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What is good for the SAMO and MOGI Companies: Data Center or Cloud?

The corporate world of Standalone Mining and Oil Companies (SAMOC) and Mining Oil and Gas Integrated Companies (MOGIC) are now deliberating whether or not they should transition from Data Center to Cloud for the capture, acquisition, processing, transmission, sharing, storage and decision making of the large volume of data that they generate.

Most SAMOC and MOGIC rely heavily on data for their respective day-to-day operations, irrespective of the industry or nature of the data. This data can have a wide range of applications, ranging from making business decisions to identifying patterns for either improving the services provided or analyzing weak links in the workflow, and much more.

Data Center

A data center is a physical facility that organizations use to house their critical applications and data. A data center's design is based on a network of computing and storage resources that enable the delivery of shared applications and data. The key components of a data center design include routers, switches, firewalls, storage systems, servers, and application-delivery controllers. Needless to say, most of the SAMO and MOGI companies use data centers for data handling, processing, storage, retrieval and security. But this is going to change with the proliferation of cloud based systems.

Cloud

Cloud is a model of computing where servers, networks, storage, development tools, and even applications (apps) are enabled through the internet. Instead of organizations having to make major investments to buy equipment, train staff, and provide ongoing maintenance, some or all of these needs are handled by a cloud service provider. A cloud can be described as a term used to describe a group of services, either a global or individual network of servers, which possess a unique function. Cloud is not a physical entity, but they are a group or network of remote
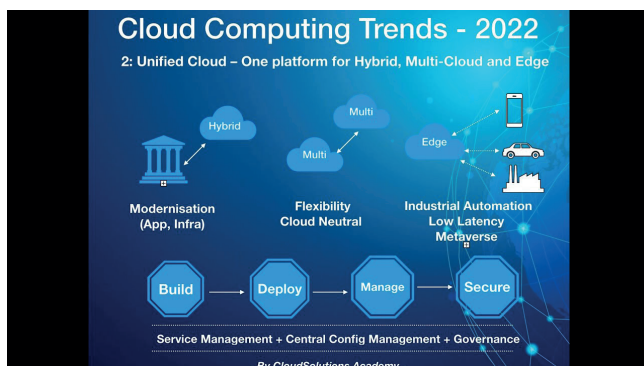
servers which are arched together to operate as a single entity for an assigned task.

In a nutshell, a cloud is a building with lots of computer systems. We access the cloud via the internet because cloud providers provide cloud as a service.

The Compute service offered by cloud lets users to 'rent' computer systems in datacenter on internet. Another example of a cloud service is storage. Now, what exactly is cloud computing? AWS says, "Cloud computing is the on-demand delivery of IT resources over the Internet with pay-as-you-go pricing. Instead of buying, owning, and maintaining physical data centers and servers, you can access technology services, such as computing power, storage, and databases, on an as-needed basis from a cloud provider like Amazon Web Services (AWS)".

Types of Cloud: Businesses use different methods of cloud resources; mainly there are four of them:

- **Public Cloud:** It is a cloud methodology that is open to all with the Internet on the pay-per-usage method.
- **Private Cloud:** It is a cloud methodology used by organizations to build their data centers that are accessible only with the permission of the organization.

Cloud Infrastructure Services Market
(IaaS, PaaS, Hosted Private Cloud)

- **Hybrid Cloud:** It is a cloud methodology that is a combination of public and private clouds. It serves the different needs of an organization for its services.
- **Community Cloud**: It is a cloud methodology that provides services to a group of people in an organization or a single community.

Software as a Service (SaaS)

SaaS is the most commonly used cloud application service and is becoming a dominant way for organizations to access software applications.

With SaaS, an organization accesses a specific software application hosted on a remote server and managed by a third-party provider. On a subscription basis, the application is accessed through a web browser, reducing the need for on-device software downloads or updates. Popular SaaS products include Salesforce, Workday, or Microsoft Office 365.

Businesses should use SaaS if they are looking to quickly and easily enable cloud system access with minimal database management, development and/or service provider interaction. SaaS is suitable for applications that require web and mobile access, short-term projects requiring quick collaboration, and startups that need to quickly launch e-commerce websites without server issues or software development.
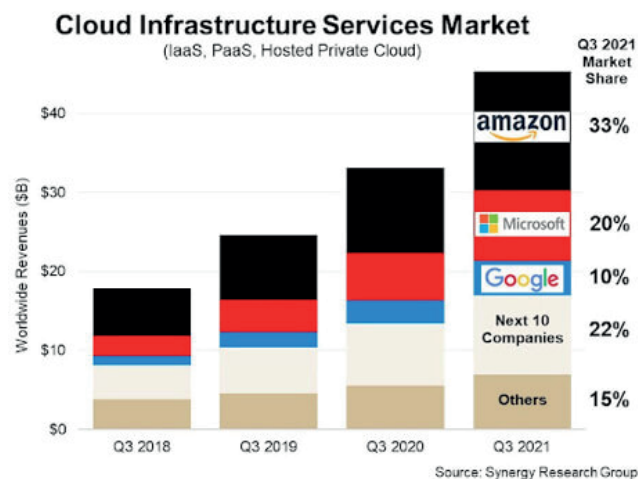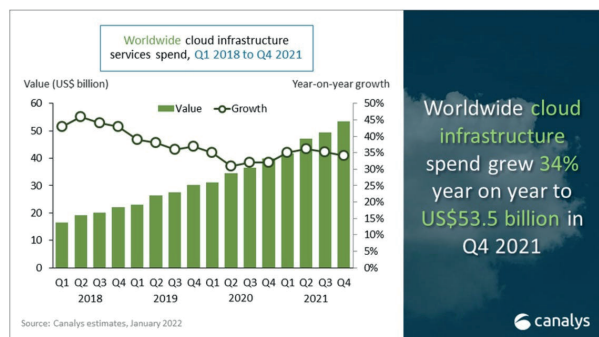
Data Center

A Datacenter can be described as a facility/space of networked computers and associated components (like telecommunications and storage) that helps business and organizations to function a large amount of data. These Data centers allow the data to organize, process, store and disseminate upon the application used by businesses.

