Data management in the digital realm

Breaking dawn-optimizing the usual

wipro

The Backdrop

The modern data center is way different from a traditional data center. There are two major factors driving this change: first is the business itself – corporations are changing the way business is done and second is the development of an application ecosystem around the key word "consumer experience". If we look around us, we find the creation of newer markets that were non-existent few years back such as the rise of e-commerce in developing economies and the ever-increasing reliance on Big Data across all industry verticals to drive business strategies. These markets have triggered deep analytics to ensure personification of merchandise for each customer. The proliferation loudly states that data is the critical factor. The state of the data and the way it can be used guarantees the upper hand. We see that these factors have steered complex modifications in ways data management must be done. Many critical questions arise

- How will I scale up at the pace demanded?
- What will be the impact on my cash flow?
- How will I manage such scale and ensure performance and availability of data?

Explosive data growth can be attributed to the drive for massive automation, connectivity between consumer services and devices: the dawn of IoT and proliferation of Big Data.

"By 2020, IoT technology will be in 95% of electronics for new product designs" 1

The word "DIGITAL" transcends organizations, businesses, boundaries and geographies. One of the critical components that forms part of "DIGITAL" is data. The surrounding Criticality gains prominence due to sheer volumes, scale and heterogeneity seen at various levels. Protecting and managing this data constitute one of the key challenges in the digital realm. This white paper attempts to give a comprehensive view of opportunities, solution capabilities and expected deliverables around Data Management in the Digital Realm.

We talked about changing ways of doing business. If we observe a bit more then we find that cloud today forms an essential part of business strategy. What was unheard of a few years back is the usual today. Applications critical for businesses were always run on-premise, but today we see that platforms such as PaaS and SaaS are defining new methodologies for running applications.

Out here we see that a Data management solution is supposed to not only protect and make data available 24X7 but also scale seamlessly. In addition, the solution should be capable of handling varied data types, data sources, underlying platforms, customer expectations and rate of growth of data. The question then is

- Do we have a solution?

[1]Source : Smarter With Gartner, Kasey Panetta, October 3, 2017 Gartner Top Strategic Predictions for 2018 and Beyond
https://www.gartner.com/smarterwithgartner/gartner-top-strategic-predictions-for-2018-and-beyond/

Breaking dawn

With so many expectations revolving around data protection and data recovery coupled with explosive data growth, vendors are forced to work out innovative solutions that must deliver. Additionally, vendors have understood that data protection is not the end goal of organizations, instead it is a subset of data management and vendors in this space are focusing on achieving the status of a facilitator and enabler of 24X7 enterprise. The solutions finding greater acceptance as compared to others exhibit core characteristics that enable them to meet and in many cases exceed the expectations of the high velocity IT industry.

Data is growing relentlessly both on and off premise and this brings out a very basic question.

How do we ensure that the data is protected efficiently and on time?

This is a critical question. Assume that the unthinkable happens then the larger the time duration between generation and protection of data, the larger the loss. The responses are many. One of the first is to de-duplicate at the source and then wherever possible such as global de-duplication. This brings efficiencies at many levels such as:

1. Network layer- less data means less network congestion
2. Backup server layer – less data means faster completion of a backup job and hence lesser losses and risk
3. Backup target layer- less data means store less and store less means slow scale-up and slow expenditures.

In addition, vendors have also come up with snapshot-based backup methodologies that protect data in a fraction of the time, consumes less space on the target and also ensures WAN bandwidth is optimally used. Thus, facilitating efficiencies at multiple levels.

Now we know that we have used techniques to efficiently backup, we need to think again. At first glance, the following thoughts appear

How do I monitor the backup?

Was the backup successful or is the backup in progress?

Were there any errors?

Will I be able to restore the backup during times of need?

Let's assume that we come across a need to restore a deleted VM and during restoration; we realize that we are not able to because the backup was not done properly in the first place. We then understand the importance of monitoring the process and avoiding such uncomfortable situations. The vendors understand this aspect and have bundled centralized dashboard that ensures accurate reporting of visual representation of health, diagnostics, provides insights and best practices to deliver operational excellence. Based on the reports generated organizations can take necessary steps to improve or continue with the backup infrastructure and configured methodologies. All backups should be monitored and paying attention to error reports and anomalies can help in getting a picture of the organization's data health, address problems and avoid uncomfortable data recovery scenarios.

Assuming that the backup infrastructure is doing its job, then also retaining data in the same site poses significant risks. This brings an important question

How do we ensure that backed up data gets securely replicated to another location or storage economically?

We need to adopt solutions that have built-in encryption for both data at rest and in flight. Also, solutions with capabilities around WAN optimization ensure that WAN bandwidth available is consumed efficiently and economically.

In case an organization does not have a Disaster Recovery location how would then replication be helpful. The question that we need to address then is

How do we achieve disaster recovery without a disaster recovery location?
The response is crucial as it addresses a scenario seen in the industry wherein some organizations adopt the approach of an incremental buildup of infrastructure and they may not have a separate location for replicating backed up data.

Such organizations should opt for the option of backing up to and restore from the cloud. The solutions that enable native cloud integrations and also support top cloud providers should be the ones we choose. These cloud integrations allow secured, transparent and seamless backup, archive and discovery of data across on and off premise. Additionally, multi-tenancy controls built into the policy engine ensure secure and customizable end-user access controls.

The methodologies we saw talks about basic hygiene that can ensure backup accuracy, backup and restoration management and availability of data irrespective of site-wide disasters. These are the mandatory factors that have to be focused upon as part of data management, and the majority of data availability promises can be met if we stick to these basics. However there is more than the above that data management should encompass in today's IT environment influenced by analytics, IoT, Cloud, SaaS, and software defined infrastructure. We will look at the new game changers and how the NextGen landscape and heterogeneity are being addressed, in our next white paper:
Data management in the digital realm-breaking dawn- NextGen and heterogeneity

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