The Challenges of Cloud Integration

an IT Management eBook

Contents...

The Challenges of Cloud Integration

This content was originally published on Enterprise Networking Planet and IT Business Edge.
Contributors: Arthur Cole and Loraine Lawson

Heading to the Cloud With Greater Openness

By Arthur Cole

It's been said that when great changes are afoot, so are great opportunities. That certainly looks true for the cloud and the decades-long pursuit for greater openness in enterprise infrastructures.

The argument is a logical one: Once enterprises move data and applications off their proprietary infrastructures, open formats are the only way to ensure compatibility with whatever systems and architectures they encounter. Granted, enterprises could always insist that their data conform to a given platform, but that would severely hamper the very flexibility that clouds are supposed to provide.

This is certainly good news for the Linux community, which is actively seeking to get in on the ground floor of enterprise cloud deployments. Red Hat's Enterprise Virtualization 3.0 platform is said by some to finally kicks the feature set of the KVM hypervisor up to VMware and Microsoft levels. Its management system runs as a Java application under the JBoss Enterprise Application Platform, where it has been stacked with features, such as improved self-provisioning, local storage support and an integrated RESTful Web services API. It has already received the backing of some of the top enterprise vendors like Intel, HP and Cisco.

Meanwhile, open source alternatives are popping up elsewhere in the enterprise cloud stack; even the operating system. Piston Cloud Computing offers what it says is the first cloud OS based on the OpenStack platform. The Linux-based Piston Enterprise OS (pentOS) distribution uses the company's Null-Tier architecture to combine compute, storage and networking on the node level, providing greater scalability at lower cost than proprietary solutions. The system can be deployed in 10 minutes and can access any OpenStack-compatible environment, such as those from RackSpace, Dell and Amazon.

The cloud, of course, is all about services, so it would help if enterprises had an open platform to integrate existing service architectures with those on the cloud. That seems to be the goal of The Open Group's latest initiatives: a new SOA reference architecture and the Service-Oriented Cloud Computing Infrastructure Framework (SOCCI). The idea is to support a vendor-neutral common language to bridge the gaps that many services encounter when trying to coordinate with each other on the cloud. Through a shared terminology, services should be able to operate within a wider universe without having to recode and remap individual architectures.

Since the cloud relies on network infrastructure to drive dynamic data environments, more openness on the grid may be warranted as well. Big Switch Networks recently issued an open source version of the OpenFlow Controller as part of the Software-Defined Networking (SDN) initiative. Dubbed Floodlight, the system monitors and maintains control data from OpenFlow-compatible switches from a server-based environment, rather than directly on the switch itself. This provides for greater management centralization and more efficient distribution of network services. The system is available under an Apache 2.0 license along with Hadoop and OpenStack.

Open source proponents say that not only are today's platforms much more flexible and feature-laden than their ancestors of the data silo age, but they also provide much greater reliability and developer support. The Internet, after all, is based largely on open source technology. If an enterprise wants to play on that field, it must adjust to someone else's turf. ■

Getting Down to Earth About Cloud Integration

By Loraine Lawson

I come from a family of farmers — and not the milk-cows and raise-organic-chicken kind of farmers. Both sides of my family were tobacco farmers, which meant hard, dirty work. Tobacco stains your hands, and the dry leaves from a stripping room dust your hair and lungs. You don't stop when you're tired; you stop when it's done.

It's hard to shake that kind of earth-bound experience, even when you talk about something as insanely high-tech as the cloud and as esoteric as integration.

Maybe that's why I appreciate Hollis Tibbetts' appeal for pragmatism in integration — particularly when it comes to the cloud.

Tibbetts is a 20-year veteran of the middleware and integration space. He's worked for a number of integration companies, most of which have been acquired by big names like Software AG, Oracle and SAP.

Cloud-based integration solutions can be confusing. In a series of recent articles, Tibbetts takes Gartner to task for compounding the confusion in a recent report on iPaaS solutions. The problem is that Gartner's defining an emerging market of solutions that, frankly, don't exist yet.

In an effort to simplify cloud-based integration, Tibbetts breaks it down for you: Cloud-based integration is software that runs "as a service" in the cloud, he explains. You subscribe to it or you pay as you use it. What you get in return are connectors for applications, data sources or data files. Basically, if you want cloud-based integration, you have four options:

1. Application integration. This is a good option for delivering small transactions in near-real-time, he writes, "These integrations are typically business

process oriented — that is to say, as soon as 'something happens' in the originating application, for example, when a customer orders a product, it triggers the integration platform to do something — for example, submit the credit card charge to the payments system." MuleSoft's iON is an example of this type of cloud-based integration.

