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MD SPEAKS

Anoop Pai Dhungat
Chairman & Managing Director

Dear Readers,

As we approach the end of another eventful year, I would like to reflect on Artificial Intelligence (AI), the technology with the most impact during the year.

During the year, industries like healthcare, smart city infrastructure, education and entertainment have adopted AI in a big way. However, the most impact has been seen in the transformation of the workforce across industries. Automation powered by AI has streamlined routine tasks, allowing human workers to focus on more complex and creative aspects of their jobs. While concerns about job displacement persist, the collaborative synergy between humans and AI is fostering increased productivity and innovation. AI-driven tools in recruitment and HR are also making talent acquisition more efficient and unbiased.

The widespread adoption of AI has also raised ethical concerns. Issues related to privacy, bias in algorithms, and the potential misuse of AI have become subjects of intense debate. In 2023, efforts to establish ethical guidelines and regulations around AI have gained traction to ensure responsible development and deployment.

As we reflect on the transformative impact of artificial intelligence on lives in 2023, it is clear that we are at the cusp of a new era. The positive changes brought about by AI are undeniably of great importance. However, it is crucial to navigate the challenges responsibly, ensuring that AI continues to serve as a force for good, benefiting humanity as a whole. As we move forward, the collaboration between technology developers, policymakers, and society will be key in shaping a future where AI enriches lives in a balanced and ethical manner.

To end this, I must confess that I have used AI to assist me in writing this article.

Happy Reading

Researchers develop stretchable OLED display

Imagine a thin, digital display so flexible that you can wrap it around your wrist, fold it in any direction, or curve it over your car's steering wheel. Researchers at the Pritzker School of Molecular Engineering (PME) at the University of Chicago have designed just such a material, which can bend in half or stretch to more than twice its original length while still emitting a fluorescent pattern.

The material, described in Nature Materials, has a wide range of applications, from wearable electronics and health sensors to foldable computer screens.

"One of the most important components of nearly every consumer electronic we use today is a display, and we've combined knowledge from many different fields to create an entirely new display technology," said Sihong Wang, assistant professor of molecular engineering, who led the research with Juan de Pablo, Liew Family Professor of Molecular Engineering.

"This is the class of material you need to finally be able to develop truly flexible screens," added de Pablo. "This work is really foundational and I expect it to allow many technologies that we haven't even thought of yet."

Making flexible, light-up polymers

The displays on most high-end smartphones, as well as a growing number of televisions, use OLED (organic light-emitting diode) technology, which sandwiches small organic molecules between conductors. When an electrical current is switched on, the small molecules emit a bright light.

The technology is more energy-efficient than older LED and LCD displays and praised for its sharp pictures. However, the molecular building blocks of OLEDs have tight chemical bonds and stiff structures.

"The materials currently used in these state-of-the-art OLED displays are very brittle; they don't have any stretchability," said Wang. "Our goal was to create something that maintained the electroluminescence of OLED but with stretchable polymers."

Wang and de Pablo knew what it takes to imbue stretchability into materials—long polymers with bendable molecular chains—and also knew what molecular structures were required for an organic material to emit light very efficiently. They set out to create new polymers that integrated both properties.

"We have been able to develop atomic models of the new polymers of interest and, with these models, we simulated what happens to these molecules when you pull on them and try to bend them," explained de Pablo. "Now that we understand these properties at a molecular level, we have a framework to engineer new materials where flexibility and luminescence are optimized."

Armed with computational predictions for new flexible electroluminescent polymers, they built several prototypes. Just as the model had predicted, the materials were flexible, stretchable, bright, durable and energy efficient.

A key feature in their design was the use of "thermally activated delayed fluorescence," which let the materials convert electrical energy into light, in a highly efficient way. This third-generation mechanism for organic emitters can provide materials with performance on par with commercial OLED technologies.

