

The Forrester Wave™: API Management Solutions, Q3 2020

The 15 Providers That Matter Most And How They Stack Up

by Randy Heffner
August 4, 2020

Why Read This Report

In our 26-criterion evaluation of API management solutions providers, we identified the 15 most significant ones — Axway, Broadcom, Google, IBM, Kong, Microsoft, MuleSoft, Perforce Software, Red Hat, Sensedia, Software AG, TIBCO Software, Torry Harris Integration Solutions, Tyk Technologies, and WSO2 — and researched, analyzed, and scored them. This report shows how each provider measures up and helps application development and delivery (AD&D) professionals select the right one for their needs.

Key Takeaways

Software AG, Google, IBM, WSO2, And Axway Lead The Pack

Forrester's research uncovered a market in which Software AG, Google, IBM, WSO2, and Axway are Leaders; Sensedia, MuleSoft, TIBCO Software, Torry Harris Integration Solutions, Perforce Software, Broadcom, and Red Hat are Strong Performers; Tyk Technologies and Microsoft are Contenders; and Kong is a Challenger.

Portals, API User Engagement, API Publishing, And Ecosystems Are Key Differentiators

As API strategies mature, enterprises better understand API business opportunities, and cloud-native application architectures take hold, REST APIs becomes less central and the ability to support a broad base of technology and business innovation will dictate which providers lead the pack. Vendors that provide the right portal strategy, rich and flexible API user engagement, API publishing that goes beyond REST APIs and embraces microservices, and strong ways to build API-based business ecosystems position themselves to successfully deliver a strong foundation for continuous digital transformation to their customers.

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by [Randy Heffner](#)

with [Christopher Mines](#), Abigail Livingston, and Kara Hartig

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Related Research Documents

- [A Developer's Guide To Forrester's Strategies For API Success](#)
- [The Forrester Wave™: Global API Strategy And Delivery Service Providers, Q2 2019](#)
- [The Forrester Wave™: Specialist API Strategy And Delivery Service Providers, Q2 2019](#)



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API Management Is Critical Because APIs Drive Digital Business

Good API strategy and design are a key foundation for digital transformation.¹ By opening access to digital business capabilities, APIs drive agility to optimize customer experiences, create dynamic digital ecosystems, achieve operational excellence, and build platform business models.² With cloud-native architectures gaining momentum, API management vendors have been investing in features for combined microservices-plus-APIs implementations. Still, the central role of an API management solution is to manage relationships between API providers and API users, whether inside or across enterprise boundaries.³ APIs have widely varying use cases, governance styles, business models, and delivery processes, resulting in a wide array of breadth and depth in API management solution feature-function.

As a result of these trends, API management customers should look for providers that:

- › **Align with their API strategy.** Any vendor in our Forrester Wave™ analysis may be the right choice for a given buyer. The more breadth and depth buyers have across their API strategy — e.g., multiple external API user segments, direct revenue models for APIs, many API publishing teams, multiple lines of business, API-related compliance demands, deep microservices investments, and more — the more likely that the richer feature-function from a Forrester Wave Leader will, out-of-the-box (OOTB), provide greater requirements coverage. On the other hand, buyers with simpler API strategies — or, paradoxically, greatly complex API strategies that require high levels of customization — may find even the lowest-rated vendor more fit-for-purpose.
- › **Support their governance and API user engagement needs.** The most important single strategy factor in selecting an API management solution is to understand how one will engage with API users, internal or especially external. The approaches range from minimal API portal functionality and OOTB documentation to bespoke portals with highly engaging documentation and numerous custom support features. Similarly, one's approach to governance might range from hands-off "let devs publish what they want" to structured lifecycles with defined stages and approval policies for moving between them. Knowing one's place on these spectra sets up key priorities for one's evaluation process.
- › **Support cohesive API design processes.** API design is the fulcrum of API strategy: Good API designs provide a strong point of leverage for achieving API goals; bad API designs, a weak one. Buyers should be sure their solution, combined with other tooling, will have cohesive API design-centric flows end-to-end: from candidate API identification through design, implementation, API

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product packaging, and updated API versions. Valuable feature-function includes managing schemas separately for inclusion in multiple APIs, strong separation between API implementation and publishing (e.g., usage policy and subscriptions), and mechanisms to structure large numbers of API into groups or portfolios.

