

Load Test Results

Screenshot 1: Locust Load Test Progress - Multiple Workers

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Progress: 500 checkouts (59 declined) Progress: 500 checkouts (61 declined) Progress: 500 checkouts (53 declined) Progress: 500 checkouts (68 declined) Progress: 500 checkouts (72 declined) Progress: 500 checkouts (53 declined) Progress: 500 checkouts (41 declined) Progress: 500 checkouts (54 declined)
Progress: 1000 checkouts (118 declined) Progress: 1000 checkouts (119 declined) Progress: 1000 checkouts (120 declined) Progress: 1000 checkouts (120 declined) Progress: 1000 checkouts (127 declined) Progress: 1000 checkouts (144 declined) Progress: 1000 checkouts (145 declined)
Progress: 1500 checkouts (164 declined) Progress: 1500 checkouts (159 declined) Progress: 1500 checkouts (168 declined) Progress: 1500 checkouts (170 declined) Progress: 1500 checkouts (167 declined) Progress: 1500 checkouts (165 declined) Progress: 1500 checkouts (165 declined)
Progress: 2000 checkouts (219 declined) Progress: 2000 checkouts (213 declined) Progress: 2000 checkouts (193 declined) Progress: 2000 checkouts (205 declined) Progress: 2000 checkouts (228 declined) Progress: 2000 checkouts (204 declined) Progress: 2000 checkouts (232 declined)
Progress: 2500 checkouts (276 declined) Progress: 2500 checkouts (264 declined) Progress: 2500 checkouts (254 declined) Progress: 2500 checkouts (252 declined) Progress: 2500 checkouts (232 declined) Progress: 2500 checkouts (252 declined) Progress: 2500 checkouts (285 declined)
Progress: 3000 checkouts (332 declined) Progress: 3000 checkouts (311 declined) Progress: 3000 checkouts (307 declined) Progress: 3000 checkouts (307 declined) Progress: 3000 checkouts (324 declined) Progress: 3000 checkouts (304 declined) Progress: 3000 checkouts (324 declined)
Progress: 3500 checkouts (383 declined) Progress: 3500 checkouts (371 declined) Progress: 3500 checkouts (371 declined) Progress: 3500 checkouts (345 declined) Progress: 3500 checkouts (398 declined) Progress: 3500 checkouts (374 declined) Progress: 3500 checkouts (392 declined)
Progress: 4000 checkouts (457 declined) Progress: 4000 checkouts (464 declined) Progress: 4000 checkouts (464 declined) Progress: 4000 checkouts (468 declined) Progress: 4000 checkouts (449 declined) Progress: 4000 checkouts (429 declined) Progress: 4000 checkouts (448 declined)
Progress: 4500 checkouts (522 declined) Progress: 4500 checkouts (510 declined) Progress: 4500 checkouts (510 declined) Progress: 4500 checkouts (510 declined) Progress: 4500 checkouts (500 declined) Progress: 4500 checkouts (480 declined) Progress: 4500 checkouts (480 declined)
Progress: 5000 checkouts (557 declined) Progress: 5000 checkouts (554 declined) Progress: 5000 checkouts (554 declined) Progress: 5000 checkouts (554 declined) Progress: 5000 checkouts (558 declined) Progress: 5000 checkouts (558 declined) Progress: 5000 checkouts (543 declined)
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Progress: 6000 checkouts (722 declined) Progress: 6000 checkouts (705 declined)
Progress: 7000 checkouts (763 declined) Progress: 7000 checkouts (767 declined) Progress: 7000 checkouts (762 declined) Progress: 7000 checkouts (762 declined) Progress: 7000 checkouts (771 declined) Progress: 7000 checkouts (761 declined) Progress: 7000 checkouts (772 declined)
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Progress: 9000 checkouts (1032 declined) Progress: 9000 checkouts (930 declined)
Progress: 9500 checkouts (1183 declined) Progress: 9500 checkouts (1054 declined) Progress: 9500 checkouts (1054 declined) Progress: 9500 checkouts (1054 declined) Progress: 9500 checkouts (1115 declined) Progress: 9500 checkouts (1107 declined) Progress: 9500 checkouts (1105 declined)
Progress: 10000 checkouts (1227 declined) Progress: 10000 checkouts (1194 declined) Progress: 10000 checkouts (1176 declined) Progress: 10000 checkouts (1157 declined) Progress: 10000 checkouts (1113 declined) Progress: 10000 checkouts (1104 declined) Progress: 10000 checkouts (1103 declined)
Progress: 11000 checkouts (1277 declined) Progress: 11000 checkouts (1201 declined) Progress: 11000 checkouts (1201 declined) Progress: 11000 checkouts (1201 declined) Progress: 11000 checkouts (1227 declined) Progress: 11000 checkouts (1227 declined) Progress: 11000 checkouts (1209 declined)
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Progress: 19000 checkouts (1953 declined) Progress: 19000 checkouts (1927 declined) Progress: 19000 checkouts (1927 declined) Progress: 19000 checkouts (1927 declined) Progress: 19000 checkouts (1956 declined) Progress: 19000 checkouts (1956 declined) Progress: 19000 checkouts (1956 declined)
Progress: 20000 checkouts (2011 declined) Progress: 20000 checkouts (1993 declined) Progress: 20000 checkouts (1993 declined) Progress: 20000 checkouts (1993 declined) Progress: 20000 checkouts (2045 declined) Progress: 20000 checkouts (1987 declined) Progress: 20000 checkouts (1987 declined)
Progress: 21000 checkouts (2138 declined) Progress: 21000 checkouts (2107 declined) Progress: 21000 checkouts (2107 declined) Progress: 21000 checkouts (2107 declined) Progress: 21000 checkouts (2157 declined) Progress: 21000 checkouts (2157 declined) Progress: 21000 checkouts (2157 declined)
Progress: 22000 checkouts (2249 declined) Progress: 22000 checkouts (2204 declined) Progress: 22000 checkouts (2204 declined) Progress: 22000 checkouts (2204 declined) Progress: 22000 checkouts (2274 declined) Progress: 22000 checkouts (2274 declined) Progress: 22000 checkouts (2274 declined)
Progress: 23000 checkouts (2350 declined) Progress: 23000 checkouts (2286 declined) Progress: 23000 checkouts (2286 declined) Progress: 23000 checkouts (2286 declined) Progress: 23000 checkouts (2321 declined) Progress: 23000 checkouts (2321 declined) Progress: 23000 checkouts (2321 declined)
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TARGET REACHED: 25000 checkouts! TARGET REACHED: 25000 checkouts!

