



# COMPOSABLE COMMERCE

## MODERNIZING YOUR ARCHITECTURE TO DRIVE BETTER BUSINESS VALUE

This paper is specifically written to inform business and technology leaders about pivotal transformation that is occurring within the commerce industry. Mature digital commerce organizations are focused on being flexible and nimble to respond quickly to their changing customer expectations. Pandemic events and supply chain issues are also forcing companies to respond quickly with new customer experiences, processes, products, and solutions. Composable and modular solutions are enabling organizations to develop and deploy changes at speeds never seen before, with flexibility at the core.

# Composable, Headless, MACH: what is it all about?

There has been a lot of buzz in the digital commerce market about these terms. Often though they are conflated and used as (false) equivalents. So, let us start with what they mean and what they do not:

## COMPOSABLE COMMERCE:

Composable Commerce is a concept first introduced by Gartner<sup>1</sup> which describes dissecting large monolithic Commerce Suites into smaller best-of-breed packages which Gartner refers to as PBCs (Packaged Business Capabilities). Such PBCs can, for instance, be Search, Content Management or Promotions. Even though it is often used in the context of MACH architecture, Composable Commerce does not prescribe a technology or architecture of the applications used. The term Composable is also often used in the context of augmentation or strangling scenarios where an existing monolithic platform is augmented with additional external best-of-breed components like search or CMS.

## HEADLESS:

Headless commerce, as a concept, has been around for a while and it started when advanced players in the ecommerce space felt the internal Content Management (CMS) functionality of their digital commerce platforms was too limiting for their ambitions and needs on the front-end. In response, many of those companies started using a more sophisticated external CMS to render the front-end, and then invoked the functionalities of the ecommerce platform via APIs. Nowadays, headless software is designed to expose its functionality solely through APIs (API-first) for any front-end to consume. The front-end in such a headless setup is typically a Single Page Application (SPA) that can be deployed independently of the other components of the commerce platform.

## MACH:

MACH is an acronym that defines technical design principles of applications:

### **Microservices** -

embedded within applications with the ability to communicate with each other through API (Application Programming Interface) technology.

### **API-first design** -

applications exploit the full functionality of APIs simplifying the delivery of content to multiple devices and screens.

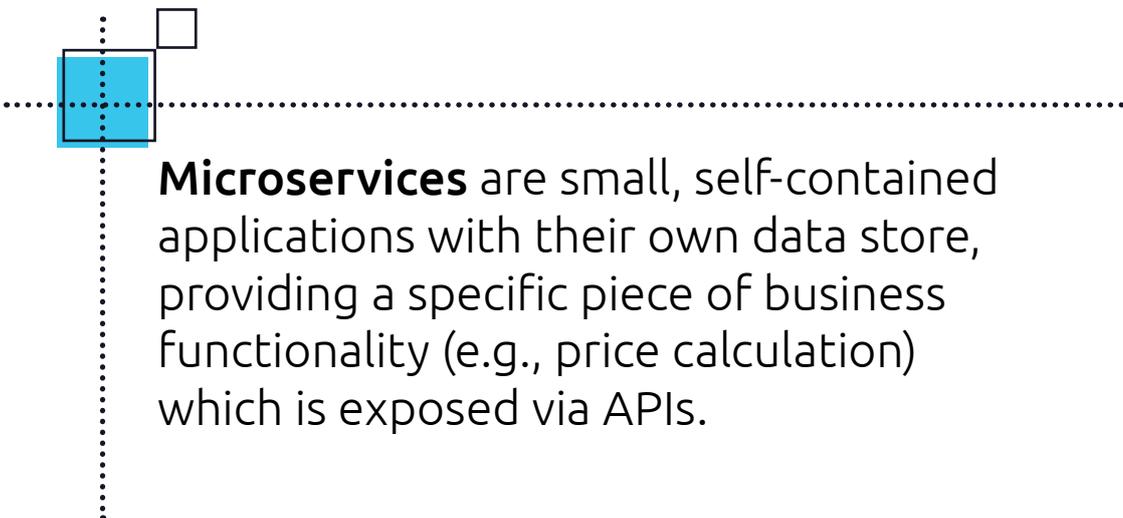
### **Cloud Native SaaS (Software as a Service)** -

applications are highly scalable and developed in the cloud, not just hosted in the cloud, and make use of cloud-native features such as auto-scaling.

