Qnit

UiPath™

Implementation Guide

SOFTWARE QUALITY

The experts for quality assurance

for cloud native, bespoke applications and SAP.

Overview

One major part of the **UiPath Test Suite** is the **UiPath Platform**. The Web application consists of different services and helps you to administrate your licenses, projects and users. Besides that, there are three main services which supports you in quality assurance projects:

- **Orchestrator:** UiPath Orchestrator gives you the power you need to provision, deploy, trigger, monitor, measure, and track the work of attended and unattended robots. The orchestrator can receive execution tasks from a manual trigger, the CI-/CD-Pipeline or a customised scheduler.

- **Test Manager**: A test management tool for enterprise testing that's lightweight, open, flexible, and customisable. It offers seamless integrations into your ecosystem and adapts to your way of working, whether you use ServiceNow, SAP Solution Manager, Jira, and/or Azure DevOps.

- **Data Service:** The Data Service gives testers simple and easy access to centralised managed test data and variables. The stored data can be seamlessly accessed and reused in UiPath Studio. The Data Service comes with integrated security and allows you to implement a role-based access controls to get data into the hands of the people who really need it.

We can offer **two major delivery modes** for the UiPath Platform:

UiPath Automation Cloud™

- SaaS with rapid provisioning
- UiPath-managed
- Updated by UiPath twice monthly
- Uptime guarantee included for enterprise

UiPath Automation Suite

- Install on-permises, Linux VM, public cloud
- Customer-managed
- Updated by customer
- UiPath high availability added-on option

The UiPath Automation Cloud™ is completely hosted and managed by UiPath whereas the **UiPath Automation Suite** enables you to deploy the full UiPath automation platform in a Linux environment ranging from bare metal machines to on-premises Virtual Machine infrastructure, or cloud subscriptions to any of the major providers.

The following guide will give you an overview of the **hardware** and **software requirements** and an **estimation of the infrastructure costs** of the UiPath Automation Suite.

UiPath Automation Suite

Managing multiple server product deployments independently usually requires configuring integrations with enterprise systems for authenticating and managing users, as well as managing and monitoring each deployment from an availability and scale perspective.

The **UiPath Automation Suite** contains everything in one package that you can deploy in multi-node HA-ready production mode with automatic scaling and built-in HA, and monitor, configure, and upgrade as a whole. All the functionality available in **Automation Cloud** is adapted to make it easier for you to manage everything yourself with low total cost of ownership.

WHAT DOES THE AUTOMATION SUITE INCLUDE?

- **All Server Products** (except for any new products shipping in Automation Cloud first).
- **All Shared Suite Capabilities** that enable you to easily configure the integration with existing enterprise systems, such as AD, AAD, or SAML, across all products; a common experience is offered across the suite for the user, tenant, external applications, and license management.
- **Common end user portal.**
- **Kubernetes-based infrastructure, cluster management, and monitoring tools,** all preconfigured, dedicated to and optimised for UiPath. This enables running all the products at scale and with HA. This means you do not have to design, configure, and validate which Kubernetes versions and components for routing, storage, etc., work well with the UiPath services.

Deployment modes and use cases

Automation Suite supports the following **two deployment modes**:

- **Single-node:** Supported for evaluation and demo scenarios only
- **Multi-node:** Supported for production use. Configurable to have full HA capabilities

Linux and Kubernetes knowledge is required regardless of the deployment profile you choose

Hardware requirements for Multi-node deployment

Minimum 3 Linux machines (RHEL 8.3, 8.4, 8.5, 8.6)

Processor	96 (v-)CPU/cores
Min. processor per node	8 (v-)CPU/cores
RAM	192 GiB
Min. RAM per node	16 GiB
Cluster binaries & state disk per node	256 GiB SSD, Min 1100 IOPS
Data Disk [1]	512 GiB SSD, Min 1100 IOPS
Etck disk for server node	16 GiB SSD, Min 240 IOPS
UiPath bundle disk	512 GiB SSD, Min 1100 IOPS
Objectstore [2]	512 GiB SSD, Min 1100 IOPS

[1] The data disk is used as a block store
[2] This refers to the in-cluster objectstore and is not applicable if you use external objectstore.

