
AWS
re:Invent

DAT316

Deliver business impact with feature-packed Amazon DynamoDB

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Session program

On-demand capacity

Amazon DynamoDB Accelerator (DAX)

Point-in-time recovery

Global tables

NoSQL Workbench



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On-demand capacity

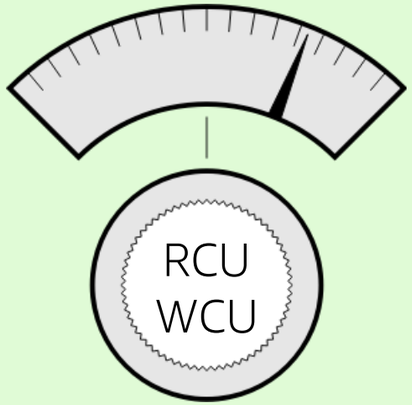


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On-demand capacity: Pay per request

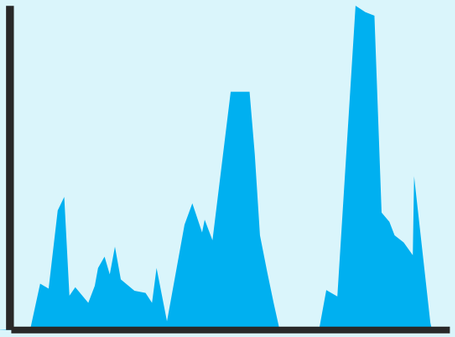
Provisioned capacity mode (since service GA in 2012)

- Storage scales automatically.
- Provide throughput requirement as signal to the service.
- Auto scaling read and write capacity since June 2017.

