Serverless senza segreti con Azure Functions, Node.js, GitHub Actions e Codespaces!

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Our LEGO Bricks!!!

- Azure Functions
- NodeJS
- GitHub Repo/Actions
- GitHub Codespaces

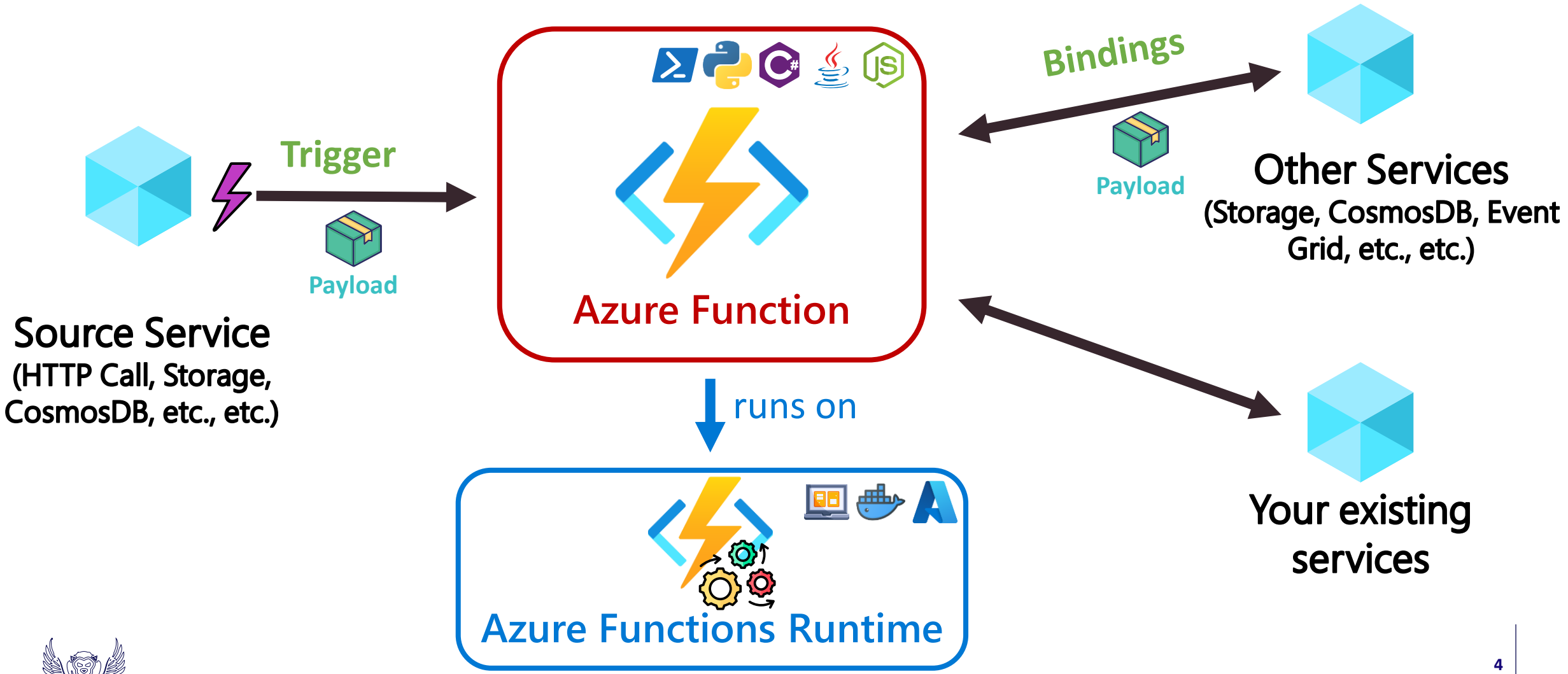
What are Azure Functions?

Azure Functions is a serverless solution that allows you to write less code, maintain less infrastructure, and save on costs.

Instead of worrying about deploying and maintaining servers, the cloud infrastructure provides all the up-to-date resources needed to keep your applications running.

You focus on the code that matters most to you, in the most productive language for you, and Azure Functions handles the rest.

