SYMPHONY

Looking back at Cloud9's foundation: A decade of voice trading innovation

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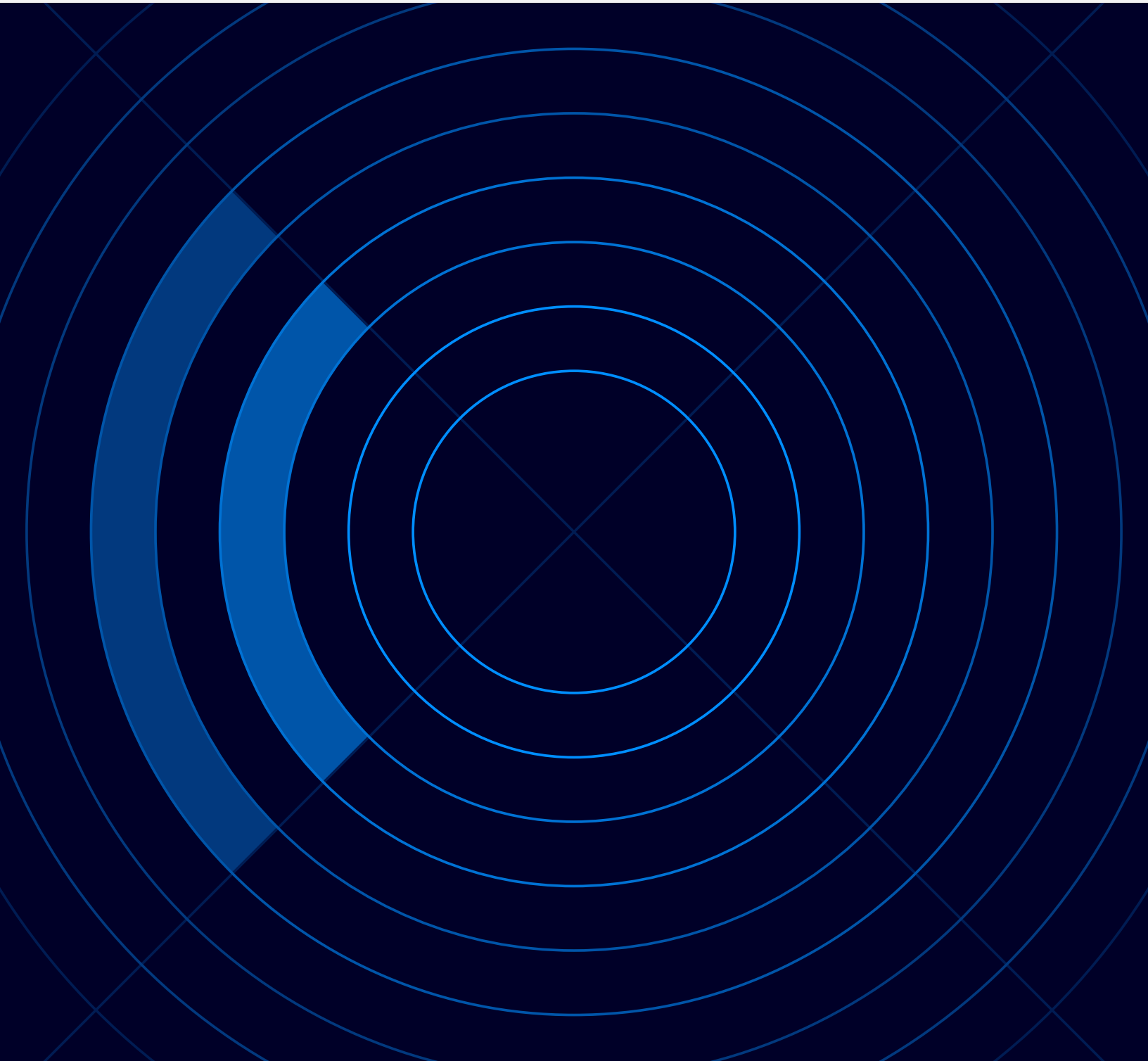

Motivation behind our product

We knew that our product had to be truly disruptive and nothing like what was currently available.

Cloud9 Technologies was launched in January 2014 with a clear mission: to modernize the voice trading industry. This required bold innovations to disrupt an industry with entrenched processes and legacy technology.

As the product enters into its 12th year, it is a good time to reflect on the advancements that have brought Cloud9 to the forefront of the voice trading industry.

We knew that our product had to be truly disruptive and nothing like what was currently available. We started from scratch, which put us in the prime position to take advantage of the Innovator's Dilemma. We innovated, we disrupted, we failed, we succeeded, we got traction - it was exciting!

I am proud to say that we were the first to:

- Deliver virtual private lines and trader voice via the cloud and over the Internet
- Furnish the long-awaited trader voice directory to find counterparties
- Use WebRTC and modify it to meet the needs of trader voice
- Deliver trader voice using standard web protocols
- Have SOC2 II and ISO27001 compliance for a trader voice service
- Offer USB hardware for power users
- ...and more!