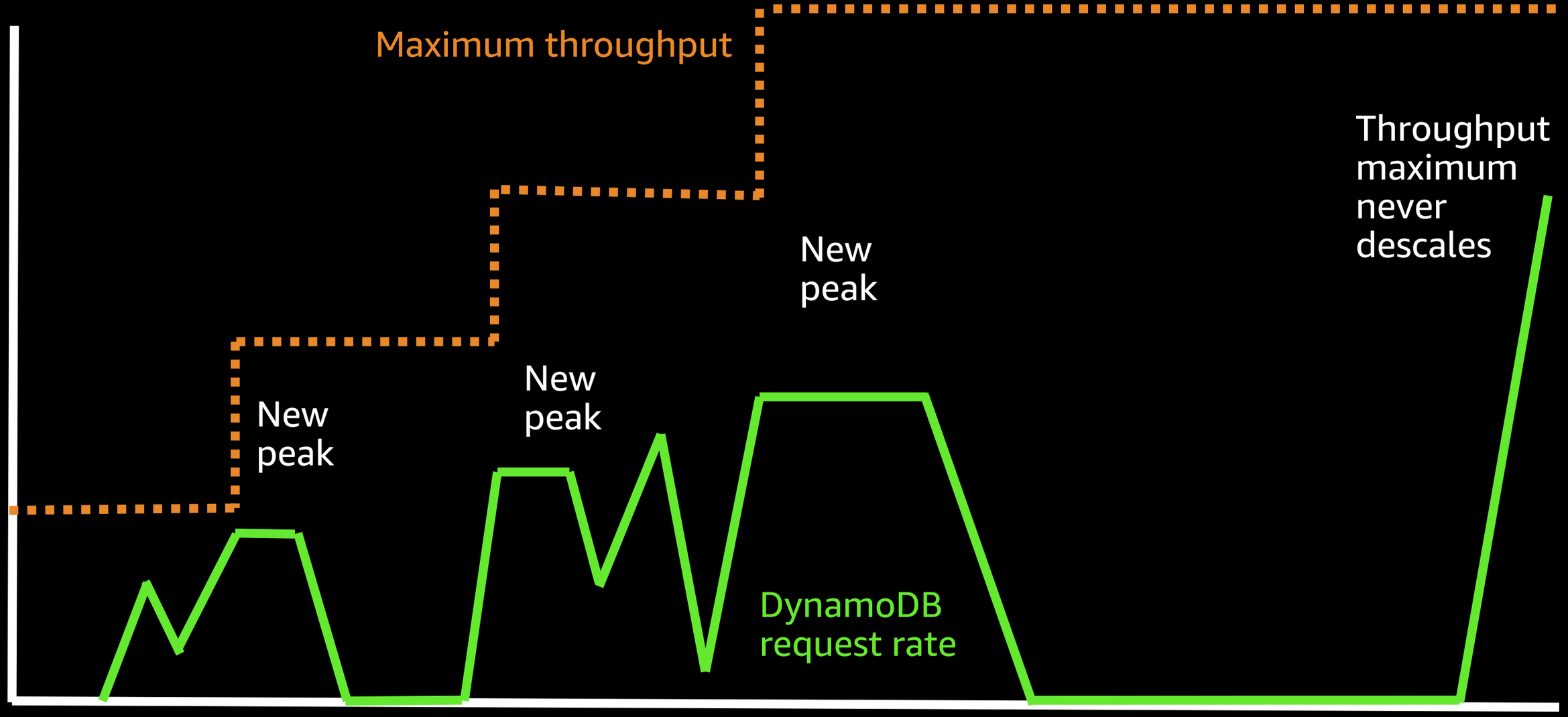


On-demand capacity mode (added November 2018)

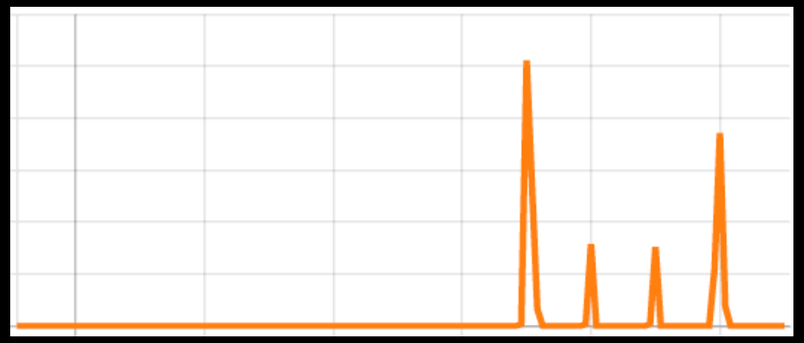
- Storage scales automatically.
- Throughput scales instantly within 2x prior maximum consumption level – pay per request.



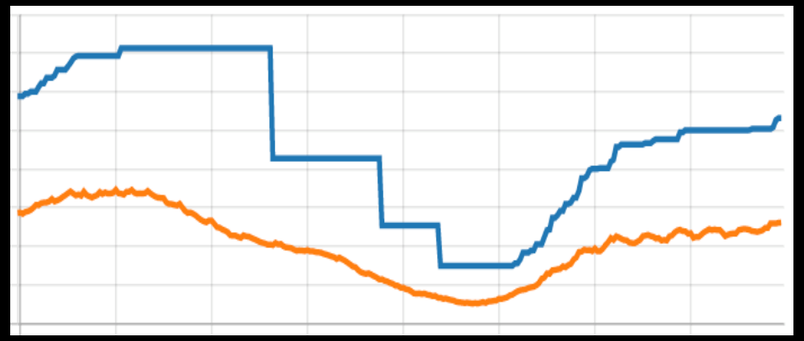
On-demand capacity: Throughput scaling



On-demand capacity: Reducing cost







- Cost versus price
- Engineering time and opportunity cost
- Operational load and risk
- Resource lifecycle and utilization

