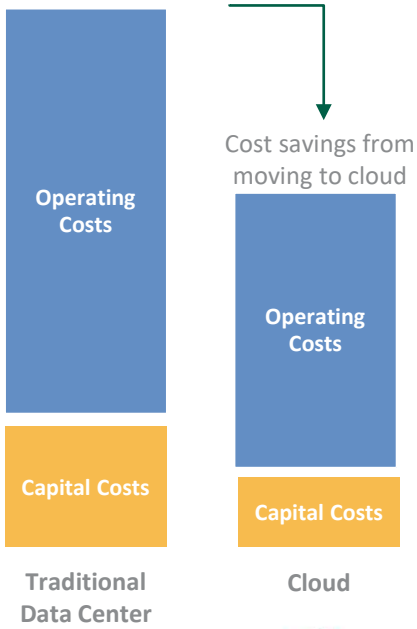
Cloud is a New Operating Model for Finance



Moving from fixed to variable-cost structure

- More difficult to forecast
- Can be highly variable based on variable demand
- Cloud accounting issues

Managing and forecasting cloud costs is different

- Pay-as-you-go agility from being in the cloud quickly results in costs
- Finance and IT have to understand each other better than before
- Managing cloud costs and IT cost transparency require new or different:
  - Approaches to governance and organizing costs that feed reporting/allocations and budgeting/forecasting
  - Forecasting methods
  - Key performance indicators

Cloud Financial Management needs to become a way of life

- Everyone is responsible for costs on a daily basis
- Cost needs to be more explicitly designed-in

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- Next Steps

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Cloud Financial Management Framework

Measurement & Accountability

- Account strategy
- Tagging strategy & maintenance
- Cost visibility & analysis
- Metrics tracking & monitoring

Cost Optimization

- Match supply & demand
- Architecture, design and service selection
- Resource types and sizing
- Pricing models

Planning & Forecasting

- Business case development & planning
- Cost & usage forecasting/budgeting
- Cloud accounting

Cloud Financial Operations (FinOps)

- Build the cloud team
- Training
- Automation & tooling
- Governance & controls
- Establish culture of cost accountability
- Procurement strategy

Cloud Financial Management Framework

Planning & Forecasting

- **Business case development & planning**
- Cost & usage forecasting/budgeting
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Building a Cloud Business Case

Typical Initial Focus is on Cost Savings

What is it?

Infrastructure cost savings / avoidance from moving to the Cloud.

Examples

50%+ reduction in TCO (GE)

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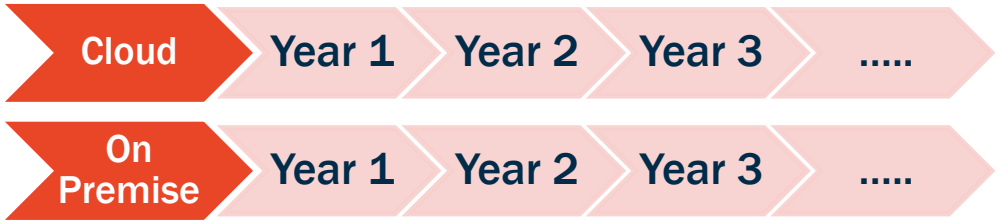
Business Case Development: Cost

Total Cost of Ownership is the acquisition and operating costs for running an infrastructure environment end-to-end for the same time period

- Compares the costs of running an **infrastructure environment or specific workload/application** on premises or in a co-location facility versus cloud
- Parallels an **existing cloud workload** with an on premises or co-location setup
- Compares spend at the same starting point for the same period



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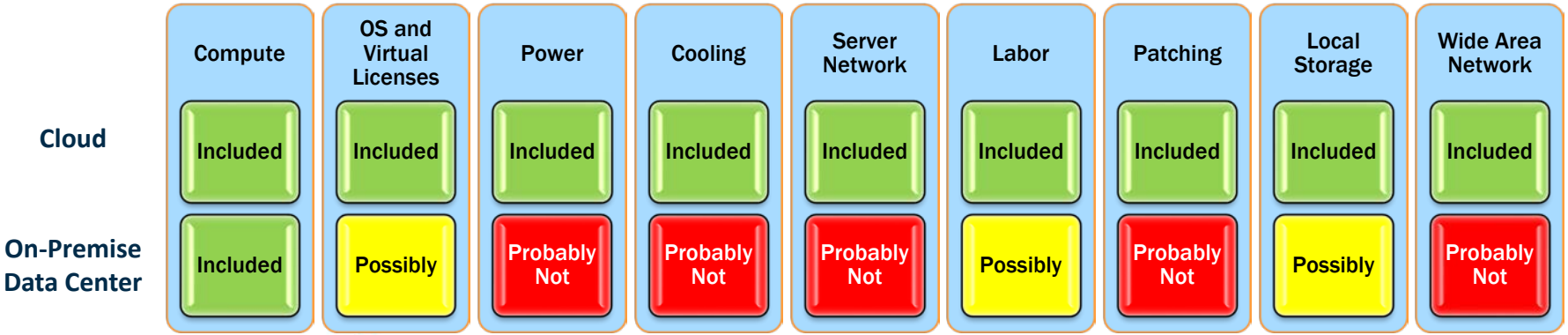
Cost Comparisons

