

TechTalk



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Galaxy Crosses INR 2500 Million in 2016-17 Revenues

Galaxy Office Automation Pvt. Ltd was incorporated in 1987, when industry in India had just ushered in the era of digitization. Back then, we offered our unique "Computerization as a Service" model where Galaxy offered to be a one-stop shop to end customers for all their hardware, software and even operating workforce requirements. We have traversed a long journey since, and today Galaxy offers a range of network security, cloud, data center, server, storage, virtualization, business intelligence, mobility, and end- point solutions across the length and breadth of several key enterprise verticals. In the process, we've made a name for ourselves in channel partnership segment and work with several OEMs in furthering our vision.

FY 2016-17 has been particularly impressive for Galaxy. We achieved more than 80% revenue growth over the year before, with key drivers being sectors such as Banking and Financial Services, Manufacturing, Automobile and Information Technology. Our major milestones this year include premier partnerships with companies such as IBM, Lenovo, HP, TCS - ION, Xerox and Microsoft. We won new accolades in form of "Gold Partner" Award by Hewlett Packard, "Securing the Largest Data Protection Deal in the Western Region" Award by EMC, and more. Thus, for the first time since our inception, we crossed INR 2500 million in annual sales turnover!

This year, our focus will be on areas such as mobility, data center practices (private and hybrid cloud), strengthening our portfolio on IOT, with plans to enter the software robotics space. We have plans to strengthen our sales and service operations in the north, east and south regions of the country. We remain committed to help organizations attain their business objectives by delivering measurable and outcome-based IT services and solutions in future.

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MD Speaks



"Dear Readers,

Firstly, I would like to thank all our customers, supply chain, employees and all other stakeholders for the great revenue numbers returned by Galaxy in the just ended fiscal year. It is our continuous endeavor to keep our customer delighted and the growth figures just indicate that we are on the right track. One of the growth drivers last year has been our mobility portfolio and we look to strengthening this by adding more products and services and expanding geographically.

For the current year, we are looking to add newer portfolios that will help our customers concentrate on their core businesses without getting bogged down by IT. One of the areas we are looking at very closely is process automation or software robotics. We feel that this will be the next big thing for our customers to achieve greater speed and accuracy in their operations.

The implementation of GST in the current fiscal now seems to be inevitable and should be good for the economy in the medium to long term. As with any new policy of this magnitude, there are bound to be some teething issues which I am sure will soon get ironed out. We, at Galaxy, are always around to take care of any technology related solutions to help you in your GST journey.

Finally, I would like to wish all our Indian readers a very happy and successful fiscal year 2017-18.

Happy Reading."

APD Rungt

The Future is Now

This Assam Mechanic Made A 'Jugaad' Helicopter Using SUV Engines & Car Seats!

Chandra Siwakoti Sharma recently built a jugaad helicopter using car seats and two SUV engines and guess what he named it? Pawan Putra!



An automobile mechanic by profession, Sharma spent over 15 lakhs from his own savings to design the unique invention. A resident of Shyamjuli village in Assam, Sharma dropped out of school after third grade due to poor financial conditions. But determination drove the man like no other. He used all his savings and even sold his land to build his Pawan Putra, an invention that's awaiting clearance from authorities.

While speaking to Media, Sharma said, "My helicopter can fly, though not as fast as the ones in operation for civil or military duty. It can easily move at 50 kmph."

The two-seater helicopter can fly 30 to 50 feet above the ground. Sharma built the helicopter as an answer to poor transportation to his village.

Victor Carpenter, the District Commissioner said that even though he wants to encourage inventions such as these, but since Sharma lacks a degree in aviation, his appeal will be forwarded to the Directorate General of Civil Aviation to arrange a trial run of the helicopter.

The residents of Sharma's village have also written to the Prime Minister Narendra Modi to give his nod of approval. Sharma said he wanted to fly the helicopter but refrained from it as he didn't want to break any rules.

Elon Musk Wants to Computerize Your Brain



The CEO of SpaceX and Tesla has launched a medical research company called Neuralink in California. The goal is to create brain-computer interfaces that would allow humans to connect directly with what he's called "the digital version of yourself" — electronic devices.