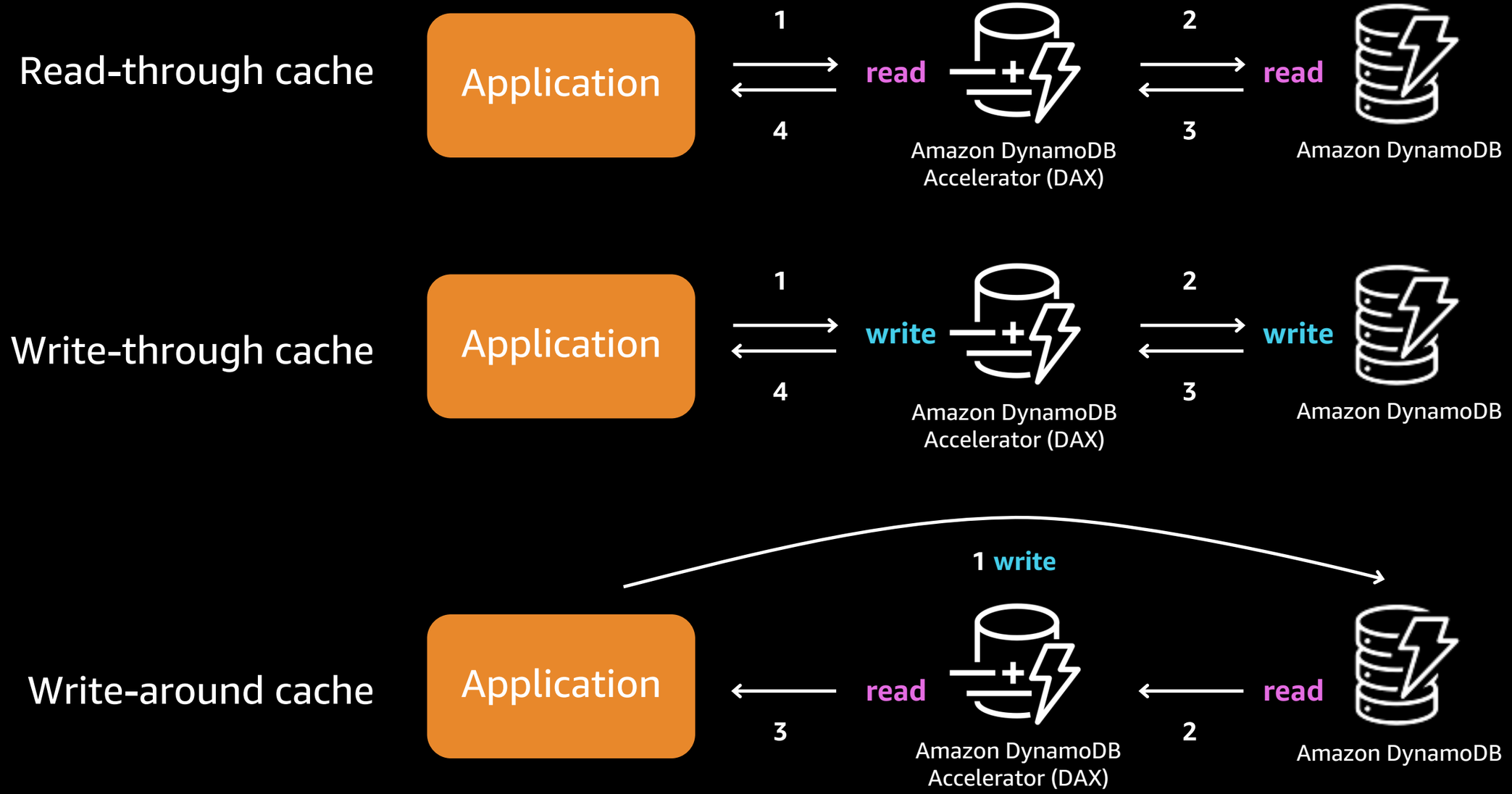
DynamoDB Accelerator (DAX)