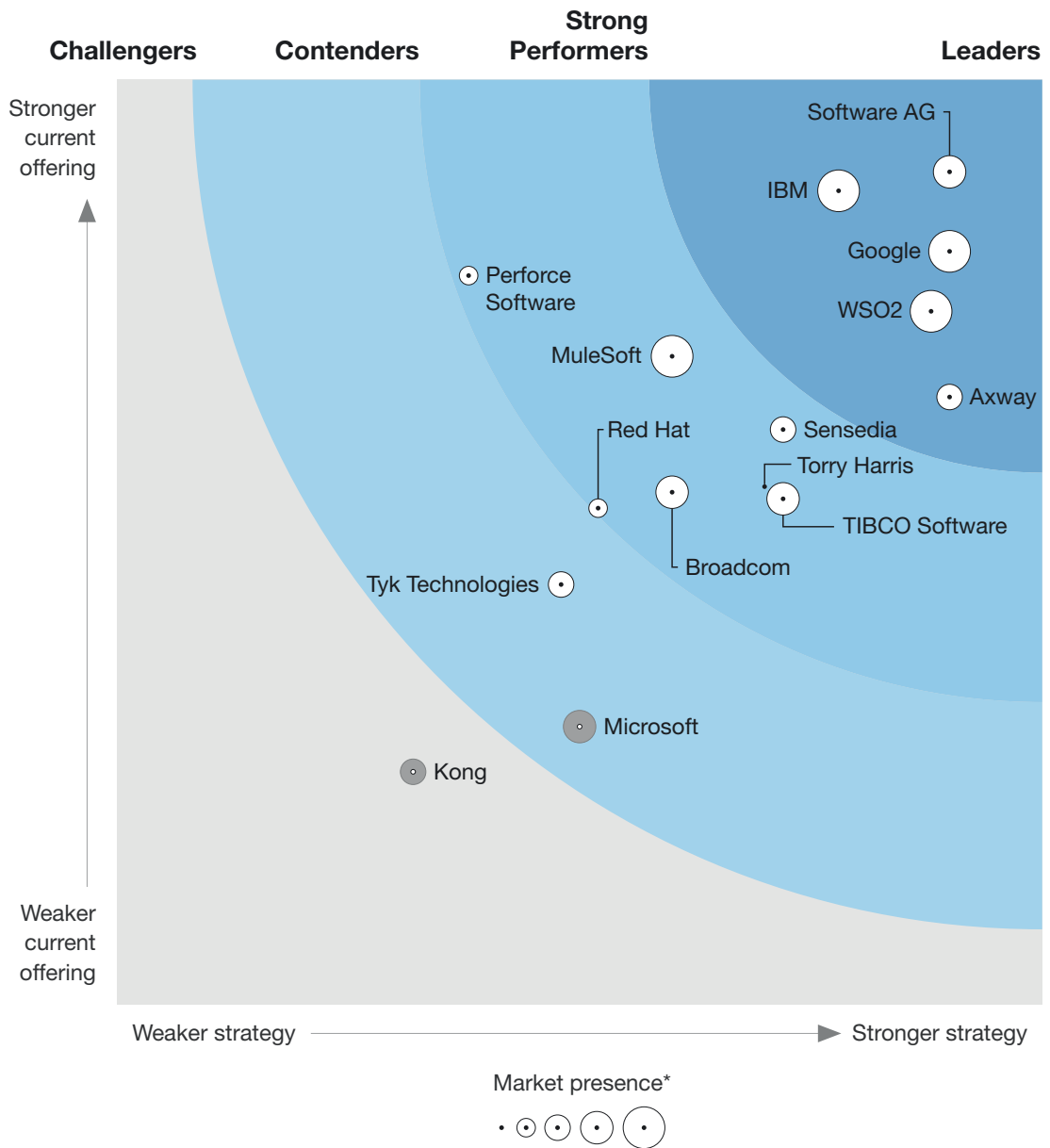
Evaluation Summary

The Forrester Wave evaluation highlights Leaders, Strong Performers, Contenders, and Challengers. It's an assessment of the top vendors in the market and does not represent the entire vendor landscape. You'll find more information about this market in our [“Now Tech: API Management Solutions, Q3 2020,”](#) report, and you'll find comprehensive API strategy guidance in our [“A Developer's Guide To Forrester's Strategies For API Success”](#) report.

We intend this evaluation to be a starting point only and encourage clients to view product evaluations and adapt criteria weightings using the Excel-based vendor comparison tool (see Figure 1 and see Figure 2). Click the link at the beginning of this report on Forrester.com to download the tool.

FIGURE 1 Forrester Wave™: API Management Solutions, Q3 2020

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*A gray bubble indicates a nonparticipating vendor.

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FIGURE 2 Forrester Wave™: API Management Solutions Scorecard, Q3 2020

