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Introduction

What is iPaaS?

Integration Platform as a Service (iPaaS) is an intelligent platform consisting of cloud services for business process automation and an excellent tool for various integration scenarios, such as data integration, system integration and hybrid integration.

Interface between data and applications

IPaaS enables seamless integration of thousands of business applications and the free flow of data across all channels - so data management also benefits. It is used by companies that want to automate applications and workflows in their cloud. iPaaS does this by creating an interface through which data and apps can be connected, enabling entire processes not only to be mapped, but also to be modeled, data migrated, complex integrations created and a complex sequence of workflows automated. Instead of using employee resources for mundane, time-consuming processes to use, cloud integration services enable you to efficiently integrate and automate these tasks to deliver better customer experiences and improve employee productivity.

Cross-system automation

One tool is not always enough to automate processes. Cross-system automation adds a layer of automation that ties everything together. Especially when processes and workflows are to be automated and streamlined across multiple, different systems, an intelligent business process automation platform (iPaaS) is the appropriate tool for different integration scenarios, such as data integration, system integration and hybrid integration. In the process, data systems are integrated with the daily operational work and the communication channels to the employees. For example, Integromat is such a tool for connecting apps and automating workflows with a visual builder without code. It allows you to connect to any API and create complex integrations using built-in apps and tools without the need for coding.

Differences to SaaS & PaaS

The differences between iPaaS and SaaS (Software as a Service) and so-called On Premises or PaaS (Product as a Service) are as follows:

- **SaaS:** SaaS offerings are tools on end devices. Typically, companies have a variety of different SaaS offerings, usually based on the specific purpose. For example, Outlook 365 is for email management or Citrix GoToMeeting enables remote presentations and collaboration - the product choices are immense. SaaS offerings could also be described as being used close to people and therefore relatively at the beginning of business processes.

- **PaaS:** At the back of a business workflow, you'll find on-premises or PaaS offerings. Exemplary of this are software development platforms that use their own environment and have less to do with the end user. The target group for on-premises is primarily system architects and developers.

Advantages of iPaaS

Integration Platform as a Service (iPaaS) provides an easy-to-use interface to enable complex process automation while requiring no programming skills.

The first chapter therefore deals with the advantages and solutions offered by this technology.

Process automation via interfaces

Thousands of companies deploy countless applications and perform a variety of business processes every day to facilitate the rapid and smooth growth of their organizations. These business processes scale across all business units and initiate a flow of data. However, a majority of these business processes are still performed manually, making them very time-consuming and error-prone.

Process Automation targets exactly this situation by integrating the running business processes from different areas
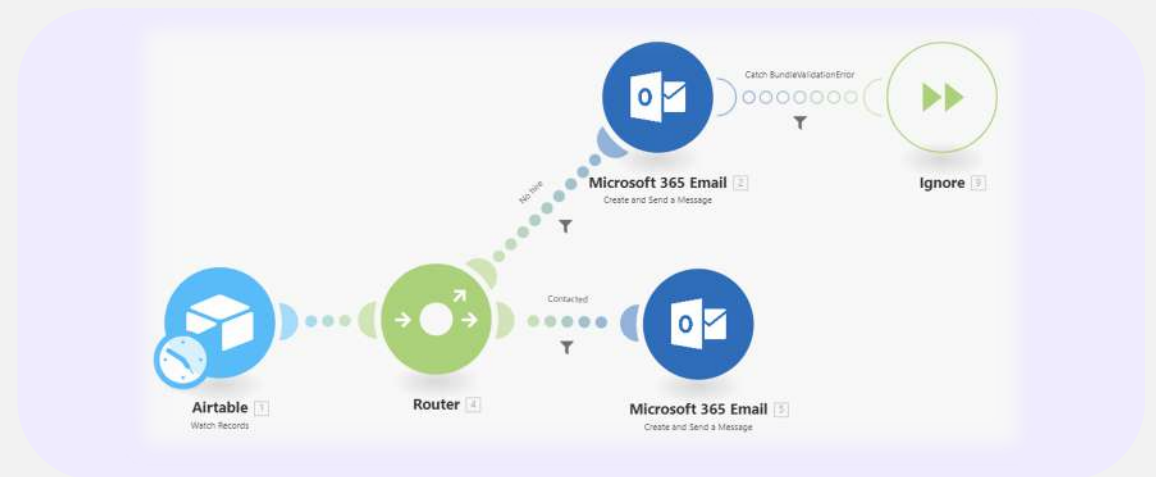
automated, streamlined and transformed into more coherent and effective processes through software and application integration. For the implementation of such a project, an integration platform as a service is the best solution - because it is also scalable.

