

Planning and Automating AWS Infrastructure

Case Study: WordPress Website on EC2 with LAMP Stack

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MOTO PHOTO

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School and Pool for Digital Talent

What I want to talk about today

- 01 That's me
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- 03 What tools I used
- 04 Introduction to AWS Infrastructure
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The screenshot shows a website titled "MotoPhoto" with a dark blue header. The header includes a logo, a search bar, and navigation links for Home, About, Blog, and Contact. The main content area features a large aerial photograph of a winding road through a forested mountainous area. Overlaid on this image is the text "Adventures on Two Wheels & Through the Lens" and a "Contact me" button. To the right of the text is a close-up photograph of a motorcycle's front end, specifically a Ducati Scrambler Desert Sled, showing its headlight and handlebars. Below the main image, the text "Welcome to MotoPhoto" is displayed, followed by a paragraph about the owner, David, sharing his adventures and photography. At the bottom, there are links for "Motorcycle Adventure Tours" and "Capturing Adventures Through Photography".

PhotoMoto

MOTO PHOTO

Home About Blog Contact

Adventures on Two
Wheels &
Through the Lens

Contact me

SCRAMBLER DUCATI

Welcome to MotoPhoto

Hi, I'm David from Hamburg. Join me as I explore the world on my Ducati Scrambler Desert Sled. Here, I share my adventures and capture stunning moments through my photography. Whether you're into motorcycles, photography, or just love a good adventure, you're in the right place. Let's ride and discover together!

Motorcycle Adventure Tours

Capturing Adventures Through Photography

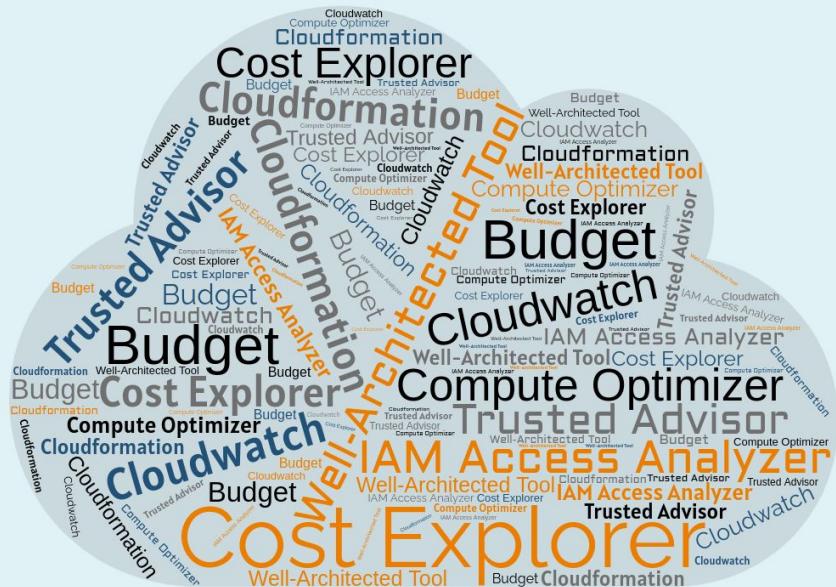


That's me

- I'm David
- born and raised in Hamburg
- 39 years old
- interested in IT since a young age
- positiv and motivated

Benefits of AWS

- **Easy to Use:** Quickly host applications with AWS Management Console or APIs
- **Flexible:** Choose your OS, programming language, and services
- **Cost-Effective:** Pay only for the resources you use
- **Reliable:** Scalable and secure global infrastructure
- **Scalable and High-Performance:** Auto Scaling and Elastic Load Balancing
- **Secure:** End-to-end security measures



