

# TechTalk



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## Galaxy Joins Hands with IBM to Host “IBM - Galaxy Customer Meet”



Organizations are on lookout for solutions that can help them outthink and outperform competition to stay ahead of the curve, and win greater customer mindshare. In response, we constantly unfold new insights to empower enterprises and help steer their businesses in today's demanding data analytics and storage requirements.

IBM is a global provider of innovative data storage products and solutions that cater to dynamic requirements of end customers. Recently, IBM partnered with Galaxy to host an “IBM – Galaxy

Customer Meet” at the ITC Grand Central in Lower Parel in Mumbai. This included a knowledge session by Pratap Vichare [Director – Enterprise Coverage] from Galaxy, followed by Nadeem Hamdare [Technical Sales Specialist – Cloud & Systems Hardware] from IBM who focused on IBM Data Storage [non-Flash] products portfolio and its potential advantages to organizations.

These sessions were well-received by IT practitioners from across various enterprise verticals, and we received some positive and highly encouraging feedback to conduct more such events in future. This only goes to underline our belief that helping organizations embrace new trends and technologies within a reasonable framework of time-costs-efforts, is the most practical way to see them succeed!

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## M.D. Speaks



"Dear Readers,

*It's been almost a year since demonetisation was introduced in India, and the debate whether it was a success or a failure still goes on. In these exceedingly bipolar times, I would like to take a look at the areas where it has clicked, and vice-versa. Firstly, the negative side i.e. inconvenience to a major section of honest citizens for almost four months, more-than-expected cash reverting into the banking system, ingenious methods of tax evasion with collusion of bankers to avoid detection of black money, introduction of a new 2000 rupee note that continues to facilitate large cash transactions, and an adverse effect on the GDP. On a more positive side, there has been a jump in taxpayers' base, increase in availability of data that could be used to penalize shell companies, a large push towards digital transactions, more and more idle cash entering the system and being put to use, reduced interest rates, and a stock market boom. The IT industry has largely gained because of the digital thrust and we should not have too much to complain about the demonetisation move.*

*The iPhone X, notwithstanding it's high price, has emulated its own predecessors and the queues to procure it first have only grown longer. Another interesting piece of news is that even though the two largest e-commerce players in India achieved record sales during the just-finished festival season, their profitability is still suspect. The consumers are happy, sellers are happy and so are logistics service providers, government collects taxes – seems like a win-win situation for all on the face of it. Or is it not? Will it come to an end soon? These are some of the questions that only time can answer.*

Happy Reading."

*M.D. Rungt*

# The Future is Now

## Scientists Demonstrate Efficient, Light-Powered Production of Fuel via Artificial Photosynthesis



In a new study, Berkeley Lab scientists harnessed the power of photosynthesis to convert carbon dioxide into fuels and alcohols at efficiencies far greater than plants. The achievement marks a significant milestone in the effort to move toward sustainable sources of fuel. Many systems have successfully reduced carbon dioxide to chemical and fuel precursors, such as carbon monoxide or a mix of carbon monoxide and hydrogen known as syngas. This new work, described in a study published in the journal *Energy and Environmental Science*, is the first to successfully demonstrate the approach of going from carbon dioxide directly to target products, namely ethanol and ethylene, at energy conversion efficiencies rivalling natural counterparts.

The researchers did this by optimizing each component of a photovoltaic-electrochemical system to reduce voltage loss, and creating new materials when existing ones did not suffice. "This is an exciting development," said study principal investigator Joel Ager, a Berkeley Lab scientist with joint appointments in the Materials Sciences and the Chemical Sciences divisions. "As rising atmospheric CO<sub>2</sub> levels change Earth's climate, the need to develop sustainable sources of power has become increasingly urgent. Our work here shows that we have a plausible path to making fuels directly from sunlight." That sun-to-fuel path is among the key goals of the Joint Center for Artificial Photosynthesis (JCAP), a DOE Energy Innovation Hub established in 2010 to advance solar fuel research. The study was conducted at JCAP's Berkeley Lab campus.

