snapLogic

Agile companies and digital transformation: Where iPaaS and APIs come together

WHITE PAPER

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Enterprise integration: The foundation of business agility

"If your customer base is aging with you, then eventually you are going to become obsolete or irrelevant. You need to be constantly figuring out who are your new customers and what are you doing to stay forever young."

- Jeff Bezos, Founder and CEO of Amazon[1]

Today, almost every industry is experiencing change at incredible speeds. A constant flow of innovation from digital disruptors such as Netflix, RocketLoans, Airbnb, Venmo, and Robinhood is forcing incumbents in the cable, mortgage, hotel, and financial services industries to move faster to survive. Enterprise leaders must now focus on customer experience and react nimbly to data and customer behavior. There is a need to innovate quickly and develop products faster, which means that learning loops are tighter and have gained a competitive advantage.

Even if the business models of these digital disruptors don't dislodge incumbents, they set the narrative, squeeze margins and profits, reset consumer expectations, and change the terms of engagement. As a result, incumbents across all industries are under fire and need to become faster and more agile. They are responding by developing agility within their organizations to survive and thrive. **Agility is defined as the ease and speed with which incumbents can reconfigure, redesign, and realign their processes to respond to these needs, threats, and opportunities. It's no longer enough just to innovate.**

Enterprise leaders must not only demand innovation but also demonstrate real, measurable value with agility. According to Korn Ferry research, 95 percent of the World's Most Admired Companies (WMACs) say organizational agility is a "critical" or "very important" focus.[2]

Most enterprise leaders have already responded to digital transformation initiatives by adopting best of breed solutions that act with speed and agility. However, they're taking it a step further by embracing enterprise integration strategies that go beyond just the integration of legacy systems to cloud technologies.

In this white paper we'll look at how enterprise integration requires leveraging technology that integrates business processes for new types of customer interactions and speeds up existing mechanisms using the avenue of Applications Programming Interfaces or APIs. As enterprises struggle to keep up, deploying new technology and applications, while integrating existing technology and applications across the organization, is a must. As a result, enterprise integration is the underlying enabler of business agility. It opens the connections that support rapid change. An elastic integration platform as a service (iPaaS) that works well with APIs helps enterprises deliver these digital business initiatives faster and at scale. Without robust enterprise integration, companies will continue to be constrained by the inability to communicate and manage the flow of information and business processes across the enterprise.

Enterprise integration changes with technology

While enterprise integration is not new, enterprise integration environments have significantly changed over the past 10 years. There's been an explosion of cloud technologies available in the market today due to their shorter time to value. In a recent survey,[3] over 70 percent of organizations said that about 80 percent of their applications would be SaaS by 2020. In addition, organizations continue to migrate their legacy systems and infrastructure to clouds at an unprecedented rate.

Three attributes of enterprise leaders in agile companies:

A focus on continuous improvement: The most successful enterprise leaders are constantly seeking to improve their processes, including making them faster. They also address customer feedback in a timely way to drive high customer satisfaction levels, which become a differentiator. The nail in any business coffin is engraved with the words, "But, that's how we've always done it."

An obsession with customer experience: The winners make every interaction that they have with their customer a positive and meaningful one. Enterprise leaders recognize that the ability to have a 360-degree view of customers, along with insights into their interactions with the brand on a continuous basis, is a key technology enabler in understanding and improving customer experience.

A need for speed: Enterprise leaders are not just improving products and services quickly in today's market. They're creating new products and services that are turning our world upside down, often in what seems like the blink of an eye. Such speed necessitates breaking down silos and focusing on both feedback and collaboration to move more quickly through development and design.

As cloud technologies continue to evolve, new offerings for managed services that focus on a particular aspect of integration requirements (such as big data services) are changing the way enterprise leaders make choices.

This proliferation of cloud systems and even managed services, as well as business needs to become more agile, places an unprecedented burden on IT departments to integrate and connect their systems. This integration is between the various cloud systems (business applications, analytics applications, and data warehouses), as well as with legacy on-premises systems. It has become increasingly harder for IT to keep pace with integration requirements. Traditional integration technologies, however comprehensive they are, were designed for the developer - an IT specialist resource with deep expertise in integration technologies. As a result, traditional integration technologies can't help the IT organization reduce their integration workload.

Enterprise leaders recognize that today's complex digital environments make up a digital ecosystem that must be leveraged to remain competitive. If they don't, they will have lower revenue and margins, less competitiveness, less responsiveness and agility, and less innovation. Care must be taken when defining a plan to connect the various technologies to form a digital ecosystem. While there are many approaches, not all provide the ease of use, scalability, and flexibility to accommodate the continuous evolution of technology.