Ready-to-use software components

Typically, iPaaS vendors provide the server and data infrastructure, as well as middleware and other utilities and tools to build, test, deploy, and manage software applications in the cloud. Most iPaaS offerings include maps and transformations to speed the development of integration workflows, as well as pre-built connectors and business rules to define interactions. They provide ready-to-use and extensible software components to deliver integration and workflow automation in a fast, scalable, and maintainable manner.

The iPaaS provider Integromat offers for example hundreds of different applications, from Hubspot to Webflow to Microsoft365, which can be interconnected via a modular and easy-to-understand user interface, so that automated process flows or even entire workflows can be easily automated.

Workflow automation and iPaaS

Workflow automation is an essential part of iPaaS cloud services. Point-to-point integrations are great for moving data directly from one application to another. However, in real-world scenarios, organizations want more control over when, how, and under what conditions their applications share data. It's also common to have not just two, but multiple applications integrated into a unified workflow. Workflow automation allows you to orchestrate the flow of data between any number of apps and use logic and transformations to configure how the information flows.

The iPaaS platform usually offers services that are almost always used via a visual drag-and-drop workflow builder interface that gives users full control over the design of their workflows. This allows even non-technical employees to create automations without having to write a single line of code.

iPaaS offers what companies need

Over the past few years, various forms of process automation have increasingly helped to streamline and automate diverse business operations and processes to achieve a transparent, efficient and productive organizational workflow. IPaaS has emerged as a solution that offers everything businesses need to achieve this.

iPaaS offers the following advantages:

- It offers the possibility to automate processes from almost all departments.

- It establishes the desired communication within the applications.

- It reduces human labor in providing the data.

- It automatically provides clear insights into business data.

- It brings all knowledge together under one roof.

- It provides a clearer and more coherent view of the business processes of the entire company.

Reduced process complexity

iPaaS is known for offering proven solutions that efficiently automate business processes for both cloud and on-premises applications. This means that by using an iPaaS, a business can automate much of its operations and focus more on developing strategies for growth. An iPaaS solution helps businesses scale by giving decision makers more time to bring innovation and better approaches into play. Also, an iPaaS solution reduces process complexity, data errors, and overhead costs by automating key business areas. This means that the integration platform can unterstand

every application fully and seamlessly connects them to initiate processes that otherwise would not have been possible.

Added value & competitive advantages

Many companies are using iPaaS to gain a competitive edge over the competition: By going digital, they can offer better digital services to their customers and improve overall customer satisfaction and retention.

Hosted in the Cloud

Businesses don't have to buy hardware or software, they don't have to buy licenses to use all the features of the Platform service, and they don't have to pay for upgrades and new features because it's a cloud service.

The provider is ultimately obligated to keep everything functional and up to date. All iPaaS customers and users have the right to use all functions of the platform. Another big advantage is that the offering is constantly evolving. After all, the various providers cannot afford to fall behind in the rapidly growing market.

Managed service

Integration capabilities are still scarce, so having an iPaaS provider that can provide integration solutions on an integration platform

is a big advantage. The solution can be developed and deployed much faster, and companies only need to provide one IT person to help with specifications and end-to-end testing.

Faster deployment

The faster the solution is deployed, the faster enterprises can see the value that iPaaS brings. Short development and deployment cycles are especially important when companies need to connect to a large ecosystem - the project should not take years to implement.

Scalability

Because integration requirements can evolve quickly, the platform must be able to meet the changing needs of users. Sometimes new connections need to be added to existing solutions. With iPaaS, this can be done quickly.

Data enrichment and validation

To avoid manual processes in validating and enriching data, iPaaS can automate them to reduce processing times.

Challenges that are no longer challenges with iPaaS

iPaaS solves many of the challenges when different business processes are present. From consolidating existing data to integrating new data to effective data management under one roof.

Efficient and seamless data and application integration

The biggest challenge that iPaaS implementation solves is the complete and seamless integration of all existing applications, systems and data sources. Once these systems are integrated, all business processes are efficiently automated and a free flow of data is initiated by connecting the different applications.

All data under one roof

iPaaS solutions reduce the hassle of constantly having to manually enter information into each system because most of it is automated. Data, once entered, can be updated across all applications as needed. This means that human labor is reduced to a great extent Moreover, there is no need to constantly enter data into different software programs to search for information

because iPaaS brings it all together in one place.

