Kontent.

The State of Jamstack 2020 Report.

In partnership with

Luminary

About Kentico Kontent.

Kentico Kontent is the world's leading cloud-based headless CMS platform. Robust APIs, webhooks, and flexible content models give developers full control over the structure of their content and how it's delivered to their websites and applications. The APIs deliver clean, structured content that can be pulled into any experience and technology stack.

On top of this headless foundation, Kontent includes an intuitive authoring experience that lets marketers focus on content creation and business workflows without requiring developer involvement. This frees developers to focus on what they do best—building engaging online experiences that look great in every channel.

Companies across a wide range of industries have built their online experiences on top of Kontent, including Vogue, PPG, Oxford University, AC Milan, and Konica Minolta. Additionally, Kentico is regularly included in key industry reports published by Gartner, Forrester Research, and G2.

About this report.

The Jamstack has seen an incredible increase in popularity and usage in recent years. The benefits of using this modern web development architecture include faster and better performance, unbeatable scalability options, higher security, and better developer experience. For these reasons, Jamstack sites have become very popular among web developers over the past few years.

We at Kentico Kontent could not be blind to the significant increase in the number of projects combining the Jamstack and headless CMSs. Seeing this trend in web and app development, we decided to take a closer look at the current state of Jamstack's adoption and use. How many developers are familiar with this architecture? How complex are their Jamstack projects? What are the most popular static site generators? These are just a few examples of questions that interest every modern web development enthusiast.

The State of Jamstack 2020 Report draws on our global survey conducted among hundreds of developers from the US, the UK, Germany, and Australia. It provides answers to the above questions and much more! You will find out:

- What the top reasons for choosing the Jamstack are
- What developers love and hate about Jamstack tooling
- What CMSs and what static site generators are used
  in their Jamstack projects most often

I have no plans to reveal any results in this editorial. One thing is clear to me, though. The Jamstack popularity is growing, and its benefits and low entry barrier will ensure it keeps growing with another generation of web developers. We at Kentico Kontent are excited about what 2020 has in store for the Jamstack, and since you're holding a copy of this report, I believe you are too. Enjoy the read!

Vojtech Boril.
VP Growth & Marketing, Kentico Kontent

About Luminary.

Luminary is a global leader in the implementation of Kontent and the premier Kontent agency in Australia. Led by CTO and Kentico MVP Andy Thompson, Luminary's development team directly supported Kentico in building the initial boilerplate for Kontent and continues to be involved in testing and refining the platform. Luminary Technical Lead Emmanuel Tissera also launched the world's first Kontent website.

Luminary is home to the largest and most experienced Kentico development team in Australia, across both Kontent and Kentico EMS. One of Australia's longest-standing independent digital agencies, Luminary's longevity and depth of experience with Kentico has earned it a reputation as the agency of choice for many of the biggest names in the Australian government, retail, and corporate sectors.

Why it's time for the Jamstack to shine.

The business perspective

Over the past few years, the Luminary team have seen over and over again clients coming to us with a common set of problems arising from their digital platform investment:

- A slow website leading to low conversions
- A feature-rich digital experience platform that is only being used as an expensive CMS
- A rigid template structure that forces digital marketers and content editors to use third-party landing page solutions to do their job
- Disparate content management solutions across the organization (e.g., website vs. mobile app vs. display screens)
- Security flaws and vulnerabilities that have gone unnoticed for too long
- A costly hosting infrastructure that isn't delivering a ROI
- A frustrated group of stakeholders across marketing, digital, and IT

Any of these sound familiar? The Jamstack can help address these very real business problems.

The benefits of the Jamstack.

At Luminary, we have summed up the benefits of the Jamstack for businesses in the 6 Ss of the Jamstack:

⚡ Speed

Super-fast, pre-rendered websites that are SEO-friendly and improve conversions. Add to that improved speed to market with a streamlined development pipeline.

✅ Stability

No more random downtime moments caused by legacy applications. Static HTML, served at the edge, doesn't go down.

↗ Scalability

Unbeatable scaling with no web application servers or database servers needed. Significant cost savings at scale (and highly performant!).

🔒 Security

By serving pre-rendered static HTML, we remove any potential connection to web application servers or database servers. It's hard to get any more secure than that.

⚙ Serviceability

This refers to the quality of the experience in designing, building, and maintaining Jamstack-driven web experiences. The 'maker experience' is a critical factor in the ongoing success of any website or application. This covers designers, developers, content editors, digital marketers, and anyone else that is involved in the creation and ongoing management of digital experiences.

⚛ Simplicity

The Jamstack is all about abstracting complexity to deliver ease of use for developers and simple, blazingly fast experiences for end-users.

Buzzword or the next big thing?

It's certainly more than a buzzword. Big brands like Peloton, Nike, and Citrix are on board, and Silicon Valley is throwing money at Jamstack-centric startups like Gatsby, Netlify, Vercel, and many more.

Most importantly, though, there are real business benefits to be had. The 6 Ss of speed, stability, scalability, security, serviceability, and simplicity mean tangible increases in conversion and revenue, as well as reduced risk and lower operating costs. All of this without a huge investment.

The Jamstack is business ready and should be considered for your next digital project.

Adam Griffith.
Managing Director, Luminary

Why it's time for the Jamstack to shine**.**

The technology perspective

Javascript, APIs, and Markup (HTML) have been around for literally decades. So why the sudden wave of enthusiasm for Jamstack as an enterprise web development platform?

