

Server-Side Scripting: Back-End Web Development Technology



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When you type in a URL, lots of code is at work to bring a page to your screen. What connects your site's database to the browser, creating a smooth, user-friendly experience? That's the software built by **server-side scripts**, languages that build your site behind the scenes. The goal of this software? To provide a seamless experience for the user that's as close to a desktop application as possible.

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There are many server-side languages working toward that end goal. The language you choose for your site depends on a mix of your site's requirements, your database/operating system setup, and the preferences of your development team. Knowing what each script can offer and what sets it apart is helpful in deciding how to build your back end, and who to hire.

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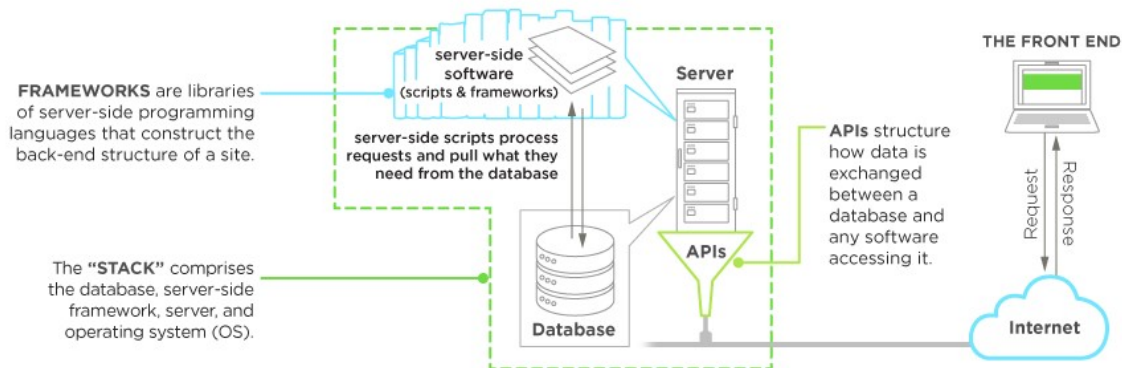
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A QUICK LOOK AT YOUR WEBSITE'S BACK END



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BACK-END DEVELOPMENT & FRAMEWORKS IN SERVER SIDE SOFTWARE



The back end comprises three parts: the **server**, your **database**, and **APIs**, and a **back-end web application**, software written via server-side languages. The server is a powerful computer that runs the back-end software, the database houses your site's data, and the software communicates between the two. For example, if a user is updating a profile on a networking site, the server-side scripts will gather the information the user enters, the application will process it on the server, then interact with the database to update that information there.

Server-side scripts are used by **back-end web developers** to build the **back-end software** of a website—the mechanics we don't see, but that make a site's usability and functionality possible. These languages create the communication channel between user, server, and database. Anything that isn't explicitly written into the text markup of a site is front-end or back-end software. Any data that a user requests in the browser (e.g., the fields in drop-down menus, photos, or user profiles) is delivered via server-side scripts, which create a channel between server and end user that requests, edits, and deletes things in the database. In the browser, **front-end scripts** make information available to the user.



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SERVER-SIDE SCRIPT BASICS



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- **Runs on a server**, embedded in the site's code
- Designed to interact with back-end permanent storage, like databases, and process information from the server to access the database—like a direct line from user to database
- **Facilitates the transfer of data** from server to browser, bringing pages to life in the browser, e.g., processing and then delivering a field that a user requests or submits in a form



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Runs on-call. When a webpage is “called up,” or when parts of pages are “posted back” to the server with **AJAX**

(<https://www.upwork.com/hiring/development/how-ajax-works/>), server-side scripts process and return data

Powers functions in dynamic web applications, such as user validation, saving and retrieving data, and navigating between other pages



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Plays a big role in how a database is built from the ground up and managed afterwards—an example of how roles often overlap in all aspects of development

Build **application programming interfaces (APIs)**, which control what data and software a site shares with other apps

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Todd Cutick

Web UI/UX Designer | PHP Developer | Wordpress Expert

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SERVER-SIDE CODE AND DATABASES



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How it works: If a database is a site's library, server-side scripting processes what the user is looking for via the server, then locates the book, chapter, page, and exact line of data, delivering that information back to the browser. It's designed to be smooth, fast, and seamless.

This is all possible through the server-side software and **middleware**

(<https://www.upwork.com/hiring/development/koa-js-a-future-proof-javascript-middleware-framework/>) your back-end developer writes, which create a tailored

channel from site to database. Information for your site resides on the server until it's requested, which makes your site both **fast and secure**.

Popular server-side languages

PHP (<https://www.upwork.com/hiring/development/php-frameworks-hiring-a-php-developer/>): The most popular server-side language on the web, PHP is

designed to pull and edit information in the database. It's most commonly bundled with databases written in the SQL language. PHP was designed strictly for the web and remains one of the most widely used languages around. It's easy to install and deploy, is staying competitive with lots of modern frameworks, and is the foundation for a number of content-management systems. PHP-powered sites: WordPress, Wikipedia, Facebook

Python (<https://www.upwork.com/hiring/development/python-programming-language/>): With fewer lines of code, the Python programming language is fast,

making it ideal for getting things to market quickly. The emphasis is on readability and simplicity, which makes it great for beginners. It's the oldest of the scripting languages, is powerful, and works well in **object-oriented**

(<https://www.upwork.com/hiring/development/object-oriented-programming/>) designs. Python-powered sites: YouTube, Google, The Washington Post

Ruby (<https://www.upwork.com/hiring/development/ruby-developer/>): If you're expecting complicated logic on the database side of your site, the Ruby

programming language is an excellent option. Unlike Python, Ruby is equal parts simplicity and complexity, pairing simple code with more flexibility and extra tools.

