

Dream, build, grow



A bright future in the cloud for South Africa



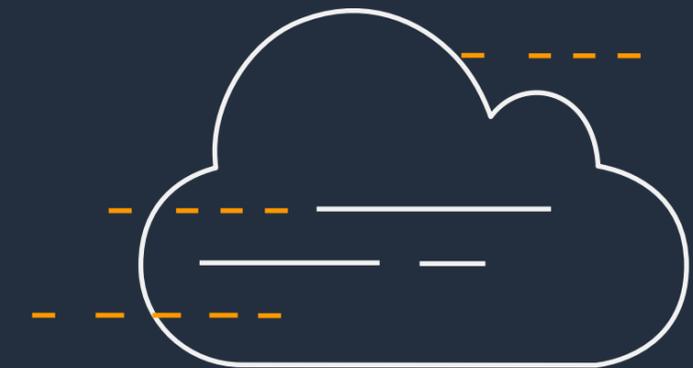
AWS in South Africa

Contents



Welcome

1. A global network of AWS Regions
2. Our global infrastructure
3. AWS in South Africa: Timeline
4. Customer stories
5. Supporting local communities
6. Getting started with AWS



Welcome



Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud platform, offering over 175 fully featured services from data centers globally. Millions of customers—from startups to government agencies—use AWS to lower costs, become more agile, and innovate faster.

AWS and Intel share a passion for innovation. Together, they have developed a variety of resources and technologies for high performance computing, big data, artificial intelligence (AI), machine learning (ML), and the Internet of Things (IoT).

Intel® Platinum Xeon Scalable processor families are the foundation of new services being deployed by AWS. AWS instances based on Intel® processors are ready to serve unique and innovative new workloads that demand better data protection, faster processing of greater data volumes, and service flexibility without a hit to performance. These processors feature Intel® Advanced Vector Extension 512 (Intel® AVX-512), which offers accelerated application performance 2x better than previous generation technologies, enabling significant improvements in workload speed and data application.

These processors also feature Intel® Trusted Execution Technology (Intel® TXT) which is Intel's technology for establishing more secure platforms.

Let's get started...



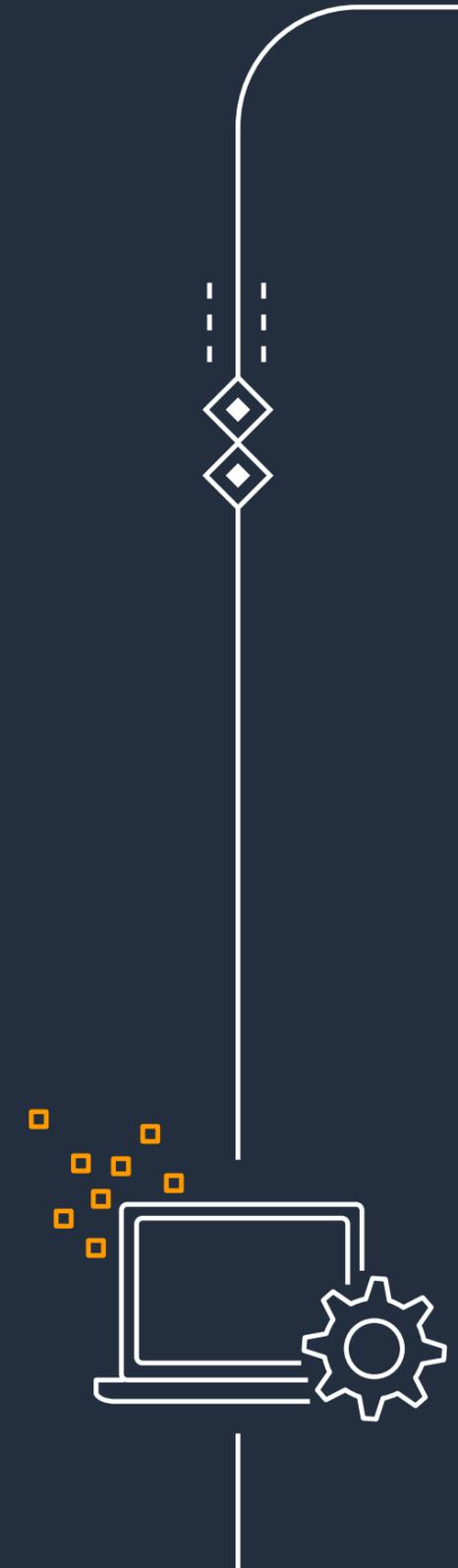


A global network of **AWS Regions**

Why cloud infrastructure matters

The AWS global cloud infrastructure is a secure, extensive, and reliable cloud computing environment. Whether you need to deploy your application workloads across the globe in a single click, or you want to build and deploy specific applications closer to your end-users with single-digit millisecond latency, AWS provides you the cloud infrastructure where and when you need it.

