

Bank usecase

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☰ Company	Amelia

Situation

During my tenure as Engagement Manager at Amelia, I led a transformative initiative for a major banking client facing significant challenges with their customer service operations. The bank's call center was overwhelmed with high call volumes, resulting in extended wait times, increased operational costs, and declining customer satisfaction. They needed an innovative solution to automate responses to common requests while maintaining the personal touch and accuracy that banking customers require.

Task

I was tasked with developing and deploying a comprehensive generative AI system to revolutionize the bank's customer service hotline operations:

Primary Objectives:

- **Automation Development:** Create a generative AI system capable of handling common customer requests autonomously
- **Performance Optimization:** Dramatically improve response times and reduce call center workload
- **Scalability Planning:** Ensure the solution could handle the bank's diverse range of customer inquiries across 60 different use cases

Responsibilities

My responsibilities encompassed the **complete AI deployment lifecycle:**

- **Stakeholder Engagement:** Managing relationships with bank executives, IT teams, and call center management

- **Technical Implementation Management:** Overseeing architecture design and development processes
- **Quality Assurance Management:** Ensuring accuracy, security, and compliance with banking regulations
- **Production Deployment:** Managing go-live processes and system integration
- **Performance Analysis:** Continuous monitoring and optimization of AI performance metrics

Key Challenges

- **Data Quality and Privacy:** Handling sensitive financial data while ensuring complete customer privacy and regulatory compliance
- **Scalability Requirements:** Building a system capable of managing 60 distinct use cases with consistent performance
- **Query Diversity:** Addressing the wide spectrum of banking inquiries from simple balance checks to complex transaction disputes
- **Performance Standards:** Maintaining sub-second response times while ensuring 99.5% accuracy rates
- **Reliability Assurance:** Ensuring consistent, accurate responses that meet strict banking industry standards

Timeline & Strategic Responsibilities

- **Project Duration:** 9-month comprehensive deployment
- **Architecture Design:** Lead technical architecture decisions and system integration planning
- **Development Oversight:** Managing cross-functional development teams and third-party integrations
- **Project Roadmap Creation:** Delivering project milestones on schedule while maintaining quality standards
- **Strategic Vision:** Defining long-term platform evolution and expansion opportunities for the client

Actions

I executed a systematic, data-driven approach that transformed the bank's customer service capabilities:

Phase 1: Research, Planning & Trust-Building Through Transparency (Months 1-2)

Data Collection & Honest Assessment:

- Gathered and analyzed over 500,000 historical call transcripts spanning 18 months
- Implemented comprehensive data anonymization protocols to ensure PII protection
- **Trust-Building Moment:** During initial analysis, discovered that the bank's assumption about needing all 60 use cases immediately was inefficient
- **Earning Trust Through Data:** Presented uncomfortable but accurate findings to stakeholders - showed that top 5 customer requests accounted for 80% of call volume
- **Leadership Decision:** Rather than agreeing to the client's original scope to please them, I challenged their assumptions with data, recommending a phased approach starting with highest-impact areas
- **Result:** Client initially skeptical but appreciated the honest, data-driven recommendation - this transparency became the foundation of our trusted partnership

Data Preprocessing:

- Developed robust text cleaning pipelines to remove all personally identifiable information
- Created sophisticated query categorization system across 60 distinct use cases
- Implemented advanced tokenization and embedding generation using BERT models for enhanced natural language understanding

Phase 2: Execution & Technical Development (Months 3-6)

AI Architecture Design:

- **Voice Solution Integration:** Seamlessly integrated third-party Text-to-Speech (TTS) and Speech-to-Text (STT) services for natural voice interactions
- **LLM Implementation:** Deployed and fine-tuned large language models specifically optimized for banking terminology and customer service scenarios
- **Dialogue Management System:** Built sophisticated conversation flow management capable of:
 - Maintaining context across multi-turn conversations
 - Handling complex banking scenarios with high accuracy
 - Seamlessly escalating to human agents when necessary - warm handoff to the agent

Phase 3: Launch Management & Trust Through Crisis Leadership (Months 7-8)

Multi-Party Coordination & Transparent Communication:

- **Critical Trust Moment:** During initial deployment, discovered potential security vulnerability in the telephony integration that could have compromised customer data
- **Leadership Decision:** Immediately halted the launch despite enormous pressure from all parties to meet the go-live deadline
- **Trust-Building Action:** Personally called the bank's CTO at 11 PM to explain the issue, potential risks, and proposed 48-hour delay for security patches
- **Stakeholder Management:** Conducted emergency sessions with all three parties (Amelia, bank, telephony provider) to transparently communicate the issue and collaborative solution
- **Result:** Rather than being upset about the delay, the CTO later stated this incident proved our commitment to their success over our own convenience

