



Secure Payments with Agentic AI: Telecom Payments Processing Solution



Secure Payments with Agentic AI: Telecom Payments Processing Solution



Executive Summary

Puerto Rico's premier internet service provider has set a new standard in customer service by pioneering the use of agentic AI for autonomous payment processing. With over 20 years of industry leadership, they recognized that manual bill payment calls were bottlenecking support operations and exposing sensitive financial data to unnecessary risk.

In partnership with SmartBots, the telecom leader launched an AI-powered voice agent that now handles payment processing and outbound reminders with complete autonomy—ensuring PCI DSS compliance, bilingual support, and seamless integration with their custom CRM. The result: a dramatic reduction in manual workload, enhanced security, and actionable analytics that drive continuous business improvement.

The Client

With two decades of experience under its belt, the client is at the forefront of Puerto Rico's connectivity revolution, delivering high-speed, low-latency internet across the island. With a strategic focus on technological innovation, local support, and managed services, the client is not only expanding its network but also shaping the future of Puerto Rico's digital economy.

The Challenge

As Puerto Rico's premier telecom provider prepared for rapid growth, it faced a pressing challenge: manual bill payment calls were consuming valuable support center time and exposing sensitive financial data.

A customer who wished to pay their bill would call the support center; a support executive would answer the call and guide them through the payment, collecting details such as credit card details, and finally, their payment would be processed.

Each such conversation, although unremarkable in nature, would require a customer service agent to take customers through the procedure, costing precious support center time over what was, in fact, a routine operation. It was also not the most secure of arrangements: there was the danger of sensitive financial information being mishandled.

So, with efficiency, security, and time savings uppermost in their minds, the telecom provider sought a solution that would:

- Automate payment processing and reminders
- Safeguard sensitive customer data
- Free up support staff for complex issues
- Scale effortlessly with business growth

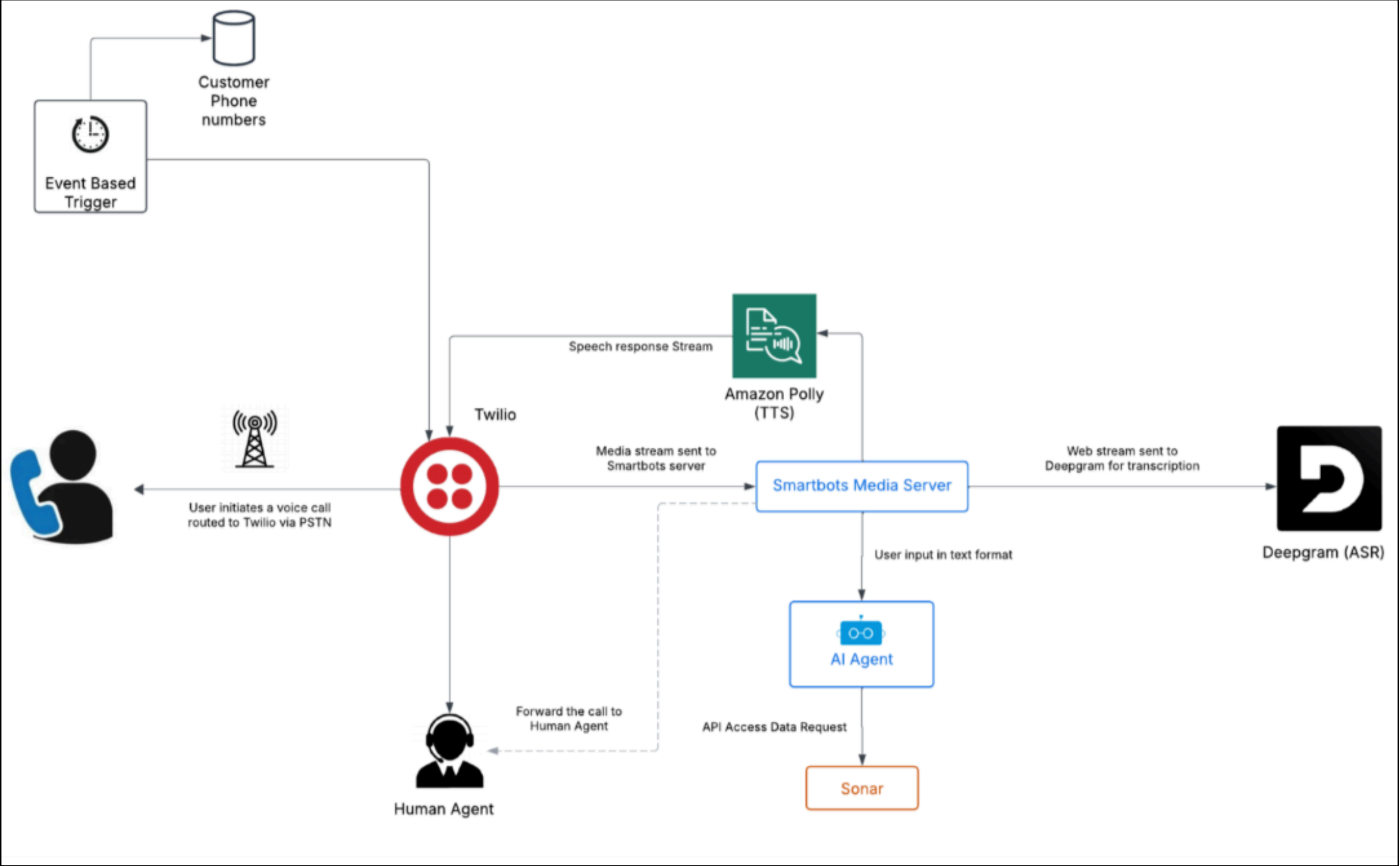
The Solution: SmartBots' Autonomous Payment AI Agent

