Customer Identity and Access Management – the Master Key for Digital Markets

Digital transformation has been on everyone's lips for quite some time. A complex digital ecosystem has developed from the first, simple web shops of the 2000s. The opportunities and requirements have multiplied since then. Today, it is no longer just a question of digitally reproducing traditional processes.

Instead, it is becoming increasingly important to be able to reliably launch new products and services on the global market – often in very narrow timeframes. Time to market has become one of the decisive success factors for digital services. In addition, digital platforms offer unprecedented opportunities for testing and realizing completely new business models. The speed and flexibility with which such models can be implemented, tested, adapted, and integrated into existing infrastructures are becoming key competitive factors.

In this realm, everything centers on the interfaces to customers: Who is the customer?
- How can his identity be confirmed reliably?
- How do you ensure a consistent user experience across devices and applications?

To answer all these questions, you need a powerful Customer Identity and Access Management (CIAM) solution. The prerequisites, challenges, and opportunities associated with CIAM will be examined in this whitepaper.

Customer Relationship – It's All a Matter of Identity

The idea behind Customer Identity and Access Management is very simple: Who is who, and who is allowed to do what? In practice, however, this means nothing less than being able to securely and reliably map, verify, and protect the identity of the customer in all its facets.

At the beginning, the identity must be secured. Different procedures are conceivable: from a simple password, to 2-factor authentication, to a query of biometric characteristics. This also includes identification procedures for the major players such as Apple, Facebook, or Amazon.

The next step is to create and refine the customer's digital profile. In addition to master data such as address, date of birth, and contact data, information on preferences, interests, possessions, etc. is of great value for getting to know each customer and their needs better. After all, we need this information in order to make relevant offers at the right time and under the right circumstances.

But beware: These profiles require the customer's consent to data processing. Only when consent has been given can the data be used for e-mail marketing or customer data analytics in compliance with legal requirements. Since the introduction of the General Data Protection Regulation (EU-GDPR) in 2018, integrated consent management is indispensable for every CIAM solution.

"The basic philosophy behind Service Layers sounds very simple and sensible: Enable demanding customer-specific requirements and at the same time achieve a maximum degree of automation – from initial deployment to long-term support. In fact, however, it took a lot of effort to reach this point. Even with more than twenty years of IAM experience, we had numerous challenges to overcome. In the end, however, it's the result that counts. And we are more than satisfied with that. Because Service Layers is the first CIAM solution that combines the performance of adapted best-of-breed products with the fast, smooth provision of cloud services."

Heiko Hütter
Product Owner Platform

From Password to Ecosystem – a Brief History of Customer Identity
If you take a look back at the historical development of customer identity, you will also recognize the increasing demands of a prospering online company.

At the beginning of this evolution, customer identity was verified via password. It was enough for the customer to log into a web shop online and perhaps use a small personalized area. More was not necessary.

Soon, however, the requirements increased. Single sign-on became a major topic in the 2000s in order to provide uniform, convenient access to a broader range of products. It quickly became apparent that the customer's movement and action data represented great added value. So the next step was consistent data integration into the CRM system. What had originally started as a simple password table now included a variety of downstream systems.

This situation quickly led to the desire for a 360-degree view of the customer. With an increasing number of customer touchpoints (website, smartphone app, service desk at the local retailer, telephone hotline, etc.) a uniform, consistent level of service became more and more important. After all, the customer rightly expects that all departments or services involved are always up-to-date with regard to his data and actions.

This stage has since developed into veritable ecosystems. Evaluating the generated data to improve one's own offer and to submit more relevant offers – these are the decisive business factors. Today, customer behavior in all channels and systems, and the customer's use of all tools and end devices generate huge amounts of data, and thus insights for future business options. It is already foreseeable that this ecosystem will grow almost immeasurably with the Internet of Things. Amazon has already demonstrated how a bookseller becomes a video provider (thanks to Fire Stick), a personal library (thanks to Kindle) and a universal butler (thanks to Alexa). The customer identity is integrated into all of these devices. Customer Data Analytics makes it possible to gather and analyze all this data from different sources, to better understand each customer's journey and to create an even better interaction experience.