Musk has previously urged the upgrade of human cognition to prevent people from being made obsolete by artificial intelligence. [Super-Intelligent Machines: 7 Robotic Futures]

Neural lace: Musk has been teasing the possibility of a venture into computer-brain interfaces for months. He spoke at Recode's Code Conference in 2016 about the need to speed up human "output." Essentially, he said, humans are incredibly rapid at taking in information, but slow at outputting information to their digital

devices. At the World Government Summit in Dubai, the United Arab Emirates, in January, Musk called artificial intelligence "dangerous" because it could render humans obsolete. "This is going to be a massive social challenge," he said at the conference.

Musk advocated a universal basic income, or a basic payment to unemployed people around the world, to confront these challenges. But he also floated the idea of a "merger with biological intelligence and machine intelligence."

"To some degree, we are already a cyborg," Musk said at the Dubai conference. "You think about the digital tools you have, your phone, your computer, the applications that you have. ... You already have a digital tertiary layer."

Currently, people interact with their devices by thumb-typing on their phones, Musk said. A "high-bandwidth interface to the brain" would help achieve a symbiosis between human and machine intelligence and could make humans more useful in an AI-driven world, he said.

In science fiction, this idea is sometimes called "neural lace" for the netting of electronic implants that would presumably be required for such an interface.

Steep challenges: Brain-human interfaces must overcome steep challenges, though. So far, there have been a few successful brain-implant devices in humans, all designed to treat serious neurodegenerative conditions or neurological injuries. Deep-brain stimulation, electrical pulses delivered into the brain, is sometimes used to slow the symptoms of Parkinson's disease when medications fail to work, for example.

Several patients with spinal cord injuries have been fitted with implants giving them some control over robotic limbs, or even their own limbs. This represents a leap from animal tests to experimental use on humans in less than a decade, According to a paper in the journal *Frontiers in Systems Neuroscience*. Nevertheless, wrote Gytis Baranauskas, a neurophysiologist at the Lithuanian University of Health Sciences, the rate by which electronic systems transfer impulses from the brain to the limb or prosthetics (or vice versa) lags far beyond natural nerve impulses, especially for complex movements. It's not the electronic technology that limits this transfer of information, Baranauskas wrote in the *Frontiers* paper, but a lack of understanding of what neuron activity in the brain means.

In other words, there is a lot more neuroscience to do before anything close to neural lace becomes a reality. There are also risks to consider: It's one thing to chance a 1 percent to 3 percent likelihood of a brain bleed, stroke or infection to implant an electrode in an effort to slow a fatal disease like Parkinson's. It's another thing altogether to consider surgery that would probably be far more invasive so that people could better control their computers.

Technology Focus

Containers Explained: 9 Essentials You Need to Know

Containers are the hottest topic in the data center. Here are the essentials that every well-informed IT pro should know and can explain.

Linux containers give each application running on a server its own, isolated environment to run, but those containers all share the host server's operating system. Since a container doesn't have to load up an operating system, you can create containers in a split-second, rather than minutes for a virtual machine. That speed lets the data center respond very quickly if an application has a sudden spike in business activity, like people running more searches or ordering more products. Here are nine essentials to know about containers.

1. Containers are different from virtual machines: One way to contrast containers and VMs is to look at what's best about each: Containers are lightweight, requiring less memory space and delivering very fast launch times, while virtual machines offer the security of a dedicated operating system and harder logical boundaries. With a VM, a hypervisor talks to the hardware as if the virtual machine's operating system and application constituted a separate, physical machine. The operating system in the virtual machine can be completely different from the host operating system. Containers offer higher-level isolation, with many applications running under the host operating system, all of them sharing certain operating system libraries and the operating system's kernel. There are proven barriers to keep running containers from colliding with each other. Both containers and virtual machines are highly portable, but in different ways. For virtual machines, the portability is between systems running the same hypervisor (usually VMware's ESX, Microsoft's Hyper-V, or open source Zen or KVM). Containers don't need a hypervisor, since they're bound to a certain version of an operating system. But an application in a container can move wherever there's a copy of that operating system available.

