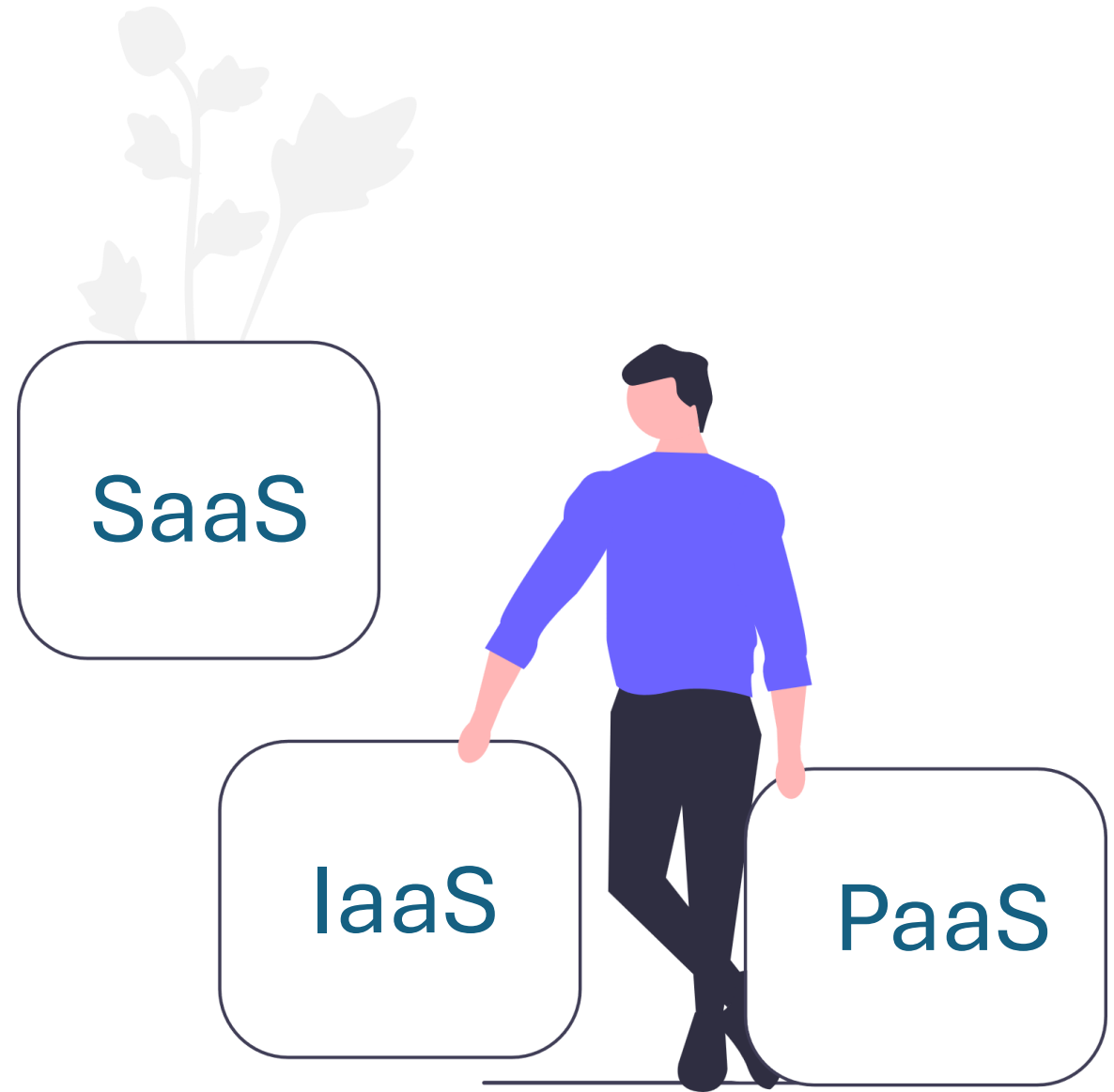


# SaaS vs IaaS vs PaaS

## Which one do you need?

by Marian Veteanu



# What is “as a Service”?

The term "*as a Service*" refers to a cloud computing model where specific services or resources are delivered to customers over the internet, rather than requiring them to manage, install, or maintain the resources on-premises. This model allows users to access the service on-demand, typically through a subscription or pay-as-you-go pricing model.

