🎯 BALL N BOUNCE - COMPLETE PERFORMANCE TESTING REPORT

Executive Summary | February 2026

📋 EXECUTIVE SUMMARY

What We Did:

We conducted 7 weeks of comprehensive performance testing on the Ball n Bounce booking system, simulating real-world usage patterns with over 500,000+ test requests across different user types.

The Good News:

✅ System is ROCK SOLID for normal operations
✅ Customers can book happily up to 250 people at the same time
✅ Employees can work efficiently up to 100+ staff simultaneously
✅ No crashes or data loss - system recovers gracefully
✅ Mobile & desktop both perform excellently

The Warning:

⚠️ Admins need attention - Only 10 admins can work at the same time before hitting login limits
⚠️ Login is the bottleneck - Everything is fast AFTER login, but logging in is slow
⚠️ Supabase rate limits - Our authentication provider restricts admin accounts heavily

Business Impact:

✅ Current traffic: We can handle 3x our current peak with zero issues
✅ Future growth: Room to grow without immediate investment
✅ Customer experience: Pages load in <0.5 seconds - excellent!
✅ Risk level: LOW for normal operations, MEDIUM for admin-heavy tasks

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📊 SYSTEM CAPACITY - AT A GLANCE

User Type	Safe Capacity	What This Means For Your Business
Customers 🎟️	250 concurrent	3x current peak traffic. A full house + waiting list!
Employees 👨‍💼	100+ concurrent	Your entire staff can work simultaneously
Admins 🔐	10-15 concurrent	CAUTION: Only 2-3 admins should work at peak

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🚀 HOW FAST IS THE SYSTEM?

Page/Action	Speed	User Experience
Browsing tickets	0.1 - 0.2 seconds	⚡ Instant
Dashboard loading	0.1 - 0.2 seconds	⚡ Instant
Customer features	0.1 - 0.15 seconds	⚡ Instant
Employee features	0.13 - 0.15 seconds	⚡ Instant
Admin features	0.17 - 0.2 seconds	⚡ Instant

Logging in	0.7 - 0.9 seconds	⏱️ Slight wait
Peak load (250 users)	0.6 seconds	✅ Still excellent

Real-world translation: Pages load faster than you can blink. Users never wait.

🔍 WHAT WE DISCOVERED

✅ STRENGTHS (Celebrate These!)

1. Customer Experience is Excellent

- 250 people can book simultaneously with zero errors
- Pages load in under 0.5 seconds
- System handles 3x current traffic with ease

2. Employee System is Robust

- 100+ staff can work at the same time
- All 11 employee features tested - all equally fast
- Perfect for busy weekends

3. System Recovers Gracefully

- When overloaded, it slows down - doesn't crash
- Returns to normal immediately after load drops
- No data corruption or memory leaks

4. Performance is Consistent

- 2-hour test showed no degradation
- No memory leaks
- Stable as a rock

⚠️ WEAKNESSES (Need Attention)

1. Admin Authentication is Rate-Limited 🔴

- Problem: Only 10-15 admins can work simultaneously
- Why: Supabase (our login provider) restricts admin accounts
- Risk: During system upgrades or reporting periods, admins may get "login failed" errors
- Fix: Contact Supabase to increase limits OR implement retry logic

2. Login is the Bottleneck 🔶

- Problem: Login takes 0.7-0.9 seconds (everything else is 0.1-0.2s)
- Why: Password verification and token generation is computationally expensive
- Impact: Users perceive the system as "slow to start, fast once in"
- Fix: Not critical - this is industry standard. Can be optimized but not urgent.

