

Galaxy scores a Hat-trick of Awards

Galaxy wins 2 awards by IDG/ Channel World Premier 100

At a buzzing online awards function hosted by IDG, Galaxy was awarded the prestigious "**Hall of Fame 2021**" award & the "**Premier 100**" award.

Thanks to our esteemed customers and our Galaxy teams for their relentless support during these tough times.



We are delighted for winning the **#Yotta #GoldenCircleAwards** Partner Excellence Awards 2021.

Looking forward to a long-term valuable partnership with **Yotta Infrastructure Solutions**



Anoop Pai Dhungat
Chairman & MD

MD SPEAKS

Dear Readers,

The last couple of months saw some unprecedented weather related disasters in almost all the continents. Extremely high rainfall in a short span of time caused flash floods and devastation in many parts of Europe, Africa and Asia. Wildfires raged in least expected parts of the Americas and Europe. It is now fairly well established that the root cause of these events is global warming due to climate change. And the top cause of climate change is the use of fossil fuels like coal, oil, and gas for electricity, heat, and transportation. Deforestation comes a close second. These add enormous amounts of greenhouse gases to those naturally occurring in the atmosphere, increasing the greenhouse effect and global warming. The only way to slow this down and perhaps even reverse it is to move to renewable sources of energy, stop deforestation and plant many more trees. Nature has been warning us for quite some time and now this seems to be one of the last warnings. We need to take this seriously at an individual, family, corporate and government level. Galaxy has always been contributing to growing trees and have run a few programmes to that effect and will continue all efforts possible at our level to help reduce global warming.

I reiterate that most of us at Galaxy are now partially vaccinated and ready to serve you safely, by taking all necessary precautions. It always has been our endeavour is to keep your businesses running and growing. We have added a lot of exciting offerings to data centre, mobility, cloud, security, networking, and endpoint portfolios. Do reach out to us to know more about these solutions and we will be happy to demonstrate these to you in your environments.





Future Is Now

Breakthrough: The World's Thinnest Technology – Only Two Atoms Thick

A scientific breakthrough: Researchers from Tel Aviv University have engineered the world's tiniest technology, with a thickness of only two atoms. According to the researchers, the new technology proposes a way for storing electric information in the thinnest unit known to science, in one of the most stable and inert materials in nature. The allowed quantum-mechanical electron tunnelling through the atomically thin film may boost the information reading process much beyond current technologies.

The research was performed by scientists from the Raymond and Beverly Sackler School of Physics and Astronomy and Raymond and Beverly Sackler School of Chemistry. The group includes Maayan Vizner Stern, Yuval Waschitz, Dr. Wei Cao, Dr. Iftach Nevo, Prof. Eran Sela, Prof. Michael Urbakh, Prof. Oded Hod, and Dr. Moshe Ben Shalom. The work is now published in science magazine.

"Our research stems from curiosity about the behaviour of atoms and electrons in solid materials, which has generated many of the technologies supporting our modern way of life," says Dr. Ben Shalom. "We (and many other scientists) try to understand, predict, and even control the fascinating properties of these particles as they condense into an ordered structure that we call a crystal. At the heart of the computer, for example, lies a tiny crystalline device designed to switch between two states indicating different responses — "yes" or "no", "up" or "down" etc. Without this dichotomy — it is not possible to encode and process information. The practical challenge is to find a mechanism that would enable switching in a small, fast, and inexpensive device.

Current state-of-the-art devices consist of tiny crystals that contain only about a million atoms (about a hundred atoms in height, width, and thickness) so that a million of these devices can be squeezed about a

million times into the area of one coin, with each device switching at a speed of about a million times per second.

Following the technological breakthrough, the researchers were able, for the first time, to reduce the thickness of the crystalline devices to two atoms only. Dr. Ben Shalom emphasizes that such a thin structure enables memories based on the quantum ability of electrons to hop quickly and efficiently through barriers that are just several atoms thick. Thus, it may significantly improve electronic devices in terms of speed, density, and energy consumption.