Just like renting, with "as a Service," you don't own the physical infrastructure or software. You pay to use it for a specific period or based on usage.

## Common "as a Service" Models

- SaaS (Software as a Service)
- PaaS (Platform as a Service)
- IaaS (Infrastructure as a Service)

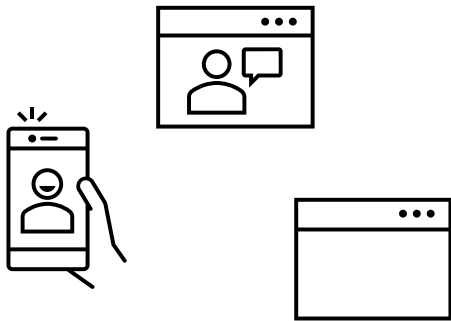
## Other "as a Service" Models

- DaaS (Desktop as a Service)
- BaaS (Backup as a Service)
- CaaS (Container as a Service)
- FaaS (Function as a Service)
- DBaaS (Database as a Service)

# SaaS, IaaS and PaaS

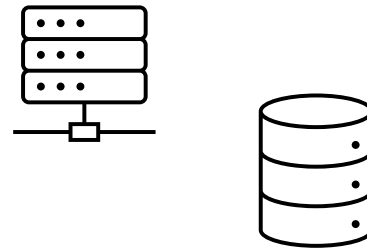
## SaaS (Software as a Service):

Delivers fully functional applications over the internet.



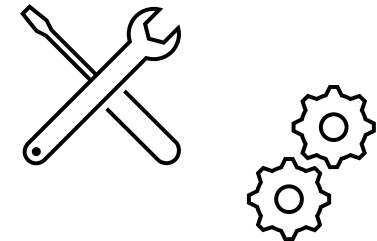
## IaaS (Infrastructure as a Service):

Provides fundamental cloud infrastructure (servers, storage, networking).