Azure SQL or MS SQL Server (2016, 2017, 2019 – Standard & Enterprise editions)

Processor	8 (v-)CPU
RAM	32 GiB RAM
Disk	256 GiB SSD

To calculate the minimum resources required for deploying any Automation Suite products, use the **UiPath Automation Suite Install Sizing Calculator.**

Please keep in mind that the costs to host the UiPath Automation Suite in the Cloud can vary depending on the Cloud Provider, Location and lease type. Furthermore, the infrastructure costs will depend on the UiPath Services you are planning to deploy.

See below an example of the yearly costs of a complete installation in Azure:

UiPath: 22.10: Complete Automation Suite 1yr reserved in North Europe

Resource	Spec.	Upfront costs	Monthly costs
Virtual Machines: Servers	3 F16s v2 (16 vCPUs, 32 GB RAM)	~ 2.500,00 €	~ 1.000,00 €
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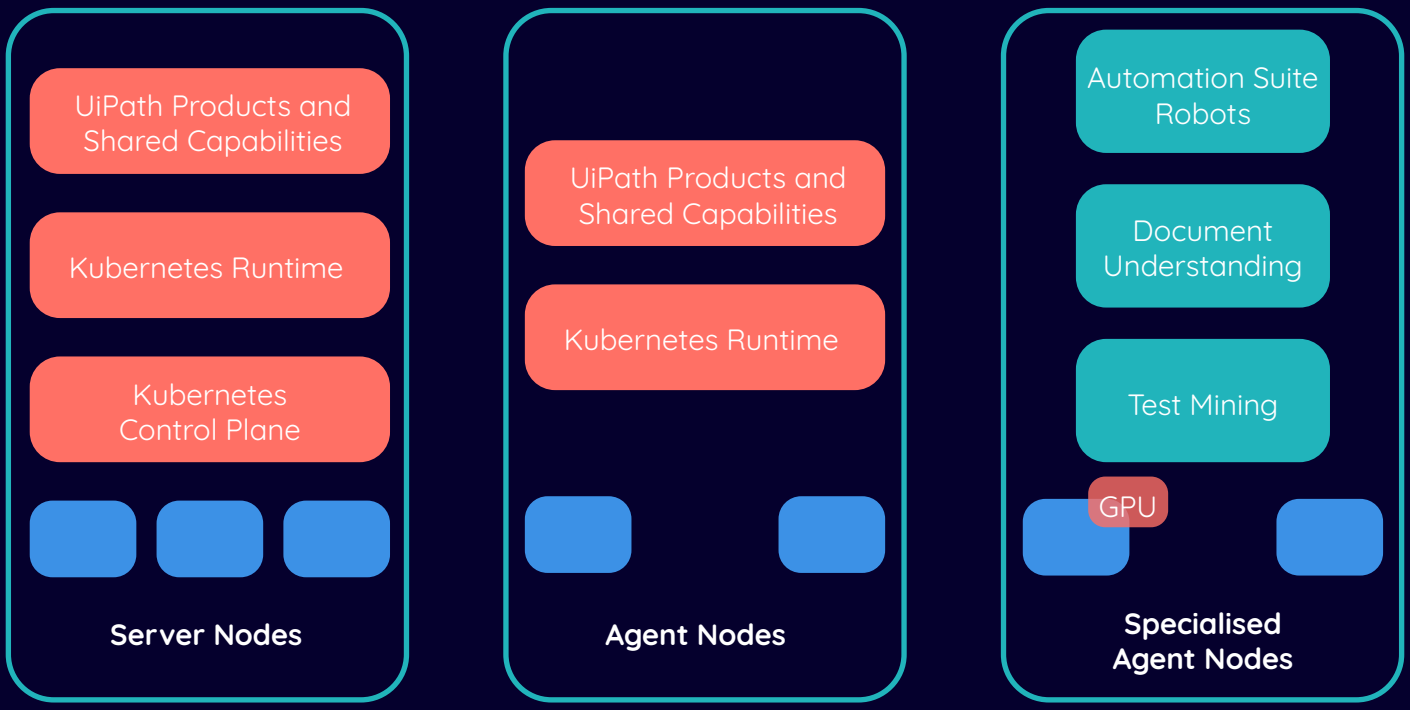
Azure SQL Database	Single Database, vCore, General Purpose	0,00 €	~ 1.100,00 €
Storage Account: Data Disks for Servers	Managed Disks, Premium SSD, LRS Redundancy, P40 Disk Type 3 Disks	0,00 €	~ 680,00 €
Storage Account: Etcd Disks for Servers	Managed Disks, Ultra Disk, 3 X 16 GiB Disks, 730 Hours, 250 IOPS, 62 MB/s Throughput	0,00 €	110,00 €
Total Costs per year			**~ 52.000,00 €**

