EMA Report Summary: Back to the Future with the "API Economy"

Management Strategies for a New Wave of Integrated Applications

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Report Summary – Back to the Future with the "API Economy": Management Strategies for a New Wave of Integrated Applications

Overview

Today, it's more true than ever that "everything is connected to everything."[1] And, increasingly, an Application Programming Interface (API) is the connection mechanism. Sometimes described as second-generation Service-Oriented Architecture (SOA), API-connected services are proliferating as the preferred method for interacting with cloud services, partner applications, and mobile devices. As the Internet of Things (IoT) and microservices increasingly become part of production ecosystems, the importance of APIs as a preferred connectivity mechanism will continue to escalate.

APIs provide a way for one software application or system to interact with another. Some enterprise IT organizations are acting as API providers—creating APIs to provide access to their own internal systems. Others are acting as API consumers—connecting their own applications to those of other entities by using APIs provided by those entities. And a hefty percentage of companies are doing both.

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However, with all the hype around the so-called "API economy," APIs aren't a shiny new technology—they've been around a long time. And in the final analysis, APIs are simply code—proprietary code—allowing disparate systems to interoperate. To put it bluntly, APIs have become the wave of the future surfing on the dry bones of the past.

In a world accustomed to the ease of use and high performance of commercial products supporting Enterprise Application Integration (EAI) and Enterprise Service Bus (ESB) connections, APIs are a clunky, inelegant solution. Each is custom written and must be manually maintained to keep pace with business and industry changes. Performance is variable and unpredictable, based on the connection method, the availability/capacity of back-end systems, and the efficiency of the code itself. As API usage escalates, capacity demands on back-end systems can grow exponentially. And to top it all off, many traditional Application Performance Management (APM) solutions lack support for API connections, making troubleshooting and root-cause analysis difficult.

So why are companies using APIs? In these times of rapid change, nearly every company is scrambling to adapt to the changes imposed by factors such as mobile, cloud, IoT, and partnership dependencies—and APIs provide the simplest answer available. They may not be pretty, but they (usually) work and are available today. And although APIs may not be the ideal solution, for the moment they are the best solution available.

That being said, automation can smooth the way. Vendors such as IBM and Dell, the sponsors of this survey, have created API Gateways and platforms that can help IT organizations minimize the disadvantages of API technology by providing features—such as those supporting security, capacity management, user access, and version management—that were lacking in the API delivery mechanisms of the past.

With this survey-based research, ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) analysts set out to assess the API economy from multiple dimensions. Examining both the "consumer" and "provider" sides of the equation, the study explores the challenges of API usage in today's production environments. This white paper summarizes the survey findings on the deployment, management, and governance-related challenges of delivering API-driven services.

For readers interested in additional data from this study, the full research report is available on www.enterprisemanagement.com.

1 Quote from CIO of a worldwide bank

Methodology

The survey supporting this study was developed by EMA analysts and conducted in April 2015 by EMA's research team. Consisting of between 60 and 70 questions and more than 200 data points, the survey was completed by more than 150 IT professionals.

The field of potential survey respondents was narrowed by asking questions designed to ensure that only those knowledgeable about the topic areas covered in the survey were included.

Respondents were required to:

- Be in a role with responsibility (at some organizational level) for developing, implementing, or managing API delivery.
- Work for companies either providing or consuming APIs.
- Be knowledgeable at a high level about their company's API usage, revenue growth, and IT budgets.

In terms of roles, approximately 45% were in executive IT management positions (directors and C-level), 25% were middle managers, and the remaining 30% were IT line staff specialists.

Respondents represented a broad mix of company sizes, and results were aggregated for analysis purposes as follows:

- Fewer than 1K employees: 21% (Described as "small" companies in this report)
- 1K to 9,999 employees: 62% (Described as "medium" sized companies in this report)
- 10K+ employees: 18% (Described as "large" companies in this report)

There are often significant differences in response trends based on role or company size. While most of the data in this paper is reported collectively across all company sizes and roles, EMA analysts do analyze data breakdowns based on such factors. If the breakdowns are judged to be of interest to potential readers, they may be included to add additional color to this report.

