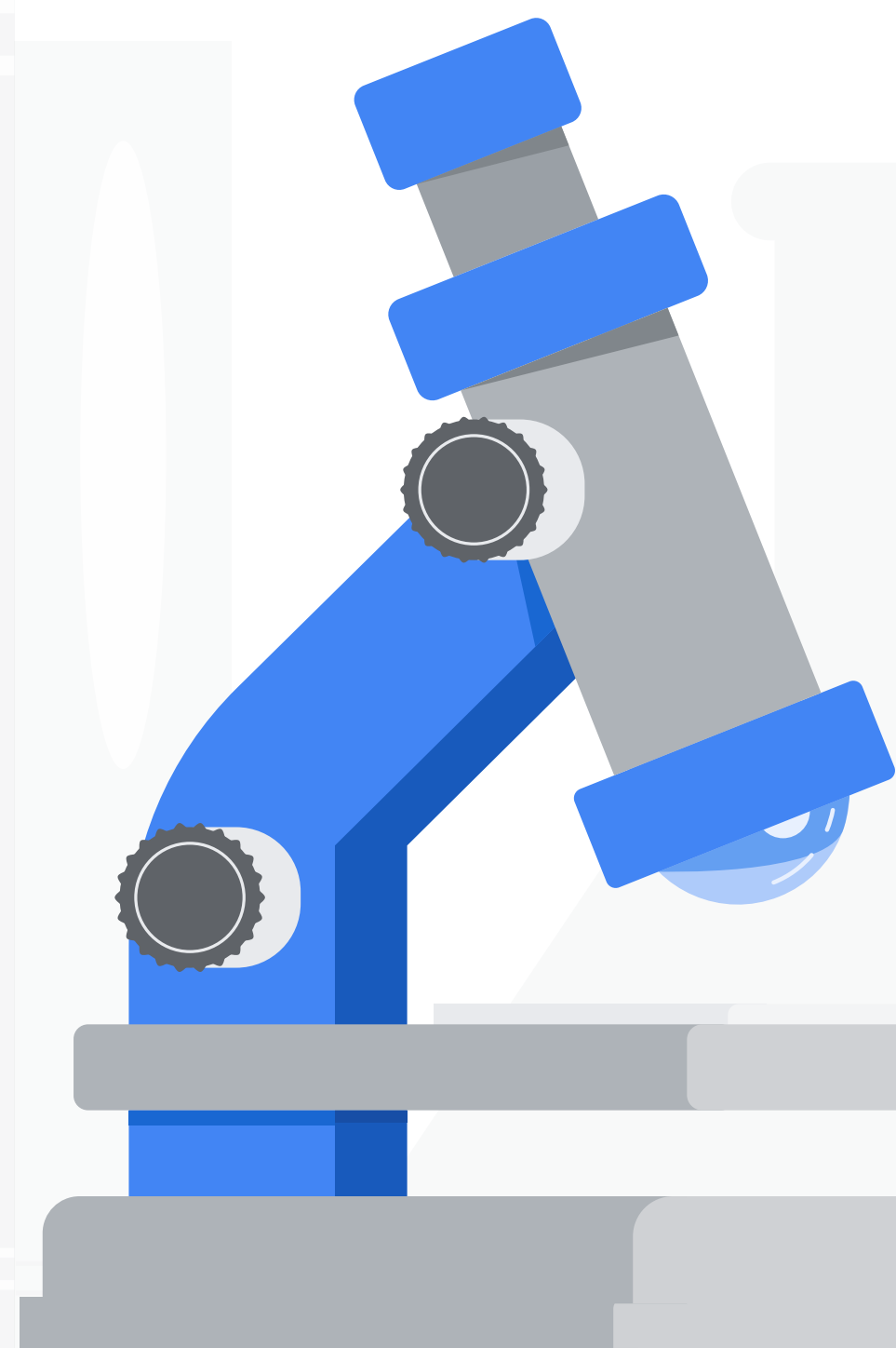




The Cloud Nine:

9 facts about Schrödinger + Google Cloud

Schrödinger uses physics-based simulations in combination with machine learning to accelerate the discovery of new medicines and materials.





Fact 1

Schrödinger's ultimate goal:
To get important new medicines
to patients more quickly and
with less up-front expense.



Drug discovery projects tend to run in bursts;
Schrödinger's teams often needed huge amounts
of computing power for just a few days each month.



Rather than build more capacity and let it sit idle
for long stretches of time, Schrödinger decided to
migrate its groundbreaking drug discovery work
to the cloud.



Schrödinger's team looked for a cloud provider that
was just as committed to advancing life sciences and
drug discovery as it was and chose Google Cloud,
because of its strength of network and security.





