

Webinar Series on Remote Learning

TITLE

Introduction to Amazon EC2, AWS Beanstalk, Infrastructure as Code (IaC) and AWS CloudFormation

BRIEF SYNOPSIS

You're invited to explore the topic of data science, and hear specific ideas for directed online projects that promote engaging and meaningful remote learning experiences. Presented by Perry Beaumont, PhD, Columbia University Lecturer and Head of data science at Distinguished Programs, a mix of foundational and practical knowledge is uniquely shared.

SPEAKERS

Andrew Hodges
Zoran Taleski

SPEAKER BIOS:

Senior Security Advisor, AWS WWPS
Technical Program Manager, AWS WWPS

DURATION

59 min 14 sec

TIMESTAMPS

[0:00](#) – Speaker Introductions

[4:00](#) – Infrastructure: Manual vs Automate

[13:22](#) – Introduction to AWS CloudFormation

[22:40](#) – AWS Educate

[33:12](#) – Creating an Elastic Beanstalk App

[42:38](#) – Creating a CloudFormation Stack

Webinar Series on Remote Learning

SUMMARY

AWS has more than 175 services that allow users to build applications in their own virtual cloud environment. It can be extremely complex to manage these services and build infrastructure to support user requirements and workloads. In this webinar, Andrew Hodges and Zoran Taleski discuss ways to manage configuration and automate your cloud infrastructure using AWS CloudFormation and AWS Elastic Beanstalk.

[4:00](#) – Infrastructure: Manual vs Automate

Many factors need to be considered when building your cloud architecture and implementing efficient processes. Manual processes can take a long time and they often put users and production environments at risk. AWS configuration management technologies help mitigate these risks through automation. AWS provides several services to manage configuration of instances, user data, deployment frameworks, web applications and application resources.

[13:22](#) – Introduction to AWS CloudFormation

AWS CloudFormation allows you to model your entire infrastructure and application resources with a text file and programming languages. Users are able to standardize infrastructure components, ensuring a single source of truth across an organization. AWS CloudFormation allows users to safely create and modify stacks using templates and templates can be instantiated multiple times. AWS CloudFormation is an example of infrastructure as code (IaC) which allows for reliable, rapid, repeatable, and simple infrastructure management.

[22:40](#) – AWS Educate

Customers face challenges when using cloud technologies and require adequate education and support. AWS Educate provides the next generation of IT professionals with the tools they need to accelerate cloud learning, at no cost. AWS Educate benefits students, educators, and institutions by providing customized learning portals, learning content, AWS credits, online classroom environments, and job support.

SUMMARY

[33:12](#) – Creating an Elastic Beanstalk App

During this demonstration, Zoran Taleski shows viewers how to create an AWS Elastic Beanstalk application. AWS Elastic Beanstalk allows users to deploy and scale web applications and services developed with a variety of programming languages. Get started creating your own Elastic Beanstalk application [here](#).

[42:38](#) – Creating a CloudFormation Stack

During this demonstration, Zoran Taleski shows viewers how to create a stack using preconfigured AWS CloudFormation templates. Templates are available to help you build quickly and contain all of the configuration information about AWS resources you want to include in a stack. Get started creating your own CloudFormation stack [here](#).

If you enjoyed this content, be sure to check out our live and on-demand webinars [here](#).

Q&A with Andrew Hodges and Zoran Taleski:

Q: Are these webinars part of a cloud computing pathway or any pathways?

A: Today's webinar is highly relevant to AWS Educate career pathways. However, it is not exactly the same as any of the career pathways. We are offering these short webinars for students to learn at their own pace. For career pathway information please see <https://aws.amazon.com/education/awseducate/>

Q: How many pathways can we take in a year?

A: You can take as many career pathways as you want. There is no limit. We have a total of 12 career pathways and 11 badges on AWS Educate in total.

Q: How many credentials will we receive after a single pathway completion?

A: By completing each career pathway, you will earn one digital badge on AWS Educate.

Q: What is the benefit of micro credentials in getting jobs?

A: It does not help in getting a job but rather helps you understand how far you have gotten along your cloud journey. The knowledge acquired can help position you for employment.