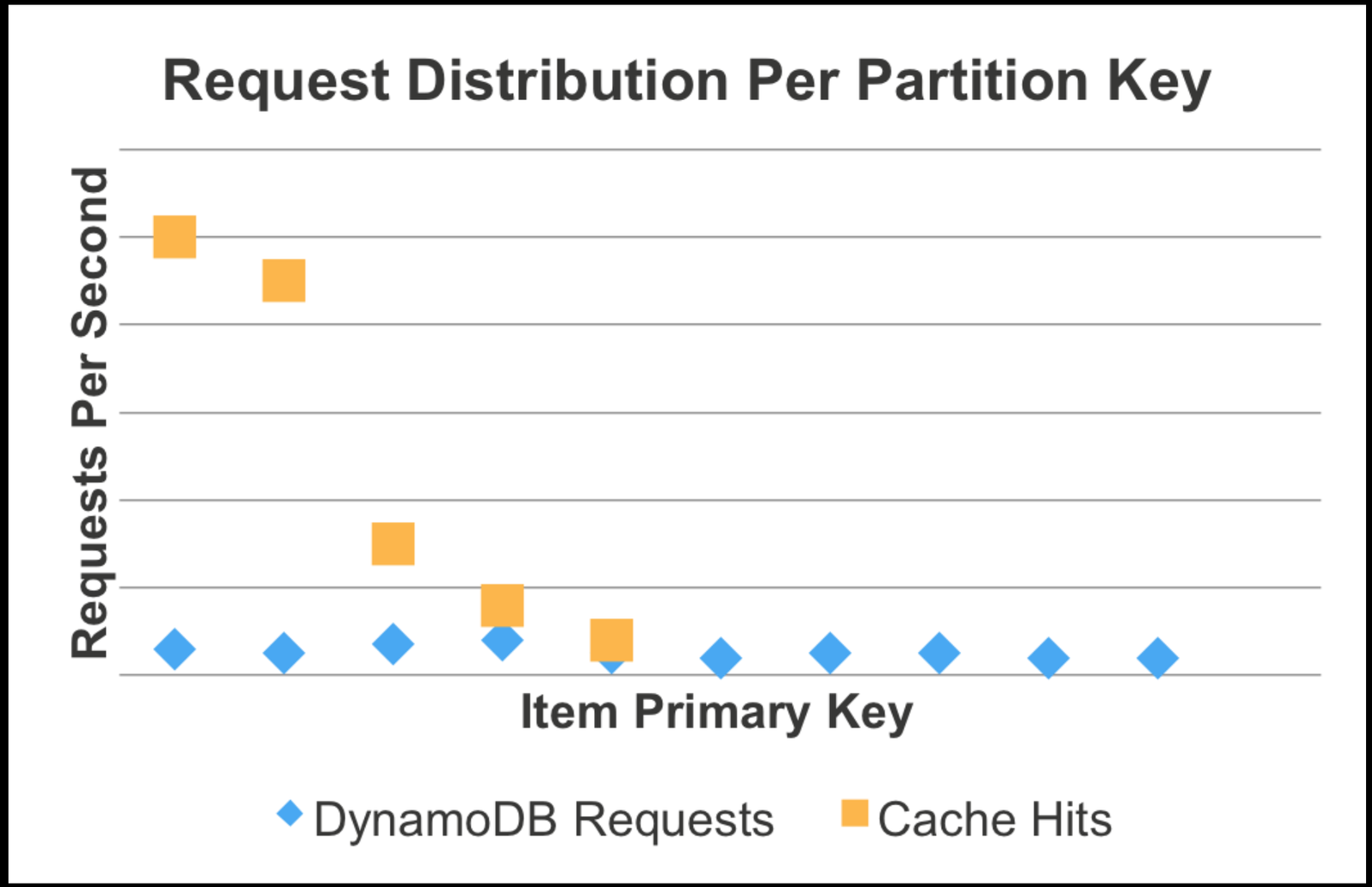
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DAX: API-compatible caching for DynamoDB



DAX: Reduced reads from DynamoDB



DAX: Business benefits



Lower latency – more delightful customer experience



Smoothing of unanticipated skew in data pressure



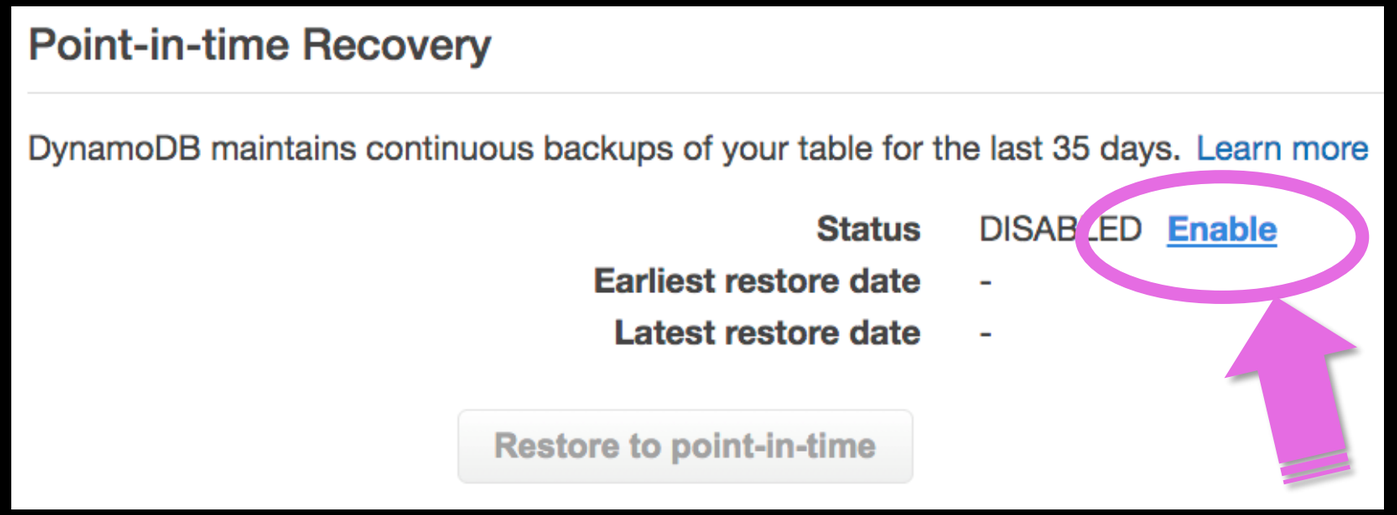
Less read units consumed – improved cost efficiency

