



WEKA

EBOOK

# Accelerating Next-Generation Workloads on the Cloud

The many ways organizations benefit from faster performance





# Contents

Three business areas impacted by a cloud strategy .....	03
For researchers and data scientists.....	04
For quant traders .....	05
For IT teams .....	06
For corporate leadership.....	07
Customer spotlight: Atomwise .....	08
Weka on AWS .....	10

# Three business areas impacted by a cloud strategy

For organizations invested in staying competitive, the need to accelerate their pathway to the cloud is an urgent one. [According to Accenture](#), half of the world's corporate data is now stored on the cloud, and worldwide spending on cloud service grew over 18 percent in 2020.

**This eBook explores three primary roles within an organization that benefit from a fine-tuned cloud strategy:**



Leadership



IT teams



Researchers, data scientists,  
and quant traders

All three gain considerable benefits from the improved business outcomes, agility, and innovation a cloud strategy promises.

The cloud addresses sophisticated challenges in any organization, including:

- Shifting from a CapEx to an OpEx model
- Opening up new possibilities for innovation
- Optimizing the data management process

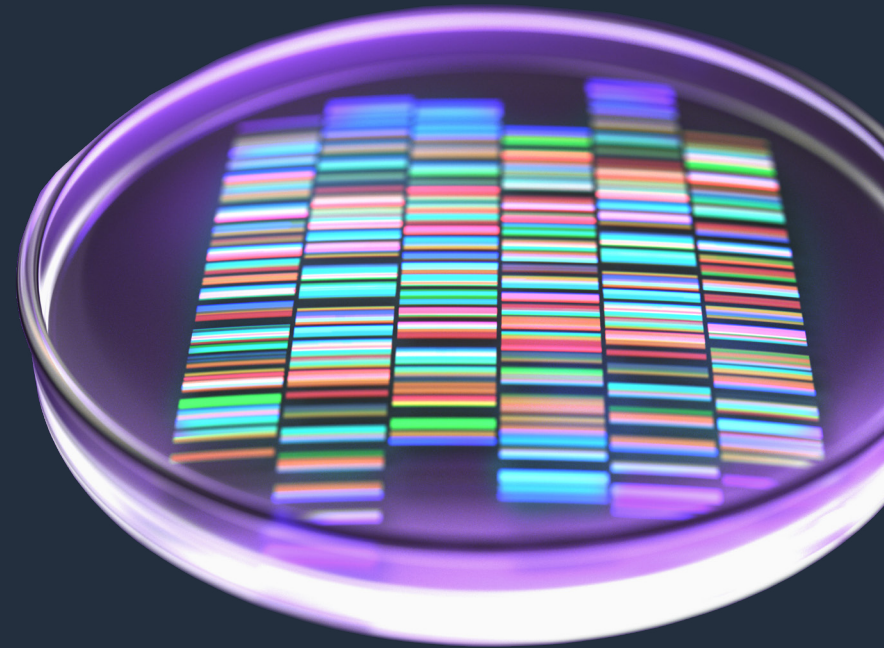
# For researchers and data scientists

One of the challenges for researchers is the size of datasets. Projects demand high power in both storage and computational capacities.

The research branch of an organization benefits from accelerating data workloads to the cloud because it allows them to manage complex projects with speed and efficiency.

## Accelerating data workloads to the cloud helps researchers achieve:

- **Reduction in processing time** - Low latency flash performance enables machine learning (ML) for rapid analysis.
- **Immediate insights** - Researchers can easily take advantage of tracking tools to build customized reports to analyze large datasets.
- **Greater efficiency** - Complex projects become streamlined and easier to manage with faster time-to-insights.
- **Faster innovation** - By accelerating processing time and time-to-insight, production schedules are reduced, allowing researchers to make breakthroughs faster.



An abstract digital landscape with glowing lines and data points. The scene features a dark blue background with vibrant pink and blue lines forming a complex, mountain-like structure. Scattered throughout are small, colorful squares and dots, suggesting data points or particles. Faint, semi-transparent text elements are visible, including "RS/0211 SEARCH... 001" and "SEARCH TR/01 00".

# For quant traders

An effective cloud strategy also benefits quant traders in the financial industry. By utilizing WekaFS with its record-breaking STAC performance on AWS, financial organizations can run latency-sensitive workloads that require consistent high performance to execute trading strategies. The institutions can also leverage the elasticity, scalability, ease of use of AWS, further simplifying this complex process.