The initial focus of JCAP research was tackling the efficient splitting of water in the photosynthesis process. Having largely achieved that task using several types of devices, JCAP scientists doing solar-driven carbon dioxide reduction began setting their sights on achieving efficiencies similar to those demonstrated for water splitting, considered by many to be the next big challenge in artificial photosynthesis. Another research group at Berkeley Lab is tackling this challenge by focusing on a specific component in a photovoltaic-electrochemical system. In a study published today, they describe a new catalyst that can achieve carbon dioxide to multi-carbon conversion using record-low inputs of energy. For this JCAP study, researchers engineered a complete system to work at different times of day, not just at a light energy level of 1-sun illumination, which is equivalent to the peak of brightness at high noon on a sunny day. They varied the brightness of the light source to show that the system remained efficient even in low light conditions. When the researchers coupled the electrodes to silicon photovoltaic cells, they achieved solar conversion efficiencies of 3 to 4 percent for 0.35 to 1-sun illumination. Changing the configuration to a high-performance, tandem solar cell connected in tandem yielded a conversion efficiency to hydrocarbons and oxygenates exceeding 5 percent at 1-sun illumination. "We did a little dance in the lab when we reached 5 percent," said Ager, who also holds an appointment as an adjunct professor at UC Berkeley's Materials Science and Engineering Department.

## Anticipating the Smart World of 2027...



NVidia went to China last week and made a series of interesting announcements having to do with smart cities and autonomous cars. IBM made an announcement on advancements in tying the Weather Channel to its Watson artificial intelligence engine and targeted marketing. We also found out about Oculus' Fall in Love VR project which is kind of like *The Bachelor* or *The Bachelorette*, but the significant other is a hot computerized avatar. Intel announced Loihi, a new AI processor that emulates the human brain. All of these things have broad implications for how we will perceive the world in a decade -- and strangely enough, for how the world will perceive us. Our reality, or at least our perception of it, will be massively changed. I'll offer some predictions about the world we can expect in 2027...

In another 10 years, we should be close to critical mass in both electric-powered cars and cars that drive themselves. More than 300K people preordered Tesla's new Model 3, and 25K have preordered the new Jaguar iPace. Other than supercars, car preorders at this magnitude are almost unheard of -- and this hasn't been lost on the car companies. Most have plans to ramp up electric car production massively over the next few years, and this is the same time that we'll also be ramping up autonomous driving.

One of the biggest personal impacts of AI will be in the home. One of the problems we'll likely experience is people choosing to interact with machines that tell them what they want to hear rather than other people who tend to be less willing to be extremely agreeable. This will merge with digital assistants and robotics, making it very likely you'll have an increasingly intelligent, mobile, smart robot helping you around the house. The initial target market for this will be people who are disabled in some way, even just by age. As NVidia showcased during its event in China, these ever-more-intelligent systems will be able to learn just what you like over time, in order to mold themselves into your ideal companion. I'm thinking that in comparison, relationships with people will truly suck. Ironically, because the proliferation of autonomous cars will make traffic concerns largely a thing of the past (they will better manage congestion, and you'll be able to work while riding in the self-driving car), the need to go into work should be reduced massively. Meetings increasingly can be attended by digital avatars, who likely will take better notes than you ever did. Your appliances and equipment will be better able to determine a coming problem, and to automatically schedule a fix, suggesting that extended warranties will be replaced by service agreements.

# Technology Focus

## Database Protection Methods Expand to Shield Data from Attackers

Database vendors have beefed up security tools in their software since attackers are targeting database systems to steal sensitive data.

Cybercriminals keep getting more sophisticated, and database protection methods need to do the same to keep up with them. The good news is that database vendors have taken notice and added more robust security features to their products to help address the situation. In recent years, cyberattacks have expanded beyond distributed denial-of-service attacks and the theft of credit card numbers to include breaches aimed at extracting massive amounts of personal data for comprehensive identity theft. Attackers are also increasingly targeting critical intellectual property and unstructured content, such as emails and documents. In the first half of 2017, nearly 800 data breaches were reported in the U.S., according to the Identity Theft Resource Center and security services provider CyberScout; that was a record high for the period, and a 29% increase over the 2016 level. The numbers clearly show that the risks of data exposure aren't diminishing and in fact, it is quite the contrary.