</> JavaScript is everywhere

JavaScript has become the lingua franca for developers. What started as a simple scripting language for adding interactivity to web pages in the 90s is now the dominant programming language in digital.

☁ The Cloud

Platform-as-a-Service (PaaS) providers such as Google, Amazon, and Microsoft have freed developers from the hassles of maintaining their own server infrastructure or being tied to a single technology platform.

☆ DevOps

Content Management systems were born to make the mundane task of updating a website easier. The explosion of automated tools for building and deploying your website not just quickly and regularly, but *continually*, has removed this barrier.

Everything as a Service

Industry-leading digital products are increasingly delivered "as a service"—available online via subscription—rather than requiring purchase and installation on a server. Overwhelmingly, these SaaS products provide comprehensive APIs for advanced integration scenarios.

Content as a Service

One of the *relatively* recent additions to the "as a service" stable is cloud-based Headless CMS platforms, such as Kontent. Enabling rapid modeling and management of structured, omnichannel content while also adding features to empower marketers,

these *Content*-as-a-Service (CaaS) platforms enable websites or apps to be built independently of traditional restrictions imposed by a CMS. Devs can then get back to building websites the way they were supposed to be built—with HTML and JavaScript!

Modern web app frameworks

Building a complex, interactive web experience in a browser from scratch is no mean feat, and developers will tend toward using an established framework. React and Vue. js have emerged as clear front-runners in terms of popularity and community support for websites. Static Site Generators (SSG), such as Gatsby or Next.js, make creating complex and high-performing web applications delivered on the Jamstack easy.

A modern Jamstack platform

JavaScript, APIs, and Markup are nothing new. But an industry-wide move toward API-enabled cloud services, combined with the emergence of some amazing supporting technologies and tools has made it possible to build a modern platform for enterprise development *on* the Jamstack. Assuming, of course, that you have access to a team of very smart people to pull it all together.

Andy Thompson.
CTO, Luminary

Jamstack and headless CMS are like front end and back end. They need each other.

The Jamstack is trending. There's no question about that. We at Kentico Kontent see over ten percent month-to-month increase in projects that are built with static site generators. But why is the Jamstack so popular, and why are more and more developers starting to prefer it?

Performance, security, cost effectiveness.

I used to hear these topics in every pre-project meeting. There were numbers from Google Analytics everywhere, endless calculations of hardware requirements, we talked about securing the administration interfaces, and, of course, budgets.

Then the Jamstack surfaced. It seemed like a complete opposite of the way we were creating websites. But that's not what the Jamstack is. In fact, the Jamstack is very similar to traditional sites. I'll explain.

On every traditional site, we start using caching at some point. Database calls, third party services providing data, integrations, all these things are expensive. They eat both time and resources. So we cache them as we can live with data that's a few minutes or a few hours old, but we can't let the visitors wait. Later, we delete the cache when it becomes outdated.

The Jamstack is built exactly on this foundation. We don't build a page when a visitor asks for it, we build it when the content changes. And not just a page, but the whole site. Who would have thought that this change makes all the meeting topics I mentioned earlier obsolete.

Developers should develop, editors should edit.

The last time I decided to fix a little car problem, it took me two days and three trips to a local hardware store for supplies. And let's be honest—a proper mechanic would have probably finished it in one hour. Just like that, I believe developers should keep implementing features, and content editors should keep maintaining the content. It's what they like and what they want to do.

Traditional websites running on one code base make this a challenge. Editors need to wait for the first version of the website to have a place where they can work on content. Developers are happy until that moment as then their flexibility is limited. They are no longer the only ones working on the project.

While that can be nice teambuilding at times, the Jamstack provides a better separation by design. It's closely tied to headless CMSs where content editors can independently build the content model and work on preparing the content. The system provides them with a tailored UI that fits their needs, allows them to collaborate on content and reuse it over time.

Their developer colleagues gain more power and responsibility with the Jamstack. They implement the website using data from the CMS and make sure it's always consistent and good-looking. A headless CMS provides them with an SDK or source plugin for their platform of choice that allows them to get content through an API comfortably.

Both of these teams can now work independently with the tools they like to use. Moreover, the separation and reusability of content keep the organization open to new trends and channels such as mobile applications, chatbots, or AI.

The future of the Jamstack.

I believe we will see more and more people discover the benefits of static sites. Not just developers, but also editors, project managers, CTOs, and others; the focus will turn to content management, and editors will ask for more features they know from traditional CMSs such as content previews, rich collaboration features, and task management. Headless CMSs will become true cloud content hubs and will cater to content needs on multiple channels.

We will also see a great improvement in static site generators' performance and feature sets. It's likely many Jamstack sites will also use a hybrid approach, which allows some pages to be statically generated and others server-side rendered.

Will the results of this report match my predictions? I won't spoil the surprise just yet. However, having read the report, I'm now going to fill a lottery ticket.

Ondrej Polesny.
Developer Evangelist, Kentico Kontent

Overview of our respondents.

We surveyed a total of 531 full-time and part-time developers working for small, medium-sized, and large companies. Below you can see the demographic breakdown of the respondents, including their primary programming language.