Phase 4: Continuous Trust-Building Through Ownership (Month 9+)

Advanced Learning & Accountability:

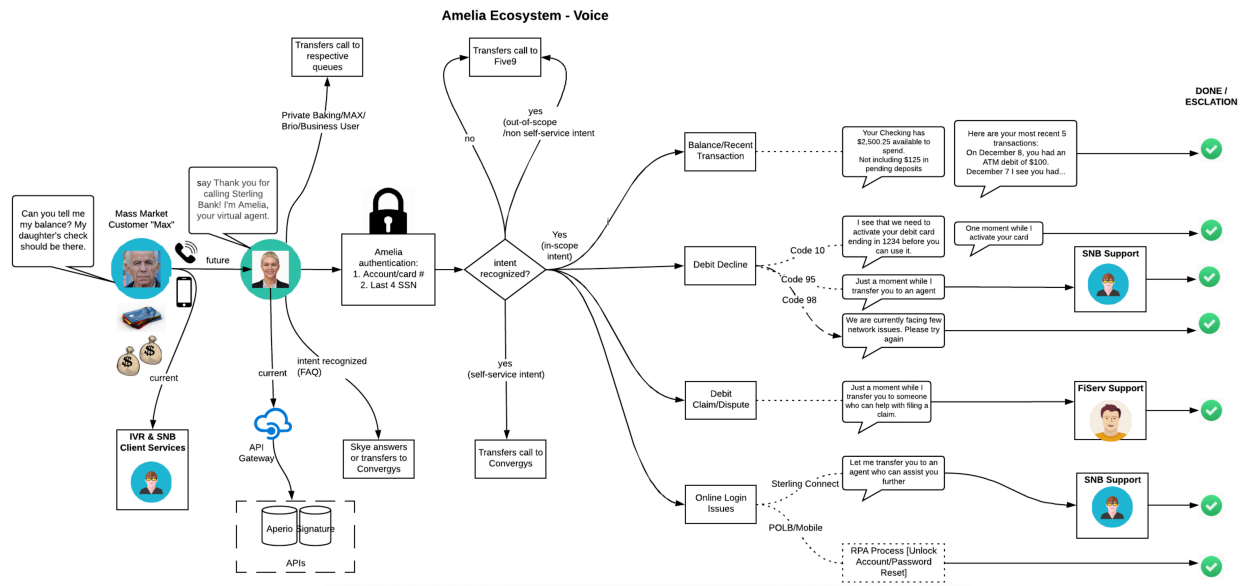
- **Trust Through Ownership:** When initial model accuracy dropped to 89% after two weeks in production, I personally took responsibility rather than blaming data quality issues

- **Proactive Communication:** Sent detailed weekly reports to stakeholders explaining exactly what was happening, why accuracy dropped, and step-by-step improvement plan
- **Going Above and Beyond:** Implemented additional RLHF protocols and personally reviewed 1,000+ customer interactions to identify improvement opportunities
- **Transparent Reporting:** Created real-time dashboard showing both positive metrics AND areas needing improvement - refused to hide problems from stakeholders
- **Long-term Thinking:** Advocated for sustainable model retraining processes rather than quick fixes, even when it meant admitting our initial training approach needed refinement