With millions of active customers and tens of thousands of partners globally, AWS has the largest and most dynamic community. Customers across virtually every industry and of every size, including startups, enterprises, and public sector organizations, are running every imaginable use case on AWS.



Our global infrastructure



The benefits



SECURITY

Custom-built for the cloud and designed to meet the most stringent security requirements in the world, our infrastructure is monitored 24/7 to help ensure the confidentiality, integrity, and availability of your data.



GLOBAL FOOTPRINT

AWS has the largest global infrastructure footprint of any provider, and this footprint is constantly increasing at a significant rate.



AVAILABILITY

AWS delivers the highest network availability of any cloud provider, with 7x fewer down time hours than the next largest cloud provider.



SCALABILITY

The AWS global infrastructure enables companies to be extremely flexible and take advantage of the conceptually infinite scalability of the cloud.



PERFORMANCE

The AWS global infrastructure is built for performance. AWS Regions offer low latency, low packet loss, and high overall network quality.



FLEXIBILITY

The AWS global infrastructure gives you the flexibility of choosing how and where you want to run your workloads, and when you do you are using the same network, control plane, APIs, and AWS services.

[Discover more](#)



AWS in South Africa: **Timeline**

2004

AWS first established its presence in South Africa with a development center in Cape Town. We built many pioneering networking technologies, our next-generation software for customer support, and the technology behind our compute service, Amazon Elastic Compute Cloud (Amazon EC2), in this region.

2015

We expanded our presence in the country, opening an AWS office in Johannesburg.

2017

The Amazon global network expanded to Africa through AWS Direct Connect.



2020

AWS achieved Level 1 Broad-Based Black Economic Empowerment (B-BBEE) Contributor Status.
We opened the AWS Africa (Cape Town) Region as a continuation of our investment to support the growth of South Africa and the Sub-Saharan Africa region.



2018

We launched infrastructure on the African continent by introducing Amazon CloudFront to South Africa, with two new edge locations in Johannesburg and Cape Town. Currently, we have edge locations in Cape Town, Johannesburg, and Nairobi in Kenya.

[Learn more](#) about the new AWS Africa (Cape Town) Region



Customer stories

Innovative organizations and individuals in **South Africa** are using AWS to help change lives and help communities across the continent.

A giraffe is silhouetted against a hazy, golden-brown savanna landscape. The giraffe is positioned in the center-right of the frame, looking towards the right. In the foreground, there are several acacia trees with their characteristic flat-topped canopies. The background shows rolling hills or mountains under a soft, overcast sky. The overall tone is muted and naturalistic.

“ Our software solutions help doctors make the right genetic diagnosis and prescribe the correct medication to save patients’ lives. ”

Dr. Imogen Wright

Co-founder and chief technology officer, Hyrax Biosciences



Finding the right medicine for HIV patients

South Africa has the biggest HIV epidemic in the world, with 7.7 million people living with the virus. Given costs, there is no routine HIV drug resistance testing in the country, which further complicates the issue. Enter [Hyrax Biosciences](#), an organization that both enables access and reduces the cost of genetic diagnostics. Today, its DNA sequencing—supported on the AWS Cloud—helps clinicians prescribe the right drugs for individuals with HIV.

More recently, Hydrax Biosciences released an accessible software tool to detect mutations in the genome of SARS-CoV-2, the coronavirus responsible for COVID-19. The tool runs on the AWS Cloud on Hyrax's genomics platform, called Exatype, which is used worldwide in efforts to track the evolution of viruses as they spread. Exatype SARS-CoV-2 automates the analysis of data, thereby reducing the time spent analyzing any number of datasets from days or weeks to hours or minutes.

Hyrax also uses Amazon EC2 instances, optimized to increase analytics performance with Intel® Xeon® Scalable processors. Intel® Advanced Vector Extension 512 (Intel® AVX-512) offers accelerated application performance 2x better than previous generation technologies, enabling significant improvements in workload speed and data application.