Country

Australia	24%
Germany	24%
United Kingdom	26%
United States	26%

Gender

Male	69%
Female	31%

Age

18–24	6%
25–34	27%
35–44	33%
45–54	18%
55–64	13%
65 and over	3%

Company size (employees)

2–9	7%
10–49	18%
50–249	31%
More than 249	41%
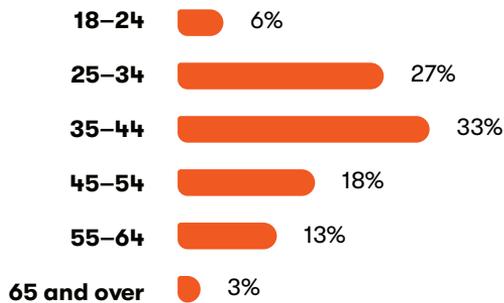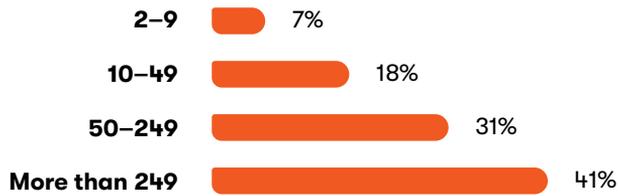
Primary programming language (developers)

JavaScript	28%
Java	23%
Python	13%
C#	12%
Other	23%

Overview of our respondents.
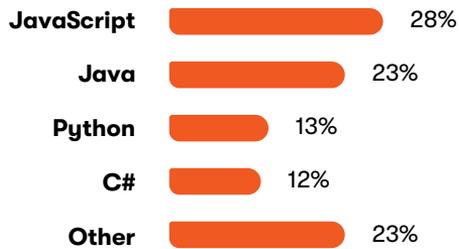
The Jamstack survey results.

The Jamstack is a modern web development architecture based on pre-generated HTML markup where dynamic and interactive functionalities are handled by JavaScript, and server-side operations are abstracted into reusable APIs. "JAM" = "JavaScript, APIs, Markup"

1 Are you familiar with this definition of the Jamstack?

The respondents could select only one answer.

The familiarity with the architecture decreases with the increasing age of developers. So the younger the developer is, the more likely they know the Jamstack:

N = 531 developers

Definitely yes	Somewhat yes	Neither yes nor no	Not really	Definitely no
20%	34%	19%	13%	13%

Age

Age						
18–24	29%	48%	19%	3%		31
25–34	27%	37%	19%	9%	8%	144
35–44	19%	36%	23%	11%	11%	177
45–54	19%	29%	13%	18%	21%	94
55–64	12%	27%	15%	25%	21%	67
65 and over	39%		28%	11%	22%	18
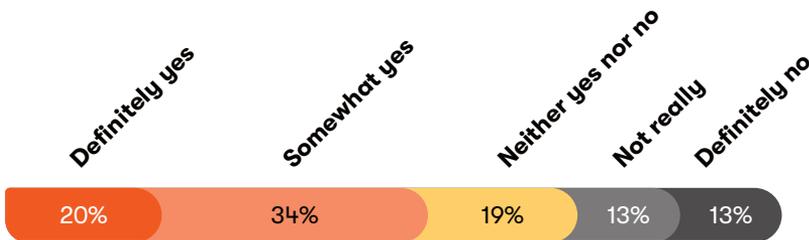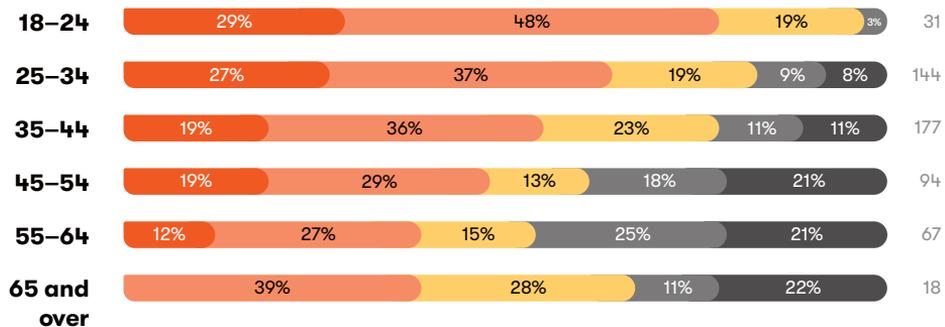
2 How long have you been working with the Jamstack?

The respondents could select only one answer.

45% of developers have been working with it for one year or longer.

N = 531 developers

3+ years	2 years	1 year	Less than a year	Never
6%	17%	22%	19%	36%
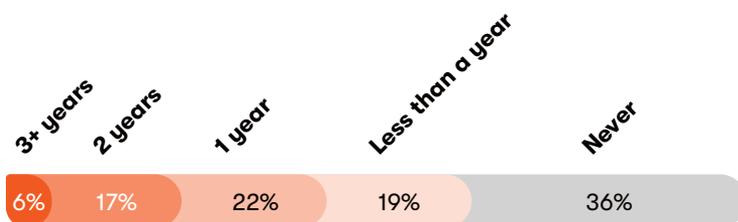
The data shows that older developers (who claimed they were not familiar with the Jamstack definition in the previous question) are not using the Jamstack.

