

Ultra-high-performance websites using Astro Framework

Marco Breveglieri

 Software Developer |  Trainer and Consultant |  Tech Content Creator

ROME oct **26/27**

Marco Breveglieri



Software Developer



Trainer and Consultant



Tech Content Creator



Community lover



 <https://linktr.ee/marco.breveglieri>

Agenda

- Overview of Astro Framework
- Key Features
- Benefits of Astro Framework
- Building a Website with Astro
- Real-world Examples
- Tips for Success
- Q & A

Foreword

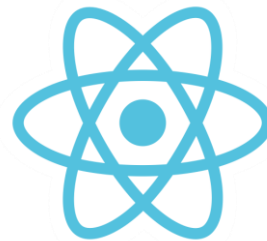


Need a website?

As developers, we all need to build **dynamic websites!**

- Web apps and e-commerce for our own customers
- Landing pages for services and products
- Personal and professional blogs and portfolios
- Portals with news, articles and documentation
- Any kind of website you can think about

Which framework/library?



Microsoft®
SQL Server®





Welcome **Astro Framework!**

Astro Framework

- **Astro** is a static site generator that focuses on delivering fast, modern websites.
- It blends the best of both *Server-Side Rendering* (SSR) and *Static Site Generation* (SSG).

 Note: we will focus on **SSG**!

Key Features

- **Component-Oriented** 
Built around components, making it highly modular and reusable.
- **Fast Loading** 
Astro optimizes websites for lightning-fast performance.
- **Framework Agnostic** 
Compatible with popular frameworks like *React*, *Svelte*, and *Vue*.
- **Serverless Deployment** 
Ideal for serverless architectures.

Benefits

- **Speed** 🏃
Near-instant page loads thanks to pre-rendering
- **SEO-Friendly** 🔍
Search engine optimization made easy
- **Smaller Payloads** 📦
Reduced page sizes for better performance
- **Developer-Friendly** 💻
Familiar tools and workflows for developers.

Building Blocks

- **Define Your Components**

Create components using your preferred framework (e.g., *React* or *Svelte*) or just plain HTML and JavaScript.

- **Configure Routes**

Set up your site's routing structure and navigation.

- **Optimize with Astro**

Compile and build your website with Astro.

Astro vs WordPress: a comparison

Astro vs Wordpress

Architecture

Astro is a *static site generator*. It **precompiles your website into static HTML, CSS, and JavaScript files**, which can be served directly from a content delivery network (CDN).

WordPress is a CMS with a *server-side architecture*. It relies on a dynamic PHP and MySQL stack to **generate web pages on the fly** when a user requests them.

Astro vs Wordpress

Performance

Astro's static site generation approach results in **incredibly fast loading times** since there's no server-side rendering, or database queries required for each page load.

WordPress sites **can be slower**, especially on shared hosting environments, and **may require optimization efforts** to achieve faster load times.

Astro vs Wordpress

Scalability

Astro websites are **inherently scalable** since they are served through CDNs, ensuring **high availability and low latency**. They can easily handle traffic spikes.

WordPress can be **less scalable**, especially on shared hosting, and may **require additional server resources** to handle high levels of traffic.

Astro vs Wordpress

Security

Since Astro sites are mostly static and have a smaller attack surface, they are generally **more secure** against common web vulnerabilities.

WordPress sites can be **vulnerable to security issues** like plugin vulnerabilities, which can lead to site compromises if not properly maintained and secured.

Astro vs Wordpress

Content Management

Astro is not a content management system on its own. It's a **development framework**, and you need an external CMS or data source to manage content.

WordPress is a **full-fledged CMS**, offering a user-friendly interface for creating, editing, and managing content. It gets you the whole package.

Astro vs Wordpress

Customization

Astro gives developers a **high degree of control and flexibility** over the structure and design of their websites. It's ideal for **custom web applications and complex web projects**.

WordPress is often used for **traditional blogs and websites**, and while it's highly customizable, it may require **more effort to create unique web applications**.

Astro vs Wordpress

SEO

Astro makes it **easier to optimize for search engines** due to its fast-loading, static nature and the ability to generate SEO-friendly HTML easily.

WordPress can be SEO-friendly with the right plugins and practices, but it **might require more configuration and maintenance.**

Astro vs Wordpress

Learning Curve

Astro may have a **steeper learning curve**, especially for those who are new to modern JavaScript frameworks.

WordPress is known for its user-friendliness and is relatively **easier to learn**, making it accessible to a wider range of users.

In a glance...

- **Astro** is a **modern, developer-centric tool** that excels at creating **fast and highly performant websites**, particularly for custom web applications.
- **WordPress** is a **versatile CMS** suitable for **content-rich websites** with a more straightforward, user-friendly approach to website management.

The choice between the two depends on your project's requirements and your familiarity with the technologies involved.

Astro in action!

Let's build a sample website step by step

It's demo time! 🕒



Are you guys ready?

Short Recap

- **Project Structure:** Astro organizes projects in a tree of directories and files
- **Components:** UI is build assembling components using the special Astro templating syntax
- **Pages:** you can add content in the form of Astro Pages, MarkDown files and more (using plugins)
- **Layouts:** easily define and inherit page layouts using Astro components and slots
- **APIs:** use Astro functions to handle routing and add custom logic to tangle advanced scenarios

Deploying!

Deployment is easy!

- **Deployment** is the process of making your Astro website accessible on the Internet
- Astro support **great deployment options!**
 - **Static Hosting:** use services like *Netlify, Vercel, GitHub Pages*
Let's get a glimpse of Delphi Podcast website on Azure Static Pages
 - **Serverless Deployment:** you can opt for serverless platforms like *AWS Lambda, Azure Functions or Netlify Functions*

Scaling up!

- **CI/CD pipelines** are well supported
 - Automate the deployment process building and publishing your website when changes are pushed to the repository
- Leverage **CDN integrations** to distribute the content globally and gain faster access
- Take advantage of **monitoring tools and analytics** available on Cloud service providers

Conclusions



More goodies! 🎁

- Astro Islands
- Astro Themes
- Connect to CMS
- Server Side Rendering (SSR)

...and many more!



Q & A ?

Thanks!



ROME oct **26/27**