According to a Forrester Research survey, 38 percent of enterprise decision makers said they are building private clouds, with 32 percent procuring public cloud services and the remainder planning to implement some form of cloud technology.[4]

API connections in a digital ecosystem

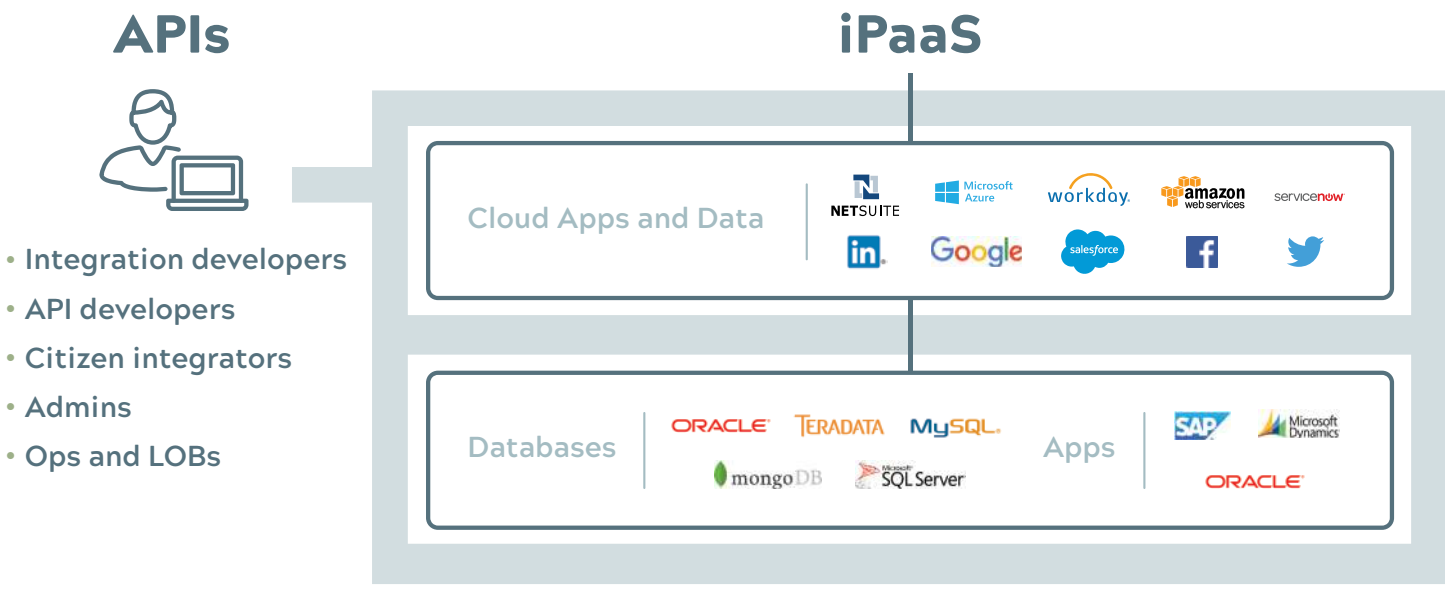
APIs connect systems to each other and have been around since the first software library was created. They serve as interfaces that enable applications to communicate with each other. But the role of APIs has changed dramatically in the last few years. When you create an API for an application, you make that application open and easier for other applications within or outside of your organization to easily connect with it and speed up the integration process. As a result, APIs are the key building block for enterprise integration that enables more business agility and enables far-reaching digital transformation.

APIs typically come in the form of SOAP, RPC, and REST. The REST (Representational State Transfer) mechanism is a concept that allows for flexible patterns over any protocol, though mostly HTTP/HTTPS. Simple Object Access Protocol (SOAP) uses XML to define API request and response structure. Although still in use, SOAP APIs are slowly falling out of favor as they are relatively rigid. RPC (Remote Procedure Call) is an inter-process communication that allows an application process to call a function in another process (local or remote). REST APIs are the most common web services APIs used today in the industry - connecting Salesforce, Marketo, SAP, Workday, and many other leading SaaS solutions.

The rise of citizen integrators

Business needs are driving faster time-to-value targets and therefore execution is being pushed to those with domain and subject matter expertise and out of the IT domain. These types of Integrators are referred to as “citizen integrators” by analysts including Gartner. And it is next-generation integration platforms (Integration Platform-as-a-Service or iPaaS) that enable citizen integrators, help address the integration backlog, free up IT to focus on other items on their to-do list, and enable the company to tie together their SaaS systems sooner than later. Gartner has predicted[5] that by the end of 2018, in most organizations, at least 50 percent of new integration flows will be implemented by citizen integrators.