Ruby bundles the back end with database functionality that PHP and SQL can offer as a pair—it's great for startups, easy maintenance, and high-traffic demands. It requires developers to use the Ruby on Rails framework, which has vast libraries of

code to streamline back-end development. Ruby-powered sites: Hulu, Twitter (originally), Living Social, Basecamp



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- **C# (<https://www.upwork.com/hiring/development/c-sharp-developer/>):** The language of **Microsoft's .NET Framework** (<https://www.upwork.com/hiring/development/asp-net-framework/>)—the most popular framework on the web—C# combines productivity and versatility by blending the best aspects of the C and C++ languages. It's excellent for developing Windows applications, and can be used to build iOS, Android mobile apps with the help of a cross-platform technology like Xamarin.

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C++ (<https://www.upwork.com/hiring/development/cplusplus-the-language/>):

Great for complex applications also built on the .NET Framework, the C++ programming language is a difficult but high-powered language that works well for data-heavy sites. Speed is central to C++, and it runs well alongside other languages like Java and Python.

Java (<https://www.upwork.com/hiring/development/the-java-platform/>): A

subset of the C language, Java comes with a huge ecosystem of add-on software components. At its core, Java is a variation of C++ with an easier learning curve, plus, it's platform independent thanks to the Java Virtual Machine. "Compile once, run anywhere" is its motto—and it's excellent for enterprise-level applications, high-traffic sites, and Android apps. Java sites: Twitter, Verizon, AT&T, Salesforce

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Erlang: A general-purpose programming language, Erlang is also a concurrent language, which means several processes can run simultaneously on the language-level without external library support. It's used in the LYME and LYCE stacks, numerous CMS and databases, GitHub, Facebook chat, and Goldman Sachs, supporting its high-frequency trading requirements.

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AND THEIR SERVER-SIDE FRAMEWORKS

Ruby on Rails (https://www.upwork.com/hiring/development/ruby-developer/):

This Ruby framework is the overriding way to implement Ruby. Its “gems” include plug-ins and libraries of code that streamline development.

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ASP.NET (https://www.upwork.com/hiring/development/asp-net-framework/):

This Microsoft framework is the most popular enterprise-level framework—it supports multiple programming languages simultaneously for one project. So, the same application can be built with both C# and C++, via CLI (common language interface). It’s most recent iteration, ASP.NET 5, is now open to non-Windows platforms for the first time.

Django (https://www.upwork.com/hiring/development/django-programming/):

This Python framework was developed to meet the needs of development in a fast-paced environment. Django sites: Pinterest, Nasa, Pitchfork

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Node.js (https://www.upwork.com/hiring/development/what-is-node-js/):

JavaScript (https://www.upwork.com/hiring/development/what-is-javascript/) is typically a front-end script, but with the Node.js framework, it can be used in server-side technology, from APIs to entire stacks. Its core selling point is how it handles client-server communication—it’s fast, doesn’t bottleneck, and is ideal for real-time apps like chat rooms, data-heavy applications, and any software that requires the streaming of fresh content, like a news feed. Node.js sites: Dow Jones, PayPal, LinkedIn

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- **Express.js** (<https://www.upwork.com/hiring/development/express-js-a-server-side-javascript-framework/>) & **Koa** (<https://www.upwork.com/hiring/development/koa-js-a-rapid-javascript-middleware-framework/>): These JavaScript-powered middleware frameworks work on top of the Node.js development environment and control the flow of information on the back end of a site.

Read more about **the role of the** (<https://www.upwork.com/hiring/development/back-end-web-developer/>) **back-end developer** (<https://www.upwork.com/hiring/development/back-end-web-developer/>) in the creation and maintenance of your site.

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BY CAREY WODEHOUSE

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(<https://www.upwork.com/hiring/development/coldfusion-development/>) ColdFusion (originally ColdFusion Markup Language, or CFML) was big a couple of decades back, but—similar to Java and PHP—it's got staying power, a thriving community, a variety of open-source resources, and a trending line that doesn't show its "death" anywhere on the horizon.

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(<https://www.upwork.com/hiring/development/cost-hire-software-developer/>) Whether it's to build a web, mobile or desktop application, you need a software developer nearly every stage of the process. The title "software developer" is a bit of an all-encompassing term given to any designer or engineer that writes code, and the cost to hire one includes several factors—here are the main components that factor into software development costs.

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So you want to hire a software engineer—how can you attract a top engineer for your project? In this article, we'll do a quick overview of what a software engineer does, and provide you with a general framework for writing a job description to help you find the right engineer for your needs.

Read More (<https://www.upwork.com/hiring/development/software-engineer-job-description/>)

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