Mutation detection and raw DNA sequencing data analytics are crucial to vaccine research, outbreak tracking, and drug development. To date, Hyrax Biosciences has analyzed and interpreted all SARS-CoV-2 whole genome data available publicly, which includes the original data from Wuhan, China, that was used to generate the SARS-CoV-2 reference sequence.

“We do everything that you could think of in terms of web hosting APIs and connectivity through AWS,” explains Dr. Imogen Wright, co-founder and chief technology officer at Hyrax Biosciences. “We love it because of the security that it provides. We believe in general that the cloud is more secure than a local provider, rather than less secure. AWS makes us bullet proof.”

“We see ourselves growing towards being a genomics platform business in the future, which is at a much larger scale,” she says. “The wonderful thing about developing our initial business on AWS is that we can move towards being a platform business at a scale that would be incomprehensible to our current workloads.”

[Learn more](#)



Tracking and monitoring health in unique times

A2D24 streamlines and enhances digital technology processes to make sure that the power and value of technology benefits South African patients. As the number of people infected with COVID-19 increases, so does the complexity of monitoring all contacts, which is a key function to containing the spread.

Supported on the AWS Cloud, the company's solution is well-suited for use in populations such as South Africa where smart phone penetration is below 50 percent.

In just three days, APN Partner, A2D24, was able to develop and deploy an automated digital communications platform for a private hospital group. The solution informs anyone who has been in one of their hospitals of possible exposure to a confirmed COVID-19 patient. The system automatically sends an alert message and conducts an SMS-based triage. Each day, patients are asked questions about the type of symptoms they are experiencing and, based on the responses, the solution recommends what to do and whether to seek further medical help. This application has helped to provide critical care to thousands of patients and staff across the country—potentially preventing new infections.

[Learn more](#)



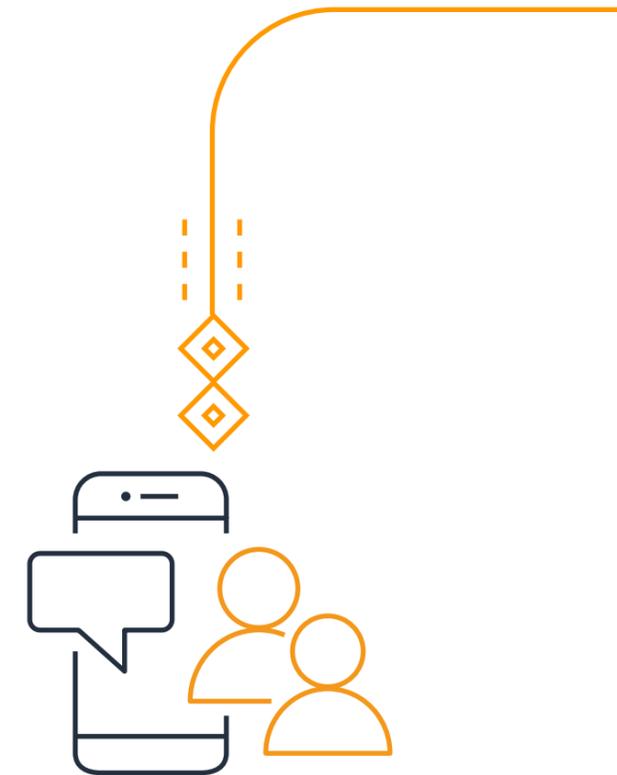
Chatbot assists in mass testing

GovChat is South Africa's largest citizen engagement platform, connecting over 50 million citizens to 10,000 public representatives in the government. It is accessible online and on any mobile phone. On 27 March 2020, as part of the response to COVID-19, the minister of health appointed GovChat to serve as an essential service on the ministerial health task team.

GovChat uses social media to facilitate its chatbot—built using Amazon Lex and based on an AWS serverless architecture. The chatbot provides citizens from different communities with the information related to their closest testing facilities. It also performs a quick survey to ascertain whether testing is recommended and enables those who do test positive for COVID-19 to share contact details of people who they could have exposed.

Using machine learning technologies like Amazon Comprehend, GovChat feeds real-time, critical information to government healthcare officials and public workers. It also coordinates government departments, allowing the South African government to better respond to COVID-19.

