

Unlock the Full Power of Data Capital

Galaxy, in collaboration with Dell Technologies, hosted a knowledge event on leveraging and protecting organization's data capital on 24th January 2020 at Hyatt Regency Mumbai.

It was an interactive session on 'Simplify your data landscape' and 'Protect and secure your data assets', followed by networking dinner and cocktails. The event was attended by more than 40 senior IT professionals.



Anoop Pai Dhungat
Chairman & MD

I write this note in the backdrop of the epidemic scare of the new coronavirus (nCoV). The number of deaths and infections are continuing to rise and doctors and scientists are racing against time to find a cure or vaccine to prevent the spread. Till such time, it is prudent to follow travel advisories and basic protective measures to prevent infection like respiratory and hand hygiene. Another thing that I'm worried about is the rumours that are fuelling panic. One example of this was a rumour that one could get infected by handling packages or goods originating from China. This caused a number of factory workers to abstain from working where the raw materials were imported from China. This has started causing further problems to the already struggling economy. I pray that this scourge is controlled quickly without further damage to life and business. Technology will certainly help to track and contain the spread as also helping to find a cure and vaccination. One heartening thing that has come out of this was to see many Chinese companies come together to help build a 1000 bed hospital in under 2 weeks to treat patients affected by the virus.

Otherwise important events like Brexit, the almost certain non-impeachment of the President of the USA, and unrest in the Middle East have taken a backseat to the spread of this virus. Hopefully, the dust on all these events will settle soon and everyone gets back to paying full attention to improving the economy.

Happy reading.



Future Is Now

Virgin Galactic continues work on fleet of SpaceShipTwo vehicles

WASHINGTON — Virgin Galactic is making progress in the development of its next SpaceShipTwo suborbital spaceplane, although the company is saying little about when its existing SpaceShipTwo will be ready to resume test flights.

In a statement, Virgin Galactic announced that the next SpaceShipTwo vehicle achieved a milestone called “weight on wheels,” where the vehicle supported itself solely using its landing gear. All the major structural elements of the vehicle are also in place.

The company said that this vehicle reached the “weight on wheels” stage of completion “considerably faster” than for the previous vehicle, VSS Unity, although it did not quantify how much faster the production went. The company credited the faster production to “a more efficient, modular assembly process, as well as experience curve benefits.”

“We now have two spaceships which are structurally complete, with our third making good progress,” said George Whitesides, chief executive of Virgin Galactic, in the statement. That third vehicle, the company said, is currently in the part fabrication phase. “These spaceships are destined to provide thousands of private astronauts with a truly transformative experience by performing regular trips to space.”

Virgin Galactic officials, in comments last summer and fall, were vague about when that work would be completed and VSS Unity transported from the

company’s manufacturing facility in Mojave, California, to Spaceport America in New Mexico for a final series of test flights. Whitesides, in an interview in October when the company started trading on the New York Stock Exchange, said that move would take place in late 2019.

A company spokesperson said that the company was working on plans to move VSS Unity to New Mexico, but didn’t disclose a date. Whitesides, in a Jan. 9 interview on CNBC, said the vehicle would move to New Mexico “pretty soon.”

Building a fleet of SpaceShipTwo vehicles is key the company’s long-term plans. In a September 2019 investor presentation, the company said it expects to have a fleet of five SpaceShipTwo spaceplanes by 2023, a production rate of one per year. That would allow the company to generate positive earnings by 2021, growing to \$274 million by 2023, assuming commercial operations start in June 2020.

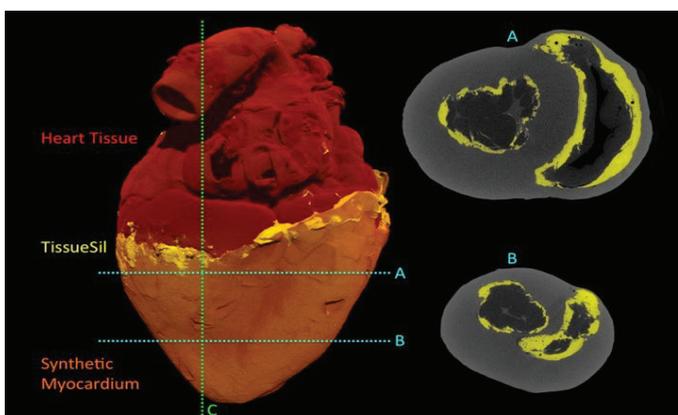


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Robotic hybrid heart beats like a real organ

MIT scientists say their biorobotic hybrid device could be used for testing artificial valves and other cardiac devices.