At the same time, growing public concern about breaches and inappropriate data usage are spurring increased regulatory attention. Most notably, in May 2018, the European Union will implement the General Data Protection Regulation (GDPR), a new law that greatly increases security and privacy protections on the personal data of EU residents. The GDPR will affect not only companies that operate within the EU, but also ones doing business with organizations that handle the data covered by the law.

At a high level, efforts to improve database security should focus on determining which data assets contain sensitive information, what types of policies need to be put in place and how those policies can be operationalized. In practice, that encompasses four primary steps:

- Inventorying and cataloguing available data assets;
- Finding data sets that include personally identifiable information, protected health information or other at-risk data;
- Defining data protection policies; and
- Enforcing those policies once they are in place.

A number of database protection methods and tools are now available to support such security initiatives. Currently, the most widespread method is probably role-based access control. RBAC enables an organization to define different roles for its employees, and then to tailor data access privileges and limits to the various roles. Depending on the vendor, the access controls can be set at the database, table, record or even data attribute level.

A more recent addition is sensitive data discovery software, which scans through a collection of data sets to find those that might require increased scrutiny for security and privacy. These tools use predefined templates to check data sets against known formats of sensitive data, such as Social Security numbers, healthcare identifiers, names, addresses, credit card numbers, bank routing numbers, and financial or medical diagnostic codes. Once a pattern is recognized, different actions can be initiated, ranging from investigating the flagged data set more closely to automatically designating it as sensitive and assigning a level of sensitivity to it. Database security policies can then be defined based on how sensitive the data is. The policies should address not only who in an organization is allowed to view the data, but also ways to prevent unauthorized individuals or systems from accessing and exfiltrating the data.

Two other database protection methods gaining in popularity are data encryption and data masking. Encryption isn't a new technology, but it wasn't directly integrated into databases until relatively recently. As a result of that integration, data can be encrypted while it's at rest in a database, adding to separate capabilities for encrypting data that's in transit between systems and in use. In a database, encryption tools convert data into a form that makes it unreadable until it's accessed by an authorized user. Some database vendors support a technology called transparent data encryption, which automatically encrypts data as it's written to a database. Alternatively, encryption can be done manually. Data can also be encrypted at various levels of a database, from tablespaces or filegroups (depending on the particular database being used), down to individual columns and cells within columns. Data masking is another technique that uses substitute characters to avoid exposing the actual data values in a database. An example is replacing the numerals in a Social Security or credit card number with the letter X when it's displayed on a computer screen. Some database security tools now enable sensitive data to be automatically masked.

Different database protection methods can be combined based on the data policies that an organization defines. For example, a database administrator can implement role-based data masking that obfuscates data values from an end user who isn't authorized to view them. The masking can also be applied based on location -- if, say, someone in the U.S. attempts to view protected data that's stored in a database server located in Europe. It is also important to recognize that not all data breaches originate from outside an organization. There are numerous instances of insider breaches in which data is misappropriated by an employee. To address them, DBAs can use database activity monitoring tools to look for and analyze suspicious data access patterns. By reviewing who has accessed data, at what times and in what volumes, such tools can help identify situations that appear to involve unauthorized data access and movement.

While it's certainly true that organizations face increasing threats to their data, database security tools and techniques are rapidly being improved. Integrating the functionality they provide into your database systems can be a big step toward ensuring compliance with both internally defined and externally mandated data protection policies.

# Tech News

## APAC CIOs Leading Adoption of Disruptive Technologies: Gartner



Organizations are now shifting towards a digital way of operations and investing a lot in technology. CIOs in Asia Pacific report higher adoption of disruptive technologies such as the Internet of Things (IoT), artificial intelligence (AI) and conversational interfaces than their global peers, according to an annual survey of CIOs by Gartner, Inc. Forty-three percent said they have deployed or are in short-term planning for deployment of IoT technologies (compared to 37 percent globally) and 37 percent for AI (compared to 25 percent globally). Investments have been made in conversational interfaces by 28 percent (21 percent globally) and virtual reality (VR) and augmented reality (AR) by 20 percent (17 percent globally). Thirteen percent have adopted block chain or distributed ledger technology, compared to 9 percent globally.

