

API

Management

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The next wave of API management

BY CHRISTINA CARDOZA

Modern-day software development has made APIs more important than ever. Whether it is microservices, Agile or digital transformation, developers need APIs to connect data, apps and devices. In order to be able to deploy, manage, and run all the APIs necessary for their solutions, they implement API management strategies to make sure everything goes smoothly.

This has been the API status quo for the last couple of years, and API and API management have been steadily moving along.

“API management is a pretty mature discipline now. When API management companies like 3scale were conceived 10-12 years ago, that was really a

response to a real need from Agile developers who were saying our interoperability needs are not met by the ESD (electronic software distribution) model that had dominated for 20 years up until that point,” said David Codelli, senior principal product marketing manager for the open-source software company Red Hat. “Today API management is doing an outstanding job of allowing microservices teams to get the interoperability and the self service they need. It is a well established business for mature companies.”

But as time has proven again and again, most things in software development don’t stay the same for long. The advent of these modern software techniques has spurred new technologies to support the new techniques, and API management will have to evolve to con-

tinue to meet the needs and expectations of users.

API management and the service mesh

The microservice architecture has introduced a new concept over the last couple of years to help deal with the overall visibility and insight into microservices. A service mesh is “a way to control how different parts of an application share data with one another,” according to Red Hat. While microservices enable developers to easily make changes to their services, a service mesh is used to handle the service-to-service communication.

According to Kevin Matheny, a senior director analyst for Gartner, technical professionals, service meshes and API management are related, but also very different. Over time, developers are going to start, and some have already started, to combine service meshes into their API management initiatives.

“Our customers are engaging with us to try to sort out the landscape and figure out what is complementary and what is overlapping. What are the ways they can build a plan to capitalize on both: advancements in service mesh and advancements in API management,” said Red Hat’s Codelli.

Matheny explained since this is a new emerging space, a lot of users are having trouble understanding how to bring those together. “API management is about gaining access to the APIs that are exposed to an application. Service mesh is about the peer-to-peer connectivity, the API connectivity inside of an application. Many organizations think

API management as code

The next big thing after service mesh for APIs will be APIs as products or API management as code, according to Red Hat’s senior principal product marketing manager David Codelli.

“There has been a lot of buzz around infrastructure as a service, where you can program your information technology landscape, and we are starting to embrace that in API management efforts so that users have a development pipeline that orchestrates their hardware and software resources as well as API artifacts,” said Codelli.

Codelli went on to explain that things like opening an API contract, mock services, service metadata, configuration of policies, and configuration of other API management aspects such as security, will start to be managed units that undergo the same scrutiny and testing as the code for APIs.

“This will save overhead, ensuring predictable and lower risk deployment, streamlining deployment cycles, being able to provide better resolution. Those are all the same things we got with infrastructure as a service and we will get even more as we do API management as code,” he said. “APIs are extremely important and the benefits of instrumenting it as code are going to be extremely important.”

because they have a service mesh, they don't need API management, and that is not the case," he explained.

A service mesh is necessary to handle the service-to-service communication within independently deployable pieces of software that are loosely coupled. However, a service mesh does not provide the same set of functionality that an API gateway does. API management is necessary for any internally or externally exposed apps, and a service mesh is necessary to handle the side-to-side communications, Matheny explained.

"The way to think about it is east-west versus north-south communication. Your north-south communications are API gateway-based. Someone from outside the organization wants to get something. In the case of a microservice-based application, it is another application that wants to get something from this application. Then that is mediated by an API gateway. But inside the boundary of your microservices cluster, the peer-to-peer connections — the east-west connections — are handled using the service mesh," Matheny explained.

The confusion comes from traditional architectures such as monolithic applications, where peer-to-peer communications are also handled by an API gateway or micro gateway. "You're not taking advantage of the greater scope of functionality that API management platforms offer. Monolithic applications really narrow it down to just the gateway portion, so that tends to wind up with people saying this gateway portion can handle service-to-service communications between applications and a service mesh handles that. The implementations are different and the scope of use is different," said Matheny.

