Galaxy at VMworld 2019

VMware has announced acquisitions of Carbon Black & Pivotal. These acquisitions address two critical technology VMware, Inc. priorities of all businesses today - building modern, enterprise-grade applications and protecting enterprise workloads and clients.

Galaxy's **Sanjay Patodia** - CEO & Director and **Nishant Jalan** – Director - Cybersecurity & IOT attended VMWorld 2019 at San Francisco, where new innovations were introduced across VMware's entire solution portfolio.

VMware Hands-on Labs: *Hands-on Labs allow you to evaluate the features and functionality of VMware products with no installation required.*

Highlights include:

- **VMware Tanzu:** This new portfolio of products and services will help enterprises build modern applications, run Kubernetes with consistency across environments, and manage all their Kubernetes clusters from a single control point.
- **VMware Tanzu Mission Control:** With this tech preview, customers will have a single point of control to manage all their conformant Kubernetes clusters regardless of where they are running – VMware vSphere, public clouds, managed services, packaged distributions and do-it-yourself (DIY) Kubernetes.
- **Project Pacific:** This tech preview is focused on transforming VMware vSphere into a Kubernetes native platform.
- **NVIDIA / VMware Cloud on AWS:** A strategic partnership between NVIDIA and VMware to deliver accelerated GPU services for VMware Cloud on AWS to power modern enterprise applications, including AI, machine learning and data analytics workflows.

The five-day event features general session keynotes delivered by VMware executives, and hundreds of user-driven panels, certification trainings and labs on industry topics. VMworld content covered data center and cloud, networking and security, digital workspace – as well as emerging areas such as IoT, artificial intelligence, blockchain and more.

MD SPEAKS

Anoop Pai Dhungat
Chairman & MD

As the rumblings of a global economic slowdown are getting louder, all of us need to prepare ourselves for the situation, if and when it actually arrives. These are the times, when the focus shifts from high growth to increasing process efficiencies to control costs and increase productivity. Using advancements in technology to augment and improve efficiencies is one of the first things that enterprises need to do to tackle the slowdown. At Galaxy, we specialise in devising and implementing solutions using automation and artificial intelligence based tools that help enterprises with this. Do reach out to us to understand how we can help you.

Of course, all of use hope that somehow the rumblings just die down. The cause of this noise is mainly due to factors like the US-China trade spats, the slowing growth in the USA and Germany, the debt crises in China & India, Brexit, currency crises in Argentina and many more similar warning signs. I hope that the powers that be will take the proper steps to ensure that the root causes leading these are addressed in the best possible manner, to minimise the impact of the economic slowdown if it has to come. Otherwise, it is left to us to protect ourselves and emerge more efficient than before.

Happy Reading
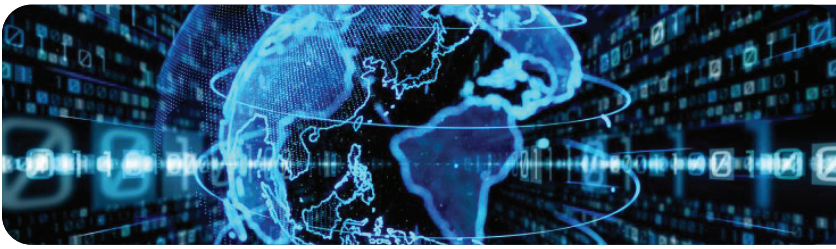
Neuralink – The technology that could help neurological disorders

What are the ethics behind monitoring someone's every thought, deed and emotion?

With Tesla and Space X, Elon Musk made electric cars and private spaceflight ubiquitous. Now, with Neuralink, he hopes he can do the same for mind-machine interfaces.

What is Neuralink?

Elon Musk wants to control machines with just the power of thought. To that end, in July 2019 Musk and his team revealed that they had developed ultrafine 'threads' that can be woven into your brain to listen in on your neurons. The company has also built a robot that can perform the delicate surgery, under the supervision of a neurosurgeon.

When the company was first launched in 2016, Musk said he wanted to help humans compete in a world where artificial intelligence had surpassed them – to give us more 'bandwidth'. But with this new announcement the researchers have turned their attention to helping those with brain-related disorders.

How does it work?

