Leap

The quantum cloud service built for business

Leap is the quantum cloud service featuring real-time access to the Advantage quantum system and a Quantum Application Environment from D-Wave.

Leap brings quantum computing to the real world by providing immediate cloud access to D-Wave resources:
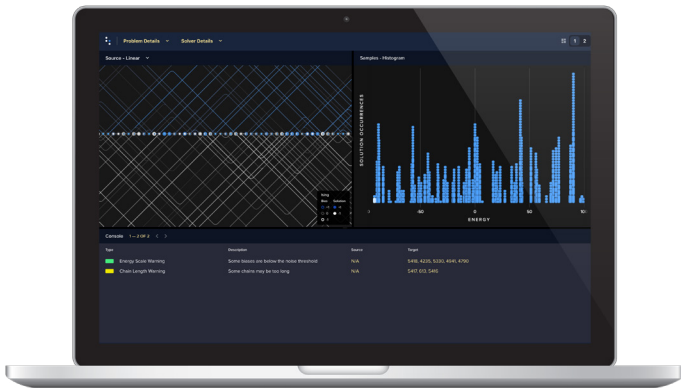
- Quantum computers (QCs) you can program.

- Quantum-classical hybrid solvers that accept larger than processor problems.

- Open-source software and support for local or cloud-based integrated development environments (IDEs) for developing your own quantum applications.

→ **Take the Leap today:**
https://cloud.dwavesys.com/leap/signup

Additionally, Leap provides a comprehensive learning environment: find out what types of problems the D-Wave QC can solve, run interactive demos that actually submit problems to the quantum computer, take advantage of numerous coding examples from a variety of fields, read our documentation, and join the growing conversation in our community of like-minded developers.

Practical Approach

Get started writing useful quantum applications:

- You do not need to be a quantum physicist to write software for the D-Wave system.

- From beginner to advanced, any developer can get started building and running quantum applications.

- Developers can collaborate in our growing quantum community.

- More than 250 early applications across domains like optimization, AI, and materials sciences already exist on D-Wave systems today.

Problem Solving at Scale

The Leap™ hybrid solver service (HSS) accepts problems of up to one million variables and solves them on a combination of quantum and classical resources using advanced algorithms. This means that Leap is suitable for truly enterprise-scale problem solving. The suite of hybrid solvers accepts problems in various forms.

D:WAVE

Powerful Hybrid Solvers

Hybrid solvers run problems on a combination of quantum and classical resources. Leap™ provides access to a portfolio of hybrid solvers including the binary quadratic model (for binary variables, e.g. the two sides of a coin), discrete quadratic model (for discrete multi-level variables, e.g. numbers on a die), and the all-new constrained quadratic model (for problems with constraints, e.g. a factory can only produce 100 shirts per day). These solvers give users the flexibility to address an array of complex problems of up to 1,000,000 variables and 100,000 constraints, and enable enterprises to solve all kinds of business problems that range in size and complexity.

Real-Time Access

Sign up for Leap™ and get free time on our QPU (direct access to our quantum computers) and on Leap's quantum-classical hybrid solvers, which exploit the complementary strengths of both best-in-class classical algorithms and quantum resources.

Real-time means that:

- QCs are shared resources that continually process user-submitted problems.

- Problems are processed in milliseconds.

- Solutions are typically returned within seconds.

Accessible Services
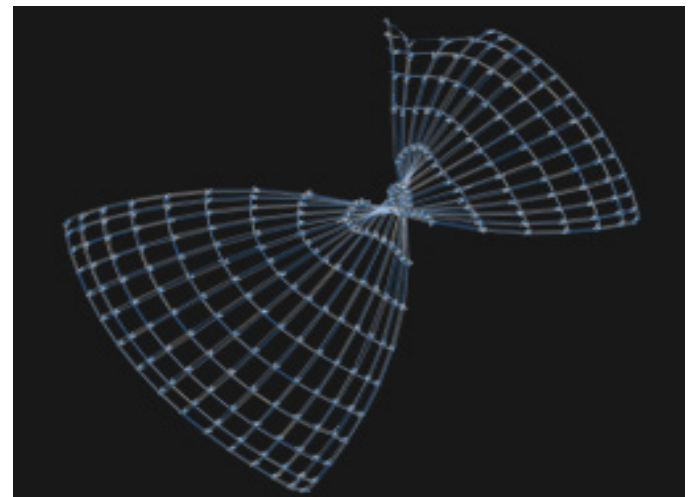
Leap makes quantum computing accessible:

- Connect securely to the QC through the cloud.

- Add to your initial free usage time by open-sourcing the code you develop.

- Contribute to Ocean software on GitHub.

- Upgrade your account for additional time in blocks that suit your need and budget.

- Use the programming model to tell the system which problem to solve not how to solve the problem.

Comprehensive Environment

Leap is more than just access to QC and hybrid solvers.

It also includes:

- Engaging demos that explain quantum computing applications and introduce the programming model.

- Interactive learning materials that include live code, equations, visualizations and narrative text.

- Open-source Ocean SDK, which helps you use the system and develop your own code in Python.

- Development environment preconfigured with Ocean and D-Wave extensions for frictionless application development.

- A large collection of code examples.

- A problem inspector to help more experienced users maximize performance.

- Access to the growing community of developers working to build the first quantum killer app.

- Detailed documentation explaining everything from the physics of quantum annealing to how to program the QC.

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