Lower cost of doing business

The cost of automating different business processes and integrating different environments and applications with iPaaS is comparatively very low. This means that iPaaS not only works seamlessly, but is also more cost-effective than other solutions. Moreover, iPaaS also reduces the cost of maintaining a certain number of employees to manage the platform by simply automating it.

High security at all levels

When an iPaaS service is deployed, data is classified and encrypted using the most effective and secure protocols. Information within the integration platform and other systems can only be accessed by those who are authorized to do so. This security ensures that business critical information does not fall into unwanted hands. Processes are streamlined and routed to exactly the right people. In addition, the level of security in iPaaS consists of various layers that ensure that nothing can leak out.

Presence of all information under a single platform

It's no secret that the amount of information that needs to be entered into multiple systems is now huge and difficult to manage without the use of a process automation solution. An iPaaS ensures that entered information is automatically synchronized. As a Process Automation solution, it communicates with data and processes and consolidates them to display them coherently under a single-page dashboard.

For maximum customer satisfaction

iPaaS helps focus more on delivering a better customer experience by automating processes such as instant chat support, email responses, business notifications and ticketing. Many see iPaaS as a game changer in cloud computing and process automation.

Streamlined business processes

An iPaaS service provides the ability to streamline all existing business processes and bring coherence and clarity to operations. It consolidates and leads data together and

ensures efficient data accuracy during transmission within the organization.

Increased productivity

The implementation of an iPaaS solution leads to a noticeable improvement in the relationship between man and machine. Automated integration makes for smoother and more productive processes, with increased speed and efficiency. Efficient automation via iPaaS enables the full use of technologies to optimize business processes and improving of productivity.

Fast and reliable scaling through cloud computing

IPaaS is able to integrate different applications easily and offers the chance to scale effectively. iPaaS solutions can quickly meet the growing demands due to the power of cloud computing. Even when newer systems are introduced in a very short time, iPaaS can efficiently integrate the applications and automate the processes.

Improved decision making and rule implementation

Using a robust integration platform, business rules and processes can be easily automated, defined and implemented to sequence the uninterrupted flow of data. This brings significant benefits to data management. With Process Automation, a company can focus more on improving its workflows, and this opens up more opportunities for decision makers to sustainably improve the business model.

Better monitoring and fewer errors

An iPaaS solution provides better monitoring of all business processes within the environments by bringing all data under one roof. Due to the accuracy that an iPaaS solution provides in handling data, the company also reduces the error rate in the processes. This approach to error-free and clear business processes provides better control and knowledge of workflows and reduces time and effort.

iPaaS vs. ESB

Enterprise Service Bus (ESB) is widely used for creating, deploying and managing integrations. The basic idea of ESB and iPaaS is the same. Both are designed to enable the connection of systems and applications and facilitate the exchange of information.

But with iPaaS, companies don't have to buy software or hardware because integration platforms are based on public or private clouds. Therefore, they don't have to pay for upgrades and maintenance. ESB is designed for on-premise integrations and supports legacy messaging Standards.

In comparison, an iPaaS service can provide a variety of integration solutions, whether the environment is on-premise or in the cloud, regardless of the data standards and formats the systems use. While ESB is a great tool for connecting internal systems and applications, iPaaS provides horizontal solutions for B2B integrations.

Opportunities

Integrated Platform as a Service (iPaaS) offers a wealth of possibilities in terms of applicability.

In the following chapter, these are described in more detail in order to illustrate the flexibility and enormous scope they offer.

Scope and flexibility

As end-to-end integration requirements increase, iPaaS is the answer for many of today's emerging use cases. The biggest advantage of iPaaS is the tremendous scope for flexibility and customization, which opens up a wide range of use cases for enterprises. Below, we've chronicled four interesting use cases.

Automatic API generation

APIs (Application Programming Interfaces) are the "back-end pipes" that connect business applications together.

For example, they connect the CRM application with the accounting program, with data storage and other applications. They also connect their own applications with those of partners, suppliers and customers. Coding an API by hand in the traditional way is a tedious and time-consuming process that sometimes takes a developer days and weeks and requires a lot of money.

Modern iPaaS services drastically simplify the process of API creation. They provide an interface for no-code API creation along with a large library of pre-built connectors.

This way, even non-technical users can create, configure and publish APIs - simply by dragging and dropping.

Cloud-to-cloud and hybrid cloud integration

For large enterprises with complex, legacy infrastructures looking to adopt new cloud strategies, iPaaS complements an existing enterprise service bus (ESB) technology for app connections and enables on-premises and firewall-protected platforms to connect more efficiently with cloud-based solutions. For simpler cloud-based infrastructures

that don't have to deal with legacy messaging protocols or on-premise systems, iPaaS can serve as the backbone of the entire cloud-based architecture.