	Forrester's weighting	Axway	Broadcom	Google	IBM	Kong*	Microsoft*	MuleSoft	Perforce Software
Current offering	50%	3.28	2.77	4.07	4.40	1.26	1.50	3.50	3.94
Portal for API users	16%	3.00	3.00	3.80	4.20	1.00	2.20	3.00	4.20
API user engagement	21%	3.00	1.00	5.00	5.00	1.00	1.00	4.20	3.80
API design and publishing	18%	4.22	3.00	3.70	3.68	1.62	1.26	3.86	3.40
Delivery management	12%	2.00	1.70	3.30	4.70	1.85	2.55	3.25	5.00
API policy and security	15%	4.10	4.56	4.56	4.34	1.90	1.00	3.00	4.34
Ecosystems and commercial models	10%	3.20	3.00	3.80	4.00	0.10	1.30	3.20	3.20
Product architecture	8%	3.00	4.40	3.60	5.00	1.00	1.60	3.60	3.60
Strategy	50%	4.50	3.00	4.50	3.90	1.60	2.50	3.00	1.90
Product vision	20%	5.00	3.00	5.00	5.00	1.00	3.00	3.00	3.00
Planned enhancements	55%	5.00	3.00	5.00	3.00	1.00	3.00	3.00	1.00
Supporting services	10%	3.00	3.00	3.00	5.00	1.00	1.00	3.00	3.00
Commercial model	15%	3.00	3.00	3.00	5.00	5.00	1.00	3.00	3.00
Market presence	0%	3.00	4.00	5.00	4.40	2.60	3.80	5.00	1.80
Number of customers	60%	3.00	4.00	5.00	4.00	3.00	3.00	5.00	1.00
Geographic presence	40%	3.00	4.00	5.00	5.00	2.00	5.00	5.00	3.00

All scores are based on a scale of 0 (weak) to 5 (strong).

*Indicates a nonparticipating vendor

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FIGURE 2 Forrester Wave™: API Management Solutions Scorecard, Q3 2020 (Cont.)

	Forrester's weighting	Red Hat	Sensedia	Software AG	TIBCO Software	Torry Harris	Tyk Technologies	WSO2
Current offering	50%	2.68	3.11	4.50	2.73	2.80	2.27	3.75
Portal for API users	16%	5.00	3.00	5.00	3.00	3.00	3.00	4.20
API user engagement	21%	3.00	4.20	5.00	3.00	3.00	1.80	3.00
API design and publishing	18%	1.36	2.56	4.56	2.64	3.00	1.60	3.80
Delivery management	12%	1.55	3.30	3.30	3.00	2.00	1.85	4.00
API policy and security	15%	2.34	3.00	4.10	1.66	3.00	2.34	3.00
Ecosystems and commercial models	10%	2.80	2.00	4.20	3.00	2.20	2.00	4.80
Product architecture	8%	2.40	3.00	5.00	3.00	3.00	4.40	4.40
Strategy	50%	2.60	3.60	4.50	3.60	3.50	2.40	4.40
Product vision	20%	1.00	5.00	5.00	3.00	3.00	1.00	3.00
Planned enhancements	55%	3.00	3.00	5.00	5.00	3.00	3.00	5.00
Supporting services	10%	3.00	5.00	3.00	1.00	5.00	1.00	3.00
Commercial model	15%	3.00	3.00	3.00	1.00	5.00	3.00	5.00
Market presence	0%	2.00	2.40	3.40	3.40	1.00	2.80	4.40
Number of customers	60%	2.00	2.00	3.00	3.00	1.00	2.00	4.00
Geographic presence	40%	2.00	3.00	4.00	4.00	1.00	4.00	5.00

All scores are based on a scale of 0 (weak) to 5 (strong).

*Indicates a nonparticipating vendor

Vendor Offerings

Forrester included 15 vendors in this assessment: Axway, Broadcom, Google, IBM, Kong, Microsoft, MuleSoft, Perforce Software, Red Hat, Sensedia, Software AG, TIBCO Software, Torry Harris Integration Solutions, Tyk Technologies, and WSO2 (see Figure 3). We invited Boomi to participate in this Forrester Wave, but it chose not to participate, and we could not make enough estimates about its capabilities to include the vendor in the assessment as nonparticipating.

FIGURE 3 Evaluated Vendors And Product Information

Vendor	Product evaluated
Axway	AMPLIFY API Management
Broadcom	Layer7 API Management
Google	Apigee
IBM	API Connect
Kong	Kong Enterprise
Microsoft	Azure API Management
MuleSoft	Anypoint Platform
Perforce Software	Akana by Perforce API Platform
Red Hat	Red Hat Integration
Sensedia	Sensedia API Platform
Software AG	webMethods API Management webMethods.io API (cloud version)
TIBCO Software	TIBCO Cloud Mashery
Torry Harris	DigitMarket API Manager
Tyk Technologies	Tyk API Management
WSO2	WSO2 API Management Platform

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Vendor Profiles

Our analysis uncovered the following strengths and weaknesses of individual vendors.

Leaders

- › **Software AG's modular solution has broad strengths to serve diverse API strategies.** With the elements of its solution architected as independent-but-integrated products, Software AG's customers can adopt its solution via different paths. For example, its portal supports gateways from other vendors, and its Engage module adds on very useful capabilities for API hackathons and beta programs. As a buyer's API program maturity grows, it can add formal lifecycle management with CentraSite, which provides a strong foundation for disciplined API programs. The firm's vision and future investments encompass key business and technical aspects of API value and technology features, including extended ecosystems, API product management, multicloud environments, and edge computing.