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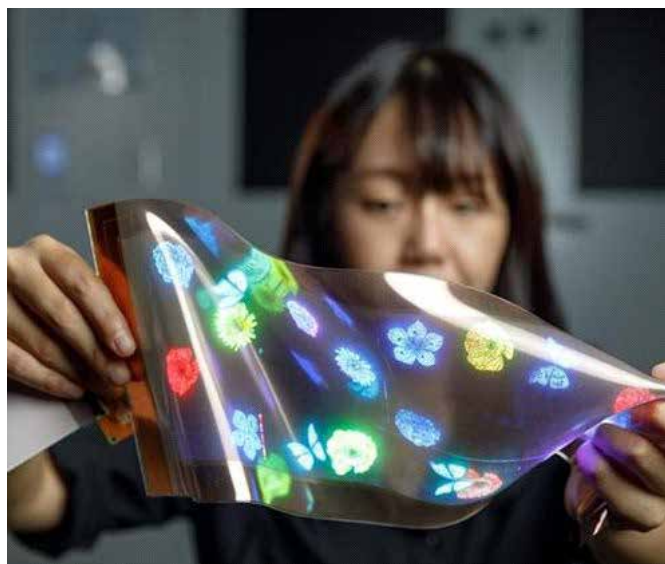
Unveiling the Colocation Data Center Revolution

A colocation data center refers to a data center that enables you to rent out space for your own hardware. For example, instead of using your own on-prem space for your servers, cables, networking devices, and other computing equipment, you can rent out space in a data center.

What is Colocation?

This colocation data center meaning involves including the servers and other equipment from numerous companies in a single data center. The hardware is often owned by the business renting the space, and the data center staff only houses it.

It also alludes to the idea that a business's equipment may be spread out over several locations. For instance, they might have servers spread over three or four colocation data centers. This is crucial for international businesses that want to ensure their computer systems are situated close to their physical offices.

How Colocation Data Center Works?

This is how a colocation data center works: Enterprise customers use colocation data centers to store their servers and other gear required for regular business operations. Colocation ensures adequate bandwidth while providing shared, secure areas in cool, controlled surroundings suited for servers.

Difference Between a Data Center and Colocation

The primary difference between a data center and a colocation data center is that colocation refers to a service while a data center is a physical place. When thinking about cloud vs colocation, this is the most important distinction.

A data center is a physical location that houses equipment used to power the cloud. Whereas colocation is a service you can use to set up your own cloud infrastructure or components in someone else's data center.

Types of Colocation Data Center Facilities

The three main types of data centers in a colocation facility include retail, wholesale, and hybrid cloud-based colocation.

▶ **Retail Colocation**
With retail colocation, you lease space inside a data center, typically either a rack, an area inside a rack, or your own caged-off room.

▶ **Wholesale Colocation**
With wholesale colocation, on the other hand, you also get data center space but at a lower rate. As a result, the power the data center provides for running your equipment, as well as the space available, is less than what the data center would make available to a retail customer.

▶ **Hybrid Cloud-based Colocation**
Hybrid cloud colocation involves setting up a combination of in-house data center space and that which you rent from another data center.

Benefits from Colocation Data Centers
Using colocation space comes with many benefits, and if you need any of the following benefits for your organization, you may want to consider a colocation service.

▶ **Reliability**
Colocation facilities provide reliable power, cooling systems, and communication that guarantee dependable connections. Companies can invest in the tools and procedures necessary to develop comparable systems internally, but doing so can be expensive, especially when it comes to paying employees and providing adequate in-house space.

▶ **Performance**
Electronics function best in a climate-controlled, dust-free setting. The cooling and air filtering systems that professional data centers offer are superior to those of even the cleanest offices.

▶ **Physical Security**
Data centers are built to secure your systems from theft and other threats that could jeopardize the security of your data and systems. They enforce strict data center security procedures and higher degrees of physical protection, such as video surveillance, private suites, and fire suppression systems.

▶ **Third-Party Maintenance**
To guarantee that servers are operating at peak efficiency, data centers have specialized systems, employees, and resources that they use to create, monitor, and manage comprehensive support systems. This means you can rest easy, knowing your equipment will be properly taken care of by experienced professionals.

