What do you need to ask yourself when you move to the Cloud?

By Bob Flynn

The March Toward the Clouds: MF Perspectives
March 2, 2022
CI Compass Cyberinfrastructure for NSF
Major Facilities Workshop
What Do You Need to Ask Yourself when You Move to the Cloud?

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Questions
Mandate?
Innovation?
Leveraging new tools?
Future focus?
Long-term survival?
Accelerate time to science?
Does it matter?
Obstacles?
Cost?

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The Cloud Boogeyman is coming!

Fiscal Security
Armed with knowledge
Can you map your workflows to cloud cost models?
Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale computing easier for developers.

Newer versions of the EC2 calculators are available: [Amazon EC2](#), [EC2 Dedicated Host](#), [Elastic Graphics](#), [Elastic IP](#).

### Compute: Amazon EC2 Instances:

<table>
<thead>
<tr>
<th>Description</th>
<th>Instances</th>
<th>Usage</th>
<th>Type</th>
<th>Billing Option</th>
<th>Monthly Cost</th>
</tr>
</thead>
<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Description</th>
<th>Number of Hosts</th>
<th>Usage</th>
<th>Type</th>
<th>Billing Option</th>
</tr>
</thead>
<tbody>
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<td>Add New Row</td>
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### Compute: Amazon EC2 Dedicated Hosts:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of Hosts</th>
<th>Usage</th>
<th>Type</th>
<th>Billing Option</th>
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### Storage: Amazon EBS Volumes:

<table>
<thead>
<tr>
<th>Description</th>
<th>Volumes</th>
<th>Volume Type</th>
<th>Storage</th>
<th>IOPS</th>
<th>Baseline Throughput</th>
<th>Snapshot Storage</th>
</tr>
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**Amazon EBS Fast Snapshot Restore:**

- Number of Snapshots to Restore: 0

**Amazon EBS direct APIs for Snapshots:**

- Number of GetSnapshotBlock API Requests: 0
- Number of List API Requests: 0
- Number of PutSnapshotAPI Requests: 0

### Compute: Amazon Elastic Graphics:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of Elastic Graphics</th>
<th>Usage</th>
<th>Elastic Graphics Size and Memory</th>
</tr>
</thead>
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**Additional T2/T3/T4g Unlimited vCPU Hours per month:**

- T4g For Linux, RHEL and SLES: 0
- For Linux, RHEL and SLES: 0
- For Windows and Windows with SQL Web: 0

Oh, that's straightforward enough.
Can you modify workflows to optimize cost?
Have you talked to the vendors?
Don't hide your growth plans from the vendors
Understand the role of pre-commits
Is Change Possible?
Three Lense Framework

STRATEGIC
Processes & Procedures

POLITICAL
Authority & Power

CULTURAL
Underlying Attitudes & Beliefs

https://mitsloan.mit.edu/emba/3-lenses-management-success
Are your researchers willing to change?
Happiness is a warm...server?
Is this all heresy?
Where to begin?
What is your team's CloudIQ?
Are any or your workflows already cloud-friendly?
What is your understanding of the platforms?
Have you identified good candidates?
Pick something that involves a lot of teams
Do you have contracts in place?
Do you security guardrails in place?
Do you understand cloud credits?
Cloud Credits 101

• Credits expire
• Careful setting the start date
• Is there flexibility?
• Can you split them?
• Will the vendor match you grant?
• Can you get PoC credits?
Do you have the relationships in place?
A lot of pieces have to come together
Don't try to figure it out on your own
CI Compass
Research SOC
Internet2
RCDCG
CCCG
Are the MFs centers of research...

...or centers of hardware?