boomi

API Management as a Journey

APIs are the building blocks for digital success, which makes managing APIs more important than ever. Rather than approaching API management as a one-time task, business and IT leaders should approach it as an ongoing, mission-critical practice for discovering, managing, and governing APIs across their IT ecosystems.

Introduction

API management is a journey, not a destination. A destination is a conclusion. When you reach your destination, you finish what you're doing and relax. But the work of building and managing APIs is never done.

Why? Because APIs (application programming interfaces) are the connective tissue of the digital economy. By linking applications, microservices, and data repositories, APIs make digital commerce and digital transformation possible. APIs are also the primary data interface for AI. They're the means for moving data into and out of large language models (LLMs), AI agents, neural networks, and other AI technologies. Every highly promising or already impressive AI project relies on APIs for its success.

So, the first step to working successfully with APIs is recognizing that the work of building, managing, monitoring, and optimizing APIs isn't a one-project or even a series of one-off projects. It's a journey with changing requirements, goals, and opportunities, supporting the most critical IT initiatives taking place today and in the future. Organizations need to make sure they have the tools, people, and processes to support this ongoing journey.

In this white paper, we'll look at the requirements for a successful API operations (APIOps) strategy. These requirements include:

- Streamlining and optimizing API development to democratize innovation and promote API adoption.

- Solving the problem of API sprawl with federated API management that provides visibility, governance, and control over API deployments.

- Delivering enterprise-class scalability and security so business objectives are never compromised by a lack of API performance, reliability, or control.

Along the way, we'll offer quick introductions to API management capabilities in the Boomi Enterprise Platform that help organizations meet these requirements.

Streamlining API Development With a No-Code/Low-Code Experience

If APIs are essential to business success, then it makes sense to streamline their development and management as much as possible. That means making it easy for developers to create, publish, and monitor APIs, while following best practices and enforcing applicable security policies along the way.
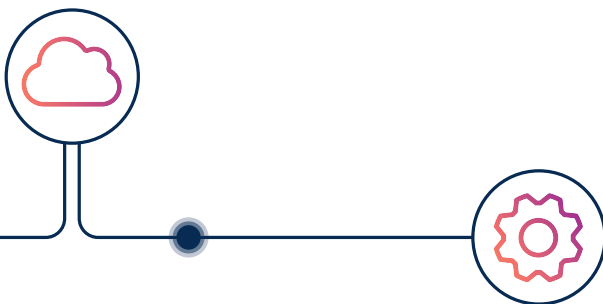
Traditionally, API development was limited to developers with advanced programming skills. In today's age of low-code development, both technical and business users can build software solutions using drag-and-drop graphical interfaces. Now, it's possible to broaden the pool of API developers to include employees who are closer to the business processes and applications but may not have advanced coding expertise. Expanding API development this way frees organizations to address a wider range of business use cases with APIs, putting more data and services to work for digital transformation and growth.

Of course, regardless of who develops them, all APIs should take advantage of components already vetted and approved by the IT department. They should also follow best practices and adhere to all applicable security and reporting policies.

Whether an API is intended for internal use, such as connecting business applications together, serving data to employees, or supporting internal AI applications — or external use, providing data and services to customers, partners, or other external parties — it's best to think of APIs as products. That means treating an API as a well-defined business asset created by engineering, designed with intention, tested rigorously, released with documentation, and monitored and managed for availability and performance.

At the heart of the developer process is a portal where developers can create, build, and publish APIs. Development teams use different portals for different uses. For example, developers might decide to use one type of portal for internal collaboration and testing. Then, when their initial development work is complete, they might make those services discoverable through an external development portal configured for API consumers interested in discovering, testing, and onboarding published API products. These developer portals can be hosted in multiple API gateway and management solutions.

Many development portals require programming every step of the way. Even customizing an API gateway with branding and documentation will require raw code of some kind, even if it's in a scripting language.

But if organizations are going to broaden and accelerate their work with APIs, whatever can be streamlined with low-code or drag-and-drop interfaces, should be. That way, developers can spend their time on coding projects that absolutely require coding, and more quickly and reliably complete all their other tasks.

How Boomi Helps Broaden and Streamline API Development With the Boomi API Control Plane

The Boomi API Control Plane, which is part of Boomi API Management, includes two cloud-based portals for managing all API gateways and their use cases across an enterprise. The Admin Portal features a drag-and-drop interface that makes it easy to unify, manage, package, publish, and secure APIs. Once connected to an API Gateway, the Admin Portal automatically discovers and catalogs all the APIs running on that gateway. The portal also rates each API for security (based on the OWASP Top 10, the international standard for web application security[1]) and policy compliance (based on policies defined by the API team). Using the Admin Portal, teams can easily package, manage, and document APIs and track their adoption, security status, and policy compliance.

