

// Coding

SINGLE PAGE APPLICATION (SPA) VS MULTI PAGE APPLICATION (MPA): PROS AND CONS



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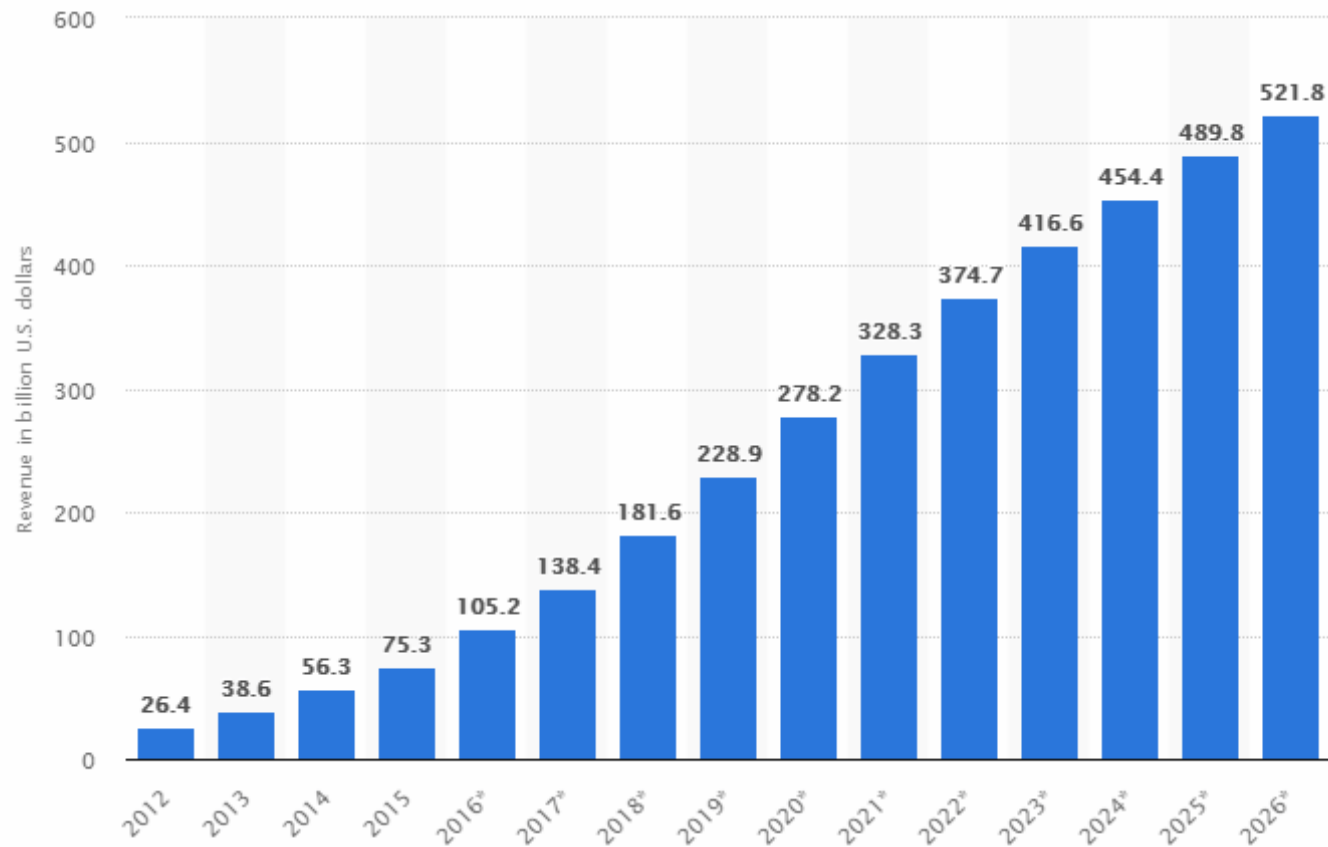


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Cloud-based web apps are gaining popularity. A lot of IT companies see this trend and more software products are developed on the basis of **remote access**. There are many analogues of desktop programs that offer an online version for a small monthly fee. They give more flexibility and mobility. For example, you can easily enter data into cloud CRM or ERP systems through your mobile phone and this can happen at a convenient place for you. As you can see from the [Statista](#) chart, the cloud solutions market is growing and by 2026 it should reach almost **\$522 billion**.

