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Jess Phillips | 16 May, 2019

Industry experts explore the biggest data storage challenges

Industry experts explore the biggest data storage challenges facing modern businesses and organisations.

Daniel Jacobs, Senior Product Manager – Cloud Computing at Vox

Companies are traditionally used to planning three or five years in advance for storage growth. Big Data has changed the way companies plan their future storage demand and often they don't realise that their data is growing exponentially and, with it, their storage.

Considering cloud solutions and given that they may be using a pay-per-use model, they need to be vigilant about their storage requirements and how they utilise their environment, otherwise the cost can become unviable.

Organisations further need to have a handle on what data they have, where it is and whether they need the ability to access it immediately or not. The next step is to understand where their storage lives, the kind of storage they need to have or add and the associated costs. These are all considerations to take into account when planning the storage requirements of a business.

Data can include terabytes of non-business-related data, for example pictures sent by staff of their kids' birthday parties, which the business doesn't need, but financial records of the last five years are key for it to remain compliant.

Another consideration is that there are various levels of storage and that they range in price with the most expensive being all-flash storage and the least costly archive storage that has relatively slow access. The latter is reserved for non-critical data that a business keeps for compliance.

It's important for a business to be able to tier across the different storage platforms so that data can move down into a less costly tier as it gets older. This can save the business quite a bit of money if it does it properly.

With data becoming the new oil, organisations must be able to gather insights and make informed business decisions for competitive advantage. It is no use having data in silos and there are several business intelligence tools that can be used to [illegible]ta around so that the business can benefit from analysing it.

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With Microsoft Azure now available in South Africa, local businesses can take advantage of features such as moving their backup storage into archive. Features such as these save the business money and it is a welcome thought, especially given our mercurial economy. The multi-national data centres arriving provides organisations with more choice, flexibility and best practice. They can now consider a multi-cloud strategy for their workloads and applications and optimise their storage environments.

Corne du Preez, Technology Solutions Professional: Apps and Infra at Altron Karabina

This question is on the agenda for most organisations today. Here are some of the biggest data storage issues facing businesses today:

Data growth

Most organisations face the dilemma of an increased amount of data entering their systems from various sources. Data needs to be stored in a specific way that will make it easier to be reached at a later stage. If done incorrectly, it will add time and money to address and organisations may lose their competitive edge

Complexity

Most organisations are geared for structured data and systems are setup in that way. Think of the current databases where data and information are stored. It is setup in the more traditional way for structured data. However, looking at the amount of data that enters organisations up to 80% of this data is unstructured. This adds a lot of complexity to manage and maintain

Diversity

The issue at hand here is the unstructured data and the velocity with how it is created. Take YouTube for instance – 300 hours of video are uploaded every minute of the day. In the world of e-commerce, data is generated at a rapid pace and this is not just related to the purchase but also to how customers use information for their own research in making choices in what they buy and when.

On top of these issues there are still the problems related to cost, infrastructure, security and connectivity. Most customers are not yet ready to consider cloud data storage as a solution to their current on premises data storage issues. It is a case of currently adding more hardware when in fact the problem might not be solved with more hardware, but a different way of looking at the problem for possible solutions.

How do we look differently at the issue of data storage?

Let's start at the most basic layer – the infrastructure.

Data needs to be stored somewhere. Most organisations store their data on SAN's (Storage Area Networks). This means organisations need to have skilled IT engineers that can manage the network (LAN and WAN), the SANs, servers connected to the SANs and data centres to store all this infrastructure. The cost here can spiral out of control. One of the easiest workarounds here is to use cloud storage where organisations take advantage of the cloud providers infrastructure to save them the trouble of having to set all this up.

A major headache for organisations when it comes to data storage is security. Without the right controls, policies and software to maintain data security, organisations are open to hacks and unauthorised access to data. In a world where everything is connected to everything it makes securing data an expensive exercise. Data at rest must be encrypted. Once again, it can't be stressed enough, organisations are going to have to have a tight control around their data and in some cases will need to go the extra mile to make sure that their vendors and staff are adhering to the security policies and standards.

Osama Al-Zoubi, Chief Technology Officer, Cisco Middle East and Africa

As businesses continue to accumulate a wealth of data, it becomes increasingly important to recognise the potential challenges that may arise as a result of improper storage. Long-term data storage solutions can help provide a solid foundation from which organisations can successfully aid their growth strategies, in a responsible manner.

Here are some of the most common obstacles businesses face when it comes to storing data:

1. **Suitable infrastructure**

When organisations possess a wealth of data, they need the right structure in place to house it. This can often result in companies investing in high-tech servers that inevitably take up a considerable amount of office space. An ideal solution is cloud hosting and cloud storage, which utilise advanced architectures to not only save space but also the hassle of installing and maintaining physical servers on-site.

2. **Degree of scalability**

Our world is changing, fast. We can no longer predict a company's future needs but what we can anticipate is how prepared we are for such change. Every data storage solution needs to be invested in with an idea of volume and scale in mind. Whether a company's needs in the future increase or decrease, they should have a wealth of options available to help meet their business objectives with ease.

3. **Cost efficiency**

Above, a business must remain cost effective. Running a data centre can cause costs to spiral – from investing in initial [illegible] addressing maintenance issues and even hiring the skilled workers needed to keep the centre running. Rather, companies can pay a monthly fee and outsource their data storage needs for greater cost efficiency and peace-of-mind.

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4. **Remaining secure**

One of the biggest issues with data storage is the topic of security. Greater connectivity is also resulting in greater risks – a reality which we cannot avoid. Any data that is stored is subjected to an element of risk, with cybercriminals keen to obtain and exploit sensitive information. Securing infrastructure is vital in terms of helping organisations function, monitoring and acting fast to respond to cyberthreats.