The survey indicates that 95 percent of CIOs expect their jobs to change or be remixed due to digitalization. While world-class IT delivery is a given, it will increasingly take up less of the CIO's time. Respondents believe

that the two biggest transformations in the CIO role will be becoming a change leader, followed by assuming increased and broader responsibilities. Inevitably, the job of CIO will extend beyond the traditional delivery roles to other areas of the business, such as innovation management and talent development. "The nature of the CIO's job has changed from the role of a delivery executive to that of IT business executive – from controlling cost and engineering processes to driving revenue and exploiting data," said Rowsell-Jones. "Leaders are rapidly scaling their digital businesses, making the remainder of this year and 2018 a defining moment for CIOs who don't want to be left behind."

The survey results show that Asia/Pacific CIOs increasingly have responsibility for areas of the business outside traditional IT, but significantly less than global peers. 44 percent are responsible for digital transformation (55 percent globally); 37 percent for innovation (54 percent globally) and 17 percent for enterprise change (28 percent globally). "In some parts of Asia especially, it's hard for CIOs to get the authority to act outside of the narrow confines of IT," added Rowsell-Jones. "Nevertheless, that does not mean they should abrogate their responsibility to bring about far-reaching enterprise change." CIOs in Asia Pacific expect their budgets to grow 5.1 percent, higher than the global average of 3 percent, according to the survey. "IT budget growth across the whole of Asia/Pacific is strong this year as enterprises digitalize," said Rowsell-Jones.

The main barrier appears to be organizational culture, according to 42 percent of APAC CIOs (46 percent globally). This is followed by a shortage of talent (24 percent) and resources (19 percent). "CIOs need to identify the cultural behaviors that currently exist and what the future state vision is," said Rowsell-Jones. "In doing so, they must recognize existing cultural strengths and position cultural change as 'the next chapter,' rather than a massive overhaul, to respect employees' contributions and invite them to come along on the journey."

## Donald Trump's Twitter Account Goes on a Brief Hiatus

The president's personal Twitter account disappears from the social network, prompting speculation about its fate.



President Donald Trump's personal Twitter account was deleted Thursday afternoon -- not due to of any rules transgression, but rather an alleged rogue employee.

Visitors to @realDonaldTrump expecting to find his latest missives around 3:55 p.m. PT were instead greeted with a message that the page didn't exist. However, the account's nonexistence didn't last long, and the page returned with its usual appearance. Twitter and the White House didn't immediately respond to a request for comment, but at 5:05 p.m. PT, Twitter's @TwitterGov account tweeted to say Trump's account "was inadvertently deactivated due to human error" before later placing the blame on an employee spending their last day with the company.

The incident, coming after months of criticism on how Twitter handles the president's account, led to speculation the account may have been suspended. Many have wondered why some of his tweets aren't being deleted by the social media platform, despite their apparent violation of its rules. Twitter's rules forbid using the service to make violent threats, either direct or indirect. Accounts violating that rule may be subject to a temporary or permanent suspension, Twitter warns. Suspensions aren't uncommon on the site. Roger Stone, a long-time associate of Trump, was suspended by Twitter on Saturday after lashing out at CNN anchor Don Lemon. In January, pharmaceutical executive Martin Shkreli was given a Twitter timeout for harassing a freelance journalist. The focus on Trump's status on the site intensified during a war of words with North Korean leadership last month, during which he tweeted that if the country's foreign minister "echoes thoughts of Little Rocket Man, they won't be around much longer!" The tweet was interpreted by many, including the foreign minister, as a threat of military action against the country. Twitter acknowledged that Trump's tweet had caused an uproar but said it was allowed to stay because of its "newsworthiness." Trump has credited the social platform for helping him win the White House, but some people close to the president reportedly worry that his prolific and often controversial tweeting could have dire consequences. The New York Times reported earlier this year that members of his staff are desperate for him to slow down with the tweets.