2. Containers are less mature than virtual machines: One glaring difference today between containers and virtual machines is that virtual machines are a highly developed and very mature technology, proven in running the most critical business workloads. Virtualization software vendors have created management systems to deal with hundreds or thousands of virtual machines, and those systems are designed to fit into the existing operations of the enterprise data center. Containers have more of a futuristic feel -- a young and promising technology that doesn't necessarily have every kink worked out. Developers are working on management systems to assign properties to a set of containers upon launch, or to group containers with similar needs for networking or security together, but they're still a work in progress.

3. Containers boot in a fraction of a second: Containers can be created much faster than virtual machines because VMs must retrieve 10-20 GBs of an operating system from storage. The workload in the container uses the host server's operating system kernel, avoiding that step. Miles Ward, global head of solutions for Google's Cloud Platform, says containers can boot up in one-twentieth of a second. Having that speed allows a development team to get project code activated, to test code in different ways, or to launch additional ecommerce capacity on its Web site -- all very quickly.

4. Containers have proven themselves on a massive scale -- such as in Google search: Google Search is the world's biggest implementer of Linux containers, which the company uses for internal operations. Google also is expert at hosting containers in its App Engine or Compute Engine services, but like other cloud suppliers, it puts containers from different customers into separate KVM virtual machines, because of the clearer boundaries between VMs.

5. When IT folks call containers "lightweight," here's what they mean: "Lightweight" about containers means that, while many dozens of virtual machines can be put on a single host server, each running an application with its own operating system, hundreds or even thousands of containers can be loaded on a host. The containerized app shares the host's operating system kernel to execute work. Containers thus hold out the hope of becoming the ultimate form of intense computing for the space required and power consumed.

6. Containers raise security concerns: Not much research has been published about the security of running, say, 1,200 containers side-by-side on a single server. One running container can't intrude upon or snoop on another's assigned memory space. But what if two containers allowed to talk to each other, and one of them was loaded with malicious code that snoops for encryption keys in the data that it's allowed to see? With so many things going on around it in shared memory, it might be only a matter of time before something valuable -- a user ID, a password, an encryption key -- fell into the malware's net.

7. Docker has become synonymous with containers, but it's not the only provider: Docker is a company that came up with a standard way to build out a container workload so that it could be moved around and still run in a predictable way in any container-ready environment. All containers -- whether Linux-based Docker containers, Solaris Zones, or FreeBSD Jails -- provide some form of isolation for an application running on a multi-application host. So why is all we hear these days Docker, Docker, Docker? The answer lies in the fact that Jails and Zones were indeed container pioneers, but their uptake was limited by the fact that comparatively few companies use Solaris and FreeBSD operating systems. They still enjoy use in the enterprise, but are only lightly used in public cloud settings.

8. Containers can save IT labor, speed updates. There's an advantage to running production code in containers. As Docker builds a workload, it does so in a way that sequences the files in an order that reflects how they will be booted. One service or section of application logic needs to be fired up before another, and containers are built in layers that can be accessed independently of one another. A code change known to affect just one layer can be executed without touching the other layers. That makes changing the code less dangerous than in the typical monolithic application, where an error stalls the whole application. It also makes it easier to modify the application. If the change occurs to one layer, it can be tested and launched into production. If a problem develops, it can be quickly rolled back, because developers only touched one layer.

9. Containers still face some unresolved problems: Containers, and its champion vendor Docker, must overcome some lurking problems to gain mass adoption. As originally conceived, Docker was envisioned as a formatting engine for applications that run on a single computer. A container, or a series of linked containers, would still exist together on a single host. What if the application needs 10 servers, 100 servers, or even 1,000? Docker still wants to think of one application running on one computer, but big enterprise IT shops -- think multinational banks, energy companies, automakers, and retailers -- want to know a tool can handle massive scale.

Tech News

Article 50 Triggers Uncertainty for the Tech Industry

As prime minister Theresa May formally notifies the EU of Britain's intention to withdraw its membership, the tech industry prepares to move into uncharted territory



Two years of uncertainty begins on 29 March, as prime minister Theresa May triggers Article 50 and launches the formal process to exit the European Union (EU). For the UK's tech industry, this means it's time to officially begin to prepare for Brexit.