The API Control Plane also features a developer portal that can be customized with company branding and other content needed for specific use cases. Teams can create different developer portals for different use cases, such as test and production.
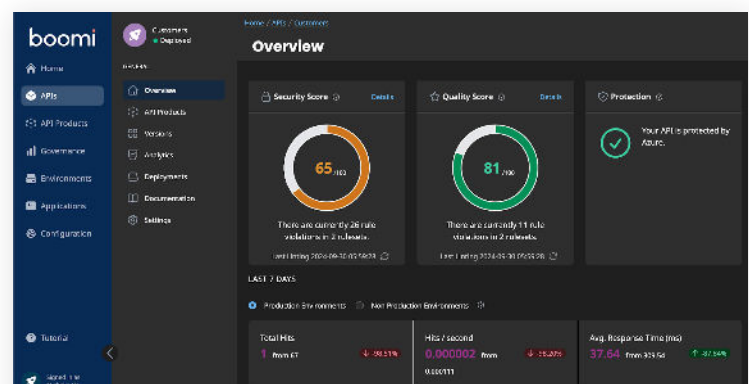
The Boomi API Control Plane Admin Portal shows security and policy compliance scores along with performance metrics for each API under management.

With the developer portal in Boomi API Control Plane, organizations can:

- Improve productivity with a consistent developer experience.

- Create visually stunning, customizable developer portals in just minutes.

- Take advantage of a single, ready-to-use platform for all API use cases, including internal and external APIs and APIs running on different API gateways.

Solving the Problem of API Sprawl With Federated API Management

No organization is starting from scratch when it comes to APIs. On the contrary: the average organization has over 600 APIs.[2] Exact numbers are hard to find, though, because few organizations know exactly how many they have or even how many are still being used. Analysts estimate that over half of APIs are "zombie APIs" — unused, unmonitored, and probably out of compliance with the organization's current security policies.[3] Other APIs are "shadow APIs" — APIs developed and deployed without the involvement of the IT department.

Most of these APIs, whether active or "zombie," have been developed over time by different teams. To manage these APIs, teams use API gateways. (An API gateway is software that serves as the entry point for API requests. An API gateway handles tasks such as routing, load balancing, and request and response transformation.)

Because different teams have different API requirements and feature preferences, different teams will likely have chosen different API gateways over time. For example, one team might be using AWS as its API gateway, another might be using the Boomi API Gateway, and another still might be using Kong. Even if a company has standardized on a single API gateway, it might find itself managing gateways from multiple vendors as the result of a merger or acquisition. Over half of all organizations have multiple types of API gateways, according to Forrester, and some have as many as four.[4]

This proliferation of API gateway architectures and zombie and shadow APIs is known as API sprawl. When API sprawl occurs, organizations end up without any centralized, comprehensive view of all their APIs.

Because they can't find and view all their APIs, they can't govern them. Organizations end up without a systematic way of managing interfaces to their most important data and their most promising AI and other digital projects. And without global visibility into APIs, organizations can't rationalize their API investments, because they're not sure what's been built, what's being used, and how often.

And, it gets worse. API consumers can't find APIs, security teams can't audit them for compliance with security policies, and attackers might be able to exploit them for weeks or months without being noticed.

Unmanaged and poorly secured APIs are open doors to severe cybersecurity risks. Shadow APIs, for example, were involved in 31% of cybersecurity attacks against transactions in 2022.[5] And in 2023, 74% of organizations reported experiencing at least three API-related data breaches in the past two years.[6]

Besides contributing to security risks that can result in lost revenue, lost intellectual property (IP), and regulatory fines, API sprawl is costly in two other ways:

Poor API adoption
When potential API consumers can't find an API, they can't adopt it for use, either. As a result, time and money spent developing the API ends up with a lower ROI.

Redundant API creation
Because API developers can't easily discover what APIs are available, they might end up creating redundant APIs instead using APIs that have already been built and tested. This sort of haphazard development reduces overall developer productivity and increases development times and costs.

To solve the problem of API sprawl, organizations should adopt federated API management, adding an API control plane that delivers visibility and control over all API gateways, including API gateways from multiple vendors. This global, vendor-agnostic view of APIs provides the central catalog and point of control that organizations have been missing.