In the study, the researchers used a two-dimensional material: one-atom-thick layers of boron and nitrogen, arranged in a repetitive hexagonal structure. In their experiment, they were able to break the symmetry of this crystal by artificially assembling two such layers. "In its natural three-dimensional state, this material is made up of a large number of layers placed on top of each other, with each layer rotated 180 degrees relative to its neighbours (antiparallel configuration)," says Dr. Ben Shalom.

"In the lab, we were able to artificially stack the layers in a parallel configuration with no rotation, which hypothetically places atoms of the same kind in perfect overlap despite the strong repulsive force between them (resulting from their identical charges). In actual fact, however, the crystal prefers to slide one layer slightly in relation to the other, so that only half of each layer's atoms are in perfect overlap, and those that do overlap are of opposite charges — while all others are located above or below an empty space — the center of the hexagon. In this artificial stacking configuration, the layers are quite distinct from one another. For example, if in the top layer only the boron atoms overlap, in the bottom layer it's the other way around."

Dr. Ben Shalom also highlights the work of the theory team, who conducted numerous computer simulations "Together we established deep understanding of why the system's electrons arrange themselves just as we had measured in the lab. Thanks



Future Is Now

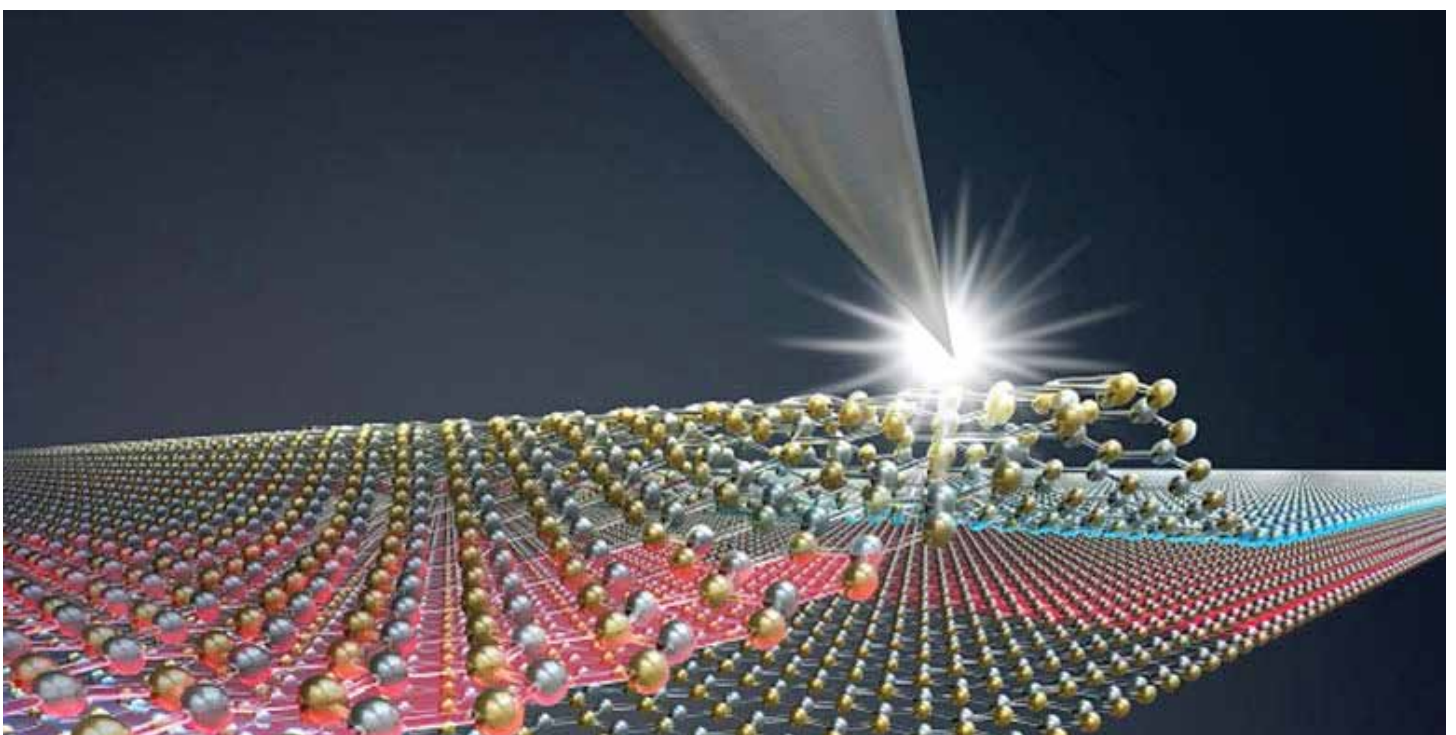
to this fundamental understanding, we expect fascinating responses in other symmetry-broken layered systems as well," he says.