Earlier this year, industry body TechUK outlined its views on what should be the key Brexit negotiation priorities, highlighting access to the EU market, skills and cross-border data transfer. Having that access could be key in ensuring the UK continues to be a digital leader.

TechUK CEO Julian David said the triggering of Article 50 is the start of a "historic process that will shape the future of the UK and Europe for generations to come". "The EU and the UK government now have a responsibility to work together to secure a deal that supports the jobs and livelihoods of

citizens across the UK and the EU," he said.

The UK is already facing a skills shortage. In fact, the digital skills gap costs the UK economy £63bn a year, according to a report by the House of Commons Science and Technology Committee, published in 2016.

James Parsons, CEO and founder of digital solutions company Arrows Group, said that many of the implications of Brexit are still unclear. However, he added: "From a digital skills perspective, we're already seeing how Brexit is making top digital talent reluctant to come to the UK and flock elsewhere instead."

As per the company's own community data, there is already a 10% reduction of skilled workers from within the EU relocating to the UK. At the same time, UK talent is moving elsewhere. "If this trend continues, it could lead to a brain drain of top UK talent, as generally they will want to work where the exciting projects are," he said. "We're already seeing an increase in best-in-class developers taking roles in Switzerland which continues to be a fast-growing hub for tech innovation." "Of course, this isn't welcome news to UK companies at a time where the UK digital skills gap is already large, and where a significant amount of tech talent comes from abroad. As the Government takes these next steps, it's critical that it puts the right laws and incentives in place to keep top tech talent firmly on UK shores to enable innovation."

Xiaomi to Create 20K Jobs in India by 2020: Report



Chinese technology major Xiaomi said the company aims to create 20,000 jobs in India, which is said to be one of its most important markets for the company over the next three years. As per a report, Jun Lei, Founder, Chairman and CEO explained the concept of its "Internet Plus" model to PM Narendra Modi early this week, stating its benefit to the Indian enterprises.

The Internet Plus policy makes internet a significant engine of growth for China's economy. "Internet plus action plan is a new form of economic plan where internet is integrated with traditional industries encouraging to the spirit of excellence in these industries and drive economic growth," ANI quoted him as saying in the report. While reports suggested that 2016 did not bring a phenomenal growth for Chinese Smartphone major, Lei said while speaking at a business event that the company has made major strides in a very short time. Xiaomi has invested in 165 countries globally, and believes India to be one of its top growth markets. The company is now set to focus on offline presence in India, after its success in the online market and is looking to increase offline market share to 50 percent, said Lei.

The company is also looking at expanding its product portfolio in India beyond phones and connected device. Xiaomi is set to enter the financial services space. "We are exploring the possibility of providing financial services in India. But this sector is highly regulated. It requires different licenses. If we could obtain such licenses, then we are more than happy to be part of financial services innovation in India. We need to understand if there are limitations on foreign entities,". The company recently started a digital bank, Sichuan XW Bank, which offer online financial services in China.

Xiaomi made its advent in the Indian market in July 2014 and last year and opened its first plant in August 2015 and by March 2016, over 75 percent of its phones were being manufactured in India. In January, the company claimed to have crossed US\$1 billion revenue for the year 2016, it said in a statement.

As per analyst firm IDC, Xiaomi has become the number one selling smartphone brand in the online market, with about 29.3 per cent share last year. But during his visit to India this week, Lei announced further said that more than 95 percent of Xiaomi smartphones sold in India are made in India.

Last week, Xiaomi announced its second manufacturing unit in partnership with Taiwanese electronics major Foxconn in Andhra Pradesh. The ET report added that the plant has also helped create employment for more than 5,000 people from over 100 surrounding villages. More than 90 per cent of the workforce employed are women.

Tech News

IoT to Change the Face of Retail By 2021: Study

The Internet of Things or IoT is slowly becoming integral to many businesses. Retail is one such sectors that is embracing this *technology* along with machine learning, cognitive computing and automation, states a study by Zebra. It analyzes the *technology* trends shaping the future of the global retail industry and enhancing the shopping experience. The study states that by 2021, retailers will spend on Internet of Things (70%), machine learning/cognitive computing (68%) and automation (57%). Deploying these diverse technologies would provide a more responsive, real-time customer experience. This is what retailers aim to achieve in the next five years.

