Acxiom, Red Hat, Actifio, & IBM: A Strategic Partnership on Virtualization and Marketing

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ABSTRACT

This document contains an analysis of strategic alliances between «big» players in information technology (IT) and software applications in server virtualization (SV) and marketing alliances. The main objective is to analyze the commercial advantages, benefits, and challenges of business partners, using the SV for information management, data storage, and collaboration in marketing programs. We analyze cases of alliances in companies like IBM, Acxiom, Red Hat, and Actifio, who have identified the competitive advantages of having a main «partner», which has the ideal product or service to complement one or several secondary brands as a commercial strategy and brand positioning.

The SV brings positive transformations such as the reduction of hardware costs, the improvement of the provisioning and implementation of the server, disaster recovery solutions, efficient and economical use of energy, and increased productivity. This strategy invites to change the way in which data centers are being formed, and becomes a preferred solution not only for the reduction of IT costs, but at the same time it makes a company more flexible, productive, and efficient, generating better results.

The ability to capture and store more and more detailed information about customer needs and behavior, taking advantage of the technology and intelligence of business partners, creates better opportunities in services, products, and more effective marketing campaigns, attracting new customers and positioning brands.

Keywords: strategic partnership; virtualization; marketing; strategic alliances; information technology (IT); service virtualization (SV); brand positioning.

Acxiom, Red Hat, Actifio e IBM: una asociación estratégica sobre virtualización y marketing

RESUMEN

Este documento contiene un análisis de alianzas estratégicas entre «grandes» jugadores en tecnología de la información (IT) y aplicaciones de software en la virtualización de servidores (SV) y alianzas en mercadeo. El objetivo principal es analizar ventajas comerciales, beneficios y desafíos de socios comerciales, aprovechando la SV para la administración de información, almacenamiento de datos, y colaboración en programas de mercadeo. Se analizan casos de alianzas de compañías como IBM, Acxiom, Red Hat y Actifio, quienes han identificado las ventajas competitivas de tener un «socio» principal, el cual tiene el producto o servicio ideal, para complementar una o varias marcas secundarias, como estrategia comercial y de posicionamiento de marca.

La SV trae transformaciones positivas como la reducción de costos de hardware, la mejora del aprovisionamiento e implementación del servidor, soluciones de recuperación de desastres, uso eficiente y económico de energía, y aumento de productividad. Esta estrategia invita a cambiar la forma en que se están formando los centros de datos y se convierte en una solución preferida, no solo para la reducción de costos de IT, sino al mismo tiempo hace que una empresa sea más flexible, productiva y eficiente, generando mejores resultados.

La capacidad de capturar y almacenar información cada vez más detallada sobre necesidades y comportamientos de clientes, aprovechando la tecnología e inteligencia de socios comerciales, crea mejores oportunidades en servicios, productos y campañas de mercadeo más efectivas, atrayendo nuevos clientes y posicionando las marcas.

Palabras clave: asociación estratégica; virtualización; marketing; alianzas estratégicas; tecnologías de la información; virtualización de servicios; posicionamiento de marca.

Acxiom, Red Hat, Actifio et IBM: un partenariat stratégique sur la virtualisation et le marketing

RÉSUMÉ

Ce document offre une analyse des alliances stratégiques entre « grands acteurs » du secteur des technologies de l'information (TI) et des applications logicielles pour la virtualisation de serveurs (VS) et les alliances marketing. Cet article analysera les avantages et les défis commerciaux dont les partenaires peuvent tirer parti au niveau de la VS pour la gestion des informations, le stockage de donnée et la collaboration sur les programmes marketing. Nous étudierons l'alliance des entreprises IBM, Acxiom, Red Hat et Actifio qui ont identifié les avantages concurrentiels offerts par un partenaire principal proposant le produit ou le service idéal - stratégie, positionnement commercial, marketing - en complément d'une ou plusieurs marques secondaires.

La VS engendre des transformations positives pour les entreprises comme la réduction des coûts informatiques, une amélioration des approvisionnements et du fonctionnement du serveur, l'utilisation plus efficiente de l'énergie et une meilleure productivité. Cette stratégie invite à changer la conception des serveurs informatiques pour en réduire les coûts de fonctionnement et devient une solution privilégiée pour la flexibilité, la productivité et l'efficacité des entreprises qui améliorent ainsi leurs résultats opérationnels.

