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TEL AVIV

The Real Cost of Pay-Per-Use in Serverless

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> whoami



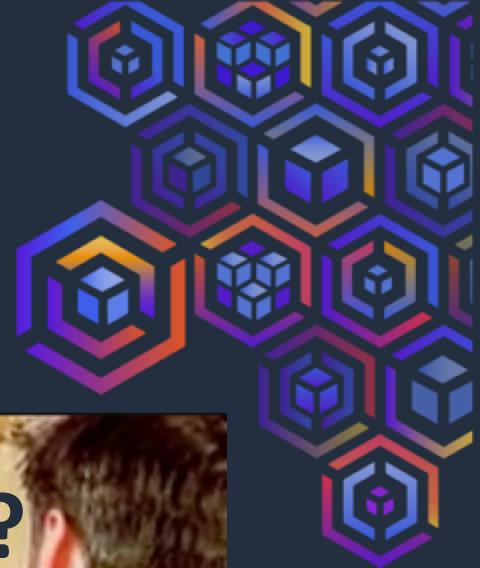
Co-Founder @ Epsagon
Cyber-Security @ IDF
Raising guide dog
----- Looking for whales in Hawaii





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Explain what is Serverless to a friend





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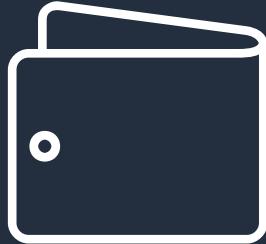
Why Serverless?



Scale
out-of-the-box



Dev
velocity



Pay-per-use





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What is pay-per-use?

- It makes sense
- NOT
- Use can be defined by:
 - Time
 - Compute
 - Storage
 - Data (/calls)



• Basic example

This example demonstrates how pricing is calculated for an auto scaling-enabled table with the provisioned capacity mode. Auto scaling continuously sets provisioned capacity in response to actual consumed capacity so that actual utilization stays near target utilization.

co

Assume that you create a new table in the US East (N. Virginia) Region with target utilization set to the default value of 70 percent, minimum capacity units at 100 RCU and 100 WCU, and maximum capacity set to 400 RCU and 400 WCU (see [Limits in DynamoDB](#)). For simplicity, assume that each time a user interacts with your application, one write of 1 KB and one strongly consistent read of 1 KB are performed.

For the first 10 days, assume that the consumed RCU and WCU vary between 1 and 70. Auto scaling does not trigger any scaling activities and your bill per hour is \$0.078 (\$0.065 for the 100 WCU provisioned [$\$0.00065 \times 100$] and \$0.013 for the 100 RCU [$\$0.00013 \times 100$]).

Ama

Now assume that on day 11 the consumed capacity increases to 100 RCU and 100 WCU. Auto scaling starts triggering scale-up activities to increase the provisioned capacity to 143 WCU and 143 RCU ($100 \text{ consumed} \div 143 \text{ provisioned} = 69.9 \text{ percent}$). The per-hour bill is \$0.11109 (\$0.0925 for 143 WCU and \$0.01859 for 143 RCU).

Tota

On day 21, assume the consumed capacity decreases to 80 RCU and 80 WCU. Auto scaling starts triggering scale-down activities to decrease provisioned capacity to 114 WCU and 114 RCU ($80 \text{ consumed} \div 114 \text{ provisioned} = 70.2 \text{ percent}$). The per-hour bill is \$0.08952 (\$0.0741 for 114 WCU and \$0.01482 for 114 RCU).

For the month, you will be charged \$66.86 as follows:

Ama

Days 1 – 10: \$18.72 (\$0.078 per hour x 24 hours x 10 days)

Days 11 – 20: \$26.66 (\$0.11109 per hour x 24 hours x 10 days)

Days 21 – 30: \$21.48 (\$0.08952 per hour x 24 hours x 10 days)

Tota

The AWS Free Tier includes 25 WCU and 25 RCU, reducing your monthly bill by \$14.04

$25 \text{ WCU} \times \$0.00065 \text{ per hour} \times 24 \text{ hours} \times 30 \text{ days} = \11.70

$25 \text{ RCU} \times \$0.00013 \text{ per hour} \times 24 \text{ hours} \times 30 \text{ days} = \2.34

Data storage: Assume your table occupies 25 GB of storage at the beginning of the month and grows to 29 GB by the end of the month, averaging 27 GB based on the continuous monitoring of your table size. The first 25 GB of storage are included in the AWS Free Tier. The remaining 2 GB of storage are charged at \$0.25 per GB, resulting in a table storage cost of \$0.50 for the month.

For the month, your total bill will be \$53.32, a total that includes \$52.82 for read and write capacity and \$0.50 for data storage.



charges would be

$$E = mc^2$$





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.....?

