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Research Paper

The Impact of Cloud Computing on Licensed and Unlicensed Software use

Management

KEYWORDS : cloud computing, licensed, unlicensed software

Dr. Sadashiv S. Muley LalBahadur Shastri Sr. College, Partur- Dist – Jalna (Maharashtra)

ABSTRACT

"Cloud computing uses networks of large groups of servers typically running low-cost consumer PC technology with specialized connections to spread data-processing chores across them. This shared IT infrastructure contains large pools of systems that are linked together. Often, virtualization techniques are used to maximize the power of cloud computing. Cloud computing provides licensing, access & other features of software through online mode. It surely helps to control the unlicensed software use in several countries. But the scenario of cloud computing is not as effective as everyone thinks. It is effective in reducing the unlicensed software use in developed countries where the rate of unlicensed software use is already low."

Introduction -

Cloud computing is a model for enabling ubiquitous, convenient, on-demand access to a shared pool of configurable computing resources. Cloud computing and storage solutions provide users and enterprises with various capabilities to store and process their data in third-party data centers. It relies on sharing of resources to achieve coherence and economies of scale, similar to a utility (like the electricity grid) over a network. At the foundation of cloud computing is the broader concept of converged infrastructure and shared services.

Cloud computing, or in simpler shorthand just "the cloud", also focuses on maximizing the effectiveness of the shared resources. Cloud resources are usually not only shared by multiple users but are also dynamically reallocated per demand. This can work for allocating resources to users. For example, a cloud computer facility that serves European users during European business hours with a specific application (e.g., email) may reallocate the same resources to serve North American users during North America's business hours with a different application (e.g., a web server). This approach helps maximize the use of computing power while reducing the overall cost of resources by using less power, air conditioning, rack space, etc. to maintain the system. With cloud computing, multiple users can access a single server to retrieve and update their data without purchasing licenses for different applications.

Proponents claim that cloud computing allows companies to avoid upfront infrastructure costs, and focus on projects that differentiate their businesses instead of on infrastructure. Proponents also claim that cloud computing allows enterprises to get their applications up and running faster, with improved manageability and less maintenance, and enables IT to more rapidly adjust resources to meet fluctuating and unpredictable business demand. Cloud providers typically use a "pay as you go" model. This can lead to unexpectedly high charges if administrators do not adapt to the cloud pricing model.

The present availability of high-capacity networks, low-cost computers and storage devices as well as the widespread adoption of hardware virtualization, service-oriented architecture, and autonomic and utility computing have led to a growth in cloud computing. Companies can scale up as computing needs increase and then scale down again as demands decrease.

Private cloud

Private cloud is cloud infrastructure operated solely for a single organization, whether managed internally or by a third-party, and hosted either internally or externally. Undertaking a private cloud project requires a significant level and degree of engagement to virtualizes the business environment, and requires the organization to revaluate decisions about existing resources. When done right, it can improve business, but every step in the project raises security issues that must be addressed to prevent serious vulnerabilities. Self-run data centres are generally capital intensive. They have a significant physical footprint, requiring allocations of space, hardware, and environmental controls. These assets have to be refreshed periodically, resulting in additional capital expenditures. They have attracted criticism because users "still have to buy, build, and manage them" and thus do not benefit from less hands-on management, essentially "[lacking] the economic model that makes cloud computing such an intriguing concept"

Public cloud

A cloud is called a "public cloud" when the services are rendered over a network that is open for public use. Public cloud services may be free. Technically there may be little or no difference between public and private cloud architecture, however, security consideration may be substantially different for services (applications, storage, and other resources) that are made available by a service provider for a public audience and when communication is effected over a non-trusted network. Generally, public cloud service providers like Amazon AWS, Microsoft and Google own and operate the infrastructure at their data center and access is generally via the Internet. AWS and Microsoft also offer direct connect services called "AWS Direct Connect" and "Azure ExpressRoute" respectively, such connections require customers to purchase or lease a private connection to a peering point offered by the cloud provider.

Hybrid cloud

Hybrid cloud is a composition of two or more clouds (private, community or public) that remain distinct entities but are bound together, offering the benefits of multiple deployment models. Hybrid cloud can also mean the ability to connect collocation, managed and/or dedicated services with cloud resources.