L'obtention et le stockage de toujours plus d'informations détaillées des besoins et du comportement des clients via la technologie et le savoir-faire stratégique des partenaires créent des opportunités commerciales et de marketing plus efficace, attirant de nouveaux clients et facilitant le positionnement des marques.

Mots clefs: algèbre; intelligence artificielle (IA); réseau de neurones artificiels (ARN); système de tuteur intelligent (STI); gamification.

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Acxiom, Rede Hat, Actifio e IBM: uma associação estratégica sobre virtualização e marketing

RESUMO

Este documento contém uma análise da parcerias estratégicas entre «grandes» agentes em tecnologia da informação (IT) e aplicativos de software na virtualização de servidores (SV) e parcerias em marketing. O objetivo principal é analisar vantagens comerciais, benefícios e desafios de sócios comerciais, aproveitando a SV para a administração de informação, armazenamento de dados, e colaboração em programas de marketing. Analisam-se casos de parcerias de companhias como IBM, Acxiom, Rede Hat e Actifio, que reconhecem as vantagens competitivas de ter um «sócio» principal, com produto ou serviço ideais para complementar uma ou várias marcas secundárias, como estratégia comercial e de posicionamento de marca.

A SV traz transformações positivas como a redução de custos de hardware, a melhora do fornecimento e implementação do servidor, soluções de recuperação de desastres, uso eficiente e econômico de energia e aumento de produtividade. Esta estratégia convida a mudar a forma em que se estão formando os centros de dados e se torna uma solução preferida, não só para a redução de custos de IT, mas ao mesmo tempo faz com que uma empresa seja mais flexível, produtiva e eficiente, gerando melhores resultados.

A capacidade de capturar e armazenar informação cada vez mais detalhada sobre necessidades e comportamentos de clientes, aproveitando a tecnologia e inteligência de sócios comerciais, cria melhores oportunidades em serviços, produtos e campanhas de marketing mais efetivas, atraindo novos clientes e posicionando as marcas.

Palavras-chave: associação estratégica; virtualização; marketing; parcerias estratégicas; tecnologias da informação; virtualização de serviços; posicionamento de marca.

1. Introduction

The rapid progress of globalization in the overall technology, economy, and society has strongly affected the organizational environment. The reaction plans and new strategies of companies have been important in the response to these environmental changes. Companies have traditionally sought to utilize a generic competitive advantage strategy at the single business sector level. The utility of this strategy of cost advantage, differentiation, and centralization has significantly declined in the new global business environment. Accordingly, companies have actively begun to use a new strategy known as strategic alliances between firms to respond to these limitations (Kim, 2015).

This document contains a concise analysis of the strategic alliances between «big» players in information technology (IT) and software application on server's virtualization and partnership marketing. The main objective is to analyze the business advantages, remarks, benefits, and challenges of these companies, such as their strategic business partners, making the decision of taking advantage of the server virtualization and smart collaboration. There is an explanation of the context of partnership between the companies and IBM; a conceptualization of the server´s virtualization and its ratio, understanding the differences and getting a bigger picture of the technology management application for data centers, and its influence on partnership marketing.

There is also a description of the strategic alliances between a common partner, IBM, and the technology companies in order to develop their strategies on information management, data storage, server virtualization, and optimization; in the same way, the collaboration on marketing programs with the objective to meet their business goals and promote their brands, where a primary brand has the ideal product or service to compliment a secondary brand, utilizing target audiences to improve their value proposition to customers approaching the marketing of 2020 (Cristal, 2017).

2. Partnership Contextualization

Acxiom is a consumer data, analytics, software, and marketing firm, which sells consumer data to firms seeking to improve their understanding of consumers. It is one of the largest repositories of consumer behavioral data in the world, collecting information on individual purchase and behavior patterns, both in off-line retail stores and online stores, enabling people-based marketing everywhere through a simple, open approach to connecting systems and data that drives seamless customer experiences and higher Return On Investment (ROI) (Acxiom, 2018). It also offers its clients one of the most sophisticated marketing analytics capability in the marketplace.

