REPORT REPRINT

The cloud industry must embrace complexity to survive

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Introduction

Enterprises are embracing hybrid/multi-cloud – multiple IT execution venues, multiple clouds and multiple capabilities. They are demanding complexity, because it adds value to their businesses through better applications. The whole technology industry should meet this demand and evolve to enable complexity without letting it get out of control.

451 TAKE

Complexity is a good thing – it has taken us from the abacus to transistors to the home PC to the cloud. The whole industry must embrace and enable it. Don't look to simplify applications – look to simplify their management. Don't fixate on basic cloud infrastructure: focus on the application and how a number of services enable it. Don't rest on your laurels – customers and prospects will want to consume and integrate new cloud services for the simple reason they want to give their customers the best experience. When performance and availability are failing, this means recommending serverless, containers, cloud-native tools and microservices, not just a bigger virtual machine. Evolve to improve your chances of survival: reap the rewards of complexity. This topic will be the focus of our session at this year's Hosting and Cloud Transformation Summit.

Willful complexity

Figure 1

Source: 451 Research, LLC

The humble beehive is a microcosm of complexity. Each of the 50,000 bees inside has its role, from caring for the young to guarding the colony to foraging for food. Each communicates with other bees by dancing to show the direction of nectar and pollen. And when the queen is weak, they know this via pheromones and collaborate to raise a new queen. When she is born, she flies to a pre-ordained location where other queens and males are waiting. She mates, flies back to the hive and takes ownership. The complexity is such that it would be impossible to get an exact view of everything going on in the hive at any point in time.

This complexity creates value in the form of honey, which the bees use for winter sustenance and we use for many things including our morning toast. This complexity has evolved as a system that works for the bees and to resolve it would be counterproductive.

This is what we are seeing in the industry today as cloud introduces a new (and increasingly mainstream) way of doing things into the enterprise IT mix. Enterprises are choosing complexity, because it delivers value in the form of differentiated offerings, more efficient applications, happier customers and lower costs. It shouldn't be resolved or reduced because this will also reduce value.

A decade ago, it was often said that cloud was just like electricity – plug in and consume what you need, when you need it. Although enterprises like the no-capital, on-demand consumption form of payment for IT services, it's become clear that enterprises want control and options regarding which provider and which services are best for each application's needs. Rather than thinking of cloud as a simple socket, it might be better thinking of cloud as a huge array of sockets, each of which can be turned on and rerouted at will depending on specific need.

Since September, the Cloud Price Index has seen the number of individual SKUs from AWS, Google and Microsoft rise an astonishing 86% to over a million. That's the equivalent of all the bees in 22 beehives. Clearly, enterprises don't suit a 'one size fits all' approach.

When we started the Cloud Price Index in 2015, we focused on public cloud because this was where most inquiries were coming from. We subsequently added coverage of private cloud, services up the stack, managed services, country-specific data and hybrid cloud because it became clear that enterprises wanted a mix of options, capabilities and services. According to the Voice of the Enterprise: Digital Pulse, Budgets & Outlook 2019 survey, 62% of enterprise decision-makers identified hybrid as the primary IT environment strategy and the top reason was to the need to leverage vendor-specific platform capabilities (as well as existing on-premises resources). In other words, enterprises want the flexibility to mix and match the best tools for the job to gain maximum efficiency and deliver the best value. Far from simply wanting to plug in and consume virtual machines, enterprises want complexity.

However, as hybrid/multi-cloud becomes the default framework for enterprise IT, the dynamic mix of on-premises and off-premises infrastructure, containers, VMs, cloud providers, distributed workload execution venues and emerging technologies complicates the task of making cloud work 'as advertised' (i.e., delivering the key benefits of speed, agility and scale.)

Unintended complexity

Most beehives contain frames with a wax foundation upon which the bees can build honeycomb to store eggs, pollen and, of course, honey. But sometimes, the bees build comb in an undesirable place: on the cover or hanging off frames. They aren't sturdy enough, so this becomes a hindrance, especially to the beekeeper. This is unintended complexity brought about by the willful complexity.

The same is beginning to take place with cloud. In a 451 Research study commissioned by the cost management firm Cloudability, 58% of 300 decision-makers said they were overspending on cloud resources compared with budget. A hefty 8% said they were paying 2-4x their budget. Perhaps more alarmingly, this spiraling complexity was affecting more than costs: 38% said sub-optimal application service levels were resulting, and a quarter stated innovation was being affected.

In an ideal world, willful complexity, which provides the capability for applications that add value, needs to be supported and even encouraged. But there must be some control to stop unintended complexity getting out of hand.

Harnessing the power

Figure 2

Source: 451 Research, LLC

In the beehive, a queen excluder sits above the box containing the queen and her brood. Effectively a grid, it allows worker bees to move around and deposit honey but prevents the queen mixing eggs with the honey to be collected by the beekeeper. The queen excluder is a tool that enables the complexity of the hive to be harnessed for a specific use (harvesting honey), but it certainly doesn't resolve or reduce the complexity. This is how the industry needs to think about cloud today. Optimization, not resolution.

What is the difference between the two? Resolution suggests the 'dumbing down' or simplification of complexity, but the result is that much of the value that that complexity has created might be lost. Optimization means the complexity will remain but will be managed; i.e., accepting that things will be complex and not perfect but good enough such that agility remains without complexity, making things unmanageable. Resolution suggests a one-off event with disruption of the value chain by dumbing it down; optimization suggests an ongoing need to reassess and react while enabling greater value.

Crucially, this optimization can't just be driven by tools. Tools provide data that can be used to optimize but expertise must still be required. Yes, analytics tools can recommend when a resource is underused, and automation can buy a better-sized instance when this is detected. But human intervention is needed to understand that a resource is intentionally being underused as product management is about to launch a new service.

With that in mind, professional and managed services are a source of this expertise for enterprises, and a big opportunity for service providers. For vendors that provide tools, automation and data analytics, managed service providers (and channel in general) are too the opportunity.

What does this mean in practice? When your customers need support, advise them how to grow by using new capabilities, not just to pursue the status quo. Which applications should move to the cloud and when? Which cloud is best for each workload? Can it be done better with containers or microservices? How should performance be balanced – what really matters to business objectives? Does it have to be compliant or is 'good enough' enough? Answering these questions requires data, but data is only the first part of the story – experts that understand the application, the use case and the customer turn these answers into technical solutions. The industry needs to move beyond 'let's give you a bigger virtual machine' to 'let's make your application better.'