NIST definition of cloud computing doesn't go far enough

Summary: *The National Institute of Standards and Technology published its 16th and final definition of cloud in September. A great resource for government agencies, but businesses may need something more strategic and less tactical.*

By Joe McKendrick for Service Oriented | March 5, 2012 -- 08:53 GMT (00:53 PST)

What is cloud computing again? Dave Linthicum revisited this question (http://www.infoworld.com/d/cloud-computing/redefining-cloud-computing-again-187467) , observing that many people are referencing the cloud definition (http://www.nist.gov/itl/csd/cloud-102511.cfm) established at the US federal government level, by the National Institute of Standards and Technology (NIST).

NIST admits that it has published no less than 16 updates to the definition, with its final definition (http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf) published in September 2011. In short, NIST defines cloud this way:

> "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

Not enough, Dave says. And I agree. NIST's definition is intended for government agencies, which have different motives -- mainly efficiency -- for turning to cloud. On the business side, cloud may mean entire new business models, a platform that can launch new lines of business.

A report (http://www-935.ibm.com/services/us/gbs/thoughtleadership/ibv-power-of-cloud.html) from The Economist Intelligence Unit and IBM finds that among 572 business leaders surveyed, almost three-fourths indicate their companies have piloted, adopted or substantially implemented cloud in their organizations – and 90% expect to have done so in three years. However, the report's authors, Dr. Saul Berman, Lynn Kesterson-Townes, Anthony Marshall, and Dr. Rohini Srivathsa, all with IBM, suggest that few companies -- only 16% of respondents -- see cloud as enhancing companies' opportunities for "sweeping innovation, such as entering new lines of business or industries, reshaping an existing industry or transitioning into a new role in their industry value chain."

Designing new products and services in the cloud is one example. For example, Apple's Siri (http://www.apple.com/iphone/features/siri.html) , the cloud-based natural-language intelligent assistant on the Apple iPhone 4S (http://www.apple.com/iphone/features/siri.html) , enables users to send messages, schedule meetings, place phone calls, find restaurants and more, employs artificial intelligence and a growing knowledge base about the user to understand not only what is said but what is meant. "In a nutshell, it leverages the computing capabilities and capacity of cloud to enable individualized, context-relevant customer experiences."

Dave notes that "so many design and architectural patterns are emerging around the concept of cloud computing that it's difficult to fit everything into NIST's definition. I'm counting well past 100." The problem is that it is a tactical definition, versus its ultimate value, "sharing solutions and pushing risk out of the

business."

Ultimately, the term may disappear, vendors will move on to hyping the next big thing, and we'll remove the "cloud" from "cloud computing" as it simply becomes a ubiquitous method by which applications and services are assembled and accessed. For example, who talks about "desktop computing" or "web-based applications" any more? We're already getting close to that point.

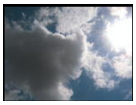
Topics: Cloud, Apple, Hardware, IBM, iPhone, Servers, Smartphones, Storage

About Joe McKendrick

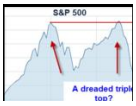
Joe McKendrick is an author, consultant and speaker specializing in trends and developments shaping the technology industry.

Related Stories

CIO view: NIST helps cut vendor cloud FUD
ZDNet



9 ways cloud will impact IT employment
ZDNet



Scientist Predicts 60% Market Collapse
Newsmaxhealth.com

Talkback

re:

"What is cloud computing again?"

Apparently a word only NIST can truly define -_-. Everybody else has their own fuzzy vision of what they think it is. Personally, I've always disliked using the word because it really has no meaning.

"For example, who talks about 'desktop computing' or 'web-based applications' any more?"

Who ever used "desktop computing"? I don't recall that much usage of that term to begin with.

And most of your article is "we innovate, therefore the definition of the word 'cloud' is inaccurate"? I don't quite follow that logic. How does innovation change the definition of a word?

"Ultimately, the term may disappear"

Frankly, I wish it were never invented. It was always a really bad term. It had no purpose. It was basically there for marketing types as a catchy word to sell new products, and for tech news to overuse and overhype.

CobraA1

5 March, 2012 23:19

Reply *Vote*

Defining cloud

For IT leaders the definition of cloud should be a flexible, scaleable platform designed to help the organization innovate and achieve strategic goals. Unfortunately with all the vendors in the mix each with their own "cloud" offering, the definition of cloud is often quite murky.

pfretty@...

