TRANSFORMING IT:

APP CONNECTIONS ARE EASY, INTEGRATIONS ARE HARD

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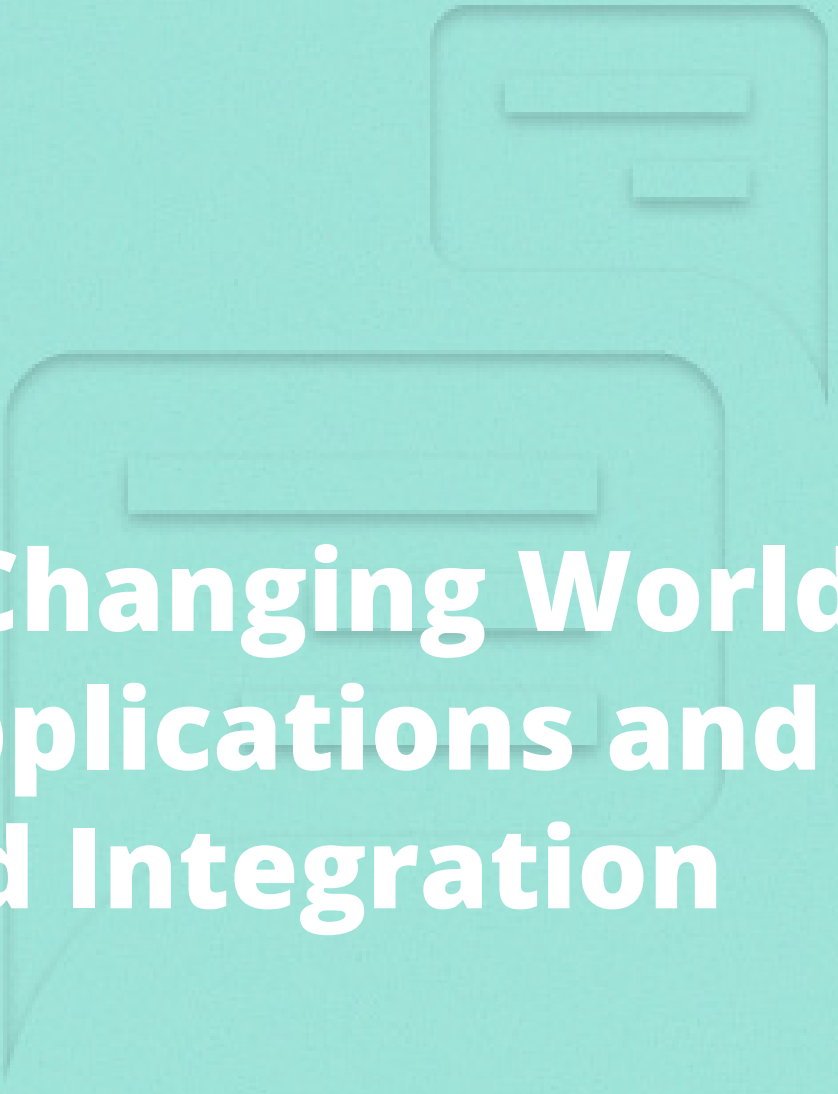