One way Red Hat tackled bringing the two together was by adding an adapter in the service mesh Istio to provide API management capabilities through Red Hat Integration. These capabilities include developer self-ser-

What should you look for in an API management solution?

A common mistake organizations look for when evaluating API management solutions is whether or not it has monetization abilities, according to Kevin Matheny, a senior director analyst for Gartner technical professionals.

"Very few organizations I speak to are actually directly monetizing their APIs. If you are not going to do that, or don't have a real plan to do that, don't put that as one of the criteria you need," he explained. "You may wind up selecting a product that doesn't meet your other needs because you are valuing something you are not going to use."

When choosing an API management solution, organizations should start with a baseline of an API gateway, according to Matheny. API gateways are an important piece of the puzzle because it takes API requests and determines the services necessary to carry out that request. Organizations are working in many different environments with some on-premises, in the cloud, in multiple clouds or a mix of both. An API gateway should have the ability to be deployed when and where you need it, he explained.

The problem, however, is that most organizations will need multiple deployed API gateways and that is not something a lot of vendors are currently able to provide, according to Matheny.

This is one area, however, that David Codelli, senior principal product marketing manager for the software company Red Hat, said the company took into consideration from the very beginning. Red Hat's 3scale API Management solution provides hybrid cloud support across all components, enabling users to design APIs for on-premises, in the cloud, or any combination of the two, he explained.

According to Codelli, this is possible through Red Hat Integration, which is an "end-to-end experience for receiving, building, implementing, deploying and even retiring APIs," he said. "What is different about Red Hat Integration than what we have done before is the hybrid cloud is the platform from the beginning."

The company has also made a number of investments in Kubernetes to enable its API management solutions to run on-premises, or on private or public cloud, and capitalize on the high availability and stability Kubernetes offers.

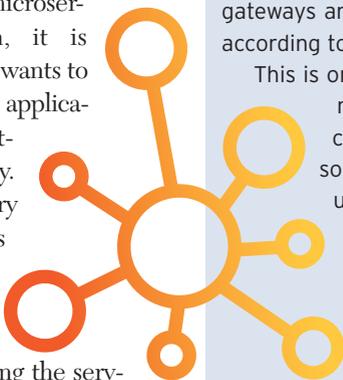
"You have this seamless experience. This unified identity management for all classes of users, and anything we do is based on deployment by the containers and targets the hybrid cloud by targeting the state-of-the-art container management system, which today is Kubernetes," said Codelli.

Red Hat also takes the end-to-end user experience into account to separate itself from the rest of the API management market. "You can design your contract first. You can deliver that contract to different partners on the consumption side and the delivery side so you can test in parallel. You have built-in mock testing. You have sophisticated tools for implementing those services in a user friendly canvas," he said. "We have some very complicated business challenges that our customers are facing and they want a productive canvas for implementing that complexity. So they have the fulfillment tools, the design tools, collaboration tools, and these are all built on open standards for CI and CD that are essentially demanded by Agile developers today." ■

vice and on-boarding, API documentation, monetization, and usage analytics. "We also want to make sure our customers understand that the higher level of API management like billing, rate limiting, analytics and developer portals are not addressed by Istio, so we

encourage customers to look at the whole picture in planning out their API strategy," said Red Hat's Codelli.

Codelli noted this space is still in its very early days and it will be at least a year until real product manifestations come to fruition. ■



A guide to API management tools

■ **Apigee** is an API management platform for modernizing IT infrastructure, building microservices and managing applications. The platform was acquired by Google in 2016 and added to the Google Cloud. It includes gateway, security, analytics, developer portal, and operations capabilities.

■ **Akana by Perforce** provides an end-to-end API management solution for designing, implementing, securing, managing, monitoring, and publishing APIs. The Akana API Platform helps you create and publish secure, reliable APIs that are elegant, easy to consume, built the right way, and running as they should be to improve the customer experience and drive growth in your business.

