



Composable Architecture:

**Modernize Your Site for
Scale, Innovation, and
Customer Demand**

The Case for Composability

If your business can't adapt, your business can't compete.

The fatal flaw hidden in most turn-key website platforms is that they are fundamentally limited in their potential. As your business grows, your use cases diverge from those supported by your vendor's monolithic platform - the end result taking the form of a system that may do many things, but doesn't do any of them particularly well.

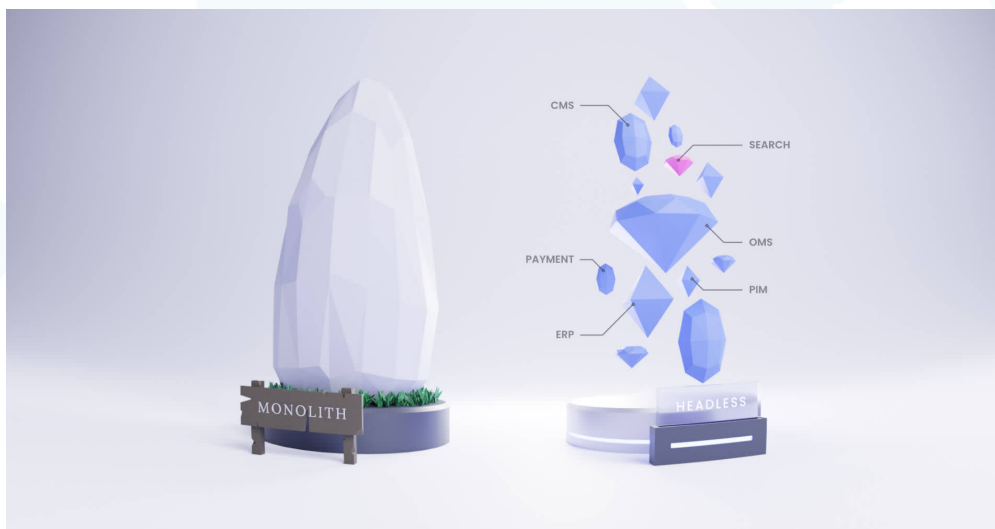
Peak performance in any competitive realm requires assembling a team whose pieces work together to create a whole greater than the sum of its parts. In systems terms, this means leveraging architectural patterns that prioritize modularity, scalability, and adaptability.

Therefore, while contemplating the next evolution of your business, it may be worth evaluating an approach that encourages you to select best-of-breed products and compose them into a system that more closely reflects your goals.

The good news is, it's never been easier to adopt this style of architecture. With dozens of frameworks to choose from, plus with great platform support, the transition to a headless or composable architecture may be worth considering.

What is a Composable Architecture

While traditional, monolithic website architectures are typically built using a single codebase which is maintained and deployed as a tightly integrated whole, a composable architecture modularizes these elements. Composable sites prefer individual services-based building blocks that can be independently maintained, scaled, upgraded, and even swapped, while efficiently communicating using APIs for flexible integration.



Source: [Algolia](#)

Composable architectures are an evolution beyond “headless” systems, in that they not only decouple the frontend presentation from the backend system logic, but also lend themselves to the further composition of the systems that compose the backend. By decoupling these systems the level of effort required to engage consumers across new channels is reduced, because the individual systems can be reused rather than starting from scratch.

Benefits of Composable Architecture

Embracing a composable architecture enables your business to compose those building blocks with a greater degree of flexibility, unlocking new opportunities for innovation. By selecting the most suitable technologies for each layer independently, organizations can optimize performance, enhance scalability, and quickly adapt to emerging trends to most effectively engage consumers. What’s more, a composable architecture lends itself to an incremental and iterative approach, meaning your system can evolve into its new, more agile form, rather than emerging from a “big bang.”

Benefit	Description
Flexibility	A composable architecture allows organizations to choose and integrate best-of-breed components, providing the autonomy and flexibility to tailor solutions to specific needs and goals. This aids in both future-proofing the architecture against evolving business needs as well as making it easier to avoid dependencies on specific vendors, sometimes referred to as “vendor lock-in.”
Scalability	Components can be independently scaled, enabling efficient handling of varying workloads and promoting seamless distribution of services.
User Experience	With composable architecture, businesses have the opportunity to quickly and creatively launch innovative user experiences into the market unencumbered by the limitations of a monolithic platform.
Omni-Channel Support	Composable architectures enable the creation of APIs and services that can be easily reused and shared across different platforms, supporting omnichannel and multi-device experiences.
Conversion Rates	Faster load times have been shown to correlate with increases in conversion rates. This is because users are more likely to complete a purchase or take another desired action on a website that loads quickly.
Rapid Innovation	The modular nature of composable architectures facilitates experimentation and rapid iteration, encouraging continuous innovation and adaptation.
Overall Cost	The overall flexibility of composable architectures means that new features can build off of existing infrastructure rather than starting from scratch. This contributes to more rapid innovation, wherein the pace of innovation increases and the overall cost decreases.