Acxiom searched for a strategic business partner on virtualization, and turned to IBM[2]'s virtualization platform to achieve a more sophisticated tracking of consumers, cost savings, and greater reliability. Acxiom was facing the challenge of managing around 12 petabytes[3] of costumer data that was driven by collecting information on over 500 million consumers worldwide who together generate over 2.5 trillion consumer transactions per month, storing over 1500 data points for each consumer (IBM, 2018c). Acxiom's own data centers were handling huge increases in the volume of data; of course and directly proportional, the costs of data centers and management were growing fast, and Acxiom was facing the demand of costumers. So, Acxiom turned to IBM´s virtualization platform, installing over 23,000 servers. The concept of server virtualization is widely applied in IT infrastructure as a way of minimizing costs by increasing the utilization of the existing resources (Techopedia, 2018a).

IBM offers IBM® XIV® Storage Systems such as the next-generation high-end open disk storage system. An integral part of IBM's broad spectrum of system storage offerings, the XIV system has an innovative grid architecture designed to deliver the highest levels of reliability, performance, scalability, and functionality at low overall cost, while eliminating complexity and providing unprecedented ease of management. Designed at an exceptionally low total cost of ownership, the XIV system aims to tackle almost every aspect related to owning, operating, and maintaining a storage system, including backup and restore, acquisition, environmental, administration, and downtime cost factors.

More than two decades ago, Red Hat had a spark of an idea, a vision for developing software in a different manner. They believed that collaboration with an ecosystem of IT leaders, such as IBM, open source advocates, developers, and partners could create a better foundation for the future of IT. Today, they deliver a comprehensive portfolio of products and services using the same open, collaborative business model and an affordable, predictable subscription, like Red Hat® Enterprise Linux® (Redhat, 2018).

IBM and Red Hat announced a «strategic collaboration designed to help enterprises benefit from the speed and economics of the OpenStack[4] platform, while extending their existing Red Hat virtualized and cloud workloads more easily to the IBM Private Cloud.» As part of the agreement, IBM has become a Red Hat Certified Cloud and Service Provider. IBM and Red Hat plan to jointly market and sell the new offerings for private cloud deployments, including workload migrations, disaster recovery, capacity expansion, and data center consolidation (Kusnetzky, 2017). It may help to provide a stimulus to the adoption of virtualization in heterogeneous environments, addressing the interoperability challenge and limitations of proprietary management tools.

[2] IBM (1911) Began as the Computing-Tabulating-Recording Company (CTR) and was renamed «International Business Machines» in 1924. IBM manufactures and markets computer hardware, middleware, and software, and provides hosting and consulting services in areas ranging from mainframe computers to nanotechnology (IBM, 2018).
[3] A petabyte is 1015 or 1,000,000,000,000,000 bytes. One petabyte (abbreviated "PB") is equal to 1,000 terabytes (Techterms, 2018).
[4] OpenStack is a set of software tools for building and managing cloud computing platforms. OpenStack is managed by the OpenStack Foundation, a non-profit that oversees both development and community-building around the project (Opensource, 2018).

According to research firm International Data Corporation (IDC)[5], Windows and Red Hat Enterprise Linux are two of the main operating environments deployed by enterprises, accounting for 80% of the x86 operating systems running on hypervisors. Agreements between the two leaders indicate that each company will join the other's virtualization validation/certification program and will provide coordinated technical support for their mutual server virtualization customers. The reciprocal validations will allow customers to deploy heterogeneous, virtualized Red Hat and Microsoft solutions with confidence (Ng & Leong, 2009).

Daniel Kusnetzky, a reformed software engineer and product manager, founder of Kusnetzky Group LLC, describes that announcements of partnerships and alliances have some strategic promises between companies in pursue of getting better results and impacting the market value and customer perceptions, described as follow:

- Discovering the goals of each of the players. If the goals appear congruent, the partnership or alliance is likely to hold for a reasonable period of time. If not, it is probably just a marriage of convenience and not likely to survive after the short-term goals have been achieved. In this case, IBM and Red Hat both want to see their customers use OpenStack for their on- and off-premises cloud operations.

- Learning where and when the partners or alliance members plan to work together and where they are likely to compete. If the areas of competition are broad and the area of cooperation small, the end of the partnership or alliance is clearly in sight at the beginning. In this case, IBM and Red Hat appear to have a broad collaboration in several areas; that bodes well for this agreement.