Maayan Wizner Stern, the PhD student who led the study, explains: "The symmetry breaking we created in the laboratory, which does not exist in the natural crystal, forces the electric charge to reorganize itself between the layers and generate a tiny internal electrical polarization perpendicular to the layer plane. When we apply an external electric field in the opposite direction the system slides laterally to switch the polarization orientation. The switched polarization remains stable even when the external field is shut down. In this, the system is similar to thick three-dimensional ferroelectric systems, which are widely used in technology today."

"The ability to force a crystalline and electronic arrangement in such a thin system, with unique polarization and inversion properties resulting from the weak Van der Waals forces between the layers, is not limited to the boron and nitrogen crystal," adds Dr. Ben Shalom. "We expect the same behaviours in many

layered crystals with the right symmetry properties. The concept of interlayer sliding as an original and efficient way to control advanced electronic devices is very promising, and we have named it Slide-Tronics".

Maayan Vizner Stern concludes: "We are excited about discovering what can happen in other states we force upon nature and predict that other structures that couple additional degrees of freedom are possible. We hope that miniaturization and flipping through sliding will improve today's electronic devices, and moreover, allow other original ways of controlling information in future devices. In addition to computer devices, we expect that this technology will contribute to detectors, energy storage and conversion, interaction with light, etc. Our challenge, as we see it, is to discover more crystals with new and slippery degrees of freedom." ronic devices, and moreover, allow other original ways of controlling information in future devices. In addition to computer devices, we expect that this technology will contribute to detectors, energy storage and conversion, interaction with light, etc. Our challenge, as we see it, is to discover more crystals with new and slippery degrees of freedom."



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



Technology Focus

Tapping into the data boom with DBaaS

DBaaS (also known as managed database service) is a cloud computing service that lets users access and use a cloud database system without purchasing and setting up their own hardware, installing their own database software, or managing the database themselves

Like much of the world, India's enterprises saw a significant advancement in technology use over the past year, and the digital transformation of enterprises is expected to maintain its momentum.

The business opportunities presented by technologies like AI and cloud are tremendous, and at the Center of all this is an explosive growth of data.

A recent NASSCOM report highlights that an integrated data utilization strategy can add \$450- \$500 billion to India's GDP by 2025. It suggests that data and AI can play a strong enabling role across sectors like healthcare, financial services, mobility, agriculture, energy and MSMEs. It's clear that as organisations adapt to India's digital future, the tools they need to succeed are likewise evolving.

The data opportunity and challenge

The use of emerging technologies is creating a wealth of detailed customer data which, if harnessed correctly, will be vital to businesses looking to keep pace with changing consumer behaviours and market demands, as well as be ahead of the competition.

The key phrase here is "if harnessed correctly" However, many organisations still rely on legacy databases, sometimes decades old, which are not best suited to modern applications. These proprietary, commercial databases may offer high performance and advanced availability features but are expensive and complex to operate.

To harness the value of their data, organizations must provide rapid, performant, secure access to the researchers, scientists, developers, and other end consumers of the data. Traditional IT operations

combined with the complexity of legacy databases makes this nearly impossible, drastically reducing time to value and productivity.

To address these concerns, increasingly businesses are moving to cloud-based database solutions to complement or replace their legacy systems. APAC is expected to experience the highest growth in demand for cloud databases of any region between now and 2025, with demand being driven by the massive growth of data through channels like smartphones and Internet of Things devices. However, cloud-native databases present their own challenges, such as application integration, security, and data sovereignty.