The journey continues in the direction of Open API. Companies want to open themselves up to the outside, to offer their own platform and be integrated into others'

applications. The goal is to be in constant contact with the customer. For APIs, and for access from the outside to the inside, two things are absolutely necessary. One is the customer identity. It must be clear in which user context the APIs and data are accessed. The other is data protection and the above-mentioned consent management, so that access is granted only if the customer has proven his identity and has consented to the respective processing of his data.

Customer Identity as a Driver of Business Processes

The brief outline already shows that customer identity, and associated customer data management, covers more and more functions and is therefore a key success factor for all digital business processes. On the way to the best possible implementation, however, some stumbling blocks have to be considered. The following requirements stand out across all projects:

- Short Time to Market
- Smooth International Rollouts
- Reliable Availability
- Flexible Support for Mergers & Acquisitions
- Implementation of New Business Models
- And, of Course: Calculable Costs

Not every one of these requirements must be immediately relevant to every company. However, if we consider the fundamental importance of a CIAM solution for digital strategy, companies are well-advised to consider their own long-term requirements when choosing a suitable solution.

Two Paths to the Same Goal?

Numerous solutions are offered for implementing the mentioned requirements in a modern, efficient customer data management system. Traditionally, two different approaches can be identified.

The Product Approach

A whole range of product manufacturers offer some extremely powerful solutions for Customer Identity and Access Management. These are usually adapted to customer needs by system integrators, which guarantees the best possible integration into the existing IT landscape. However, this approach can entail considerable investments in terms of time, costs, and training. The same applies to maintenance costs. The high possible individualization of these solutions also carries the risk that future upgrades cannot be carried out due to complex dependencies.

Cloud Services

On the other hand, cloud service providers offer various Identity as a Service (IDaaS) solutions. Similar to Microsoft Office 365, Google Docs, or Dropbox, these services are only available online. As these are largely standardized solutions and no major adjustments are necessary, CIAM projects can be implemented quickly and a short time to market can be achieved.

Data Privacy – Essential for Providers and Customers

Of course, secure handling of customer data has always been a central component of CIAM solutions. Increasing sensitivity on the part of users, and stricter legal requirements such as the EU-GDPR, require additional efforts. It is therefore crucial for companies who operate internationally to have an appropriately scalable/adaptable solution that can be easily adjusted to new or different legal regulations, as required.

The trend clearly points in the direction of Identity as a Service. According to a Gartner study*, the proportion of IDaaS solutions will increase from 50 % today to over 80 % by 2022. Nevertheless, many companies are afraid that a cloud-based solution will make them dependent on the respective provider and that they will have to relinquish control over essential business processes. The integration of physical touchpoints and the currently unsatisfactory, but increasingly important, integration of IoT devices is also a headache for many decision-makers.

Higher Standardisation

Product

Identity as a Service

Higher Complexity

The Best of Both Worlds: Product as a Service

Both approaches presented are good solutions for narrowly defined scenarios. The product approach, for example, is suitable for companies with complex requirements who want to retain control over the solution and the data stored in it. IDaaS, on the other hand, is suitable for those who want fast, standardized implementation without a great deal of individualization.

However, most companies are likely to be between these two extremes. With the existing solutions, they have inevitably had to make compromises in some areas.

One way out of this dilemma is to synthesize the two approaches: Take a finished product from one of the market leaders and adapt and configure it so that it can be offered as a service.

Infrastructure as Code

The problem is well-known: Installing comprehensive software in your own data center is usually a very tedious process. Twenty or thirty years ago, hardware had to be purchased first. Later on, virtual machines were ordered and the sizing had to be clarified. Even just determining the need and procuring the necessary products entailed a great deal of planning effort.