■ **CA Technologies**, a Broadcom company, helps customers create an agile business by modernizing application architectures with APIs and microservices. Layer7 API Management includes the industry's most innovative solution for microservices, and provides the most trusted and complete capabilities across the API lifecycle for development, orchestration, security, management, monitoring, deployment, discovery and consumption."

■ **Cloud Elements** delivers an API integration platform that allows APIs to work uniformly across hundreds of applications while sharing common data models. "Elements" unify APIs with enhanced capabilities for authentication, discovery, search, error handling and API maintenance. "Formulas" combine those Elements to automate business processes across applications. "Virtual Data Hubs" provide a normalized view of data objects, such as "accounts" or "payments." All can be shared, modified and re-used.

■ **Dell Boomi's** API management solution provides a unified and scalable, cloud-based platform to centrally manage and enrich API interactions through their entire lifecycle. With Boomi, users can rapidly configure any endpoint as an API, publish APIs on-premise or in the cloud, manage APIs with traffic control and usage dashboards.

■ **IBM's** API Connect is designed for organizations looking to streamline and acceler-

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■ **Red Hat:** 3scale API Management is an award winning platform that gives control, visibility and flexibility to organizations seeking to create and deploy an API program. It features comprehensive security, monetization, rate limiting, and community features that businesses seek backed by Red Hat's solid scalability and performance.

ate their journey into digital transformation; API Connect on IBM Cloud is an API lifecycle management offering which allows any organization to secure, manage and share APIs across cloud environments — including multi-cloud and hybrid environments. This makes API Connect an ideal, scalable solution for those that have, and need to expose APIs without fear of cloud-specific vendor lock-in.

■ **Kong** delivers a next-generation API and service lifecycle management platform designed for modern architectures, including microservices, containers, cloud and serverless. Offering high flexibility, scalability, speed and performance, Kong enables developers and Global 5000 enterprises to reliably secure, connect and orchestrate microservice APIs for modern applications. Kong is building the future of service control platforms to intelligently broker information across services.

■ **Microsoft's** Azure API Management solution enables users to publish, manage, secure and analyze APIs in minutes. It features the ability to create an API gateway and developer portal quickly, ability to manage all APIs in one place, provides insights into APIs, and connects to back-end services.

■ As part of **MuleSoft's** Anypoint Platform, MuleSoft's Anypoint API Manager is designed to help users manage, monitor, analyze and secure APIs in a few simple steps. The manager enables users to proxy existing services or secure APIs with an API management gateway; add or remove pre-built or custom policies; deliver access management; provision access; and set alerts so users can respond proactively.

■ **Nevatech** Sentinel is an enterprise class API Management platform written in .NET that is available for on-premises, cloud and hybrid environments. Sentinel supports industry SOAP and REST standards as well as Microsoft specific technologies and includes an API Repository for API Governance, API versioning, auto-discovery, description, publishing and Lifecycle Management.

■ **Oracle's** API Platform Cloud Service provides an end-to-end service for designing, prototyping, documenting, testing and managing the proliferation of critical APIs.

■ **Postman** is the leading collaboration platform for API development, used by more than 7 million developers and 300,000+ companies worldwide. Postman's native apps for macOS, Windows, and Linux provide advanced features and a variety of tools that can be used to extend Postman including Newman, Postman's command-line tool, the Postman API, the API Network, and integrations.

■ **SmartBear Software** empowers users to thrive in the API economy with tools to accelerate every phase of the API lifecycle. SmartBear is behind some of the biggest names in the API market, including Swagger, SoapUI and ServiceV. With Swagger's easy-to-use API development tools, SoapUI's automated testing proficiency, AlertSite's API-monitoring and ServiceV's mocking and virtualization capabilities, users can build, test, share and manage the best performing APIs.

■ **TIBCO** Cloud Mashery is a cloud-native API management platform that can be deployed anywhere, either as a SaaS service or containerized in cloud-native and on-premise environments. Mashery delivers market-leading full lifecycle API management capabilities for enterprises adopting cloud-native development and deployment practices, such as DevOps, Microservices, and Containers. Its capabilities includes API creation, productization, security, and analytics of an API program and community of developers. ■