A bionic “heart” that simulates the beating motion of the



real thing has been developed by scientists.

Dr Ellen Roche, an assistant professor of mechanical engineering at MIT and one of the study authors, said: “Regulatory testing of cardiac devices requires many fatigue tests and animal tests. [The new device] could realistically represent what happens in a real heart, to reduce the amount of animal testing or iterate the design more quickly.”

The team also believe their findings, published in the journal *Science Robotics*, could one day be used to develop artificial hearts for humans.

Dr Chris Nguyen, of Massachusetts General Hospital’s Cardiovascular Research Centre and co-lead author on the study, said: “With further tissue engineering, we could potentially see the biorobotic hybrid heart be used as an artificial heart – a very needed potential solution given the global heart failure epidemic where millions of people are at the mercy of a competitive heart transplant list.”

The team developed a robotic myocardium – the muscular outer tissue of the heart – and wrapped it around a pig’s inner heart like “bubble wrap” using a tissue silicone adhesive they designed called TissueSil.

The artificial muscles of the robotic myocardium were able to mimic the pattern of the heart’s natural muscle fibres, acting together to squeeze and twist the inner heart, similar to the way a real heart beats and pumps blood.

Dr Roche added: “The device is a real biological heart whose tough muscle tissue has been replaced with a soft robotic matrix of artificial heart muscles, resembling bubble wrap.”

Dr Nyugen said: “Imagine that a patient before cardiac device implantation could have their heart scanned, and then clinicians could tune the device to perform optimally in the patient well before the surgery.”

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Technology Focus

Edge Computing

As we move into a new decade of 2020, technological advancement is surely at the top priority of every organization. We are living in a data-driven world where the estimated data generated by average person is 1.5 GB per day. With the increasing number of IoT devices/applications and bulk data generated, performing computation at data centers or cloud servers isn’t sufficient or efficient. The built-in latency of cloud is no longer capable of deploying machine intelligence and getting real-time outputs. Truly the technology has made the lives of people easier but that’s not all and here comes Edge computing to make computing faster. It’s the next wave in evolving data center infrastructure, powered by Internet of Things (IoT) technologies and 5G network.

Over the past many years, organizations have started to integrate cloud into their infrastructure. Few thinks that edge computing might replace cloud computing. But that’s not true, it just means that cloud is coming near to you. Organizations need to implement both edge and cloud computing together to handle the ever-growing data in coming future.

What is Edge Computing?

The term “Edge” in this context, correlates to the geographic distribution of network resources. Edge computing allows to perform data collecting, analyzing and computing close to the data source instead of relying on a centralized cloud network that can be thousands of miles away. Edge computing distributes data from centralized network and deploys it to micro-data centers which makes them closer to data generation.

Key advantages of Edge Computing

- Data without latency: Edge computing permits in speeding up data transmission because data travel time decreases. It enables applications to respond to data almost abruptly.
- Reduces Internet Bandwidth: Relying less on cloud means certain data or applications can be operated reliably offline. This will be very useful in areas where network connectivity is low.
- Provides certain level of Security: As data is collected

and operated at local level, sensitive data transfer to cloud can be avoided and hence impact would be less if the cloud has been cyber attacked.

- Reliable: Edge computing has a great security advantage which make it more reliable. In situation like data center downtime, IoT edge computing devices can operate uninterrupted because the vital processing is done locally. The chances of unavailability of data entirely is almost completely zero.

IoT development can be seen in businesses across every industry. IoT devices will need edge computing and 5G network to work effectively. Adaption to evolving markets and scaling their data needs, organizations doesn’t have to rely upon a centralized infrastructure anymore.

Edge computing can serve variety of businesses and is a diversion for almost all sectors of the world whether manufacturing or construction, financial or health care, people will slowly adopt the edge. Banking sector is implementing edge computing to provide ATMs with potential to collect and process data with faster response time. For finance firms those dealing with funds and shares are also adopting edge computing by placing servers in data centers near stock exchanges to provide accurate and up to date information without any lag which could lead to real loss of money.

Are you using cloud computing and ready to upgrade your game point of business by advancing to Edge computing?

Edge computing allows speeding up data transmission, that includes real time data processing without latency.

Read to know more about next level computing

For a free consultation, please contact us on 022-46108777 or email us at marketing@goapl.com

<https://bit.ly/396vV9U>



Special Focus

How will Data localization impact the Data Center Market in India?