[Learn more](#)





Using new technology to evolve public healthcare

Right to Care ePharmacy is a South African startup that focuses on spearheading disruptive technology solutions in the primary healthcare sector. With more than 43 million South Africans depending on public healthcare, the organization aims to improve the access and availability of medicines through innovations such as pharmacy dispensing units (PDUs) and collect-and-go smart lockers.

These are needed because in public healthcare alone the country suffers a shortage of about 10,500 pharmacists—and nearly double that amount of pharmacy assistants. Using Right to Care's PDUs, two months supplies can be dispensed in under three minutes. That includes a live video consultation with a pharmacist. By adapting Amazon-derived technology, their other solution—collect-and-go smart lockers—is now in three provinces, offering 60 pickup points across 350 lockers.

"The synchronization of data online and offline is a big part of this puzzle," says Fanie Hendriksz, managing director of Right ePharmacy. "That's the benefit of working on AWS... to know that when you've got connectivity, the patient data and the key information and data is transmitted in the correct manner."

[Learn more](#)



Building an Intelligent public transport system

Automated Fleet Solutions (AFSOL) works with the Western Cape Provincial Government in South Africa to provide an intelligent transportation system to better monitor and manage public transportation.

The AWS Partner Network (APN) is the global partner program for AWS. It is focused on helping APN Partners build successful AWS-based businesses or solutions by providing business, technical, marketing, and go-to-market support. Working with APN partner, FuseIT, they created a solution called Public Transport Management System (PTMS). The build uses Amazon API Gateway and AWS Lambda to leverage the static and mobile license plate recognition camera networks, which captures six million license plates and verifies them against the Public Transport Regulatory Systems (PTRS).

“Hosting our systems with AWS allowed us to be more flexible. We are currently repurposing our public transport monitoring system to suit the needs for scholar transport,” says Dwain Gounden, director of AFSOL. “Our core business is to provide many services to the end-user. We are not IT experts, so outsourcing all our IT needs to AWS was the best thing that I’ve ever done.”

[Learn more](#)



Solving social challenges through data

The scale and complexity of their learning management system (LMS) allows the **University of Pretoria** to focus on the user experience. The university realized cost savings with little downtime in order to support the success of students.

The university also uses data science techniques such as artificial intelligence and machine learning to design solutions to tackle some of South Africa's social challenges. AWS enables the University of Pretoria to experiment and scale to meet these needs.

"Given that we have to train a lot of machine learning models, we need to have a couple of outputs. One of those outputs is writing papers and journals," explains Vukosi Marivate, chair of data science at University of Pretoria. "To actually get papers written, we need to experiment. And when you're doing experiments, you have to run a lot of them. Virtual Machines provide the same functionality as a physical computer, so with AWS, we can then spin up as many virtual machines as we require."

"Never having downtime, never having to worry about service interruptions, and scalability allows us to focus our attention to the effective use of the system," he adds. "We see that in the data. Our growth in the system in the last three to four years may have been due to the fact that we had a stable environment that we can use."

[Learn more](#)



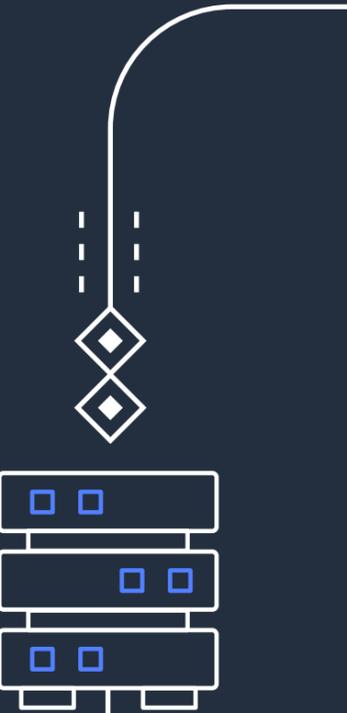
Sentech

Sentech provides the national broadcasting signal distribution (BSD) and telecommunications for all South African television and radio stations. When they started to explore cloud initiatives, their focus was distribution of content, user experience, and new ways of monetizing broadcasting. AWS Cloud solutions give them the flexibility to experiment and deliver solutions, drastically reducing the cost of deploying channels. Using the AWS Cloud allows them to spend less than ten percent of what they would normally spend on experimentation. Furthermore, the time to spin up a channel would ordinarily take a few months of planning. But with cloud infrastructure, and Amazon EC2 instances, based on the latest Intel® Xeon® Processor Family, they are able to do it in much less time.