B2B data connections

Companies not only need to make connections between their own business applications, they also need to connect their systems to those of their partners, customers, suppliers and service providers. The faster they can make these connections, the faster they can onboard new partners, remain competitive and expand their business.

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Traditional B2B integration tools, such as Value Added Networks (VANs), are expensive and require time, labor, and specialized expertise to set up. In addition, the growing risk of supply chain breaches makes security of third-party B2B data connections a priority.

As a horizontally flexible integration solution, iPaaS supports fluid, seamless, fast and secure integrations between the enterprise, supply chain and partner. This reduces the time, effort, and expense in the onboarding of new partners.

In many cases, the task is reduced to a point-and-click task that anyone can complete in a few minutes.

IoT Integration

The complexity of building an IoT network presents significant challenges that surprise most integration managers due to the large amounts of data and the number of devices and APIs that an IoT network requires. With iPaaS technology, these challenges can be overcome.

For example, to improve maintenance intervals for trucks, IoT sensors are placed on each truck to provide real-time data on the condition of parts such as brakes, engines, transmissions, etc. From an integration perspective, this IoT network requires the following:

- A network of IoT sensors connected to various truck parts.
- An API that receives and aggregates real-time performance data from IoT endpoints.

- A cloud-based IoT app platform integrated with the "IoT Sensor Data API".
- An API that integrates the 'cloud-based IoT app platform' with the existing on-premise ERP system.

Whether an enterprise is integrating with thousands of IoT endpoints in a fleet of trucks or millions of IoT devices, iPaaS provides the speed and horizontal scalability that an IoT network needs. In addition, iPaaS' automatic API generation capabilities help quickly create the various APIs for that network.

Practical examples

As described in the previous section, iPaaS offers a wealth of possibilities.

The following chapter wants to be a bit more concrete and presents a few possible applications.

Automated onboarding with Integromat

Employee onboarding is an important process that poses enormous challenges for many companies. Poorly organized onboarding can have negative consequences. Because the steps in a company's onboarding workflow are typically repetitive, this process is easy to automate with everyday tools. As with other business processes, onboarding involves the exchange of data between the HR department and the new employee. In this case, Airtable serves as the database. The setup and integration is done through Integromat.

The automated process ultimately sends an email with links to documents and resources to the new employee and assigns them a task on the project management platform. The Airtable record data is then passed to the Slack > Create a Message module. Here, Integromat automatically creates a welcome message.

New ways in recruiting

Recruiting technical talent is one of the biggest and most expensive challenges. Recruitment-as-a-Service (RaaS) companies, for example, use global advertising campaigns to attract engineers and developers from all corners of the globe, or deploy armies of recruiters to catch all the topsy-turvy candidates on LinkedIn and Xing.

The company Flexiple, on the other hand, decided to go off the beaten path by changing their recruiting process and automating it with Integromat. Freelancers sign up with Flexiple's webflow-based developed self-service web

dashboard to check new opportunities. Login details are automatically synchronized by Integromat. When a freelancer applies for a project, Integromat stores the details from Webflow in Airtable. Then, Integromat automatically sends a "first reply" email. Flexiple has also fully automated the creation of freelancer accounts and updating of project details.

Automated onboarding with Workato

Also, Workato, as an Enterprise Automation Platform, enables companies to integrate their applications and automate business processes and get real-time results from business events. The platform uses machine learning and patented technology to make building and deploying automations faster than traditional platforms. Workato also relies on a mix of API-based and UI-based automation.

ChowNow has leveraged the automation capabilities of Workato to eliminate the costly manual onboarding and offboarding processes

of employees. Manual onboarding took about 45 minutes per new hire, while offboarding took about 1 hour per employee let go. ChowNow uses Workato to integrate Zenefits, HR's central information hub, with Office 365 and Slack to provide updates to facilities, HR, and hiring managers. This means increased security, scalable hiring, improved employee experience, and significant time and cost savings. In this way, ChowNow has successfully automated 90 percent of its onboarding and offboarding process, whereby the productivity, employee experience, and company security increased

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while costs where reduces. In addition, Workato's success for HR onboarding and offboarding served as a model for a new automation opportunity: new client onboarding.

The agony of choice

What iPaaS providers are there and what should you look out for?

The following chapter highlights the key factors that should be considered before deciding on a platform.

We conclude with a listing of the most important and well-known iPaaS providers.