To calculate your exact costs, please refer to the **Azure pricing calculator.**

Node types



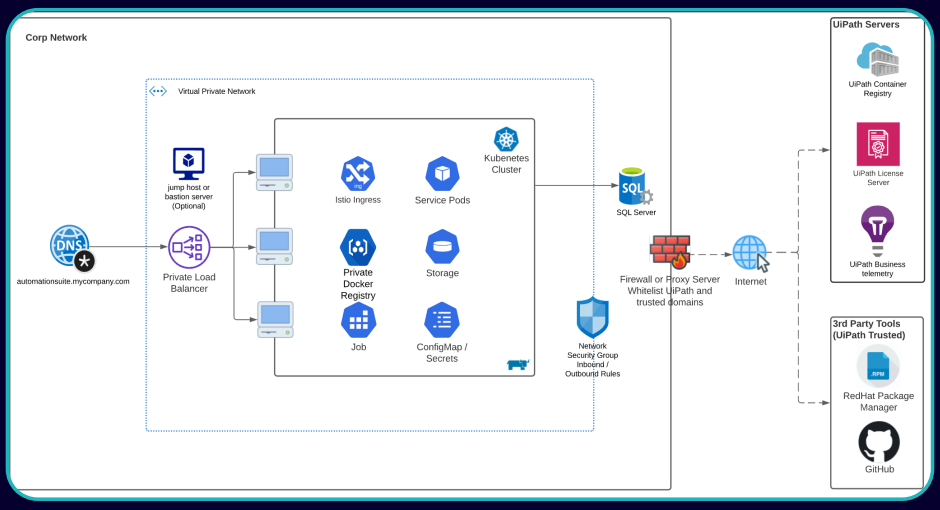
- A **server node** hosts cluster management services (control plane) that perform important cluster operations such as workload orchestration, cluster state management, load balance incoming requests, etc. Kubernetes may also run a few of the UiPath products and shared components based on underlying resource availability.
- An **agent node** is responsible for running the UiPath products and shared components only.
- A **specialised agent node** runs special workloads like Task Mining analysis, Document Understanding pipelines that require GPU capability, or Automation Suite Robots. However, the core Task Mining, Document Understanding, or Automation Suite Robots services still run on the server or agent nodes. Specialised agent nodes do not host any of the UiPath product or shared components.

In addition to the **Single-node** and **Multi-node** deployment you have the choice for an **Online** and **Offline Deployment.**