▶ **Speed**
Colocation facilities enable high throughput and offer affordable connections directly to numerous internet service providers (ISPs). Having access to several ISPs gives you multiple options if you need more speed.

▶ **Skilled Staff**
To monitor and manage servers, data centers include on-site, highly-trained, experienced IT personnel. These professionals design and implement modern reliable infrastructure to house your components.

▶ **Scalability**
With colocation, you can scale your business up or down while only paying for the bandwidth and space you need.

▶ **Risk Management**
Natural disasters and data breaches can certainly happen, but when your most important equipment is housed in an off-site data center, there are safeguards and backups in place to keep everything running.

▶ **Better Connectivity**
Data centers have redundant network connections to guarantee the continuous operation of your most mission-critical applications.

▶ **Capability**
Customers have the option of increasing their bandwidth without having to make additional investments. In this way, you can adjust how much bandwidth you use if, for instance, you deploy an application that needs to process a lot of data.

▶ **Premium Network Security**
Data centers use the most recent firewalls to identify and stop illegal access to your systems. By using a colocation service, you benefit from the high level of cloud security that data centers establish for all of their customers.

▶ **Redundant Power Supply**
Colocation centers make sure they have power by using a combination of several power grids, battery backup systems, generators, and rigorous maintenance procedures.

▶ **Growth**
Colocation makes it possible to expand data storage to meet a company's changing needs. As a result, businesses can expand their networks without having to invest in additional hardware or real estate.

▶ **Stepping Stone**
Colocation enables a seamless transition for businesses interested in transitioning core systems to the cloud. Moving your equipment to an off-site location can give you a seamless transition from an in-house to a cloud-based environment. This is because your most important systems are already running on the servers you shift to the data center. With colocation, you just have to connect to your existing applications, storage, and other resources through the internet.

Top 5 Considerations While Selecting Colocation Data Center

Here are the top five things you want to keep in mind when choosing a colocation data center:

▶ **Expense**
It can be very expensive to set up and maintain an in-house data center. Colocation, on the other hand, can give you the resources you need to support your computing equipment at an affordable rate.

▶ **Compliance**
In some cases, colocation can make it easier to satisfy regional data management requirements. For example, if your company is required by legislative regulations to maintain an off-premises storage facility for backups, you can use colocation to meet that standard.

▶ **Performance**
Without colocation, it can be difficult to have the power and bandwidth you need to support your most important business processes. But with colocation, the data center housing your components can provide a service level agreement (SLA) that guarantees adequate power and internet service.

▶ **Redundancy**
By using a colocation service to house backup systems, you can set up a reliable redundant infrastructure. This could be a business lifesaver if your in-house components go offline.

▶ **Scalability**
If you think you may need to scale up in the near future, colocation can make it easier because you can rent the space you need for additional servers and other components. But building the space in-house for an expansion can be economically infeasible for some organizations.

https://shorturl.at/cZ067

Dell Taps Microsoft to Simplify Hybrid Cloud Computing

Dell Technologies, in collaboration with Microsoft, today unveiled a platform that tightly integrates an on-premises IT environment with the Azure cloud.

Caitlin Gordon, vice president of multi-cloud product management for Dell Technologies, said the Dell APEX Cloud Platform for Microsoft Azure is the first instance of a hybrid cloud computing platform designed specifically to address that requirement using a Premier Solution of the Microsoft Azure Stack hyperconverged infrastructure (HCI) platform that Microsoft added to its portfolio .

The Premier Edition of Microsoft Azure Stack HCI makes available an instance of that platform that provides a more turnkey management experience than the existing editions, said Gordon.

In the face of increased economic headwinds, more organizations are looking to lower the total cost of managing IT by reducing the number of control planes that need to be managed. Each platform that an IT team typically supports today has its own control plane that requires IT staff to manage it. Reducing the number of control planes creates an opportunity to reduce the total headcount currently required to manage multiple IT platforms.

It also serves to streamline workflows in a way that enables DevOps teams to reduce the current level of friction encountered when managing multiple IT platforms, noted Gordon.

