



+
○
+
○
+
○
+
○
+
○
+
○
+
○
+



○
+
○
+
○
+
○
+
○
+
○
+
○
+
○

THE SURVIVAL GUIDE

Navigating modern e-commerce architecture

This guide covers:

- 01 MACH architecture >
- 02 Microservices architecture >
- 03 API-First approach >
- 04 Cloud-native SaaS >
- 05 Headless e-commerce >
- 06 Serverless architecture >
- 07 Composable commerce >

A new era of e-commerce and digital transformation has begun

As buying habits have evolved and the importance of commerce accelerated due to the Covid-19 pandemic, the business landscape has been rocked by disruption. And moving forward, commerce will not only be a vital strategy for many businesses, but the key competitive differentiator.

In times of disruption, businesses that embrace change will emerge on the other side successfully and those who do not will be left behind. There has never been such a tremendous shift in the necessity of e-commerce and how businesses engage with customers and sell products and services.

After a year full of forced digital transformation, businesses now face the challenge of not only implementing or iterating e-commerce strategies but navigating the crowded, and sometimes, confusing space of modern commerce architectures.

In order to be successful, technology decision makers and e-commerce leaders alike must know and understand the most essential components of modern technology to make informed digital transformation decisions.

The terms in this guide will provide insights into modern commerce architectures that future-looking businesses are using to drive their digital transformation. These technologies can meet the operational complexities that many businesses face and are flexible enough to respond to evolving market trends and buyer needs.

The survival guide aims to help technology decision makers navigate modern commerce architectures to make informed decisions necessary for the success of their businesses.

01

What is MACH architecture?

Many enterprises find themselves shackled by outdated, monolithic e-commerce platforms.

Enterprise software suites are no longer the safest choice, as businesses look to find more and better ways to remain agile, nimble, customer-centric, and future-proof.

This is where MACH technology comes in.

MACH stands for microservices-based, API-first, cloud-native, and headless.

- **Microservices-based:** In other words, individual pieces of business functionality that are independently developed, deployed, and managed. Microservices are made for specific business capabilities, and are designed to perform a single function.
- **API-first:** All functionality is exposed through an API, making it possible to tie together two or more applications or services.
- **Cloud-native:** The software development and delivery are entirely cloudbased, built for high performance, and automatic scalability. Services like Amazon, Google, and Microsoft, allow access to on-demand resources to run your application.
- **Headless:** Headless architecture focuses only on the back-end functionality, allowing users to build their own custom front-end user experiences. This allows complete design freedom and functionality in designing the user interface and for connecting to other channels and devices (existing applications, IoT, A/R, Vending Machines, etc.).

In combination, MACH technologies support a composable enterprise, in which every component of the tech stack is pluggable, scalable, replaceable, and can be continuously improved. All of the pieces work together to drive agility, enable faster time-to-market, and give enterprises design freedom like never before.

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+

○

+



WHAT IS MACH ARCHITECTURE?

Survival guide summary

With MACH, microservices and their corresponding APIs can be added or replaced, so you can ensure you are always using the right features for your needs. With its flexibility, you can extend or augment your existing architecture or de-risk a transition from an older ecosystem to one more suitable for your business needs.

Since the technology is also cloud native, it's scalable so you don't have to wait for updates before you can deploy your next feature. Most importantly, it's agile and designed to respond to change, allowing you to innovate quickly and inexpensively.

MACH also allows your business to open new lines of revenue quickly, rapidly prepare for future change, leverage best-of-breed tools and create superior experiences for your customers across all touchpoints. As customer expectations evolve, companies need to become more proactive and agile - and their technology needs to evolve with them. Now is the perfect time to explore what MACH can do for your business.

02

What is microservices architecture?

As agile methodology and continuous improvement become the default for modern development teams, microservices have gained increasing popularity.

Many complex businesses are moving away from the rigid monolithic software to the flexible microservices architecture.

Microservices architecture is most broadly defined as a single process that deals with a set of functional elements that is architecturally separate from other functional services.

In other words, microservice architecture is an architecture style in which large complex software or technology is broken into smaller services which can be deployed individually and are loosely coupled.

Microservices are distributed and loosely coupled so that changes to one service won't break the entire app. This allows development teams to rapidly implement new components or capabilities to an application as the business' needs change.

Microservices architecture breaks an application or platform down into its core functions, or services.

"The term "Microservice Architecture" has sprung up over the last few years to describe a particular way of designing software applications as suites of independently deployable services. While there is no precise definition of this architectural style, there are certain common characteristics around organization, business capability, automated deployment, intelligence in the endpoints, and decentralized control of languages and data."

MARTIN FOWLER, SOFTWARE DEVELOPMENT THOUGHT LEADER, AUTHOR, AND CHIEF SCIENTIST OF THOUGHT-WORKS.

