

Research Report — Should we move off our self-managed PostgreSQL on EC2?

Example. Invented account. Prices are AWS list prices, US East (N. Virginia), on-demand, 730 hours a month.

Window covered. 30 days of cost and usage data, plus CloudWatch metrics for the three database servers over the same 30 days.

What We Found

The database costs **\$1,403.76 a month**, and most of that capacity sits unused. Two read replicas carry almost no traffic, and the primary averages 14% CPU.

#	FINDING	MONTHLY COST	REF
1	Three r6i.2xlarge servers run the database (one primary, two read replicas)	\$1,103.76	F1
2	The primary averages 14% CPU; the replicas average 6%	—	F2
3	The two replicas serve 2% of reads; one replica could carry them	\$735.84	F3
4	Storage is 3 TB on gp2 (one 1 TB volume per server)	\$300.00	F4
5	The three servers have no owner tag	—	F5

What To Do, Highest Impact First

1. Remove one read replica and its volume. **Saves \$467.92 a month.**
2. Resize the two remaining servers from r6i.2xlarge to r6i.xlarge. **Saves \$367.92 a month.**
3. Move the two remaining volumes from gp2 to gp3. **Saves \$40.00 a month.**
4. Add an owner tag to the database servers.

Together: \$875.84 a month, from \$1,403.76 to \$527.92. Your team decides and applies each change.

Approach and Trade-offs

Three ways to run this database, priced at AWS list prices for the same 1 TB of data.

OPTION	MONTHLY COST	WHAT IT MEANS
Stay on EC2, right-sized 2 × r6i.xlarge, gp3	\$527.92	Lowest cost. Your team keeps running patching, backups and failover.
Amazon RDS for PostgreSQL, Single-AZ db.r6g.2xlarge, 1 TB gp3	\$771.27	AWS runs patching and backups. No standby: a failure means a restore.
Amazon RDS for PostgreSQL, Multi-AZ db.r6g.2xlarge, 1 TB gp3	\$1,542.54	Automatic failover to a standby. Costs more than today's setup.

Recommendation: right-size on EC2 now, and decide on Amazon RDS when the team next plans a PostgreSQL major-version upgrade.

Risks and Mitigations

RISK	MITIGATION
One replica can't carry a read spike	Check the highest read load in the last 30 days before removing the replica.
Resizing restarts the servers	Take a snapshot and resize in a maintenance window, replica first.

What We Could Not Cover

Query-level performance inside PostgreSQL. That needs database metrics, which this account doesn't send.