Age

Age						N
18–24	16%	42%		35%	6%	31
25–34	6%	24%	27%	24%	19%	144
35–44	8%	19%	22%	15%	36%	177
45–54	6%	10%	15%	19%	50%	94
55–64	10%	12%	16%	60%		67
65 and over	17%	6%	11%	67%		18
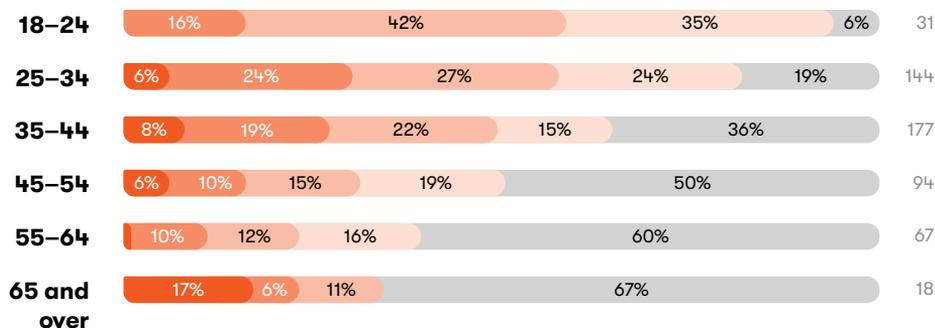
3 What are the reasons for choosing the Jamstack to build an app with?

The respondents had to put these seven items in order (from the most important item to the least important one).

N = 339 developers who work with the Jamstack

Performance	52%
Productivity	47%
Reliability/stability	46%
Security	44%
Scalability	41%
Cost effectiveness	37%
Editor experience	34%
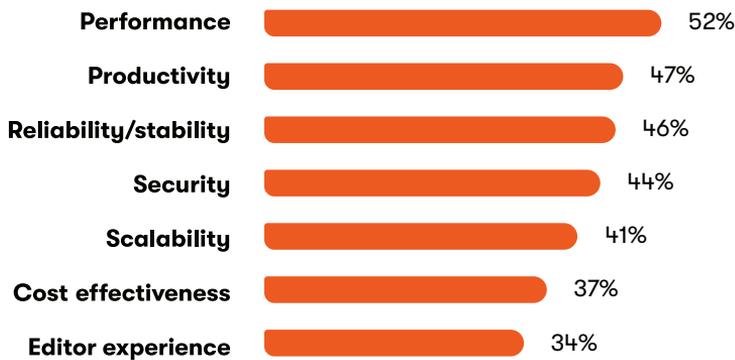
Performance, productivity, and reliability are the top 3 reasons why developers are choosing the Jamstack.

4 Think of the most complex project you've built with the Jamstack. Try to describe its complexity.

The respondents had to select one item in each line of the table below.

N = 339 developers who work with the Jamstack

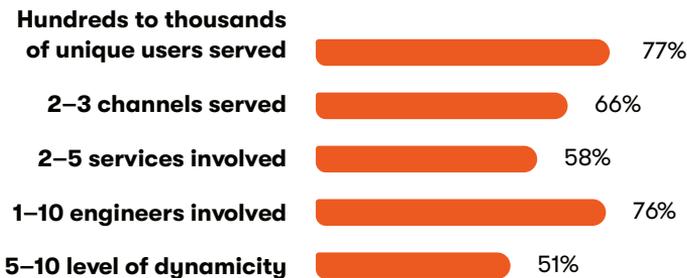| Unique users served	10s	100s	1,000s	100,000s	1,000,000s
Channels served	1 e.g., web	2—3 e.g., web + mobile + social media	> 3 e.g., web, mob, social, chatbot, IoT, AR/VR, digital signage		
Services involved (integrations/ microservices/ serverless functions)	0	1	2–5	> 5	> 10
Engineers involved	1	1–4	5–10	> 10	> 20
Level of dynamicity	None e.g, a blog or a landing page	Up to 5% e.g., a microsite	Up to 10% e.g., a corporate website	Up to 25% e.g., an e-shop	More than 25% e.g., a personalized website/portal

The majority of developers who work with the Jamstack said their most complex projects had:

Hundreds to thousands of unique users served	77%
2—3 channels served	66%
2—5 services involved	58%
1—10 engineers involved	76%
5—10 level of dynamicity	51%

5 Select the technologies you've used in a Jamstack project.

The respondents could select more than one answer.

N = 339 developers who work with the Jamstack

Technology	%
Websockets	35%
Serverless functions	30%
GraphQL	28%
AMP	27%
Webhooks	27%
Containers	25%
Identity Provider	23%
PWA	23%
gRPC	17%
None of them	5%
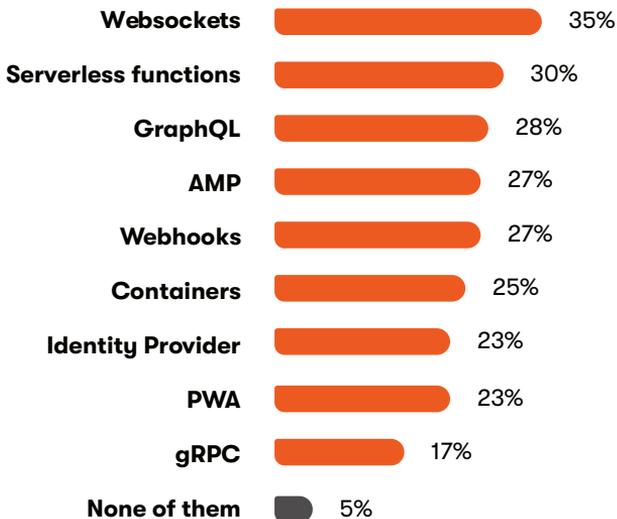
35% of developers who work with the Jamstack have used Websockets.

gRPC represents the least implemented technology (17%).