Q: Will these career pathways help me complete industry level certifications?

A: The career pathways will help you understand the skillsets required to succeed in your preferred career pathways.

Q: How will we receive \$100 in AWS credit?

A: For this session, we've setup a USD \$100 credit for new accounts signed up. If you are a previous user, you'll get USD \$75 and upon being close to depletion, you'll get a top up of USD \$25. Please follow these links: Students go to - <http://awsed.cloud/AWFH> and Educators go to - <http://awsed.cloud/AWFHInstr>

Webinar Series on Remote Learning

Q&A with Andrew Hodges and Zoran Taleski:

Q: Can we use the badges obtained in AWS Educate for job interviews?

A: Yes, you can build your digital badges into your digital portfolio or your resume for job application and interview.

Q: How do I get an AWS Certification, be it foundation, professional or any other?

A: You can head to: <https://aws.amazon.com/certification/>. Foundation is a good place to start but if you're confident in your technical capabilities you can always jump to a higher level immediately.

Q: What career pathway should I take to become a data scientist or machine learning engineer?

A: Start with Cloud Computing 101, Data Scientist and/or Machine Learning scientist.

Q: How can I do research on AWS?

A: Here are some research tools and customer stories available to you by using AWS. Many researchers use AWS for their research purposes. <https://aws.amazon.com/government-education/research-and-technical-computing/nsf-aribd/>

Services

Q: I have a website that runs on an EC2 instance. However, keeping the instance running at all time is unnecessary and expensive. Is there any way for me to Integrate AWS Lambda with EC2 such that when there's a request, only then the instance starts, computes and gives the output?

A: Yes, you can easily create scripts in lambda to run EC2 instances when you need them. Put tags on your EC2 instances to create scripts.

Q: After creating instances can we terminate the instance since its usage will exceed my free tier limit?

A: Yes, you still have control over the instances that get created. You can also delete the stack if you want to remove it.

Q&A with Andrew Hodges and Zoran Taleski:

Q: Can we deploy IoT based applications in Elastic Beanstalk?

A: It may be better to use AWS CloudFormation templates given the diversity of the services.

Q: What is the purpose of AWS Opworks and Elastic beanstalk?

A: AWS OpsWorks is a configuration management service that provides managed instances of Chef and Puppet. Chef and Puppet are automation platforms that allow you to use code to automate the configurations of your servers. AWS Elastic Beanstalk is a service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

Q: What is an AMI and what does it mean when you say "instances"?

A: An AMI is an Amazon Machine Image. It allows you to create a template with software and an operating system for you to reuse. Instances are Virtual Machines.

Webinar Series on Remote Learning

RESOURCES

[Amazon Machine Image](#) – Amazon Machine Image (AMI) provides the information required to launch an instance.

[AWS CloudFormation](#) – AWS CloudFormation allows you to use programming languages or a simple text file to model and provision all the resources needed for your applications across all regions and accounts.

[AWS CloudFormation User Guide](#) – The AWS CloudFormation User Guide provides a conceptual overview of AWS CloudFormation and includes instructions on using the various features with the command line interface.

[AWS Configuration Management](#) – AWS Configuration Management standardizes, enforces, and tracks the configuration of resources like databases and web servers throughout your IT infrastructure.

[AWS Educate](#) – AWS Educate gives students and educators access to content and programs that enable them to skill up for cloud careers in growing fields. AWS Educate also connects companies hiring for cloud skills to qualified student job seekers with the AWS Educate Job Board.

[AWS Elastic Beanstalk](#) – AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

[AWS Elastic Beanstalk User Guide](#) – The AWS Elastic Beanstalk Developer Guide provides conceptual and detailed instructions for using AWS Elastic Beanstalk to quickly deploy and manage applications in the AWS cloud without worrying about the infrastructure that runs those applications.

[AWS OpsWorks](#) - AWS OpsWorks is a configuration management service that provides managed instances of Chef and Puppet. Chef and Puppet are automation platforms that allow you to use code to automate the configurations of your servers.

[AWS User Groups](#) - User groups are peer-to-peer communities which meet regularly to share ideas, answer questions, and learn about new services and best practices.