In our evaluation, Software AG's solution did well across a strong majority of our criteria, particularly in its portal, API user engagement, and product architecture aspects. A few areas came in on par with others. For customers with integrated API and microservice environments, the vendor's AppMesh and microservice runtime extend customers' container and service mesh environments for greater combined management, monitoring, and governance. Other strengths in API design, policy management, federated API publishing, and analytics make for a well-rounded solution. Future investments will continue to build on these strengths, especially microservices and advanced policy management. Overall, the solution is flexible enough to support a wide range of API strategies, especially for customers that are ready for the strong governance and discipline necessary to ensure strategic success of one's API program.

- › **Google's cloud platform and ecosystem savvy extend its API management strengths.** As a long-standing player in the market, Google has rich resources for educating customers and prospects on API business potential, including using them to create new ecosystem models. This shows in the product's rich set of API product and pricing definition features. Since acquiring Apigee, Google has deepened integration with other Google products and strongly bolstered Apigee's supporting service offerings. Of particular note is recent work with Google ReCAPTCHA that allows Apigee to perform special risk analysis on API calls. Other integrations include deeper use of Google's machine learning, integration with Istio-based service mesh technology, and greater alignment between the Google Cloud Endpoints gateway and Apigee's API management. Whether deployment is customer-managed, software-as-a-service (SaaS), or hybrid, the commercial model is based on API calls.

Within each group of our evaluation criteria, Google showed areas of superior capability, including both criteria in our API user engagement group, and some that were on par with others. It is important to note that Google has two major portal options, but only the simpler-to-configure, less functional one is available as a Google-managed SaaS offering. We evaluated the more capable

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portal, based on Drupal. Google develops and supports it using an open source model, with deployment either customer-managed or managed by one of Google's services partners. Google's reference customers expressed high satisfaction with vendor and product. Key areas of future investment include non-REST APIs, API design and policy governance, microservices, intelligent attack protection, and federated ecosystems.

› IBM's rapid API management investments complement its overall platform strengths.

IBM continues its rapid pace of investment in its API management solution, refining its gateway architecture, API design, and multicloud capabilities. Recognizing the importance of non-REST APIs, IBM's support for publishing GraphQL APIs is among the best. With features including integration, API testing, API monitoring, and a broad cloud platform, IBM has the broadest set of offerings to accompany its API management. In particular, IBM bundles API management and integration in its IBM Cloud Pak for Integration, a containerized offering that customers can run in their own environment or on diverse cloud platforms. To help customers start small, IBM offers a free-forever tier featuring basic capabilities for formal lifecycle management. IBM offers flexible commercial models based on API call volumes or CPUs, with perpetual or term options.

In our evaluation, IBM showed strength across most of the criteria we examined, particularly the depth and flexibility of its product architecture. Among its strengths are its support for federated API publishing, DevOps, and API product packaging as well as flexible API documentation. A few areas came in on par with others. IBM's forward-looking vision has important focus on business agility, API products, multicloud, microservices, service mesh, infusing intelligence into API strategy, edge computing, and going beyond REST APIs. IBM's reference customers expressed overall satisfaction with the vendor and product. All of them use the solution for all categories of APIs: internal, B2B, open web, and product APIs, which demonstrates how the solution serves a broad spectrum of API strategies.

- › WSO2's open source solution provides a broad base of feature-function.** To its credit, WSO2 continues to project an API management presence larger than its size, in terms of both solution functionality and mindshare in the market. The firm targets its strategic product investments in ways that provide key feature-function and flexibility for customers. The fully open source nature of the product adds an additional layer of flexibility, should customers need it, in addition to offering a free-forever path to getting started with API management through open source self-support. Notable features include GraphQL publishing support, deep microservice platform integration, good API product packaging, and full application integration features in WSO2's Enterprise Integrator product. The solution's commercial models count either CPUs or API call volumes depending on deployment model.

In our evaluation, WSO2 showed pockets of strength across most of our evaluation categories, and the rest came in on par with others. Specifically, it has a flexible and configurable API user portal, a strong start going beyond REST APIs, good investments in combined API-microservices strategy (including important thought leadership on how the two relate), and strong product architecture

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and deployment options. Key future product priorities include REST API design, more investment in microservices and non-REST APIs, deeper service mesh integration, continuous integration/delivery (CI/CD) enhancements, and API ecosystems and product management. The solution particularly well suits buyers with strategies that combine integration, APIs, and microservices with a desire for the benefits of open source.

- › **Axway has good B2B and microservice features but needs more platform cohesion.** Axway's API management solution is part of its AMPLIFY platform, which includes a public marketplace available for customers (and others) to publish to. In addition, Axway's service mesh integration and support for non-Axway gateways (e.g., Amazon API Gateway) extend the solution's reach and address combined API and microservices strategies. The solution has a strong messaging gateway and SaaS gateway, embeds Stoplight's rich API design tool, and features integration platform technology. The solution is modular but not yet cohesive in its user experience, commercial model, or product implementation. It has two portal options to choose from, though they both leverage the same API catalog. Axway customers can benefit from its long-standing B2B product line, including EDI, managed file transfer, and trading partner management, as well as strategic API help from its Catalyst team.