- Learning how the suppliers are planning to help your organization get from where it is today to its future promised land. Hand-waving and slide presentations are not going to get the job done. In this case, IBM has a substantial investment in cloud operations and consulting services designed to help its customers adopt this approach to computing. Red Hat has invested a great deal in its Red Hat Enterprise Linux and OpenStack offerings. It appears that both are trying to help customers get from where they are today to the vendors' view of the promised land.

- Learning how much it will cost to go on the proposed journey. It may quickly become apparent that this is an unnecessary journey for your organization. This is the place where decision-makers should listen very carefully to what these suppliers are saying, match it to the IT goals of their own enterprise and learn whether they are going where the enterprise wants to go.

[5] International Data Corporation (IDC). Premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets.

- Learning about their plans for ongoing support for both today's products and future products of the partnership or alliance. The history of the IT industry is littered with empty promises that led nowhere but ended up costing enterprises both time and money.

- How well funded is the partnership or alliance? If the only thing behind the public effort is a press release, it can safely be ignored. In this case, both suppliers have invested heavily in their portion of the agreement (Kusnetzky, 2017).

Lets talk about other clear example of partnership marketing: IBM Launched SmartCloud Data Virtualization (SCDV)[6] in partnership with Actifio. It helps over 2700 global enterprise customers and service provider partners in more than 37 countries around the world to virtualize their data, just as they virtualized their applications and infrastructure (Actifio, 2018). Actifio has been a partner of IBM for a decent amount of time and this deal has further strengthened the relationship. It has made a significant contribution to growth in the IT industry owing to its remarkable product that has been widely accepted as an efficient tool to tackle the spiraling expenditure on data storage management and services.

This launch is a new addition to its pool of cloud software and services. The Database Virtualization service is a solution that helps in significantly reducing the number of duplicate copies of a single data that commonly proliferate in the present distributed —cloud— environment. IBM's SCDV uses Actifio's «Virtual Data Pipeline Technology», a distributed object file system that allows the applications to access copy data directly through Actifio Copy Data Storage. Considering that the tremendous amount of replication that happens while using the data in various departments of an organization like development, testing, and analysis, maintaining a single location of database is better. A minimum amount of virtualized data on a required basis greatly eases the burden of swelling costs that a company dreads. Besides, it offers other benefits such as faster recovery time and enhanced ease of use (Cioreview, 2014).

3. Server Virtualization

Let us talk about server virtualization in order to have a contextualization of the technology solutions partnership that exists between the subject companies and IBM. As described on «What is Server Virtualization» video (McAllister, 2007), typical enterprise data centers contain a huge number of servers. Many of these servers sit idle as the workload is distributed to only some of the servers on the network. This results in a waste of expensive hardware resources, power, maintenance, and cooling requirements. Server virtualization attempts to increase resource utilization by partitioning physical servers into several multiple virtual servers, each

[6] SmartCloud Data Virtualization (SCDV) is the latest service offering in the IBM SmartCloud Resilience portfolio. This offering leverages an appliance which uses snapshot and deduplication technology to help save costs on replicated disk storage in a Disaster Recovery environment (IBM, 2018).

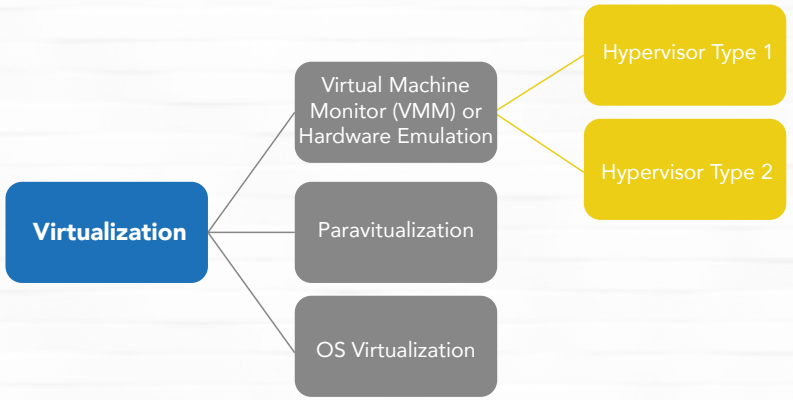
running its own operating system and applications. Server virtualization makes each virtual server look and act like a physical server, multiplying the capacity of every single physical machine (Techopedia, 2018a).