Varied use cases for hybrid cloud composition exist. example of hybrid cloud is one where IT organizations use public cloud computing resources to meet temporary capacity needs that can not be met by the private cloud. This capability enables hybrid clouds to employ cloud bursting for scaling across clouds. Cloud bursting is an application deployment model in which an application runs in a private cloud or data center and "bursts" to a public cloud when the demand for computing capacity increases. A primary advantage of cloud bursting and a hybrid cloud model is that an organization only pays for extra compute resources when they are needed. Cloud bursting enables data centers to create an in-house IT infrastructure that supports average workloads, and use cloud resources from public or private clouds, during spikes in processing demands.

Others

Community cloud

Community cloud shares infrastructure between several organizations from a specific community with common concerns (security, compliance, jurisdiction, etc.), whether managed internal-

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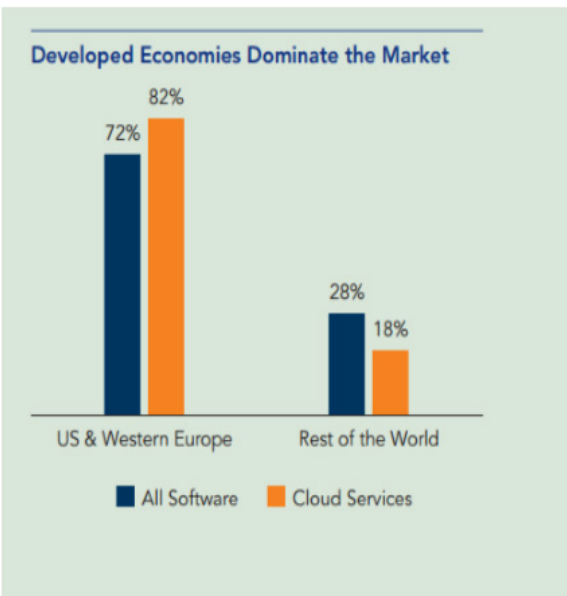
ly or by a third-party, and either hosted internally or externally. The costs are spread over fewer users than a public cloud (but more than a private cloud), so only some of the cost savings potential of cloud computing are realized.

Intercloud
The Intercloud is an interconnected global "cloud of clouds" and an extension of the Internet "network of networks" on which it is based.

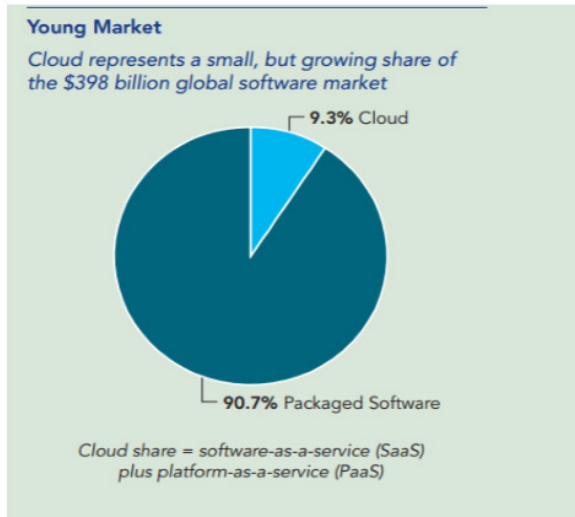
Multicloud
Multicloud is the use of multiple cloud computing services in a single heterogeneous architecture to reduce reliance on single vendors, increase flexibility through choice, mitigate against disasters, etc. It differs from hybrid cloud in that it refers to multiple cloud services, rather than multiple deployment modes (public, private, legacy)

Data Analysis & Interpretation –
The data used for the research paper is considered from the BSA Global software survey June 2014.