Azure Functions components



Hosting Plans

- Serverless compute plan
- Automatically scales to handle incoming events
- Pay only for the execution of your functions

Consumption

- Enhanced performance and advanced scaling options
- Ideal for mission-critical and high-demand serverless workloads
- Predictable pricing based on resource consumption

Premium

- Runs your functions on App Service Plan
- More control over scaling and resource
- High predictable cost based on App Service Plan

Dedicated

You can also host your functions in containers and deploy them to **Kubernetes** clusters or **Azure Container Apps**.

Costs

Meter	Free Grant (Per Month)	Pay as you go
Execution Time*	400,000 GB-s	€0.000016/GB-s
Total Executions*	1 million executions	€0.190 per million executions

Example: A function with a memory consumption of **512 MB** executes **3,000,000 times** during the month and has an execution duration of **1 second**.

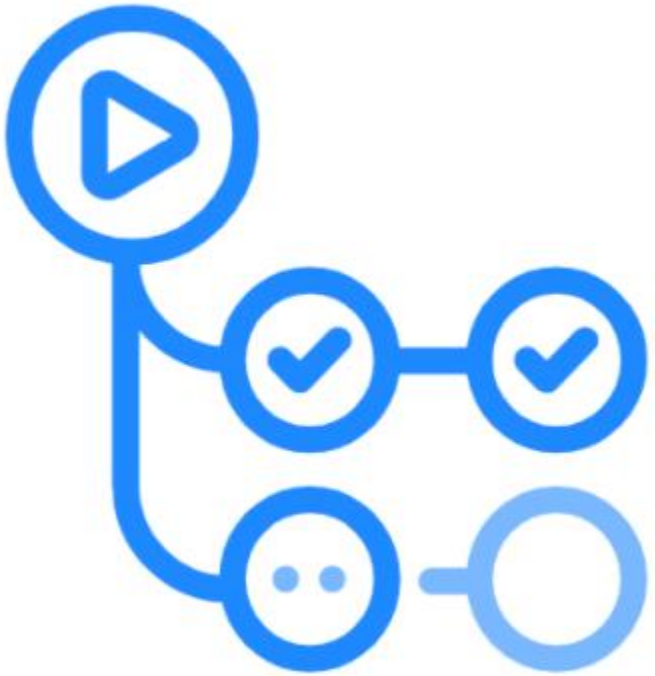
Total Monthly Cost €17.02

GitHub Actions

GitHub Actions is an automation platform that allows you to automate your GitHub repository.

GitHub Actions goes beyond just DevOps and lets you run workflows when other events happen in your repository.