The Changing World of Applications and Cloud Integration

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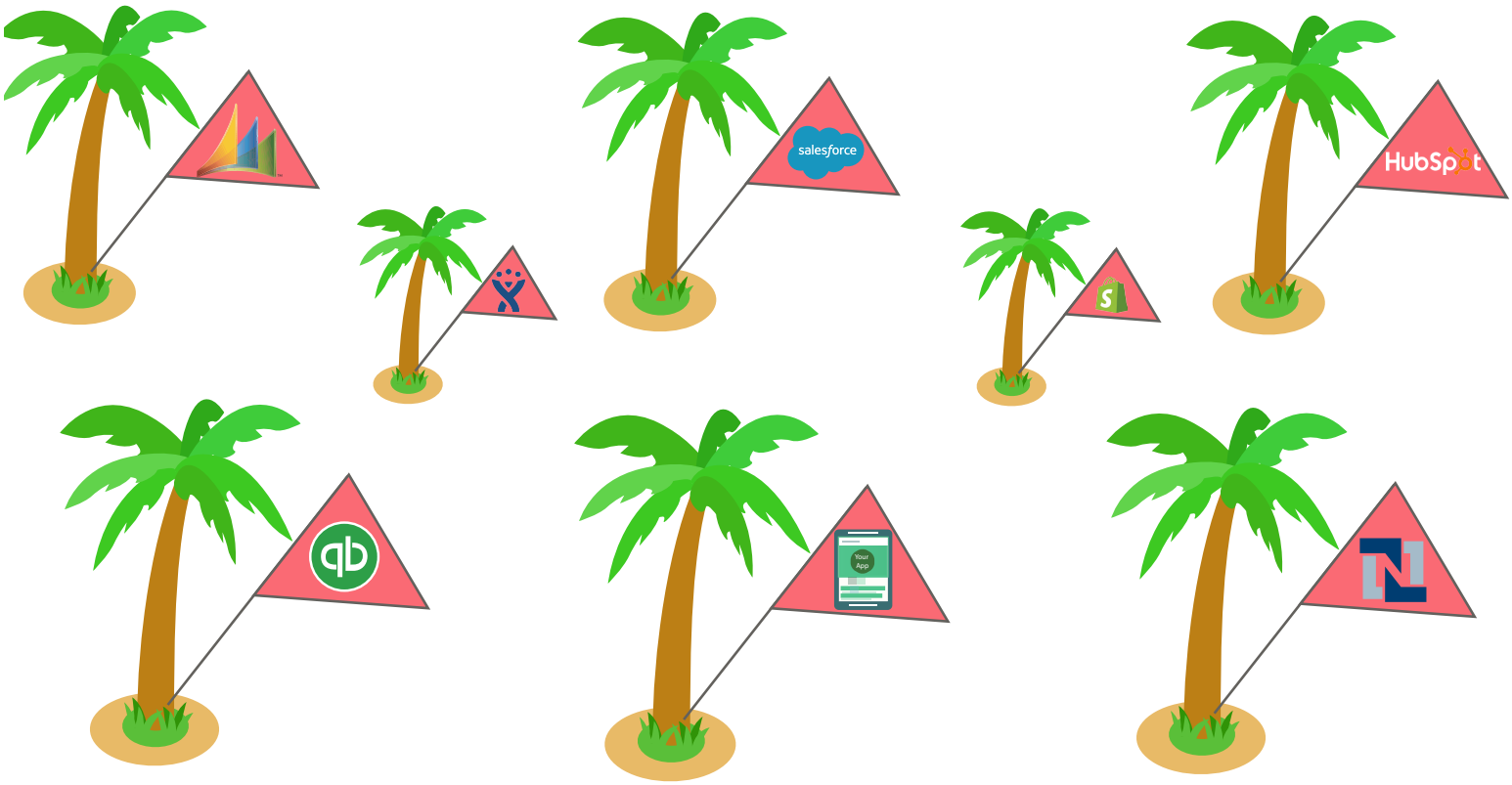
The Changing World of Applications and Cloud Integration

Enterprise IT is facing a sea change – not just in terms of technology, but also how customers and employees expect products or services to be delivered to them. Perceptions of IT across the board reflect decades of IT saying "no" or limiting flexibility and choice for end-users, typically due to well-intentioned concerns around security and manageability. This perception, and the reality behind it, has driven users to look elsewhere for the tools they need, and as a result organizations now have increasingly less control of their data.

What began with a few employees wanting to access business email on their iPhones has quickly spread to massive adoption of personal devices for business use, including laptops, tablets, smart phones and soon perhaps even wearables. And since users cycle between the latest and greatest technologies extremely quickly, managing security at the device level is no longer a realistic approach, making data security an ever-present worry for system administrators. But the challenge isn't limited to BYOD. Users have also been quick to realize that a range of SaaS applications and cloud-based services can improve their productivity and make their work life easier compared with using corporate-issue products and services. The result is a massive but uncontrolled adoption of products such as Dropbox, Salesforce, Amazon Web Services and Google Apps. In fact a typical enterprise has more than 1000 cloud apps and services in use across the organization.