Point-in-time recovery



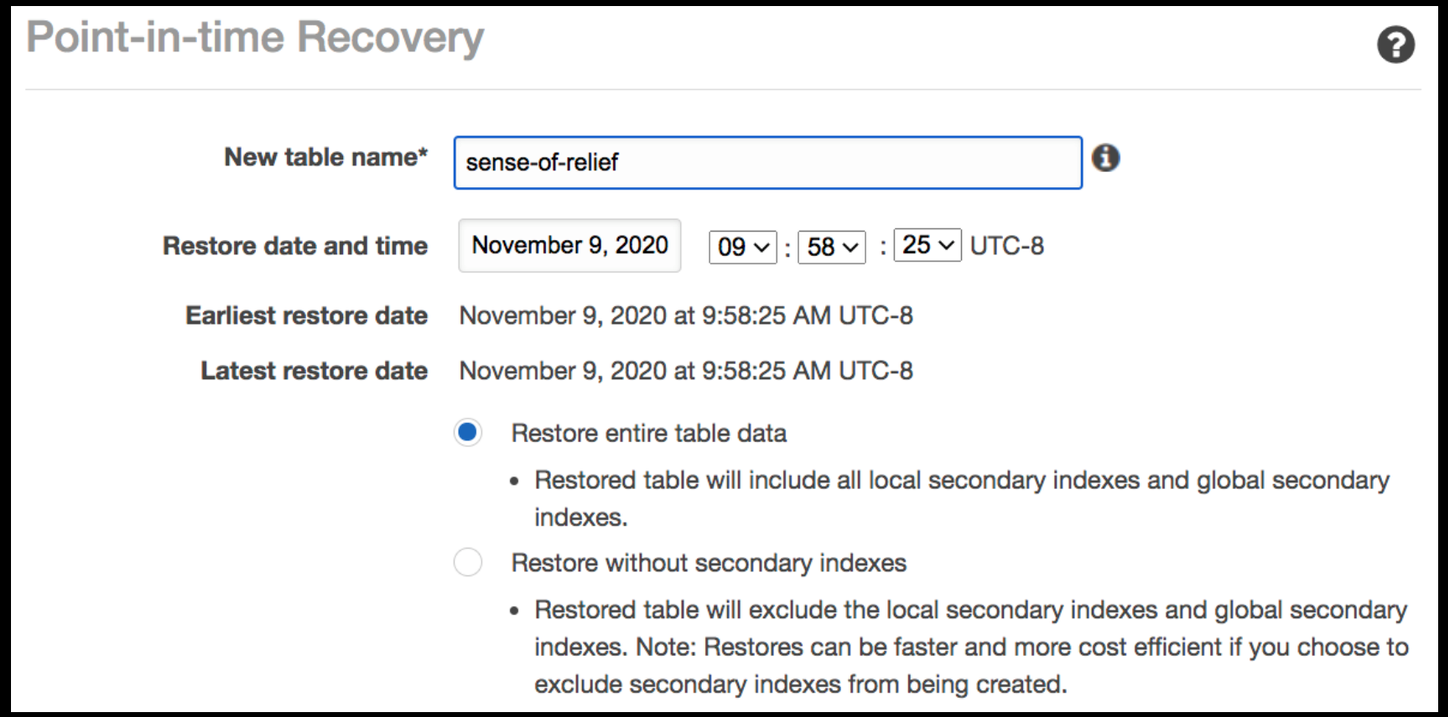
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Point-in-time recovery: Properties



- 35-day rolling window of protection
- Restore to a new table with second granularity
- No impact to ongoing operations
- Covers table deletion and corruption risks

Point-in-time recovery: Restore scenarios



- Accidental (or malicious) table delete or data change
- Restore from known-good timestamp to original table name
- Restore from known-good timestamp to a new table
- Comparison and selective reversion of any unwanted changes?