F
Fact

Fact 2

Schrödinger was able to run simulations **without concern over network stability.**



F
Fact

Fact 3

Schrödinger has access to a near-infinite volume of processing power on demand—a request to provision **50,000 or 100,000 GPUs wasn't a barrier.**

Key Fact

With high-performance computing resources, the Schrödinger team can **explore a larger chemical space and model vastly more compounds**, improving the odds of identifying a promising and novel therapeutic candidate for a given disease.



F
Fact

Fact 4

Schrödinger's methods may be particularly well-suited to the challenge of **discovering effective therapies for all disease areas**, including COVID-19.

Magnifying Fact

The physics-based simulations require about one GPU per day per molecule. That's the equivalent of about **100 to 200 CPU days per molecule**. Simulations require thousands of molecules to interact with each other. This means you need reliable network connections between all of those CPUs. Transient network instabilities would crash the jobs.



F
Fact

Fact 5

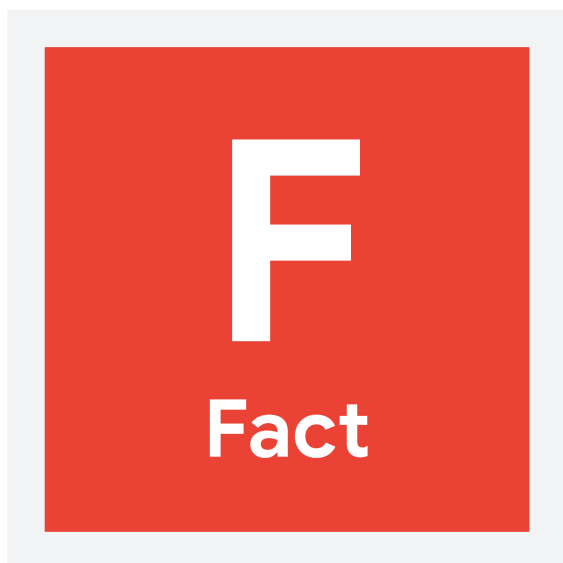
With the cloud, **Schrödinger can burst processor capacity** without investing in a cluster that sits idle a lot of the time.

Key Fact

Accurately modeling the dynamic interactions between even one potential drug molecule and its protein target in a realistic biological environment already **requires a lot of processor power**.

Magnifying Fact:

Thousands, millions, or even billions of compound ideas must be evaluated in silico to ensure the final compound candidates have all the desired properties before going into the lab for synthesis and testing. These methods **streamline the entire process of hypothesis testing** to rapidly advance drug discovery projects.



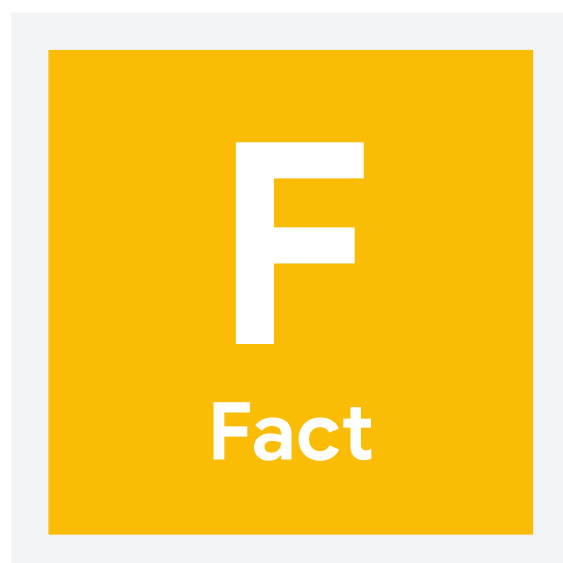
Fact 6

Using Google Cloud helps Schrödinger manage expenses.



Key Fact

Schrödinger leverages the ability to customize the type of VM that the GPUs use, **increasing flexibility and cost efficiency.**

