

PostgreSQL Under Load

CONNECTIONS, TRANSACTIONS, MVCC AND CONCURRENCY

A DEFINITIVE GUIDE TO OPERATING POSTGRESQL
RELIABLY UNDER REAL-WORLD PRODUCTION WORKLOADS



CONNECTIONS

Manage concurrency
and connection pressure



TRANSACTIONS

Understand isolation,
snapshots and anomalies



MVCC

How snapshots, versions
and vacuum work together



CONCURRENCY

Locks, conflicts and
performance under load



RELIABILITY

WAL, replication and
durability guarantees



CHARLES LIU

PostgreSQL Under Load: Connections, Transactions, MVCC and Concurrency

A definitive guide to operating PostgreSQL reliably under real-world production workloads.

Steve Publications

This book is available at <https://leanpub.com/postgresqlunderloadconnectionstransactionsmvccandconcurrency>

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Contents

- A definitive guide to operating PostgreSQL reliably under real-world production workloads.** **1**
- Introduction: Why PostgreSQL Fails Under Load (And How to Stop It) .** **2**
 - A Production Incident: Connection Exhaustion Cascades Into Lock Contention 2
 - What This Book Will Teach You 2
 - Prerequisites and How to Use This Book 2
 - Version Scope and Notation Conventions 2
- Chapter 1: The PostgreSQL Process Model and Memory Architecture .** **3**
 - Why PostgreSQL Uses Processes Instead of Threads 3
 - Backend Processes, Shared Buffers, and Work Memory 3
 - Connection Lifecycle: From TCP Accept to Query Execution 3
 - Memory Configuration: shared_buffers, work_mem, maintenance_work_mem 3
 - Operating System Interactions: ulimits, cgroups, NUMA Considerations 3
 - The Cost of a Connection: What Each Process Actually Consumes . . 4
- Chapter Summary** **5**
- Chapter 2: Connection Management and Pooling** **6**
 - The Problem with One-Connection-Per-Request Architectures 6
 - How PgBouncer Works: Session, Transaction, and Statement Pooling Modes 6
 - Configuring PgBouncer for Different Workload Types 6
 - Alternative Poolers: Pgpool-II, Odyssey, and Built-in Application-Level Pooling 6
 - Connection Storms: Causes, Symptoms, and Mitigation Strategies . . 6
 - Pool Exhaustion vs Server Exhaustion: Diagnosing Which Layer Is the Bottleneck 7

Chapter Summary	8
Chapter 3: Transactions, Durability, and Write-Ahead Logging	9
The ACID Contract in PostgreSQL: What It Actually Means	9
Write-Ahead Logging: Structure, Segments, and Flush Behavior	9
fsync, Commit Protocols, and Durability Guarantees	9
Checkpoints: How They Work, Why They Cause I/O Spikes, and How to Tune Them	9
WAL Volume Under Load: Estimating and Controlling Write Amplification	9
Trade-offs: Performance vs Safety in Production Deployments	10
Chapter Summary	11
Chapter 4: MVCC, Snapshots, and Concurrency Semantics	12
How MVCC Works: Tuple Versions, xmin/xmax, and Visibility Maps	12
Snapshot Creation: Transaction IDs and the Global Snapshot Model	12
Read Committed vs Repeatable Read vs Serializable: What Actually Changes	12
Long-Running Transactions: Why They Are Dangerous in PostgreSQL	12
Vacuum's Role in MVCC: Cleaning Up Dead Tuples and Preventing Bloat	12
The Interaction Between Concurrency, Snapshots, and Storage Growth	13
Chapter Summary	14
Chapter 5: Locking, Deadlocks, and Contention	15
Lock Types in PostgreSQL: Row-Level, Page-Level, Table-Level, Advisory	15
Lock Modes and Compatibility: Understanding What Blocks What	15
How Deadlock Detection Works and Why It Sometimes Fails	15
Common Contention Patterns: Hot Rows, Index Contention, Maintenance Locks	15
Diagnosing Lock Issues: System Catalog Queries and Wait Events	15
Designing Around Contention: Application Patterns That Avoid Lock Bottlenecks	16
Chapter Summary	17
Chapter 6: Isolation Levels in Practice: Serialization Failures and Anomalies	18
Read Committed: The Default Behavior and Its Subtle Gotchas	18

CONTENTS

Phantom Reads and Non-Repeatable Reads: When They Matter	18
Serializable Isolation: SSI, Conflict Detection, and Performance Cost .	18
Handling Serialization Failures in Application Code	18
Real-World Scenarios Where Isolation Level Choice Matters	18
Testing Concurrency Correctness: Proving Your Application Handles Conflicts	19
Chapter Summary	20
Chapter 7: Query Behavior Under Load: Execution Plans, Contention, and Scaling	21
Why Queries That Are Fast Alone Become Slow Under Concurrency .	21
Resource Contention: CPU, Memory, I/O, and Lock Queues	21
Plan Stability and the Cost of Replanning Under Load	21
Batch Operations and Bulk Loads: Avoiding Thrashing with Online Traffic	21
Connection Pool Interactions with Long-Running Queries	21
Query Patterns That Scale (and Ones That Do Not)	22
Chapter Summary	23
Chapter 8: Vacuum, Autovacuum, Bloat, and Transaction ID Wraparound	24
What Vacuum Actually Does: Dead Tuple Reclamation and Visibility Map Updates	24
Autovacuum Configuration: Thresholds, Scale Factors, and Tuning for High-Churn Tables	24
Table and Index Bloat: Measuring It, Understanding Its Impact, and Fixing It	24
Transaction ID Wraparound: The Catastrophic Failure Mode and Prevention	24
VACUUM FULL vs Online Vacuum: When to Use Each and Their Operational Costs	24
Autovacuum Under Load: Why It Falls Behind and How to Keep It Ahead	25
Chapter Summary	26
Chapter 9: Replication, High Availability, and Failover	27
Streaming Replication: Architecture, Lag Measurement, and Perfor- mance Impact	27