For example, Sentech live streamed South African Easter church services to 14 religious channels across the country. They provided live and on-demand video services that viewers could access with any device.

“The new AWS Region here will help us to use innovative technologies and distribute content globally, faster, and more efficiently,” says Anju Mammen, specialist in research and innovation at Sentech.

[Learn more](#)





“ We can approach new markets knowing that if we get the response we hope for we’ll be able to expand our infrastructure in a matter of minutes. ”

Ryan Birkin

Director, Simfy Africa



Scalable growth that also benefits customers

Simfy Africa has provided music-streaming services in South Africa since 2012. Its customers gain access to a global music library of more than 32 million songs through devices such as smartphones, tablets, and computers.

Growth is high on the company's agenda, but the team knew it had to look beyond its on-premises infrastructure to support this expansion. "We were constrained by our hardware," says Warren Le Roux, project manager at Simfy Africa. "Our biggest concern was scaling up to cope with new additions to our subscriber base quickly, without significant capital expenditure. We wanted a secure, reliable environment with reduced latency to give customers fast access to music."

After two months of planning, the move to AWS took just one day. Now? "We're at an exciting point in our company's evolution," says Ryan Birkin, company director at Simfy Africa. "We're saving money on AWS too. Our five-year projections showed AWS being 27 percent more cost-effective than our existing self-managed hosted solution." And it's made a difference to the user experience. "Access to information such as track and artist details is faster. But most importantly, the speed with which users can load songs has improved, which is great for our customers," says Birkin.

[Learn more](#)

Beating the online pirates with blockchain

South Africa's **Custos Media Technologies** provides services that combat media piracy by tracing a leak to its source in a decentralised way using blockchain. The company grew its business internationally using AWS's global infrastructure and a range of services including Amazon EC2 and AWS Auto Scaling.

"What we loved about AWS right when we started the company was the big bag of toys," says G-J van Rooyen, co-founder and chief executive officer of Custos Media. "There are lots of different services that you can pick from, so you don't have to design new things, you can just fit solutions together and think scale once the business has started growing."

The company also finds the ability to scale efficiently invaluable. "If a client uploads a new batch of feature films for protection, we immediately spin up typically about a dozen 40 core instances, churning away at that video for distribution. Being able to then scale that down immediately after the work is done is very valuable to us," says Rooyen.

[Learn more](#)



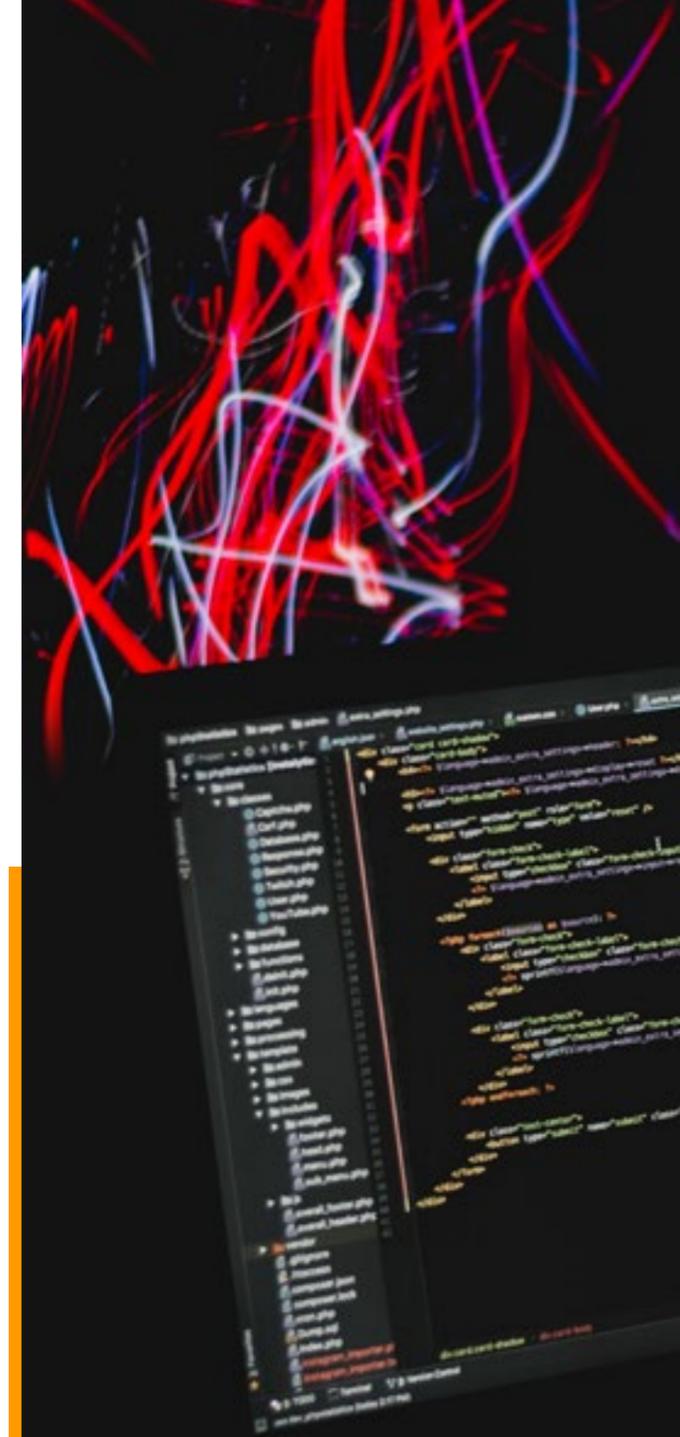
Reducing risk in insurance with machine learning