Each app is an island of data

Traditional IT requirements are still valid, yet there is an obvious need for wholesale change in how IT enables corporate users, provides choice, and retains (or regains) control over, and visibility into the flow of corporate data. IT must ask itself a fundamental question:

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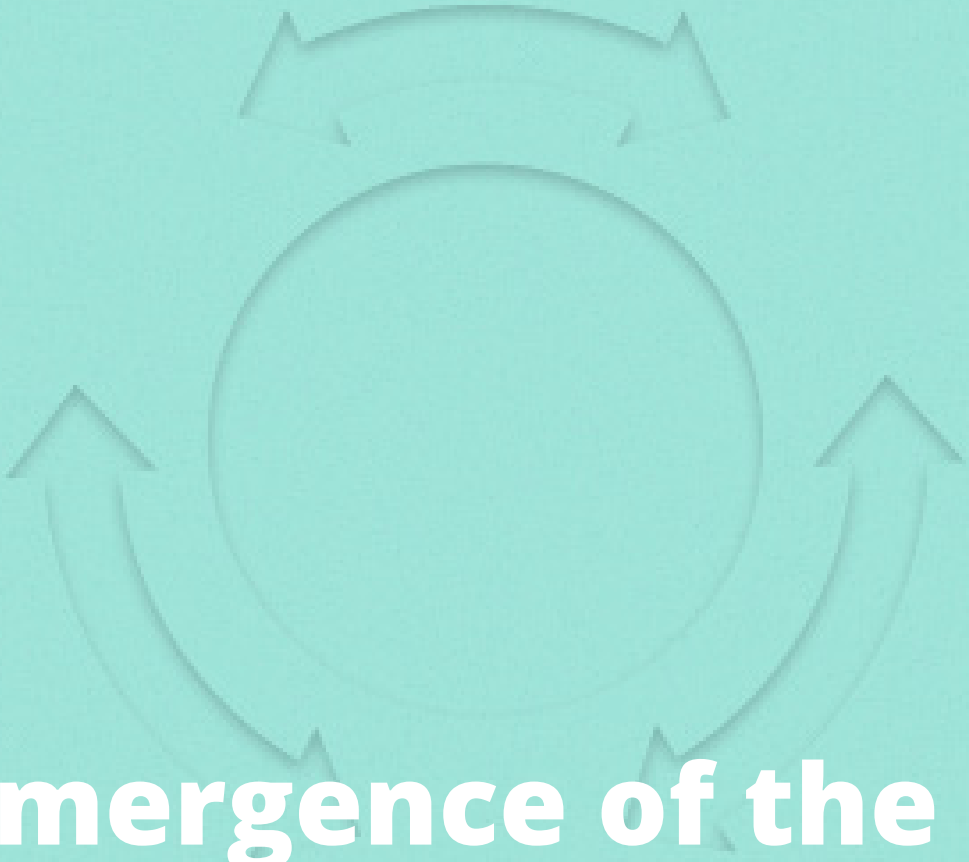
Are the various platforms and solutions underpinning the last ten years of enterprise integration really up to the job of supporting today's demands for agility, connectivity and flexibility?

The imperative to support these new demands is impacting IT organizations in four primary ways, spurring:

1. Organizational changes better aligned with providing services to the business
2. A focus on reducing the cost of service delivery, especially through automation
3. A move away from monolithic or large custom development and toward a more lightweight and agile API-oriented approach
4. Re-thinking of IT network topology to enable low-cost integration with cloud-based services