## PaaS (Platform as a Service):

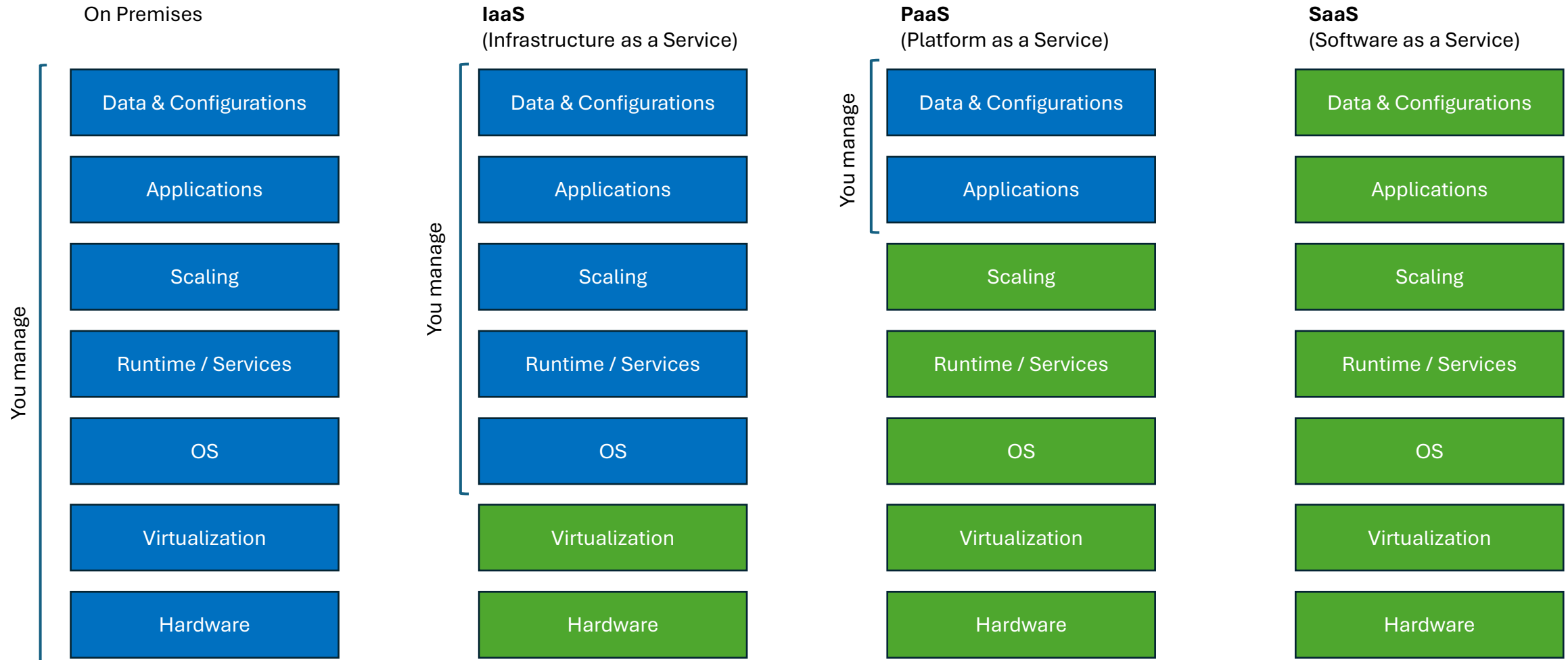
Offers hardware and software tools (platform) over the internet.




SaaS – A complete, cloud-based software solution.

IaaS and PaaS – Cloud platforms. Can be used for IT or Development tasks. You can build a SaaS product using an IaaS or PaaS platform.

# Shared responsibility in IaaS, PaaS and SaaS



 You Manage

 Cloud Provider Manages

# What cloud model is good for me?

Individuals / Home users	Use a <b>SaaS</b> platform with support for single users. E.g. Microsoft 365, Dropbox, Gmail, etc.
Organizations with no IT department	Select a <b>SaaS</b> application that satisfy the business needs.  Work with SaaS vendor or partner to configure the SaaS application with your specific rules and workflows (if supported by SaaS)
Organizations with an IT department	If you have a legacy on-prem app, choose <b>IaaS</b> and do a lift your application to the cloud. OR Select a new <b>SaaS</b> application that satisfy the business needs. OR Find a new application that supports on-prem installation and deploy it on your own infrastructure. Most apps developed using <b>IaaS</b> model will work on on-prem infrastructure. Some apps developed using <b>PaaS</b> model may also work on-prem as long as there is no cloud specific functionality. OR Work with your IT department or partner to develop a new cloud app using either <b>IaaS</b> or <b>PaaS</b> platform.
Independent Software Vendors	Select a <b>IaaS</b> platform if you intend to offer the app you're building for on-prem installation. You can also select a IaaS platform and deliver the app as a <b>SaaS</b> . OR Select a <b>PaaS</b> platform if you intend to offer the app as a <b>SaaS</b> . You can also use a <b>PaaS</b> and offer the app for on-prem installation as long as you don't use vendor specific features.

# SaaS: Software as a Service

SaaS is a cloud computing model where software applications are delivered over the internet and accessed via a web browser. Users do not need to install, manage, or maintain the underlying infrastructure or software.

**Accessible Anywhere:** Accessible from any device with an internet connection.

**No Installation Required:** Software runs entirely in the cloud, no need for local installation.

**Subscription-Based:** Typically priced via a subscription model (monthly or annually), with flexible pricing based on usage. Eliminates the need for hardware and software management, reducing IT costs.