With the "Infrastructure as Code" approach, this fundamentally changes. The infrastructure requirements are programmed into the corresponding platform code, so that the infrastructure can be automatically deployed via cloud infrastructures – such as Amazon AWS, Microsoft Azure, or Google Cloud Platform.
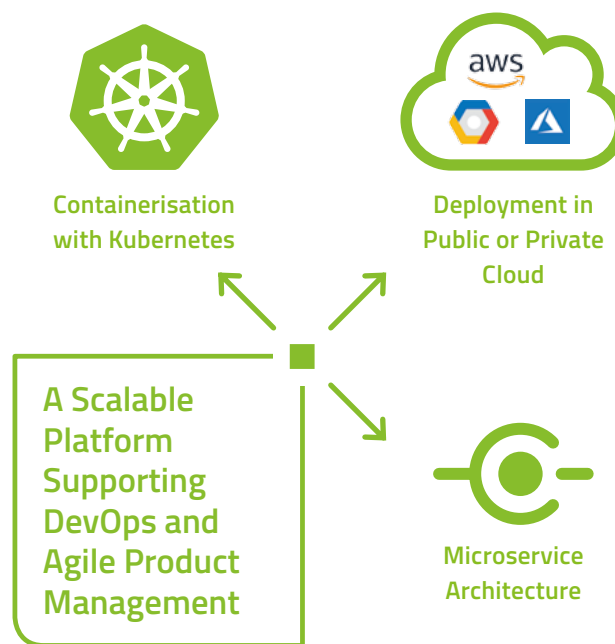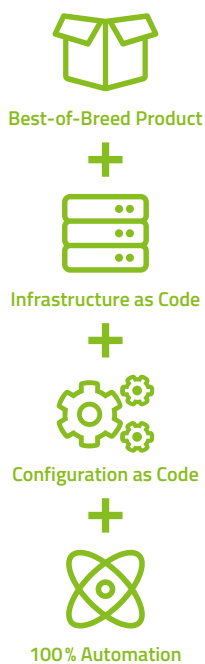
Configuration as Code

The second important step is to separate the configuration from the product and store it as code. Once uniquely defined, the configuration can be handled like any other program code. In version management, unique releases can be defined and comparisons to previous versions can be made. The result is an enormous increase in quality, and the certainty that any code artifact can be reused at any time. What used to be laboriously done by hand is now digitized. Both building blocks together, Infrastructure as Code and Configuration as Code, ultimately represent the digitization of the previous product business.

If the build and deployment processes are now fully automated, you've already reached the goal: a product can be set up at the push of a button, the required infrastructure can be provided in a cloud, and the product configured accordingly. All artefacts required for production can be conveniently defined. Automatic backups or monitoring functions are just as easy to set up as firewalls, certificates, and load balancers.

* Gregg Kreizman: "Magic Quadrant for Access Management, Worldwide", June 18, 2018

Concrete Implementations in Practice: Service Layers

For professional, enterprise-capable Identity & Access Management, this approach was first implemented by iC Consult with the Service Layers platform. Best-of-breed IAM products from market leaders such as ForgeRock or Ping Identity serve as the basis. The company, headquartered in Munich, has long been a strategic partner of all major IAM product vendors and is therefore very familiar with the possibilities of the individual products. Particular attention was paid to the greatest possible flexibility in implementation. This also includes preventing possible dependencies on cloud providers. That is why Service Layers operates everything via Kubernetes in containers. This allows you to work in a managed Kubernetes environment in an agile way. Those who prefer to remain in control in their own data center can do so. Instead of a public cloud, the entire environment can also be operated in a private cloud without any problems.

Best-of-Breed Product

+

Infrastructure as Code

+

Configuration as Code

+

100 % Automation

Containerisation with Kubernetes

Deployment in Public or Private Cloud

A Scalable Platform Supporting DevOps and Agile Product Management

Microservice Architecture

The microservice-based architecture lets you separate all features into individual microservices. So the product can be expanded to other components without dependencies, thus creating ideal conditions for DevOps and agile product management. Products can be assembled very quickly, in small steps, one after the other. New features can be introduced and tested in next to no time. A/B tests can be carried out in parallel instances —easily and cost-effectively.