- When conducting a comparison of cloud to an on-premises data center, make sure you include all these items below

- AWS pricing includes all of these items, so a true comparison should estimate all items for the on-premises site



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Building a Business Case

… but compelling benefits go beyond cost that can be quantified

	Cost Savings (TCO)	Staff Productivity	Operational Resilience	Business Agility
What is it?	Infrastructure cost savings / avoidance from moving to the Cloud.	Efficiency improvement by function on a task by task basis.	Benefit of improving SLAs & reducing unplanned outage.	Deploying new features / applications faster and reducing errors.
Examples	50%+ reduction in TCO (GE)	Over 500 hours per year of server configuration time saved (Sage)	Critical workloads run in multiple AZs & Regions for robust DR (Expedia)	Launch of new products 75% faster (Unilever)

Typical Focus ← → Most Compelling Cloud Benefits

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Cloud Financial Management Framework

Planning & Forecasting

- Business case development & planning
- **Cost & usage forecasting/budgeting**
- Cloud accounting

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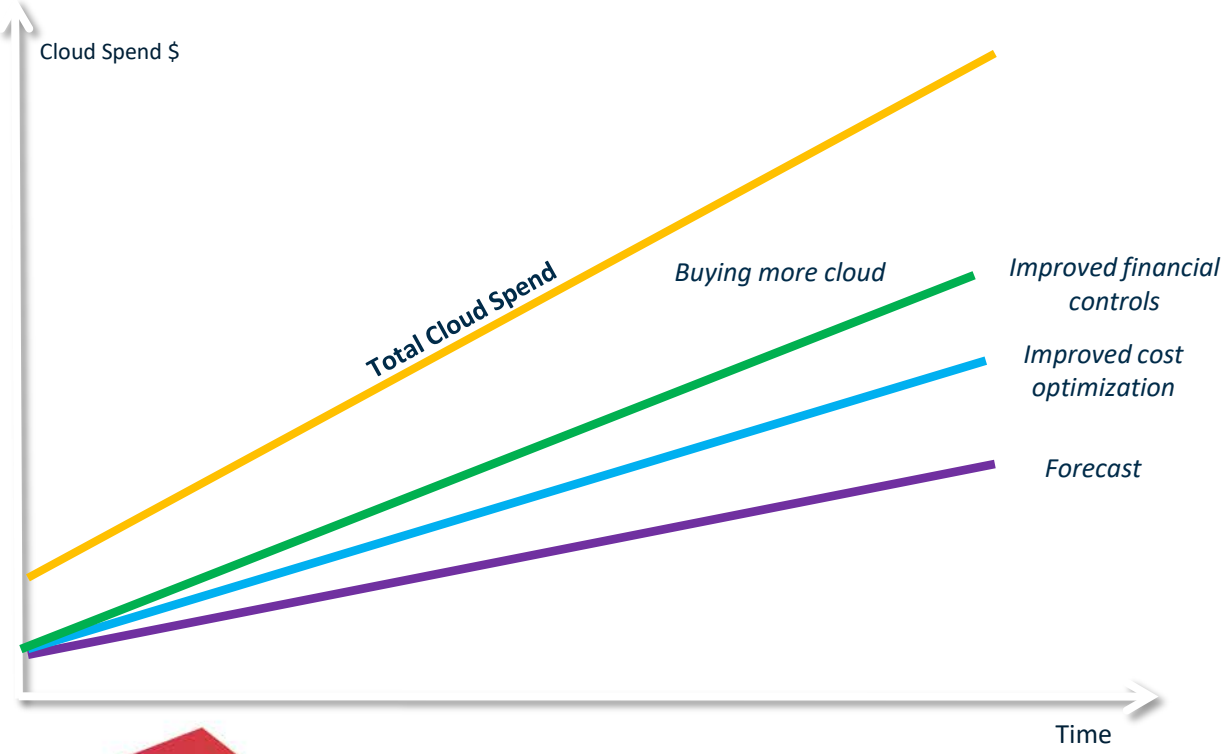
Cloud Costs Can Exceed Forecast