### **Headless** -

applications designed to have a separate front end that communicates with the back end via APIs (e.g., to load content).

The **MACH Alliance** is an independent non-profit organization formed by ISVs building their products following these principles and SIs implementing such platforms for their customers. The mission of the MACH Alliance is to guard these principles and to promote MACH technology.



**Microservices** are small, self-contained applications with their own data store, providing a specific piece of business functionality (e.g., price calculation) which is exposed via APIs.



# What problems does Composable solve?

At Capgemini, we believe there are five key benefits to a composable approach: speed; flexibility; scalability; cost efficiency; and compatibility. These clear advantages are the driving force between what's driving our customers to adopt it.



It has been predicted by Gartner that “by 2023, 50% of new commerce capabilities will be incorporated as API-centric SaaS services”, and that “organizations that have adopted a composable approach will outpace competition by 80% in the speed of new feature implementation”<sup>1</sup>.

<sup>1</sup> Gartner, Inc., Composable Commerce Must Be Adopted for the Future of Applications, Mike Lowndes, Sandy Shen, Refreshed 25 August 2021.

## SURVIVAL OF THE FASTEST

Today's digital commerce market is highly competitive and requires enterprises to be able to quickly react to external factors - such as a global pandemic or to their competition gaining an edge by introducing new products/features or even shifting focus to include new channels. In a monolithic legacy environment, it often takes weeks (if not months) to implement a front-end change. This is because it requires a full deployment of the entire monolith, which involves full regression testing and must follow release cycles that are usually not measured in days or hours. And that is assuming you are able to bring the feature you need to the top of the list. The big players, like Amazon, have the capability to release new functionality to their platforms multiple times every minute – and this can leave smaller brands in the dust.

A Composable commerce platform enables much quicker releases because many of the underlying processes - like regression tests, deployments, etc. - can be fully automated using modern DevOps principles. And the decoupled architecture does not require you to do a full platform deployment every time you ship a tiny change. For example, a standalone Progressive Web App (PWA) front-end can be changed and deployed independently of the other platform components.

This massive increase of speed in shipping new features also enables you to experiment in fast iteration cycles. You imagine a feature, you build it, you deploy it, you test it and then you keep it when it drives the wanted results and business value or throw it away if not. Really successful companies operate this way and can continuously improve the user experience and, therefore, the commercial success of their operations.



## INCREASED FLEXIBILITY

Monolithic all-in-one suites have the advantage of providing the complete package: all the functionality that the brand might need with one consistent business-user back-end. But often when customers of these suites mature and their ecommerce operations grow in sophistication, they outgrow some of the platform's functionalities. And some are even sub-par from the get-go. But what can you do if, for instance, the CMS of your platform does not meet your needs anymore? In most cases the answer is you must put up with it unless you pull the plug and go for a full re-platforming - which will very likely prevent you from having a capable business for a number of years.

And that's just the simple version, it becomes even more tricky if your business wants to improve search and recommendations in a more immersive, personalized and immediate way. With results such as improved conversion rates this is increasingly becoming a function important to businesses. Likewise, merchandising is also a hot topic because competition is tough, and brands need to increase their customers' ability to find the right product to therefore increase the "add to basket" rate. What we are saying is that modern commerce is always evolving, and as such so does the need for different and new functionality.

In a Composable commerce set-up the answer is simple: you swap out the CMS component in favor of one that meets your needs. Due to the decoupled architecture this is a much smaller operation than a re-platforming in a traditional

world. Flexibility is enabled and designers have greater control of how the "traditional" commerce experience is delivered - in a channel, to a device, in a context, in support of a mission. The experience can be pulled apart and refactored for new and emerging scenarios re-using the functional capabilities of the commerce experience through APIs - catalogue, discovery, recommenders, cart or promotions - whatever the business needs.