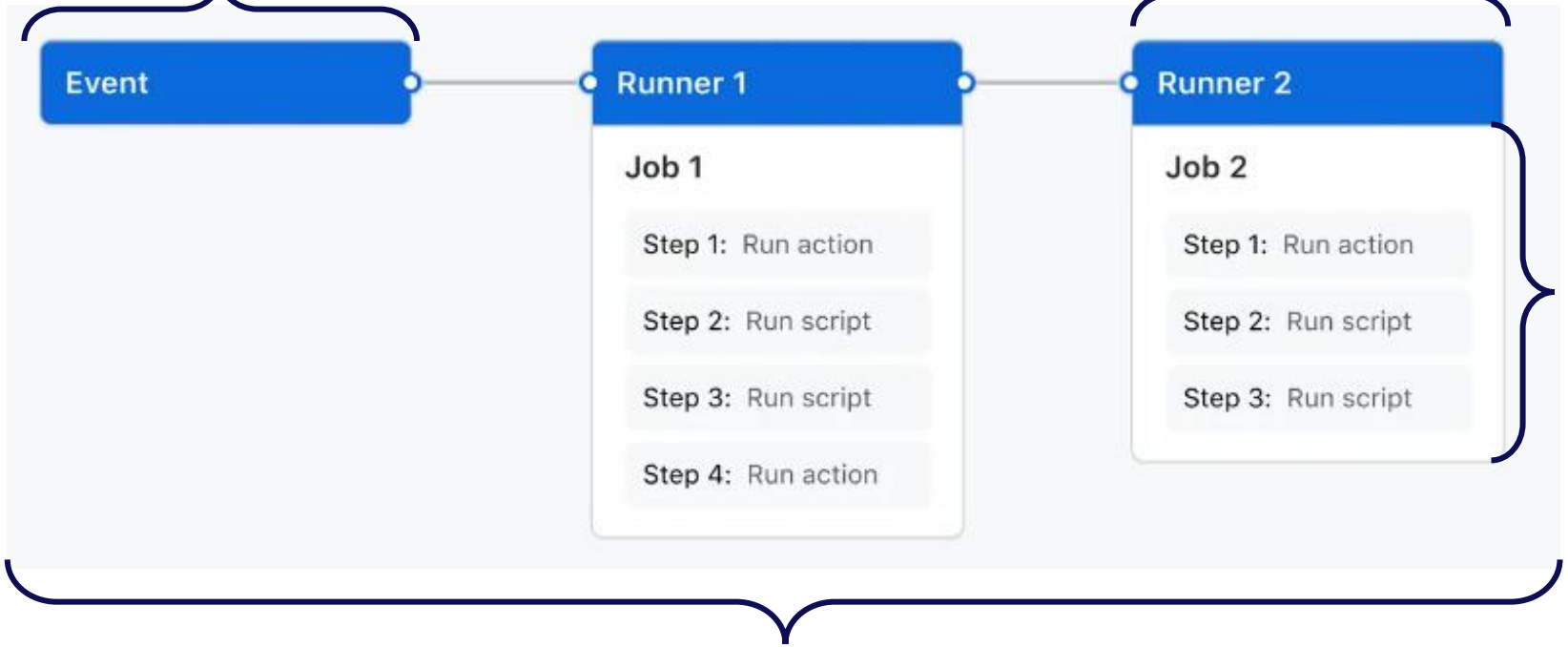
GitHub provides Linux, Windows, and macOS virtual machines to run your workflows, or you can host your own self-hosted runners in your own data center or cloud infrastructure.



GitHub Actions Components

Event: is an activity in a repository that triggers a workflow

Runner: a server that runs your workflows. Each runner can run a single job at a time. GitHub provides Ubuntu Linux, Microsoft Windows, and macOS runners. You can use your own runner.



Job: a set of steps that is executed on the same runner. Each step can be a shell script or an action. Steps are executed in order and are dependent on each other.

Workflow: defined by a YAML file in your repository and triggered by an event, manually, or schedule.

GitHub Actions Pricing

GitHub Actions usage is **free** for standard GitHub-hosted runners in public repositories, and for self-hosted runners.

For private repositories, each GitHub account receives a certain amount of free minutes and storage for use with GitHub-hosted runners, depending on the account's plan.

Any usage beyond the included amounts is controlled by spending limits.

Plan	Storage	Minutes (per month)
GitHub Free	500 MB	2,000
GitHub Pro	1 GB	3,000
GitHub Free for organizations	500 MB	2,000
GitHub Team	2 GB	3,000
GitHub Enterprise Cloud	50 GB	50,000

GitHub Codespaces

A codespace is a development environment that's hosted in the cloud, hosted by GitHub in a Docker container, running on a virtual machine.