The Emergence of the Hybrid Enterprise

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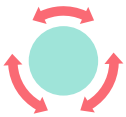
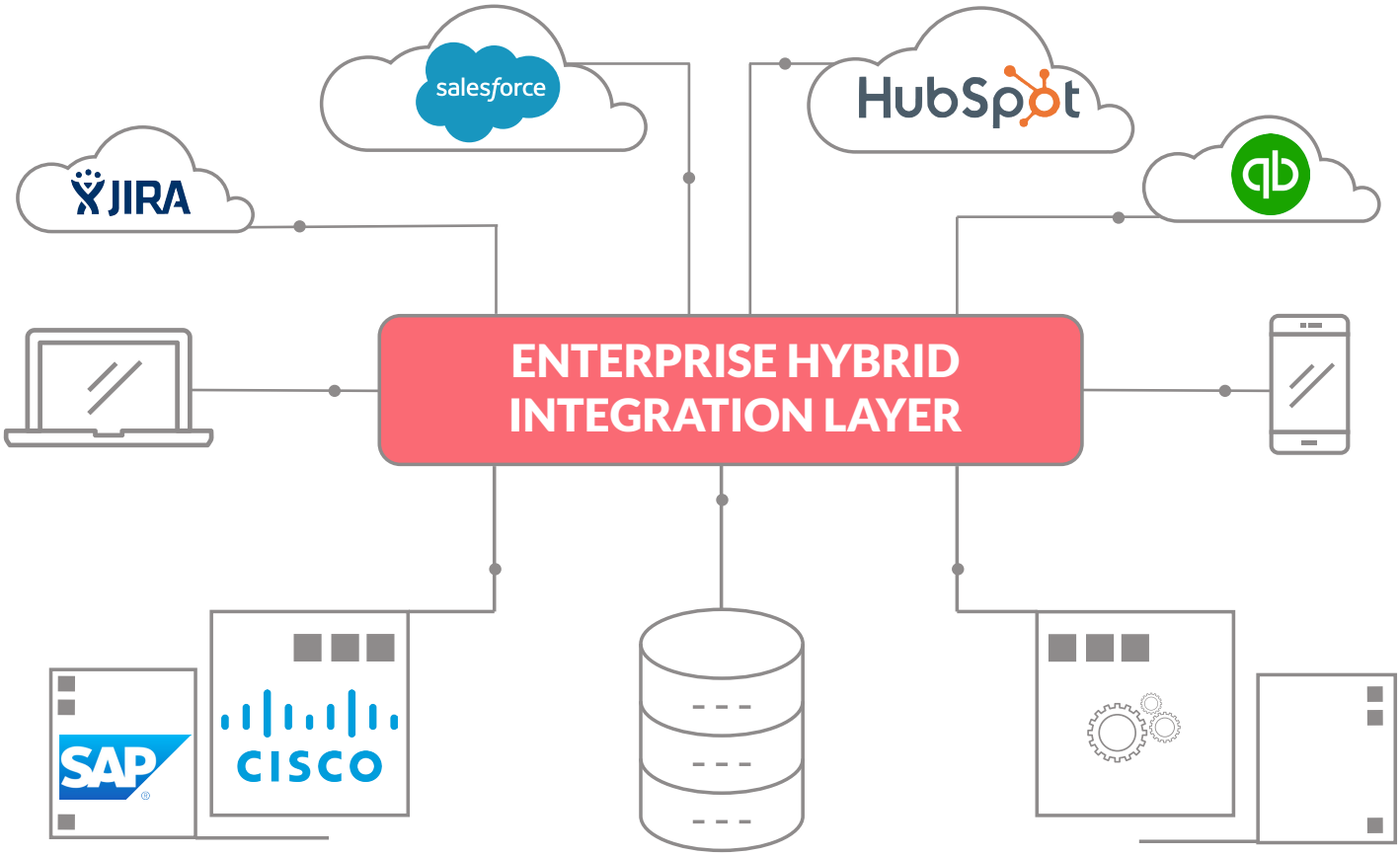


The Emergence of the Hybrid Enterprise

Moving toward greater agility and flexibility, most organizations have now started to embrace the very same cloud applications that previously existed as islands among individuals or teams. But ease of use at the level of one individual or one team is a different order of concern when embraced enterprise-wide. CIOs who endorse and enable corporate use of enterprise cloud services are answering the call for agility and flexibility, but at the same time they may be compounding issues around security, visibility, governance and compliance. Cloud applications don't magically integrate with each other or with on-premise applications, and may not be easy to manage out of the gate. Rather, for a true hybrid environment, organizations will need to create an integration layer that acts as the conduit between IT services within the firewall, cloud-based applications that sit outside the firewall, and the processes that underpin fundamental business and operational requirements.