In our evaluation, Axway's solution was strong in API design and proxy creation, attack protection, microservices support, and organizations as API users. It was weak in API product management and on par with peers across other criteria. It had among the best articulations of future API management priorities and product plans, with a strong focus on API business agility, extended ecosystems, and federated marketplaces, as well as plans for investments beyond REST APIs, multicloud-multivendor environments, deeper microservices support, richer portal features, and deeper CI/CD features. Reference customers gave high marks to both vendor and product. Axway's solution well suits buyers that see APIs as one part of broader B2B relationships as well as those with multivendor microservice environments.

Strong Performers

- › **Sensedia prepares to broaden the Latin American base of its solution.** Brazil-based Sensedia has for a number of years been building up a broad product line for APIs, microservices, and events in parallel with a strong customer base in Latin America. With initial expansion success in Europe, it recently took first steps toward establishing a US presence. Aside from its product business, the firm is also a leading API strategy and delivery services provider, helping clients with API business strategy, API programs and governance, and more. Two somewhat hidden aspects of its API management solution are integration, which it provides via an embedded Camel open source engine, and lifecycle management, which leverages code from the repository that was Sensedia's first product. Its commercial model is based on API call volumes, but it has a flexible overage policy to help with volume spikes.

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In our evaluation, Sensedia was strong in API user engagement and formal lifecycle management, weaker in non-REST APIs and API products, and on par with others in most other criteria. With its strategic consulting foundation, it has strong articulation of API management features, such as federated marketplaces, multicloud, intelligence infused into APIs, non-REST APIs and events, API products, and microservices integration. Concrete product plans include portal enhancements, deeper API user engagement and better API documentation, richer microservices and DevOps support, and richer governed lifecycles. Aside from being an excellent choice for Latin American clients, Sensedia well suits buyers that also seek strategic consulting guidance for API programs and business strategies, along with a combined product line for APIs, microservices, and event architectures.

- › **MuleSoft leverages Salesforce assets to fill in key gaps in its API user portal.** When Salesforce bought MuleSoft, some questioned what Salesforce would get. A better question to have asked is what MuleSoft would get. Answer: A rapid expansion of both customer prospects and API user engagement features. Its API Community Manager draws from Salesforce assets to enrich its portal functionality, specifically for engaging API user audiences. Although most of the solution, including the traditional Anypoint Exchange portal, is available for customer-managed deployment, the new community features are SaaS-only. Architectural improvements since our last evaluation have allowed MuleSoft to offer a notably more competitive commercial model. Its Anypoint Runtime Fabric component allows MuleSoft's SaaS-based control plane to drive customer-managed runtime resources (whether cloud-based or on-premises).

In our evaluation, MuleSoft's strengths were API user engagement, REST API design and proxy, delivery management, analytics, and partner federation. Other areas were on par with peers. Its microservices support via Anypoint Service Mesh is a good start on combined APIs and microservices. MuleSoft's vision, supported by its Global API Strategy team, includes business agility, microservices, non-REST APIs, and DevOps, with specific product plans in these areas as well as API attack protection, federated ecosystems, and infusing intelligence into API processing. Reference customers gave high marks to both vendor and product. Its solution is good for buyers that want combined integration and API management capabilities, which guidance from its API strategy team can supplement.

- › **TIBCO's good solution is getting a new portal and deeper microservices features.** An early player in the market, TIBCO Mashery is now part of a broad product line for integration and insight. TIBCO has leveraged its privately owned status to make aggressive investments in new and open source technologies, like its Flogo runtime, which serves as a base for its microgateway. Now TIBCO is turning to deeper investments in Mashery itself, particularly in creating a new more flexible portal and integration with multiple service mesh technologies and related microservices enhancements. Building on its strong partnerships with Azure and Amazon Web Services (AWS), the product already has an interesting AWS integration that makes it easier for customers to sell their APIs through AWS's marketplace.

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In our evaluation, TIBCO's solution was on par with others across the board, with weak spots in policy authoring and microservices (which will improve once the pending enhancements are complete). TIBCO's future vision for API management centers on API product management, extended ecosystems, and moving beyond REST APIs. The firm's concrete product enhancement plans go beyond portal and microservices to include more API user engagement, better API governance and portfolio management, better API documentation, more CI/CD support, API product management, deeper attack protection, and further multicloud support. TIBCO's reference customers expressed relatively high satisfaction with both vendor and product. The solution is especially good for buyers looking for a strategic partner for API management together with multiple styles of integration (e.g., data, application, and process), and TIBCO's analytics technologies add more value on top.