The end result is running more quantitative analytics, back testing, and algorithmic trading—leading to actionable intelligence and quicker model training.

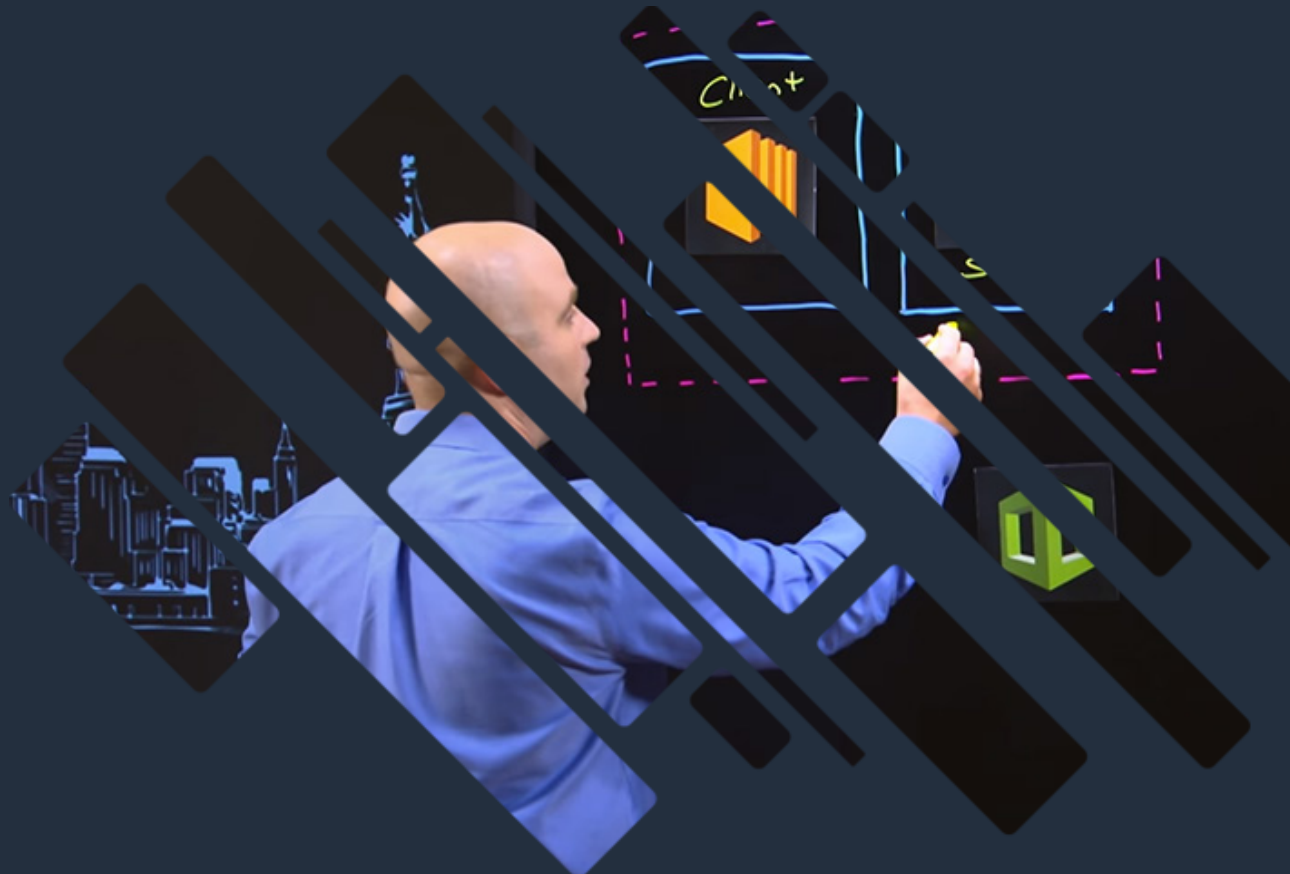
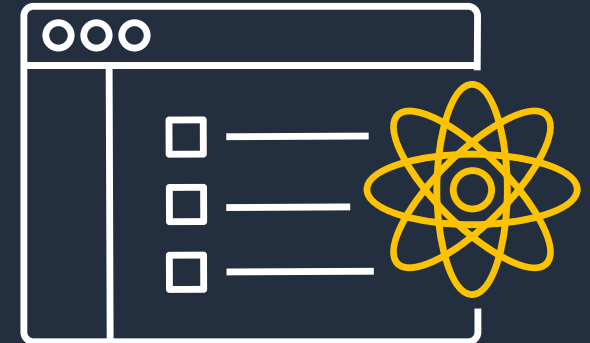
Read more about what's possible in [this blog](#).