The N1, a 4mm-square chip, is implanted into the skull. Attached to the chip are wires thinner than a human hair, which reach out into the brain. These threads are placed close to important parts of the brain and are able to detect messages as they are relayed between neurons, recording each impulse and stimulating their own. Neuralink says the N1 is able to connect with 1,000 different brain cells, and that a patient might have as many as 10 N1 chips implanted.

The chips connect wirelessly to a wearable device that hooks over the user's ear, much like a hearing aid, and contains a Bluetooth radio and a battery.

Neuralink says the first devices will be implanted via traditional neurosurgery, but eventually the chips will be inserted safely and virtually painlessly through small incisions by a robot surgeon.

What kind of conditions could be treated using this technology?

The technology could help with neurological disorders, which are rooted in the inability of the brain to connect with nerves around the body. These include epilepsy and Parkinson's disease, but also paraplegia and quadriplegia following injuries to spinal nerves.
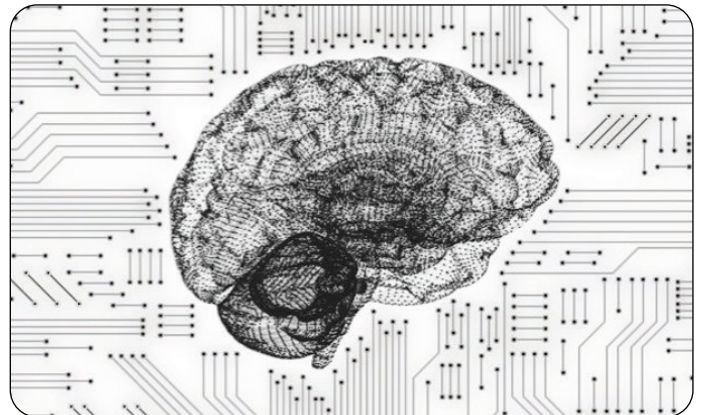
Does it have to be stuck inside my brain?

Unfortunately, the technology needs to be close to each nerve in order to pick up signals – anything further than 60 microns wouldn't be able to detect individual impulses (1 micron = 0.001mm).

What are the risks?

Neuralink will need to learn from the successes (and failures) of existing brain-computer interface technologies. The threads connecting electrodes to the chip need to be flexible, to minimise the damage to surrounding brain tissue. And if this technology is to be given to patients with pre-existing conditions, there are also risks associated with operating on those whose immune systems may be compromised.

Musk reassured the audience that implanting the device would be as safe as having laser eye surgery, but the company is yet to seek FDA approval, which it will need to market the device.

There aren't just health risks, either: society will need to consider what to do with the data recorded by the N1. What are the ethics behind monitoring someone's every thought, deed and emotion?

So when could it become a reality?

Musk hopes for human studies to begin as early as 2020, a date some say is wildly optimistic. At the launch, Neuralink's CEO Max Hodak stated that the first patients would be those with quadriplegia due to spinal cord injuries. These patients will have four chips implanted, connecting with up to 4,000 different neurons.

The benefits extend beyond the disabled. Musk hopes that the technology will become commonplace, turning the humans into cyborg beings that can achieve a symbiosis with artificial intelligence – something he believes will be essential to the survival of our species.

'Sewing machine' robot paves the way for brain computers

The new device is capable of rapidly, precisely implanting polymer electrodes into the brain.

Imagine being able to play a song on your computer just by thinking of its title. Or transmitting your thoughts to a friend over the internet without uttering a word. Scientists have now invented a 'sewing machine' capable of stitching electrodes into the brain, which may one day help to make such things a reality.

Brain-computer interfaces are a mainstay of science fiction. In recent years, rudimentary forms of this technology have been used to help paralysed people move prosthetic limbs. However, the technology is yet to make the jump across to everyday use.

Our brains contain some 86 billion nerve cells ('neurons'), and a sophisticated brain computer would need to read the electrical signals of individual cells – requiring millions or even billions of electrodes. Current devices are just too unwieldy and inaccurate to make this possible, and inserting them can cause damage and inflammation in the brain.

The new 'sewing machine' device, created by a team of scientists at the University of California, is capable of rapidly, precisely implanting polymer electrodes. It automatically positions itself over the desired brain region and inserts the thin, flexible electrodes one by one using a fine needle. Once

each electrode is implanted, the needle is retracted and moved to the next insertion site. It's capable of inserting an electrode every few seconds.