The holy trinity of the perfect iPaaS solution

When selecting an iPaaS provider, three characteristics should be considered: configurable connectivity, extensibility, and a unified platform with features that address a wide range of integration needs and use cases.

Configurable connectivity

To generate immediate value, iPaaS must have configurable connectivity-such as a marketplace of pre-built connectors, templates, and APIs-that enable assets to be quickly and easily shared and reused.

Configurable connectivity enables organizations to select "best-of-breed" cloud apps and easily add new features to their ecosystem.

Extensibility

iPaaS should be robust, agile, and able to expand as the business grows. The platform should be able to enable non-specialist integrators to use low-code, drag-and-drop UI to address a wide range of use cases, while providing at the same time a full-fledged integrated development enviroment (IDE)

for specialists to solve strategic integration problems. Low-code functionality is important to enable non-technical users to automate their own processes and tasks. However, because many "low-code" iPaaS vendors optimize their platforms for non-technical users to complete individual tasks, their platforms often lack a key feature that all central and specialist IT teams need: Extensibility. As enterprises scale, these solutions often evolve into tightly coupled applications hindering agility.

Unified platform

Core integration is at the heart of iPaaS. Often, enterprises adopt one or more approaches, from migrating existing on-premises applications and data to the cloud, to integrating SaaS applications with on-premises applications and data, to connecting cloud native applications across on-premises and cloud environments. With API management and iPaaS in a single, unified platform, enterprises can implement the above use cases, share and monitor access to critical systems via APIs, and reuse assets without the risk of losing existing investments.

The providers at a glance

In the meantime, there is a multitude of iPaaS software and services for every use - and the trend is increasing. The most important providers are therefore listed and described below:

Automate.io

Automate.io is a modern iPaaS platform for connecting cloud applications, allowing users to create simple one-to-one business process integrations or complex workflows without coding via a drag and drop interface. With Automate.io, any applications from the

library to connect with over 200 integrations including Salesforce, Hubspot, MailChimp, Facebook Lead Ads, Google Apps, etc.

Celigo

Celigo makes integration easy and simple, enabling businesses of all sizes to integrate systems, synchronize data, automate processes and streamline operations. Celigo's integrator.io iPaaS platform enables both business and IT users to easily integrate any cloud application.

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Integromat

Integromat is a free tool for connecting apps and automating workflows with a beautiful, visual builder without code. It allows you to connect to any API and create complex integrations using built-in apps and tools without the need for coding. Integromat is the perfect software especially for beginners as the interface and design are easy to access and understand.

MuleSoft

MuleSoft's Anypoint Platform™ is a leading software service for API-driven connectivity that creates an application network of apps, data and devices, both on-premises and in the cloud. This hybrid integration platform includes iPaaS, ESB and a unified solution for API management, design and publishing.

Workato

Workato, as the leading enterprise automation platform, enables both business and IT teams to integrate their applications and automate

business processes without compromising security and governance. It enables organizations to get real-time results from business events. No coding is required and the platform leverages machine learning and patented technology to make building and deploying automations faster than traditional platforms.

Zapier

Zapier allows anyone to integrate their apps and automate their work, without having to write code.

For growing businesses, Zapier offers a simple, powerful and cost-effective automation solution.

n8n

With n8n's software, a wide variety of web applications can be connected and synchronized without programming knowledge - similar to Zapier, but so far without a SaaS approach and advertised as a Node alternative to self-hosting.

Founded in 2019 by Jan Oberhauser, the startup is currently flying a bit under the radar, but

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the company recently got Sequoia Capital as an investor. This represents the first seed investment of the American financier in Germany and underlines the potential that n8n has.

iPaaS - Revolution?

With the increasing use of the cloud, iPaaS has become an integral tool. iPaaS and other cloud apps have enabled businesses to take advantage of new use cases to create more agility and achieve one of the key pillars of digital transformation.

The iPaaS scene continues to evolve inexorably, with exciting new features hitting the market every day. Data and application integration will continue to be among the most important requirements for many modern B2B companies. iPaaS technology has a good chance of revolutionizing the future of automation.

Thanks for reading!

Automation is teamwork!

Since a large part of the company's innovative power lies in the hands and minds of its employees, they need not only the right specialist knowledge but also the right skills.

In order to be able to drive forward and accompany future-oriented automation, extensive knowledge of business processes and current automation tools is required at the interface between specialist knowledge and automation, in addition to the automation mindset, coupled with the knowledge of how to apply these in the right IT context.

However, such a task cannot be accomplished by a single employee, but only by a team consisting of different experts along the automation chain. For this purpose, the development of competencies within the entire organization is indispensable.

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