- How long do my Lambda runs?
- How many requests/month, invocations/month?
- What is the item size?



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Time == Money



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Serverless

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Performance == Time == Money





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Where do we spend our time?

Our code



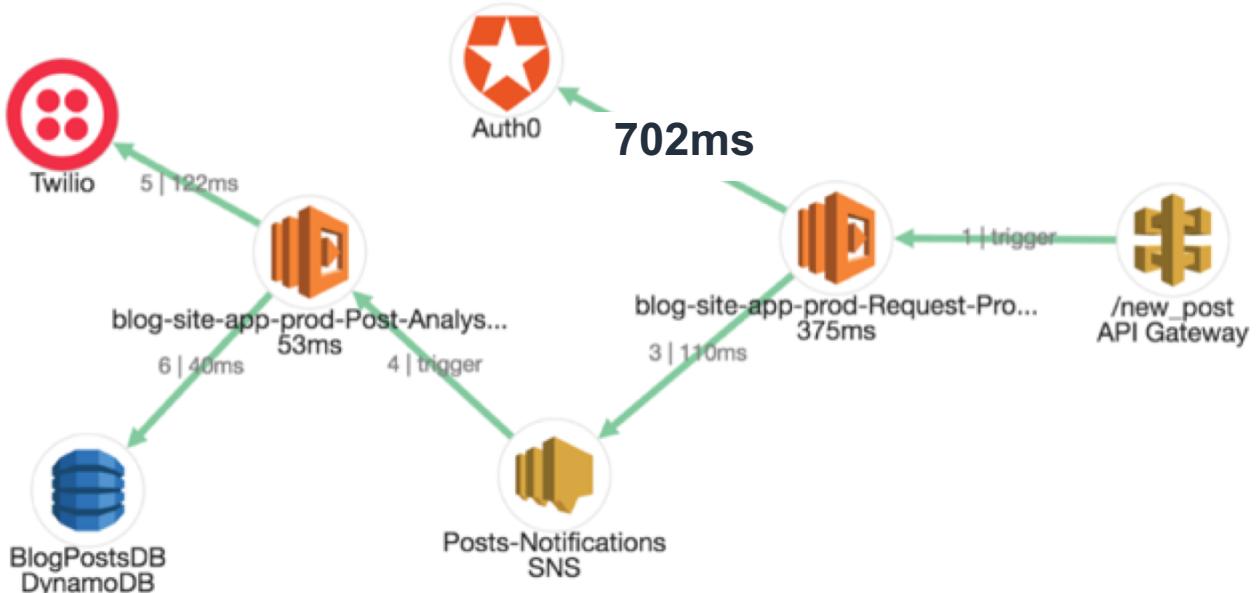
API calls





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Where do we spend our time?

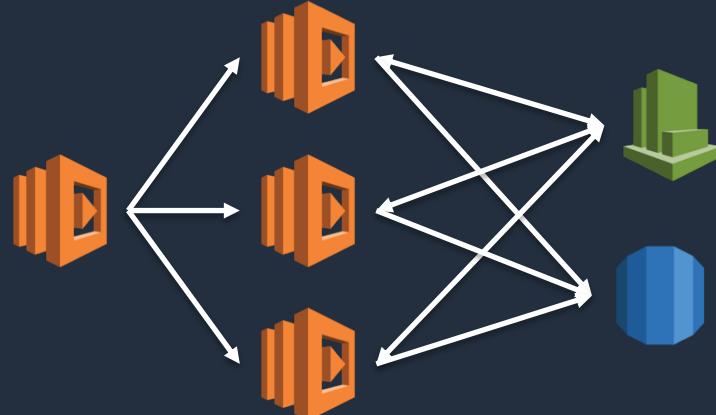




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A real life example

- Scanning CloudWatch logs using Lambda:
 - Every 5 minutes
 - Save to RDS
- Fan-Out



aws



HOLY SHIT! NO WAY!