Other technologies are used by 23% to 30% of developers who work with the Jamstack.

6 Where do the biggest challenges in adopting the Jamstack architecture lie?

Try to think about all three aspects—JavaScript, APIs, Markup.

The respondents had to provide their own answer.

N = 339, developers who work with Jamstack, categorized spontaneous responses, more than one answer possible

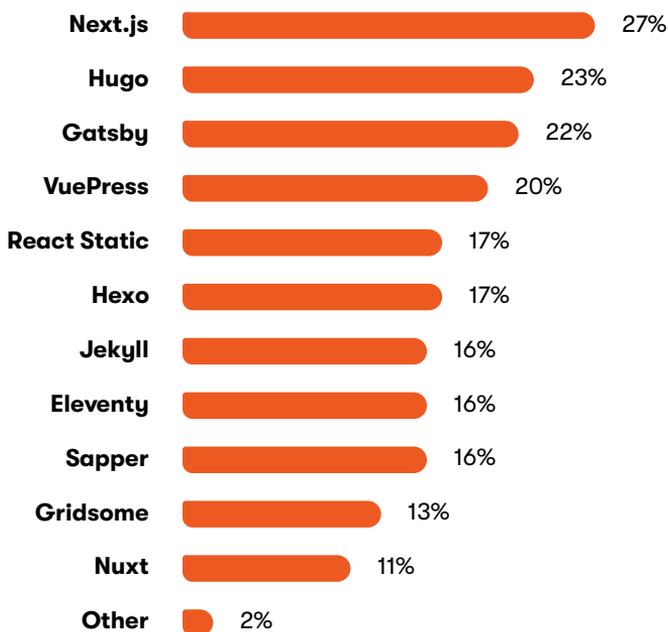| Category	%
Training (employees), know-how, understanding	22%
Nothing, it's good	17%
Integrate in company	14%
Compatibility with other systems	10%
Data secure, security	9%
Price	4%
Easy to use, comfortable	4%
Upgrades	4%
Programming skills	4%
Reliability	5%
Performance	2%
Problems with functions	2%
Other answer (< 1%)	3%
Do not know / no answer	17%
JavaScript	2%
Speed	2%
Time	2%
APIs	2%
Many challenges	1%
Markup	1%

Developers think that **understanding, knowing how to work with the Jamstack,** and **training of employees** are the most challenging aspects when adopting the Jamstack architecture.

7 **Which static site generators do you like to develop with?**

The respondents could choose up to three answers.

N = 339 developers who work with the Jamstack

Next.js	27%
Hugo	23%
Gatsby	22%
VuePress	20%
React Static	17%
Hexo	17%
Jekyll	16%
Eleventy	16%
Sapper	16%
Gridsome	13%
Nuxt	11%
Other	2%

Next.js (27%) is considered to be the most popular static site generator. It seems to be particularly popular in Australia (31%) and Germany (35%). In the UK, Gatsby and VuePress (both 24%) are the most popular ones, while in the US developers prefer Hugo and VuePress (both 28%).

> **Websites have come full circle. They started out static, then shifted to various models and methodologies as dynamic elements were added and expanded on. Now there's a brand new way, where sites can be totally dynamic and fully static, simultaneously harnessing the powerful benefits of both paradigms."**
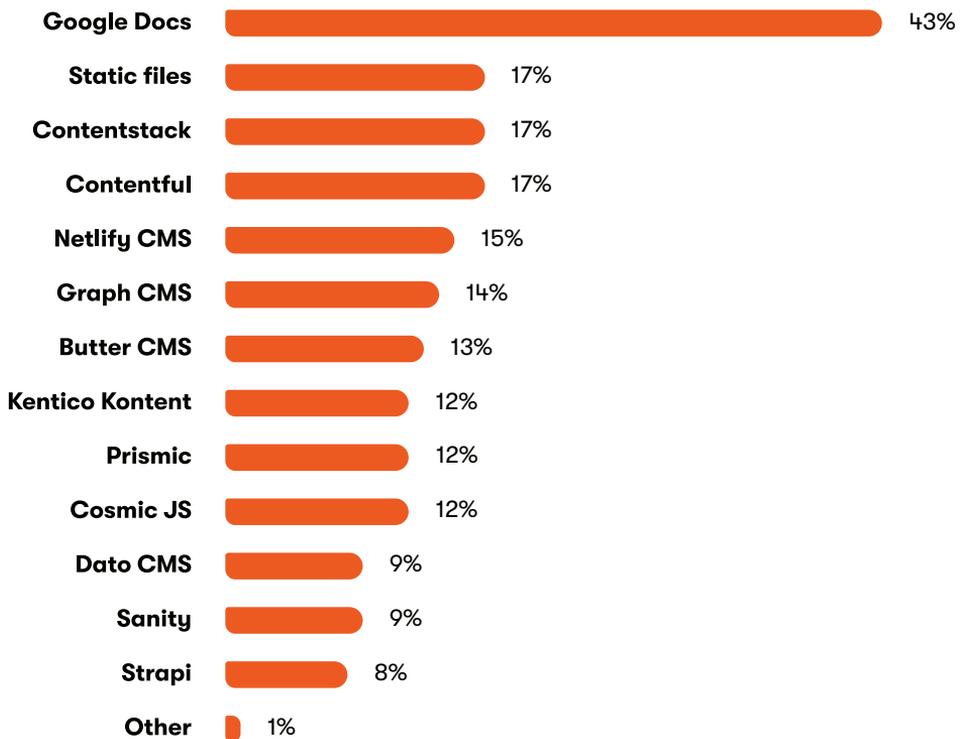
Kyle Mathews.
CEO, Gatsby