SmartBots delivered an elegant, robust solution: a Payment Processing Support AI Agent. This advanced voice agent autonomously contacts customers with pending bills, guides them through secure payment steps, and processes transactions—all without human intervention. Key features include:

- **Full PCI DSS compliance:** Sensitive payment details are handled exclusively by the agent, ensuring airtight security.
- **Bilingual operations:** Seamless support in both Spanish and English, tailored to Puerto Rico's demographic.
- **Inbound and outbound support:** The agent manages both incoming payment inquiries and proactive outbound reminders.
- **Comprehensive call summaries:** Every interaction is logged for analytics, training, and escalation if needed.
- **Custom CRM integration:** Direct API integration ensures real-time data flow and transaction accuracy.
- **Business analytics:** Actionable insights into call patterns, user profiles, and payment trends.

How It Works

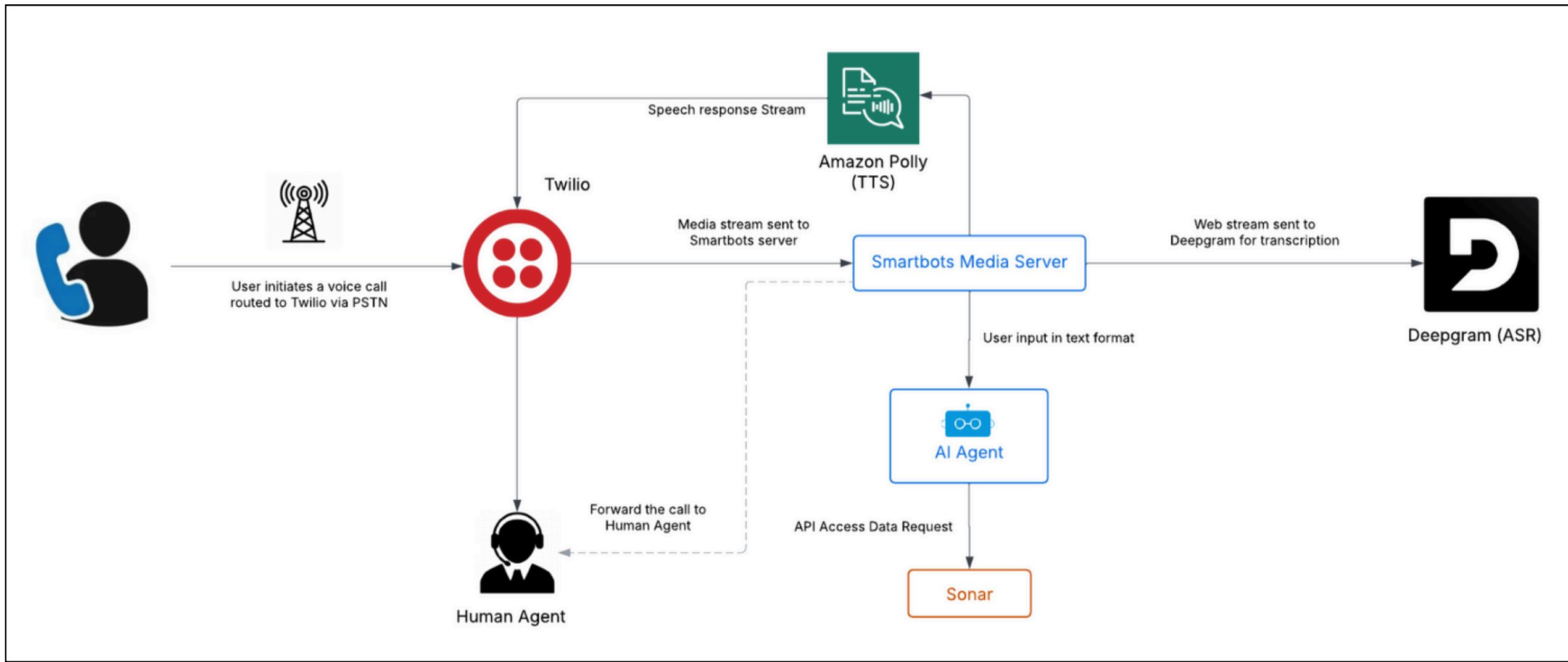
On a specific date every month, the Support Agent calls customers to share their pending bill amounts with them. It then asks them whether they would like to go ahead and pay right away; if yes, it guides them through the payment procedure.



Outbound Voice Call Workflow

Every step in this procedure is automatic; payment details, such as credit card numbers, are collected without human agents being part of the loop. This ensures that **sensitive information is safeguarded completely**, while payments are processed in accordance with the strictest payment guidelines (specifically, PCI/DSS compliance guidelines).

The same agent can attend inbound calls as well; customers who call the support center enquiring about bill payments can be attended to by the Payment Agent. In addition, the agent is bilingual; it can communicate in **Spanish as well as English**.



Inbound Voice Call Workflow

The agent does more than just process payments. It summarizes each call neatly, logging details. These can be shared with a live agent, in case the call needs to be escalated. The summary can also be viewed by the management at a later time, and used for training purposes.

