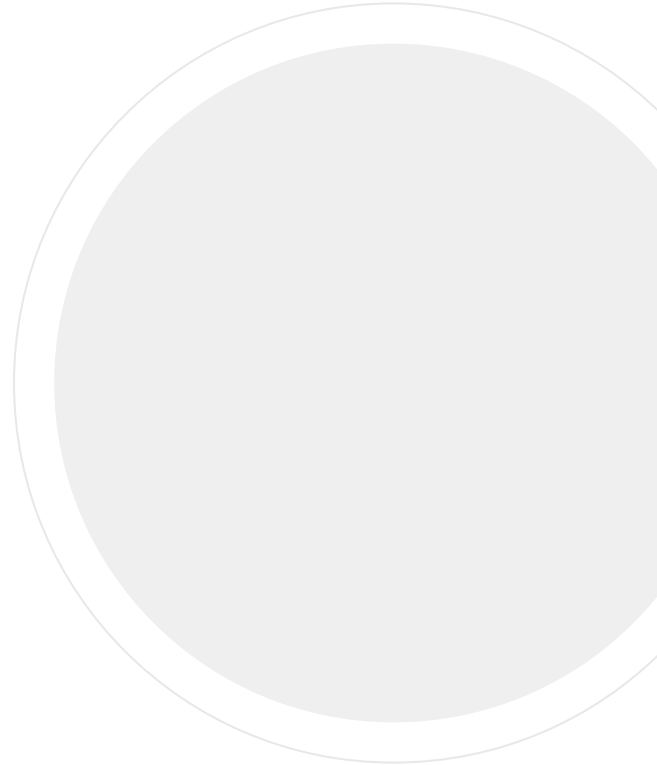


Automating Cloud Cost Analysis

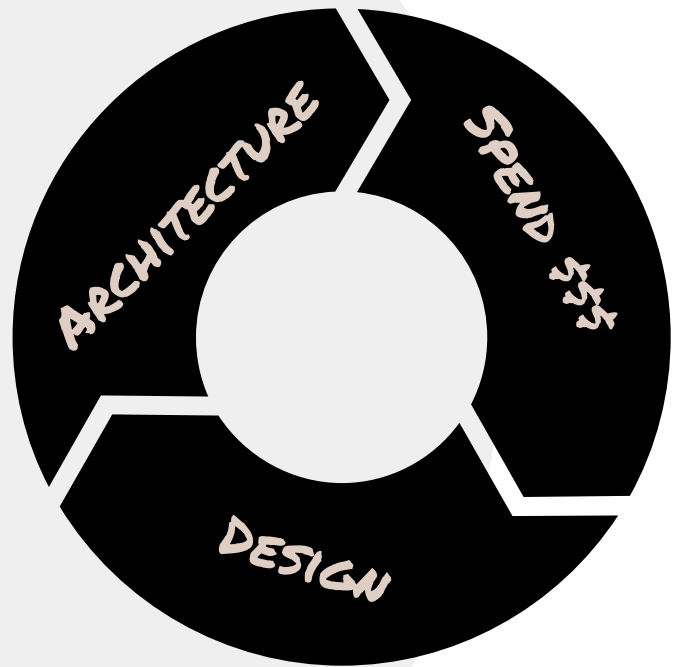
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Cloud Cost Analysis

The practice to understand how architecture derived from business and design decisions becomes money spent.



Programming starts at Design



Cost as a Metric

1. Resource IDs / Tagged Resource Groups
2. Usage incurred
3. Retail Rate
4. Amount Charged



Cost as an Insight

1. Month-over-Month / Year-over-Year
2. Services with the most Growth
3. Scaling that broke pricing tiers



The Billing ETL





Demo!

Fetch Invoice

```
$cur = $ce_client->getCostAndUsage([  
  'Granularity' => 'DAILY', // REQUIRED  
  'Metrics' => [  
    'BLENDED_COST', 'UNBLENDED_COST', 'AMORTIZED_COST', 'NET_AMORTIZED_COST', 'NET_UNBLENDED_COST',  
    'USAGE_QUANTITY', 'NORMALIZED_USAGE_AMOUNT'  
  ], // REQUIRED  
  'TimePeriod' => [ // REQUIRED  
    'End' => $end_format, // REQUIRED  
    'Start' => $start_format, // REQUIRED  
  ],  
  'GroupBy' => [  
    ['Key' => 'SERVICE', 'Type' => 'DIMENSION'],  
    ['Key' => 'USAGE_TYPE', 'Type' => 'DIMENSION']  
  ],] );
```


Fetch Invoice – RESULT

```
[23] => Array
```

```
(
```

```
  [TimePeriod] => Array
```

```
    (
```

```
      [Start] => 2024-03-24
```

```
      [End] => 2024-03-25
```

```
    )
```

```
  [Total] => Array
```

```
    (
```

```
    )
```

```
[0] => Array
```

```
(
```

```
  [Keys] => Array
```

```
    (
```

```
      [0] => AWS Amplify
```

```
      [1] => USE1-DataTransferOut
```

```
    )
```

```
  [Metrics] => Array
```

```
    (
```

```
      [AmortizedCost] => Array
```

```
        (
```

```
          [Amount] => 0.000306552
```

```
          [Unit] => USD
```

```
        )
```

```
[BlendedCost] => Array
```

```
(
```

```
  [Amount] => 0.000306552
```

```
  [Unit] => USD
```

```
)
```

```
[NetAmortizedCost] => Array
```

```
(
```

```
  [Amount] => 0.000306552
```

```
  [Unit] => USD
```

```
)
```

```
[NetUnblendedCost] => Array
```

```
(
```

```
  [Amount] => 0.000306552
```

```
  [Unit] => USD
```

```
)
```

```
.....
```