+ ○ +

○ + ○

+ ○ +

○ + ○

+ ○ +

○ + ○

+ ○ +

○ + ○

+ ○ +

○ + ○

+ ○ +

○ + ○

+ ○ +



WHAT IS MICROSERVICES ARCHITECTURE?

Survival guide summary

Microservices architecture offers unlimited potential to extend via new microservices and APIs as your needs continue to change. Businesses using microservices are able to nimbly respond to rapidly changing customer needs, iterate on existing e-commerce features and functionality to continuously create the exact commerce experience to fit the business needs.

03

What is an API-first approach?

Often software companies add APIs on top of their platform. This can help in areas of automation or integration and allows you to access some of the underlying functionality of the software but not all of it.

An API-first approach, on the other hand, flips this paradigm on its head. API-first development puts APIs at the foundation, instead of pre-built or opinionated software solutions or experiences. API-first development ensures that ALL of the functionality inside the platform is accessible to you through the API(s).

An API-first approach offers two primary benefits:

1. The ability to compose and extend the solution or experience you need to build; catered to the needs of both you and your customers.
2. The assurance of longevity, in that a month or two years from now, if you need to build or integrate into other solutions, the API foundation is there for you to control as a constant.



The flexibility you need to keep up with the changing business landscape



WHAT IS AN API-FIRST APPROACH?

Survival guide summary

API-first means your business processes and operations don't need to be tied to a specific solution or workflow, but can easily be integrated into other parts of your technology portfolio- and more importantly the technology portfolio of your customers, suppliers, and partners.

An API-first approach to e-commerce gives a business greater control over the commerce experience, as well as the ability to build a best of breed technology stack that will keep your business running today and in the future. API-first platforms give enterprises the edge over their competitors by providing more flexibility, scalability, and control.

04

What is cloud-native SaaS?

With the rise in cloud computing, more enterprises are seeking to reap the benefits of the cloud. As a result, more software providers are promoting their products as “cloud-enabled” or “cloud-hosted,” creating deep confusion across a market of many types of cloud options.

Cloud-native development is an approach to building and updating apps quickly, while improving quality and reducing risk. Through cloud-native development, you can build and run responsive, scalable, and fault tolerant apps anywhere. So what is cloud-native SaaS?

Software-as-a-Service (SaaS) that is developed, designed and deployed as cloud-native applications (aka cloud-native SaaS) are composed of several independent services - or in other words, they are built using composable architecture. So, put simply, cloud-native SaaS is software that is built and developed for speed and scale, and licensed via a subscription model.

What are the benefits of cloud-native SaaS?

- **Scalability:** Composable architecture consisting of independent services introduces the ability to maintain and scale like you couldn't before.
- **Rapid development cycles:** Each service is automated for continuous integration and deployment through agile DevOps to guarantee no disruption of service for rapid development cycles.
- **Customer-centric:** The SaaS provider is able to respond to the demands of their customers quickly and safely without major disruptions, often enabling them to pass along lower cost savings and ROI.
- **Speed and savings:** Shorter development times are the reality - “The days of the six to nine month development process for massive patches and upgrades should be in the past,” Davis explained.



**The scale you
need as your
business grows**





WHAT IS CLOUD-NATIVE SAAS?

Survival guide summary

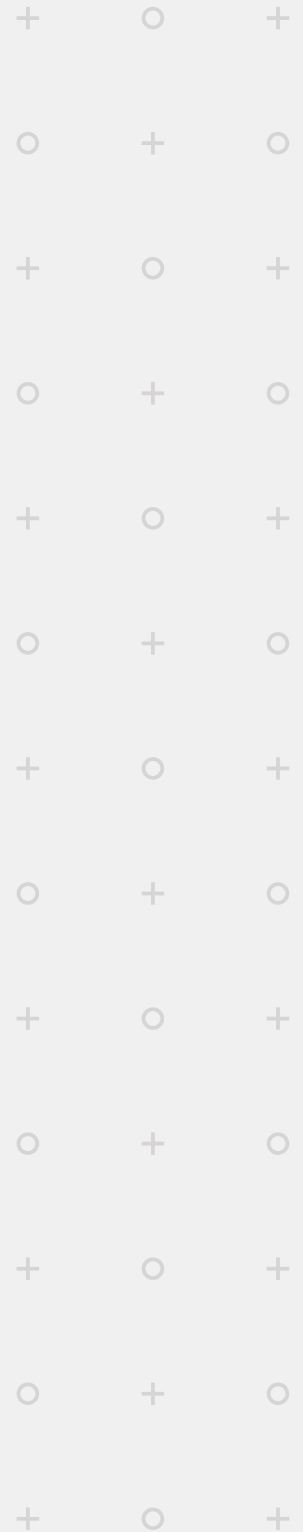
Organizations can spend as much as 50-60% of their time managing infrastructure concerns such as security, patching, scaling, etc.

