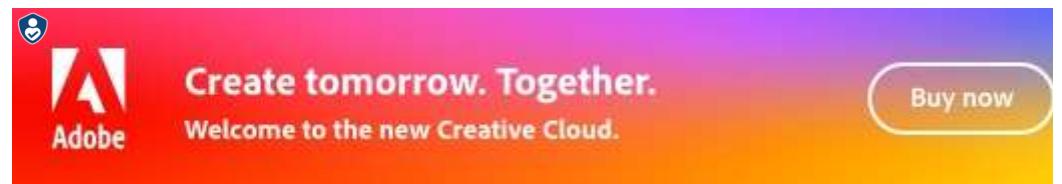




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Top 8 Middleware Software Platforms in 2021



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Middleware is defined as a software solution that sits between the application layer and operating system (OS) layer of your infrastructure stack to enable a channel of communication and data flow between these two components. This article explains the concept of middleware in detail, along with recommendations for the best software platforms in this segment and their key features.

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Middleware Software

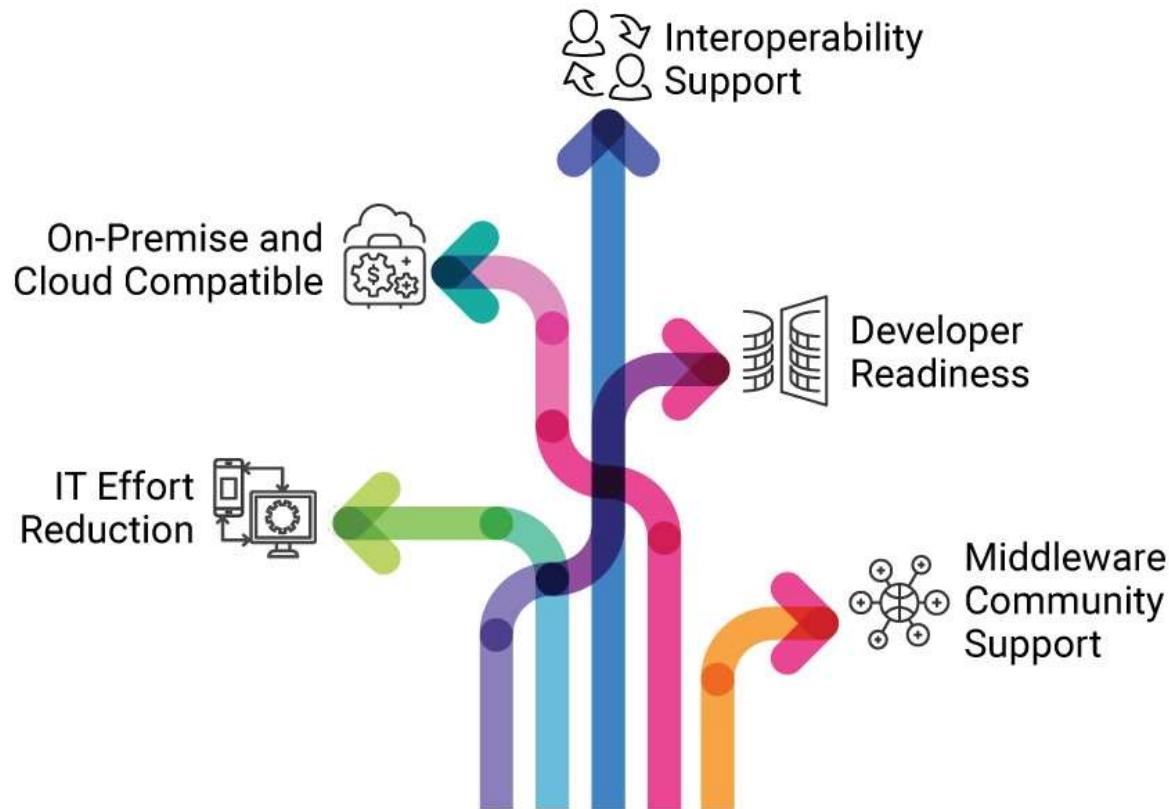
Middleware is a software solution that sits between the application layer and operating system (OS) layer of your infrastructure stack to enable a channel of communication and data flow between these two components.

Middleware is an essential part of any computing environment. In a consumer-facing environment, middleware comes built into the operating system so that users can easily install and run compatible applications on their devices. However, enterprises are slightly more complex – there are diverse operating systems and different hosting environments to factor in, including the cloud, on-premise servers, and virtual machines. Enterprises also have dynamic application needs and must be able to build, deploy, and adapt their applications to achieve optimal performance. A robust and flexible middleware is what makes this possible.

As digital transformation accelerates, demand for middleware software is growing in tandem. Between 2020 and 2027, the global application infrastructure middleware market is expected to grow so rapidly that it will cross \$3.58 billion by the end of the forecast period, according to Industry Research.