AeroNet

Monitor

Aeronet Spanish Bot

PROD

NI

Logs

Training

Analytics

Monitor > Logs

Search Logs

Clear

Filters

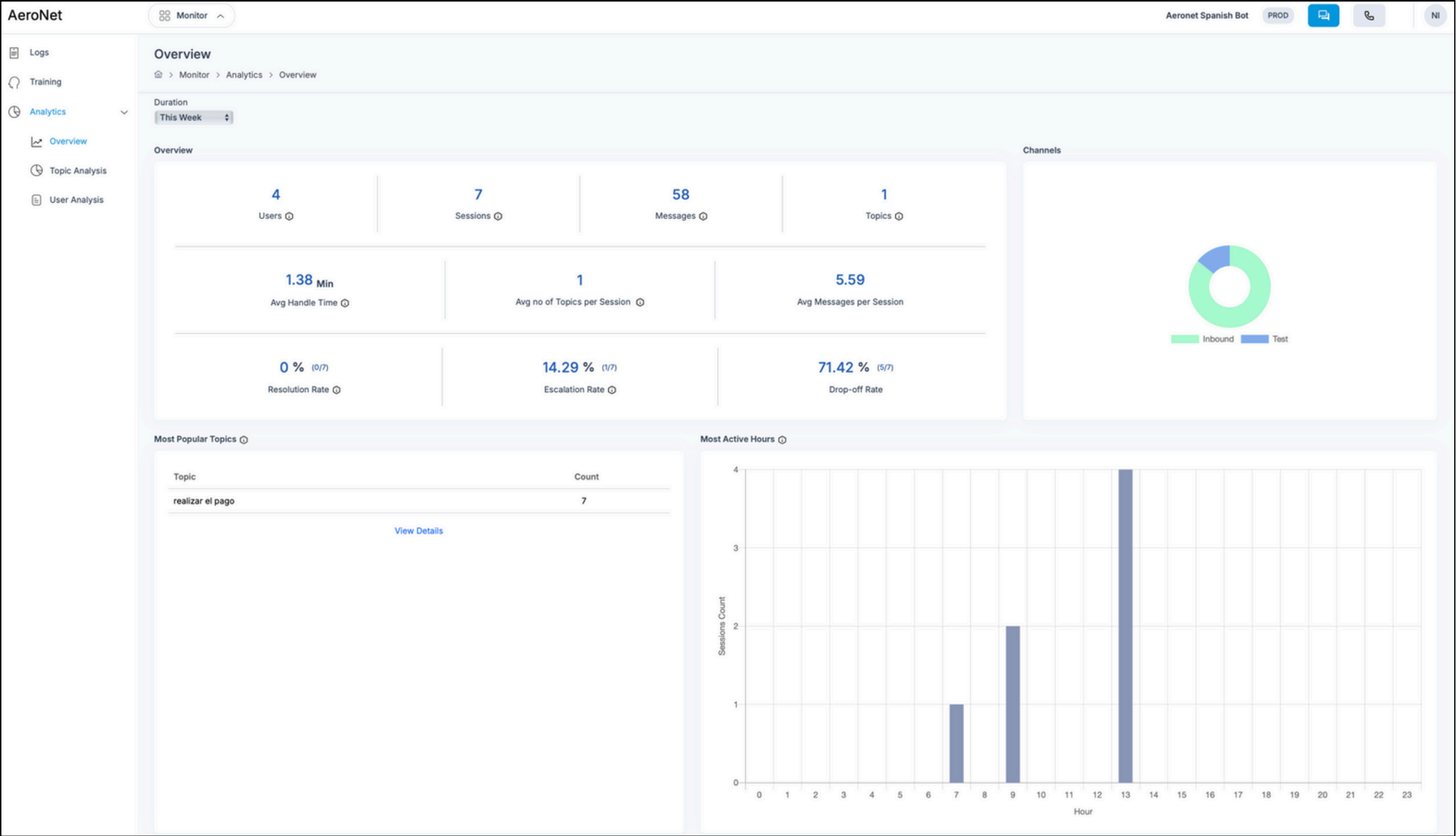
Download

User Id	Date	Channel Name	Topic	Duration (mm:ss)	Interactions	Summary	Review	View Chat	Recordings
	05/21/2025 07:10 AM	Test	Welcome,realizar el p ago	00:48	5	The conversation involved the user interacting with a bot to make a payment through an automated sys... <a>Show more			
	05/20/2025 01:58 PM	Inbound	realizar el pago	00:52	4	The account holder, Miguel Torres, has a pending balance of \$59. The user confirmed the amount and r... <a>Show more			
	05/20/2025 01:57 PM	Inbound	realizar el pago	00:23	3	Quiero realizar un pago y mi ID de cuenta es 17. La cuenta Juan del Pueblo, actualmente tiene un sa... <a>Show more			
	05/20/2025 01:39 PM	Inbound	realizar el pago	04:08	7	The account with ID 34329 has a pending balance of \$393.1. The user confirmed the payment, and the s... <a>Show more			
	05/20/2025 01:35 PM	Inbound	realizar el pago	00:28	3	La cuenta Intercambio - Isleta Marina / Ofic Administracion tiene un saldo pendiente de \$393.1. El u... <a>Show more			
	05/20/2025 09:58 AM	Inbound	realizar el pago	02:38	4	La cuenta Condominio Bristol tiene un saldo pendiente de \$118.9. Se está procesando el pago. Por fav... <a>Show more			
	05/20/2025 09:55 AM	Inbound	realizar el pago	00:24	3	La cuenta Condominio Bristol tiene un saldo pendiente de \$118.9. El usuario confirmó la transacción ... <a>Show more			
	05/17/2025 02:07 PM	Inbound	Live agent	00:00	1	The user wants to make a payment and provides their account ID as a representative. The bot responds... <a>Show more			
	05/17/2025 02:06 PM	Inbound	realizar el pago	03:05	12	The user wants to make a payment and provides their account ID as . The bot informs the us... <a>Show more			
	05/17/2025 02:06 PM	Outbound	realizar el pago	01:06	3	The user wants to make a payment with account ID 17169 and user account confirmation is yes. The bot... <a>Show more			