**Automatic Updates:** The service provider handles updates\*, security patches, and maintenance.

Google Workspace  
(Docs, Sheets, Gmail)

Microsoft 365  
(Word, Excel, Outlook)

Salesforce  
(CRM)

Dropbox  
(Cloud Storage)

Zoom  
(Video Conferencing)

Mailchimp  
(Email marketing)

Adobe Creative Cloud  
(Photoshop, Illustrator)

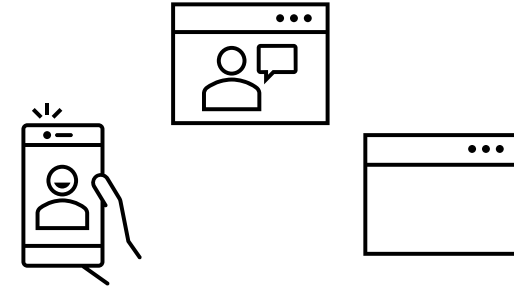
Shopify  
(E-commerce platform)

\* In most SaaS (Software as a Service) applications, updates are typically applied automatically, but there are some scenarios where automatic updates may not be forced. Some ERP (Enterprise Resource Planning) solutions or complex CRM systems may allow for more control over when updates are applied, especially for large organizations with unique workflows. Some SaaS products allow users to opt-out of specific new features or functionality, even though the core updates (like security patches) will still be applied.

# Who needs a SaaS?

## SaaS (Software as a Service):

Delivers fully functional applications over the internet.  
Businesses and Individuals alike need SaaS solutions.



### Small to Medium-Sized Businesses (SMBs):

Need cost-effective solutions for day-to-day operations without managing software installations or IT infrastructure.  
Benefit from using ready-to-go applications for tasks like accounting, CRM, HR, and project management.

### Enterprises Seeking Standardized Solutions:

Require software for common business functions such as email, collaboration, or data storage that can be easily accessed across teams.  
Benefit from SaaS for scaling tools across departments without complex deployment or maintenance.

### Businesses with Limited IT Resources:

Don't have the capacity to manage, maintain, or update software in-house.  
Benefit from automatic updates, security patches, and maintenance handled by the SaaS provider, reducing IT overhead.

### Freelancers and Entrepreneurs:

Need professional-grade software without the upfront cost or complexity of managing licenses and installations.  
Use SaaS for tools like graphic design, marketing automation, or productivity applications.

**Overall, SaaS is often preferred over on-premise solutions because it eliminates the need for complex installations, maintenance, and hardware management, while providing easy access and scalability from any location.**

# IaaS: Infrastructure as a Service

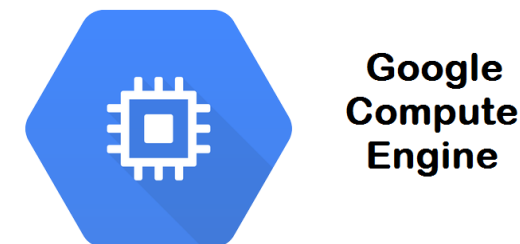
**IaaS (Infrastructure as a Service)** is a cloud computing model that provides virtualized computing resources over the internet. It gives users access to fundamental IT resources like servers, storage, and networking, allowing them to build and manage their own infrastructure without having to invest in physical hardware.

## What you're typically getting with IaaS?

**Virtual Machines:** Users can create and manage virtual machines (VMs) with specific configurations for CPU, RAM, and storage. Users have full control over the operating system, applications, and middleware they choose to deploy on the virtual machines.

**Storage:** Provides scalable storage that can be increased or decreased as needed.

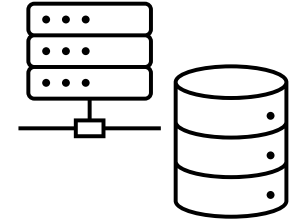
**Networking:** Includes virtual networks, firewalls, load balancers, and IP addresses to manage traffic and secure environments.