To manage the shift to cloud, many organisations are turning to hybrid and multi-cloud strategies that allow them to work across their legacy IT infrastructure, private cloud, and one or more public clouds. Defining the right cloud strategy can give organisations a competitive edge by enhancing flexibility, simplifying IT management and optimising costs; and recent Nutanix research found that 86 per cent of IT decision-makers consider hybrid their ideal operating model.

However, the move to hybrid and multi-cloud necessitates managing multiple and often siloed databases, and many organisations have yet to find the right multi-cloud database management solution that eliminates operational duplication while unlocking the value in their data

Riding the growing data wave

Hybrid cloud architecture is an ideal place to start to deliver new capabilities and modernize existing IT, but to truly benefit from evolving technologies and maintain a competitive advantage, organisations need to reduce inefficiencies and enable rapid scalability. Enter Database-as-a-Service, DBaaS.

DBaaS refers to software and/or services that enables users to set up, operate, and scale databases without the need for setting up physical hardware, installing software, or configuring for performance. All of the administrative tasks and maintenance are taken care



Technology Focus

of by the service provider. The most advanced DBaaS platforms also integrate lifecycle management as well as copy data management, further reducing operational overhead while increasing agility.

Most organisations have complex, multi-vendor database estates, usually both on-premises and in one or more clouds. Choosing a cloud agnostic DBaaS solution that supports multiple database engines can simplify database operations and promote agility by eliminating the need to separately configure and tune each of the resources, regardless of where they run individually.

Evolving database management

The bank found that its application and database administrators (DBAs) were continually playing catch-up in terms of maintenance tasks and new services requests. Furthermore, the DBAs regularly took clones of the databases, with each taking up to one terabyte of storage—a significant addition to the company's IT costs, and a time consuming, repetitive task.

By simplifying its database management, Bank's team

gained the ability to provision, manage, refresh, and restore the bank's many databases in a single click. Additionally, the bank was able to significantly simplify the backup process, resulting in far greater ease of use, speed, and cost-efficiency.

Importantly, thanks to greater automation, scalability and reliability, the bank was better able to take advantage of business opportunities and respond to customers' needs at speed.

The accelerating shift to a digital-first, mobile-first, ubiquitously connected world presents amazing opportunities. As enterprises seek to capitalize on these shifts, hybrid and multi-cloud offerings from providers will be the architecture of choice to deliver the flexibility, security, and performance required to meet business needs. By embracing DBaaS across clouds, organisations can unlock the data mobility, agility, and scalability necessary to survive and thrive in the current business climate and be ready for what's next.

Contact our experts to know more about our DBaaS offerings and how they can keep you ahead of the curve.



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



Special Focus

Oracle Cloud VMware Solution – Powered by VMware and Oracle

Oracle Cloud VMware Solution (OCVS) is a VMware CLOUD Verified Solution running on Oracle Native Cloud. OCVS provides a customer managed, native VMware-based cloud environment, installed within a customer's tenancy. Offering complete control using familiar VMware tools. Move or extend VMware-based workloads to the cloud without re-architecting applications or retooling operations.

OCVS offering helps customer organization run their IT environment in a True Hybrid manner running portion of workload On-Premises and remaining workload on Oracle Cloud without worrying about Re-Architecting or Re-platforming the applications in use.

Below are some of the salient features of OCVS:

- 1.Run VMware workloads natively on Oracle Cloud
- 2.Dedicated environment with full control
- 3.Use the same VMware tools in use today
- 4.Ease of operations
- 5.Leverage adjacent Oracle Cloud services
- 6.High-performant, Elastic, and Verified

Galaxy Office Automation, we strongly believe that offerings like this make lot of sense in current unpredictable situation and when customers are adopting and prioritizing Hybrid Cloud Strategy. This offering helps customer make use of both the estates i.e., On-Premises and Oracle Cloud and with blink of an eye business critical workloads can be migrated to any estate depending on the business requirement. This offering even allows organization to extend their existing network to Cloud to have a more seamless experience for IT and Business Users.

Offerings like OCVS helps customer migrate and run workload without exhaustive and lengthy planning. Moving to Public Cloud and return could not have been simpler than this.