2. Data integration. Just as with on-premise systems, data integration is typically done in batches, meaning you move the data between systems on a schedule, whether it's every few minutes or once a month, Tibbetts writes. You can do a number of things to the data as you move it — but it's all about moving large amounts of data. This is the approach that's usually used to make sure your Salesforce data is shared with another application, either on-premise or in the cloud. This is the category where most cloud-based integration offerings fall, including Dell-Boomi, IBM's WebSphere Cast Iron and Informatica.

3. Federated data integration - aka, enterprise information integration. This is good for fetching information for a management dashboard so you have the latest data, but you wouldn't use it to run "big historical data reports with information from multiple places," Tibbetts says. As I understand it, this is increasingly called data virtualization or federation. For example, Composite Software was once known as an EII solution, but now markets itself as a data virtualization and federation solution and, yes, offers cloud integration.

4. Managed File Transfer. Use this when you have files — not data, but files — that you want to manage, monitor, track and transfer to somewhere else. It's a few evolutionary steps beyond FTP (file transfer protocol). This is where B2B integration vendors typically fit. Vendors include Hubspan, Ipswitch, TIBCO and IBM Sterling.

Those are your options; the trick, of course, is figuring out who fits where. Vendors tend to "cloud-wash" solutions these days, describing them in ways that confound and amaze. Beware if solutions promise more than the vendor — or, really, any vendor — can deliver. Instead, focus on what's pragmatic, hard-working and, yes, maybe a little stained from hard work over the years because while cloud may be new, the integration options, it seems, are not. ■

Should You Outsource Cloud Integration?

By Loraine Lawson

Recent research shows cloud integration continues to be a big issue for companies. But like all challenges, cloud integration can be seen as a problem or an opportunity.

The potential problem: The cloud allows us to build even more silos as we expand to the cloud.

The opportunity: to rethink integration and create a new, more functional, integration strategy, says David Linthicum.

Integration is more cost-effective today than ever — and that makes it easier to make the ROI case for it, according to Linthicum. Standards make integration simpler, and solutions that would have once cost $1 million can now be found for a fraction of that, he writes.

This doesn't mean you should shrug off due diligence about integration in the cloud, however.

Without a plan, integration requirements can quickly erode the so-called "IT-free" value proposition of cloud solutions, warns Deloitte Consulting's Mark White and Bill Briggs in a free 2012 report on technology trends. CIO.com wrote about this challenge, and included this telling quote from the report:

> As more functional business leaders independently subscribe to cloud offerings outside of the trappings of traditional IT, underlying business processes can become riddled with multiple cloud players that the organization itself must integrate and orchestrate. As a result, much of the IT-free value proposition can dissipate at the enterprise level.

Oops. That's not good.

One option the article explores is the idea of off-loading integration to a third party, aka a cloud service broker. Mohawk, the largest premium paper manufacturer in North America, looked at its options for integrating cloud services, including integration platform as a service (iPaaS) and integration appliances, but in the end, the company decided it did not want to be in the integration business.

It outsourced its cloud integration to Liaison, an aggregator and orchestrator of cloud services, to manage its cloud and on-premise integrations. Liaison takes the burden of integration off the company's six-person IT staff, while still allowing Mohawk to integrate its supply chain with 300 customers, 100 suppliers and external e-commerce partners. The cloud service brokerage also mediates Mohawk's third-party cloud services providers.

Removing the tactical, technical issues allowed Mohawk to focus on adding the new, external service

to its applications, as when it added a foreign currency conversion service, the article points out.

How do you know if this approach will work for you?

The CIO.com piece offers a few guidelines for using a cloud service broker for any function, not just integration — but for the most part, all apply. Briggs and White suggest consider a cloud service broker if all five of these factors are at play:

- Predictable pricing
- Ubiquitous network access
- Resource pooling and location independence
- The ability for users to directly access the service
- Elasticity of supply, meaning the ability to scale as your needs change

Choosing a Cloud Integration Provider

So you've decided to outsource your cloud integration effort. Now it's time to make some tactical choices. The good news here is that you may be surprised at the numerous integration options available.