# Who needs a IaaS platform?

**IaaS** provides virtualized computing resources over the internet: Virtual machines, storage, networking, etc.



- If you are an organization with an in-house datacenter, you may choose a **IaaS** platform to *lift* some of your apps and data to the cloud.
- You may also choose IaaS, if you require full control over servers, operating systems, and storage to run highly customized or legacy applications (developed by you or others).
- If you're an Independent Software Vendor, you may choose a IaaS platform to build and host apps for your customers (using the SaaS model). You prefer to use IaaS over PaaS because you require full control over the environment, or because your application is legacy, or because you fear cloud lock-in.

# PaaS: Platform as a Service

**PaaS (Platform as a Service)** is a cloud computing model that provides a platform allowing developers to build, deploy, and manage applications without having to worry about the underlying infrastructure (such as servers, storage, or networking). PaaS focuses on providing a ready-made environment with tools and resources needed for application development and deployment, so developers can focus solely on writing code and creating applications.

- **Development Frameworks:** Provides development environments and frameworks (e.g., Node.js, Python, Ruby, Java) that allow developers to quickly build applications.
- **Database Management:** Offers pre-configured databases and storage options (e.g., SQL, NoSQL) to handle data without requiring manual setup or scaling.
- **Managed Infrastructure:** The cloud provider handles server management, operating system updates, storage, and network configuration, so developers don't have to worry about the infrastructure.
- **Scalability:** Automatically scales resources based on the demand of the application, ensuring that the application remains responsive even under heavy load.

## Amazon Web Services

AWS Elastic Beanstalk  
AWS Lambda

## Microsoft Azure

Azure App Service  
Azure Functions  
Azure Logic Apps

## Google Cloud Platform

Google App Engine  
Google Cloud Functions  
Google Cloud Run

## IBM Cloud

IBM Cloud Foundry  
IBM Cloud Functions

## Oracle Cloud

Oracle Cloud App Container  
Oracle Functions

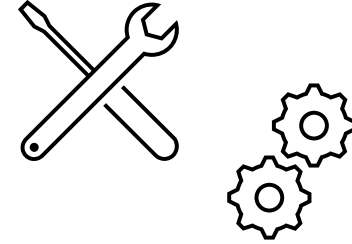
## Salesforce

Salesforce Lightning Platform  
Heroku

# Who needs a PaaS platform?

## **PaaS (Platform as a Service):**

Offers hardware and software tools (platform) over the internet.



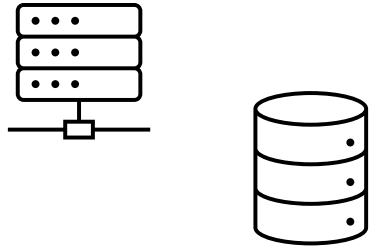
If you're an Independent Software Vendor, you may want to select a PaaS platform to build web and mobile applications (deployed as SaaS to your customers).

- You benefit from pre-built development tools, APIs, and frameworks that accelerate the development process.
- You want to focus on product development without spending resources on managing servers and infrastructure.
- You need a cost-effective solution for quickly launching apps and scaling them based on user demand.
- You require an environment that supports rapid iteration, continuous integration, and delivery (CI/CD).
- You require scalable platforms to handle increasing workloads without manual intervention.

**Note: Developing new applications using a PaaS platform is preferred in most cases over the old method of using an IaaS platform.**

# IaaS vs PaaS

## IaaS (Infrastructure as a Service)



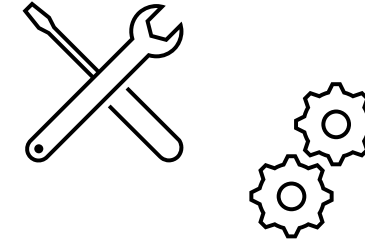
### Pros:

- **Full Control:** Complete control over the operating systems, servers, storage, and networking.
- **Customization:** Highly flexible, allowing custom configurations tailored to specific needs.
- **Wide Range of Use Cases:** Suitable for hosting websites, storage, custom enterprise apps, and more.