India – the Land of Rising Data

India is one of the largest generators of data currently. Thanks to our young demographic and deep technology penetration, our data consumption is expected to grow at the rate of 72.6% by 2020 according to a study by Assocham-PwC. Digital data in India was around 40,000 petabytes in 2010; it is likely to shoot up to 2.3 million petabytes by 2020 — twice as fast as the global rate. There is a debate going on in the country currently to store the enormous amount of data within national borders.

Data Localization – Gathering Momentum

The Data Protection Act suggested by the Srikrishna committee, aims at protecting the data of citizens by storing it locally. Another reason for data localization is to help government form better domestic policies for its citizens; RBI has already come out with the mandate for companies to store all the financial data locally.

This move has led to many companies ramping up their data center capacity in the country. Amazon has invested around \$197 million (Rs 1,380 crore) in its data services arm in the country. Similar aggressive plans have been announced by ByteDance, Google, Microsoft and many financial institutions. Flipkart too has been strengthening its technology infrastructure. It opened its third data center in Hyderabad in April this year after Chennai and Mumbai, especially after acquisition by Walmart. The Securities and Exchange Board of India (SEBI) has also announced its intention to come up with guidelines that will mandate foreign entities to store data pertaining to India locally.

Rush for the Data Center Pie

The Hiranandani Group recently entered the data center space with Yotta Infrastructure with plans to build 3 data center parks across Mumbai, Navi Mumbai and Chennai with a capacity of 60,000 racks. The Adani Group has committed to developing large data center parks in Andhra Pradesh over the next 20 years. Existing data center players like Sify, STT, CtrlS, NTT are planning to ramp capacities and international players like Colt and Bridge have also announced their first data center project in India.

Most of the players have officially made statements in media that government's decision to move forward with data localization is one of the major reasons why they are bullish on data center market. India currently needs to ramp up its data center capacity by at least 15 times in

next 7 to 8 years to be able to handle the massive amount of data influx that will enter its borders because of data localization.

How Does this Help Local Businesses?

The next logical question is – will data localization help Indian businesses? It certainly will.

Storing data locally will reduce network latency and improve speed. Companies can expect availability of quality talent at lower cost with all data getting stored locally and with the existence of many other strong market drivers like growth of user data, e-commerce, growth of cloud etc. Some of the latest providers with resource ownership will be able to build massive capacities of data centers at much higher scalability and quality but at much reduced costs and round-the-clock personal service. Big Basket, the online grocery store shifted its data centre from Singapore to Mumbai and noticed up to 10 per cent improvements in transaction efficiency.

If one was to compare the cost of manpower, real estate and bandwidth, India is at least 60% cheaper than US or Singapore. These savings will ultimately go to the customers looking for rack space. With large corporate houses having their own power generation and distribution capacities coming in, the cost of data centers should also reduce significantly. Some providers will also utilise selective benefits as made available by Government in terms of duties and taxes levied on power and on the imported equipment/services.



Galaxy has partnered with Yotta Infrastructure Solutions For a free consultation, please contact us on 022-46108777 or Please write to us at marketing@goapl.com

<https://bit.ly/2SrH5zg>



Meet Arvind Krishna, new IBM CEO who is latest south Indian to head global IT company

Arvind Krishna, born in Andhra Pradesh, is going to be the CEO at IBM from April. He joins three other India-born CEOs who are currently heading Microsoft, Google and Adobe.

HIGHLIGHTS

- Arvind Krishna, who was born in Andhra Pradesh, will become the CEO at IBM from April.
- He joins other India-origin CEOs who head top tech companies like Microsoft and Google.
- Google CEO Sundar Pichai, Microsoft CEO Satya Nadella and Adobe CEO Shantanu Narayen are also from south India.

The reins of one of the world's biggest tech firms, IBM, will go to Arvind Krishna in April this year. Krishna, a company veteran who is known for spearheading IBM's big acquisition of Red Hat, will take over the office of the chief executive officer from April. His elevation to the top marks is yet another instance of an India-born IT leader heading a top company. Once he is the CEO, Krishna will join the list that includes Sundar Pichai, currently CEO of Google and Alphabet, Satya Nadella, who heads Microsoft, and Shantanu Narayen, who is CEO at Adobe.

Given this background, the four leaders have several similarities. And, curiously, one of them is that all four of them are from south India. So who is Arvind Krishna?

Born in Andhra Pradesh, Krishna joined IBM back in 1990. His position and power rose gradually and he became a key executive in the company when he struck a deal with Red Hat for \$34 billion, which is IBM's biggest

purchase so far. Krishna's portfolio at IBM worked in his favour as he was appointed to take up the CEO office on January 31. But he moved to the US, and years before he landed up at IBM, Krishna was a student in Conoor in Tamil Nadu. After his schooling, he moved to an IIT.