How Boomi Solves the Problem of API Sprawl With the Boomi API Control Plane

Boomi API Control Plane solves the problem of API sprawl. It provides a single, cloud-based dashboard with visibility into all API environments across your organization, making it easier than ever to discover and catalog APIs and to ensure that APIs comply with all applicable security policies.

Boomi API Control Plane provides:

Centralized API Discovery
Discover all APIs within an organization from a single location, bring shadow and zombie APIs under control, and increase API consumption to drive business innovation.

Simplified API Management Across Gateways
Enhance productivity with a consistent developer experience, gain insights into API performance and usage, and extend the value of existing on-premises and cloud investments.

Strengthened API Governance
Ensure consistent policies across all platforms, reduce the risk of data breaches, and streamline security audits, making compliance simpler and more efficient.

Boomi API Control Plane for federated API Management
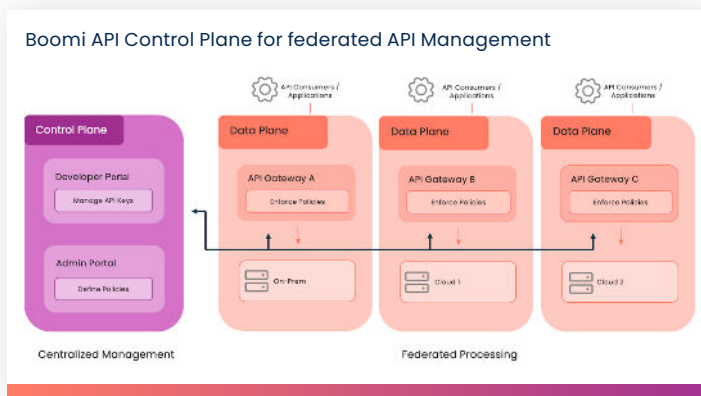
Using Boomi API Control Plane, organizations can:

• Make it easy for API developers and consumers to discover APIs

• Bring undocumented and unapproved shadow APIs under control

• Ensure consistent API design and policies across platforms

• Streamline security and quality auditing

• Monitor API performance and utilization

Delivering Enterprise-Class Scalability and Security for APIs

If APIs are a fundamental technology for business and business growth, then organizations have solutions for growing their usage and managing them securely at scale.

It's one thing to build and publish APIs. It's another thing to run mission-critical APIs with high performance, high availability, and robust security.

Here are three major challenges that organizations typically run into when trying to scale their APIs.

Defense Against API Attacks and Maintaining Compliance. APIs provide access to sensitive data and mission-critical business systems, making them an obvious target for attackers. Almost a third of all web security attacks in 2023 targeted APIs, according to Akamai.[7] API sprawl makes defending against these attacks more difficult. After all, it's hard to protect all your APIs if you don't know how many you have and where they're running. Organizations need a way of monitoring and securing APIs at scale. They also need to ensure that all their APIs comply with internal security policies and industry security regulations.

Stringent Performance and Traffic Management Requirements. When a business runs on APIs, performance matters. Organizations need a way of managing high volumes of API traffic without latency, performance degradation, or errors. Fast, reliable performance is especially important in industries such as banking, retail, and travel where high numbers of transactions are the norm.

API Lifecycle Management from Design to Deployment at Enterprise Scale. Organizations need a single, cohesive platform for managing all phases of the API lifecycle from development and testing to enterprise-scale deployment. They shouldn't have to re-engineer APIs or change vendors once API transaction volume increases. They should be able to scale any API they've developed without changing the technology supporting that API through all phases of the API lifecycle.

As companies invest more heavily in AI and AI becomes an essential part of more business functions, API traffic is only going to increase. Now is the time to address any challenges with API security and scalability so that future API capabilities are stalled by limitations in API management capabilities.

How Boomi Cloud API Management Provides Enterprise-Class Scalability and Security for APIs

Boomi Cloud API Management (formerly Mashery) is a cloud-based solution for managing and security APIs at scale. Trusted by leading airlines and financial services organizations, Boomi Cloud API Management provides the scalability, control, and high availability required for supporting the highest API transaction rates in any industry.

For organizations needing high degrees of API scalability, security, and performance, Boomi Cloud API Management provides an easy-to-use solution that meets these challenges:

API Security and Compliance. Boomi Cloud API Management provides robust and advanced security features, including rate limiting, to help protect APIs from unauthorized access. Certified for compliance with SOC2, PCI-DSS, and HIPAA, Boomi Cloud API Management is a solution that business and IT leaders can adopt, confident that their investments in APIs are protected by rigorous security features and industry best practices.

