AWS DMS Cost Model & TCO – PostgreSQL to Amazon S3

# 1. 📊 Project Overview

|  |  |
| --- | --- |
| Attribute | Value |
| Total Databases | 1,200 |
| Total Initial Data Volume | ~126.65 TB |
| Total Rows | ~98 Billion |
| Daily Change Volume | ~5.4 Billion rows ≈ 3.33 TB/day |
| Annual Change Volume | ~1.216 PB/year (~1,216,545 GB) |
| Average Row Size | ~615 bytes (9,200 columns, ~30% NULL) |
| Migration Type | Full Load + CDC |
| Target | Amazon S3 (optimized for Parquet) |

# 2. ⚙️ DMS Instance Sizing Strategy

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| Tier | Count | Instance Type | vCPU | RAM | Hourly Cost |
| < 100 GB | 1,053 | r6i.xlarge | 4 | 32 GB | $0.99 |
| 100 GB–1 TB | 112 | r6i.2xlarge | 8 | 64 GB | $1.98 |
| > 1 TB | 9 | r6i.4xlarge | 16 | 128 GB | $3.96 |

# 3. 💰 Detailed Cost Breakdown

## 📌 3.1 Full Load (One-Time)

▪ DMS Compute Cost

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Tier | Count | Hours | Rate | Cost |
| < 100 GB | 1,053 | 24 | $0.99 | $24,972.72 |
| 100 GB–1 TB | 112 | 48 | $1.98 | $10,648.32 |
| > 1 TB | 9 | 96 | $3.96 | $3,419.52 |
| Total |  |  |  | $39,040.56 |

▪ S3 Storage Cost (Initial Load):

• Total Storage = 126.65 TB ≈ 129,216 GB

• Storage Cost = $0.276 / GB

• Total = 129,216 × 0.276 = $35,662.02

✅ Full Load Total: $74,702.58

## 📌 3.2 CDC (1-Year)

▪ CDC DMS Compute

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Tier | Tasks | Hours/year | Rate | Cost |
| < 100 GB | 75 | 8,760 | $0.99 | $651,150 |
| 100 GB–1 TB | 20 | 8,760 | $1.98 | $347,184 |
| > 1 TB | 5 | 8,760 | $3.96 | $173,118 |
| Total |  |  |  | $1,171,452 |

▪ CDC S3 Storage Cost:

• Annual Volume: 1,216,545 GB

• Cost = 1,216,545 × 0.276 = $335,766.42

✅ CDC Total: $1,507,218.42

## 📌 3.3 Team & Implementation Costs

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Role | Count | Annual Cost (Total) |
| DMS Specialists | 2 | $300,000 |
| Automation Engineer | 1 | $140,000 |
| Test Engineers | 2 | $240,000 |
| Tooling & Overhead | — | $100,000 |
| Total | — | $780,000 |

# 4. 📦 Replication Instance Summary

## 🔁 Full Load (Burst Mode)

* Tier: <100 GB – 1,053 instances – r6i.xlarge
* Tier: 100 GB–1 TB – 112 instances – r6i.2xlarge
* Tier: >1 TB – 9 instances – r6i.4xlarge
* ⏱️ Duration: ~2–4 days during cutover phase

## 🔁 CDC (Persistent 24x7)

* Tier: <100 GB – 75 tasks – r6i.xlarge
* Tier: 100 GB–1 TB – 20 tasks – r6i.2xlarge
* Tier: >1 TB – 5 tasks – r6i.4xlarge
* Total Tasks: 100 (always-on)

# 5. 📌 Unit Economics

|  |  |
| --- | --- |
|  |  |
| Cost per DB (Annualized) | $2.36M / 1,200 = $1,966.67 |
| Cost per GB (Initial + CDC) | $2.36M / 1,343 TB = $1.77/GB |
| Compute vs Storage Split | 72% compute / 28% storage |

Additional savings possible via:

* S3 tiering (e.g., S3 Standard-IA, S3 Glacier)
* Row filtering/compression
* Batch-optimized CDC frequency

# 6. ✅ Final TCO Summary

|  |  |
| --- | --- |
|  |  |
| Full Load | $74,703 |
| CDC (1 Year) | $1,507,218 |
| Team & Ops | $780,000 |
| Total TCO (Year 1) | 📍 $2.36 Million |