Ticket 3: ABC-2839

Status: Complete
Priority: Medium
Summary: HTTP 429 rate limiting errors blocking legitimate customer interactions during campaign launches
Reporter: Lisa Thompson (MarketReach Inc)
Assignee: David Kumar (Platform Engineering)
Created Date: May 28, 2025
Updated Date: June 2, 2025

Description

Customer-Reported Symptoms: MarketReach Inc experienced widespread service disruptions during their Q2 product launch campaign. The Voice Receptionist system began rejecting incoming calls with "service temporarily unavailable" messages after receiving 150+ calls within a 10-minute window. Customers were unable to reach the sales inquiry line, resulting in frustrated potential buyers and social media complaints.

Error Messages/Logs:

```
[2025-05-28 10:42:33] ERROR RateLimiter: Threshold exceeded - 156 r
[2025-05-28 10:42:34] INFO APIGateway: Returning HTTP 429 - Too Man
[2025-05-28 10:42:35] WARN CallRouter: Fallback mechanism triggered
[2025-05-28 10:42:36] ERROR SessionManager: Unable to create new se
[2025-05-28 10:42:37] INFO MetricsCollector: Dropped calls count: 2
```

Environmental Details: - Browser: Safari 17.4.1 (mobile), Chrome 125.0.6422.78 (desktop) - API Endpoint: https://api.voice.anycompany.com/v2/receptionist/init - Rate Limit Configuration: 150 requests per 10-minute sliding window per customer account - Campaign traffic source: Email blast to 50,000 subscribers + social media ads - Peak concurrent calls: 67

simultaneous sessions - Geographic distribution: 78% US, 15% Canada, 7% International

Impact on Business Operations: - Campaign conversion rate dropped from 3.2% to 1.1% during affected period - 89 documented lost sales opportunities worth estimated $267,000 - Customer service received 34 complaints about "broken phone system" - Marketing team had to pause campaign mid-flight - Emergency manual call center activation cost $4,200 in overtime

Resolution Details: Root Cause Analysis: The rate limiting algorithm was using a simple per-account sliding window without distinguishing between legitimate high-traffic events and potential abuse scenarios. The 150 requests/10-minute limit was designed for normal business operations but inadequate for legitimate marketing campaign spikes.

Applied Fixes: 1. **Dynamic Rate Limiting:** Implemented intelligent rate limiting with burst tolerance - Base limit: 150 requests/10 minutes - Burst allowance: Up to 300 requests/10 minutes with gradual decay - Legitimate traffic pattern recognition using ML-based scoring

1. **Campaign Mode Feature:** Added customer-configurable "high-traffic mode"
2. Pre-scheduled traffic spike accommodation
3. Temporary limit increase to 500 requests/10 minutes

4. Automatic reversion after configurable duration

5. **Enhanced Monitoring:** Deployed real-time traffic pattern analysis

6. Anomaly detection for unusual traffic spikes
7. Automated alerting for approaching rate limits

8. Customer notification system for proactive communication

9. **Queue Management Improvements:** Upgraded call queuing system

10. Increased queue capacity from 50 to 200 concurrent calls
11. Intelligent queue prioritization based on caller history
12. Hold music and estimated wait time announcements

Verification Steps: - Load testing with 400 concurrent calls over 15-minute period: ✅ Passed - Campaign simulation with 75,000 email blast equivalent traffic: ✅ Passed - Rate limit bypass testing for abuse scenarios: ✅ Security maintained - Customer acceptance testing with MarketReach Inc: ✅ Approved - Production deployment monitoring for 72 hours: ✅ No issues detected