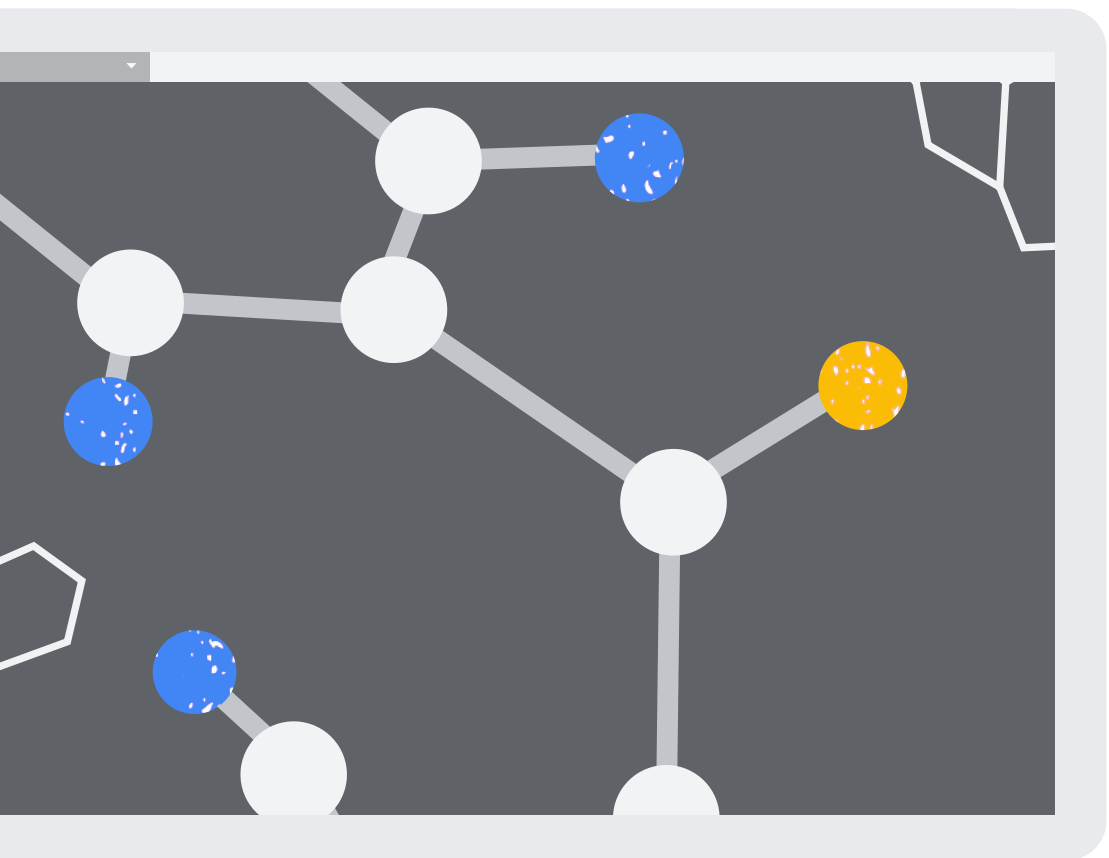


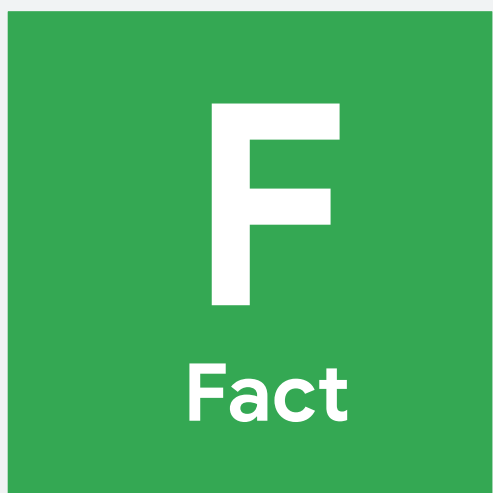
Fact 7

Schrödinger is participating in a cross-industry collaboration **to accelerate discovery of therapeutics** to treat COVID-19 and pan coronaviruses.

Key Fact

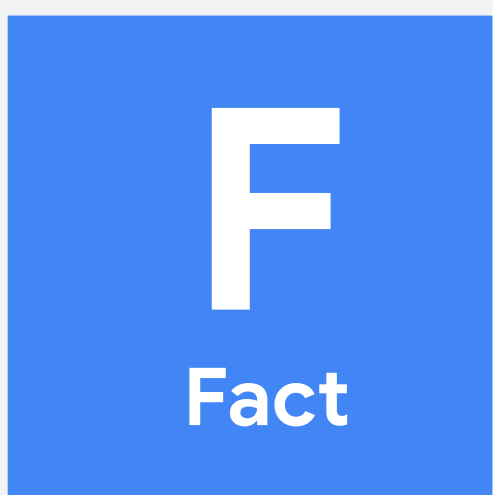
Working in collaboration with Takeda, Novartis, Gilead Sciences, WuXi AppTec, and Google Cloud, **Schrödinger is able to accelerate drug discovery using its computational platform.**





Fact 8

The Schrödinger team is leading the industry in deploying its physics-based computational platform on Google Cloud which could **transform the approach to early drug discovery.**



“Given the difficulties we’re all facing, expanding the world’s drug discovery toolkit will be **useful for the present outbreak and beyond.**”

-Robert Abel, Ph.D., EVP of Science at Schrödinger

Learn more about what you can do in the cloud at cloud.google.com.



Google Cloud