- › **Torry Harris's good base for digital marketplaces is supplemented by API consulting.** Torry Harris Integration Solutions has a long-standing foundation of integration- and service-oriented strategy and delivery services dating back to the early days of service-oriented architecture. Its Digit Market API management solution is a productized version of its API business and technology strategy learnings over the years. Most notably, Torry Harris up-levels API strategy ideas into digital marketplace strategy. The firm provides a number of related products that supplement API strategy, planning, and execution. The commercial model for its solution is flexible and affordable. Note: Although the firm emphasizes consulting-driven implementation, the product is a distinct software product, has a SaaS version, and is available for acquisition without any requirement for Torry Harris's services.

In our evaluation, the firm's focus on digital marketplaces comes out as a strength in federated API publishing. Otherwise, its solution is mostly on par with others because Torry Harris typically enhances and customizes it during the implementation process. The firm's future vision for APIs is strong on business factors (e.g., business agility, API product management, extended ecosystems, federated marketplaces, and edge computing) with fewer details on technical underpinnings for the business features. Specific product plans include investments in its portal and user engagement features, API product management, federated ecosystem support, stronger API documentation, and deeper API attack protection. The solution is especially good for EMEA- and AP-based buyers with aggressive visions for digital ecosystems and the need for strategy and consulting support to get there.⁴

- › **Perforce has notable solution strengths, but its strategic plans are less developed.** Now known as Akana by Perforce, the solution has been through a couple of ownership transitions in recent years. In the Perforce family, Akana sits within a broader product line for agile management, automated testing, CI/CD tooling, code management and collaboration, components, as well as enterprise support for open source software. As Perforce builds its product portfolio, there may be deeper integrations between these and API management, but that future is not yet clear. Akana itself draws on a long history of serving API and service-oriented strategies, and this shows in key capabilities that work well for coordinating API strategy across a large enterprise.

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In our evaluation, the solution showed strengths in numerous areas including tools for API users, portal customization, REST API specification and documentation, analytics, delivery management, federated API creator teams, formal lifecycle management, security policy, advanced policy tooling, and partner federation. Other areas were on par, with one weak area, microservices, which Perforce treats as a separate domain behind APIs. Future vision centers on extended ecosystems and API products as well as multicloud, AI/ML, CI/CD, and governance.⁵ The firm gives limited articulation to planned enhancements, but these include API policy enhancements, non-REST APIs, and additional API user engagement features. Reference customers expressed satisfaction levels below other vendors'. That aside, the solution well suits buyers aiming to align and coordinate API strategy across large diverse enterprises and/or federated ecosystems of partners and enterprise API users.

- › **Broadcom has a strong API gateway and innovative commercial model.** After being acquired by Broadcom, the Layer7 solution gained a new type of acquisition model, a portfolio license agreement (PLA). The solution is also available via traditional arrangements, but the PLA aims to create a broader strategic partnership between vendor and enterprise customers by reducing friction for those that use several related products, such as sibling products for agile management, application testing, and operations management. Thus, Broadcom positions API management within a broader BizOps platform. The Layer7 gateway remains Broadcom's foundational core for API management, along with the gateway's extra features for mobile computing scenarios. Together with API management, Broadcom bundles API testing and monitoring capabilities. Customers can benefit from the API strategy and design guidance from Broadcom's API Academy team.

In our evaluation, the gateway's strengths came through in API policy, attack protection, and proxy creation. The solution was on par with others for most of the remaining criteria, with weaknesses in API user engagement and REST API specification and design. The firm's vision centers on customers' need for business agility, multicloud, CI/CD, and infusing intelligence into API management, with specific product plans around deeper service mesh integration, better API product management, AI/ML enhancements, and added API testing features. The solution is particularly good for buyers that desire API management to well integrate into a strategic vendor partnership with a holistic approach to Agile software delivery and management.

- › **Red Hat builds on its API pricing strengths with integration and microservices.** As an early player in API management, Red Hat 3scale has long had strengths in its API pricing and billing capabilities as well as in the flexibility of its gateway deployment options. As the firm hones its packaging and go-to-market models, it has deepened ties between products for API management, integration (including its multipronged event platform, Red Hat AMQ), microservices and containers (specifically Istio and Red Hat OpenShift), and API design (using technology from open source project Apicurio). For the record, because IBM manages Red Hat as an independent subsidiary, Red Hat's integration and API management tools will continue to have a strategic future of their own, despite the fact that IBM has its own products in these areas.

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In our evaluation, Red Hat's best strengths relate to its historical support for open API programs: a strong and configurable portal with strong API product management. The solution provides basic reporting to go with these, but not extensive analytics. Most other areas came out on par with others, with weaknesses in API design and federated API publishing across a large organization. Red Hat's future vision centers on moving beyond REST APIs, CI/CD enhancements, and deeper microservices support, with specific product enhancement plans in these areas as well as better API product packaging and ongoing product architecture improvements. The solution well suits buyers that either have immediate plans for direct revenue streams from APIs or want a strategic vendor to address needs for APIs, integration, microservices, and cloud-native infrastructure.