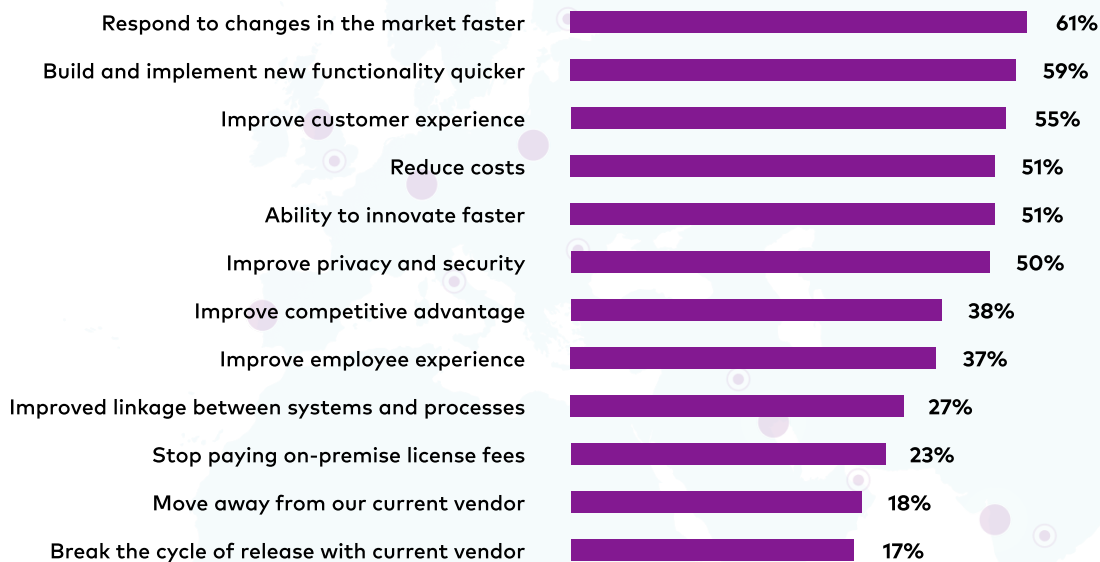
The Industry Shift Towards Composability

As digital experiences continue to rapidly evolve, there has been a significant shift in the way businesses approach system architecture. More companies view composability as a business growth opportunity, and a critical component to their architecture roadmap.

MACH Alliance was founded in 2020 to advocate for Microservices-based, API-first, Cloud-native, Headless (MACH) system architecture. Their [2023 annual research](#) effort, in collaboration with MEL Research, outlines that 85% of the 500 respondents have increased the percentage of MACH implementations within their infrastructure. Approximately 60% indicated that composability enables them to more quickly respond to changes in the market, improve customer experience, and more rapidly build and implement new functionality.

Responsiveness is a key driver of MACH adoption

Source: [MACH](#)



According to a [2022 State of Commerce report](#) conducted by Salesforce, 77% of organizations who use headless architecture state that it gives them greater agility, allowing for optimization to their front-end experiences more quickly, meet various customer expectations, and improve conversion rates. The report continues:

- 80% of businesses that don't have headless architecture today say they plan to implement it in the next two years
- 76% of respondents agreed that headless commerce allows for more flexibility, and the ability to customize digital experiences

- 72% reported that it also increases agility and gives the opportunity to make changes faster
- 74% of organizations recognize that failure to adopt emerging commerce solutions will negatively impact areas of their business
- 69% acknowledged that it gives the ability to add new sales channels (social, voice, AR)
- 66% said it improved integration between systems

To stay ahead and thrive in the digital market, companies must embrace composable architecture and prioritize the implementation of these innovative systems to foster greater agility, customization capabilities, seamless integration, and the ability to explore new sales channels for continued success.

A Common Example: Can You Relate?

Years ago, ACME Corporation was first to market with its signature line of rocket-powered roller skates. Once a pioneer in the retail industry, ACME Corporation found itself facing increasing challenges in the ever-evolving digital landscape. Its traditional eCommerce platform, tightly coupled with its frontend presentation layer, posed limitations in agility and scalability, and made it difficult to deliver personalized experiences to ACME's customers. As competition intensified, ACME realized that its existing architecture hindered its ability to adapt quickly and compete effectively in the market.

ACME's product teams struggled to introduce new features, as the monolithic platform had limited frontend capabilities, and modification to the frontend often necessitated modifications to the entire stack. This created bottlenecks, slowed down development cycles, and hindered experimentation with innovative customer experiences such as mobile apps, voice assistants and smart devices. Ultimately, the tightly coupled architecture made it challenging and costly to both deliver consistent experiences across these different channels, as well as to iterate on new ones.