# For IT teams

IT teams seek ways to create agility, provide storage flexibility, and remove bottlenecks that impact user workloads. Accelerating data workloads to the cloud solves those problems by providing a systematic way to manage data without disrupting users.

IT organizations can move to the cloud to minimize risk and use transparent file data tiering—without impact to the user experience. As well, IT teams can continually test to make sure all databases and web servers are working seamlessly without sacrificing performance—turning the IT team into trusted business partners.



# For corporate leadership

For corporate leadership, accelerating data to the cloud enables positive business impact due to both the speed to market and speed to innovation. Leadership roles including Chief Information Officers (CIOs), Chief Data Officers (CDOs), and other CXOs gain value from the cloud through increased agility, innovation, and resilience. This requires focusing the cloud strategy on rapid scalability across the entire organization.

## Some benefits are:

- **The ability to innovate** - Advanced technologies give companies the ability to innovate through services like data aggregation and natural language processing.
- **Scalability** - Companies can meet surges in demand if necessary and scale out new services fast—hours, instead of weeks. This is especially prescient for unexpected events which create sudden demand peaks.
- **Reduction in costs** - Ability to accelerate, simplify, and scale through innovative engineering ensures that you achieve dramatically better economics.



# Customer spotlight: Atomwise

## How Atomwise uses Weka for faster research and drug discovery on AWS

Atomwise collaborates with some of the world's top pharma, agrochemical, and emerging biotechnology companies to expedite small molecule drug discovery. In addition to the company's big pharma and biotech partnerships for co-discovery and development, Atomwise has its own pipeline of drug discovery projects. The team at Atomwise invented a model of deep learning for structure-based drug discovery, developing a pipeline of small-molecule drug candidates which helped advance pre-clinical studies.

Atomwise faced the challenge of providing researchers faster access to the data. An on-premises solution didn't make economic sense, as the company's capacity demands were too large. Getting the data to the artificial intelligence (AI) training model was a bottleneck in the workflow, which resulted in longer AI model training times and compute run time. Atomwise required more input/out operations per seconds (IOPs), forcing the team to consistently spin up additional compute instances.

### Atomwise needed a solution that would:

- Maximize the performance of GPU-accelerated compute instances
- Respond dynamically to capacity demands.
- Remove the I/O bottleneck in the workflow.
- Speed data access to the applications.
- Provide flexibility.
- Be cost-efficient.



# Customer spotlight: Atomwise

## Atomwise showcases three important use cases for Weka: AI/ML, life sciences, and AWS

WekaIO on AWS successfully removed I/O bottlenecks to speed up Atomwise's AI training models, allowing researchers to significantly increase time to insight as well as reduce Epoch training times. In addition, the team gained flexibility in storage management while reducing the overhead cost of supporting the research on expensive block volumes for each training instance.

### Results for Atomwise:

- Ability to work across a large number of instances (10,000 to 40,000)
- Experimentation time reduced by 12x (12 weeks to 1 week)
- Reduced Epoch times (Convolutional Neural Net model training times) down by 2x
- Improved Lots of Small Files (LOSF) metadata performance
- Handled its bursty workload with 10,000 Amazon Elastic Compute Cloud (Amazon EC2) instances against the Weka cluster
- Reduced datacenter footprint and maximized the investment in GPU resources

By implementing Weka on AWS, Atomwise was able to focus on new drug discovery initiatives, both for its partners and its own pipeline of projects. Additionally, the increased performance allowed Atomwise to maximize the utilization of valuable graphics processing unit (GPU) resources, leading to greater cost savings.

# Weka on AWS

Weka delivers a cloud-native, cost-efficient storage solution that helps IT teams and C-suite leaders drive complex projects concurrently while removing performance bottlenecks, creating greater data flexibility, and a culture of experimentation within organizations.

## With Weka on AWS for cloud data management, you get:

- High performance and speed, which accelerates time to market.
- Mass scalability, which drives business growth.
- Savings on file storage and cloud infrastructure costs.
- The ability to collaborate among stakeholders.

Learn more at [Weka.io](https://weka.io)