## UP- AND DOWNWARDS SCALABILITY

Rewind 10 years when platform licenses were measured on the number of CPUs or cores\*. The necessary number of CPUs was determined by the expected peak load (such as Black Friday traffic) plus a generous safety margin. That meant that on a 'normal' day the infrastructure and the licenses that you were paying for were oversized by a factor of 10-20. Nowadays many of the monolithic platforms have a cloud-offering (which we all know means better accessibility, lower maintenance costs, no more storage capacity problems...), but the basic problem of scalability does not go away by hosting in the cloud. Only a few of these can dynamically add resources when needed, and even less can automatically remove them again when not needed anymore. As a result – even if not directly visible – you are constantly paying for resources you do not need.

This is different with the modern MACH applications. Using native features of the hyperscalers allows truly dynamic scaling – both up and down.

## PAY FOR WHAT YOU USE

Another common aversion of suite customers is that they pay the same license price regardless of which parts of the suite they use. So, if the suite comes with an OMS (Order Management System), a PIM (Product Information Management) and a CMS which you do not need - you still pay for them.

The license models of MACH applications are usually different: there might be a form of base-fee but then you pay for the resources you consume - for example, measured by the number of API-calls or incoming orders. And typically, these license models also allow for just use a certain part or service of the platform (e.g., just the checkout of a commerce platform) without paying for all the rest. In lay terms if you use more, you pay more – if you use less, you pay less.

## NO MORE UPGRADES

The vendors of monolith platforms usually release upgrade packages containing additional new functionality, bug fixes and other improvements every quarter or at least every half year. Customers however tend to

not implement all these upgrades immediately because often they are not affected by the fixed bugs or cannot take advantage of the new features. Who wants to spend money and time on being on the latest version without gaining anything from it? However, this attitude and approach leads to increased incompatibilities to the latest version. And at some point, you need to perform an upgrade to stay within support, but then (after two or three years) such an upgrade can quickly become a half year project during which development of features that give a competitive advantage is at a standstill.

Multi-tenant SaaS applications are kept up to date by the vendors who release the new features or bug fixes multiple times a day while keeping the APIs of the platform downwards compatible. Since customers do not deploy their own custom code to the platforms anymore there is no interruption by upgrades and all customers are effectively always using the latest version, depending on the vendor.

# How do you introduce it?

There are two main technology paths you can take to introduce a composable architecture into your business. Both require complete consideration of business and operating model changes to ensure your journey is a successful one.

## STRANGLER (FIG) PATTERN

A gradual transition away from a monolithic platform towards a Composable setup is often referred to as strangler fig approach. Instead of trying to replace the whole monolith at once, its functional scope is reduced one component at a time until it is stripped down to only core functionality. This approach has the advantage of reducing the risk of replatforming and allows for greater business continuity since it is less disruptive for day-to-day operations.

A typical strangling strategy for digital commerce platforms is to go headless first, then replace the platform's CMS by an external component, afterwards replace search and then at last tackle the remaining core commerce functionality. In fact, that last step does not necessarily need to happen - in many cases organizations will have already experienced and gained sufficient flexibility and improvements in time-to-market - so that they can stick with the core of their monolithic platform.



## GREENFIELD

There are situations where a strangling approach is not feasible because the legacy application is so tightly coupled and convoluted that a gradual replacement of functionalities would require rewriting large parts of the monolith. This is often the case with custom-build platforms that have grown complex over many years – might be poorly documented. In this situation it becomes inevitable that further evolution of features is impossible, and it all comes to a grinding halt. These circumstances often go along with performance issues and a general risk of the legacy platform breaking down.

In this situation, it is crucial to be fast. Companies should not try to achieve feature parity with their legacy platform but rather aim at replacing it with an MVP (Minimum Viable Product) approach as quickly as they can. This then enables the organization to quickly ship features that provide most business value and verify that instead of trying to replicate features of unknown business value just because they have been there all along.