Recognizing the need for change, ACME set its sights on a headless, composable architecture. By decoupling the frontend presentation layer from the backend systems, ACME could gain the flexibility to evolve each component independently. The headless approach allowed them to choose best-of-breed solutions for each layer, selecting technologies tailored to specific business needs. This newfound flexibility empowered ACME's teams to iterate rapidly, experiment with new ideas, and deliver innovative experiences to customers.

In the new headless architecture, ACME's frontend was powered by a modern JavaScript framework while the backend comprised a set of microservices, each responsible for a specific domain. API-driven communication allowed for seamless data exchange between the frontend and backend, enabling real-time updates and personalized content delivery. With this composable setup, ACME could easily scale its infrastructure, handle peak traffic, and integrate new touchpoints without disrupting the entire system.

The shift to a headless, composable system brought about significant benefits for ACME Corporation. The teams experienced faster development cycles, allowing them to iterate on features and respond swiftly to market demands. ACME could leverage the power of cloud services, auto-scaling, and serverless computing to optimize cost efficiency and improve performance. The modular nature of the architecture facilitated continuous integration and deployment practices, enabling ACME to release new features and updates with minimal downtime.

With the new architecture in place, ACME embraced omnichannel marketing strategies, delivering consistent experiences across various touchpoints. Whether customers accessed ACME's services through the website, mobile app, or voice assistant, they encountered a seamless and unified brand experience. This enhanced customer engagement, satisfaction, and loyalty, ultimately driving revenue growth for ACME.

In this transformative journey, ACME Corporation realized that the shift to a headless, composable architecture was not just a technical change but a strategic decision to future-proof its online presence. By embracing this modern approach, ACME positioned itself as an agile and innovative player in the retail industry, capable of adapting to changing market dynamics and delivering exceptional customer experiences at scale.

How Edgio Sites Accelerates Your Digital Transformation

The challenge of good system design is the balancing of non-functional requirements:

- Complexity vs. Flexibility
- Security vs. Performance
- Scalability vs. Cost

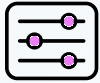
These are often modeled as a sort of zero-sum game, where any improvement to one will, by definition, require a tradeoff to the other. That is, like shifting sand between two piles, any improvement made to the flexibility of your architecture will inherently come at the expense of increased complexity. While these notions hold truth, in practice a competitive advantage can be achieved not in prioritizing one requirement over another, but rather in moving the piles of sand closer together.

Similarly, Edgio Sites provides best-of-both-worlds advantages through its innovative streamlining and simplification of these common requirements into a single unified platform.

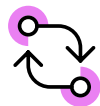




Scalability & Cost: Edgio owns and maintains one of the world's largest Content Delivery Networks (CDNs), with more points of presence (POPs) than the competition. What this translates to is a network that already operates at global scale, with the ability to cache page content near your customers. Not only does this solve the scalability problem, but because caching can help shield your origin servers from swells in traffic, it's not uncommon to see a net reduction in overall costs.



Complexity & Flexibility: Edgio's platform grants developers the flexibility to experiment with new channels through multiple provisioned environments. Pick from a wide variety of NodeJS compatible frameworks or static website generators (SSGs) that fit your needs and integrate Edgio seamlessly with your CI/CD pipeline. With atomic deployments, rolling back a misbehaving deployment is as simple as a single click, and the indefinite storage of deployment bundles enables a "rainbow deployment" strategy, providing enhanced control and flexibility beyond traditional blue/green approaches.



Iterative Migration: Edgio's patented ability to seamlessly proxy your existing website means that you can easily stitch together multiple experiences. Not only does this enable an incremental migration but also enables you to run experiments to A/B test various experiences and iteratively fine-tune them to maximize your desired outcomes.

While adopting a composable architecture, these are just a few examples of the competitive advantages to be found with Edgio. Ultimately enabling your business to select and compose the right tools for the job, selecting from best-of-breed eCommerce, PIM and CMS solutions to craft a tech stack that works for you, and not the other way around.

It's easy to start with Edgio:

1. Identify your most visited pages.
2. Gradually build composable versions of those pages.
3. Then perform A/B tests to see how it performs against your previous experience.

That's it. From there, implement small incremental, iterative improvements without user disruption.

No matter where you are in your journey to composable architecture, Edgio can help. Our Expert Services team can support you in product and project management, technical architecture, frontend engineering, quality assurance, and testing support. We've helped customers, including Tapestry (Coach, Kate Spade), Mars (M&Ms), and Shoe Carnival make the transition, and can do the same for you. If you're ready to prepare your website for future demand, [contact us today](#).