

# TechTalk



GALAXY OFFICE AUTOMATION PVT. LTD.

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Proud moment for our marketing team to win the **“Excellence in Digital Marketing” Award at the Dell APJ Partner Marketing Summit Spark 2022**



What an amazing journey we've had in the last 5 years! Together, Galaxy and Dell Technologies have innovated our way forward with an extensive and comprehensive portfolio and a partner program designed for growth and opportunities.



MD SPEAKS

**Anoop Pai Dhungat**  
Chairman & Managing Director

Dear Readers,

*I am very happy to announce that on 3rd November 2022, Galaxy turned 35. It has been a fantastic journey for all of us at Galaxy and hope that all our stakeholders share these feelings. At all times during our existence, we have worked tirelessly to bring the best state of the art technology products and services to help our customers in their businesses. Right from inception, our consultants and technology experts have always been updating their skills and knowledge to be able to advise our customers on the most optimal solutions to their business and technology problems. At 35, we not only have the vast experience of the years but also the agility to adapt in this rapid changing technology landscape. On behalf of all at Galaxy, I sincerely thank all our customers and technology partners for their confidence placed in us. Just as we have done in the past, we promise to keep on delivering the results and building this confidence even further.*

*For our customers who are already spending a significant amount on cloud subscriptions, we have experts who can analyse the usage and reduce these amounts to a large extent. We will be happy to help you on this front and also many other areas of optimising your IT expenses.*

*Thank you again for your continued support.*

*Happy Reading*

**35** Years of  
Integrating Technology  
to Drive Growth



# Future Is Now

## You Can Now Touch And Feel The Online Products, Thanks To IIT Madras

Researchers at IIT Madras develop new touchscreen technology that enables users to feel the texture of images.

Online viewing and reading of the products you intend to purchase on e-commerce sites is a useful feature that aids in decision-making. However, cutting-edge technology is now going to allow customers to touch and feel the product.

A new touchscreen display technology has been developed by researchers at the Indian Institute of Technology in Madras that allows a user to feel the textures of images as their finger goes across the touch surface. Current touchscreens can only detect where your finger touches the screen. The new technology is known as 'iTad,' for interactive Touch active display. It is the next generation in Touch Display technology, according to a statement by IIT Madras.

"Through the use of software, the researchers can create different textures such as crisp edges, switches, and rich textures that range from smooth to gritty. A new level of interaction comes alive on smooth physical surfaces," the institute said in a release.

There are no moving parts in iTad. Instead, an in-built multi-touch sensor detects the movement of the finger and surface friction is adjusted via software. By controlling electric fields via a physical phenomenon known as 'electro adhesion,' the software modulates friction locally as fingers

travel across a smooth plane.

Head researcher M. Professor Manivannan of the Department of Applied Mechanics said, "This is the era of iTad. The technology can take online shopping experience to the next level. We can touch and feel things before we buy from e-commerce platforms. Around 30 per cent of returns to the online shopping are due to the mismatch of user experience. Their expectations are different by looking at the images online."

In order to advance the technology, touchlab researchers have been collaborating with Merkel Haptics, a start-up housed at the IIT-M research park.

Dr PV Padmapriya, CEO of Merkel Haptics, provided more details on the current state of "iTad" and an estimated launch date with potential real-world applications, "The prototype from the Touchlab can be made into a product in a year's time. Our aim is to make a small device, similar to a computer mouse, on everyone's desk to add to the experience. We have been field testing and providing valuable feedback to the researchers at IIT Madras on improving the functionality of the technology."

### The main uses for iTad technology are:

- ▶ Automotive, Consumer Electronics, and Digital Signage
- ▶ Home automation, medical, industrial, and gaming
- ▶ Aid for the visually challenged, among other areas





# Technology Focus

## What is confidential computing?

With the boom in cloud computing, new types of security threats have emerged. Confidential computing is a solution to the added IT security issues of working with the cloud.

Over the last decade, cloud computing has revolutionized the way the world computes. Many companies and organizations have moved from dedicated managed servers at properties they own to flexible solutions that can scale up or down based on the amount of power and storage they need at any given moment. It's changed the way applications are written, built, and deployed, enormously increasing automation and coordination between programs.