Voice calls logs featuring a detailed summary of the call

The information it collects can be used to answer questions such as what is the most likely time for people to call, what is the user profile of particular users, or what percentage of people drop the call.

The agent can also provide business-related analytics, such as topic analysis and user analysis.



Business analytics snapshot

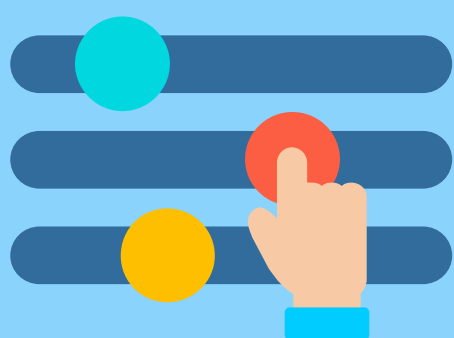
How It Was Built

The Support AI Agent was built using the SmartBots Studio, a no-code visual builder. The SmartBots Studio comes with a host of advantages:

- **Pre-engineered components and templates:** The building blocks for a variety of agents—support agents, knowledge agents, data analysis agents, and so on—have been pre-configured in the Studio
- **LLM-agnosticism:** The Smartbots Studio allows you to pick the LLM of your choice (or use a custom-built one), depending on your use case.
- **Pre-built connectors:** These enable smooth, seamless integrations to backend systems. The intuitive user interface enables even custom or legacy backend systems to be easily integrated via API-based custom integrations.
- **Graphical user interface to build agents:** Any AI agent can be configured simply by describing the business requirements—the building blocks are already present.
- **Robust monitoring and analytics:** Once the AI Agent has been deployed, the Studio provides comprehensive monitoring capabilities and detailed analytics for real-time feedback, allowing continuous improvement.

Using the SmartBots Studio to build their Support AI Agent allowed the client to hit the ground running. The solution could be quickly deployed in the field, tested, and refined. New features could be easily added, and teething troubles handled in real time.

Best of all, using the analytics provided by Studio allowed the client to gauge the impact of the new agent as soon as it was deployed and make proactive adjustments where needed.



Ensuring Security and Compliance for Financial Data Collection

Payment processing through a voice agent opens up a can of worms with regard to potential security hazards. Having considerable experience with keeping financial information secure in accordance with PCI DSS compliance regulations, Smartbots recommended masking the data at every endpoint. Details like credit card numbers are not shared even with the OpenAI model; human admins accessing the logs cannot view the actual numbers. By isolating financial details from LLM interactions, Smartbots ensures completely risk-free payment processing.



Handling a Major Challenge: Latency

Latency is a crucial concern for all AI agents, but particularly so in customer-facing voice agents. Even slight delays in responses can result in a jarring experience for users.

To create the Support AI Agent, SmartBots implemented a series of targeted strategies to reduce latency. Here's a breakdown of five key strategies they used:

- **Careful selection of building blocks**

SmartBots picked the building blocks of the telecom payment processing agentic AI system specifically to improve speed while ensuring high quality of service. For example, Deepgram's ASR system was chosen to transcribe speech to text.

Deepgram is currently considered the gold standard for Automatic Speech Recognition. Its design allows it to process and respond to speech as it is received, rather than waiting for the user to finish speaking, resulting in sub-second round-trip latency for both transcription and synthesis. The platform also provides full control over model selection and orchestration at every layer.

Similarly, Amazon Polly was chosen for TTS transcription, owing to its superior speed coupled with Spanish language support capabilities. Then, having chosen the right components, Smartbots worked on the orchestration, integrating the various models and services into a tightly-knit stack for seamless operation.

