

COHERE TECHNOLOGIES

- Founded 2011 in Santa Clara, CA (USA)
- Software-based solution significantly improves spectrum and capacity for 4G and 5G. Cohere software can be deployed on any x86-based platform. The software can be integrated into existing base stations, or be deployed next to existing base stations through defined interfaces. Cohere's solution is consistent with the O-RAN architecture.
- Patents: 100+ covering 4G, 5G and 6G
- Member of Open RAN Alliance
- Major Investors: NEA, Lightspeed, Telstra Ventures

EXECUTIVE TEAM

Ray Dolan

Chairman & CEO
Flarion Technologies (Qualcomm)
Board member American Tower

Shlomo Rakib

CTO & co-founder
Co-founder Terayon (Motorola)
and Gainspeed (Nokia)

Dr. Ronny Hadani

Chief Science Officer
Chief Science Officer &
co-founder, Associate
Professor – UT Austin

Ram Prasad

COO
Gainspeed (Nokia)

Ronny Haraldsvik

CMO
SpiderCloud (Corning), BelAir
(Ericsson), Flarion
Technologies (Qualcomm)
Shasta Networks (Nortel)

BUSINESS MODEL

- Direct, or indirect via partners, to licensed mobile operators
- Partner with cloud service providers, system integrators and OEM vendors

HEADQUARTERS

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COMPANY BACKGROUND

When Cohere first started, the company built a proprietary wireless system, Orthogonal Time Frequency Space (OTFS), which demonstrated superior cellular performance. However, the company was ahead of its time with a “6G” technology and it became impractical for operators to adopt OTFS before implementing 5G. In 2018 the company changed its focus to bring its innovation around the use of Delay Doppler-based channel detection, estimation and prediction, as well as precoding software to improve 4G and 5G wireless systems. This innovative technology is agnostic to any modulation scheme and is fully compliant with 3GPP.

SPECTRUM MULTIPLIER EFFECT FOR 4G & 5G NETWORKS

The pioneering work in the Delay Doppler domain enables robust channel estimation and accurate channel prediction into the future. It alleviates handset feedback requirements by leveraging geometric reciprocity and reduces computation complexity through concise channel representation. All of these features combine to deliver significant spectrum multiplier effect for 4G and 5G networks in both FDD and TDD.

Cohere's software-based solution offers significant MU-MIMO benefits with no changes to existing handsets, and can work with existing base stations. The Cohere solution works in all available spectrum. Moreover, it allows 4G and 5G co-existence via a vendor neutral approach to dynamic spectrum reuse.

The Delay Doppler channel representation is predictable into the future given that its geometric nature is slow changing. This allows disaggregation of functions which enables Cloud RAN. Cloud RAN creates the foundation for improving cell edge performance via intercell coordination (CoMP).

3GPP REFERENCE MODELS AND COMPLIANCE

Cohere has completed the first of several simulations to verify the impact and scalability of channel detection, estimation and prediction, as well as precoding software on 4G and 5G networks. The FDD system simulation was based on 3GPP '36.814' (4G/FDD-19 cells/3 sectors each). The results show significant spectrum and capacity improvement, while leveraging existing 4T4R antennas and LTE devices with basic TM1-TM4 (SU-MIMO) capabilities.

DEPLOYMENT OPTIONS FOR 4G, 5G NETWORKS AND CLOUD RAN

Cohere software can be deployed on any x86-based platform. The software can be integrated into existing base stations, or be deployed next to existing base stations through defined interfaces. Cohere's solution is consistent with the O-RAN architecture. Within a Cloud RAN, the channel estimation and scheduler can run on near real-time RAN Intelligent Controller (RIC) as an App.

PATENTED INNOVATIONS

Cohere has 100+ patents covering 4G, 5G and 6G.