Contenders

- › **Tyk's focus on core API management assumes buyers' customization.** Focusing on core API management technology, Tyk designs its solution for extensibility and deployment flexibility. In particular, with its Ara initiative, the firm is focusing heavily on building seamless management across multiple cloud environments. Ara will be available only as a SaaS service, not for customer-managed deployment. Despite being a small firm, Tyk manages to have a presence on multiple continents through either its partnerships or its foundation as a remote-work firm that pulls talent from wherever it's found.

In our evaluation, Tyk's strategy plays out with strengths in product architecture, on-par capabilities for portal and other core API management areas, and weaknesses in commonly customized areas like API user engagement (including support for scenarios where the API user is an organization) and analytics. Other weakness shows in areas that are often served by integrating other tooling, such as REST API design, attack protection, microservice integration, and delivery management. Similarly, with its future vision, Tyk focuses heavily on technical aspects as underpinnings to whatever business goals a customer may have. Specific product plans include support for non-REST APIs, CI/CD improvements, API product packaging, and expansion of its Ara multicloud strategy. The solution well suits buyers that want a strong core for API management because they need only the basics or a foundation for a highly customized API user portal.

- › **Microsoft's new portal and gateway revitalize its basic API management foundation.** Previously, Microsoft's API management solution was heavily Azure-centric. Now customers can deploy and run its gateway almost anywhere. Although customers must manage gateway operation, the gateways and APIs they front are first-class citizens in the solution's architecture. Microsoft also recast its API user portal strategy, opening its applicability to a wider range of API strategies. The firm offers a SaaS version of the portal, but because the portal itself is open source, if a customer's API strategy grows to need greater customization than the SaaS version can support, it is a straightforward task to copy, customize, and self-manage one's own portal based on the open source. The solution focuses heavily on integration with other Azure services (e.g., for API implementation and management).

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In our evaluation, Microsoft generally lagged the competition in breadth of functionality, which is in keeping with its approach of providing the basics and giving customers a path to their own customized, self-managed environment. The most notable weaknesses include limited API user engagement features, limited API searching and browsing, no microservices integration, and limited API policy. Microsoft's future vision for API management centers on business agility, moving beyond REST APIs, CI/CD, intelligence applied to APIs, and microservices. Specific product plans focus on these areas, further development of its portal strategy, additional API attack protection, and other architecture improvements. The solution well suits buyers with a strong investment in the Azure platform who have either basic API management needs or plans to highly customize their API user portal. Microsoft declined to participate in the full Forrester Wave evaluation process.

Challengers

- › **Kong's solution, built for customization, has the basics plus a service mesh.** Kong's strategy has shifted multiple times over the years, starting as an API marketplace, then moving to API management solutions, then treating API management and service mesh as one thing, and now having API management and service mesh as two distinct but related elements of tech infrastructure. Along the way, its strongest toehold in the market has become the Kong Gateway, which, being open source, Forrester commonly finds referenced in clients' microservice architectures. Kong Enterprise, which is not open source, is the complete API management solution (i.e., with an API user portal and a policy management infrastructure). Separately, Kong also provides an open source service mesh, Kuma, and an API design and test client, Insomnia. Although the gateway is open source, multiple key policy plug-ins for it are not. Instead, they come with the proprietary Kong Enterprise solution.

In our evaluation, Kong's strategy of providing only the basics comes through in below-par functionality across most of our criteria. This will be acceptable to enterprises that focus on highly customized API management deployments and to those that seek basic management functionality on top of Kong gateway deployments for microservice environments. The popularity of Kong Gateway lends good name recognition to Kong's mindshare, but it has a relatively narrow market presence overall. Kong declined to participate in the full Forrester Wave evaluation process.

Evaluation Overview

We evaluated vendors against 26 criteria, which we grouped into three high-level categories:

- › **Current offering.** Each vendor's position on the vertical axis of the Forrester Wave graphic indicates the strength of its current offering. Key criteria for these solutions include the flexibility and quality of its API user portal; the breadth and depth of tools for engaging with API users; API design, creation, and publishing features (including for non-REST APIs such as SOAP and GraphQL); and support for and integration with microservices environments. They also include delivery, version management, and team management; API policy and security; API product

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definition and billing; and flexibility for a variety of API-based ecosystems and business models, analytics, and product architecture (including whether the product configuration we evaluated is available with equivalent functionality via SaaS and customer-managed deployments).

- › **Strategy.** Placement on the horizontal axis indicates the strength of the vendors' strategies. We evaluated the vendors' articulations of vision for business and technical factors surrounding APIs and thus driving requirements for API management, specific product enhancement plans (including both publicly known plans and plans disclosed to Forrester confidentially), related offerings of services and API strategy/implementation resources, and the commercial models by which customers may acquire the solutions.
- › **Market presence.** Represented by the size of the markers on the graphic, our market presence scores reflect each vendor's prospects for building a large installed base of customers, including both current customers and likely future customers, based on Forrester's insights into each vendor's market mindshare. They also represent geographic presence, including the vendor's own global presence, the global footprint of its current SaaS environment, and its ability to serve customers through services partners with presence around the globe.