5. **Environmental considerations**

In addition to external threats, elements as small as dust and fine particles can also interfere with data storage capabilities. If not housed in the appropriate environment, data can also be corrupted by electromagnetic interference – an element often overlooked by businesses when choosing where to store their data. As data centres age, they also begin to degrade and require several backups to avoid future mishaps.

6. **Level of accessibility**

With data being vital for analysis and the future plans of any business, its accessibility also needs to be considered. A simple, yet intuitive user interface can give access to a wide range of functions and insights. Data needs to be easy to interpret and available at a moment's notice for businesses operating within today's fast-paced economy. More importantly, if using multiple systems, business-owners need a strong data storage partner and open API for increased compatibility.

At Cisco, we believe in championing a multi-cloud world, to make life simpler. From public clouds, to on-site premises, our cloud solutions vary from applications to infrastructure. We bring together networking, security, analytics and management to help businesses connect, protect and consumer clouds in a multi-cloud world.

Ashraf Yehia, Managing Director, Eaton Middle East

Cooling is one of the biggest drains on energy in most data centres. This is particularly true in the high temperature conditions, such as in the Middle East, and the issue is of growing importance as increasing ICT equipment densities create larger data centre footprints and excessive energy demands.

Some simple statistics explain the priority now being given to this issue. At the turn of the century, after years of rapid growth, data centre power consumption crossed the threshold of 1% of all power generated in developed economies. Cooling and UPS losses make up around 35% of total energy consumption in a data centre, of which general computing equipment power accounts for 50%.

In terms of carbon footprint, this growth has elevated the ICT industry into a major contributor to the overall rise in energy consumption and greenhouse gas (GHG) emissions. Today, about 2% of global carbon emissions come from the manufacture and use of ICT – a similar figure to the energy consumption of the aviation industry. Data centres represent a significant and growing share of all ICT-related emissions.

The IT industry has realised the economic and environmental significance of allowing this power consumption trend to continue unchecked. Focus, therefore, is shifting from increasing performance and capacity only; to a more balanced view that places a high value on energy efficiency.

Interest in how the industry anticipates sustainably meeting the growing demand for power is increasing. In fact, there is now greater emphasis on putting planning and performance upfront and benefiting from the technological advances in the field, while allowing for the fact that data centre construction is an extremely complex process.

Data centre level energy saving: Airflow Management Solutions

Airflow Management Solutions (AMS), for example, offer practical answers to these issues. AMS solutions optimise data centre equipment, improve information processing, create a greener data centre and increase flexibility for the data centre manager.

A wide range of partial and total containment solutions is available to accommodate hot aisle containment, cold aisle containment and rack-based heat containment.

Rack containment solutions contain the heat and extract it directly back to the computer room air condition (CRAC) using, for example, a straight Telescopic Chimney (TC).

They use AMS for switches and network devices, as well as blanking panels to ensure an effective rack hygiene methodology.

The best solutions go beyond the rack and row, implementing room based AMS to further enhance the efficiency and predictability of data centres. Innovations such as CRAC Collars and raiser floor grommets provide additional measures against bypass airflow.

In addition to this, individual rack capacity as well as CRAC cooling efficiency can also be improved by using the appropriate solution.

Eaton's aisle containment solutions, for example, include a variety of aisle ceilings and overhead vertical wall systems, aisle ducts and end-of-row doors that alleviate the oversupply of cool air in the date centre.

Trent Odgers, Cloud and Hosting Manager for Southern Africa at Veeam

T[illegible]s businesses leverage cloud to manage and maximise the value of their data continue to evolve. Following the [illegible]f Microsoft Azure and Huawei Cloud in South Africa recently and with Amazon Web Services (AWS) set to open new d[illegible]entres in the first half of 2020, the years when adopting cloud-based solutions felt like the first step into some brave

new world are well and truly behind us.

However, this is ushering in a new era of multi-cloud deployment, which is a nod towards the fact that businesses are increasingly using different clouds for different purposes at different times. For example, a business may wish to store data from its fastest growing business unit in Google Cloud for scalability at relatively low expense but use AWS for its R&D databases to enjoy the benefits of AI and voice-assisted search.

Yet, multi-cloud is not a silver bullet that can fix all availability challenges. Things like data storage, control, backup, continuity, costs and complexity of implementation need to be considered, especially given how the service offerings from cloud providers differ.

In South Africa, many companies are looking at either reducing or eliminating tape backups from their environment. This migration will not only improve the customer experience, thanks to the better availability of data, but also ticks the regulatory boxes in terms of data storage and business continuity services.

Some of the cost factors that need to be considered when it comes to a multi-cloud strategy are the monthly costs of connectivity and bandwidth, compute, storage, shared services, compliance tests and very important, ingress and egress costs (the cost of getting data into the cloud provider or getting that data out).

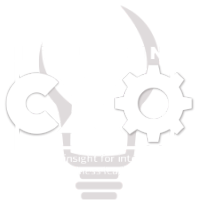
Some cloud providers have partnered with telcos to reduce or eliminate ingress and egress costs which is a major draw card, thus making it much easier to get into or out of cloud-based services. This also reduces vendor lock-in.

Veeam enables cloud service providers to deliver Backup-as-a-Service (BaaS) and Disaster Recovery-as-a-Service (DRaaS) with lower operational overheads and improved SLAs. Most businesses start with BaaS as it has the least impact on the ecosystem and can provide fantastic benefits.

The operational overhead and cost of tape, along with the slow RTOs have made it easier to justify BaaS. This along with seeding fast tracks the onboarding process even further.

Companies should put in place an action plan to ensure they are ready for this new cloud dynamic.

enterprise sector looking for updates and research driven data about Data Centres. As part of Lynchpin Media, this digital medium gives unparalleled advice to the global community.



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