iPaaS and APIs - working together



Integration platform attributes

- **Drag-and-drop capability -** to build integrations without needing manual code, so business analysts can easily build in business logic to their integrations that can be exposed as APIs
- **A large library of pre-built connectors -** to connect to popular SaaS systems, databases, data warehouses, and tools, and enable quicker integration to internal and/or external systems
- **Ability to integrate with and expose any connected system -** and use any mechanism they support including EDI, API, files, MQTT, SQL, XML, etc.
- **Support for popular API description formats -** to help with designing, prototyping, creating, and testing APIs such as Swagger, API Blueprint, and others
- **High availability and scalability of the integration platform -** to provide enterprise-class uptime and performance of resulting integrations, comparable to traditional enterprise integration platforms such as TIBCO and Informatica
- **Centralized object level, granular security, and permissions -** to enable extended integration to every corner of the organization without any risks
- **Broader deployment options -** from cloud to cloud, cloud to ground, ground to cloud or hybrid - so any type of internal applications can be connected by the business analysts

Integration platforms expand to support APIs

When looking at these next-gen integration platforms, whether to be used solely by IT or in combination with citizen or ad-hoc integrators, you will find the following key attributes that allow users to easily develop integrations without sacrificing the core tenets of any enterprise-class integration platform.

Let's focus on one of the bullet points listed above and dig into the API capabilities of an integration platform.

An enterprise-strength integration platform must support these API capabilities, at a minimum:

- Enables a user to consume APIs of any application that they want to integrate, and in any form including REST and SOAP.
- Allows a user to build an API to any application (business or analytics application, whether SaaS or legacy) in REST format. This allows the user to add a new API to the existing API library of the application or create an API to a legacy application and make it easier to integrate with it.
- Supports authentication and authorization mechanisms to ensure that information can be accessed only by those users and applications that are authorized to consume it. This ensures that information inside the application is secure and cannot be accessed by unauthorized users via an API.
- Documents its APIs, so users (employees and partners) can access it correctly to consume the information from the target applications.
- Promotes discovery and reuse to simplify the effort needed to integrate application, devices and things, clouds, Virtual Machines, containers, and microservices as these all require APIs to interoperate.

In addition to these capabilities, some IT teams are also looking for API management capabilities in their iPaaS. The following section further details API management and contrasts the differences between API creation and API management capabilities.

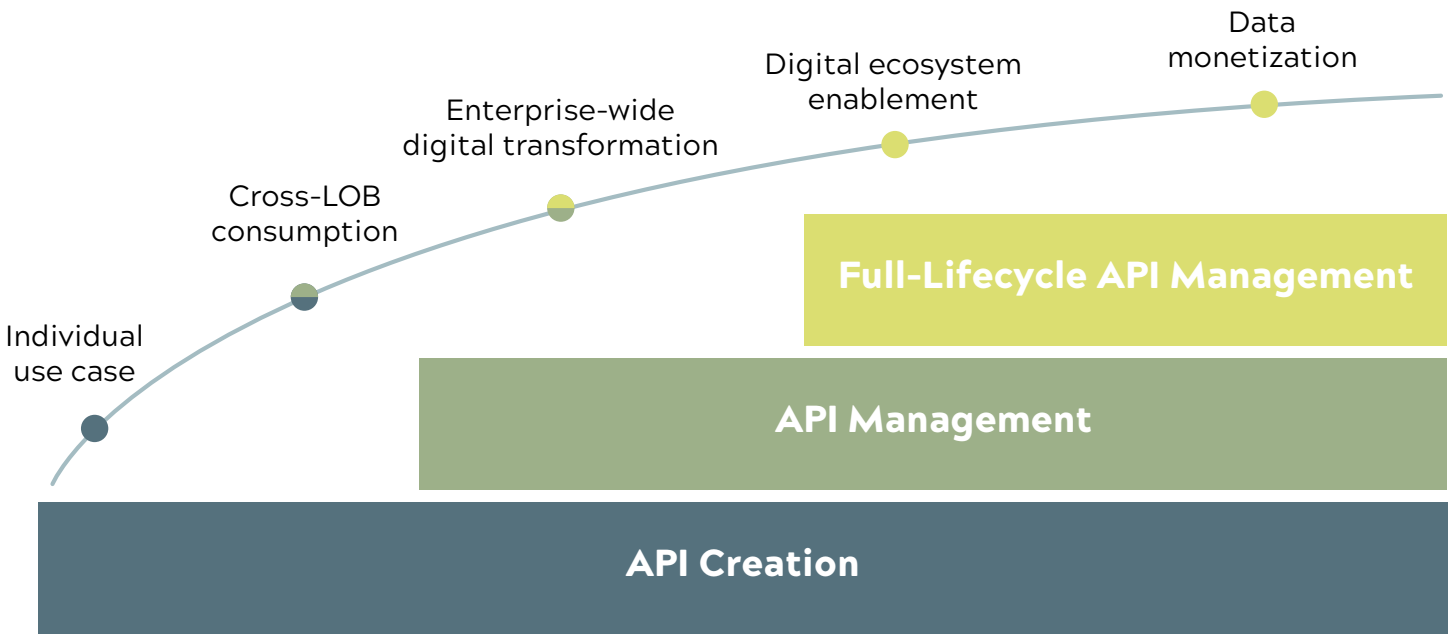
API management

Most applications and services provide integration logic that API developers leverage to build out and customize those capabilities for their company's needs. However, it is not uncommon for application leaders who are working on API management projects to be unaware of how integration technology can help them quickly implement and effectively manage the integration logic provided by these applications and services.