This integration layer is the first step in building a platform for the hybrid enterprise, by resolving conflicts between old and new formats, extending identity and authorization services to the cloud, and enabling a central governance model for data flow and service access. APIs are at the core of this integration layer, transforming existing IT infrastructure into easy-to-consume services and micro-services, and bridging the chasm between on-premise and cloud.



Creating a common API integration layer that includes the ability to traverse between the cloud, on-premise and mobile devices and applications is a necessary IT investment, since a common API integration layer contains elements that can be reused in subsequent projects. This capability for reuse creates the opportunity to reduce long-term costs, and helps organizations achieve a more compelling ROI story that will in turn build a case for future integration projects.

Cloud-Ready Enterprise Integration

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Cloud-Ready Enterprise Integration

In many IT organizations, external service or partner integration is seen as resource intensive, hard to maintain and prone to failure. This perception exists because businesses have traditionally relied on network-based mechanisms for integration, such as dedicated links or VPNs, which are less flexible and not scalable across large numbers of B2B partners, service providers or applications. In addition, in the modern digitally connected world there is an increased need to directly expose functionality externally to customers via digital channels such as mobile apps.

The key need around integration now is the ability to provide digital services to, and consume them from, the outside world, and to do this in a way that protects internal IT systems while securing services and data-in-motion through configuration and policies. This approach allows rapid turnaround on enabling connectivity and access to services and data in a managed and secure fashion that is better able to support an evolving digital business.

To drive business growth there is also an increased incentive to leverage cloud-based IaaS platforms to support the intermittent scalability necessary for project development and testing, which in turn spurs the need for enabling managed external access to internal development and testing environments.

As discussed previously, the impact of this new approach generally goes deeper than simply enabling service use. You must also take into account the considerable impact related to the following questions:

1. *If you are no longer in full control of the consumer or the provider, how will you manage the relationship, especially around SLAs or other contractual obligations?*

2. *Is your organization ready for the potential change in usage profiles? Are your internal systems able to handle usage-change profiles resulting from differing user demands, such as 24x7 operations?*

3. *How core are your internal IT Systems? Once external access is possible, does it make business sense to move non-core functionality out to a service provider?*

The first two questions above can be successfully addressed through API-oriented integration. Question number 3, however, results from breaking down the silos of traditional IT services. Looking ahead, the reality is that isolation or protection of core IT services is not the answer; your enterprise should continuously consider how moving "core IT" infrastructure to managed service providers and cloud applications can improve productivity, enable organizational change and drive competitive advantage.

Integrating the Cloud into the Business

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Integrating the Cloud into the Business

The cloud application and service model has already changed the way business users view IT products and processes. Cloud providers generally shift the focus from systems and applications to a customer-centric service-based model, and this mindset is required within corporate IT as well. For many early adopters of cloud services, the relationship is often directly from the business to the cloud provider, requiring the business to take on more operational responsibility, and this drives a significant organizational change for large organizations: As the business engages directly with the cloud provider (instead of engaging via the internal IT group), challenges and successes are more visible and will thus more directly influence business stakeholders. Also, as the cloud provider is able to develop a better understanding of the business and its pain points, they are often able to identify opportunities for their organization to upsell their offering based on deliverable business value.

By the very nature of the relationship, cloud providers become more and more able to engage and align around key business objectives within the organization, rather than simply remaining focused on tactical IT problem solving. This in turn puts pressure on internal IT departments to up their game and be able to function and deliver at the same level of agility and flexibility as in a cloud-based model. So, the key question is:

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What is the most effective way to enable enterprise applications and systems to achieve the goal?

One option might be to adopt a more lightweight agile or DevOps model with technology teams directly embedded in the business. Regardless of the model adopted, a key driver is the reality that enterprise IT systems are no longer an island and must build their capacity to integrate with the outside world.

