How Lucid Hearing created a hearing technology leader **driven by customer data**

Shifting to a Customer-Centric Data Ecosystem

As one of the largest hearing aid manufacturers in the world, Lucid Hearing is dedicated to helping the more than 48 million Americans experiencing hearing loss. The company offers free online hearing assessments, as well as in-store tests at more than five hundred Lucid Hearing clinics in the United States, forty in China, and twelve in Central America. Lucid Hearing's goal is to create more awareness around hearing health by offering protection, maintenance, and innovative technology.

"Helping people hear better is a fun business to be in," said Bennett Griffin, Lucid's executive vice president of research and development. "In addition to the hearing aids we produce, we also design all of the infrastructure and the digital pieces that support the devices. We have a mobile app and software that supports sales and manufacturing."

Lucid Hearing is a vertically integrated company that performs its own research and development, design, manufacturing, and sales functions. The scope and reach of the enterprise made transitioning from being just a manufacturing company into a technology and data company necessary.

"We got to a point technology-wise that we needed to build a new cloud-based backend and architecture to support a customer data platform," said Bennett. "We have a ton of data on the clinical side of what we do. Because of that, we wanted to create a different dimension of data. We envisioned a system that would allow us to understand how customers interact with our products out in the world. Essentially, we wanted a customer-centric view of our products and our customers."

With this type of infrastructure in place, Lucid would be able to see patterns in the data and answer important questions, creating a feedback loop to ultimately help the company improve its products and services.

Lucid had a host of technology engineers. What it didn't have was expertise in moving from an architecture with physical data centers to an integrated ecosystem in the cloud. Everything—including the hearing aids and the mobile app—had to be connected to the cloud to provide next-generation services. Bennett wanted to create this new infrastructure quickly using best practices and without having to spend time training internal staff.

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> We're excited about what we've accomplished in chapter one, and now we're excited about what we're going to build in the coming chapters.
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> **Bennett Griffin**
> Executive Vice President of Research and Development
> **Lucid Hearing**

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Ripple Group Helps Decode the Customer's Journey

Lucid wanted the customer to be at the core of everything. Instead of the technology being centered around a clinical infrastructure, the company wanted to be able to gain an understanding of each customer's journey with its products and services. Every customer touchpoint is a data point for Lucid, whether the customer enters a clinic or makes an online purchase.

The Ripple Group team was interested in Lucid's vision for the future. Once engaged, the team sought answers to several critical questions that would help refine the vision. What did Lucid have? What was Lucid trying to accomplish? What did Lucid need to get started down the right path?

To answer those questions, the Ripple Group team worked with Lucid's representatives for a couple of months to understand Lucid's capabilities and confirm Ripple Group was the right partner for the project.

"The first chapter of our engagement involved product exploration," said Bennett. "Ripple Group was there to help us get the ball rolling in the right direction so that as we're building things, we're actually building the things that matched our vision."

Ripple Group's contribution to the success of the engagement involved consulting, strategic planning, and providing key interim roles, which included an advisory chief technology officer, an advisory chief operating officer, a vice president of engineering, and a product manager. Each person integrated with the Lucid internal team and was responsible for the day-to-day management of internal and contracted teams in addition to their advisory roles.

To help formalize the scope of work and accomplish the set objectives, Ripple Group brought in Particle41.

Particle41 Helps Craft Lucid's Customer-Centric Platform

Founded by industry veterans passionate about what they do, Particle41 committed a group of experienced developers and professionals to strengthen Lucid's internal team in the areas of software development, data engineering, and DevOps. *(Continued on next page)*

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PARTICLE41 + RIPPLE GROUP

Lucid HEARING®

CASE STUDY

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"Particle41 quickly identified a technical lead for the project and built a modular team of engineers, quality assurance, and data people around him," said Bennett. "One of the things I love about working with the Particle41 team is that they are flexible. As we went through the journey together, they brought in the right team members at the right time. If we needed to ramp up personnel to meet a deadline, they would add people. Similarly, when we didn't need as many people, Particle41 was attentive and pulled back on staffing to ensure we had the right-sized team."