Online deployment

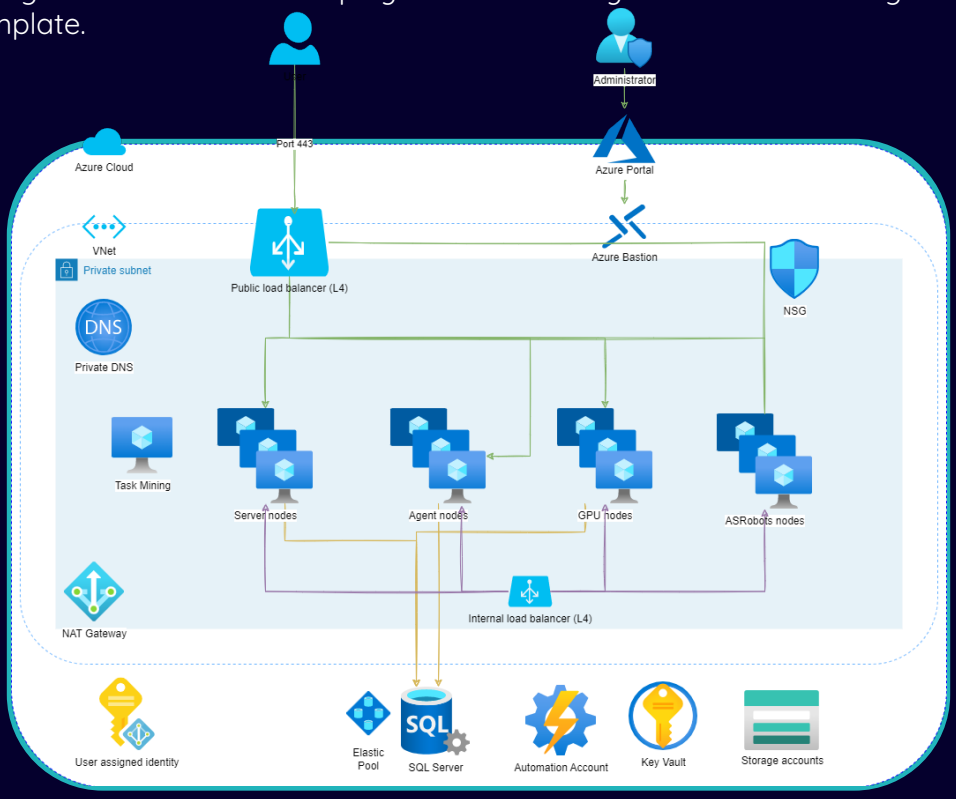
An **online deployment** means Automation Suite **requires access to the internet** during both **installation and runtime**. All the UiPath products and supporting libraries are hosted either in UiPath registry or UiPath-trusted third party store.

You can restrict access to the internet with the help of either a restricted firewall or a proxy server, by blocking all the traffic over the internet other than what is required by Automation Suite. This type of setup is also known as **semi-online deployment**.



These types of deployments are **easier, faster,** and **require fewer hardware resources** to install and manage as compared to offline deployments.

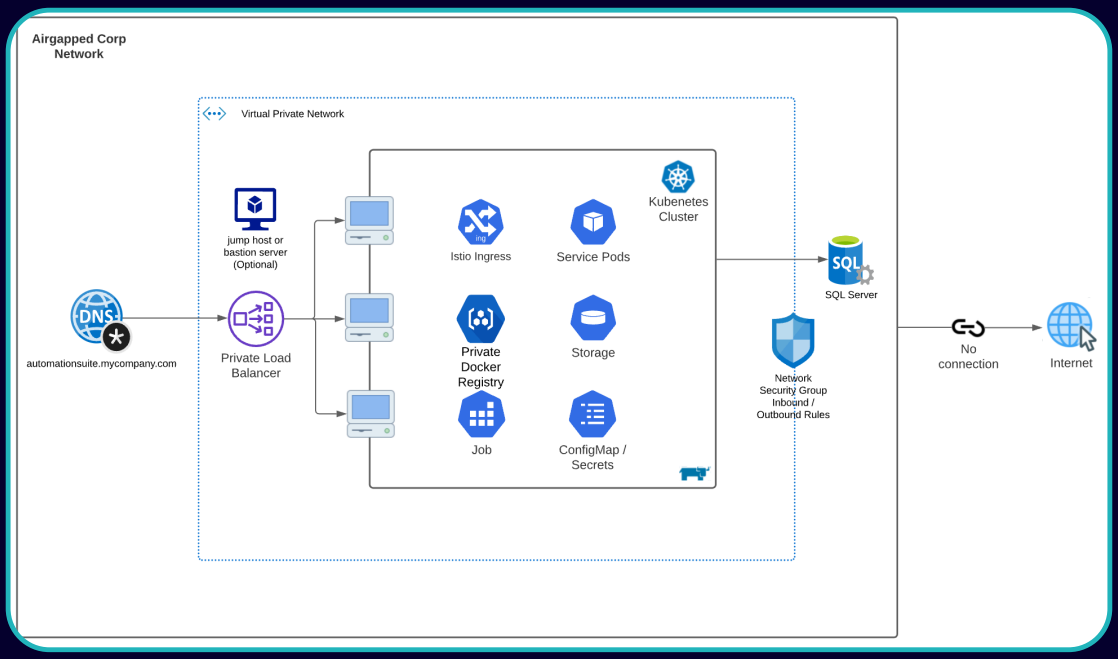
One of the recommended **Online deployments** is the **Azure deployment template**. By this deployment mode the following architecture will be deployed automatically in Azure after configuring the installation via an Azure Template.