Galaxy Office Automation is a **Premier VMware Partner** and **Oracle Gold Partner**. We can help organizations walking this path of Hybrid Cloud by making their journey hassle-free with our expertise in **Assessing the Current Environment -> Designing the Optimal Solution -> Faster Deployment -> Workload Migration Day to Day Management through our Managed Services.**





Mumbai data centers capacity likely to grow 2.65 times by 2023: Report

Data centers capacity in Mumbai, the country's commercial capital, is likely to grow 2.65 times to 529 MW by 2023, said a JLL India report. The city is expected to add 330 MW in the next two years and Navi Mumbai is expected to account for 83% of these additions in the Mumbai region.

Mumbai with 199 MW IT load is the leading data center hub of the country with nine internet cable landing and assured power supply.

"Mumbai is the most preferred destination for cloud players with a 60% share of the occupied space due to its excellent infrastructure support. The state has provided various incentives for setting integrated data center parks. The new supply additions in the city are backed by pre-commitment from cloud players. The city's strong demand is driven by BFSI, media and IT/ITes companies, leading to high occupancy levels of 95%" said Karan Singh Sodi, Regional Managing Director - Mumbai, JLL India.

As the data centre landscape continues to evolve, the industry is expected to grow exponentially to reach 1,007 MW by 2023 from its existing capacity of 447 MW. With the growing reliance on digital connectivity, demand is likely to ramp up further due to the imminent rollout of 5G rollout, IoT-linked devices, data localisation and cloud adoption. India's data center sector will require an investment of \$3.7 billion over the next three years to fulfil the 6 million sq. ft greenfield development opportunity for the industry.

According to Rachit Mohan, Head, Data Center Advisory (India), JLL, India's colocation data center industry witnessed unprecedented absorption of 102 MW during 2020, notching higher absorption than most key markets of Europe and America.

"Fuelled by longer-term trends of rising cloud adoption, increasing digitalisation and progressive legislation, we anticipate increased demand for colocation space nationwide. Rising demand led data center operators and developers to pursue ambitious expansion plans, while some adopted the acquisition route to enter Indian markets, which we expect to continue. Colo capacity grew by around 28% to reach 447 MW in 2020 from 350 MW in 2019," he said.

Mumbai and Chennai are expected to drive 73% of the sector's total capacity addition during 2021-23, while other cities like Hyderabad and Delhi-NCR emerging as

new hotspots. Robust pre-commitments by global cloud players in the established markets of Mumbai and Pune continue owing to prevailing infrastructure, while new markets like Hyderabad are gaining momentum in this space.

"India's data center industry is expected to add 560 MW during 2021-23 leading to a real estate requirement of 6 million sq ft. The supply addition will be complemented by densification of racks and servers, sustainable energy sourcing and use of indigenous resources. Rising demand is leading operators to pursue ambitious expansion plans, while some are adopting the acquisition route to enter Indian markets. Various policies and reforms brought in by the government to turn India into a 'Global Data Hub' has provided necessary measures to achieve this goal," said Samantak Das, Chief Economist and Head of Research & REIS (India), JLL.

The increasing usage of e-commerce, EdTech and digital transactions placed the existing IT infrastructure of enterprises under pressure. Overall data usage increased by 36% in 2020 due to increased usage of smartphones and fixed wireless access as per Nokia Mobile Broadband India Traffic Index 2021. Enterprises have been upgrading their IT infrastructure by adopting hybrid models, given their budget constraints. Technology trends like 5G rollout, IoT-linked devices and AI will also result in stronger growth in demand.

According to JLL, the rapid growth of the data center industry has led to increased energy consumption and environmental impact. Increasingly, global cloud players setting up bases in India aim to reduce their carbon footprint and are looking at data centers that provide sustainable energy alternatives and are entering renewable energy power contracts. India's renewable energy capacity at 90 gigawatts accounts for a 25% share of the installed power capacity and provides tremendous scope for the development of green data centers.