Vendor Inclusion Criteria

Forrester included 15 vendors in the assessment: Axway, Broadcom, Google, IBM, Kong, Microsoft, MuleSoft, Perforce Software, Red Hat, Sensedia, Software AG, TIBCO Software, Torry Harris Integration Solutions, Tyk Technologies, and WSO2. Each of these vendors has:

- › **A complete API management solution.** The vendor must offer a product or product bundle that has, at a minimum, all three core elements in Forrester's definition of API management: an API user portal (aka developer portal) suitable for engaging an external developer audience, a business admin portal (e.g., for defining available APIs and API products), and an API gateway. Some solutions provide additional components, such as API design tools, API development tools, integration tools, runtime service management, microgateways, service mesh integrations, or lifecycle management tooling.
- › **A standalone API management solution.** The vendor's solution must be credible as a standalone product, separate from any associated products such as an application platform or business application.⁶

Some solutions provide additional components, such as API design tools, integration tools, microgateways, service mesh integrations, or lifecycle management tooling.

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- › **A prominent presence as an API management vendor.** Each vendor has at least \$6 million in API management solution revenue. In addition: 1) The vendor’s product strategy extends beyond basic publishing for REST APIs, which is the core functionality segment in Forrester’s “[Now Tech: API Management Solutions, Q3 2020](#),” report; 2) the vendor specializes in API management as a category; or 3) Forrester clients commonly ask about the vendor in API management inquiries.

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Supplemental Material

Online Resource

We publish all our Forrester Wave scores and weightings in an Excel file that provides detailed product evaluations and customizable rankings; download this tool by clicking the link at the beginning of this report on Forrester.com. We intend these scores and default weightings to serve only as a starting point and encourage readers to adapt the weightings to fit their individual needs.

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The Forrester Wave Methodology

A Forrester Wave is a guide for buyers considering their purchasing options in a technology marketplace. To offer an equitable process for all participants, Forrester follows [The Forrester Wave™ Methodology Guide](#) to evaluate participating vendors.

In our review, we conduct primary research to develop a list of vendors to consider for the evaluation. From that initial pool of vendors, we narrow our final list based on the inclusion criteria. We then gather details of product and strategy through a detailed questionnaire, demos/briefings, and customer reference surveys/interviews. We use those inputs, along with the analyst's experience and expertise in the marketplace, to score vendors, using a relative rating system that compares each vendor against the others in the evaluation.

We include the Forrester Wave publishing date (quarter and year) clearly in the title of each Forrester Wave report. We evaluated the vendors participating in this Forrester Wave using materials they provided to us by May 15, 2020, and did not allow additional information after that point. We encourage readers to evaluate how the market and vendor offerings change over time.

In accordance with [The Forrester Wave™ Vendor Review Policy](#), Forrester asks vendors to review our findings prior to publishing to check for accuracy. Vendors marked as nonparticipating vendors in the Forrester Wave graphic met our defined inclusion criteria but declined to participate in or contributed only partially to the evaluation. We score these vendors in accordance with [The Forrester Wave™ And The Forrester New Wave™ Nonparticipating And Incomplete Participation Vendor Policy](#) and publish their positioning along with those of the participating vendors.

Integrity Policy

We conduct all our research, including Forrester Wave evaluations, in accordance with the [Integrity Policy](#) posted on our website.

Endnotes

¹ While it's true that transforming to realize the benefits of digital business requires specific initiatives such as mobile apps, internet of things, and predictive analytics, it's a mistake to frame one's transformation around such initiatives. Instead, focus on a more critical and fundamental reality that runs underneath all of them: the need to prepare for an unknown future of continuous business and technology change. See the Forrester report "[APIs Underpin A Digital Business Platform.](#)"

² Software is critical to the platform business models digital-first execs across industries from accounting to transportation are pursuing. Beyond delivering the immediate customer value these leaders envision, AD&D pros can also deliver a platform business need that execs are likely to miss: Software architecture determines how well a platform business can adapt to the inevitable twists, turns, and surprises it will face. Forrester outlines four steps for building a platform business with an architecture to enable disruptive change. See the Forrester report "[Four Steps For Building A Platform Business.](#)"

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³ As industry disruptions go, new government regulations come with long lead times, but executives still can choose shortsighted responses focused solely on regulatory demands. A better response is to use changing regulations — and other disruptions — as opportunities to advance API strategy and digital business transformation. Forrester uses upcoming regulation for European banks (specifically PSD2) as a demonstration of how, with good API strategy, AD&D leaders can help their organizations turn disruptions into business opportunities. See the Forrester report “[APIs Turn Disruptions Into Business Opportunities](#).”

⁴ EMEA: Europe, the Middle East, and Africa; AP: Asia Pacific.

⁵ ML: machine learning.

⁶ In other words, it must be credible for prospects to include on their shortlists even if it would be the only product they would buy from the vendor.

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