

Amazon EC2 A1 Instances

Powered by AWS Graviton Processors

Optimize Cost and Performance for Scale-out and Arm-based Applications



Optimize Cost for Scale Out Workloads

Cloud applications are increasingly based on open source software, leverage containers, and are written in modern programming languages that are platform agnostic, allowing you the freedom to choose the most cost-effective platform based on your specific business criteria. Many cloud applications also utilize scale-out architectures to optimize cost and performance.

For businesses looking to optimize the cost of running scale-out applications such as web servers, containerized micro services, caching fleets, and distributed data stores, A1 instances can provide up to 45% cost saving. And with popular open source Linux distributions, applications, programming languages, and container runtimes readily available for these Arm-based A1 instances, they are quick and easy to evaluate and adopt.

arm

Run Arm-based applications

The Arm architecture is pervasive across the Internet of Things (IoT), mobile, automotive, embedded and robotics applications due to its optimized price/performance. For example, several customers use Arm to implement cost effective, high throughput, networking, and security on-premises.

Arm software developers have historically had limited access to cost effective, on-demand and scalable capacity resulting in inefficient build and test coverage compromises. To address these challenges, teams often resort to building with cross-compilation and testing in emulation which typically leads to increased development times.

For Arm developers, A1 instances provide the ideal platform to build and test on native Arm hardware. Cost effective, on-demand, and scalable capacity enables a full CI/CD pipeline, increasing developer productivity, improving product quality, and reducing time to market.

Introducing Amazon EC2 A1 Instances



With the availability of A1 instances, customers have access to a cost-effective Arm-based compute platform in the cloud with all of the flexibility, security, reliability, and scalability that comes with AWS.

So, what makes these instances run so efficiently?

A1 instances are powered by AWS Graviton Processors and built on the AWS Nitro System. AWS Graviton Processors feature 64-bit Arm Neoverse cores and custom silicon designed by AWS to deliver optimized performance and cost for scale-out and Arm-based applications.

AWS Graviton Processors are built exclusively for the cloud, utilizing AWS and Annapurna Labs'

expertise in running hyperscale cloud platforms and applications. The AWS Nitro System's dedicated hardware and software provides your EC2 instances with high availability and security while reducing virtualization overhead.

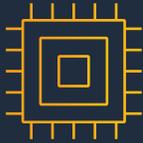
But accessibility, performance, and efficiency is just the beginning

A1 instances also provides customers with more choices, allowing developers to select the right compute for the right workload. A1 instances are ideal for workloads such as web servers, caching fleets containerized microservices, and distributed data stores. Running these workloads on A1 instances can deliver up to 45% cost savings. And in many cases, migration can be as easy as a lift and shift or a simple recompile.

A1 Instance Product Details

Model	vCPUs	Memory (GiB)	Instance Storage	Network Bandwidth (Gbps)	EBS Bandwidth (Mbps)
a1.medium	1	2	EBS-Only	Up to 10	Up to 3,500
a1.large	2	4	EBS-Only	Up to 10	Up to 3,500
a1.xlarge	4	8	EBS-Only	Up to 10	Up to 3,500
a1.2xlarge	8	16	EBS-Only	Up to 10	Up to 3,500
a1.4xlarge	16	32	EBS-Only	Up to 10	3,500
a1.metal	16	32	EBS-Only	Up to 10	3,500

Built on AWS Innovation



AWS Graviton Processors

Featuring 64-bit Arm Neoverse cores and a custom silicon designed by AWS to deliver optimized performance and cost.



Networking and Storage

Next generation Elastic Network Adapter (ENA) and NVM Express (NVMe) technology provide A1 instances with high throughput and low latency interfaces for networking and Amazon Elastic Block Store (Amazon EBS).



AWS Nitro System

A rich collection of building blocks that offloads many of the traditional virtualization functions to dedicated hardware and software to deliver high performance, availability, and security.

Benefits for Your Bottom Line

Up to 45% cost savings

A1 instances deliver up to 45% cost savings for scale-out workloads such as web servers, containerized microservices, caching fleets, distributed data stores, and Arm native development environments.

Developer Productivity, Product Quality, and Time to Market

Arm developers can now build and test natively on Arm-based infrastructure in the cloud while implementing software best practices. A full CI/CD workflow increases developer productivity, product quality, and reduces time to market. CI/CD workloads are well suited to the Spot purchasing model which makes testing in the cloud even more cost effective.

Broad Software Ecosystem

Getting started on the A1 instances is easy because of the broad and rapidly expanding open source ecosystem. Most popular Linux distributions such as Red Hat, SUSE, Ubuntu, and Amazon Linux 2 are supported. In addition various community Linux distributions, open source applications, programming languages, and container runtimes are all readily available.

Seamless integration with other AWS Services

A1 instances are based on the Arm architecture and work seamlessly with other capabilities AWS customers are already familiar with - including Elastic Block Store (Amazon EBS), High Performance Networking, and Amazon Machine Images (AMIs).

✔ Customer Testimonials



SmugMug is a service that allows users to upload, store, and share photos and videos. They achieved a 40% cost savings by migrating their photo-serving tier to EC2 A1 instances. SmugMug was able to move their software stack (PHP, Nginx, HAProxy) to A1 instances with minimal effort. And getting everything up and running on A1 instances was like any other EC2 instance for SmugMug.



Geodata processes logs of server activity for both near-real-time and long-term purposes. The processing is performed using custom software written in Python with various open-source libraries, and runs on EC2 along with other AWS technologies such as Lambda and CloudWatch Logs. Geodata found the migration of the EC2 components to EC2 A1 instances to be effortless, and the A1 instances to be optimal.



Reamp, a provider of consulting and media solutions, collects and processes data through multiple 3rd party APIs to deliver meaningful marketing insights for their customers. They seamlessly transitioned their in-house Java application using the same Ubuntu + OpenJDK software environment and found the A1 instances to deliver optimal cost and performance for their data processing workloads. Based on this positive experience with A1 instances they are currently exploring additional workloads for migration.



When Rancher introduced k3s, a lightweight Kubernetes distribution built for the edge, they needed to run their CI infrastructure on ARM servers. Amazon EC2 A1 instances made a huge difference in Rancher's development and test process, and ensured they could efficiently develop, build and release k3s entirely on Arm without the need for cross-compiling and emulation.

Arm in the cloud gives you the freedom to run your workloads efficiently at scale. Choose Amazon EC2 A1 instances and start saving with AWS today. Learn more at <https://aws.amazon.com/ec2/instance-types/a1/> For questions or comments e-mail ec2-arm-customer-feedback@amazon.com.