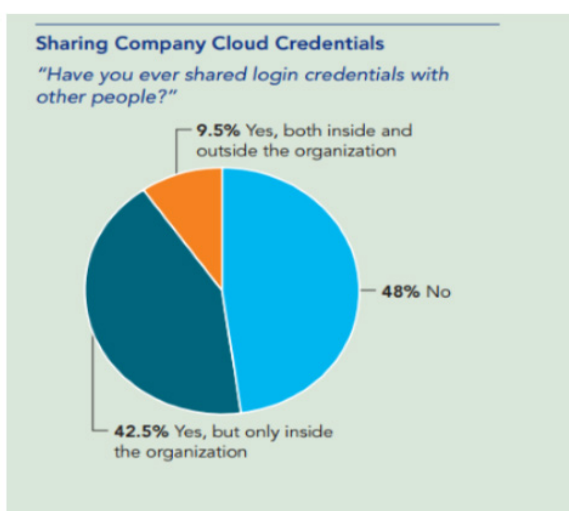
Cloud computing harnesses information technology in ways that deliver new benefits of scale, efficiency and power to consumers and enterprise users of all sizes. This is helping to spur innovation, drive economic growth, and create jobs. And since cloud computing now delivers nearly 10 percent of software functionality worldwide, it also changes the discussion about licensed and unlicensed software use. But how? To begin to answer that question, BSA asked IDC to gather information from its cloud computing analysts around the world, exploring their own views and those of their clients. IDC then analyzed the results of this year's survey of workers and IT managers, and reviewed its own forecasts and predictions on cloud computing, software licensing, and related subjects, such as information security. Cloud computing — specifically the delivery of software functionality via online access — will lower unlicensed software use, but perhaps not as much as one might think. The market for cloud software services is still young, and as yet more of a developed-country phenomenon than an emerging-market one. At the moment, then, if cloud services are going to lower unlicensed software use, they will do so first in geographies that already have relatively low rates of it.

The first figure shows the cloud share of the



worldwide software market. Note that it only includes cloud services that could actually replace the kinds of software that would otherwise be installed on computers locally. The second figure shows the current geographic shares of the US and Western Europe versus the rest of the world. It seems clear that the growth of cloud services will lower unlicensed software use by giving vendors greater control of the distribution of software and continual views of usage, and by lowering the upfront costs for customers and providing continual services and enhancements. Vendors also are offering special incentives and prices to spur adoption. But cloud services also introduce a new form of potential license abuse: credential sharing.

IDC estimates that more than 80 percent of cloud software services come with licensing provisions



that require each user, even when under a multiuser license, to have separate log-in credentials — at least an account name and password.

Technically, users are not supposed to share login credentials, and in some cases the sharing of passwords is specifically prohibited in the terms of service. But, in fact, users do share credentials. For users of business cloud services that are paid for, BSA's Global Software Survey found that 52 percent of respondents said they shared credentials, up from 42 percent in 2011.

Sixty-two percent of those who shared credentials did so more than rarely. Nearly one in five (18 percent) said they share credentials outside the company. Based on feedback from IT managers, there was a moderate correlation between credential sharing and country-level rates of unlicensed software installation. For example, 75 percent of respondents in China, India, and Thailand said they shared log-in credentials, while Denmark, Finland, and the UK were all less than 40 percent. As cloud services penetrate emerging markets, expect the incidence of credential sharing to go up. But is credential sharing the same as unlicensed software use or piracy? Certainly it is akin to under-licensing, where an enterprise pays for a certain number of software copies but uses more than were paid for. Here, a company pays for a certain number of cloud service users (or "seats") and, through credential sharing, more people have access. Because these are services designed to displace their on-premise counterparts, credential sharing would have the same effect as under-licensing. And product safety — and that for companies in the 21st century, this is a key competitive differentiator.

Conclusion –

Cloud computing promises several attractive benefits for businesses and end users. Three of the main benefits of cloud computing includes:

- Self-service provisioning: End users can spin up computing resources for almost any type of workload on-demand.
- Elasticity: Companies can scale up as computing needs increase and then scale down again as demands decrease.
- Pay per use: Computing resources are measured at a granular level, allowing users to pay only for the resources and workloads they use.

Cloud computing deliver software functionality via online access, which will lower unlicensed software use. but perhaps not as much as one might think. The market for cloud software services is still young, and as yet more of a developed-country phenomenon than an emerging-market one. At the moment, then, if cloud services are going to lower unlicensed software use, they will do so first in geographies that already have relatively low rates of it.

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