6 March, 2012 09:59

Reply *Vote*

GCN Technology, Tools and Tactics for Public Sector IT

COMMENTARY

Why NIST's cloud definition is fatally flawed

- By Michael Daconta
- Mar 22, 2012

I recently sat through a briefing on cloud security in which the presenter incorrectly defined platform as a service and then asserted that "PaaS is going away."

Given that PaaS incarnations such as Hadoop are the mainstay of big data, that would imply that big data is going away — and that is patently wrong.

Furthermore, the laypeople in the audience failed to grasp the slide on NIST's "3-4-5" definition framework of cloud computing, which uses three service models, four deployment models and five characteristics. The framework was too complex and failed to provide the simple, unified concept of cloud computing that this audience desperately needed.

Related coverage:

NIST to tackle big data in 2012

NIST tackles security, privacy of cloud computing

NIST had failed an audience that had heard so much about cloud computing, only to remain lost in a flawed and tangled definition. Over the next few weeks, that continued to grate on me until I realized the root cause of the problem: NIST's definition of cloud computing is incomplete, distorted and short-sighted.

Here's how:

NIST's definition of cloud computing is incomplete in two significant ways: first, by excluding the notion of big data and second, by limiting itself to three out of an almost infinite number of possible "things as a service."

In relation to big data, GCN's recent cover story "Taming Big Data" and a recent InformationWeek article on "Hadoopla!" reported on the big data revolution and its explosive growth in both vendor implementations

and customer adoption.

Rapid elasticity?

Big data is a critical cloud business driver that must be part of any serious definition. Although some may feel the characteristic of "rapid elasticity" broadly covers data volume, it is one-dimensional and omits the equally key aspects of variety and velocity.

In relation to everything as a service, a recent Network World article titled "(fill-in-the-blank)-as-a-service" demonstrates how vendors have absurdly twisted the "as-a-service" moniker into anything they already do. This fails to differentiate and thereby define what the cloud actually is.

The NIST definition is distorted because it implies that the three service models — software as a service, platform as a service, and infrastructure as a service — are layered, which is not necessarily true. It also implies the models are of equal importance and scope, which is significantly false.

In isolation from PaaS, SaaS is simply a rebranding of Web apps via an Application Service Provider. Instead, the focus must and should be on developing cloud apps that use cloud services. This is the Apple iCloud model.

And IaaS is just server virtualization. This is great for data-center efficiency but offers none of the key cloud benefits, including scalability, metering and big data. Virtualizing what you currently do, while it might be good business, does not deliver any meaningful cloud capabilities.

New type of OS

A cloud is not about virtualizing a single operating system. It is about a new type of OS that can span any number of machines. That is the magic of the cloud. Google rewrote a file system to allow its index of Web pages to span across any number of cheap Linux-based machines and thus spawned the notion of the cloud. That concept of a multi-machine approach must be the heart of any true definition of cloud computing.

The NIST definition is short-sighted because it merely describes the current state of IT affairs through some empirical observations and fails to account for how the cloud is evolving. PaaS is in extreme flux; SaaS is irrelevant (in cloud terms) without PaaS; and IaaS is actually unrelated to true, multi-machine cloud capabilities.

What are the ramifications of all of this? NIST has been forced between a rock and a hard place by the "Cloud First" policy to take a stand on a set of technologies that is still emerging. In the end, that will cause the government to spend double or triple what it should by rushing into unfinished technology.

Consider a recent InformationWeek article that proclaimed "Cloud computing is still in its adolescence." Add to that the fact that Apple's iCloud is a major new entry in this space with its own ideas on the cloud. So, let me again caution government IT managers: Until you know how to define the cloud, don't migrate to it.

Michael C. Daconta (mdaconta@incadencecorp.com) is vice president of advanced technology at InCadence Strategic Solutions and the former Metadata Program Manager for the Homeland Security Department. He is currently working on the second edition of his book, "Information as Product: How to Deliver the Right Information to the Right Person at the Right Time."

About the Author

Michael Daconta (mdaconta@incadencecorp.com) is the vice president of advanced technology at InCadence Strategic Solutions and the former metadata program manager for the Homeland Security Department. He is currently working on the second edition of his book, "Information as Product: How to Deliver the Right Information to the Right Person at the Right Time."