Using cloud-based resources adds new types of security threats. With on-premises servers, attacks typically come from outside the infrastructure, but with cloud deployments, threats can also originate from inside the infrastructure. Confidential computing has recently emerged as a solution to the added security issues of working with the cloud. In its most strict definition, it means ensuring the confidentiality of a workload. We like to view this as a broader term, however, that encompasses three main aspects

However, a fully attested environment may still be preferred in some cases, especially to prevent replay attacks and possible vulnerabilities in CPUs. In these cases, we want to attest the entire hardware and software infrastructure that's running the customer's application. Attestation of the underlying hardware, however, requires rethinking some of the main building blocks of a processing system, with a more complex root of trust than a TPM, that can better attest the entire platform.

### Confidentiality

The customers' data needs to be properly isolated, so that they are the only group able to access it. Data protection is not a new concept, and there are widely accepted mechanisms to protect data. Current mechanisms focus on data at rest, which is data that is not currently being used, that can rely on encrypted data and/or disk images with a key only known by the tenant, and data in motion, which is data being transferred over the network, which can be protected by encrypting data being sent out of an application. In this case, the key can be randomly generated when the program is running and the connection is set-up between sender and receiver.

With Confidential computing, a third type of data needs to

be protected, called data in use. This means offering mechanisms to protect the physical memory (such as RAM) being used by a customer, so that no other tenants on that cloud have any way to access it. This is generally done by hardware mechanisms that provide protection to virtual machines (VMs). It can be done either by partitioning, where the CPU places hardware checks on the memory allocated to each VM and ensures these boundaries are not crossed, or with memory encryption, where the CPU automatically encrypts VM memory with different keys for different VMs. Some operations, like IBM Z Secure Execution, offer both.

### Integrity

Customer data cannot be modified or tampered with by anyone — other than the tenant. Some early versions of the mechanisms used to protect data in use did not protect against data tampering. This allowed the use of a class of attacks called replay attacks, that rely on providing modified information to an application to trick it into willingly revealing secrets. Newer implementations of these technologies are therefore aiming at stopping data tampering.

### Attestation

Even with confidential computing, the system needs to be trustworthy. The customer needs to be provided proof that their application is running in an environment that is built around confidentiality and integrity. To do this in a traditional environment, we need to start with a safe root of trust, a foundational component that is cryptographically secure. This normally takes the form of a secure hardware module like a trusted platform module, however we are studying different approaches to attestation.

In most confidential computing implementations, the CPU becomes a trusted entity itself, so it (or a security processor attached to it) attests that the contents of the VM and its encryption are set up correctly. In this case, there's usually no need to attest the hypervisor (or host operating system), which can be untrusted.

However, a fully attested environment may still be preferred in some cases, especially to prevent replay attacks and possible vulnerabilities in CPUs. In these cases, we want to attest the entire hardware and software infrastructure that's running the customer's application. Attestation of the underlying hardware, however, requires rethinking some of the main building blocks of a processing system, with a more complex root of trust than a TPM, that can better attest the entire platform.



# Special Focus

## Multicloud explained

Over a decade after the launch of Amazon Web Services, AWS continues to benefit from the “first mover” position. While AWS is still the market leader, cloud services from other industry titans such as Google or Microsoft have grown in popularity (as have specialized services from other vendors), giving enterprises unparalleled choice in the cloud services they use.

As a result, enterprises and developers increasingly consume cloud services from a range of different vendors, giving rise to the term “multicloud.” Not all multicloud is created equal, however.

Some multicloud deployments are intentional in nature, driven by a strategic plan to improve business agility or to tap into best-of-breed services. Other multicloud deployments are somewhat accidental in nature and resemble traditional enterprise IT, fraught with shadow IT complicating CIOs’ attempts to bring discipline to their data center.

- ▶ **What is multicloud?** Multicloud is the practice of using cloud services from multiple heterogeneous cloud services as well as specialized platform-as-a-service (PaaS), infrastructure-as-a-service (IaaS) or software-as-a-service (SaaS) providers. More sophisticated usage of multicloud involves running the same application across multiple clouds, but most enterprises have neither the need nor the expertise to do this.
- ▶ **What advantages do multicloud deployments offer?** Multicloud is about enabling choice — to be able to pick and choose components from multiple vendors — allowing organizations and application developers to use the best fit for their intended purpose. Multicloud can also be used to ensure your customers have low-latency access to an application even in regions where one cloud provider may lack a presence.
- ▶ **What is the difference between multicloud and hybrid cloud?** Hybrid clouds comprise different kinds of clouds like private and public, while multicloud includes multiple providers of the same type of cloud. A hybrid cloud strategy will tend to suit organizations that aren’t yet ready to commit all applications to the public cloud.
- ▶ **Should my business use a multicloud strategy?** This depends. A SaaS provider will require a multicloud approach but for many enterprises, the complexity involved in successfully managing a multicloud

environment will militate against it. Generally, a multicloud deployment will be useful for organizations that have specific needs or dependencies to satisfy.