By choosing and using cloud-native SaaS technology, this concern is taken care of for you, allowing you to shift your focus to delivering value above the water line and generate revenue.

05

What is headless e-commerce?

Simply put, headless e-commerce platforms have decoupled, or separated, the frontend user experience from the back-end business logic. This allows developers to use the e-commerce platform's API to deliver the platform's business logic (features, functionality, etc.) to whatever user experience they'd like. With headless e-commerce, you can update or change the head(s) without disrupting the backend.



What are the benefits of headless e-commerce?

- **Minimize the total cost of ownership:** Typically on-premise solutions are sold in the form of core-based licenses. This cost model often becomes a problem for scale. As you grow and more hardware is needed to handle that growth, you need to buy more licenses. Additionally, monolithic software vendors typically release new versions a few times a year, and typically these changes are fundamental to the core. So businesses wanting to take advantage of these upgrades need to constantly review and rewrite parts of their custom code to make sure it works with the new version.
- **Gain agility and speed:** Monolithic architecture requires developers to work with many different layers. Accomplishing a seemingly simple task, like building a new, custom promotion and displaying it in the frontend user experience, often takes backend developers a few days to implement.

Because the frontend is completely separated from the backend on a headless e-commerce platform, changes to the frontend user experience can happen a lot more quickly and with a lot less risk to the backend code.

- **Integrate efficiently and effectively:** Unlike traditional, monolithic software, headless e-commerce platforms harness the power and agility of APIs to allow you to create a tech stack unique to your business. Headless, API-first platforms enable what's called a "best-of-breed" technology strategy. Through integration, you're able to create your own "virtual suite" of best-in-class software.

The beauty of a best-of-breed approach is that you're not relying on the capabilities of an all-in-one suite option. You have the control to choose the best-of-the-best capabilities across the board so that your software does what you need it to do for your business. And you can switch applications out as your business needs change or as the software changes.

- **Easily extend ordering to new channels, devices, customers, and more:** With headless e-commerce, multiple frontends can be connected to the same backend. You can run and manage multiple user experiences across multiple devices without managing a mess of different systems - think wearable devices, IoT, vending machines, and more.
- **Improve time-to-value:** No matter your e-commerce platform, the back-end business logic, functionality, and capabilities usually comprise up to 85% of a software development process. With a headless commerce platform, you are starting from the point of completion which is allowing you to focus on the user experience and deliver a final solution for far less cost, time, and effort.



WHAT IS HEADLESS E-COMMERCE?

Survival guide summary

Today, the path to purchase has evolved far beyond simple desktop browser transactions to mobile, wearable technologies, IoT, etc. As buyer's preferences continue to change, the ability to adapt, evolve, adjust and control the user experience (aka the "heads") is more important than ever.

Headless commerce has the capability to deliver products and services directly to consumers in any format without the limitations plaguing traditional designs.

06

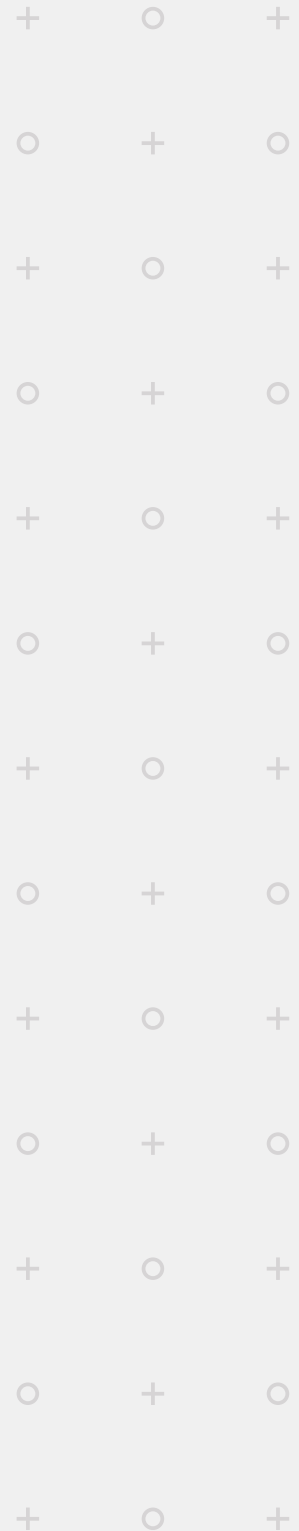
What is serverless architecture?

Serverless architecture is a cloud-based execution model where the management of servers is outsourced to a cloud-based vendor. The application is deployed automatically in the cloud by the vendor instead of on virtual machines or physical servers. It eliminates the need for server maintenance tasks like patches, capacity management, and scaling generally done by developers.