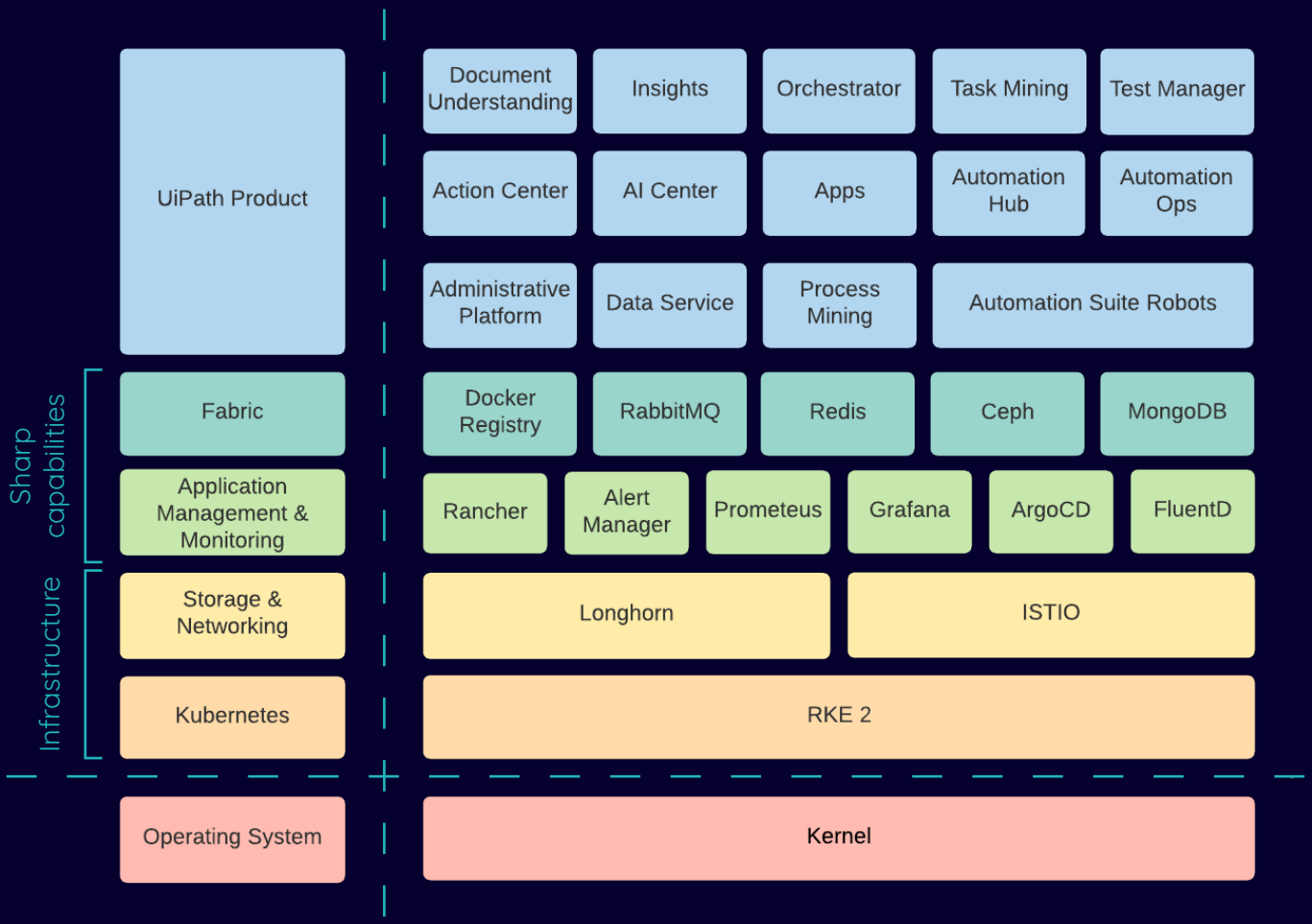
Offline deployment

An **offline deployment** (air-gapped) is a completely isolated setup **without access to the internet.**

This kind of setup requires the installation of an **additional registry** to store all the UiPath products' container images and binaries, which are shipped in the form of tarball.



Architecture



Component	Required / Optional	Description
RKE2	Required	Rancher-provided Kubernetes distribution. It is the container orchestration platform that runs all the architectural components and services.
Rancher Server	Required	Rancher's Kubernetes management tool.
Longhorn	Required	Rancher-provided distributed block storage for Kubernetes. It helps expose external storages inside Kubernetes clusters for workloads to claim and use like mounted persistent storage.
CEPH Object Store	Required	Open-source storage provider that exposes Amazon S3-compliant object/blob storage on top of persistent volumes created by Longhorn. It enables services to use blob storage like functionality for their operations.

Component	Required / Optional	Description
Argo CD	Required	Open-source declarative CD tool for Kubernetes. It follows the GitOps pattern of using Git repositories as the source of truth for defining the desired application state. It provides application lifecycle management (ALM) capabilities for Automation Suite components and UiPath services that run in a Kubernetes cluster.
Docker registry	Required	Open-source docker registry used for pushing and pulling install time and runtime container images in your premises.
Istio	Required	Open-source service mesh that provides functionality such as ingress, request routing, traffic monitoring etc., for the microservices running inside the Kubernetes cluster.
Prometheus	Required	Open-source system monitoring toolkit for Kubernetes. It can scrape or accept metrics from Kubernetes components as well as workloads running in the clusters and store those in time series database.
Grafana	Required	Open-source visualisation tool used for querying and visualising data stored in Prometheus. You can create and ship a variety of dashboards for cluster and service monitoring.