- ▶ **How popular is multicloud?** Most enterprises of even moderate size will use multiple clouds simply due to shadow IT. However, strategic use of multicloud is gaining in popularity because as organizations outgrow the capabilities of their cloud service providers, services from additional vendors may be needed.
- ▶ **How do I build a multicloud deployment?** A multicloud deployment should be carefully planned because, for example, architecting one’s data tier for multicloud deployment isn’t useful if the organization doesn’t also architect its application tier for multicloud. Because of this complexity, use of cloud management platforms is recommended.

### What is multicloud?

Multicloud refers to the practice of using services from multiple heterogeneous cloud service providers, including AWS, Google Cloud Platform or Microsoft Azure as well as specialized PaaS, IaaS or SaaS providers. Multicloud is not the same as hybrid cloud, which blends the use of private cloud environments and public cloud environments.

Multicloud as a strategy should not be confused with the simple fact of using cloud services from different providers, which is how enterprise IT has always functioned.

As an architectural choice, multicloud can be used for a variety of reasons. The most obvious one is disaster recovery. While cloud vendors offer a variety of options and SLAs (service-level agreements) for redundancy to guarantee uptime and backups to ensure data integrity, both of these rely on the supposition that the vendor’s entire infrastructure does not fail at once.

However, for most enterprises most of the time, organizations should ensure they’ve architected for resilience across a single cloud provider’s regions before endeavouring the much more difficult task of architecting multicloud resilience across different cloud providers.

While most workloads can be built to be vendor neutral (this flexibility is a primary benefit of multicloud), many workloads benefit from using specific cloud platforms. As analyst firm Thoughtworks has suggested, “Opting for an always-on, cloud-agnostic architecture is costly and effort-intensive,” while embracing the innovations in a particular cloud enables developers to be more productive.



## Special Focus

As such, it pays to embrace different clouds for their particular strengths. For example, apps that use Alexa Skills are better served by using Amazon Web Services, as the APIs involved are native to AWS. Likewise, supported languages and depth of ability for natural language processing varies widely between different cloud providers.

Roughly one third of the IT professionals surveyed in TechRepublic Premium's Managing the multicloud survey indicated their organization uses a specialized application or solutions provider, such as Google Drive, Salesforce or Cloudflare.

These are closer to services than they are cloud platforms. While there is feature duplication between these and similar companies as with public cloud, these products do not support general compute workloads commonly associated with cloud computing.

### **What advantages do multicloud deployments offer?**

Multicloud's main advantage is that organizations and application developers can pick and choose components from multiple vendors and use the best fit for their intended purpose. To draw a comparison, multicloud is more à la carte than table d'hôte.

However, this benefit may depend upon a microservices architecture where an organization could, for example, host its live e-commerce site with customer data and product catalogue on AWS and then have a replica hosted on Google Cloud, which is creating personalization and offers from customer interactions.

Which services an organization chooses will depend upon existing IT systems and the skillsets of its employees. For organizations with an outsized dependency on the Windows ecosystem, for example, leveraging some Microsoft Azure services may be beneficial, while the same organization may use Google Cloud for machine learning and analytics and/or Amazon for public-facing web services.

Another reason to consider multicloud is resilience across cloud providers within a single region. As robust as the infrastructures of a Microsoft Azure or Google Cloud, the reality is that systems fail.

Multicloud is also ideal for data sovereignty and elimination of concentration risk. This has become a growing concern for those within Europe.

Additionally, multicloud offers low latency access to an organization's application. As cloud demand has increased, organizations have reported capacity constraints across a number of clouds — between low or even no capacity. An

organization's preferred cloud provider may not yet have data centers running in a region close to their customers.

Multicloud allows an organization to mix and match infrastructure to support an application, provided the application has been architected specifically to handle running across multiple clouds. For example, a specific cloud service may be available but in a region that is too geographically distant to produce good application performance, making an alternative cloud provider the smarter choice.

### **What is the difference between multicloud and hybrid cloud?**

As mentioned, hybrid clouds comprise different kinds of clouds, while multicloud includes multiple providers of the same type of cloud. In other words, a hybrid cloud approach might involve building applications that span a private data center and Google Cloud, whereas a multicloud architecture might combine services from Google Cloud and AWS (both public IaaS providers).