So far, the team has demonstrated the technology in rats by removing a piece of the skull to expose the brain and then implanting electrode arrays in a region known to receive all of the sensory input from the body called the 'somatosensory cortex'. The researchers were able to record the brain activity in four of these rodents.

The research, revealed in an as yet unpublished academic paper, appears to have connections to Neuralink – a secretive neurotechnology company that was co-founded by SpaceX and Tesla billionaire Elon Musk in 2016.

It's likely to be a while before this technology is scaled up to testing in humans: the device is reported to have caused some tissue damage in the rats. But it could represent a step towards a world where our brains have a direct link to our gadgets.

https://bit.ly/2k0SBEO

Technology Focus

Accelerating Business Growth by Automating Order Entry

In a time when companies are desperate for ways to drive growth, it's surprising many are still wasting precious money and human work hours on manual order entry. Processing customer orders is complex, but advanced automation technology is available to help you keep up with the pace of today's business.

The order entry work challenge

Managing sales orders typically involves multiple stakeholders and departments, such as customer service, sales, manufacturing, logistics, accounts receivable, and

finance. Applications can also be involved, including enterprise resource planning (ERP), customer relationship management (CRM) platforms, accounting software, and business process management solutions. And don't forget approvals, along with exceptions for workflow.

Additionally, sellers who must receive sales orders from an online portal, email inbox, or the cloud are capturing and verifying sales order data; creating orders in their ERP system; calculating any discounts, sales tax, or shipping fees; routing orders to the appropriate people; posting order information in the ERP system; delivering information downstream for fulfillment; and communicating order status to customers.

As complex as this sounds, businesses drive up their costs by manually performing many of these tasks. The sales order process at most businesses is inefficient and slow, resulting in wasted employee time correcting errors, incorrect and

delayed deliveries, lost profits for product write-downs, billing errors and long days sales outstanding, strained customer relationships, and even lost business.

Companies that rely on manual sales order processes incur much higher costs — nearly eight times higher — than their counterparts that have moved to automated approaches, according to APQC's Open Standards Benchmarking report.

Cognitive automation speeds order processing

Robotic process automation (RPA) that includes artificial intelligence (AI) offers businesses a viable solution because it eliminates the manual, repetitive tasks that increase operations costs. This new technology can monitor a customer portal or corporate email inbox for new sales orders, quickly process the orders, and extract and validate the information in accordance with predefined business rules.

The information is converted into a structured format — without errors. An RPA bot then takes the structured data and electronically routes it to the appropriate individual or order management systems and uploads it to the company's ERP application.

Automating order entry with RPA and cognitive automation improves business in five ways:

1. Lowers operational costs

RPA with cognitive automation extracts key data from sales orders, such as customer name, unit price, and order number. Cognitive software bots with built-in AI capabilities operate on configurable business rules, validate sales order data against information stored in an ERP application or other system of record, and verify the sales tax and shipping charges are calculated correctly.

2. Enhances customer experience

Providing data capture with 100% accuracy improves customer satisfaction. Precision helps ensure customers receive the goods they want, on time, delivered to the right location, and billed at the right price.

5 Ways Automating Order Entry Accelerates Business Growth

3. Decreases time to revenue

An RPA solution that includes intelligent automation streamlines tasks such as retrieving sales orders from emails, extracting sales order data, and routing orders to individuals. In addition, RPA technology enhances workflow efficiency by delivering information to humans and integrated systems more quickly.

4. Reduces low-value activities

Tap into the creativity and humanness of your workforce. Automating repetitive, manual tasks allows for happier employees by freeing them to innovate and execute revenue-generating actions, such as building customer relationships and proactively upselling or cross-selling customers.

5. Improves corporate agility and decision-making

Accelerating the capture and delivery of sales order information with RPA and cognitive automation equips decision-makers with the critical metrics they need to propel business growth. The technology empowers leaders with data such as the number of orders that need to ship, cycle times, top-selling products, and rush orders.

