

The background features a dark blue gradient with large, overlapping, semi-transparent shapes in shades of purple and magenta. Two thin, light blue lines cross the scene diagonally. The text is positioned on the left side of the image.

# AWS re:Invent

DECEMBER 2 - 6, 2024 | LAS VEGAS, NV

DEV205

# A developer's survival kit: Tools for building beyond the AWS console

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# Agenda

The builder's dilemma

Tools of the trade

Answer questions

Calls to action



# Tools we will cover today

- 01 AWS Command Line Interface (AWS CLI)
- 02 AWS CloudShell
- 03 Integrated development environments (IDEs)
- 04 AWS Toolkit/AWS Cloud Development Kit (AWS CDK)
- 05 Amazon Q Developer

“

**The significant problems we face  
cannot be solved at the same level  
of thinking we were at when we  
created them**

# Scope of developing on AWS

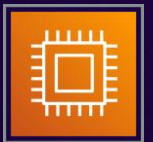
- 200+ services
- 14,000+ operations
- Support for 12 programming languages (& growing!!)
- New services and service features released frequently



Analytics



Application  
integration



Compute



Containers

# Why recommend a “survivor’s toolkit”?

- Helps establish a holistic approach to building on AWS
- Increases productivity
- Creates a baseline of tools to **simplify** your work
- Chart a growth path as a builder or developer



Storage



Migration



Internet of Things (IoT)



Front-end web and mobile

# AWS Command Line Interface (AWS CLI)





# AWS Command Line Interface (AWS CLI)

- Easy to install & configure
- Flexible
  - Multi-Region
  - Multi-account
  - Multi-format
- Automation & scripting
- Works within IDEs
- Scalability & reproducibility



# AWS CloudShell



# AWS CloudShell

- Browser-based via Management Console
- Secure (login credentials)
- Pre-configured
  - AWS CLI, Git, pip, npm
  - Amazon Linux 2023
  - 1 GB storage
- Portable; no overhead
- Available in 23 AWS Regions



# AWS CloudShell

The screenshot displays the AWS CloudShell interface. At the top, the AWS logo and a search bar are visible. The main area is divided into two sections: 'Console Home' and 'Applications (0)'. The 'Console Home' section lists recently visited services such as Amazon Bedrock, S3, EC2, CloudFormation, IAM, Amazon Q, Support, Billing and Cost Management, and Service Quotas. The 'Applications (0)' section shows a 'Create application' button and a search bar for applications in the 'us-east-1 (Current Region)'. A red arrow points to the 'Applications (0)' section. Below these sections, a 'CloudShell' terminal window is open, showing the command prompt and the output of the 'df -h' command. The terminal output shows the disk usage for various filesystems, including 'overLay', 'tmpfs', 'shm', and '/dev/nvme1n1'. The terminal window also has an 'Actions' dropdown menu and a close button.

```
[cloudshell-user@ip-10-130-72-10 ~]$ id
uid=1000(cloudshell-user) gid=995(cloudshell-user) groups=995(cloudshell-user),997(docker)
[cloudshell-user@ip-10-130-72-10 ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
overLay         16G   4.4G   11G  30% /
tmpfs           64M    0    64M   0% /dev
shm             64M    0    64M   0% /dev/shm
/dev/nvme1n1    16G   4.4G   11G  30% /home
/dev/loop0     974M   68K  907M   1% /home/cloudshell-user
/dev/nvme0n1p1  30G   13G   18G  43% /aws/mde/mde
[cloudshell-user@ip-10-130-72-10 ~]$
```



# Integrated development environment



# Visual Studio Code

The screenshot displays the Visual Studio Code interface with three main components:

- File Explorer (Left Panel):** Shows a project structure for 'BEDROCK-WORKSHOP'. The file explorer is highlighted with a red arrow and labeled 'file explorer'. The file list includes: .env, backup, Bedrock, node\_modules, .env, .gitignore, bototest.py, index.html, main.js, main.js.25Aug2024, package-lock.json, package.json, style-1.css, style-2.css, style-gothic.css (highlighted), style-halloween.css, style-orig.css, style.css, and vite.config.js.
- Code Editor (Center Panel):** Shows the 'style-gothic.css' file being edited. The code editor is highlighted with a red arrow and labeled 'file editor'. The code includes CSS rules for 'html', 'main', and 'h1'.
- Terminal Session (Bottom Panel):** Shows a terminal window with a 'zsh' prompt. The terminal is highlighted with a red arrow and labeled 'terminal session'. The command 'ls -l' has been executed, showing a directory listing of files and folders.

```
# style-gothic.css > ...
1  html {
2      font-family: 'Goudy Old Style', Garamond, 'Big Caslon', 'Times New Roman', serif;
3      background: #1a1a1d;
4      color: #d5c4a1;
5  }
6
7  main {
8      max-width: 1200px;
9      margin: 2rem auto;
10     padding: 2rem;
11     background: #2f2f2f;
12     border: 1px solid #4d4d4d;
13     border-radius: 0.5rem;
14     box-shadow: 0 0.25rem 0.5rem rgba(0,0,0,0.5);
15 }
16
17 h1 {
18     font-size: 3rem;
19     font-weight: 400;
20 }
```

```
bash-3.2$ ls -l
total 256
drwx----- 3          96 Aug 11 18:49 Bedrock
drwx----- 7         224 Aug 11 19:18 backup
-rwx----- 1         611 Dec  6  2023 bototest.py
-rwx----- 1         454 Aug 11 18:45 index.html
-rwx----- 1        1795 Aug 11 19:06 main.js
-rwx----- 1        1811 Aug 25 10:47 main.js.25Aug2024
drwx----- 23        736 Sep  2 16:47 node_modules
-rwx----- 1       78920 Aug 28 11:28 package-lock.json
-rwx----- 1         348 Aug 11 18:47 package.json
-rwx----- 1         700 Aug 11 19:29 style-1.css
-rwx----- 1         948 Aug 11 19:34 style-2.css
-rwx----- 1        1207 Aug 11 19:42 style-gothic.css
-rwx----- 1        1534 Aug 25 11:20 style-halloween.css
```



# AWS Toolkit







# AWS Cloud Development Kit (AWS CDK)



# AWS CDK



```
using Amazon.CDK;
using Amazon.CDK.AWS.S3;
using Constructs;

namespace DemoCdk
{
    public class DemoStack : Stack
    {
        public DemoStack(Construct parent, string id, IStackProps props):
            base(parent, id, props)
        {
            new Bucket(this,
                "MyFirstBucket",
                new BucketProps { Versioned = true }
            );
        }
    }
}
```

# Amazon Q Developer



# Amazon Q Developer – re:Invent 2024 Sessions

## Breakouts

- DEV201 Build Amazon Q apps to scale and drive community engagement
- DEV202 Boosting productivity with Amazon Q Developer agents
- DEV310 Implementing Amazon Q Developer: Lessons from the field
- DEV321 Supercharge your DevOps practices with generative AI

## Chalk Talks

- DEV323 OWASP Top 10 for LLMs: A developer's guide to securing generative AI

# Additional resources



<https://bit.ly/dev205>

# Thank you!

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