Sensor Networks builds predictive models using AWS Internet of Things (IoT) and machine learning. It's an insurance industry focused-IoT platform that drives reductions in risk and claims through smart sensors and predictive analytics. AWS enables Sensor Networks to build, train, and deploy machine learning models quickly.

"As a data scientist, you just want to get to the core function of your job, which is predictive analytics and building machine learning models that work in production," explains Julian Nkuna, data scientist at Sensor Networks. "With AWS, I'm able to use instances that are readily available and scale themselves to work in a production-ready environment where I can automate all my processes."

"AWS is very renowned in South Africa, particularly in large corporations, so there is a trust level. One of the key questions people ask us as a startup is, 'Who is your cloud provider?' And having AWS provides a better level of security that they can trust," he adds.

[Learn more](#)



Enabling digital access to financial services

Launched in 2009, **Zoona** helps more than 1.6 million Sub-Saharan African citizens gain access to financial services—primarily electronic money transfers—in a region where, according to the International Monetary Fund, one in three adults is without access to these services.

To date, Zoona customers have transacted more than \$1 billion dollars through these local entrepreneurs, known as Zoona agents, who earned a combined commission of more than \$10 million. Zoona supports about 1,500 agents, who have in turn created more than 2,500 jobs related to their financial services activities.

In order to support this success, Zoona moved its IT to the cloud. Now, they can scale up the database platform, or any part of its IT infrastructure on AWS, without concerns about time-consuming procurement cycles or deployment phases, as before. Basic management tasks have also benefited. Where previously it would take months to create VPNs for Zoona agents or adjust the firewall, it now only takes days. Agents' transactions are about 87 percent faster, and they reduced costs by half. The company is now well-placed to grow even more and continue the innovation that helps so many.



Read more about benefits of cloud, latest announcements, and local stories.

[Visit website](#)

[Learn more](#)

Supporting local communities



In addition to supporting local customers, AWS is also investing in the future of the South African technology community. AWS participates in a number of charitable and philanthropic activities that help to build strong communities, encourage innovation, and foster inclusion and diversity.

These activities include the **eKasi initiative**, which aims to build technology skills in South African townships that are sustainable, and **The Explore Data Science Academy**, which helps youth from any background study to become data scientists.



Supporting local communities

Other organizations we're proud to support, include:



Africa Teen Geeks is a non-government organization (NGO) that teaches children to code. It aims to eradicate barriers faced by disadvantaged communities in pursuing skills in the science, technology, engineering, and math (STEM) fields.

[Visit site](#)



Code4CT is a charity set up to inspire and empower young girls by equipping them with technical skills.

[Visit site](#)



Girl Code supports the empowerment of women through technology.

[Visit site](#)



Tshwane University of Technology (TUT) is the only South African university that has an Information and Communication Technologies (ICT) campus in the township. AWS sponsored a hackathon to help students become a new generation of builders.