Relying on IoT would ensure more visibility in the supply chain. Machine learning has predictive strengths which is used to solve supply chain constraints challenges, improve inventory management and enhance personalization of customer experience. Inventory tracking and managing has become easy with automation. The study highlights that globally 70% of retail decision makers globally are ready to adopt the IoT to enhance customer experience. A lot of retailers are worried about security, IoT will address this area across all operations, in addition to supply chains.

By 2021, more than two-thirds of the retailers will be able to customize the store visit for customers, as they will know when a customer has stepped in the store. It is predicted that micro-locationing technologies will be used by retailers in the next four years.

The study further notes that the group of shoppers born between 1980 and 1995 is the first generation of digital natives who use technology as their second nature. They have high expectations for customer engagement through all online channels. 75% retailers may invest in predictive and software analytics for loss prevention and cost optimization.

Special Focus

IBM Patents Cognitive System to Manage Self-Driving Vehicles



IBM recently announced that its scientists have been granted a patent around a machine learning system that can dynamically shift control of an autonomous vehicle between a human driver and a vehicle control processor in the event of a potential emergency, providing a safety measure that can contribute to accident prevention. IBM researchers developed the patented system using their understanding of biological cognition and behavior generation in the brain. Their background as computational neuroscientists led the inventors to devise a cognitive model and technique that employs sensors and artificial intelligence to dynamically determine potential safety concerns and control whether self-driving vehicles are operated autonomously or by relinquishing control to a human driver. For example, if a self-driving vehicle experiences an operational anomaly, e.g. a faulty braking system, a burned-out headlight, poor visibility and/or road conditions, a comparison may be made by the system as to whether the on-board self-driving vehicle control processor or a human driver is in a better position to handle the operational anomaly. If the comparison determines that the vehicle control

processor is better able to handle the anomaly, the vehicle is placed in autonomous mode.

"Self-driving vehicles hold great promise and potential, but protecting the safety of passengers and other drivers remains a top priority for vehicle developers and manufacturers," said James Kozloski, manager, Computational Neuroscience and Multiscale Brain Modeling, IBM Research and co-inventor on the patent. "We are focused on finding new ways to leverage our understanding of the human brain and inventing systems that can help those enterprises improve the safety of autonomous vehicles on the road."

While IBM's newly patented machine learning invention addresses the complexity of dynamically enabling safe operation modes of an autonomous vehicle, other patented IBM inventions are focused on helping self-driving vehicles better anticipate and respond to actions of human drivers. For example, U.S. Patent #9,361,409: Automatic driver modeling for integration of human-controlled vehicles into an autonomous vehicle network describes a machine learning system that models human driving techniques. The invention also employs a common interface that enables self-driving vehicles to communicate with one another, learn and better understand how to interact with human drivers as the models become more informed. As per IBM Institute for Business Value, automobiles are evolving from a mode of transport to a moving data center outfitted with sensors and computers that capture information about the vehicle, its driver, occupants and surroundings. At the same time, conversational interfaces are enabling drivers to interact with their vehicles more naturally and, with machine learning, automobiles can learn about their drivers and personalize the driving experience accordingly. IBM inventors have patented numerous inventions that, among other things, can help vehicles become:

- 1) **Self-learning** – powered by cognitive capability that continuously learns and gives advice based on behavior of the driver, passengers, and other vehicles
- 2) **Self-socializing** – connecting with other vehicles and the world around them
- 3) **Self-driving** – moving from limited automation to becoming fully autonomous
- 4) **Self-configuring** – adapting to a driver's personal preferences
- 5) **Self-integrating** – integrating into the IoT, connecting traffic, weather, and mobility events with changing location

IBM has topped the list of U.S. patent recipients for 24 consecutive years.



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- ✚ Customer list includes many of India's leading corporations, banks and government agencies.
- ✚ Four business units collaborate to provide a full spectrum of services and ensure smooth projects. Together, they provide our customers with truly end to end professional IT Services.

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