Particle41's professionals provided a modern solution based on microservices architecture built on the Azure cloud infrastructure, which created a highly resilient and secure environment. They also built automated extract, transfer, and load (ETL) pipelines using modern engineering tools and orchestration services to ensure seamless data migration into a central repository.
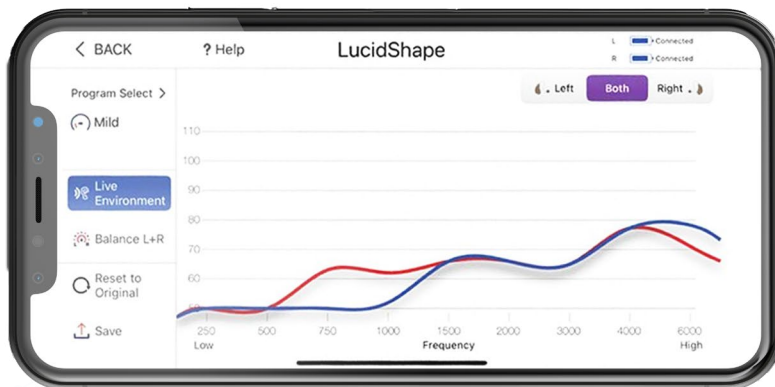
The Particle41 professionals also constructed a container-based application solution designed to provide GraphQL APIs support for Lucid's native iOS and Android application. They Integrated automated DevOps pipelines into the system to ensure foolproof, continuous deployment of the applications. The customer data platform solution also uses Azure-based monitoring and alerting capabilities for the applications.

Ultimately, with the help of Ripple Group and Particle41, Lucid was able to stabilize its customer-centric data platform and software infrastructure.

"Between what Ripple Group has done for us on the product management side and what Particle41 has done on the engineering side, our core team has been consistent for years," said Bennett. "It's become a really great partnership where we can continue to move forward with the vision and the next thing we want to build. And we know that we've got the right people to help construct it, and also the right attention to know that if we need to bring somebody on, that just happens automatically. The relationships are really easy."

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> We are now prepared for **really cool opportunities** in building machine learning models, optimizing the way hearing aids operate, and learning how people interact with the world around them while they're wearing hearing aids. **Where we can take that from here is super exciting.**
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> **Bennett Griffin**

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RESULTS

PARTICLE41 + **RIPPLE** GROUP deliver results.

ENGINEERED AND BUILT LUCID GRAND CENTRAL

"We now have our data-first platform, Lucid Grand Central, along with supporting systems and tools," said Bennett. "It's our software infrastructure for data from the customer's perspective. It started as a vision, and now we actually have it thanks to Ripple Group and Particle41."
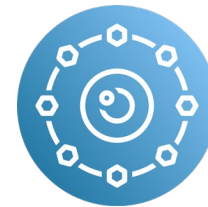
BOOSTED VISIBILITY

The customer data platform has brought more visibility into the process of understanding customer behavior as it houses customer interactions from both online sources and brick-and-mortar sources. This has also resulted in better business analytics and strategies.

ENABLED MARKETING AUTOMATION

Lucid Grand Central has generated millions of marketing tags for running effective marketing campaigns. "That tool has allowed us to create a sophisticated marketing automation engine that is now a significant part of how our marketing team operates daily," said Bennett."

SUPPORTED MOBILE APP LAUNCH

Lucid successfully relaunched its mobile application (Mobile 3.0). The launch included the addition of user authentication in the app to allow for personalization and future expansion of services, such as subscriptions, telehealth, and appointment scheduling and reminders. The successful integration of Mobile 3.0 with Lucid Grand Central has narrowed down the gap between the customer and the business.