Server virtualization is a virtualization technique that involves partitioning a physical server into a number of small virtual servers with the help of virtualization software. IBM describes its benefits, as follows:

- Gains the highest levels of isolation and data integrity with the world's most reliable and secure servers.
- Reduces the cost of managing a proliferation of servers with industry-leading cloud and IT optimization.
- Eases administration processes with our tools to consolidate and deploy a wide range of workload types.
- Server virtualization allows organizations to optimize their IT infrastructure and save money. Virtualization on IBM Z® and IBM LinuxONE™ allows you to inherit the unique advantages of IBM z/Architecture® (IBM, 2018b).

There are three ways to create virtual servers: full virtualization, para-virtualization, and OS-level virtualization (McAllister, 2007). They all share a few common traits. The physical server is called the host and the virtual servers are called guests. The virtual servers behave like physical machines; each system uses a different approach to allocate physical server resources to virtual server needs (Strickland, 2018). Figure 1 describes the three types of virtualization technology.

Figure 1. The three types of server virtualizations



Source. Prepared by the author based on the Securitywing model, 2014.

3.1 Understanding the differences

One of the methods of server virtualization is the Hypervisor, Hardware Emulation (Securitywing, 2014), or Virtual Machine Monitor (VMM); which is a computing layer that allows multiple operating systems to run on a host computer at the same time. The VMM is the primary software behind virtualization environments and implementations; when installed on a host machine, the VMM facilitates the creation of VMs, each with separate operating systems (OS) and applications. The VMM manages the backend operation of these VMs by allocating the necessary computing, memory, storage, and other input/output (I/O) resources. The VMM also provides a centralized interface for managing the entire operation, status, and

availability of the VMs that are installed on a single host or spread across different and interconnected hosts (Techopedia, 2018a).

Paravirtualization is other type of virtualization technique that provides an interface to virtual machines that are similar to their underlying hardware. In paravirtualization, the guest operating system is explicitly ported before installing a virtual machine because a non-tailored guest operating system cannot run on top of a virtual machine monitor (VMM). Paravirtualization enables several different operating systems to run on one set of hardware by effectively using resources such as processors and memory. In paravirtualization, the operating system is modified to work with a virtual machine. The intention behind the modification of the operating system is to minimize the execution time required in performing the operations that are otherwise difficult to run in a virtual environment.

Paravirtualization has many significant performance advantages and its efficiencies offer better scaling. As a result, it is used in various areas of technology, such as:

- Partitioning development environments from testing systems.
- Disaster recovery.
- Migrating data from one system to another.
- Capacity management.

Paravirtualization technology was introduced by IBM and was developed as an open-source software project (Techopedia, 2018d).

Then, operating system virtualization —OS virtualization— involves tailoring a standard operating system so that it can run different applications handled by multiple users on a single computer at a time. The operating systems do not interfere with each other although being on the same computer. In OS virtualization, the operating system is altered so that it operates like several different, individual systems. The virtualized environment accepts commands from different users running different applications on the same machine. The users and their requests are handled separately by the virtualized operating system. Also known as operating system-level virtualization.

Operating system virtualization provides to users application-transparent virtualization by decoupling applications from the OS. The OS virtualization technique offers granular control at the application level by facilitating the transparent migration of individual applications. The finer granularity migration offers greater flexibility, resulting in reduced overhead. The OS virtualization can also be used to migrate critical applications to another running operating system instance. Patches and updates to the underlying operating system are done in a timely way and have little or no impact on the availability of application services. The processes in the OS virtualized environment are isolated and their interactions with the underlying OS instance are monitored (Techopedia, 2018 e).

A summary of remarks and disadvantages of the types of virtualization are described in table 1.