Point-in-time recovery: Peace of mind



- DynamoDB often stores critical business data
- BC/DR is hard and often not fully considered or tested
- Continuous backup (PITR) is an easy first step for production tables that will give you a starting point for recovery

Global tables



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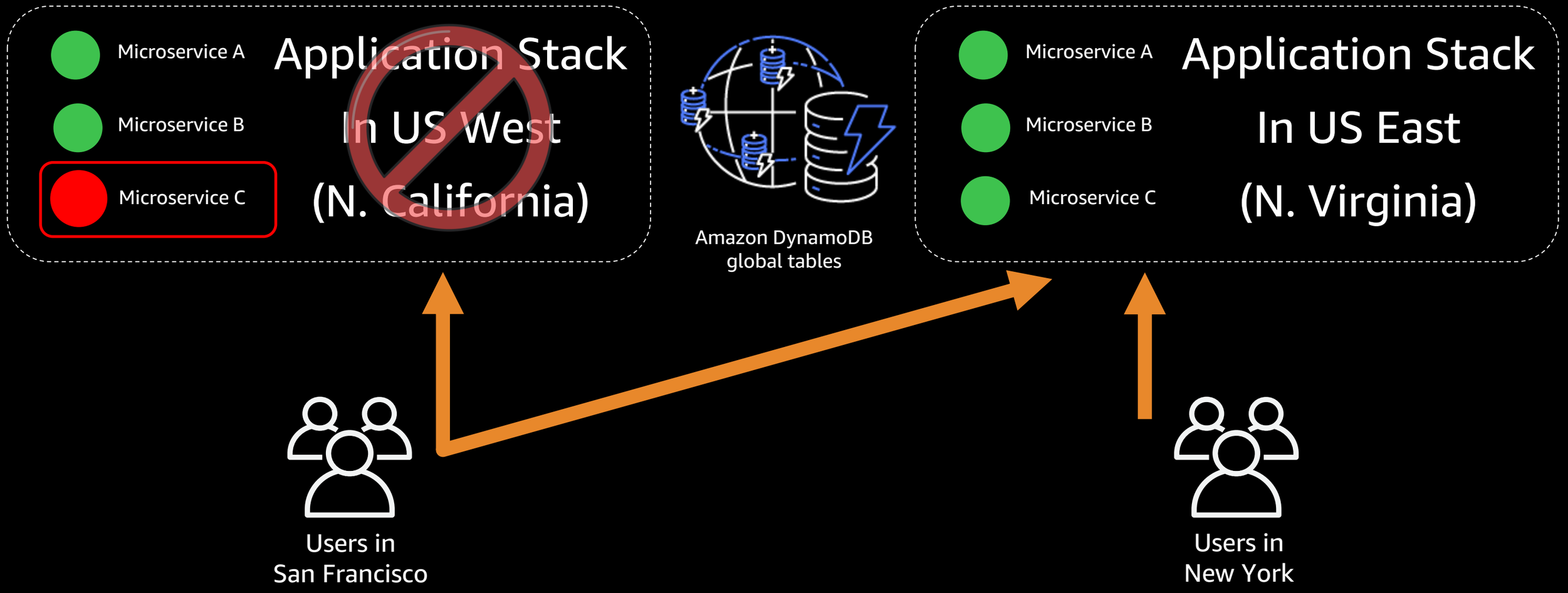
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Global tables: Multi-Region motivations



1. Geographically distributed customer base
   - Low-latency data operations
   - Meet legal and data regulatory compliance
2. Business continuity / disaster recovery

Global tables: Architecture beyond the data



Global tables: Traffic distribution choices

- Reads and writes to a single Region (active-passive)
- Local reads, with writes to a single “primary” Region
- Local reads and writes (active-active) – consider item ”homing”
- Manual and/or automatic failover
- Route 53 health checks and routing policy – latency, geolocation
- Consider AWS Global Accelerator for fastest failover, lowest latency
- Amazon API Gateway can provide rate limiting and caching