At the core of Microsoft's approach to hybrid cloud computing that Dell is embracing is Arc, a management framework that makes it possible to manage Azure cloud instances alongside on-premises IT environments. In terms of the ability to manage hybrid cloud computing environments, Microsoft is significantly more advanced than any other cloud service provider, said Gordon.

It's not clear whether IT organizations are embracing HCI platforms running an instance of the same core stack of software that Microsoft relies on to provide Azure

services. If IT organizations expect to lower the cost of managing IT, there is no doubt they will need to modernize on-premises IT infrastructure. The older the platform, the more expensive it becomes to automate using various third-party frameworks.

Regardless of the approach, IT teams need to reconcile the need to invest in automating workflows that span multiple IT platforms. Over time, those investments will reduce the total cost of IT, but getting the required funding to start that process will require IT teams to make a strong case for increasing the return on investment (ROI).

In the meantime, the number of workloads running both in the cloud and at the network edge is only going to increase. At the same time, the bulk of existing workloads continue to run in local data center environments.

Most IT teams will be required to find additional ways to automate the management of all those environments simply because the cost of adding additional IT staff to manage highly distributed computing environments as scale will otherwise be prohibitive.

As such, the issues that IT teams are facing today may be a matter of not if the management of IT will become more automated but how soon.

Galaxy helps in adopting hybrid multicloud, fostering innovation, and provide seamless customer experience. To talk to our experts, email us at
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Air India moves entire IT infrastructure to cloud, closes historic data centers

Air India has successfully migrated to a cloud-only IT infrastructure, having closed its historic data centers located in Mumbai and New Delhi. This makes Air India one of the first major global airlines to have moved all computational workloads exclusively to the cloud.

The move brings remarkable technological agility and scalability to Air India, enabling it to accelerate its digital transformation effort and roll out new digital innovations and applications to enhance operational efficiencies, customer and employee experiences. The closure of the data centers will further result in net savings of nearly a million dollar every year.

Dr Satya Ramaswamy, Chief Digital and Technology Officer, Air India, said: "At Air India, we have adopted 'cloud-only' as our computational infrastructure philosophy. For us, cloud is not just about cost savings and operational efficiencies but is a fundamental way to reimagine computing itself and a critical lever to accelerate innovation.

We have adopted a strategic mix of Software-as-a-Service, Platform-as-a-Service and Infrastructure-as-a-Service methodologies in Air India's transformation journey, allowing us to innovate faster and provide a flexible and reliable computational and networking infrastructure for the company."

Air India was one of the earliest airlines globally to have adopted high-performance computing and storage in the initial years of the computing age. The now-closed data centers were once used to drive innovations and automation across multiple spheres of the airline's commercial and financial functions.

https://tinyurl.com/ypputedh

Global cellular IoT connections to cross 6 billion mark in 2030: Counterpoint

NEW DELHI: Cellular Internet of Things (IoT) connections are expected to grow at a compound annual growth rate (CAGR) of 10.8% to reach an installed base of 6 billion by 2030, according to Counterpoint Research. "The growth will be mainly driven by cellular connectivity adoption across various sectors such as utilities, automotive, industrial, retail and healthcare," said Counterpoint's Research Vice President Neil Shah in a statement.

Unlike the previous decade, where consumer devices like smartphones and PCs played a significant role in driving cellular connections, this decade will see a shift towards cellular connections being propelled by the digital transformation initiatives undertaken by enterprise IoT payers, Shah added.

The widespread adoption of cellular connectivity will also contribute to a further reduction in prices for cellular-connected devices, making them more competitive against alternative non-cellular connectivity technologies like LoRa, Sigfox and Wi-SUN, Shah said.

The growth is in spite of the challenges faced by various industries such as inflation, macroeconomic headwinds and supply chain constraints, said Counterpoint. It added that growth has been driven by the digital transformation initiatives undertaken by various industry applications like smart meters, automobiles and asset tracking in particular.

The research firm expects 5G-based applications to pick up as the module average selling price (ASP) drops to sub-$100 and more 5G reduced capability (RedCap)-based solutions become available in the market.

https://tinyurl.com/mrxu2yes

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