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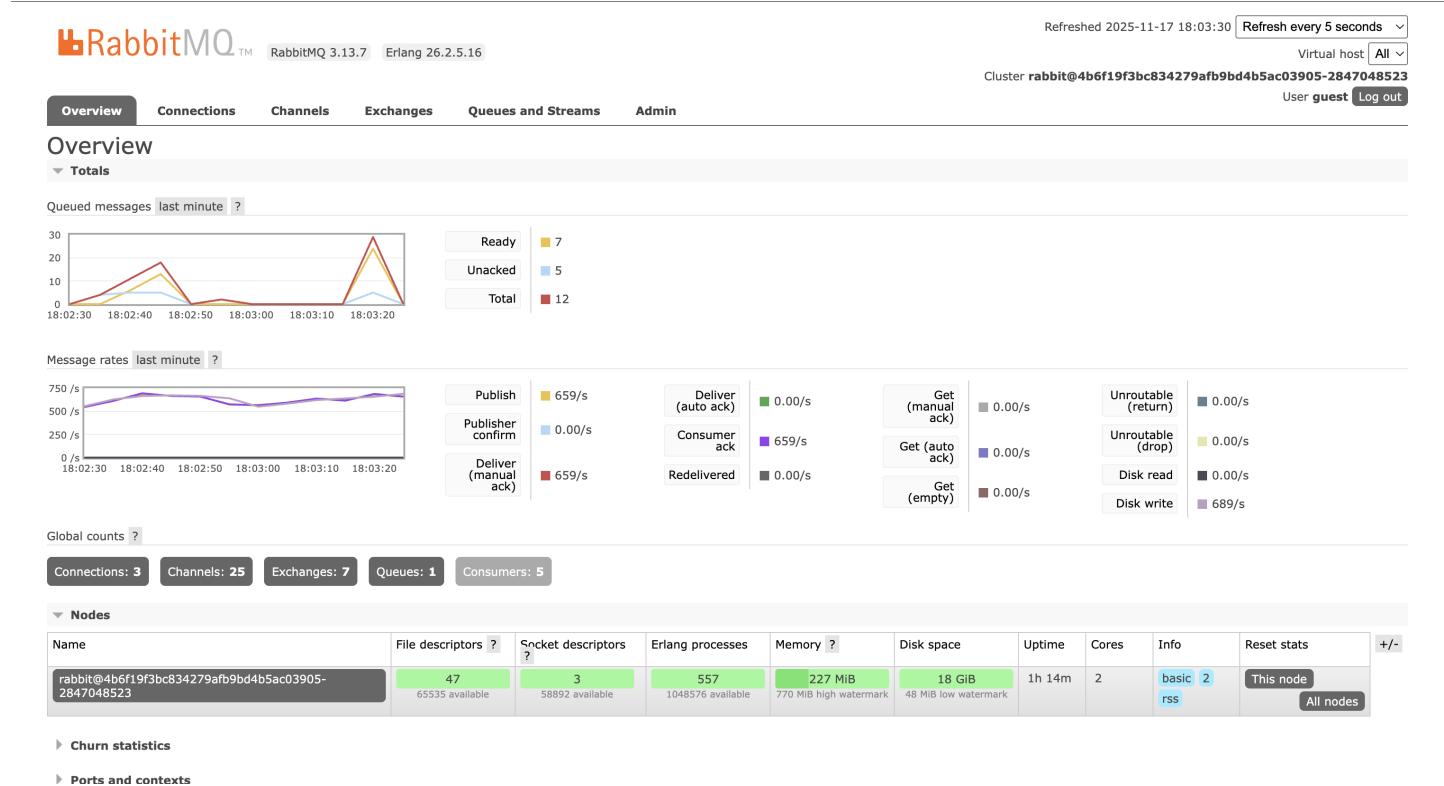
Terminal output showing Locust test execution across 8 distributed workers, each progressing toward its target of 25,000 checkouts (200,000 total). All workers display active progress with successful checkouts and declined payment counts, demonstrating proper distributed mode setup with even user distribution and successful load generation.