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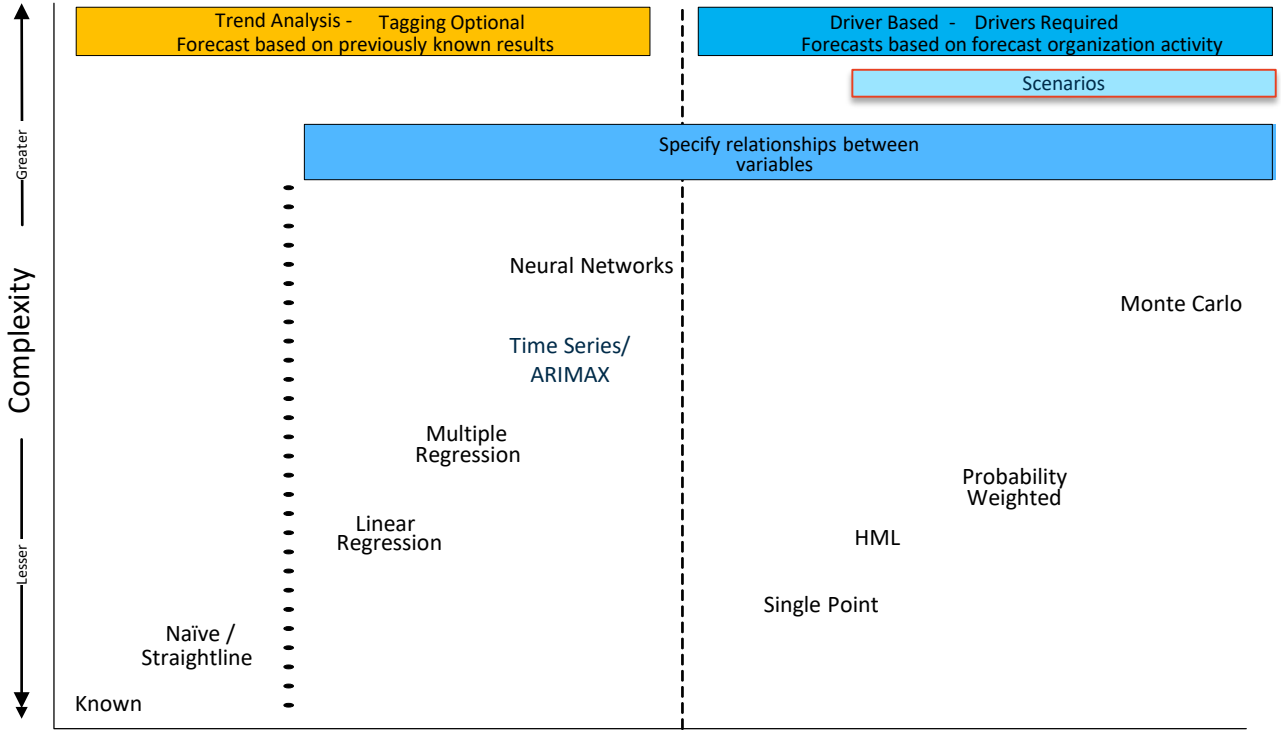
Forecasting Cloud Costs



- Evolution of FP&A practices
- Use as simple method as possible for accuracy, but no simpler
- Abandon a forecast method when it is worse than the naïve forecast
- Some cloud products that are not based on usage are easy to forecast and provide a predictable foundation

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Link Business Activity to Cloud Costs

Resource Tags

Account structures and resource tags link organization activity to consumption of AWS services

Accounts

AWS services can be aggregated using accounts and tags. Deciding how you do this provides the foundation for reporting, allocations, and forecasting

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Cloud Financial Management Framework

Planning & Forecasting

- Business case development & planning
- Cost & usage forecasting/budgeting
- **Cloud accounting**

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Cloud Accounting Topics

- Accounting for cloud spend
  - Prepaid vs. cash basis
  - Operating vs. capital

- Allocations
  - Purpose of allocations are to provide cost transparency
    - Showbacks – good first steps to create visibility
    - Chargebacks – creating accountability
  - Cloud allocations
    - Can increase if not all on-premises costs were visible and allocated
    - Change management requires lot of education

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Cloud Financial Management Framework

Cost Optimization

- Match supply & demand
- Architecture, design and service selection
- Resource types and sizing
- Pricing models

How Cloud Pricing Works

Compute

On Demand

Pay for instances you use. The use of On-Demand instances frees you from the costs and complexities of planning, purchasing, and maintaining hardware and transforms what are commonly large fixed costs into much smaller variable costs. Pay for compute capacity by the hour or second. No long term commitment

Spot

Use spare computing capacity for up to 90% off On Demand Pricing. Pay the Spot price that's in effect for the time period your instances are running. Pay per hour or for hourly increments.

Reserved

Buy a reservation for an instance. Up to 75% less than on Demand Pricing. Reservation can be for one or three years, and can be paid for all upfront, partial upfront, or no upfront.