If you're looking to deploy or modernize your middleware systems in 2021, here are the five key features to look for:





Key Must-Have Features of Middleware Software

1. Interoperability support

The middleware software must connect with the widest possible variety of applications and enable a degree of interoperability between them. It should enable data flow between disparate systems so that you can gain from automation and analytics. Ideally, the middleware should include pre-built integrations and ready-to-use application programming interfaces (APIs) that make it easier to build a connected enterprise.



This is a must-have feature for modern middleware offerings, which are deployed in cloud-based or hybrid environments. Traditionally, middleware was meant for on-premise devices and servers so that you would be able to open your enterprise landscape to a variety of applications, including third-party ones. However, on-premise only environments are becoming rarer as investments in the cloud increase. According to IDG's 2020 cloud computing survey, 59% of organizations said that they plan to be mostly or entirely in the cloud over the next few months. Your middleware must be able to support cloud-based applications and processes.

3. Developer readiness

Technical users should be able to leverage the middleware software to build out your application landscape. Middleware solutions may include [software development kits \(SDKs\)](https://www.toolbox.com/tags/software-development-kit/) (<https://www.toolbox.com/tags/software-development-kit/>) in addition to APIs for custom configurations and development. It should also support frameworks for enterprise app delivery like Jakarta so that developers can create applications in the language of their choice. You could even look for open architectures that make it easier to tweak the middleware as per your precise requirement.

4. IT effort reduction



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entire connected environment. For example, it can provide you with unified visibility into applications and processes through a centralized dashboard. Some software solutions may include security features, while others may include workflow automation to reduce IT efforts. This will play an important role in helping you choose the best middleware software for your organization.

5. Middleware community support

Finally, companies need an active community to support and make the most of their middleware implementation. Middleware software is almost like the digital backbone of your enterprise, connecting the central nervous system or OS to the operating limbs or your applications. A community of experts, users, and developers can help you optimize middleware capabilities and drive innovation. You may also be able to utilize open-source tools that help maximize the potential of the middleware technology.

With these features in mind, let us now look at the leading middleware software solutions available in the market today.

See More: [Top 7 Integration Platform as a Service \(iPaaS\)](#)

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Platforms in 2021

Middleware is a crucial cog in your [IT infrastructure](https://www.toolbox.com/tech/it-infrastructure/articles/what-is-it-infrastructure/) (<https://www.toolbox.com/tech/it-infrastructure/articles/what-is-it-infrastructure/>) as it enables interoperability, application development, and, eventually, digital transformation. Here are the top ten software platforms you need to consider in this segment, arranged alphabetically.

Disclaimer: This list is based on publicly available information and includes vendor websites that sell to mid-to-large enterprises. Readers are advised to conduct their final research to ensure the best fit for their unique organizational needs.

1. Flow Middleware Platform

Overview: Flow is a New Zealand-based software company that provides middleware software for application integration, electronic data interchange (EDI), and application programming interface (API) management. Enterprises can use Flow Middleware to set up connected processes with data interoperability.

Key features: The key features of the Flow Middleware Platform include:

- **Interoperability support:** Flow enables interoperability between all your enterprise systems, including legacy tools,





- **On-premise and cloud compatibility:** Flow is compatible with cloud-based systems and legacy environments, which allows you to synchronize and automate processes.
- **Developer readiness:** Flow is primarily meant for business users and offers robust technical capabilities like customizable process automation and API layer.
- **IT effort reduction:** It reduces IT efforts by consolidating web, data, and integration management from a single platform, with real-time data flows.
- **Middleware community support:** The company has a modest size middleware community and mostly provides support through its professional services.

USP: The USP of Flow Middleware is that it is easy to set up and use. Further, it can support the needs of every industry, and the company will help you tailor the middleware for your existing device and data environment.

Editorial comments: Flow is an ideal middleware software solution for mid-sized organizations. You can achieve an integrated IT landscape with optimized efforts and timelines.

2. IBM WebSphere Application Server



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drive integration and interoperability like IBM API Connect, IBM MQ (a messaging middleware), and WebSphere Application Server, which is its flagship suite of middleware solutions.

Key features: The key features of IBM WebSphere Application Server include:

- **Interoperability support:** It connects workloads in multi-cloud environments to provide you with unified visibility and application awareness.
- **On-premise and cloud compatibility:** There are multiple WebSphere editions designed for containers, cloud runtime environments, hybrid environments, and environment-agnostic deployment.
- **Developer readiness:** Your technical team can closely work with IBM and leverage the full IBM Cloud Pak solution to build new applications and modernize old ones.
- **IT effort reduction:** It includes an administrative console to analyze app performance, generate reports, and monitor logs in real-time.
- **Middleware community support:** IBM has a vast community of middleware professionals, users, and thought leaders, including clients like Amway and Canon.





full range of application development and management products.