Furthermore, APIs from different applications and services are usually inconsistent and sometimes different teams in the same organization implement separate API-based projects, which may lead to the duplication of APIs and the related effort. Therefore, larger enterprise customers, with more complex use cases, may need more than API creation capabilities for integrating applications. They need their integration platform to provide features such as full lifecycle API management that allows them to create, test, and publish web APIs; enforce their usage policies; collect and analyze usage statistics; and report on performance. These advanced sets of capabilities are called API Management.

Key API management capabilities include:

- **API monitoring:** Critical for delivering APIs with SLAs, especially for B2B ecosystems and data monetization use cases. It works by running API monitors on a continuous schedule to give visibility into API problems, so you can prevent, identify, and resolve them fast - before your customers notice. Key features in API monitoring include real-time API monitoring for errors, exceptions, and thresholds along with configurable logging of API transaction data.
- **API control and governance:** Ensures APIs are delivering the necessary level of reliability and performance. Key features include quota and rate limiting, throttling, load balancing, Service Level Agreement (SLA) monitoring and enforcement, etc.
- **API insights and reporting:** Enables the organization to gain end-to-end visibility into metrics across their APIs programs to improve performance and engagement. These features let users analyze API use for insight and trends and automate the generation and delivery of reports.
- **API developer portal:** Provides all the information that is needed for internal, partner, and third-party developers to access and use APIs to publish their web apps.
- **API development lifecycle:** Allows enterprises to create, enhance, and interactively test APIs and manage its complete development lifecycle. The feature also allows users to visually model and normalize data from multiple sources to create APIs.
- **API data monetization:** When APIs are exposed and can be consumed by external targets that gain from the value of the data, enterprises can meter and require payment for the data services.



The API maturity curve

The role of iPaaS in API creation and API management

An enterprise iPaaS solution accelerates data and process flow across cloud and on-premises applications, as well as data warehouses, big data streams, and IoT deployments. Unlike traditional integration software requiring painstaking, handcrafted coding by teams of developers, an iPaaS solution makes it fast and easy for citizen developers, business analysts, and developers to create scalable data pipelines (i.e., integration flows) that supply the right data to the right people at the right time.

Using an iPaaS solution with deep and broad API capabilities, internal and external connections are enabled to leverage all aspects of a digital ecosystem. APIs can then be created in any format such as REST and SOAP and exposed by most modern application and database technologies. If the application or data source you want to integrate with does not have an API, and you don't want to do manual coding to reach the connection, the platform should provide a way to expose and parameterize connections without coding. This API creation capability lets users develop reusable APIs to new and legacy applications and create REST Gateways for other integration points such as SOAP, RPC, Message Queue, JDBC/ODBC, etc.

Supporting an authentication and privilege model that allows administrators to grant, limit, or restrict access to APIs makes the governance of API integration easier to manage. This ensures that information inside an application can be only accessed by those users and applications that are authorized to consume it.

Evolving iPaaS

Today, organizations are using iPaaS to integrate their business systems, so that they can become more agile. The ability to consume APIs, as well as easily build APIs without coding – to connect legacy and new systems – is a growing, much needed iPaaS capability. As organizations look to become more agile under increased pressure to get more done and with shrinking IT teams, the need to work with a unified integration platform is paramount. At the same time, business analysts need to be freed from constant reliance on IT as they take on a larger role in managing their own information dependencies. Digital transformation initiatives kicked in years ago. Supporting them now requires an agile modern approach that includes the ability to produce and consume APIs from an increasingly complex digital ecosystem.

Appendix

[1] Entrepreneur, "Strategies for Success You Can Learn From Amazon's Jeff Bezos," 2017

[2] "Korn Ferry Research Shows Organizational Agility Top Strategic Priority for Companies on FORTUNE's Most Admired Companies Rankings," January 2018

[3] BetterCloud, "State of the SaaS-Powered Workplace," 2017

[4] CIO, "6 trends shaping IT cloud strategies today," Clint Boulton, March 2018

[5] Gartner, "CIO Call to Action: Shake Up Your Integration Strategy to Enable Digital Transformation," Massimo Pezzini, Benoit J. Lheureux, Keith Guttridge, 2015