A hybrid cloud strategy will tend to suit organizations that aren't yet ready to commit all applications to the public cloud. It can be used to help organizations bridge their existing infrastructure, not to mention the skill sets of their employees, to a more cloud-centered future.

### **Should my business use a multicloud approach?**

This depends. A SaaS provider will require a multicloud approach, but for many enterprises, the complexity involved in successfully managing a multicloud environment may be too difficult. Generally, a multicloud deployment will be useful for organizations that have specific needs or dependencies to satisfy, such as integrations with Internet of Things (IoT) devices or a reliance on Windows software or specific third-party solutions.

Multicloud offers a great deal of flexibility in how resources are managed, though the difficulty increases roughly exponentially with the number of integrations added. Cloud management platforms can be used to ease deployment and integration of various cloud services. There is a growing number of SaaS providers offering managed cloud services for databases.

The complexity associated with multicloud requires deep expertise on different clouds within one's organization, which will often prove difficult to find.

Galaxy helps your organisation to build a robust multicloud infrastructure. Talk to our experts and know more, email us at [marketing@goapl.com](mailto:marketing@goapl.com)



## Flipkart launches metaverse shopping experience with Flipverse

Ecommerce company Flipkart launched a metaverse experience on Monday called Flipverse, in which users can experience and buy products in three-dimensional virtual reality (VR) that can be accessed through any smartphone, without the need for a VR headset.

More than 15 brands have so far signed up with the company to launch and display around 100 products on Flipverse. This is the first such instance of a traditional ecommerce company launching a Web3 service.

Flipverse will be accessible to all Android users through the Flipkart app for a week, and will feature brands such as Puma, Noise, Nivea, Lavie, Tokyo Talkies, Campus, VIP, Ajmal Perfumes, Himalaya and Butterfly India in the first phase.

Flipkart has partnered with Web3 companies such as eDAO, Polygon and Guardian Link for the launch. In its first iteration, the brands can display products and provide offers and collectibles to customers across categories such as sports apparel, wearable electronics, fashion, home appliances and cosmetics.

The company said its loyalty programme Supercoins would also be extended to Flipverse. Flipkart and eDAO recently partnered to create a digital treasure hunt during the Big Billion Days festive season sale. At the end of the 10-day sale, shoppers got access to digital collectibles spanning art, sport, gaming and entertainment. The collectibles are hosted on Polygon, a so-called layer-II blockchain that builds on the Ethereum network.



<https://bit.ly/3Dkz1rB>

## Chipmakers see 'breath taking' drop in demand as recession looms

Signs are piling up that the tech downturn may be deeper and longer-lasting than feared. After years of record capital spending, chipmakers are warning on a weekly basis that demand is sputtering. In the latest sign of trouble, Samsung Electronics Co. and Advanced Micro Devices Inc. reported disappointing results within hours of each other that widely missed projections.

"It seems end demand has likely deteriorated markedly in recent weeks, and end customers appear to be aggressively draining inventory," Bernstein's Stacy Rasgon said. The cut in AMD's client-revenue "is admittedly a bit breath taking."

Weaker-than-expected demand for consumer electronics is hitting companies along with surging shipping and materials costs. Cost-cutting has become the new norm across the tech industry, and businesses that hoarded chips during the pandemic are now opting to cancel or postpone orders and tap inventory.

The semiconductor industry is also grappling with export restrictions from the US government, which is ratcheting up pressure on its allies to prevent shipment of cutting-edge chips to a growing list of Chinese companies, as it seeks to contain the Asian country. That's hampering business for chipmakers from AMD to Nvidia Corp. in the world's biggest semiconductor market.

"This downcycle is not merely driven by typical supply and demand dynamics. It's different from the past cycles due to geopolitical risks," said Heo Pil-Seok, chief executive officer at Midas International Asset Management in Seoul. "The US government's exports controls would further limit IT companies' sales in China and a large chunk of demand for chips will be weakened. If AMD, Nvidia can't sell their chips in China, memory makers' earnings will deteriorate further."

The companies themselves are bracing for a prolonged downturn. Samsung's chip business head, Kyung Kye Hyun, said he doesn't see the memory market rebounding throughout next year. Kyung told employees at an internal event that Samsung cut its guidance for chip sales in the second half of this year by 32 percent compared to a forecast in April, according to the Korea Economic Daily.

<https://bit.ly/3zq5cVi>

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