Editorial comments: Global enterprises and large-scale organizations (including governments) can rely on IBM WebSphere and the entire range of IBM cloud solutions for application infrastructure management.

3. JBoss EAP

Overview: JBoss enterprise application platform (EAP) is a middleware software solution by Red Hat. The company supports various computing environments and partners with Microsoft Azure to deploy JBoss EAP as a cloud-based managed service.

Key features: The key features of JBoss EAP include:

- **Interoperability support:** It has a modular architecture and service-driven components that make connecting applications from various environments easier, including microservices and traditional apps.
- **On-premise and cloud compatibility:** JBoss EAP is compatible with nearly every type of computing environment, including on-premise systems, virtual machines, and private, hybrid, and [public clouds](https://www.toolbox.com/tech/cloud/articles/public-cloud-service-providers/) (<https://www.toolbox.com/tech/cloud/articles/public-cloud-service-providers/>).
- **Developer readiness:** It is designed keeping in mind the needs of developers, with support for Jakarta (Java for Enterprise) and



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- ~~JBoss EAP~~ **JBoss EAP** simplifies how you manage and update application deployments. It offers a centralized management console, a command-line interface, and integration with configuration management tools.
- **Middleware community support:** Red Hat has a massive global community, both for its commercial and open-source solutions.

USP: JBoss is keenly developer-focused. Its lightweight and flexible architecture drives productivity for developers while also empowering IT professionals.

Editorial comments: Large digital enterprises can rely on JBoss EAP to orchestrate their application landscape's spread across diverse environments.

4. Oracle Fusion Middleware

Overview: Oracle is an independent software vendor (ISV) that provides a wide range of solutions for infrastructure management, data hosting, and enterprise resource planning (ERP). Fusion is the company's middleware solution for enterprises, and it supports the deployment of diverse application environments.

Key features: The key features of Oracle Fusion Middleware include:

- **Interoperability support:** You can enable data flow across various formats and source and destination applications. Oracle Fusion Middleware also supports big data.





[\(https://www.toolbox.com/tech/iot/articles/what-is-iot-device-management/\)](https://www.toolbox.com/tech/iot/articles/what-is-iot-device-management/), and mobile environments, in addition to on-premise.

- **Developer readiness:** Developers can build a host of applications on Oracle Fusion, based on the latest Java technologies, web app frameworks, and recommendations by the cloud-native computing foundation (CNCF).
- **IT effort reduction:** It reduces IT efforts by enforcing security policies and providing role-based dashboards.
- **Middleware community support:** Oracle has a large community of users and developers, including dedicated user groups for middleware.

USP: Oracle Fusion Middleware is future-proof and can support a variety of use cases – from mobile applications to IoT and cloud platform as a service.

Editorial comments: Oracle provides middleware software that is geared for the cloud era.

See More: [A Roadmap for Migrating Legacy Tape Storage to the Cloud](https://www.toolbox.com/tech/storage/articles/a-roadmap-for-migrating-legacy-tape-storage-to-the-cloud/) (<https://www.toolbox.com/tech/storage/articles/a-roadmap-for-migrating-legacy-tape-storage-to-the-cloud/>)

5. Microsoft BizTalk Server





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company announced BizTalk Server 2020 last year, which is intended as a next-gen inter-organizational middleware system that can automate your business processes.

Key features: The key features of Microsoft BizTalk Server include:

- **Interoperability support:** It can integrate an incredible variety of legacy and modern technologies, including in-house and third-party applications.
- **On-premise and cloud compatibility:** While BizTalk was originally intended for on-premise environments, BizTalk Server 2020 is compatible with cloud and hybrid environments as well.
- **Developer readiness:** BizTalk has in-built adapters and accelerators to help deploy applications. Developers can also gain from extensive learning materials.
- **IT effort reduction:** It has a business rules engine, enterprise single sign-on (SSO), and an activity tracking module to streamline IT administration.
- **Middleware community support:** Microsoft has a large community of middleware experts, not to mention a host of tutorials, events and documentation.





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Global 100) use BizTalk, which means you can gain from a rich community.

Editorial comments: Microsoft BizTalk Server is among the foremost middleware software solutions today, particularly after the 2020 update that makes it hybrid compatible.

6. Temenos Fabric

Overview: Temenos acquired Kony (a middleware solutions provider of the banking sector) in 2019 for \$559 million. This resulted in the relaunch of Kony fabric as Temenos Fabric, an omnichannel middleware solution for banks and non-banking organizations.