## TAKE THE ORGANIZATION ALONG

A fundamental technology transformation like moving towards a Composable Commerce platform does not only require new IT processes and organization – it must include business change as well. Remember that you are building out a capability that your team (executive officers, operations, production, customer service, sales, and marketing team) needs to know how to engage with. If you overlook this then you will be wasting a lot of time, money, and resources. The alignment must begin at the executive level because this is where you can get an overarching view of

the organization (the way people think and the current structure). Maturity in thinking, capability, alignment and above all leadership are key to be able to seamlessly deliver a Composable Commerce experience. Be open to developing a fresh way of structuring your business priorities and tech transformation roadmap – this will lead to a full-on business transformation where you will reap the greatest benefits by evolving the heart of the user experience.

## A WORD OF CAUTION

Introducing a Composable Commerce platform should not be a lighthearted decision – the flexibility that you gain by this new architecture comes at the price of increased complexity. This is not only from an IT perspective but also for the business users that will have to embrace a new way of working, for instance in cross-functional fusion teams consisting of IT and Business, to be able to fully leverage the flexibility and speed they gain by introducing such a technology stack. In addition the business users will have to work with a variety of tools instead of one consistent backend in a suite (unless you provide them with a custom management interface). So, before embarking on this journey you should explore whether your own organization has the necessary digital maturity to really take advantage of the benefits that you get with this architecture. And you should question your own motives, do you really need this degree of flexibility or is the decision in some part driven by developers who think microservices are just cooler than the old-fashioned monolith platform you are using.

# How to measure success?



## CLASSIC ECOMMERCE KPIS

Regardless of the platform architecture, your business team must be able to evaluate omnichannel performance by combining multiple data sources. The list of KPIS is long and might include measurements such as analytics, heatmaps and mouse tracking as well as financial figures from your digital platform, CRM and ERP (Enterprise Resource Planning), performance of traffic sources, bounce rate, add to cart and conversion rate, landing page efficiency, impact of promotions and sales, cross-device and omnichannel purchasing behavior.... In a composable world, each solution will give you the opportunity to deep-dive in the efficiency of every component (searchandizing, merchandizing, content consumption).

It is important to store all this data and to tie it together in a repository like a CDP. Once done, you can start working with all team members, at global and local level, to build proper dashboards and establish processes to answer specific requests. Building a data culture and setting the proper data governance will become more and more strategic and therefore be more and more valuable if done right.



## TIME-TO-MARKET

One of the key motivations to switch to a composable architecture is to gain the ability to release market differentiating features and react to changing customer expectations quicker. To determine whether not only the architectural switch but also the change of processes and approach in your organization was successful, the time-to-market for new features is one of the most important KPIs to observe. If your time-to-market doesn't significantly decrease after making the change it is most likely a matter of not having the right DevOps approach and processes in place.



## TCO

Comparing the TCO of composable and monolithic platforms is very difficult. Composable platforms tend to have a higher initial implementation cost due to the higher complexity which then is recovered over time by not having to perform upgrades. And since the cost of many SaaS solutions is determined based on traffic or similar measures it is hard to predict but usually scales along with the generated revenue – means a higher TCO can be considered a measure of success in some cases. And then there are some immeasurable factors that should be weighed as well – like what is the cost of for instance not being able to quickly enough introduce curbside pickup when stores are closed during a pandemic?

# Our Crafted Commerce Offering

To win in today's digital commerce landscape, our clients must deliver exceptional customer experiences at every touch point and become proficient at the ability to sense a customer's needs and respond with the right experience. To do this effectively our clients are realizing that they must either adapt their commerce architecture or choose a different solution to address their customers' needs. Embarking on this new architecture journey is risky and to do this right, it requires the right scope of digital maturity and proper planning across the customer experience ecosystem.

Capgemini's new offer called Crafted Commerce helps our clients understand the benefits and risks of new architectural approaches and enables them to build the right digital organization to fully utilize these new solutions.

The purpose of Crafted Commerce is to enable adaptability for their digital facing solutions, by enabling new architectural patterns and providing best practices for the process. Crafted commerce can be focused around evolving a current commerce solution or creating a new solution focused on cloud native and headless architectures.

Contact us to start your journey.



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