What tools I used



macOS



MySQL™



php



WORDPRESS

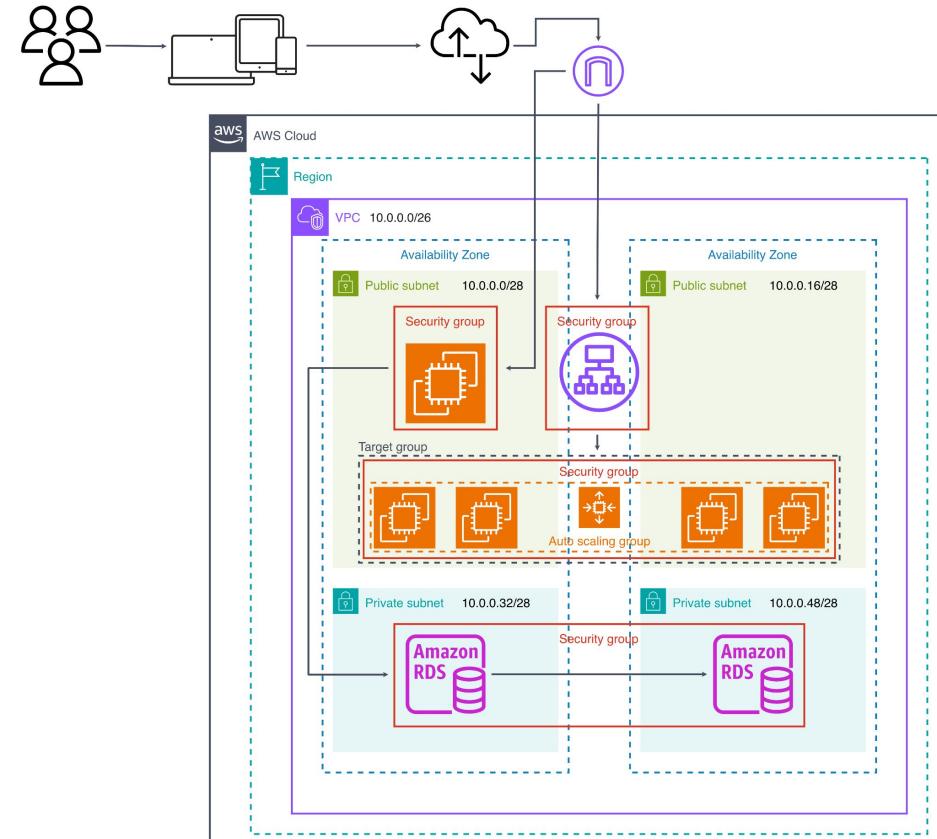
Introduction to AWS Infrastructure

Overview of AWS Services:

- Compute: EC2
- Database: Amazon RDS
- Networking: VPC, Multi AZ
- Security: best practice

Further improvement to be done:

- Storage: S3 (for backup)
- Networking: Route 53
- Management Tools: CloudWatch, CloudTrail
- Messaging Tool: SNS



Coding with Visual Studio Code

Benefits with Visual Studio Code:

- Extensions
- Git integration for version control
- Syntax highlighting
- Integrated terminal for Terraform commands

Using Amazon Q/CodeWhisperer:

- AI-powered code suggestions and explanations
- Enhances Terraform coding with suggestions and completions
- Finding and fixing errors

The screenshot shows the Visual Studio Code interface with the following details:

- Explorer View:** Shows the project structure for "MOTOPHOTO_CAPSTONE" with files like "main.tf", "aws_instance.tf", "rds.tf", and "vpc.tf".
- Code Editor:** Displays a Terraform configuration file. A cursor is at line 54, which contains a comment "# resource "vpc" "vpc" {". An AI-generated completion suggestion is overlaid on the screen, showing a detailed explanation and code snippets for creating a VPC resource.
- Terminal:** Shows the command "aws ec2 create-subnet --vpc-id vpc-0313939b0697f59" followed by a list of changes and a prompt asking if the user wants to destroy the resources.
- Status Bar:** Shows the status bar with "Ln 54, Col 3" and "Terraform".

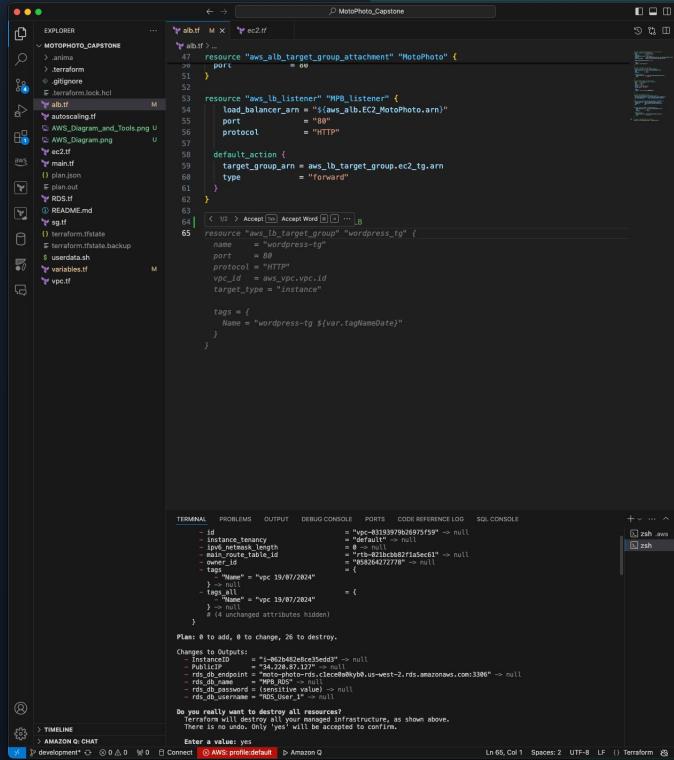


Visual Studio Code

Automating Infrastructure with Terraform

Benefits of Terraform:

- Consistent and reproducible infrastructure deployments
- Version control of infrastructure
- Works with multiple cloud providers



The screenshot shows a code editor with several Terraform files open in the sidebar:

- `sb2.tf`: Contains an AWS Lambda function definition.
- `aws_lb_listener.tf`: Contains an AWS Load Balancer Listener definition.
- `aws_lb_target_group_attachment.tf`: Contains an AWS Load Balancer Target Group Attachment definition.
- `aws_lb_target_group.tf`: Contains an AWS Load Balancer Target Group definition.
- `main.tf`: The main configuration file.
- `plan.out`: A file generated by Terraform showing the planned changes.
- `README.md`: A project README.
- `variables.tf`: A variables file.
- `vpc.tf`: A VPC configuration file.