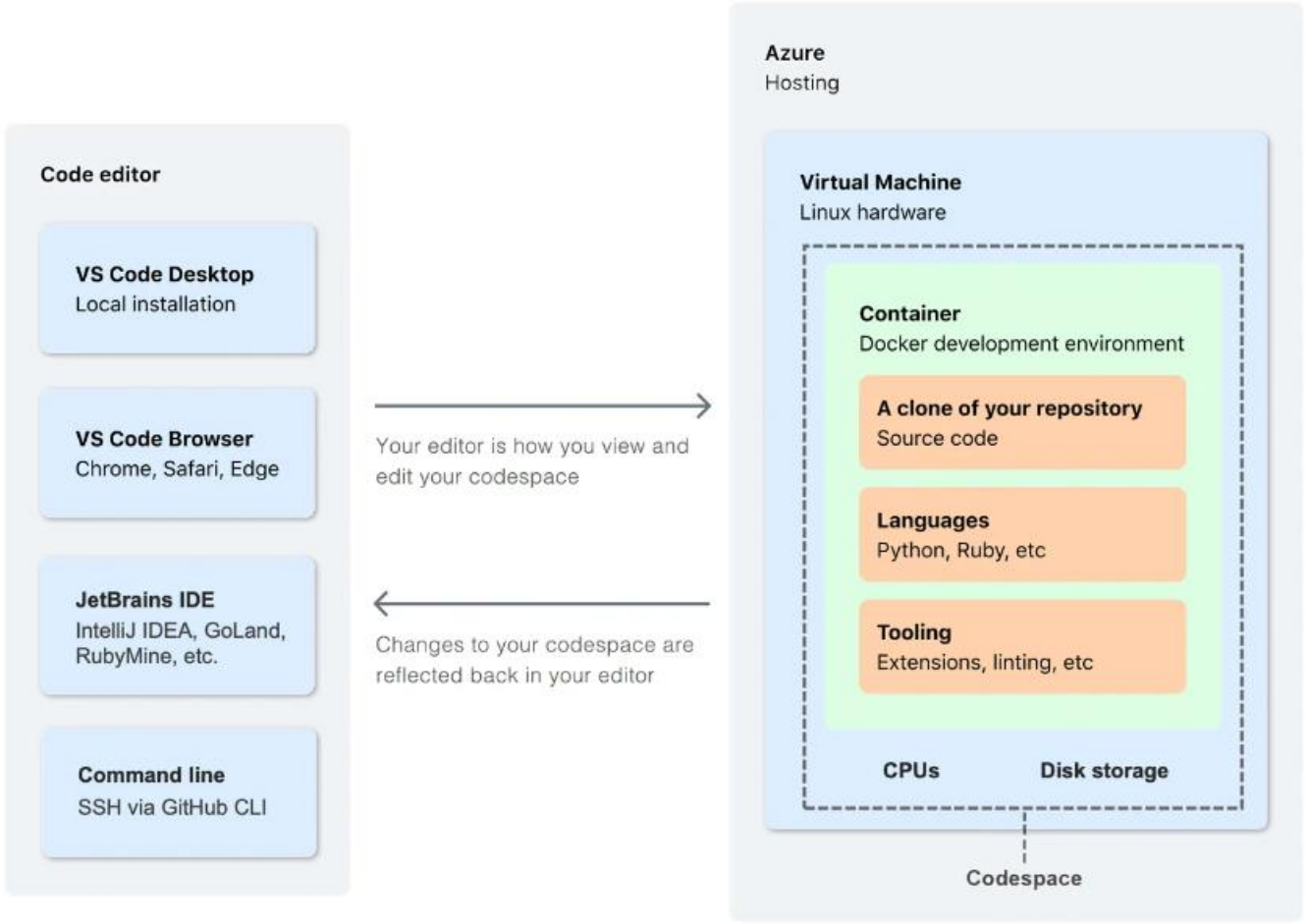
By default, the codespace development environment is created from an Ubuntu Linux image that includes a selection of popular languages and tools.

You can use an image based on a Linux distribution of your choice and configure it for your requirements.

GitHub Codespaces

You can connect to your codespaces from your browser, from Visual Studio Code, from the JetBrains Gateway application, or by using GitHub CLI.

When you connect, you are placed within the Docker container.



GitHub Codespaces Pricing

The Free and Pro plans for personal accounts include **free** use of GitHub Codespaces up to a fixed amount of usage every month.

Account plan	Storage per month	Core hours per month
GitHub Free for personal accounts	15 GB-month	120
GitHub Pro	20 GB-month	180

DEMO

From zero to hero……. Serverless

> whoami

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Thanks for the attention !!

References

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- Use Azure Functions to develop Node.js serverless solutions
- Learning Path - Implement Azure Functions
- Learning Path - Create serverless applications
- Learning Path - Build Serverless APIs with Azure Functions
- GitHub Actions – Documentation
- GitHub Codespaces - Documentation
- GitHub – Pricing
- GitHub – Pricing calculator

Thanks.