### Cons:

- **Complex Management:** Requires expertise to manage servers, operating systems, and security.
- **Time-Consuming:** Configuring and managing infrastructure can be time-intensive.

## PaaS (Platform as a Service)



### Pros:

- **Faster Development:** Pre-configured environments and tools allow for quick app development and deployment.
- **No Infrastructure Management:** The provider handles the underlying infrastructure, allowing developers to focus on code.
- **Automatic Scaling:** Applications can automatically scale based on demand without manual intervention.

### Cons:

- **Potential Vendor Lock-In:** High reliance on a specific platform's services can make switching providers difficult.
- **Less Flexibility:** Not ideal for custom applications requiring detailed infrastructure configurations.

# Recap

**SaaS** (Software as a Service) allows you to use fully functional software applications over the internet.

You can access tools like email, CRM systems, and productivity apps directly from your web browser, such as Google Workspace or Microsoft 365.

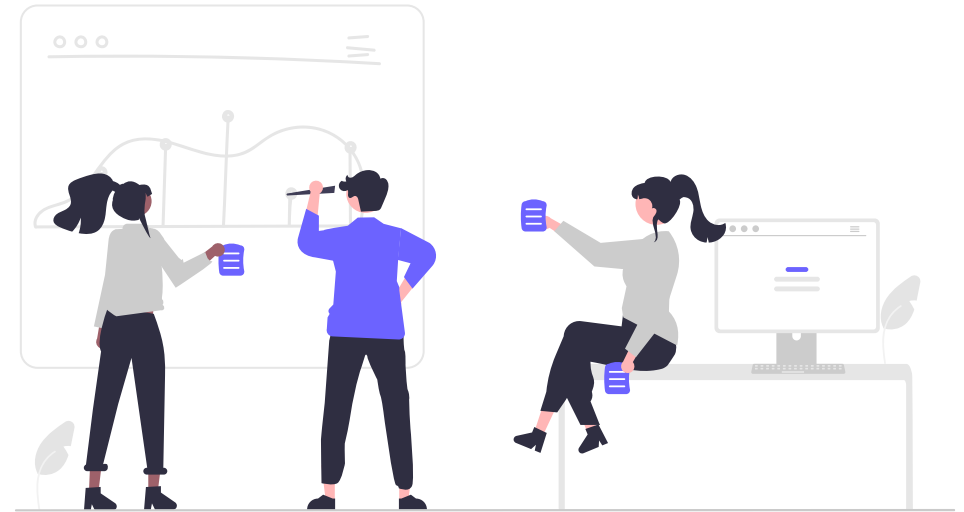
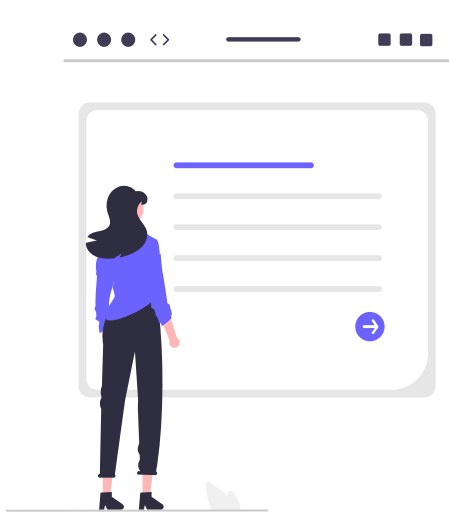
Have a unique business problem? Look around – there might be a SaaS solution for you.

If you cannot find a ready-made SaaS for your business problem, you can use cloud IaaS or PaaS models to build your own custom app. However, you'll need software developers (in your own IT department or a partner) to design, develop, and maintain the solution.

Your solution architect will select IaaS / PaaS based on your needs.

**IaaS:** if you need full control over the infrastructure, including operating systems, storage, networking, and virtual machines.

**PaaS:** if you prefer your team to focus on application development and don't want to manage the underlying infrastructure (servers, operating systems, etc.).



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Looking to see how I can add value to your organization? Message me!

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