High Performance and Traffic Management/ Routing at Scale. Boomi Cloud API Management offers advanced traffic management capabilities such as load balancing, rate limiting, and burst protection to ensure that peak load volumes can be handled efficiently, while maintaining high performance and reliability.

API Lifecycle Management. As part of the Boomi Enterprise Platform, Boomi Cloud API Management provides a comprehensive solution for API Lifecycle Management, supporting all phases of API development, deployment, and management.

Boomi Cloud API Management delivers these benefits:

- Infinite scalability with low operational overhead at a global level, thanks to a cloud-native architecture built for scalability and reliability.

- Sophisticated user/role/organization management.

- Business value analytics to customers understand API adoption patterns and how to optimize API programs and strategies.
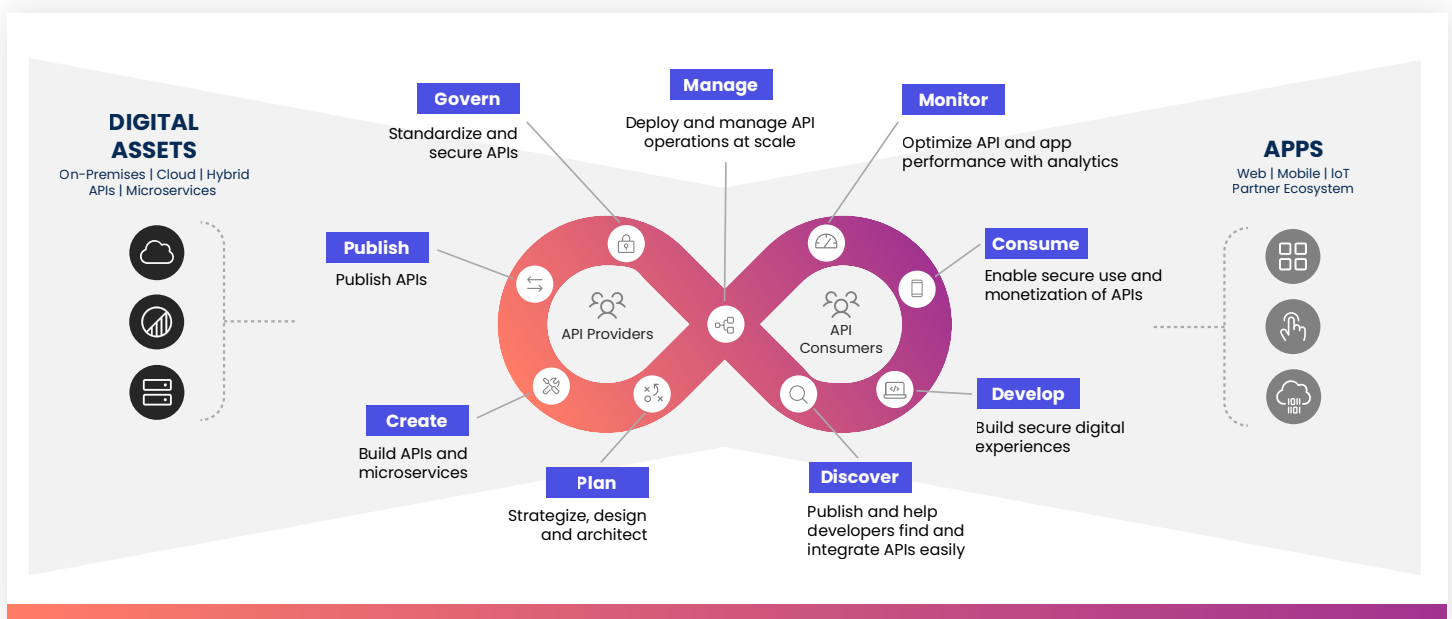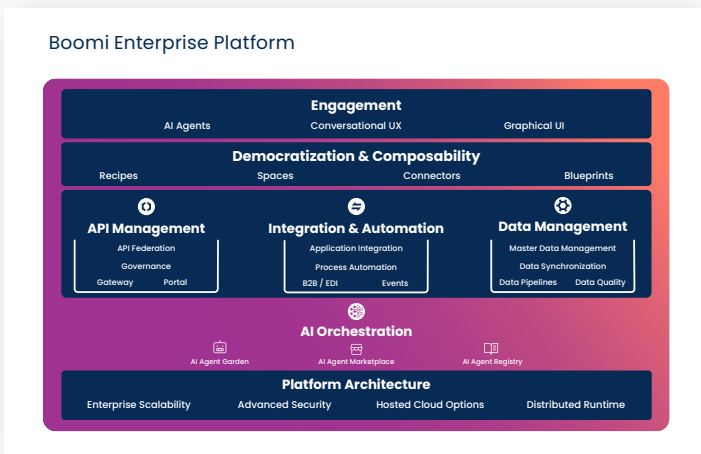
A Complete Solution for API Management, Integration and Automation, and Data Management