This ways, the platform creates ideal conditions for occupying new market niches at a reasonable cost. Instead of having to start from scratch with every market launch, proven configurations can be cloned and launched with minor adjustments. The time to market is reduced to a fraction of the previous time, thanks to the fully automatic setup. For providers of innovative services, this is the decisive advantage to anchor their brand in the consciousness of customers even before the first imitators show up.

Time to Market

International Rollouts

For international rollouts to succeed, market-specific requirements as well as regulatory and legal requirements must be taken into account. The associated effort not only entails significant costs, but may also bring uncertainties regarding interaction of the various systems. The approach presented here eliminates these difficulties. If geographical or legal circumstances require a local instance, this is set up in the shortest possible time. It is sufficient to install a duplicate of the production environment in a suitable data center or at a local cloud provider. The deployment and setup times are in the range of minutes.

Available Worldwide Including China

Service Layers is also able to operate locally within China to ensure full compliance with strict Chinese regulations. By using GITOps strategies in combination with our Global Token facility, local data storage and access processing is possible within China while still using the main part of the global configuration.. Customers no longer have to deal with local hosting issues, but can concentrate entirely on their core business. Dedicated hosting also guarantees short server latencies with 24/7 availability of support and service.

Even market-specific adaptations are no longer a problem, thanks to versioning: Simply pull a branch and share the development line. Despite all market or customer-specific adaptations, the basic product remains the same. This not only reduces the development effort, but simultaneously increases process reliability. Because the basis of every new branch is a version that has already been tried and tested. And this, in turn, has a direct effect on reliability.

Reliable availability is not measured by uptime alone. In the event of a malfunction, which can never be completely ruled out, the most important thing is to restore the system quickly and reliably. Service Layers guarantees this through the exact cloning of a system version tested and approved by the customer. Manual changes are not necessary. Errors that are difficult to locate cannot creep in. Unexpected malfunctions no longer lead to costly downtime, but can be repaired within minutes.

Mergers & Acquisitions

Mergers & acquisitions, like de-mergers, represent a major challenge for IT. After all, different corporate infrastructures have to be brought together or separated. And this without endangering existing processes in the main company.

The Service Layers approach ensures the consistency of the respective customer data. Instead of integrating the customer data management processes of the acquired company directly, they are imported into a duplicated system. As soon as the initial difficulties have been overcome, the data is then migrated into your own system. Since both systems are identical, the migration is feasible without great effort.

New Business Models

Today, the development of new business models is under high time pressure. New ideas must be developed, tested and, if successful, quickly implemented. At the same time, existing processes must continue to run reliably. The setup as a separate instance makes both things possible. The ready-to-use production environments provide a digital playground for anyone working on new business models. The planned production system, including all processes, can be tested there in detail. The valuable usage data is left out and thus cannot be corrupted. Once the new approach has proven its worth, it can be integrated into the main system in just a few minutes – or alternatively sold. With the fully digitized product chain, new business models can also be offered as independent solutions.

Cost Savings

Even if all the requirements mentioned so far can be fully implemented, the costs ultimately decide whether the measure also makes economic sense. What is needed is functionality, not infrastructure. By codifying infrastructure and configuration and implementing highly standardized and automated processes, Service Layers sustainably reduces operating costs.

Outlook – Ready for the CIAM Trends of Tomorrow

Bottom line: The as-code approach presented here is a revolutionary concept for CIAM solutions that is both flexible and powerful. The ability to quickly and securely create, test, operate, split, and recombine digital business models, and even sell them as finished goods, makes this approach a game changer.

CIAM will continue to gain in importance and impact more and more business processes. If the solutions used today are scalable and expandable, this will have a direct influence on future competitiveness. Companies with powerful but cumbersome on-premise systems will experience their own "dinosaur extinction" when the need for additional flexibility exceeds a critical threshold. The next evolutionary step belongs to those Identity as a Service solutions whose infrastructure is available as code and can thus be adapted to future requirements with minimal effort.