Table 1. Remarks and disadvantages of the virtualization

Virtualization Type	Remarks	Disadvantages
Virtual Machine Monitor (VMM) or Hardware emulation The hypervisor monitors the physical resources of the server. As virtual servers run applications, the hypervisor relays resources from the physical machine to the appropriate virtual server. Hypervisors have their own processing needs, which means that the physical server must reserve some processing power and resources to run the hypervisor application. This can impact the overall performance of the server and slow down applications.	It Gives an abstract view of underlying hardware, offering support for heterogeneous OS. This is a market leading virtualization technology. There is no need to modify the OS and applications in order to run on the virtual environment. Products: VMware, VMserver, VMware ESX, Microsoft virtual server.	Disadvantages of type 2: they have more points of failure since anything affecting the stability of the base operating system can also affect the guest OS and the virtual machine. When the base OS needs a reboot, all the VM will also be rebooted.
Paravirtualization The paravirtualization approach is a little different. Unlike the full virtualization technique, the guest servers in a paravirtualization system are aware of one another. A paravirtualization hypervisor does not need as much processing power to manage the guest operating systems, because each OS is already aware of the demands that the other operating systems are placing on the physical server. The entire system works together as a cohesive unit.	It multiplexes the access to hardware resources, offers high performance, requires guest OS modification before deployment. It is more complex than hardware emulation. Product: Xen (open source)	The requirement of modifying the guest operating system in order to execute and communicate with the hypervisor. The kernel of the guest OS must be modified before installation. Since modifying a kernel of proprietary OS such as Windows is not possible, the paravirtualization software users (such as Xen users) have to use an open source OS like Linux or OpenSolaris.
Operating System (OS) Virtualization An OS-level virtualization approach does not use a hypervisor at all. Instead, the virtualization capability is part of the host OS, which performs all the functions of a fully virtualized hypervisor. The biggest limitation of this approach is that all the guest servers must run the same OS. Each virtual server remains independent from all the others, but you cannot mix and match operating systems among them. Given that all the guest operating systems must be the same, this is called a homogeneous environment.	It creates an abstract view of the OS including the root file system, the process table, etc. They are suitable for homogeneous OS environment where a consistent OS version is necessary. Products: OpenVZ, Virtuozzo, Sun Solaris.	They support only one operating system as base and guest OS in a single server. You have to choose a single OS such as Windows or Linux. All the OS in the container should be the same version and should have the same patch level of the base OS. If the base OS crashes, the entire virtual container becomes unavailable.

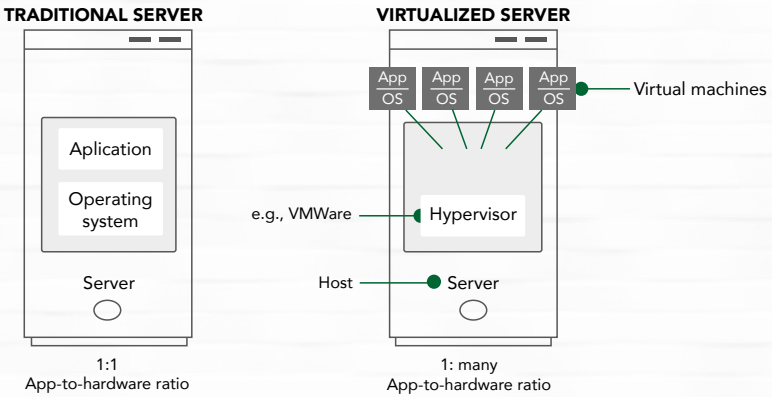
Source. Prepared by the author based on Securitywing, 2014and Strickland, 2018.

3.2 Virtualization ratio

Guzman and Meyer described a fifteen-fold lower cost and a 35:1 virtualization ratio in the video (IBM, 2018). The virtualization ratio defined such as the average number of software servers per physical server. If a traditional server is a 1:1 ratio (1 machine: 1 operating system), virtualization creates a 1: many ratio. All of a sudden, that single server is getting a lot more done at once, as described in figure 2. If the IT department needs to scale up and create a large number of virtual machines quickly, they can standardize how to program the smaller virtual servers and then rapidly roll them out when needed. The IT can also migrate between servers without downtime, which is another time-saving bonus (Upwork, 2018).

If Acxiom is applying the virtualization ratio of 35:1, this reduces the requirement of purchasing multiple hardware resources. In this way, it centralizes the operational environment and also offers you significant savings in investment costs for purchasing hardware devices. A significant reduction in the number of physical machines that are required to run even larger workloads has a ripple effect on data center [7]savings. Less hardware also means less on-going support and maintenance costs (Vaghasia, 2015).

Figure 2. Comparison between the traditional server and the virtualized server



Source. Upwork, 2018.