Alertmanager	Required	Open-source tool that helps handling alerts sent by client applications such as the Prometheus server. It is responsible for deduplicating, grouping, and routing them to the correct receiver integrations, such as email, PagerDuty, or OpsGenie.
Redis	Required	Redis Enterprise non-HA (single shard) used by some UiPath services to get centralised cache functionality.
RabbitMQ	Required	Open-source reliable message broker used by some UiPath services to implement asynchronous execution patterns.
MongoDB	Optional	MongoDB is a source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas. MongoDB is deployed only when UiPath Apps is enabled
FluentD and Fluentbit	Required	Open-source reliable log scraping solution. The logging operator deploys and configures a background process on every node to collect container and application logs from the node file system.
Gatekeeper	Required	Open-source tool that allows a Kubernetes administrator to implement policies for ensuring compliance and best practices in their cluster.

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ABOUT US

We are specialised in the development of quality assurance solutions throughout the whole software development life cycle. We bring quality to the products and services of well-known customers in diverse industries in Europe by implementing tailored Quality Assurance solutions.

We add value by maximising the speed of digitalization, while optimising costs and risk coverage. Our partnerships with the market leading test tool providers allow us to provide unique solutions and transform testing to a catalyst for innovation.

Our culture is based on team spirit, appreciation, and respect. We want to develop ourselves continuously, so we attach importance to the expertise of our employees and invests above average in professional development and employee retention.

OUR LOCATIONS

OUR VALUES

Impact

Team spirit

Appreciation

Knowledge

Respect

WHY QNIT

Agile & Flexible

Customer-Focused

Innovative

Specialised Expertise

In-depth Technical Knowledge

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