Types of Data Center: Businesses use different types of data centers which include:

- **Telecom Data Center:** This is a type of data center that is operated by telecommunications or service providers. It requires high-speed connectivity to function.
- **Enterprise Data Center:** This is a type of data center that is built and owned by a company that may or may not be onsite.
- **Colocation Data Center:** This is a type of data center that consists of one data center owner place which provides cooling to multiple enterprises and hyperscale their customers.

- **Hyperscale Data Center:** This is a type of data center that is owned and operated by the company itself.

Is Cloud Secure?

Security plays an important role in cloud technology and providers take it extremely seriously. Their business

Three types of cloud computing

	One-site	IaaS	PaaS	SaaS
	Application	Application	Application	Application
	Data	Data	Data	Data
	Runtime	Runtime	Runtime	Runtime
	Middleware	Middleware	Middleware	Middleware
	O/S	O/S	O/S	O/S
	Virtualization	Virtualization	Virtualization	Virtualization
	Serveres	Serveres	Serveres	Serveres
	Storage	Storage	Storage	Storage
	Networking	Networking	Networking	Networking

☐ You manage   ☐ Service provider manages
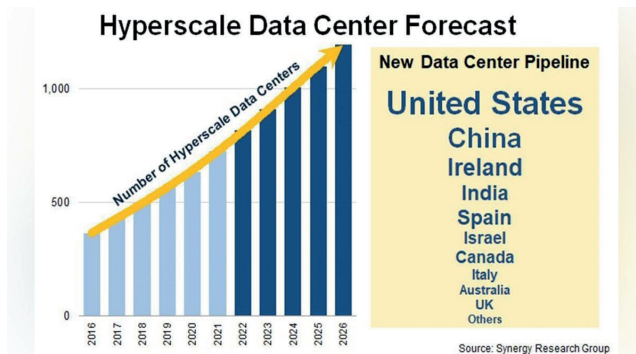
The Choice between Cloud and Data Center

The table below shows the considerations for choice between Cloud and Data Center.

S. No	Cloud	Data Center
1.	Cloud is a virtual resource that helps businesses to store, organize, and operate data efficiently.	Data Center is a physical resource that helps businesses to store, organize, and operate data efficiently.
2.	The scalability of the cloud required less amount of investment.	The scalability of Data Center is huge in investment as compared to the cloud.
3.	The maintenance cost is less than service providers maintain it.	The maintenance cost is high because developers of the organization do maintenance.
4.	Third-Party needs to be trusted for the organization's data to be stored.	The organization's developers are trusted for the data stored in data centers.
5.	Performance is huge as compared with investment.	Performance is less than compared to investment.
6.	It requires a plan to customize the cloud.	It is easily customizable without any hard plan.
7.	It requires a stable internet connection to provide the function.	It may and may not require an internet connection.
8.	Cloud is easy to operate and is considered a viable option.	Data Centers require experienced developers to operate and are considered not a viable option.

depends on it. Plus, there are many regulatory bodies and compliance requirements from industries of all kinds driving the need for the cloud to be both as accessible as possible while also being as secure as possible.

There are a few key things companies can do to minimize cloud security risks. Jonathan Roz, Managing Director, Accenture Cloud and Security, recommends taking these steps to become secure from the start:

1. Define new security policies and procedures. The procedures you have already implemented most likely don't address cloud infrastructure.

2. Configure the appropriate framework. Make sure the cloud environment is automated and configured in a way that's compliant with the security framework relevant to industry and country regulations.

3. Identify the relevant controls needed to monitor policies and procedures to make sure they are compliant on an ongoing basis.

4. Create a cloud-specific security reference architecture. This is critical because securing cloud environments is substantially different from securing on-premises environments - including tools, processes, and even skill requirements.

5. Move to a Develop-Secure-Operate model where infrastructure gets treated like application code and gets scanned before being deployed to check for misconfigurations or non-compliance.

A one-size-fits-all approach isn't the answer to cloud security. But with the many tools and practices now available, security shouldn't provide an obstacle to effective cloud migration and management. By the end of 2022, the global cloud computing market will reach $623.3 billion. By 2025, that number will push through the $800 billion mark. The total end-user spending on cloud services will be around $397.5 billion by the end of 2022. In 2021, this figure sat at around $332.3 billion. So the Data Center and Cloud Service providers will be in the market contesting with each other; the SAMOC and MOGIC will have to make a decision to what suits them the most for continuity.

References

1. https://www.cisco.com/c/en/us/solutions/data-center-virtualization/what-is-a-data-center.html
2. https://phoenixnap.com/blog/cloud-computing-trends#:~:text=By%20the%20end%20of%202022,sat%20at%20around%20%24332.3%20billion.
3. https://www.geeksforgeeks.org/difference-between-cloud-and-data-center/
4. https://www.accenture.com/us-en/cloud/insights/cloud-computing-index