Screenshot 2: Load Balancer Behavior - Good vs Bad Product Service



AWS CloudWatch metrics comparing resource utilization between the good Product service (blue) and the badly-behaved Product service (orange) that returns 503 errors 50% of the time. Both instances show similar resource utilization patterns, indicating roughly equal traffic distribution. This occurs because product creation is too brief (only 1,000 products created during setup phase, completing in seconds) for the Application Load Balancer to detect the bad instance's behavior and adjust routing. The ALB requires sustained traffic over several minutes to gather sufficient health check data and response time statistics before reducing traffic to poorly-performing targets.

Screenshot 3: RabbitMQ Queue Depth and Message Rates



RabbitMQ Management Console shows queue depth staying well below the 1,000 message target (peak of ~30 messages, currently 12 total) with balanced production and consumption rates at 659 messages/second. The system maintains low queue depth throughout the test period, demonstrating proper configuration of client threads and warehouse consumer threads to prevent queue buildup while maximizing throughput.

Screenshot 4: All Services Resource Utilization



AWS CloudWatch metrics showing resource utilization across all microservices during load testing. The Shopping Cart service (purple) shows highest CPU (~95% peak) and network usage as the main transaction coordinator, while other services maintain moderate, stable resource consumption. The system demonstrates healthy distributed load handling with no service crashes or resource exhaustion under sustained high throughput.