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Scale

- 10K functions, 5 minutes duration, every 5 minutes
- CloudWatch throttled
- DB concurrent insertions

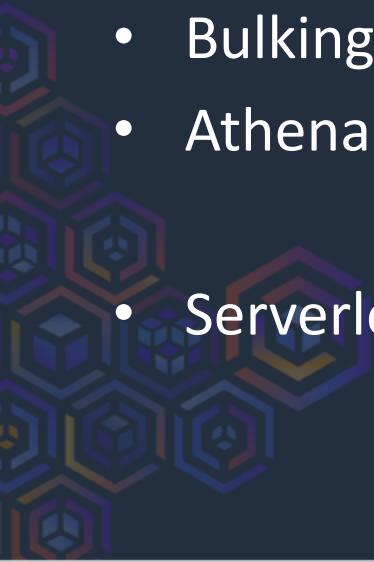


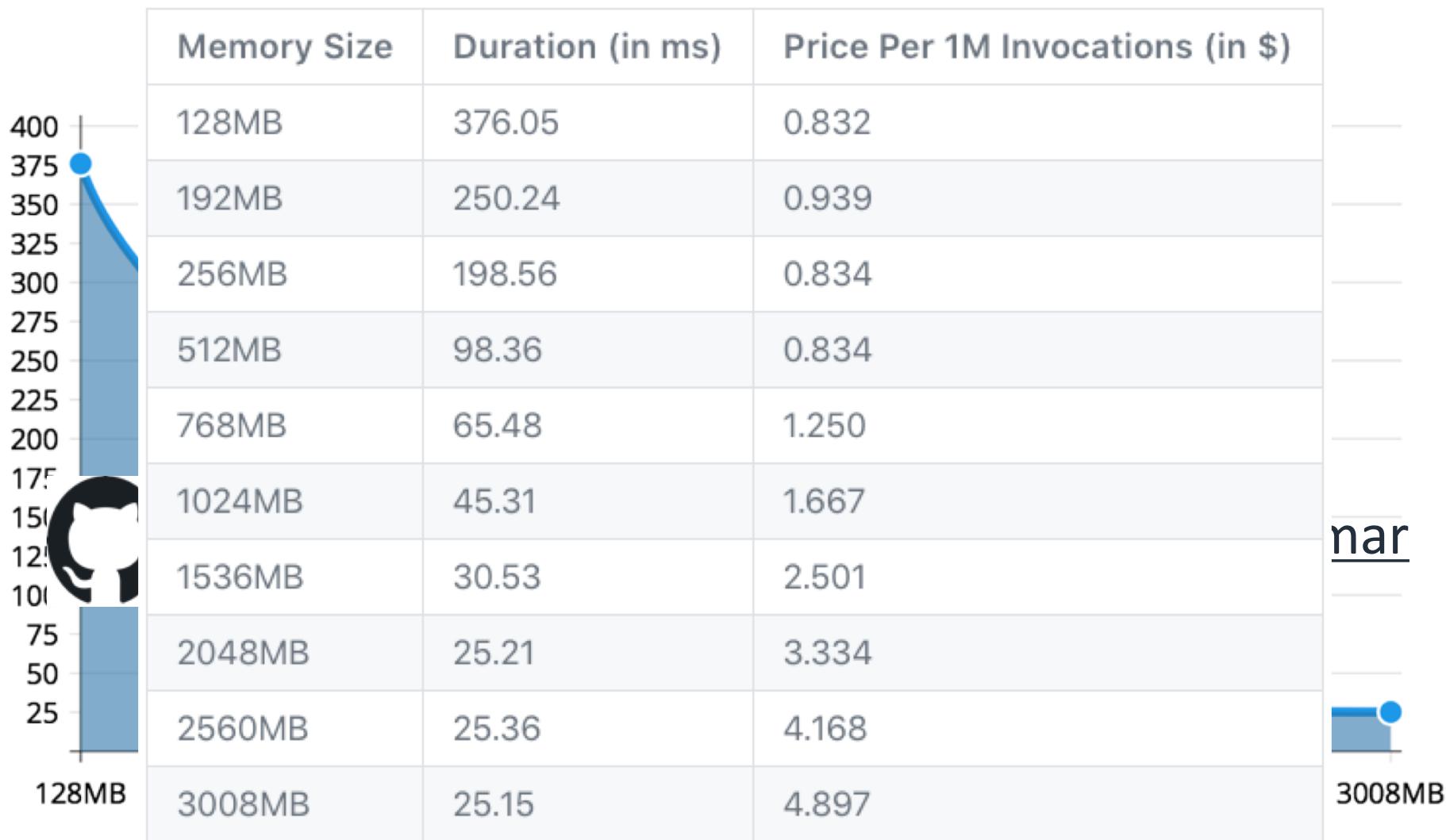


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Solution

- Pushing logs from CloudWatch
- Bulking with Kinesis to S3
- Athena for queries
- Serverless score: 10/10







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When you should **NOT** go Serverless