To support this goal, the organization needs to adapt its internal infrastructure topology to allow external access to services and functionality, both as a service provider and a service consumer. In addition to solving internal topology issues, businesses must also effectively and flexibly protect the organizational perimeter – both physical and logical – while ensuring strong security around service and data access.

This scenario is where API integration solutions can drive significant value. API integration technology supports multiple, standards-based integration patterns, and access control and authorization mechanisms based on a flexible, low-cost and configuration approach. API integration platforms can secure and protect internal IT infrastructure and data for external service consumption, ensuring that only the appropriate services and data can be externally accessed. At the same time, API integration platforms let you manage access to external cloud-based services in terms of functionality, services and data.

API, Service, and Data Governance

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API, Service and Data Governance

As with effective integration, effective governance must be lightweight and agile. API and data governance should include considerations around security policy, demand capacity planning and data protection, such as:

- Which production and pre-production services can and/or should be exposed to the wider community
- What kind of security policies should be applied
- Whether/how the service can actually meet expected demand

There is also a need to define and document API specification standards to provide for consumer authentication and integration – especially where partners or cloud services may be consuming sensitive data.

One key governance challenge is to ensure the necessary checks and balances without imposing the burden of a fully-fledged SOA governance model on your API layer. Most governance processes tend to be more focused on internal service consumption, and thus are fairly heavyweight and require significant investment at build and run time. API and data governance, on the other hand, implements a lightweight layer over existing SOA governance models and assumes these aspects have already been validated. Instead of trying to anticipate and define APIs to be set in stone, organizations should assume continuous change and govern to support it, while at the same time re-using existing API services wherever possible

In summary, key issues for planning API governance are:

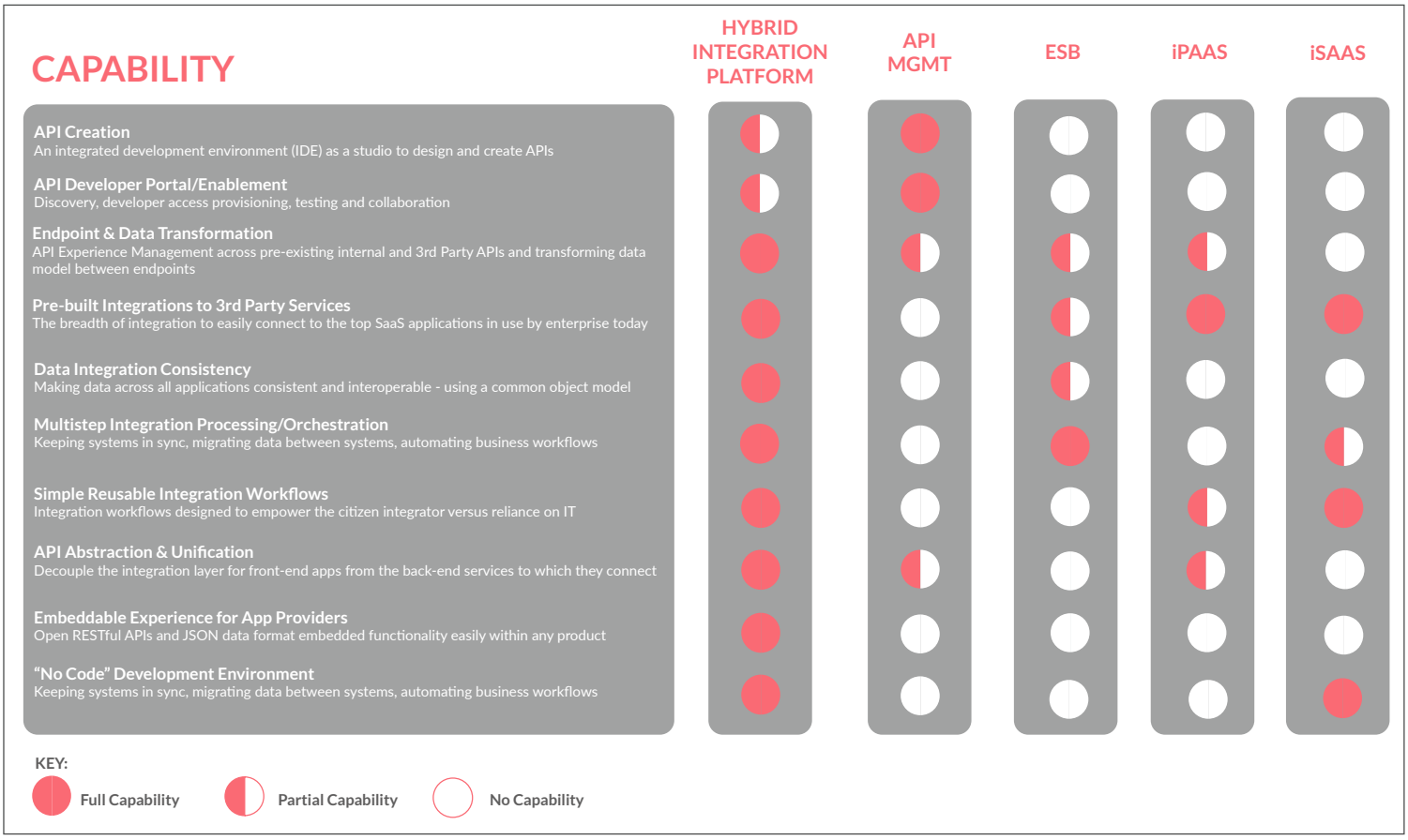
- Can the service be exposed?
- Who can access the service and what type of data can be exposed?
- Do the underlying provider-service SLAs and capacity meet projected API demand?