8 Where do you prefer to keep your content?

The respondents could choose up to three answers.

N = 339 developers who work with the Jamstack

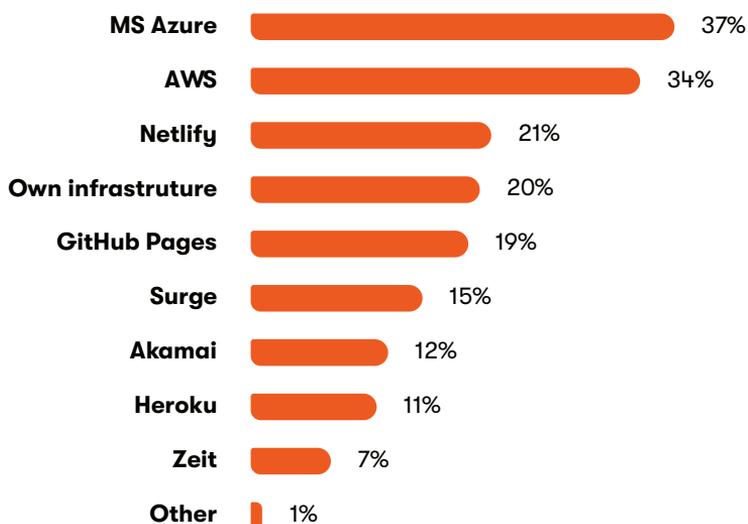|	
Google Docs	43%
Static files	17%
Contentstack	17%
Contentful	17%
Netlify CMS	15%
Graph CMS	14%
Butter CMS	13%
Kentico Kontent	12%
Prismic	12%
Cosmic JS	12%
Dato CMS	9%
Sanity	9%
Strapi	8%
Other	1%

While Google Docs seems to be preferred in general, it's highly unlikely that it would be a preferred option for commercial projects. For such cases, enterprise headless CMSs such as Contentful, Kentico Kontent, or Contentstack are typically a better choice.

9 Where do you typically deploy and host your projects?

The respondents could choose up to three answers.

N = 339 developers who work with the Jamstack

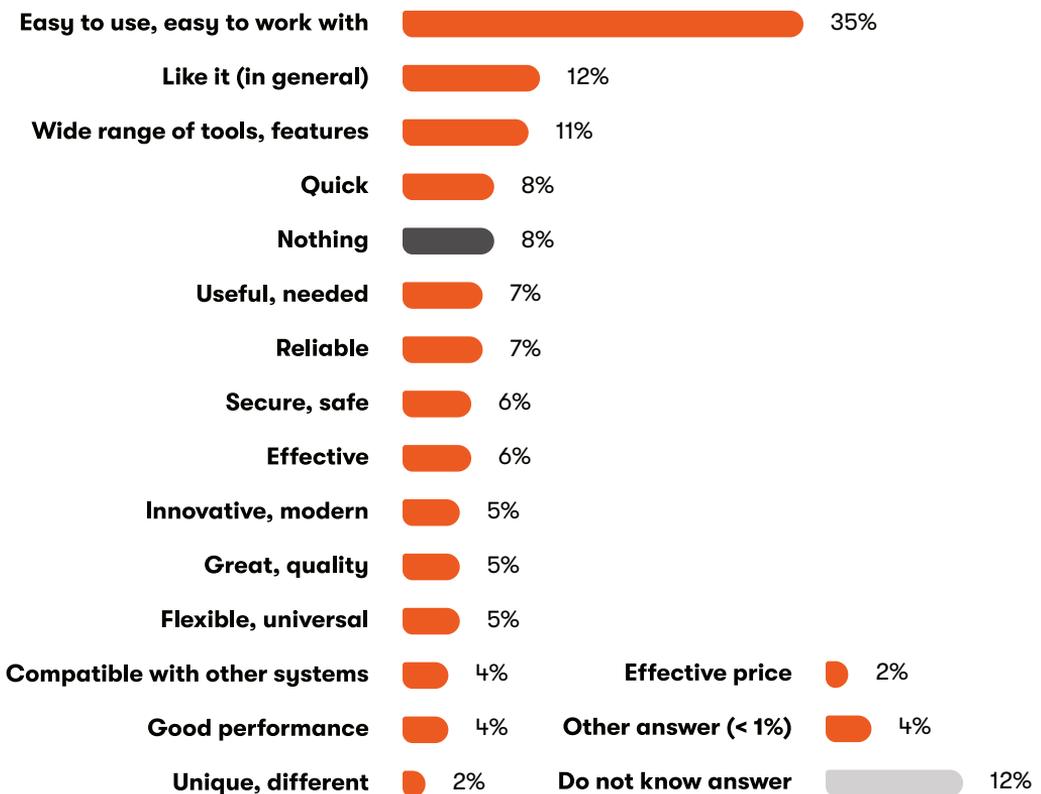|	
MS Azure	37%
AWS	34%
Netlify	21%
Own infrastruture	20%
GitHub Pages	19%
Surge	15%
Akamai	12%
Heroku	11%
Zeit	7%
Other	1%

Most developers typically deploy and host their projects in MS Azure (37%) and AWS (34%).