- Performance
- Cost

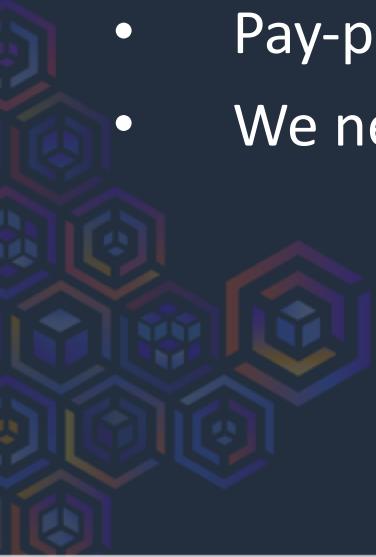




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Summary

- Serverless is great!
- Pay-per-use is hard to calculate and estimate
- We need to keep track on our performance and cost



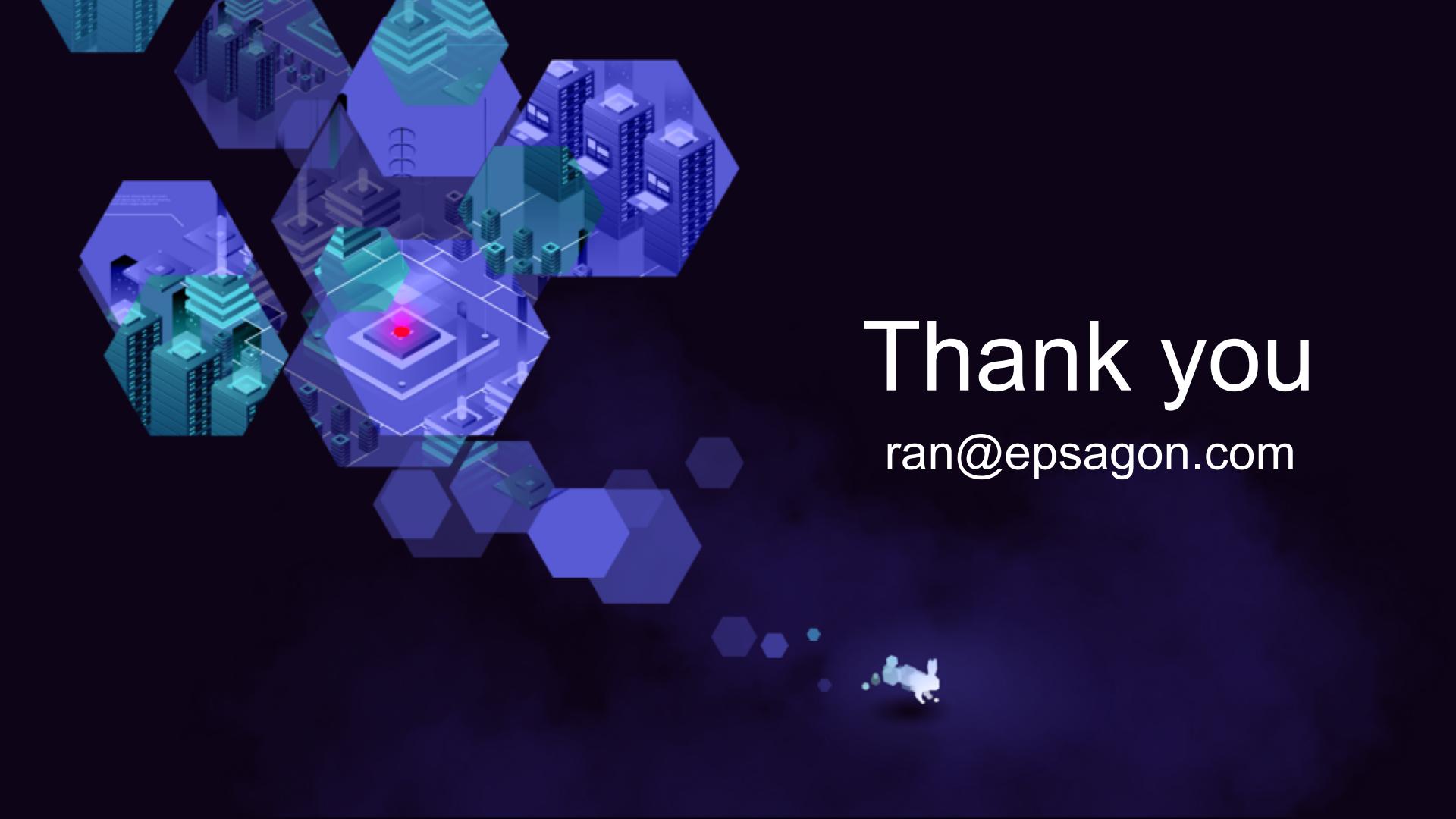


9/10

11/12

140



The background features a dark blue gradient with several large, semi-transparent hexagons containing stylized 3D cityscapes in shades of purple, teal, and blue. A small, white, stylized bird silhouette is located in the bottom right corner.

Thank you

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