Business leaders who are hyper-focused on digitally reinventing order processing can transform from legacy systems to AI-powered RPA to add speed, reduce errors, and increase employee satisfaction. More importantly, RPA with cognitive automation will reduce costs while accelerating business growth.

https://bit.ly/2kohbzz

Special Focus

NSX-T 2.5 – A New Marker on the Innovation Timeline

NSX-T has seen great success in the market for multi-platform network and security use-cases, including automation, multi-cloud adoption, and containers as customers move through the digital transformation initiative. NSX-T is the industry's only network and security platform delivering a wide range of L2-L7 services, built from the ground up for

workloads running on all types of infrastructure – virtual machines, containers, physical servers and both private and public clouds.

This year, we are hyper-focused on innovation, and in bringing transformative capabilities to market through NSX-T, which is the foundation for both our VMware NSX Data Center and NSX Cloud offerings. This release of NSX-T further strengthens our intrinsic security capabilities architected directly into networks and public and private cloud workloads that

applications and data live on, reducing the attack surface. This version also keeps up the accelerated pace of innovation we are delivering on for scalability, cloud-native support, and operational simplicity which can accelerate customers' adoption of a Virtual Cloud Network architecture.

Launching NSX Intelligence – A Native, Distributed Analytics Engine

Analytics-based policy recommendation and compliance, streamlined security operations
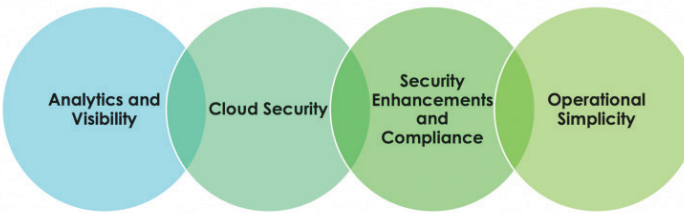
NSX Intelligence is a distributed analytics engine that provides continuous data-center wide visibility for network and application security teams helping deliver a more granular and dynamic security posture, simplify compliance analysis, and streamline security operations.

Traditional approaches involve sending extensive packet data and telemetry to multiple disparate centralized engines for analysis, which increase cost, operational complexity, and limit the depth of analytics. In contrast, NSX Intelligence, built natively within the NSX platform, distributes the analytics

within the hypervisor on each host, sending back relevant meta-data to a scale-out, lightweight appliance for visualization, reporting and building machine-learning models.

Combining the deep workload and network context unique to NSX, the engine provides detailed application topology visualization, automated security policy recommendations, continuous monitoring of every flow, and an audit trail of security policies, all built into the NSX management console for a single-pane-of-glass experience.

NSX Intelligence, the crown jewel of the NSX-T 2.5 release, is making a big splash at VMworld 2019 US.

Analytics and Visibility | Cloud Security | Security Enhancements and Compliance | Operational Simplicity

https://bit.ly/2lroXc5

Tech News

AR Glasses Can Help Visually Impaired Navigate Better

Augmented Reality (AR) glasses can help people with low vision better navigate their environment as the eye-wearable device managed to enhance mobility and function in patients who have difficulty with peripheral vision or seeing in low light, say researchers.

The research was conducted with patients suffering from retinitis pigmentosa, an inherited degenerative eye disease that results in poor vision.

The team from Keck School of Medicine at University of Southern California (USC) found that adapted AR glasses can improve patients' mobility by 50 per cent and grasp performance by 70 per cent.

"Current wearable low-vision technologies using virtual reality are limited and can be difficult to use or require patients to undergo extensive training," said Mark Humayun, Professor of Ophthalmology at the Keck School.

"Using a different approach — employing assistive technology to enhance, not replace, natural senses — our team adapted AR glasses that project bright colours onto patients' retinas, corresponding to nearby obstacles," Humayun informed.

Patients with retinitis pigmentosa wore adapted AR glasses as they navigated through an obstacle test.

Using video of each test, researchers recorded the number of times patients collided with obstacles, as well as the time taken to complete the course.

The patients averaged 50 per cent fewer collisions with the adapted AR glasses.

Patients also were asked to grasp a wooden peg against a black background — located behind four other wooden pegs — without touching the front items. They demonstrated a 70 per cent increase in grasp performance with the AR glasses.