Think about the tools you've worked with—static site generators, headless CMSs, and deployment providers. Consider things like developer experience, learning curve, productivity, reliability, collaboration features.

10 What do you love about today's Jamstack tooling?

The respondents had to provide their own answer.

N = 339 developers who work with the Jamstack

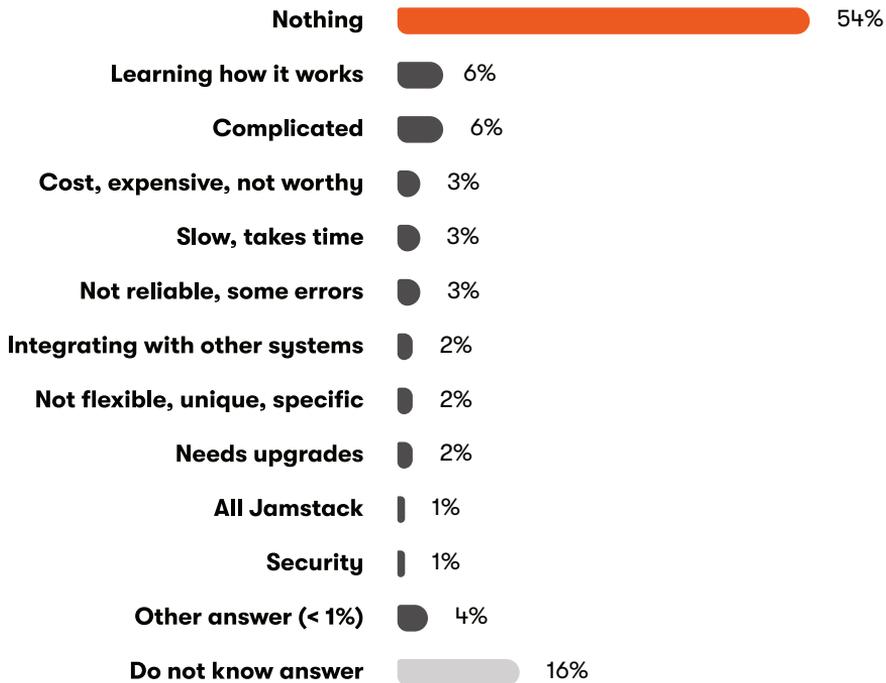| Category	%
Easy to use, easy to work with	35%
Like it (in general)	12%
Wide range of tools, features	11%
Quick	8%
Nothing	8%
Useful, needed	7%
Reliable	7%
Secure, safe	6%
Effective	6%
Innovative, modern	5%
Great, quality	5%
Flexible, universal	5%
Compatible with other systems	4%
Good performance	4%
Unique, different	2%
Effective price	2%
Other answer (< 1%)	4%
Do not know answer	12%

35% of developers think highly of the fact that the Jamstack is easy to use (easy to work with).

11 What do you hate about today's Jamstack tooling?

The respondents had to provide their own answer.

N = 339 developers who work with the Jamstack

|	
Nothing	54%
Learning how it works	6%
Complicated	6%
Cost, expensive, not worthy	3%
Slow, takes time	3%
Not reliable, some errors	3%
Integrating with other systems	2%
Not flexible, unique, specific	2%
Needs upgrades	2%
All Jamstack	1%
Security	1%
Other answer (< 1%)	4%
Do not know answer	16%

54% of the developers seem to be satisfied with the Jamstack. The most frequently mentioned aspect they hate is the complexity of Jamstack tooling and the process of learning how it works (both 6%).