Boomi API Management provides best-in-class API management capabilities, but it offers other benefits as well. That's because Boomi API Management is part of the Boomi Enterprise Platform, a comprehensive solution for API management, integration and automation, and data management.

The Boomi platform provides a broad range of data-centric capabilities, application integration, workflow automation, EDI management, AI orchestration, AI agents, and more. By adopting Boomi API Management, organizations can integrate API projects seamlessly with all these other digital capabilities.

Boomi offers two other key benefits for organizations investing in APIs. First, Boomi API Management is vendor-agnostic. Boomi customers can adopt whatever combinations of supported API gateways and cloud platforms they like. For example, a customer can use Boomi with Apigee gateways and the Google Cloud Platform. Or they can use Boomi with gateways from Kong and Azure while also supporting AWS gateways acquired through an acquisition. Customers are never forced to standardize on a single gateway or cloud platform. Instead, they can choose the API and cloud technologies that best suit their business strategies.

Second, Boomi gives customers the flexibility to deploy where and how they want, while offering them the freedom to change or add capabilities as they grow. Boomi meets customers' needs today — and scales to meet them in the future.

Boomi Enterprise Platform

Engagement
AI Agents | Conversational UX | Graphical UI

Democratization & Composability
Recipes | Spaces | Connectors | Blueprints

API Management
API Federation
Governance
Gateway | Portal

Integration & Automation
Application Integration
Process Automation
B2B / EDI | Events

Data Management
Master Data Management
Data Synchronization
Data Pipelines | Data Quality

AI Orchestration
AI Agent Garden | AI Agent Marketplace | AI Agent Registry

Platform Architecture
Enterprise Scalability | Advanced Security | Hosted Cloud Options | Distributed Runtime

Conclusion

The work of building, managing, and scaling APIs is never done: API Management is truly a journey, not a short-term destination. To make steady, predictable progress along that journey, organizations need an API management solution built for breadth, flexibility, and scalability. They need comprehensive visibility and control, not just quick fixes for one or two narrow API challenges. They also need vendor-agnostic API management capabilities that work with the API investments they've made in the past as well as the investments they'll make in the future.

Boomi provides the API management capabilities organizations need for addressing all these API requirements. Uniquely among API management offerings, Boomi provides:

Federated API management supporting API discoverability and governance across a wide range of API gateways, reducing API sprawl

Rapid, low-code development for APIs, integrations, and automations

Enterprise-class security and infinite scalability for mission-critical APIs even in demanding industries such as financial services and air travel

Boomi makes all these capabilities available through the Boomi Enterprise Platform, a cloud-based data management and AI orchestration solution trusted by over 23,000 customers. With Boomi, organizations of all kinds get a comprehensive platform not only for API management, but also for data management, integration and automation, AI readiness and AI orchestration, and more. Boomi provides a single, unified platform for all the data and connectivity needs of any organization.

Give yourself the advantage of speed, scalability, and governance as you embark on your API management journey.

Learn more about Boomi API Management.

1: https://owasp.org/www-project-top-ten/
2: Imperva: https://www.imperva.com/blog/state-of-api-security-in-2024/
3: "Predicts 2022: APIs Demand Improved Security and Management," by Gartner (Dec 2021)
4: "API and Integration Data Overview: Forrester's Developer Survey, 2023" by Forrester (Nov 2023)
5: https://www.cequence.ai/blog/cq-prime-threat-research/new-api-threat-research-shows-that-shadow-apis-are-the-top-threat-vector/
6: https://www.traceable.ai/2023-state-of-api-security#:~:text=74%25%20Report%20at%20least%203,major%20cause%20of%20data%20breaches
7: https://www.akamai.com/newsroom/press-release/akamai-research-finds-29-of-web-attacks-target-apis