## iPhone X goes on Sale, Bringing Out the True Apple Super-fans

Apple fans around the world queue to be among those few, those happy few, to get their hands on the iPhone X.



The iPhone X went on sale around the world on Friday, drawing crowds and long lines as Apple fans patiently waited to get their hands on the very best iPhone money can buy. And spend money they did. The iPhone X (that's pronounced "ten" not "ex") just scrapes in under 1K in the US and UK, with a starting price of \$999 and £999, respectively.

But in Australia, one of the first countries in the world to start selling the device, that price goes up to AU\$1,579. And if you want the larger 256GB capacity, you'll spend a whopping AU\$1,879. (That's \$1,149 or £1,149 in the US and UK.) This second launch, which comes more than a month after the launch of the iPhone 8, is the latest wrinkle in the annual gathering of Apple fan-boys, gadget enthusiasts and publicity seekers. Apple's decision to stagger the

launches presented consumers with the dilemma of buying the more readily available iPhone 8 immediately, or holding out for the supposedly supply-constrained iPhone X. Staff wait for crowds to come in to the Apple Store in Sydney on iPhone X launch day.

To the people who showed up today, there was no question as to which iPhone won out. They turned out in droves, despite (or maybe because of) early murmurings of production delays and reports that Apple might ship only half the number of devices it originally planned. For many, it's the only way to get the device on launch day, with pre-orders for the Nov. 3 shipping date selling out in as little as 10 minutes. Now, customers are facing delays of up to six weeks to get the true flagship Apple phone

## Special Focus

### Cisco Debuts the First Voice-activated Assistant Built Just for Meetings

**While virtual assistants are becoming increasingly common, Cisco argues its Spark Assistant will be the first one that's truly useful in the enterprise space**



AI-enabled virtual assistants are becoming increasingly common, but most use cases so far have focused largely on the consumer space. Cisco is looking to change that with the Cisco Spark Assistant, which it said is the first voice assistant purpose-built for meetings and collaboration.

"The capabilities supported by [voice assistants] are defining the winners and losers in the smartphone space, in the connected device space in your home," Cisco's Timothy Tuttle told ZDNet. "Cisco believes the same thing will happen in the enterprise space, and the first place it's going to happen is around meetings and collaboration."

Starting early next year, the Spark Assistant will be available to a small group of customers using select features.

The assistant will first be available on Cisco Spark Room Series endpoints and will eventually be available on all of Cisco's conference room devices, as well as mobile and desktop clients.

The Spark Assistant was borne out of Cisco's acquisition of MindMeld, a company founded by Tuttle that was one of the early pioneers in conversational AI technology. It relies on speech recognition technology, natural language understanding, question answering and dialogue management, as well as Cisco's deep knowledge of the collaboration space.

Its initial skills will enable a user to start a meeting (with a handful of phrases like, "Hey Spark, Join the meeting"), join a WebEx personal meeting room, call anyone in the company directory, or control a Spark device (with phrases like, "Hey Spark, record this meeting"). The Spark Assistant is triggered by the phrase, "Hey Spark," which Tuttle said has one of the best "wake word" reliability rates among voice-activated assistants -- a factor he said is more important in an enterprise setting. It Spark Assistant will be extensible, enabling enterprises to make adjustments and enhancements. For now, though, Cisco is prioritizing the core skills available. On the consumer side, Tuttle argued, "developers still struggle creating useful skills that can be deployed on Alexa, and most end users still rely on core skills that Amazon builds themselves."

Thanks to its integration with Cisco Spark hardware, the assistant also takes advantage of Spark hardware features such as Intelligent Proximity, which enables a device to determine who is present in a conference room. Proximity can help users securely and quickly move through a meeting. For instance, an employee could join their Spark personal meeting room via the Spark Assistant without having to authenticate into a shared meeting room device. Until a user is authenticated with Intelligent Proximity, Spark Assistant will only offer access to shared resources like a company directory. In the future, Spark Assistant will also authenticate users through a device's facial recognition capabilities or speaker identification.

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