CONTENTS

- Synchronous vs Asynchronous Replication: Durability vs Latency Trade-offs 27
- Connection Routing Under Failover: How Applications Handle Primary Changes 27
- Read Replicas: Offloading Queries Without Causing New Bottlenecks 27
- Patroni, pg_auto_failover, and Other HA Tools: What They Actually Do 27
- Testing Failover: Procedures That Catch Problems Before Production 28
- Chapter Summary 29**
- Chapter 10: Observability, Monitoring, and Metrics 30**
 - The Essential Metrics: Connections, Transactions, Locks, Replication Lag, Checkpoints 30
 - pg_stat_* Views and Extension-Based Monitoring (pg_stat_statements) 30
 - Wait Events: PostgreSQL's Built-In Performance Diagnosis System . . 30
 - Log Analysis and Slow Query Detection in Production 30
 - Building Dashboards That Actually Help During Incidents 30
 - Correlating Database Metrics with Application and Infrastructure Signals 31
- Chapter Summary 32**
- Chapter 11: Troubleshooting Production Incidents 33**
 - Incident Response Framework: How to Triage PostgreSQL Problems Under Pressure 33
 - Connection Exhaustion Incidents: Diagnosis and Recovery Steps . . . 33
 - Lock Contention and Deadlock Storms: Finding and Killing the Culprit 33
 - Autovacuum Falling Behind: Emergency Procedures and Long-Term Fixes 33
 - Replication Lag Spikes: Root Cause Analysis and Resolution 33
 - I/O Saturation and Checkpoint Storms: When the Disk Becomes the Bottleneck 34
 - Memory Pressure and OOM Kills: Prevention and Recovery 34
- Chapter Summary 35**
- Chapter 12: Production Configuration Guide 36**
 - Core Server Configuration: Memory Settings, WAL, Checkpoint, Autovacuum Parameters 36

CONTENTS

- Operating System Tuning: Kernel Parameters, Filesystem Choices, Resource Limits 36
- Connection Pooling Configuration: PgBouncer Setup for Different Workload Profiles 36
- Authentication and Security: pg_hba.conf, SSL/TLS, Role Management 36
- Logging and Monitoring Setup: Log Settings, Slow Query Capture, Metric Collection 36
- Backup Configuration: pg_basebackup, WAL Archiving, Recovery Testing 37
- Replication Configuration: Primary/Standby Settings, Streaming Replication Setup 37
- Production Deployment Patterns: Single-Node HA, Multi-AZ, Cloud-Native Considerations 37
- Chapter Summary 38**
- Chapter 13: Capacity Planning, Resilience, and Advanced Operations . . 39**
 - Capacity Planning Methodology: From Metrics to Hardware Decisions 39
 - Vertical vs Horizontal Scaling: When Each Approach Makes Sense . . 39
 - Handling Sudden Load Spikes: Rate Limiting, Queueing, and Degradation Strategies 39
 - Online Schema Changes Under Load: Partitioning, Index Creation, and DDL Safety 39
 - Sharding and Connection Distribution: When PostgreSQL Alone Is Not Enough 39
 - Disaster Recovery Planning: RPO, RTO, and Testing Your Procedures . 40
- Chapter Summary 41**
- Conclusion: Operating PostgreSQL with Confidence 42**
 - The Interconnected System: How Architecture, Configuration, and Workload Shape Behavior 42
 - Principles for Reliable PostgreSQL Operations Under Load 42
 - Continuing Education: Resources for Staying Current 42
 - Final Thoughts on Building Systems That Survive Real Traffic 42
- References 43**
 - Official PostgreSQL Documentation 43
 - PgBouncer Documentation 43
 - Key Technical Articles and Blogs 43

Conference and Academic Sources 43

Operational and Troubleshooting Resources 43

High Availability Tools 43

Backup and Recovery 44

A definitive guide to operating PostgreSQL reliably under real-world production workloads.

PostgreSQL Under Load is written for experienced software engineers, database administrators, SREs, and systems engineers who need to understand how PostgreSQL behaves when it actually matters: under sustained or sudden concurrency, when connections pile up, locks collide, autovacuum falls behind, or replication drifts. This book explains the mechanisms that govern PostgreSQL's behavior, its process model, MVCC snapshots, locking system, WAL durability guarantees, and vacuuming architecture, not as isolated features but as an interconnected system where every configuration choice and application pattern has consequences under load. You will learn how to configure PostgreSQL correctly, diagnose production incidents systematically, design resilient architectures, and reason about performance and correctness when the traffic is real.

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