At the time, there was prevailing conventional wisdom about institutional technology that we had to overcome - such as perceptions that cloud services and the Internet were "unreliable and insecure," software-only would "never be acceptable" and legacy SIP telephone protocols must be used instead of WebRTC and scalable signaling. We knew that we had to build technology equally strong and innovative enough to withstand these objections.

Innovations

Where did we focus?
Below is a snapshot of some of the foundational innovations at the genesis of Cloud9.

Cloud first

From the beginning, we knew that on-premise deployments - standard with legacy trader voice technology - would not allow us to build the software we envisioned. We wanted Cloud9 to be nimble and scalable, and had faith in the opportunities that the cloud presented.

That said, we were up against prevailing wisdom: that the public cloud was not reliable or secure and could not be trusted with critical workflows. But we had confidence that if architected properly, we could take advantage of the multiregion security, resiliency and scalability offered by cloud providers. So this is where we put our focus - building a cloud architecture that would allow us to innovate while also delivering the reliability and security that our customers demanded.

This dedication to the cloud was reiterated further when we named the company Cloud9. And I'm proud to say, 12 years later, this commitment has turned out to be prescient - cloud usage is ubiquitous.

Standard protocols

Legacy voice trading systems were built on PSTN and older VoIP protocols such as SIP. However, we realized that by choosing the standard protocols that financial institutions were using to deliver products and services to their own customers - HTTPS, TLS, WebSockets, WebRTC, SRTP and more - we'd see a step change in our ability to innovate.

It's this choice that has made it possible for Cloud9's software to evolve and scale into what it is today. The interoperability, security and scalability that enabled our directory, mobility and disaster recovery capabilities are all enabled by these modern protocols.

Innovations

Directory and mobility

Prior to the Cloud9 directory, imagine this: Every time you wanted a private line with someone new, you had to pay a monthly charge for that privilege. And even if you were willing to pay, you'd still have to wait two full weeks to get connected to that person, and involve both their IT personnel and your own. The next time you needed to talk to someone new? You'd have to do this all over again.

Cloud9 solved this problem by creating a directory display within our software. This means users could instantly find and create a connection to a counterparty as easily as starting a chat with someone on WhatsApp or SMS.

In addition, we wanted to build a system that allowed for fast deployments, with all necessary compliance and security controls built in. Once a firm is provisioned to use Cloud9, the minimal setup required allows for quick onboarding. Users download the software, login, find their counterparty and start trading immediately.

This created unprecedented mobility and flexibility when disasters hit. During Hurricane Sandy, traders using Cloud9 never went dark - they moved to any location that had power, logged in and traded while meeting all compliance requirements. When COVID hit and financial firms realized that even their disaster recovery floors were not fit for purpose because traders couldn't sit near each other, Cloud9 users again never went dark. They logged in from other approved locations and resumed their work. I'm proud to say we helped much of the industry get through those times.

Innovations

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Innovations

Resilience and reliability

One thing we knew to be absolutely critical to our success in gaining customer trust: pristine resilience and absolute reliability. While web applications might tolerate small outages users barely notice, trading workflows have no room for error. Traders move at lightning speed and immediately notice any glitch in call setup or voice quality.

As a result, we built resilience into everything - within data centers across multiple servers, across data centers and across global geographies. But our most sophisticated innovation was building resilience into the endpoints themselves, not just the cloud. Cloud9 endpoints can survive even if they disconnect from our service for short periods. We built intelligence for voice and signalling directly into the endpoints so they know about their peers and how to reach them.

This isn't just technical architecture - it's insurance that trading never stops.

Audio and AI

From the outset, Cloud9 was built as a wideband audio system with a premium put on audio quality. We didn't just use WebRTC - we customized the protocol for packet loss recovery and audio processing that guarantees this caliber.

Cloud9 also innovated a unique method of trader voice capture. Wide bandwidth audio is captured with transmit and streams are recorded individually. If there are multiple speakers, those are also captured individually. This allows voice recognition to be performed on each stream independently and more reliably. Further, these transcriptions are shared with our customers so they can be mined for their own research and compliance innovations.

More recently, Cloud9 was the first to introduce AI-based noise cancellation for trading. You can stand behind a trader making raucous noise - vacuuming, clapping or even...noisy colleagues! - and the microphone will cancel it out, allowing traders to speak clearly without picking up background trading floor noise. This innovation results in even better voice recognition - and therefore, better transcripts for all of the data mining AI tools are making possible.

Looking forward

What I've learned over these 12 years is that the biggest risk isn't taking chances on new technology or ideas - it's getting comfortable with the status quo. The moment you stop questioning why things are done a certain way, you become the legacy player that someone else will disrupt.

Therefore, we will continue to innovate because we don't want to end up on the wrong side of the innovator's dilemma ourselves. Stay tuned for a followup that will delve into our strategy for the next decade.

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