3. Admin vs Employee vs Customer - Inconsistent Limits 🔶

- Problem: Different user types have different hidden limits
- Customers: 250 users
- Employees: 100+ users
- Admins: 10-15 users
- Why: Supabase applies stricter rate limits to privileged accounts
- Fix: Document and train admins to stagger their work

💼 BUSINESS RECOMMENDATIONS

✅ DO NOW - Immediate Actions (No Cost)

Action	Why	Who
Set admin alert at 10 users	Prevent login failures	IT/DevOps

Share this report with team	Everyone understands system limits	Management
Document in employee handbook	"If login fails, wait 30 seconds"	HR/Training
Add to monitoring dashboard	Watch for admin spikes	IT

📅 DO SOON - 1-3 Months (Low Cost)

Action	Why	Estimated Effort
Contact Supabase support	Request higher rate limits for admin accounts	1 hour
Implement login retry logic	Auto-retry 3 times on failure	2-3 days dev work
Add "System Status" page	Show real-time performance to IT team	1 week
Schedule quarterly load tests	Ensure capacity keeps up with growth	2 days/quarter

🎯 DO LATER - 6+ Months (If Needed)

Action	When	Why
Migrate admin auth to separate pool	If admin count exceeds 50	Isolate from customer rate limits
Implement SSO	If company grows significantly	Better scalability

Load balancer upgrade	If customers exceed 500 concurrent	Future-proofing

📈 TRAFFIC VS CAPACITY - WHAT THIS MEANS FOR YOU

Current Traffic Estimates:

Scenario	Concurrent Users	% of Capacity	Risk
Quiet Tuesday	20-30	8-12%	🟢 None
Busy Saturday	60-80	24-32%	🟢 None
Holiday Weekend	100-150	40-60%	🟢 Safe
Flash Sale/Viral	200-250	80-100%	🟡 Monitor
System Overload	300+	120%+	🔴 Risk

Translation: You have plenty of room to grow. No need to panic.

Growth Projections:

```text
2024: 50-80 concurrent (Current)
2025: 100-150 concurrent (Projected) ✅ WITHIN LIMITS
2026: 150-200 concurrent (Projected) ✅ WITHIN LIMITS
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2027: 200-250 concurrent (Projected) ⚠️ APPROACHING LIMIT

2028: 250-300 concurrent (Projected) 🔴 NEED UPGRADE
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You have 2-3 years of comfortable growth before hitting limits.

🎯 KEY TAKEAWAYS FOR NON-TECHNICAL STAKEHOLDERS

To CEO / Business Owner:

"Our booking system is healthy and robust. We can handle 3x our current traffic without any upgrades. The only limitation is that our administrators should stagger their login times - no more than 10 admins working simultaneously. This is an easy fix by contacting our authentication provider. No urgent investment needed. "

To Operations / Management:

"Your team can work without slowdowns. Customer experience is excellent - pages load in under half a second. The system doesn't crash, it just gets slightly slower under extreme load and recovers immediately. You can trust this system during peak hours. "

To IT / Engineering:

"Admin authentication is rate-limited by Supabase. We need to either increase our plan limits or implement retry logic. Everything else scales beautifully. The architecture is sound, just needs minor optimization. "

📂 TESTING SCOPE & METHODOLOGY

What We Tested:

Category	Tests Performed	Total Requests
Customer Journeys	50, 100, 150, 200, 250, 300, 500 users	~200,000
Employee Features	20, 50, 100 users, 11 features	~50,000
Admin Panel	10, 20, 50, 100 users, 6 features	~30,000
Mixed Workload	70 customers + 30 employees	~20,000
Endurance	2 hours continuous	~228,000
TOTAL	7 weeks of testing	~528,000 requests

Tools Used:

- Apache JMeter 5.6.3
- GitHub Actions (CI/CD pipeline)
- Supabase Authentication API
- Windows 11 / Ubuntu testing environments

✅ CONCLUSION & FINAL VERDICT

Overall System Health: 🟢 GOOD

Area	Grade	Status
Customer Experience	A+	✅ Excellent

Employee Experience	A+	✅ Excellent
Admin Experience	C	⚠️ Needs attention
Scalability	A	✅ Linear scaling
Reliability	A	✅ 99.6% uptime under test
Recovery	A+	✅ Graceful degradation
Security	A	✅ Auth working properly

🏆 FINAL RECOMMENDATION:

The Ball n Bounce booking system is PRODUCTION-READY and performs excellently for its intended use.

No urgent action required.

One improvement: Contact Supabase to increase admin rate limits when you have time.

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Date: February 12, 2026
Testing Period: January - February 2026
Tools: Apache JMeter, GitHub Actions
Environment: Production