The overarching goal here is to create a level of governance that is responsive and lightweight, yet fully and easily auditable.

Leveraging a Hybrid Integration Platform

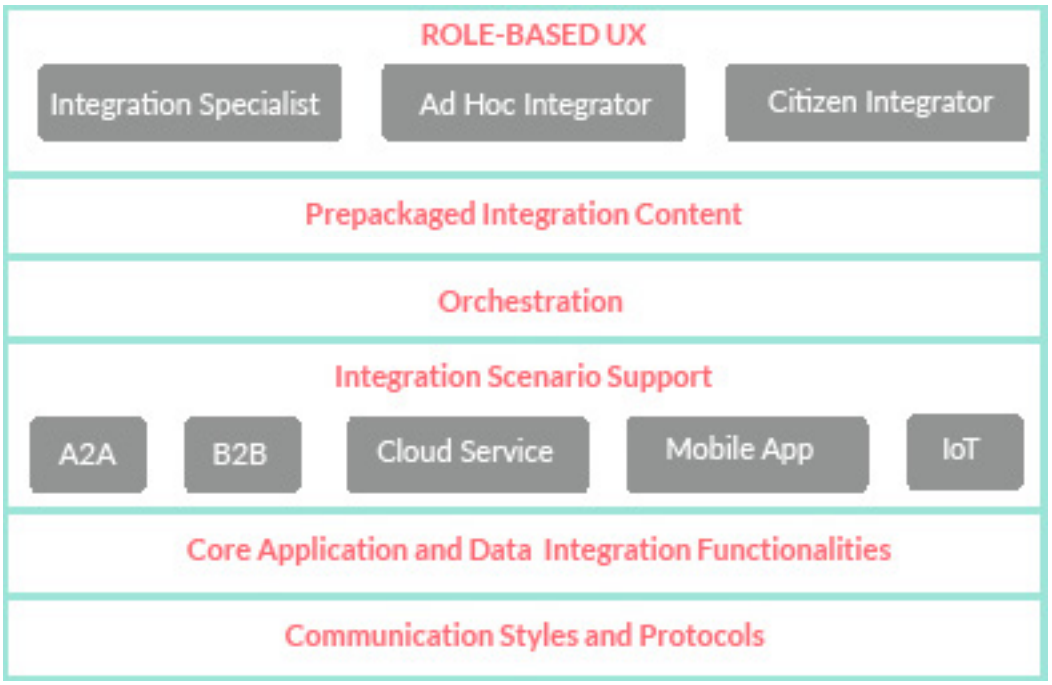
Leveraging a Hybrid Integration Platform

As we've seen, Web APIs are an incredibly valuable trend for modern IT – they unlock data, increase agility, encourage innovation and reduce time-to-value. As such, the API integration layer is an essential part of modern IT architecture and is key to supporting the strategic vision and business goals of the hybrid enterprise.