Much like Krishna, we have more notable personalities from South India that are now heading major companies in the world. Sundar Pichai, who recently became the CEO of Alphabet, adding to his CEO's position at Google, belongs to Tamil Nadu. His alma mater includes IIT Kharagpur, Stanford University, and The Wharton School.

Then there is Satya Nadella, the CEO at Microsoft. At Microsoft, Nadella succeeded Steve Ballmer in 2014. He was born in Hyderabad and did his Bachelors in Engineering at the Manipal Institute of Technology. Later, he moved outside the country to study at the University of Wisconsin-Milwaukee and the University of Chicago.

While Pichai and Nadella are often in news because of the popular brands they head, there is another South Indian who heads one of the biggest tech firms. Shantanu Narayen is the CEO of Adobe who took office in 2007. He was born in Hyderabad and then studied in a local school, before moving to the Osmania University for his engineering. From there, he moved to the US for higher education and studied at the University of California and the Bowling Green State University before joining Apple in his first job.

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Estimates of global GDP hit from coronavirus disruption

Travel and trade restrictions introduced to control the spread of the coronavirus from China are now expected to deliver a short, sharp blow to both Chinese and global economic activity for the first quarter of this year.

While it remains unclear how far the virus will spread and when it will peak, economists are already trying to estimate the impact on gross domestic product in the world's second-largest economy and beyond.

"To stay in the benign scenario, we really need to see the reproduction rate taper off significantly this week," said Christian Keller, head of economics research at Barclays.



His team calculates that - depending on the severity of the impact on China - the impact on the world economy

could range from almost no change to his current global growth forecast of 3.3% for 2020 to sub-3% growth in the worst case.

“There is a risk that an adverse feedback mechanism and limited space for policy response could push the global economy towards recession,” he added, using the reference rate of global growth dipping below 2.5% as the threshold.

Many analysts model the latest events on previous outbreaks such as Severe Acute Respiratory Syndrome

(SARS) that killed hundreds in 2002-2003. But historical comparisons are clouded by other parallel events of the day and China’s contribution to global GDP has quadrupled since then.

“If the outbreak broadly follows historical patterns, it will peak and fade in 2Q,” JPMorgan economist Joseph Lupton told clients, predicting global growth will lose about 0.3 percentage point in Q1 to an annualised 2.3% before bouncing back in the second quarter.

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Quantum tech push may put India in global elite league

The Budget proposal to provide an outlay of Rs 8,000 crore for quantum computing may help make India the world’s third biggest nation in the sector after the US and China, according to experts. Presenting her second Union Budget on Saturday, Finance Minister Nirmala Sitharaman noted that quantum technology is opening up new frontiers in computing, communications, cyber security with wide-spread applications.

She pointed out that a lot of commercial applications are expected to emerge from theoretical constructs developing in this area. “It is proposed to provide an outlay of Rs 8,000 crore over a period of five years for the National Mission on Quantum Technologies and Applications,” she said.

“The budget also focused on the national mission for quantum computing and application, this will position India with globally elite countries. India would probably be the third biggest and a pioneering nation if we can break into this technology,” said Dharmender Kapoor, CEO & MD, Birlasoft, a software company.

“Strategic initiatives aimed at leveraging new-age technologies like the Internet-of-Things, machine learning, robotics, bioinformatics, quantum computing and artificial intelligence across sectors will further help in laying the foundation of a robust, digital economy,” said CP Gurnani, MD & CEO, Tech Mahindra.

The Finance Minister observed that technologies like AI, Internet-of-Things (IoT), 3D printing, drones, DNA data storage, quantum computing, etc., are re-writing the world economic order. She noted that India has already embraced new paradigms such as the sharing economy with aggregator platforms, displacing conventional businesses. The Finance Minister said there will soon be a policy to enable private sector in building data centre parks throughout the country, thus enabling firms to incorporate data in every step of their value chains.

From improving cybersecurity and modeling chemical reactions to formulating new drugs and making supply chains more efficient, quantum computing can help create an ultra-powerful computer that would solve problems that conventional computers cannot.

“Since everyone is talking #quantumcomputing thanks to #Budget2020... it basically allows multiple calculations at once by exploiting the superpositions of qubits, enabling us solve problems that would have taken normal computer thousands of years to solve,” Debjani Ghosh, President, Nasscom, said in a tweet, while explaining what quantum computing is.

Quantum computers are able to achieve vast computing power by replacing traditional bits — the “ones” and “zeroes” used in digital communications — with quantum bits, or qubits.

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