Key features: The key features of Temenos Fabric include:

- **Interoperability support:** Temenos Fabric helps integrate multiple channels, diverse application types, and software services.
- **On-premise and cloud compatibility:** It is compatible with all hosting environments, business applications, with out-of-the-box connectors for popular apps like SAP, Salesforce, etc.
- **Developer readiness:** It is built on open standards, so developers can use their existing tools and skillsets to create application stacks on Temenos.
- **IT effort reduction:** It includes a suite of admin tools spanning mobile apps, content systems, and device management so you



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- Middleware community support. Temenos Fabric partners

with HCL Technologies to support non-banking customers. It also derives from Kony's extensive presence and a global community of 6000+ Temenos partners.

USP: Temenos Fabric is incredibly flexible, thanks to its cloud-agnostic nature, 700+ open APIs, and microservices architecture.

Editorial comments: Banks and financial service providers looking for a secure middleware platform should definitely consider Temenos as a preferred partner.

7. TIBCO Connected Intelligence

Overview: TIBCO Software is one of the world's largest middleware providers, with products across integration, data unification, and analytics segments. It also has a research initiative called TIBCO Labs to explore how cutting-edge technologies like artificial intelligence, augmented reality, blockchain, and IoT can be integrated into the enterprise landscape.

Key features: The key features of TIBCO Connected Intelligence include:

- **Interoperability support:** TIBCO offers a range of solutions for application, service and data interoperability, including integrations and API management.





container environments like Docker, Kubernetes, etc.

- **Developer readiness:** While TIBCO Connected Intelligence is primarily meant for business users and analysts, technical stakeholders can use the platform to connect with existing applications and build a data-centric enterprise.
- **IT effort reduction:** IT administrators can gain from a unified landscape, consolidated master data management, and meaningful analytics.
- **Middleware community support:** TIBCO is a long-standing market leader, with an expansive partner ecosystem as well as a formalized customer advocacy program.

USP: The USP of TIBCO Connected Intelligence equips you with the data insights to bring about business transformation collected from across the enterprise.

Editorial comments: Companies that want a middleware software that's cloud-first and data-centric should definitely consider TIBCO as a compelling option.

8. WSO2 Carbon





source middleware geared primarily towards developers and digital service providers. It has over 175 components that you can leverage to build an integrated enterprise landscape.

Key features: The key features of WSO2 Carbon include:

- **Interoperability support:** WSO2 Carbon supports a variety of industry standards, integration patterns, and service architectures so that you can connect nearly every application type.
- **On-premise and cloud compatibility:** The middleware can be deployed in a standalone cloud server or in a WSO2 Stratos cloud implementation. You can also build multi-tenant-aware applications using the Carbon API.
- **Developer readiness:** It is entirely developer-focused with reusable components, open architecture, and API libraries.
- **IT effort reduction:** WSO2 Carbon reduces IT effort by providing you with a governance registry, role-based authorization, and an optional GUI framework.
- **Middleware community support:** Thanks to its open-source nature, WSO2 Carbon enjoys a large community of users, as well as enterprise clients and global partners.





Editorial comments: WSO2's open-source architecture combined with the company's battle-tested middleware expertise makes it a good fit for large, globally distributed organizations.

Here are the key highlights of the eight middleware software we discussed:

Here are the key highlights of the eight middleware software we discussed:

	Interoperability	On-premise and cloud	Developer readiness
Flow	Yes	Cloud-first with legacy support	Meant for business users, with technical features
Middleware			
Platform			
IBM	Yes	Varied compatibility through dedicated	Meant for developers and enterprise
WebSphere			
Application			
Server			





(https://www.toolbox.com/tech/edge-computing/articles/how-multi-access-edge-computing-is-poised-to-transform-mission-critical-applications/)

Conclusion: Middleware, IPaaS, or Both?

As enterprises lean more towards cloud-first enterprises,

integration platform as a service (IPaaS)

(<https://www.toolbox.com/cloud/articles/what-is-ipaas/>) is slowly gaining ground. It is a cloud-based model for integration and interoperability, with its components, processes, and configurations residing in a remote server environment. In fact, several middleware companies like TIBCO and IBM also provide IPaaS offerings or products that combine the functionalities of the two. That is because, despite the advantages of IPaaS (convenience, cost efficiency, and flexibility), middleware provides more advanced functions. It can help to build a tightly controlled and centralized data environment and acts as a supporting backbone even for IPaaS implementations.





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that the middleware they deploy is cloud-ready.

What are your thoughts on the need for middleware software now that enterprises are focused on cloud adoption? Tell us on LinkedIn (https://www.linkedin.com/company/toolboxdotcom/), Twitter (https://twitter.com/ToolboxforIT), or Facebook (https://www.facebook.com/Toolboxdotcom/). We would love to hear from you!

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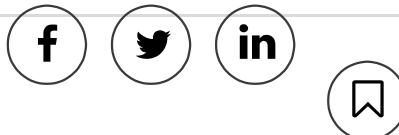
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