As a final caveat, every EMA survey gathers far more data points than can be included in a short report of this nature. Additional data will be presented in subsequent EMA-branded and vendor-specific papers and presentations.

API Usage

Although APIs do have their drawbacks, their lure is the ability to turn brittle organizational borders into flexible avenues of information interchange. APIs contribute to the success of both API providers and API consumers by enabling businesses to quickly and flexibly extend commercial borders via pre-built connection mechanisms.

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Prior EMA research has revealed that interoperability with partners and providers is the number one driver for integration projects. Application modernization—which can cover everything from web access to IoT mobile access—comes in at number two, with integration of componentized services and hybrid cloud following closely behind. The message here is that multiple trends are driving the explosion of integration, with each new trend adding to the criticality of building core API competencies.

Summary of Findings

This survey produced a wealth of data, too much to cover in a single paper. However, the following data points offer a snapshot of how today's "API heavy hitters" are using APIs and API-focused toolsets.

The findings support a number of key conclusions:

- **API use is widespread.** Use of both consumer and provider APIs is common business practice and appears to be rapidly increasing, volume-wise.
- **API usage is business-critical**. Provider APIs are "critical" or "very important" to the business at 95% of companies surveyed. Consumer APIs are "business critical" or "very important" to more than 90%. Both types of APIs support key business functions and revenue.
- **Most companies utilizing APIs are both providers and consumers**. Although the relative importance of provider and consumer APIs varies for each company, 95% of survey respondents actively utilize both types.
- **Commercial API solutions—Gateways and platforms—are the norm for companies engaged in large-scale API use.** Security and monitoring are considered by users to be the most important features of such products. However, capacity, traffic, and lifecycle management are key functions as well.
- **API Gateways/platforms are the most frequent way companies are doing end-to-end tracking of transactions accessing APIs.** Application management platform products are a distant second.
- **The API Manager role is emerging as the key control point for both provider and consumer APIs.** Almost half of the companies surveyed have an API Manager role, most often within of the IT organization. It also appears as if these roles are typically responsible for setting policies and managing for both provider and consumer APIs.
- **APIs provide access to critical internal systems.** Databases (70%) and mainframes (48%) are the most frequent targets of provider APIs, highlighting the need for strong security and access control.
- **Most companies are maintaining and consuming significant numbers of APIs.** Most providers are delivering multiple APIs, most often in the 21 to 50 range, although 10% are delivering 100 or more. The numbers are similar for consumers. This points to the need for API Lifecycle Management solutions acting in concert with Application Lifecycle Management solutions to ensure that changes on both sides are in sync throughout the development process.

- **Security and high traffic volumes are key provider concerns.** Approximately 85% of survey respondents indicate traffic growth is increasing, most often in the neighborhood of 20% per month. This is an enormous relative increase compared to typical data center capacity growth and will likely prove problematic for capacity planning and performance management.
- **The number of transactions accessing APIs is significant and escalating on both consumer and provider sides:** API providers most often report that between 500K and 1 million transactions access internal APIs each month. API consumers report that their transactions interact with external APIs at approximately the same rate. Both indicate that access rates are growing on a monthly basis, most often at rates of 10 to 20 percent monthly.
- **Changes in consumer APIs are most often detected by API Gateways/platforms.** When external (consumer) APIs change, consumers most often find out about those changes via API Gateways or platforms. Providers notify consumers of changes only 25% of the time. Considering the importance of change tracking to performance and root-cause analysis, this feature alone could be considered a justification for purchase of an API Gateway/platform solution.

Summary

This initial EMA foray into the API economy reveals the state of the market as it is today. As APIs increasingly become the connection methodology of choice, requirements and products will continue to evolve.

However, one thing is already certain: APIs are now essential to doing business. Usage will continue to grow, which means that Machine to Machine (M2M) API interactions will increasingly become the norm. Without adequate tooling, such interactions are extremely difficult to manually support. Considering the high levels of business criticality of these key services, API Gateways and platforms make good business sense.

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About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help EMA's clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on Twitter, Facebook or LinkedIn.

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