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Customer success story

AI-enabled drug discovery at a global pharmaceutical company

With AWS, the company streamlined its ecosystem and gained the data visibility it needed to run its multinational research operations

Customer challenge

AI has taken the biotech industry by storm. Yet the search for novel molecules continues to be costly. Lacking the capital to invest in expensive on-premises high performance computing (HPC), a global pharmaceutical company sought to build an AI-enabled drug discovery (AIDD) cloud-based platform for small molecule discovery. The web-based platform would be a more affordable option for conducting the expensive high-end virtual screening that leads to new drugs and addresses unmet medical needs.

By integrating with the company's existing platforms, it would provide a single repository where subsidiaries could share their research, and the convenience would allow scientists more time to focus on research. The company also hoped the platform would enable faster adoption of AI/ML models across its subsidiaries.

AWS + Cognizant solution

Cognizant helped deliver the AWS-based platform that integrates AI/ML models for drug design and provides access to the cheminformatics software that manages, analyzes and visualizes molecular data.

Solution highlights include:

- One-of-a-kind web-based platform for drug discovery using AI/ML at its core and allowing collaboration with multiple research scientists.
- ML and deep learning models and algorithms for various drug discovery use cases.
- Collaboration with customer data scientists to gain insight into the model building process in the life sciences domain.
- Greater insight into the AI/ML use cases for drug discovery that can be extended to in-house research and development.
- Various solution options in AWS to adopt the most suitable deployment architecture for ML use cases. Research included Lambdas, Fargate containers, EC2 containers and SageMaker to select optimal architecture.
- Multi-model deployment to the same infrastructure, allowing real-time and batch inference.

The results

Efficient, cost-effective approach to drug design idea

- 50% reduction in time and cost, with cost-efficient in-silico screening for more effective decision-making, from molecule design to chemical synthesis
- Billion-dollar savings in the process of drug discovery; the current average cost to launch a new drug is $2.6 billion, and the average time is 10 to 15 years
- Go-to-market product as a service for drug discovery using AI/ML for medicinal chemists and research scientists on a single web platform without switching among tools
- Easy collaboration among scientists in the customer organization and its subsidiaries
- Configurable platform to bring in new ML models or update existing ML models within a few minutes

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