The foundation of any robust enterprise application platform is a fully featured API integration platform. One of the main roles of the API integration platform in the hybrid architecture described in this paper is to mediate data and application interfaces between cloud providers and the existing IT layer. Existing back-end services come in a variety of protocols – APIs using REST and JSON; web services using SOAP and XML; JMS; a range B2B interfaces; and many more. The API integration platform you choose should offer a range of bi-directional transformation options, and not be limited to REST interfaces. For simple direct transformations such as XML-to-JSON and SOAP-to-REST, the API integration platform should provide pre-configured operations; for complex transformations, it should provide configurable policies and pre-built SaaS app integrations.

Whether it is cloud and hybrid integration, or any other integration project, developers are at the front line of service delivery. Your API integration platform will be expected to provide the tools, artifacts and support these developers need to integrate quickly and successfully. This means providing online and interactive API documentation, in-place testing to see example API calls, and libraries or examples that developers can quickly embed within their projects. Overall, self-service is the key requirement; developers – both internal and external – will expect to interact with your API services with the same ease of use they experience at Amazon or Google.



The New IT Mandate

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The New IT Mandate

Change has been forced upon IT – its people, its processes and its technology. All organizations, regardless of scale, must think about how their existing IT services and underlying architecture can adapt to the rapid pace of cloud adoption, user demands and integration requirements. Web APIs provide the agility, and API integration platforms provide the scale, for organizations to realize greater utility across legacy infrastructure and to seamlessly bridge to a hybrid model by integrating cloud applications. The need is urgent, and the time is now, for businesses to transform their IT environments into API-centric hybrid platforms.

Another key opportunity offered by an effective API integration platform strategy is the enablement of omni-channel interactions. If the same functional services are available across customers, staff, partners and other 3rd parties then omni-channel becomes a reality as an activity can be commenced in one digital channel and seamlessly continued in any other digital channel using the same set of services. Key to this is not just API enablement, but also ensuring the intent to ensure service functionality is constrained by enforceable security policies and business intent rather than technical and physical constraints.

However organizations should not just look at this as being forced upon them. It also offers significant opportunities for those organizations with some digital vision. Internal IT systems offer a wealth of useful data and functionality and APIs offer a chance to monetize this and provide this to the outside world in a managed fashion. So ensure you are connecting your organization to the outside world, not just as a consumer of services but also as an effective provider of services to a much broader audience than your current customer base.

About Cloud Elements

Cloud Elements is a cloud API integration platform that enables developers to publish, integrate, aggregate and manage all of their APIs through a unified platform. Using Cloud Elements, developers can quickly connect entire categories of cloud services (e.g. CRM, Documents, Finance) using uniform APIs or simply synchronize data between multiple cloud services (e.g. Salesforce, Zendesk, Quickbooks) using its innovative integration toolkit.

Founded in October 2012, Cloud Elements is purpose built for developers to help organize their world of APIs through a one-to-many approach. A 'Visionary' in API Management, according to Gartner Inc., Cloud Elements is headquartered in Denver, CO, but serves customers worldwide.

Cloud Elements for the Digital Enterprise

Enterprise companies are facing rapidly changing and evolving set of business challenges such as the rise of APIs and the demand for digital business apps. There is a greater push to delivery highly personalized and integrated experiences for your customers, partners, and employees. The Cloud Elements API Integration Platform enables digital enterprises to provide personalized, integrated experiences across your APIs and digital business applications at scale.

Work with Cloud Elements to:

-Unify your world of APIs to enable on-premise and cloud application agility.

-Create personalized API experiences that are optimized for each application, device, or consumer.

-Build new digital business apps faster and connect to the ecosystem of apps used by your users.

Learn more about us at: www.cloud-elements.com