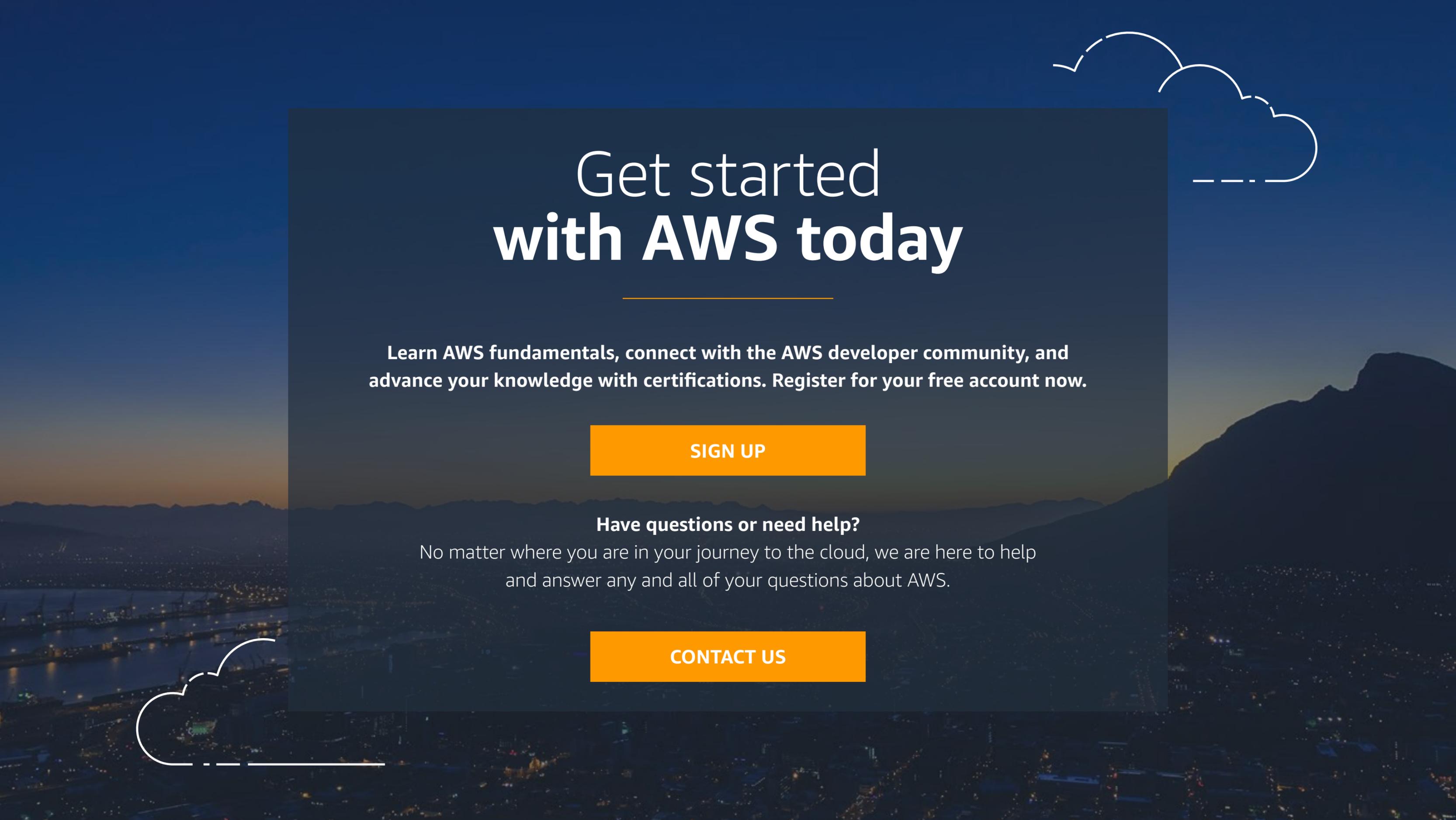


[Watch film](#)



Django Girls introduces women to coding.

[Visit site](#)



Get started with **AWS** today

Learn AWS fundamentals, connect with the AWS developer community, and advance your knowledge with certifications. Register for your free account now.

[SIGN UP](#)

Have questions or need help?

No matter where you are in your journey to the cloud, we are here to help and answer any and all of your questions about AWS.

[CONTACT US](#)