Storage and Most Services – pay as you use it

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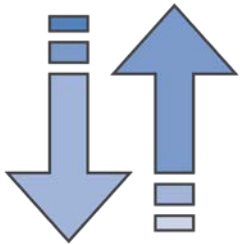
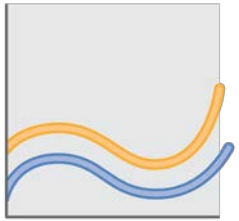
Forecast & Manage Cloud Costs



Right-Sizing Your Instances



Increase Elasticity

Pick the Right Pricing Model

Match Usage to Storage Class

Measuring & Monitoring

Design for Cost

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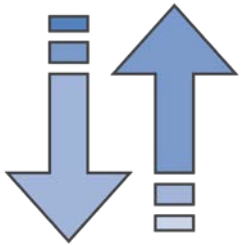
Forecast & Manage Cloud Costs



Right-Sizing Your Instances (Resource Types and Sizing)

What it means

Selecting the least expensive instance available that will meet your performance requirements.

Why it matters

Overprovisioned and older generation instances diminish the value proposition of cloud's "**use only what you need** when you need it" principle. They cost more to run and are likely not being fully utilized.

How to do it

Review CPU, RAM, storage, and network utilization metrics to identify potential instances that can be changed to the correct instance type/size.

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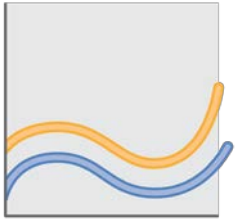
Forecast & Manage Cloud Costs



Increase Elasticity (Match Supply with Demand)

What it means

Running the minimum viable amount of instances necessary that will meet your performance requirements, scaling up or down as requirements change.

Why it matters

Running your instances 24x7 diminishes the value proposition of cloud's "use only what you need **when you need it**" principle. It is unnecessary cost that yields no additional business value.

How to do it

Turn off instances when not in use, especially in non-production environments. Automate start/stop on a schedule when known. Use auto-scaling groups to scale up and down based on demand and usage, such as spikes.

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Forecast & Manage Cloud Costs

Pick the Right Pricing Model

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Storage and Most Services – pay as you go

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Forecast & Manage Cloud Costs

Match Usage to Storage Class

What it means

Using the most cost effective storage service based on data usage, such as retrievals, and setting up a long term data retention policy.

Why it matters

“Hot” storage is used primarily for frequently retrieved data and has the highest price point. “Warm” storage is used for data that is infrequently accessed and has a lower price point. “Cold” storage is used for archival and long term data storage and has the lowest price point. By putting less frequently accessed data in colder storage classes, storage costs can be significantly reduced.

How to do it

Consider Amazon S3 Intelligent Tiering, which automatically moves data to the most cost effective tier without the customer needing to understand data access patterns. Determine a regular cadence to delete archival data.

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Forecast & Manage Cloud Costs

Measuring & Monitoring

What it means

Understanding and reporting on cost savings and business value measures, such as reporting on which instances can be turned off, which instances can be down-sized, which storage objects can be deleted, and what reserved instances to purchase. Business value measures, such as [COGS / Business Unit Cost], [Total Cost / # of Employees], or [Dev Team Cost / # of Releases], help abstract from a pure cost lens for customers who are amidst rapid change, such as migration.

Why it matters

Visibility drives action for teams. Bringing awareness to cost savings and business value measures helps identify trends, anomalies, and can lead to gamification to drive a more cost aware culture.

How to do it

Begin by building a dashboard with metrics that matter most to your organization and review the outcome on a monthly cadence. Why did you choose cloud? What metrics would help validate that choice?

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Forecast & Manage Cloud Costs

Design for Cost

What it means

Designing applications with the least expensive architecture and services that will still meet your performance and security requirements.

Why it matters

A business application can be built many ways. Why make it more expensive than it needs to be? Capitalizing on cost efficient technologies such as Spot or Lambda can drive significantly increased value for companies while producing the same output as more traditional architectures.

How to do it

Experiment in non-production environments using potentially more cost effective services and architect around them. Use AWS CloudFormation and the AWS Simple Monthly Calculator to identify what a workload will cost before launching it. Understand how your organization's activities drive AWS costs and implement a continual improvement program to target and achieve cost reductions.

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What can you do Monday?

- Start a business case to understand value of operating in the cloud

- Make a new friend in IT and take them to lunch:
  - What are they doing in the cloud?
  - What do they like and not like?
  - What type of finance support would they like?
  - How can you keep in touch with cloud activities?

- If your organization does this, understand how you allocate IT costs (chargebacks/ showbacks) and how cloud costs are processed.

- If your organization buys reserved instances, figure out how these costs are accounted for

- Learn more about the cloud:

AWS Economics Center

http://aws.amazon.com/economics/

Case Studies and Research

http://aws.amazon.com/solutions/case-studies

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Thank You!

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