Write to DB

```
// Set the version of the Stable API on the client
$apiVersion = new ServerApi(ServerApi::V1);
// Create a new client and connect to the server
$mongodb_client = new MongoDB\Client(getenv('MONGODB_URI'), [],
['serverApi' => $apiVersion]);
try {
    $collection = $mongodb_client->aws_billing->billing_demo;
    $result = $collection->insertMany( $cur['ResultsByTime'] );
    printf("Inserted %d document(s)\n", $result->getInsertedCount());
    var_dump($result->getInsertedIds());
} catch (Exception $e) {
    printf($e->getMessage());
}
```

Write to DB – RESULT

Inserted 31 document(s)

/home/anegrette/Projects/mongodb-demo/index.php:50:

```
array(31) {  
  [0] =>  
    class MongoDB\BSON\ObjectId#174 (1) {  
      public $oid =>  
        string(24) "66257359107bfdd214015242"  
    } ...  
}
```





Using BREF

- Lambda Option for PHP
- Pre-requisites
 - Node Installed
 - Serverless Framework
 - AWS Billing Read Only Permission
 - Bref and Bref Extra Extensions



Bref & Lambda

- Functions as a Service are lightweight, platform managed containers
- Layers are pre-built configurations that work over the base runtime
- Bref is a layer that includes PHP as a Runtime
- Bref Extra Extensions add PHP Configurations to the Layers such as mongodb.so without manually editing the ini file.

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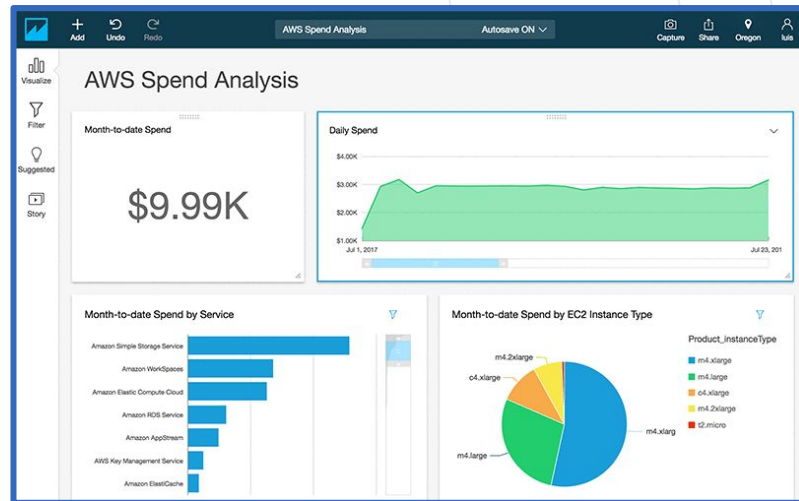
Next Steps!

- Data Validation
- Use as a Data Source for Excel or Tableau
- Normalize and Compare to Other Services



Cost Management in AWS

- Cost Usage Report
- Athena on S3
- Quicksight



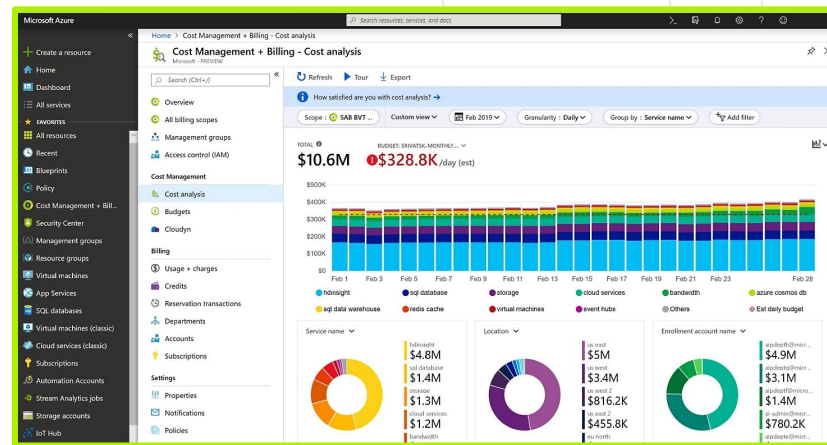
Cost Management in GCP

- Billing Account API, Billing Budget API, Cost Estimation API
- Billing Alerts Pub/Sub
- Built in BigQuery Dashboard
- Pipe into Looker



Cost Management in Azure

- Cloud Analysis Dashboard
- Built in with PowerBI





//

**Cost Optimization
is about efficiency**



**THANK
YOU**



Resources

- GCP Billing
 - <https://cloud.google.com/billing/docs>
- AWS Billing
 - <https://aws.amazon.com/aws-cost-management/aws-cost-and-usage-reporting/>
- Azure Billing
 - <https://learn.microsoft.com/en-us/azure/cost-management-billing/costs/tutorial-export-acm-data?tabs=azure-portal>

Resources

- Getting Started with Serverless
 - <https://www.serverless.com/framework/docs/getting-started>
- Getting Started with Bref
 - <https://bref.sh/docs/setup>
- Using MongoDB with Bref
 - <https://www.mongodb.com/docs/php-library/current/tutorial/aws-lambda/>