

Hybrid Clouds

SEEMS LIKE EVERYONE YOU TALK TO THESE DAYS SAYS THAT THE FUTURE IS HYBRID CLOUDS.

This move toward hybrid is based on the assumption that companies have specific architectures, application landscapes, and data that they will not move to public clouds. Whether it's "not now" or "never" will be seen as clouds continue to evolve. Eventually, everyone will likely be comfortable choosing private or public or some combination of the two.

Successful hybrid cloud implementation requires a well-structured architecture that can support the functionalities of both private and public clouds and the seamless transitions between them. One simple example of hybrid cloud function is the ability to support workload overflow by moving data from private to public and back. A second example is to make sure the right data is present for the right application at the right time in whichever side of the hybrid cloud the application is running. I'm sure you can think of many similar examples.

Another important aspect of hybrid clouds is the management infrastructure, which needs to be comprehensive enough to have visibility—though not necessarily full visibility—to both private and public environments. These and many other nu-

ances will determine a hybrid cloud implementation's success.

The market isn't making it easy for customers. The recent *RightScale 2016 State of the Cloud Report* suggested that an average user leverages up to six clouds for various purposes, such as running applications, performing test and development, or just dabbling with the cloud.¹ But customers could also be confused because many cloud derivatives are mentioned frequently in academic and professional circles—intercloud, federated cloud, multicloud, and so on. Even the terms private and public clouds are causing some confusion in the market. The main reason is it's possible to zone (or quarantine) a dedicated area in a public cloud datacenter for one specific customer, effectively creating a private cloud for the customer. Hence the terms on-premise (AKA on-prem) and off-premise (AKA off-prem) are sometimes preferred over private and public, respectively. Others use the term "federated cloud" to refer to any multicloud deployment, regardless of whether it's intercloud, intracloud, or hybrid cloud.

I've asked David Linthicum from our editorial board to provide clarity about the whole cloud delivery models taxonomy. So please check the "What's Trending?" column in this issue.

Although the articles in this issue don't follow any common theme, the columns and departments focus on hybrid cloud-related topics.

In addition to explaining complex cloud patterns in a "What's Trending?" column, David goes into more detail in his "Cloud Tidbits" column, discussing the pros and cons of different hybrid cloud architectures and technologies.

Joe Weinman's "Cloud Economics" column obviously addresses the economics of hybrid clouds. One interesting conclusion is that hybrid clouds, depending on the heterogeneity of the application landscapes, could be more cost effective than public or private clouds.

In the "Cloud and the Law" column, Christian Esposito, Aniello Castiglione, and Kim-Kwang Raymond Choo touch on encryption as one possible solution to multicloud deployments.

In "Cloud and the Government," guest author Adam Gordon talks about what it takes to arm professionals with security credentials for hybrid clouds.

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In “Bue Skies,” Maitreya Natu, Ratan K. Ghosh, Rudrapatna K. Shyamsundar, and Rajiv Ranjan address the challenges and future research areas for performance monitoring, as part of the management infrastructure, for hybrid clouds.

Finally, in his “Standards Now” column, Alan Sill looks at recent standardization efforts that support the boundary crossings that occur in hybrid cloud deployments.

I HOPE YOU ENJOY THE ARTICLES IN THIS ISSUE OF IEEE CLOUD COMPUTING MAGAZINE! Next issue, look for columns and departments to explore various aspects of cloud migration. Feature articles will focus on the theme “Security and Dependability of Cloud-Assisted Internet of Things.” ●●●

Reference

1. *RightScale 2016 State of the Cloud Report*, Rightscale, 2016; www.rightscale.com.

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revised 10 December 2015