Public cloud market revenue worldwide from 2012 to 2026 (in billion U.S. dollars)



Data visualized by  **tableau**

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To ensure the stable operation of complex web applications, it is desirable to use technologies that will give the best performance and speed. There are two ways to develop web applications: **single-page applications** (SPA) and **multi-page applications** (MPA). Let's look at the difference between them and what advantages each type of web application has.

Single Page Application (SPA)

Single-page applications allow you to **simulate the work of desktop apps**. The architecture is arranged in such a way that when you go to a new page, only a portion of the content is updated. Thus, there is no need to re-download the same elements. This is very convenient for developers and users. For the development of SPA one of [the most popular programming languages](#) is used - javascript.

A small web application can be made with the jQuery library. But, immediately it should be noted that jQuery is very bad for **developing large projects**. First of all, it is related to the structure of the code. Our company, Merehead, recommends using more powerful technologies for the development of SPA. **React.js, Angular.js, Vue.js** and other frameworks / libraries are good for these purposes. Their architecture allows you to develop flexible web applications. Moreover, based on the framework, you can **build mobile applications** with reuse when. Such opportunities are given by **React Native** based on React.js and **ionic** based on Angular.js. Main advantages of Single Page Application:

- **High speed**. Since SPA doesn't update the entire page, but only the necessary part, it significantly improves the speed of work.
- **High speed development**. Ready-made libraries and frameworks provide powerful tools for developing web

applications. The project can work in parallel back-end and front-end developers. Thanks to a clear separation they will not interfere with each other.

- **Mobile applications.** SPA allows you to easily develop mobile apps based on the finished code.

With all its benefits, Single Page Application has some disadvantages that restrain the growth of popularity:

- **Poor SEO optimization.** SPA works on the basis of javascript and downloads information on request from the client part. Search engines can hardly simulate this behavior. Because most of the pages are simply not available for scanning by search bots.
- **Not active javascript.** Some users disable Javascript in their browsers, and without it your application will not work.
- **Low level of security.** JavaScript has a low level of security, but if you use modern frameworks, they can make your web application secure. But you should pay attention that using jQuery can significantly reduce the security of your project.

Single-page web applications are well suited for developing **dynamic platforms**, with a small amount of data. In addition, if you need to [build a mobile application](#) in the future, the SPA is perfect as a base. The main disadvantage that holds back the rapid growth in popularity of SPA is **poor SEO optimization**. Projects, where SEO is a top priority, should use Multi Page Application (MPA).



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Multi Page Application (MPA)

Multi-page applications have a more classical architecture. Each page sends a request to the server and completely **updates all the data**. Even if these data are small. Thus, the performance is spent for displaying the same elements.

Accordingly, this affects the speed and performance. Many developers use **JavaScript / jQuery** to increase speed and reduce the load. A good example, updating the products without reloading the page, when using filters in the online store. It is much more convenient and most importantly faster. The main **advantages of Multi Page Application (MPA)**:

- **Simple SEO optimization.** The architecture of MPA allows you to easily optimize every page for search engines. A developer can add meta tags for any page.
- **Easy development.** Typically, developing a multi-page application requires a smaller stack of technologies.
- **Many solutions.** Using MPA you can find a suitable boxed solution. For example, use [Magento](#), [OpenCart](#) to develop an e-commerce web application or Dolphin, Elgg for the [development of social networks](#).



>Disadvantages of MPA:

- **It takes a lot longer to develop mobile applications.** In most cases, you will need to coding back-end from scratch.

- **It is difficult to separate front-end and back-end.** As a rule, they interact very closely with each other. The work of front-end and back-end developers is becoming more complicated.

The main advantage of MPA is good SEO optimization and a lot of **box solutions**.

MPA or SPA

Each architecture has its advantages and disadvantages and is well suited to a particular type of project. SPA is distinguished by its **speed** and the ability to develop a **mobile application** based on the ready-made code. But at the same time, SPA has a poor SEO optimization. Thus, this architecture is an excellent approach for SaaS platforms, social networks, closed communities, where search engine optimization does not matter. MPA is more suitable for **online stores, business sites, catalogs, marketplaces like Etsy** etc. Well-optimized MPA has high performance but still does not allow you to easily develop a mobile application. MPA and SPA with the right architecture are well suited for [developing scalable web applications](#). I hope this article was useful. If you have any questions, I will be happy to answer them.



Single Page Application (SPA) vs Multi Page Application (MPA): Pros and Cons key takeaways:

#1. [Single Page Application \(SPA\)](#)

#2. [Multi Page Application \(MPA\)](#)

#3. [MPA or SPA](#)

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Ian Melnik

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