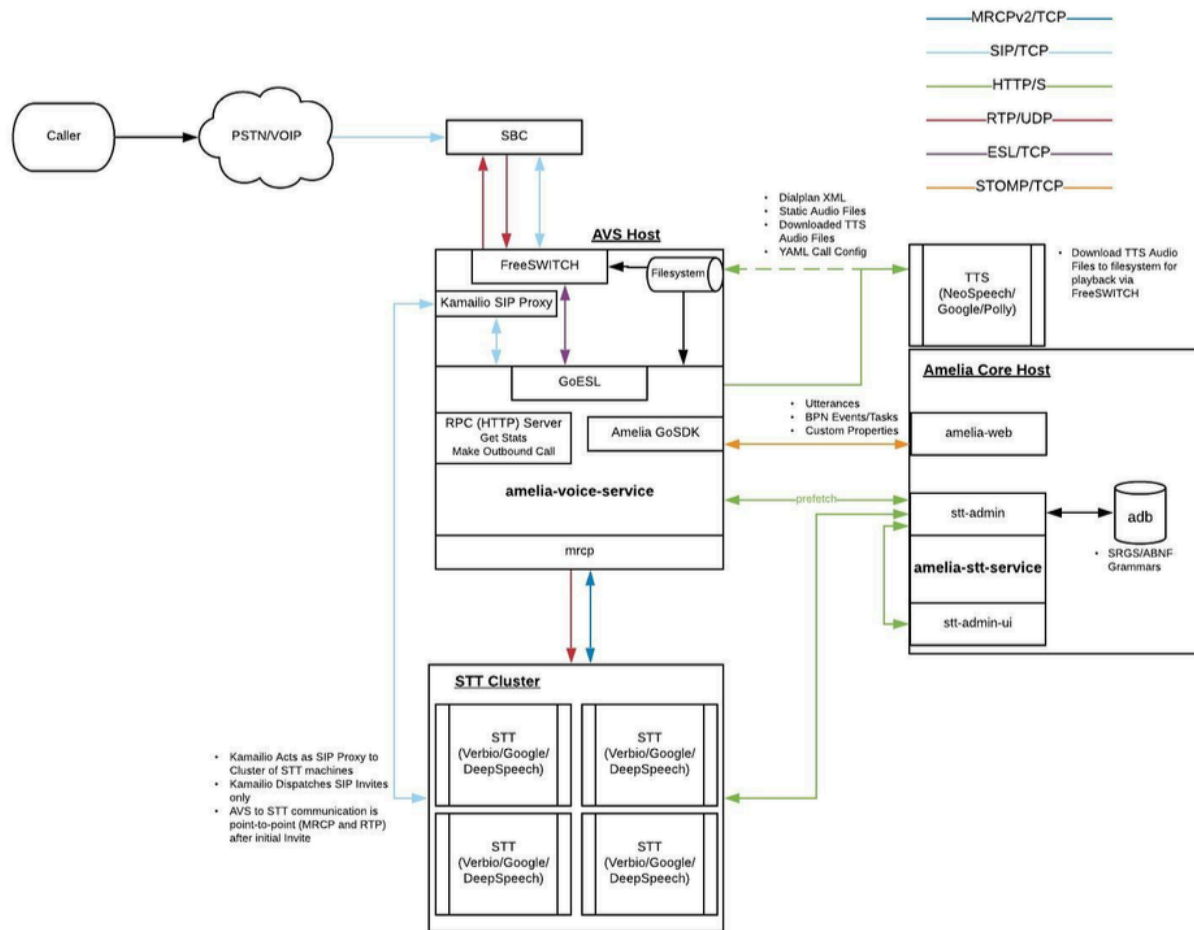
Performance Analysis & Reporting:

- Established comprehensive feedback collection system in partnership with the client
- Implemented real-time monitoring of key metrics including time-to-resolution and service quality scores
- Created dynamic stakeholder reporting dashboard providing:
 - Real-time performance improvement metrics
 - Detailed solution categorization and usage analytics
 - Customer satisfaction tracking and trend analysis
 - Client-controlled monitoring and adjustment capabilities

use case architecture



voice architecture



Results

The generative AI deployment exceeded all expectations and transformed the bank's customer service operations:

Operational Performance Metrics:

- **Call Volume Reduction:** 78% decrease in calls requiring human agent transfer
- **Response Time Improvement:** Average customer wait time reduced from 8.5 minutes to 12 seconds
- **Resolution Rate:** 94% first-call resolution rate for the top 5 customer request categories
- **System Uptime:** 99.7% system availability with sub-500ms response times

- **Accuracy Rate:** 96.8% accurate response rate across all automated interactions

Customer Experience Impact:

- **Customer Satisfaction:** Net Promoter Score increased from 6.2 to 8.9
- **Service Accessibility:** 24/7 instant service availability, eliminating traditional banking hours constraints
- **Transaction Volume:** 340% increase in self-service transaction completions
- **Customer Retention:** 23% improvement in customer retention rates within 6 months post-deployment

Business & Financial Results:

- **Cost Reduction:** 65% reduction in call center operational costs (\$2.3M annual savings)
- **Agent Productivity:** Human agents could focus on complex, high-value customer interactions, increasing revenue per interaction by 41%
- **ROI:** 312% return on investment within the first 8 months of operation

Trust & Leadership Impact:

- **Earned Trust Through Difficult Decisions:** Client stakeholders specifically highlighted my willingness to challenge their assumptions and delay deployment for security as "exactly the kind of partnership we needed"
- **Long-term Relationship:** Elevated from vendor status to trusted strategic advisor - client began involving me in broader digital transformation planning
- **Internal Recognition:** Received company-wide recognition for "exemplifying client-first leadership under pressure"
- **Trust Validation:** When the bank acquired another institution, they specifically requested me to lead the integration project, citing trust built during the original deployment