Rebecca Wettemann, vice president at Nucleus Research, a research and advisory firm, told TechTarget that 80 percent of cloud integration can be handled with by "out-of-the-box integration."

There are even options for integrating unstructured data, such as video, images, XML and geospatial data.

There are three basic approaches to integrating SaaS:

- Connectors, or "prepacked" integration, are one of the easiest ways to solve integration. They can run on-premise or in the cloud. When they run in the cloud, on a third-party's server, it's called cloud-based integration, or, more commonly, integration as a service.
- Custom code, which is what a surprising number of SaaS providers and organizations do to solve integration.
- Embedded integration built with an iPaaS.

The problem isn't so much how to solve integration, but rather how to find the right solution for you.

Here are a few pointers I picked up while researching this topic:

1. Discuss integration before you sign on with a SaaS provider. SaaS and cloud providers are well aware that integration is a major barrier to their clients and should at least be able to talk to you about your options. A recent Mulesoft/THINKstrategies survey found that one in every two SaaS companies claim more than 50 percent of their customers require some form of integration.

If your service provider suggests writing custom code for a point-to-point integration, it's going to add time and money to your project. Ask who will maintain the integration, what service-level agreements the vendor will offer on the integration, how much it will cost, and how long it will take.

"SaaS and cloud providers are well aware that integration is a major barrier to their clients and should at least be able to talk to you about your options."

2. Before you commit to custom code, talk to integration vendors. Most — possibly all — middleware and integration vendors offer SaaS integration solutions these days.

3. Still no solution? Shop the marketplaces. Several integration vendors, including SnapLogic, Informatica, Pervasive Software and Jitterbit support communities or shops where developers can sell their custom integration connectors or flows. The developers can set a price for these integrations, allowing you to buy rather than build. Bottom line: Unless you're trying to integrate a highly niche or custom-built application or data format, there's a good chance someone has already addressed this problem for you.

4. If you want to integrate with Salesforce.com, you're in luck. In my opinion, Salesforce.com is a model for integration support in the SaaS industry. I'm having a hard time finding a SaaS vendor that can beat Salesforce when it comes to documenting integration options. Salesforce offers support for five approaches to integration: Connectors for 75 integration solutions; custom code; the App Exchange, which offers integration for over 800 applications and components; native connectors for ERP and desktop productivity tools; and cloud services toolkits for Amazon, Google App Engine and Facebook.

If that's not enough, almost everybody in the cloud integration business offers connectors to Salesforce.

You would think the widely publicized and promoted options for integrating Salesforce would be enough, but no. Force.com recently launched a beta Cookbook of Best Practices and Code Samples, with 33 Web service APIs and toolkits for integration, plus help for databases.

Companies Handling Cloud Integration Internally, Despite Skill Gap

By Loraine Lawson

Integration topped the list of complaints IT executives have about cloud implementations, according to a 2012 KPMG survey.

This is at least the third year integration came out as a major issue for companies moving to the cloud — but this time, it's not a theoretical concern.

KPMG queried nearly 700 executives located around the world, half of whom are already involved with cloud initiatives.

Of those who have tried the cloud, nearly one third say it's harder and more expensive than they anticipated, with 33 percent of all executives complaining about the higher costs for three areas: implementation, transition and integration.

For 31 percent, integrating cloud services with their on-premise applications and systems is turning out to be more complex than expected.

I think this is the first year that cloud integration and implementation issues actually outranked security and compliance issues. Security risk was cited by 26 percent and compliance/legal issues by 18 percent.

But to my mind, rather than serving as a warning, this news actually raises questions.

Are we to assume, then, that two-thirds did not see integration as an issue? If that's the case, why not? CIO.com points out that 70 percent of the respondents say "the cloud had already delivered significant efficiencies and cost savings."

What's going on with that one-third when it comes to integration? Are they integrating more unusual legacy systems? Are they using SaaS solutions that aren't well supported?

Have they tried talking with any integration vendors about a solution — or are they hand coding on their own?

The report, which is available as a free download, includes an even more revealing finding about integration: Most respondents said that integration with existing architecture was one of the areas where their organizations demonstrated the least amount of skill. This means they rated interoperability as a 3.75 and integration a 3.67 on an ability scale of 1-5, with five being the highest — scores that ranked well below a list of other abilities.

Yet at the same time, the majority also said they are relying primarily on in-house for managing the implementation and integration. ■