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AI-ML and big data are the growth drivers of business and customer experience within BFSI sector

The BFSI industry has witnessed a paradigm shift owing to the technological evolution. Artificial Intelligence (AI) and Machine Learning (ML) are ways of the future in finance, as they combine the power of advanced data processing with the ability to tackle fraud and improve enforcement. Almost every industry including health, retail, travel and BFSI is exploring how artificial intelligence and machine learning can be used to help them. Frontier technologies like AI, ML, robotics, and biotechnology have shown enormous potential for long-term growth. COVID 19 accelerated the adoption of these technologies as companies learnt that it is technologies like these that look promising in the future. In 2020, businesses expanded their implementation of AI and machine learning, focusing on projects that result in increased sales and lower costs thus resulting into profitability. AI also allows financial institutions to process massive amounts of data at breakneck speed to extract useful insights.

Artificial Intelligence: Fuel to The New Normal

Several industry leaders share this view that AI & ML is transforming customer engagement and transforming various businesses. Today, organizations have started considering AI to be the new normal as it is helping them improve customer interactions to achieve greater sales growth and automating processes to minimize costs. Most enterprises in the BFSI industry are channelizing efforts to build a digital and personalized model when it comes to engaging with customers with help of Artificial Intelligence. AI-backed virtual assistants in the BFSI sector have turned the tide by enabling the delivery of personalized, relevant and real-time customer service. With the application of AI, customers are able to get answers to their concerns within seconds rather than the long hold through the

helpline number. One of the major applications of AI in the BFSI sector is enhancing personalized customer engagement. Onboarding procedures have been streamlined as a result of the pandemic, greatly reducing client trips to the bank, and thereby enhancing the optimum use of human capital and costs.

Machine Learning: A key accelerator for growth

There have been several advancements in the field of ML over the last 12 months. Not only have we seen improvements in tooling, security, and governance requirements for organizations, but we've also seen significant changes in the market as a result of COVID-19's economic impacts. Machine Learning is gaining significance in the BFSI industry due to its growing benefits. Machine-learning software can become smarter and can be adapted and updated anytime to keep up with the pace of business today. It can quickly perform routine operations, giving administrators more flexibility to focus on more complex problems rather than paperwork. Greater profits are realized as a result of automation around the board hence one of the major implications of ML is improved productivity and increased automation. A key task for the lenders is to assess the risks accurately. A precise digital footprint of each customer helps such institutions assist in reducing complexity for managers while dealing with specific customers. In fields like loan underwriting research, the computer method is more reliable than an individual, removing any potential human bias.

Big Data: Growing Relevance in the BFSI sector

Big Data technology helps a lot in increasing the efficiency, improving the pricing and competing with big business with less cost as compared to traditional architecture. Big data analytics have seeped into the BFSI sector and is now transforming the way companies are run. The scope and use of big data are far-reaching, owing to recent cloud improvements and additional



Tech News

innovations. With the help of Big Data technologies performance of processing portfolio scrubs has improved to 10X times from earlier. This accelerates the performance improvement of the online inquiries as the load of Offline and Online processing has been segregated. Automated Big Data systems will monitor and store as much information about the customers as possible, allowing for the most accurate and customized customer experience. It is no secret that Big Data is leading the way for digital transformation. The enhanced reliability and authenticity factors of AI and ML learning tools when combined with big data, guide companies to understand the data they generate every second without any false positives.

Big Data is also playing a vital role when it comes to improving the predictive power of the risk models in the BFSI sector, which is why it is gaining traction in the banking industry. Big Data technology creates growth opportunities on Cross Sell and Up sell based on customer insights and current customer behaviour. Some of the major implications of big data to obtain risk intelligence are fraud and credit management, market

and commercial loans, operational risks, and integrated risk management. Big Data can precisely map demographics, individual preferences and financial tendencies that help risk projection and customer relationship management.

AI, ML and Big Data are not just the topic of conversations of Healthcare, Education, Marketing, Retail and E-Commerce. They have now established their stance in the financial sector, and they are here to stay. Companies are now searching for new ways to not only organize their data and insights better but also to use them to monitor the actions of their customers. Using Big Data, the customer can gain better market insights as the data is getting refreshed faster and the opportunity to view market insight on trend data becomes easier to make more accurate decisions that remove risk and bolster the bottom line. Machine learning, deep learning, and conversational AI apps are expected to propel company sales to new heights in the next 4 to 5 years. Investment in these technologies now would reap significant benefits in the coming future.



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