12 Are you interested in initiatives trying to unify the Jamstack space such as Stackbit, Sourcebit, or Uniform?

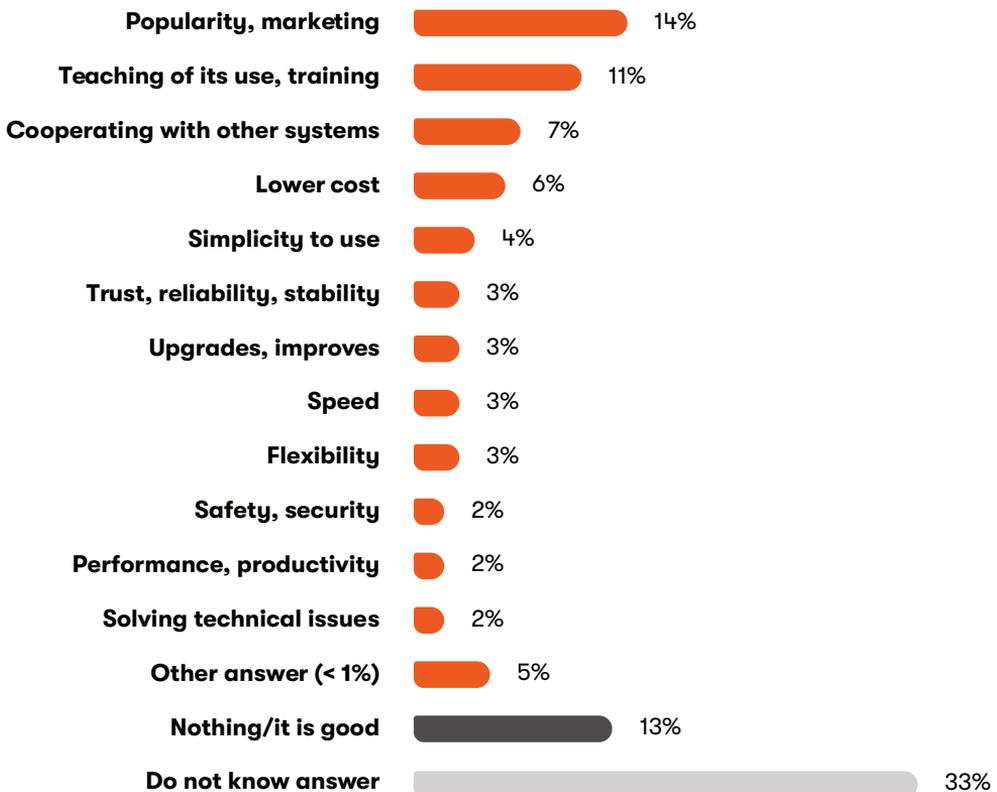*The respondents could select only one answer.*

N = 339 developers who work with the Jamstack

67%

33%

Yes   **No**
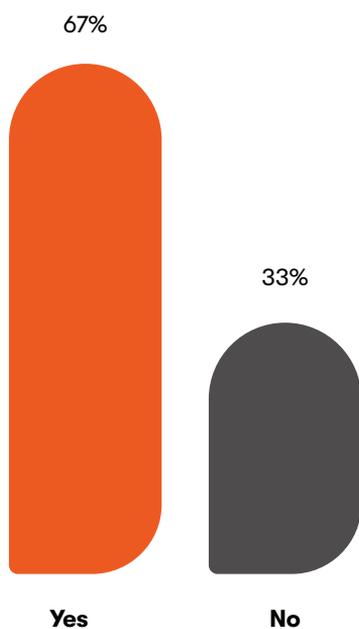
13 What do you think could increase the Jamstack adoption? Name one thing.

The respondents had to provide their own answer. Some developers shared more than one idea, so that's why the sum of all percentages is not equal to 100%.

N = 339 developers who work with the Jamstack

| Category	Percentage
Popularity, marketing	14%
Teaching of its use, training	11%
Cooperating with other systems	7%
Lower cost	6%
Simplicity to use	4%
Trust, reliability, stability	3%
Upgrades, improves	3%
Speed	3%
Flexibility	3%
Safety, security	2%
Performance, productivity	2%
Solving technical issues	2%
Other answer (< 1%)	5%
Nothing/it is good	13%
Do not know answer	33%

The majority of developers think that marketing and increase in **popularity (14%)**, the teaching of its use and **training (11%)**, and cooperating with other **systems (7%)** would help increase the Jamstack adoption. 13% of developers think that the level of Jamstack adoption is already high.

14 What is your favorite flavor of jam?

The respondents could select only one answer.

N = 531 developers

Strawberry	35%
Raspberry	12%
Blackberry	11%
Apricot	8%
Orange	8%
Fig	7%
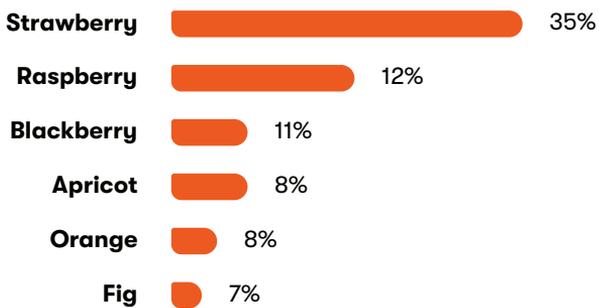
Conclusion.

While the last question about the favorite flavor of jam clearly indicated that we're nearing the end of this report, we at Kentico Kontent believe that 2020 is just the beginning for the Jamstack.

The report showed us that **54%** of the 531 developers from our survey **are familiar with the Jamstack definition**, and **64% have been working with the Jamstack already**. These developers appreciate the performance, productivity, and reliability, which they regard as the top 3 reasons to choose the Jamstack.

When it comes to challenges connected to adopting this architecture, developers typically label training as the biggest one. On the other hand, 17% believe that adopting the Jamstack architecture is not challenging at all.

What developers love about Jamstack tooling the most is that it's **easy to use** and work with (35%). More than half (54%) also said there's nothing to hate about the Jamstack. Overall, very positive findings for the Jamstack community!

We hope this report helped you discover why more and more developers are starting to prefer the Jamstack and will spark discussions among those of you who are interested in this modern way of building websites and apps.

Let us know if you like it—we would be excited to make it a tradition and bring you The State of Jamstack annually! Until then, enjoy your next Jamstack project!

Kontent.

The State of Jamstack 2020 Report.

Talk to us ✉

START YOUR FREE 30-DAY TRIAL.