It is no surprise that large and small companies are turning to virtualization. Traditional server environments typically operate at only 5 to 15 percent of their capacity; but organizations can increase their utilization rates up to 80 percent with x86 server virtualization. What is more, they can achieve consolidation ratios ranging from 8:1 to 30:1 and dramatically lower their server provisioning and repurposing time (IBM, 2018).

3.3 Benefits

Knowing the challenges and «big data» to be managed by the technology described above, Acxiom identified key benefits of its alliance with IBM, described by David Guzman, Senior Vice President of Global Technology Services and John Meyer, CEO and President of Acxiom: great partnership, simple, cost effective, and powerful solution for customers (IBM, 2018).

[7] A data center is a repository that houses computing facilities like servers, routers, switches, and firewalls, as well as supporting components like backup equipment, fire suppression facilities, and air conditioning. (Techopedia, 2018).

Additionally, NH Learning Solutions (2018) defines other benefits: reduction in hardware costs in around 40%, faster server provisioning and deployment, significant energy cost savings in around 80%, greatly improved disaster recovery, and at the end better productivity, as follows:

a. **Reduced hardware costs:** When implementing a virtualized server/cloud computing approach, hardware utilization is increased because one physical server can now hold multiple virtual machines. Applications no longer need their own server because each virtual machine in the physical server now runs them. Eduardo Camargo, Executive VP & CIO, EVERTEC, describes the benefits in few words: «We saved 10x of what we would have spent if we were to go on a physical server».

b. **Faster server provisioning and deployment:** Server virtualization enables system provisioning and deployment within minutes, allowing you to clone an existing virtual machine without the hours and costs that are normally spent when installing a new physical server.

c. **Greatly improved disaster recovery:** Perhaps the greatest benefit of server virtualization is the capability to move a virtual machine from one server to another, quickly and safely. Backing up critical data is done quickly and effectively because your company can effortlessly create a replication site.

d. **Significant energy cost savings:** Cooling and power costs are significantly reduced, which means not only you will be «going green», but you will also have more green or «greener» to spend elsewhere. Another major plus is the ability to power down servers without affecting applications or users.

e. **Increased productivity:** Having fewer physical servers means there are less of them to maintain and manage. As discussed in benefit 2, applications that used to take days or weeks to provision are now taking just minutes. This leaves your IT staff more time to spend on more productive tasks such as driving new business initiatives, cutting expenses, and raising revenue.

Additionally, customers are able to gain much quicker access to market data, in order to make fast decision-making processes in their business. But, what type of customers are we referring to? We are talking about the consumer from the year 2020. For many companies, 2020 acts as a symbolic deadline, with many strategic plans working towards that date. Everyone is convinced that the face of marketing and entrepreneurship will have changed profoundly by the time 2020 rolls around. To develop the marketing philosophy of the future, we also need to understand the 2020 consumer. Three factors will continue to influence consumer behavior:

a. **Full adoption of new technologies:** by the year 2020 some 2.5 billion smartphones will be in use. Much more than is the case today, the internet and digitization will be the most natural thing in the world.

b. **Transparency:** the continued adoption of technology will make the world even more transparent. Consumers will be perfectly aware of which companies are doing

well and which are not. As a result, consumers will demand better service. Instead of simply comparing companies with the competition, they will compare them with class-leading companies. This will raise the bar considerably.

c. **Selectivity:** technology will become even more effective at shielding consumers from commercial messages. New media will enable consumers to be very selective about which companies he or she is linked with. Gaining access to the 2020 consumer will prove extremely difficult (Belleghem, 2018).

3.4 Strategic Advantage

Acxiom Marketing Solutions is a data broker[8], which enables clients to combine customer data from various online and offline sources. According to Acxiom, the business model to capture the big data in less than a second, the information from millions of customers, and the analysis of the data, enables «data owners to better monetize their assets by supporting the people-based marketing initiatives from the different brands»; there are Acxiom customers willing to pay for the new «gold», a differentiated service to customers that other competitors cannot offer. Acxiom provides access to anonymized customer data, helping markets and agencies target advertising to groups of consumers by interest, and is also able to measure their effectiveness (Acxiom, 2018).

Analyzing Red Hat and IBM, the companies say are there are added benefits that customers will receive through this partnership:

- IBM and Red Hat will provide the hybrid cloud infrastructure to help customers run cloud applications more efficiently by using OpenStack Application Programing Interfaces - APIs[9].