In other words, serverless architecture is a way to build a cloud-based application without having to maintain or scale servers.

What are the benefits of serverless architecture?

- **Reduced total cost of ownership (TCO):** The most obvious benefit to serverless architecture is the fact that a business does not have to own or maintain any servers (security, patching, support contracts, auditing). Additionally, since the code is deployed on-demand, you only pay for executed and deployed code leading to cost savings.
- **Reduced time to market:** Since your development team only needs to focus on the business logic code, building an application is much faster and easier. Your development team doesn't need to worry about infrastructure maintenance or scaling and function codes only need to do one thing at a time. Updates and upgrades can be deployed quickly as changes are initiated through API calls without having to (re)deploy the entire application.on the fly and as needed.
- **Increased scalability:** Serverless architectures can scale both up and down according to the demand. Vendors are responsible for managing any traffic spikes.
- **Separation of concerns:** Encourages best practices in isolating different parts of your business logic into more manageable chunks that can both be reused by other systems and more clearly understood across your architecture landscape.





WHAT IS SERVERLESS ARCHITECTURE?

Survival guide summary

Serverless does not necessarily mean there are no servers used. The maintenance and management of servers are just being done by the cloud provider. With serverless architecture, a development team is essentially breaking up the server into smaller chunks. This kind of architecture allows you to launch apps as needed. An event triggers code and that app is deployed.

07

What is composable commerce?

Today, many digital commerce platforms offer the ability for business leaders to take a composable approach to commerce. In fact, leading research firm Gartner predicts that “By 2023, organizations that have adopted a composable commerce approach will outpace the competition by 80% in the speed of new feature implementation.” Composable commerce is a development approach of selecting best-of-breed commerce components and combining or ‘composing’ them into a custom application built for specific business needs.

A composable approach to commerce utilizes various vendors who offer robust, comprehensive functionality for the one thing they do, rather than relying on one vendor to produce standard functionality as a one-size-fits-all offering.

Composable commerce is:

- **Modular:** each PBC can be deployed independently, both eliminating risks associated with tight coupling of services and offering flexibility to swap modules out overtime.
- **Open:** Built on open standards, integration patterns and extensibility models, composable commerce encourages easy integrations and customization.
- **Flexible:** Composable commerce delivers the flexibility and adaptability needed to extend to new customer types, channels, and markets.
- **Business-focused:** All necessary tools and capabilities for both business buyers and development teams are available, offering full control over the iteration and innovation process at a lower cost and risk.

What are the benefits of composable commerce?

No single vendor offers the best functionality needed for your uniquely complex business and the ever-evolving needs and demands of your customer base. Moving to composable commerce eliminates your risk of buying basic out-of-the-box capabilities and gaining more control over the functionality and performance of your commerce experience.



**Own your
e-commerce future
with composable
commerce**



WHAT IS COMPOSABLE COMMERCE?

Survival guide summary

The flexibility of composable commerce allows businesses to use and develop only the features and functionality necessary to run their business. These applications are often leaner, faster, and more flexible. To work even faster and deliver an experience that's far superior, composable commerce lets you seamlessly combine different best-of-breed components, from content management to payment processing.

With customer demands continuously evolving and the need for digital transformation more important and necessary than ever, composable commerce gives businesses greater control over how their e-commerce application is delivered.

Conclusion

As the new era of digital transformation begins, it's clear that businesses will need to continue to respond to shifting customer expectations and be able to quickly pivot as business strategies evolve.

Enterprises should be reassessing their technology ecosystems and exploring options that will give them the tools and capabilities they need to gain a competitive advantage in today's market.

Without a doubt, the most important step in navigating modern commerce architectures is to first map out your commerce roadmap and clearly define requirements in order to find the right commerce solution.

Modern commerce architectures allow complex enterprises to break the replatforming cycle and give a business the flexibility, scalability, and control needed to meet business needs today and in the future. With modern commerce, enterprises can revolutionize their digital transformation strategy and find long term success.

Are you ready to take
back control of your
commerce roadmap?

**Get in touch to see
how Sitecore can help
you today.**

**Modern commerce architecture
enables you to own your
commerce roadmap.**

**Learn more in our "Own Your
Commerce Roadmap" guide.**



Sitecore delivers a digital experience platform that empowers the world's smartest brands to build lifelong relationships with their customers. A highly decorated industry leader, Sitecore is the only company bringing together content, commerce, and data into one connected platform that delivers millions of digital experiences every day. Leading companies including American Express, ASOS, Kimberly-Clark, L'Oréal, and Volvo Cars rely on Sitecore to provide more engaging, personalized experiences for their customers.