

CASE STUDY • AI-POWERED CRM

CRM System for a Call Center

Custom-built CRM for a call center: lead funnels with auto-assignment, IP telephony integration, real-time dashboards, AI-powered call quality control

NestJS

React

TypeScript

PostgreSQL

BullMQ

Redis

OpenAI API

Docker

Kubernetes

100%

Of calls undergo
automated QA

5+

Integrations
(Bitrix, AmoCRM, TG...)

3

Levels of role-based
access (RBAC)

8+

Modules
in the system

PROBLEM

What it looked like before us

A call center with 50+ operators was running on a combination of Excel + AmoCRM + manual oversight. Key pain points:

Lost Leads

Incoming requests were getting lost between systems. No unified funnel — an operator could forget to call back, and managers would find out days later.

Manual Call QA

The manager listened to calls selectively (5-10% of total volume). Systemic issues in scripts went unnoticed for weeks.

No Real-Time Analytics

Reports were compiled manually at the end of the day. Management had no visibility into current conversion rates and operator workloads.

Duplicates and Database Chaos

A single client could have 3-4 records. Operators would call the same person multiple times a day.

ABOUT THE PROJECT

Overview

Client	B2B Sales Call Center
Industry	Lead Generation, Telemarketing
Team	50+ Operators
Timeline	4 months (MVP in 6 weeks)

What We Did

Designed and built a custom CRM system with 8+ modules covering the entire call center workflow — from lead intake to deal closure with AI quality control on every call.

Key Solutions

01 – Automated Call QA (AI-Powered)

Every call goes through a full automated quality assurance cycle:

- 1 Call Recording**
IP telephony automatically saves audio to the system for every call
- 2 Transcription (Whisper API)**
Audio is converted to text with high accuracy – under 60 seconds for a 30-minute call
- 3 AI Analysis (GPT-4)**
Evaluation against a checklist: greeting, needs identification, presentation, objection handling, closing
- 4 Feedback**
The operator receives a score (0-100) and specific recommendations for skill improvement

Result: 100% of calls undergo automated QA instead of 5-10% with manual review. Time spent on quality control was reduced from 4 hours/day to 30 minutes.

02 – Smart Lead Routing

Automatic assignment of incoming leads using a three-factor algorithm:

FACTOR	DESCRIPTION	WEIGHT
Current Workload	Number of active leads assigned to the operator	30%
Industry Conversion	Operator's historical conversion rate in a specific industry	45%
Response Speed	Average time to first contact with a lead	25%

Quality Control: **Objection Analysis**

The QA module automatically classifies client objections and tracks how effectively operators handle them. Real screenshot for the period Jan 18 — Feb 15, 2026:

Контроль качества V2

Фильтры

С По

Проект

ПРИМЕНИТЬ СБРОС

ОПЕРАТОРЫ АНАЛИЗ ОШИБОК ТЕХНИЧЕСКИЕ **ВОЗРАЖЕНИЯ** КОМАНДА

Анализ работы с возражениями

Статистика по возражениям

Возражение	Встречено	Отработано	Успех
"дорого"	98	42	42.86%
"не интересно"	78	4	5.13%
"нет бюджета"	38	17	44.74%
"не актуально"	15	0	0%
"неудобно говорить"	7	1	14.29%
"не нужно"	5	1	20%
"не актуален"	4	0	0%
"уже купили"	4	0	0%
"не интересовался"	3	0	0%
"нет времени"	2	1	50%

Objection Statistics

OBJECTION	ENCOUNTERED	HANDLED	SUCCESS
"too expensive"	98	42	42.86%
"not interested"	78	4	5.13%
"no budget"	38	17	44.74%

OBJECTION	ENCOUNTERED	HANDLED	SUCCESS
"not relevant"	15	0	0%

Insight: AI analytics revealed that the "not interested" objection is handled the worst (5.13%), which signaled a need to revise scripts and train the team.

System Modules

Leads

Funnels with custom stages, auto-assignment, filters, bulk actions, Excel/CSV import

Calls

IP telephony, recording, click-to-call, call history on lead card, status tracking

QA (Quality Control)

Transcription (Whisper), AI scoring (GPT-4), scores, recommendations, objection statistics

Tasks

Callbacks, follow-ups, reminders linked to leads, deadlines, notifications

Duplicates

Fuzzy duplicate search by phone/email/name, automatic record merging

Disputes

Lead ownership conflict resolution, ownership history, team lead arbitration

Finance

Deal payment tracking, operator bonuses, revenue reports, plan vs. actual

Dashboards

Real-time stats: conversions, operator workload, funnel, top operators, trends

Technology Stack

LAYER	TECHNOLOGIES
Frontend	React, TypeScript, Ant Design, React Query, Recharts
Backend	NestJS, TypeScript, REST API, JWT Authorization
Database	PostgreSQL, Redis (cache + sessions)
Queues	BullMQ (transcription, QA analysis, notifications)
AI/ML	OpenAI API (Whisper + GPT-4)
Infrastructure	Docker, Kubernetes, CI/CD (GitHub Actions)
Integrations	Bitrix24, AmoCRM, Telegram, Google Sheets, Email

Role-Based Access and Integrations

3-Level RBAC

Operator

Own leads, calls, tasks. View personal statistics and QA scores.

Team Lead

Team leads, redistribution, operator dashboard, disputes, finance.

Administrator

Full access: users, projects, finance, settings, QA configuration.

Integrations

SYSTEM	WHAT WAS INTEGRATED
Bitrix24	Bidirectional lead and deal synchronization, webhook notifications
AmoCRM	Lead import, funnel status synchronization, result write-back
Telegram	Operator notifications for new leads, manager reports
Google Sheets	Report export, bulk lead import from client spreadsheets
Email (SMTP)	Automated follow-up emails, task notifications
IP Telephony	Click-to-call, call recording, automatic lead linking

Technical Highlights

Performance

- 30 min transcription → under 60 sec
- QA dialogue analysis — 5-10 seconds
- BullMQ with priorities and retry
- Real-time updates via WebSocket

Security

- JWT with refresh tokens
- RBAC at every endpoint level
- Encrypted call recordings
- Audit log for all critical actions