- Clients will have the ability to provision cloud infrastructure more quickly and, via Red Hat Cloud Access, migrate existing workloads and Red Hat subscriptions to the IBM Cloud, or use the software and infrastructure on a pay-as-you-go basis.

- Companies can have additional reach and scale to start locally and go up globally with cloud capabilities more easily, and to comply with data residency and other regulatory mandates more handily (Kunestzky, 2017)

According to Forbes, from IBM´s side, they have made a $1.2bn investment in the form of SCDV and hopes to increase its influence over the $100bn cloud business market,. It is believed that IBM will now be able to deliver an overarching service that other companies provide in parts (Cioreview, 2018).

[8] Data brokers are entities that collect information about consumers, and then sell that data —or analytic scores, or classifications made based on that data— to other data brokers, companies, and/or individuals (Grauer, 2018).

[9] An application programming interface (API) is a set of protocols, routines, functions, and/or commands that programmers use to develop software or facilitate interaction between distinct systems.

However, there are some risks and threats associated to data brokers and other IT companies, enterprises scooping up tons of data from individuals that are vulnerable to security breaches, so the information ends up in the wrong hands. Cases like the Equifax breach, which affected more than 145 million people, and Acxiom, which was hacked in 2003 and over 1.6 billion records (including names, addresses, and email addresses) were stolen and sold to spammers, are examples of vulnerabilities in those companies. So, the IT companies must be prepared to react with agility and reliability to those threats (Grauer, 2018).

Now, talking about marketing partnership, these companies can be idealizing an inexpensive way to promote a brand, as long as the customers do not give more than what they get. Moreover, a partnership with the right company on the right project goes a long way in helping you reach new customers and burnishing the identity of your brand by means of the association, all for a small investment. But not every marketing partnership is a winner; and doing it wrong can be expensive and put a drain on your time and energy (Geiger, 2018).

Marketers today are awash in customer data, such as the data captured, analyzed, and stored on their virtual servers provided by IBM to Acxiom and others, and most are finding narrow ways to use that information to improve the targeting of messages. Knowing what an individual consumer is doing, where and when is now table stakes. High performers are distinguished by their ability to integrate data on what consumers are doing but knowing why they are doing it, which yields new insights into consumers' needs and how to best meet them.

4. Conclusions

Many companies are in the possession of richer customer data than ever before. In particular, electronic mediums like the web, search engines, contact centers, subject matter experts in companies such as Acxiom, and payment systems are flushed with behavioral data. The ability to capture and store increasingly detailed information about customers' needs and behaviors, taking advantage of business partners technology, coupled with intelligence to act on this insight, can allow companies to create better opportunities on services, products, and more effective marketing campaigns at lower costs. When properly executed partnership marketing programs create added value for customers, it results in increased purchases and loyalty (Collings & Schumacher, 2005).

Acxiom, Red Hat, and Actifio case studies allowed us to understand the importance of server visualization and the identification of a strategic partner to solve the data management problem and the business partnership marketing. Virtualizing servers is a good technology solution, widely used for providing cost-effective data management (Techopedia, 2018f). Server virtualization brings positive transformations, such as reduced hardware costs, improved server provisioning and deployment, better disaster recovery solutions, efficient and economic use of energy, and increased staff productivity (NH Learning Solutions, 2018).

The virtualization of the server is inviting to change the way in which data centers are being formed, and it is becoming a preferred solution for the consolidation, power saving, and cost reduction. Incorporating a virtual environment may not be easy at first, but most businesses would agree with the fact that it is much lucrative in the long run, not only helping in saving a great deal of IT costs of a business, but at the same time, it also renders a business to be more flexible, productive, and efficient in order to generate better business results (Vaghasia, 2015).

Agreements between two or more IT leaders indicate that each company will join the other's virtualization validation or certification program and will provide coordinated technical support for their mutual server virtualization customers (Ng & Leong, 2009). In the same way, a partnership marketing with the right company on the right server virtualization project goes a long way in helping them to reach new customers and burnishing their brand identity through association. Marketers understand consumers' basic drives, such as the desire to achieve, to find a partner or partner alliances, and to nurture a strategic partnership (Arons, Van den Driest, & Weed, 2014).

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