Patients with retinitis pigmentosa have decreased peripheral vision and trouble seeing in low light, which makes it difficult to identify obstacles and grasp objects.

"They often require mobility aids to navigate, especially in dark environments," Anastasios N. Angelopoulos, study project lead, said in a university statement.

The AR system overlays objects within a six-foot wireframe with four bright, distinct colours.
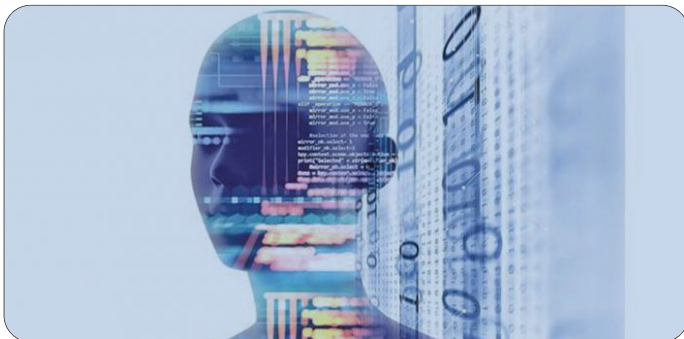
In doing so, the glasses provide visual colour cues that help people with constricted peripheral vision interpret complex environments, such as avoiding obstacles in dimly lit environments.

To accomplish this, researchers used a process called simultaneous location and mapping, allowing the AR glasses to fully render the 3D structure of a room in real time.

According to Humayun, while major cost and technical issues remain, this type of assistive technology could eventually become more practical for everyday use in the near future.

"Through the use of AR, we aim to improve the quality of life for low vision patients by increasing their confidence in performing basic tasks, ultimately allowing them to live more independent lives," Angelopoulos added.

https://bit.ly/2jW71WJ

Reliance Jio Partners with AI-Based Provider to Analyse Data in Real-time

Reliance Jio, the world's largest mobile data network service provider, and Guavus, a Thales company and the leader in AI-powered analytics for communications service providers, announced a partnership today centered on AI-driven analytics. Guavus' AI-based solutions will provide real-time customer experience analytics, predictive analytics to automate network troubleshooting, and key marketing insights to Jio. As a result, Jio will be able to offer superior service to its customers while addressing critical service operations with intelligent automation.

Jio is one of the world's largest and fastest growing data service operators with more than 300 million subscribers. The Indian service provider, which has disrupted the market with its affordable data plans and unlimited calling benefits, has created a completely digital experience for its users – ranging from data services on smartphones, to gigabit Internet at home, along with a portfolio of media offerings and IoT devices such as smart speakers and switches for the smart home.

"Our networks generate 4 to 5 petabytes of data each day. If this data can be properly analyzed in real-time using big data analytics and predictive analytics techniques, we can both improve the health of our network through intelligent automation and offer multiple, customized personal services to our customers. Guavus' solutions enable us to do this – we

can make data-driven decisions that allow us to deliver a great experience to our customers while bringing intelligent automation to our operations," said Anish Shah, President of IT, Reliance Jio.

"Guavus provides us data analytics technology and out-of-the-box analytics solutions for intelligent operations and marketing – but they're not just fishing for us, they're giving us the ability to fish. Our teams will be able to take advantage of a 'self-service' platform to build custom analytics applications that are tied very closely to their areas of the business and to deliver quality new products much faster," said Kiran Thomas, President, Reliance Industries.

Said Anukool Lakhina, Guavus Founder and President, "Guavus has been a pioneer working on AI-powered analytics solutions with service providers around the world. The rapid growth, range and affordability of Jio's service offerings and their innovative use of AI and analytics is transformative for their customers and India. We're thrilled to be partnering with Jio to provide the AI and analytics foundation for the digital services revolution in India."

https://bit.ly/2jRM0MG

Galaxy recognized at Discover Sophos 2019

Galaxy has been honored with yet another recognition, **"Sophos"** Emerging Partner of the Region - West India" at Discover Sophos 2019, Singapore.

Sophos Discover, an exclusive, invitation-only partner conference, gives attendees a unique opportunity to connect, learn and collaborate. Gives an insider's view into our Sophos product vision and strategy, unprecedented access to key Sophos executives, and invaluable education from top experts on how to leverage Sophos innovation to drive your profitability.