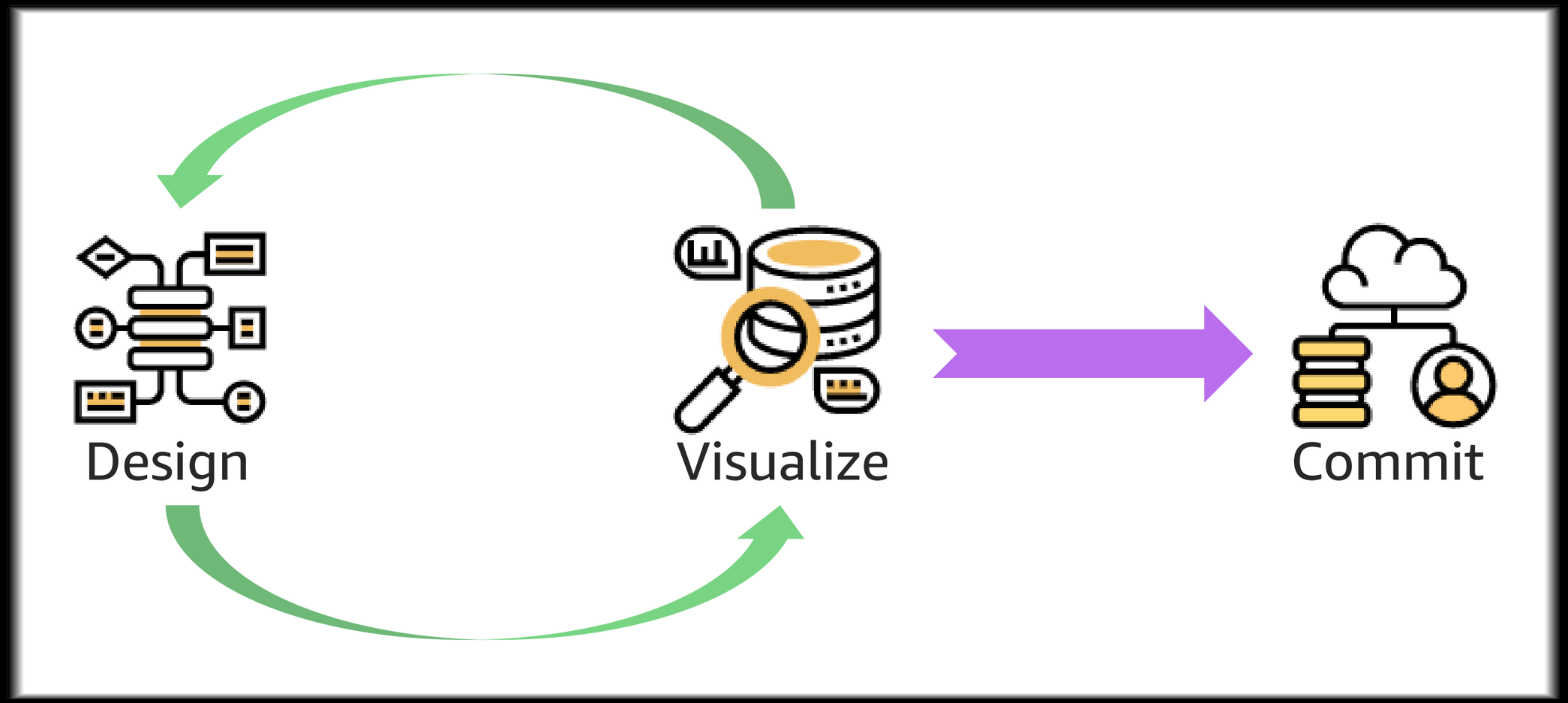
Building on DynamoDB



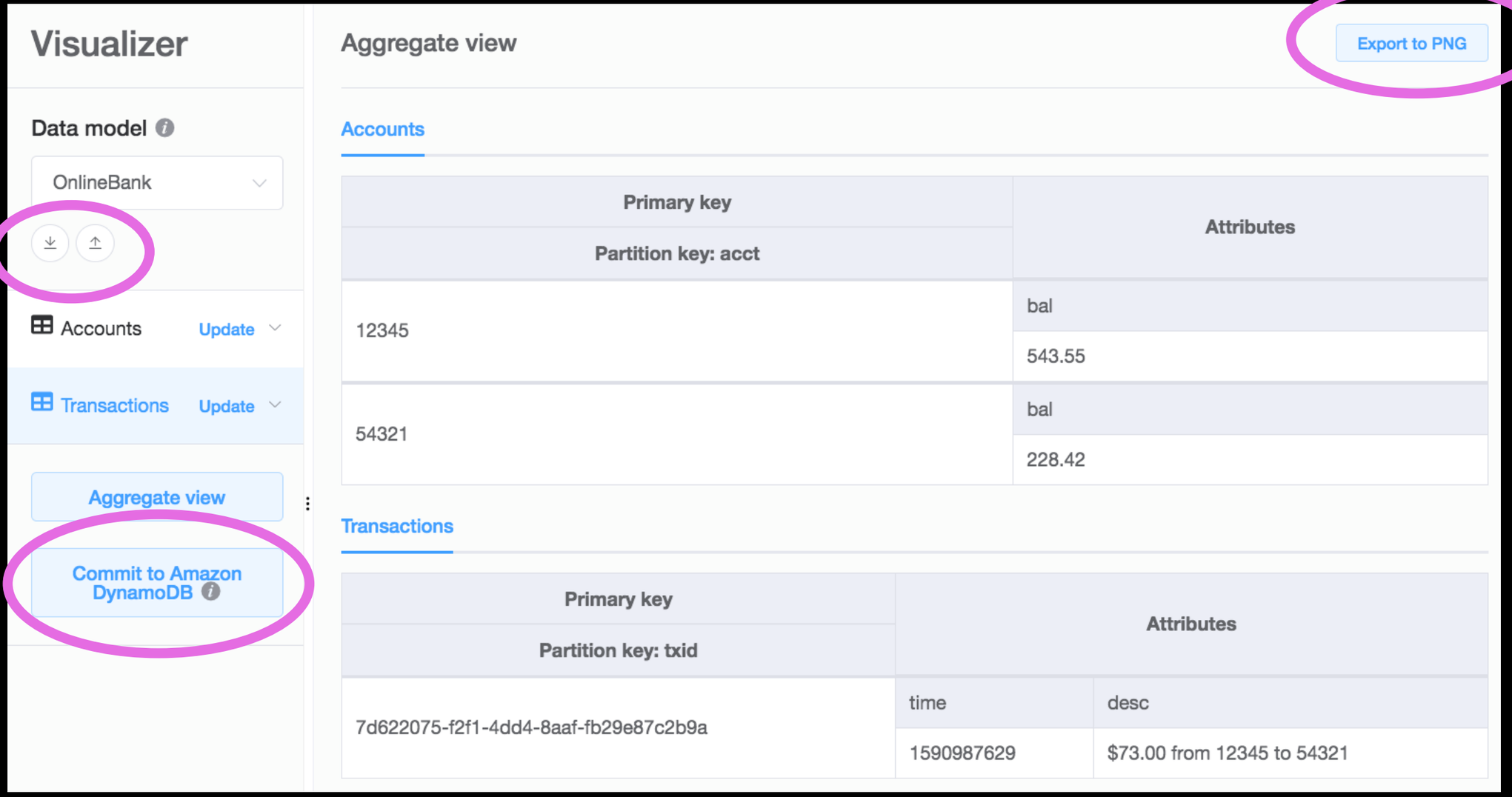
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NoSQL Workbench: Modeling workflow



NoSQL Workbench: Collaborate and document



Implementing application workflows

- Workbench operation builder generates sample code for you (Java, JavaScript, Python)
- AWS Management Console, AWS CLI, and Amazon CloudWatch
- ReturnConsumedCapacity
- SDKs: Java, Python, .NET, Go, JavaScript, Node.js, C++, Ruby, and PHP

AWS Free Tier

25 GB storage

25 provisioned RCU

25 provisioned WCU



Resources

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Advanced data modeling (YouTube)

What’s new with Amazon DynamoDB

Amazon’s purpose-built database journey

Caching challenges and strategies (Amazon Builders’ Library)

Demos for Devs (Twitch)



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Related sessions

DAT304

How Disney+ scales globally on Amazon DynamoDB

DAT313

Dropbox cuts costs with cold metadata store using Amazon DynamoDB and S3

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Thank you!

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