The `main.tf` file contains the following Terraform code:

```
resource "aws_lambda_function" " MotoPhoto" {
  function_name = "MotoPhoto"
  runtime       = "nodejs14.x"
  role          = "arn:aws:iam::123456789012:role/lambdaBasicExecutionRole"
  handler       = "index.handler"
  code          = base64encodefile("lambda/index.js")
}

resource "aws_lb_listener" " " {
  load_balancer_arn = "${aws_lb.MotoPhoto_lb.arn}"
  port              = "80"
  protocol          = "HTTP"
}

default_action {
  target_group_arn = aws_lb_target_group_attachment.MotoPhoto_target_group_attachment.arn
  type             = "forward"
}

resource "aws_lb_target_group" "wordpress_tg" {
  name      = "wordpress-tg"
  port      = 80
  protocol = "HTTP"
  vpc_id    = aws_vpc.vpc.id
  target_type = "instance"
}

tags = {
  Name = "wordpress-tg ${var.tagNameDate}"
}
```

The `variables.tf` file contains:

```
variable "tagNameDate" {
```

The `vpc.tf` file contains:

```
resource "aws_vpc" "vpc" {
```

The `TERMINAL` tab shows the output of the Terraform command:

```
HashiCorp Terraform 0.14.10
```

```
Plans: 0 to add, 0 to change, 26 to destroy.
```

```
Changes to Outputs:
  instance_id = "+0c933979b0897f59" -> null
  instance_tenancy = "shared" -> null
  ipv6_subnet_length = 8 -> null
  subnet_table_id = "+0c933979b0897f59" -> null
  owner_id = "+05264272770" -> null
  tags_all = {
    "Name" = "vpc 19/07/2024"
  }
  tags_all = {
    "Name" = "vpc 19/07/2024"
  }
# (4 unchanged attributes hidden)
```

```
Do you want to destroy all resources?
Destroying your Terraform-managed infrastructure, as shown above.
There is no undo. Only 'yes' will be accepted to confirm.
```

```
Enter a value: yes
```

Impressions

The screenshot shows the MotoPhoto website's homepage. The header features the "MOTO PHOTO" logo. Below the header is a large banner with a top-down aerial view of a winding road through a forest. Overlaid on the banner is the text "Adventures on Two Wheels & Through the Lens" and a "Contact me" button. To the right of the banner is a close-up image of a motorcycle's front end, specifically a Scrambler Ducati, with its headlight and windshield. The main content area has a dark background with white text. It includes a "Wellcome to MotoPhoto" heading, a "Motorcycle Adventure Tours" link, and a "Capturing Adventures Through Photography" link. A bio for the owner follows, starting with "Hi, I'm Oliver from Hamburg. Join me as I explore the world on my Ducati Scrambler Desert Sled. I love to adventure and capture stunning moments through my lens. Whether you're into motorcycles, photography, or just love a good adventure, you're in the right place. Let's ride and discover together!"

The screenshot shows the MotoPhoto website's blog section. At the top, there is a header with a "Photo" tab and a search bar. Below the header are three blog posts, each with a thumbnail image, a title, a date, and a "Read More" button.

- Exploring the Westside of Hamburg on Two Wheels**
July 16, 2024
Greetings, fellow adventurers! I'm excited to kick off MotoPhoto with my first tour around the...
- Riding from Hamburg to Mölln's Beautiful Lake**
July 16, 2024
Hello again, MotoPhoto enthusiasts! I'm thrilled to share my second adventure with you in a scenic...
- Riding from Hamburg to Bremerhaven via Glickstadt Ferry**
July 16, 2024
Hello MotoPhoto friends, I'm excited to share my latest adventure: a ride from Hamburg to...

Below the blog section is a grid of five smaller images showing various motorcycle-related scenes: a person taking a photo, a motorcycle parked near a lake, a motorcycle on a road, a motorcycle on a bridge, and a person riding a motorcycle at sunset.

Time for questions

Stay in contact
with me

Contact

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Github: github.com/DeeSein

LinkedIn: linkedin.com/in/davidbecker85



An aerial photograph of a winding asphalt road through a rugged, hilly landscape. The terrain is covered in dark green vegetation and rocky outcrops. The road curves back and forth, creating a series of S-shapes as it disappears into the distance.

Thank you for
your attention!

David Becker

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