Computer Systems Engineering

Cloud Computing

Bibliographic research - The Cloud and SMBs

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It's no secret, but rather obvious that modern problems require modern solutions. This has been true for generations, even before the mere concept of a computer had been proposed as something feasible. Throughout countless generations, among other matters of interest, one that people has been constantly searching efficient solutions it's that of resource optimization, whether these are tangible or not. Taking this idea unto contemporary perspective and talking about technology and their applications for business solutions, current developments probably won't be satisfied with on-premise resources, at least not anymore [1]. At this point in history, requirements made by enterprises need to be outsourced to other physical spaces, either because of lack of space for hardware or simply because face-to-face work it's slowly decreasing. Cloud migration or utilization altogether could be one of the solutions for these issues.

In the current work, a brief research result aims to answer previously mentioned concerns and general doubts about Cloud usage and its implementations in small and medium businesses.

About *the Cloud*

Nowadays, talking about (the) Cloud (computing) has something mystical to it. People often mistake the core concept of these technologies for some archaic and obfuscated methodologies, and they limit this inaccurate definition to remote storage. The thing is, maybe this way of thinking it's just a part of the big image, a mere piece of the whole meaning, in other words, not wrong at all.

In words of Abbasov [2], the goal of Cloud computing is to make better use of various computer resources kept together to achieve higher throughput and to resolve problems that require high performance computations. If that wasn't clear enough, at its bare minimum for a definition, the Cloud it's a mesh of geographically distributed resources, such as (but not limited to) computers, interconnected via remote networks.

As concepts transcend to reality and further implementations, the ability to return to the initial abstraction tends to be more and more difficult, however, in this case, just the right amount of abstraction can define Cloud use as taking physical means and translating them to remote resources.

Talking about abstraction on this topic, and as previously mentioned, people will refer to the Cloud as uploading their files and information to the internet, and indeed, some Cloud providers dedicate their services solemnly to this purpose, but, Cloud can achieve so much more than this. Marinescu [3] offers a wider range of possibilities when talking about this concept, cataloging and describing branches such as:

- Delivery models (types of products)
    - Software-as-a-Service (remote tools)
    - Platform-as-a-Service (remote deployment of tools)

    - Infrastructure-as-a-Service (remote servers)

- Deployment models (access architecture)
    - Public cloud (public domain access)
    - Private cloud (enterprise dedicated)
    - Community cloud (enterprise shared technologies)
    - Hybrid cloud (a combination of the above)

- Defining attributes (common characteristics)
    - Massive infrastructure (data farms)
    - Utility computing / Pay-per-usage
    - Accessible via the Internet (access anywhere in the world)
    - Elasticity (providing more resources on request/on the fly)

- Resources (what its used to operate and offer)
    - Compute / Storage servers (where processing is made)
    - Networks (where communications occurs)
    - Services (available remote resources for entities)
    - Applications (available products to use remotely)

- Infrastructure (backbone of the operations)
    - Distributed infrastructure (usage of multiple computers at the same time)
    - Resource virtualization (similar to having multiple systems in a single one)
    - Autonomous systems (automatic resource allocation)

With these points, the same problem with abstraction lingers, as the formers, as simple as the may look, are much more complex from what they seem. With this in mind, an for the desired reach of this work, the initial concepts suffice the goal of demonstrating what Cloud computing could be made of.

The Cloud in Small and Medium Businesses

Although the benefits of using the Cloud as main operating means are not discussed in the present document, it's undeniable that it's such an amazing feat what modern applied computer science has come to achieve. This can be backed up by the hundreds of featured brands and companies that several Cloud providers claim they've been providing service for. Speaking of this, it's almost certain that the top names on these sections will likely be Fortune 500 companies; this arise a

question: is the Cloud the ultimate solution for all kinds of businesses? Likely not, at least not the fancy providers.

To give an example, Amazon Web Services [4] it's an over the top Cloud provider for small businesses, offering solutions that surely would be useful for any needed purpose, but this doesn't mean this option it's the best, nor the adequate. Ranking as one of the best services, Amazon will provide quality service almost (another concern) all the time, but being like this, they will charge correspondingly, something that may be troublesome.

According to an analysis made by Berkeley [5], independently from their sizes, companies should ask themselves "Is it more economical to move my existing datacenter-hosted service to the cloud, or to keep it in a datacenter?". To address this concern, several aspects come into play, such as data migration costs in matter of monetary resources and time taken to achieve it; other things such as scalability may also be important for projects with uncertainty of the moment in which they will likely grow and would need more support.

Many business models from Cloud vendors have adapted the Pay-On-Demand architecture, in which companies will be charged only for what they use, and if they use it. This recent advantage provides businesses with flexible means of operation that allows them to continue their work in a somewhat testing stage to see if the Cloud is suitable for them.

Final words

Nowadays, technologies emerge from night to day and in the blink of an eye. The pressure exerted by trends and new vogue developments might seem overwhelming to small businesses, and they may think they have to adapt the newest tropes in order for them to be successful, whereas the truth is far beyond from this.

Although the Cloud it's not an universal solution, the things that this conjoined technologies support and make everyday shouldn't be taken slightly, in fact, appreciating this advancements and taking a deeper analysis of them might result in the sudden realization that this is indeed what you've been looking for.

Bibliography

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