- **Enhanced Voice Activity Detection**

Having defined specific use cases for the voice agent, Smartbots further worked on its VAD capabilities. The idle wait time was optimized based on the expected input length rather than waiting for the standard amount of time (3 seconds); e.g., when a user recited their credit card number, the agent checked, based on the expected length of the number, whether the utterance was complete. If it was, it proceeded immediately with next steps, shaving precious milliseconds off the response time. If a user dropped the call mid-input, the system no longer waited out the full expected duration. This adaptive approach reduced wasted idle time, especially in cases of dropped calls, and improved overall responsiveness.

- **Prompt Optimization**

Smartbots crafted clear, concise, and contextually relevant instructions for AI models, ensuring the model interprets and executes tasks efficiently. Specifically, the number of tokens was reduced. Note that every additional 500 tokens in a prompt can add 20–30 milliseconds to response time, and larger prompts consistently increase time to first token (TTFT), leading to more noticeable “dead air” in conversations.

- **Streaming and Buffering**

Real-time streaming allows the agent to process and transmit audio data as it is received, rather than waiting for the full audio input, so the system can begin transcription or synthesis immediately. Similarly, long sentences or paragraphs in the output stream are buffered, and chunks of the output are sent out one at a time. For TTS, breaking down long texts into smaller chunks allows the system to generate and play audio incrementally, reducing wait times and improving the user experience.

- **Improved user engagement**

When backend validation or other processing caused unavoidable delays, SmartBots introduced dynamic acknowledgement prompts such as “I am currently confirming your identity. Please wait; this will only take a minute or so.” This keeps users informed and engaged during processing lulls, reducing perceived latency and improving the conversational flow. Such justifications for response delays enhance user trust and transparency, especially in instant-response scenarios.

These strategies, combined with code and memory optimization to eliminate redundancies and streamline logic, ensured that the voice agent is faster and more user-friendly, with reduced real and perceived latency.

Impact and Benefits

The well-trained, completely secure payment support agent can handle the majority of bill payments. This means:

- **Massive Efficiency Gains:** AI agents handle 30–50 calls per hour (vs. 8–12 for humans), slashing wait times and freeing staff for higher-value tasks.
- **Unmatched Security:** Encrypted data handling and anonymized call summaries eliminate the risk of data leaks.
- **Autonomous Scalability:** The AI agent initiates 50–100 outbound calls daily, scaling effortlessly with demand.
- **Superior Customer Experience:** 24/7 availability, instant responses, and language customization drive higher satisfaction and first-contact resolution.
- **Actionable Insights:** Detailed analytics empower the client to optimize operations, identify trends, and enhance training.

Future Directions

The client is now exploring other avenues where SmartBots' Agentic AI solutions can be applied to address business challenges. These include:

- **Expanding the scope of support issues:** SmartBots has developed telecom support agents that can handle a variety of customer concerns: setting up new connections, upgrading plans, answering generic queries, and troubleshooting. For more complex issues, the call can be smoothly handed over to a live agent.
- **Multimodal conversations:** SmartBots' support agents can handle multiple streams of input coming over multiple modes during a single call. For example, a user who does not wish to recite their credit card details out loud can be sent a link to a form, where they can type in the information instead. The agent conversing with the customer over the voice call also gets input in real time from the online form, and can confirm that information live over the call.
- **Sentiment analysis:** Customer sentiment can be gauged based on word choice, tone, and conversational context. It can then be classified as positive, negative, or neutral in real time, adaptive responses can be given, and, if needed, live agent transfer can be arranged.
- **Business intelligence:** Along with topic analysis, the agent can start offering user analysis, where user profiles are used to customize offers and plans.
- **Knowledge sharing/Query handling:** Answering basic FAQs such as what types of plans are available, do they provide service for a particular area, what kind of equipment is needed, etc.

Conclusion

Our telecom client's deployment of an AI-powered payment support agent has fundamentally transformed its customer service landscape. By automating routine transactions, they have achieved unprecedented efficiency, bulletproof security, and a superior customer experience—cementing its leadership in Puerto Rico's digital future. This initiative stands as a benchmark for the telecommunications industry, showcasing the transformative power of agentic AI in delivering secure, scalable, and customer-centric solutions.