Integrating Technology, Driving Growth

TechTalk

GALAXY Integrating Technology | Driving Growth

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MD SPEAKS

Anoop Pai Dhungat
Chairman & Managing Director

Dear Readers,

As we enter a new fiscal year in India, the information technology landscape continues to evolve at a rapid pace. I expect this year to be dominated by AI and ML, cybersecurity, edge computing, cloud computing and 5G. At Galaxy, we strive to be at the forefront in integrating these technologies to deliver positive outcomes to our customers.

ChatGPT, and its brethren, have brought and demonstrated the power of AI to the common man. AI and ML will continue to be game-changers in almost all walks of life. I expect to see more applications of AI and ML in various sectors, such as healthcare, finance, manufacturing and entertainment. Unfortunately, like all other technological advances, this too can cut both ways. A lot of hackers will use advanced AI & ML to make the job of breaking cyber defences significantly easier. This will generate a huge opportunity in the cybersecurity space. Edge computing involves processing data closer to the source, reducing latency and improving efficiency. The rising adaption of the Internet of Things (IoT), will cause edge computing to see more adoption in industries such as manufacturing, healthcare, and transportation. The hybrid cloud model, which combines private and public cloud infrastructure, will gain traction. I also expect to see more adoption of cloud-native technologies, such as containers and microservices. The rollout of 5G networks with faster speeds and lower latency will enable new applications in remote surgery, autonomous vehicles, and smart cities.

I look forward to a host new applications and use cases emerge, which will transform the way we live, work, and interact with each other.

I wish you and your businesses the very best in this new year.

Happy Reading

Building a new Sun: The world's largest science experiment continues to take shape

From a small hill above Vinon-sur-Verdon in southern France, you can see two suns. Right before sunset, the effect is even more startling. One of the two suns has been blazing for the past 4.5 billion years and is slowly setting. The other is being built by thousands of human hands, and is very slowly rising. As the sun sets, its rays cast a magical glow over a huge construction site, where the world's biggest fusion reactor is being built.

The ITER (International Thermonuclear Experimental Reactor) project, a joint venture by 35 countries, is one of the world's most important scientific projects. The aim of the project is to prove nuclear fusion – a process constantly taking place inside our Sun and other stars – can be utilised on Earth, to produce electric energy on an industrial scale. ITER hopes it will be the first fusion device to sustain fusion power over a long period of time. If successful, it could well signal a direction away from using fossil fuels for good.

Since 1973, global energy usage has doubled. By the end of this century it might actually triple. 70 per cent of humankind's carbon dioxide emissions into the atmosphere are created through our energy consumption. 80 per cent of all the energy we consume is still derived from fossil fuels. Therefore, replacing these harmful emissions will help hugely with reducing pollution worldwide, and help slow climate change.

The EU has officially pledged to start producing more than half of electric energy from renewable sources by 2030. By 2050, the hope is that the EU will be a fully carbon-neutral society. To achieve this, it is important to find alternative sources of energy, and many believe that nuclear fusion could be the answer to the world's long-term energy needs.

But before that happens, there is still a long way to go. ITER is not expected to be conducting plasma experiments until 2025, with the facilities not being fully complete and operational until 2035.

An aerial view of the construction site of ITER and the surrounding complex at Saint-Paul-lès-Durance, France. Construction at the site began in August 2010, and is not expected to be completed until at least 2025. Photo by Matjaz Krivic

https://bit.ly/437Zq8f

Why Wasm is the future of Cloud Computing

Wasm may just be the most important emerging technology that you've never heard of.

Shorthand for WebAssembly language, Wasm was developed for the web. However, Wasm technology has expanded beyond the web browser. Now organizations are starting to run Wasm on the server side.

Whether or not you believe that, Wasm is clearly making an impact on cloud computing. Why and how? Let's count the ways.

Wasm is cross-platform: Making it safer and simpler to bring cloud components together

People use all different kinds of languages to write software. Getting those languages to interact with each other is difficult. Wasm provides a framework in which you can write in whatever language you want. Then it produces a common, simulated machine format.

That format allows components written in various languages—like Rust, C/C++, and Go—to talk to each other. Wasm also provides the ability for server-side systems like databases to embed components from different languages without requiring you to know or care how that module was produced.

Think of Wasm as a universal plugin format. Say you would like to augment your system's capabilities with a component developed by a third party. Wasm lets you bring the new component into your system without the risks that typically come with integrating add-ons. For example, an external component might crash the system or work in an unexpected way. Wasm mitigates these problems by creating an extremely safe framework for disparate systems and components to interact together.

The cloud is a big driver of Wasm's expansion. Wasm is a good match for cloud because it's virtualized and can work in any environment that supports the Wasm runtime. Also, cloud systems are typically composed of many services pieced together and connected in different ways. That can get complicated. But the more you can simplify your cloud environment, the easier it is for various aspects of cloud systems to work together correctly.

Wasm is secure: Lowering risk with its approach to running code and representing functions

In most language runtimes, functions have addresses. Those addresses are executable points in memory. If you are just looking at memory as a bunch of bytes, a function may be indistinguishable from the rest of the memory. This opens the door for people to find the function and inject code into it or call a function in a privileged way so the function does something that it's not supposed to do. Wasm's design eliminates those problems.

Wasm represents functions in a way that is not exploitable. It also runs the code in a sandbox, which mitigates common security problems associated with running untrusted code. Because Wasm encapsulates the program memory in a safe area, nothing can get outside of it and access other places that might affect the host that's running the program or compromise security.

And with Wasm's capability-based security model, hosts have complete control over what kinds of privileged operations the Wasm program can run. For example, hosts must explicitly grant access to directories if file access is a requirement.

Wasm is fast: Eliminating what is not needed and enabling greater speed and efficiency

Clearly, Wasm isn't the first technology people have used to bring things together in a safer, more simplified way. However, Wasm is much faster than some of those other technologies.

Compilers can generate Wasm programs by leveraging the LLVM back end, compiling down to the LLVM intermediate representation. LLVM, or low-level virtual machine, is an extracted machine that many languages already compile down to. As a result of this approach, and thanks to many years of community effort around the LLVM project, Wasm programs can be compiled to highly optimized machine code.

Traditionally, integrating that data and assembling it on a mid-tier layer would require you to pull up a lot of data to the mid-tier. That could introduce a huge amount of lag and require some complex caching to achieve a real-time response. Rather than taking that approach, each spaceship's strategy has been written in Wasm, and loaded into the database as a UDF. Each second, each of the spaceships' strategy functions are invoked to decide on its next move.

There's nothing on the front end—a JavaScript program running in the browser—that understands these strategies, or anything about the state of the universe. Its job is simply to issue SQL queries directly to the database and graphically present the information that is returned. The database maintains all of the state information, and because Wasm has allowed the compute to be right next to the data, it's a lot faster. No mid-tier was even necessary.

But Wasm isn't all fun and games. You can use it to address countless other applications and use cases. For example, you could use Wasm for sentiment analysis. The kind of complex logic required for sentiment analysis isn't something that can easily be expressed in a database SQL dialect. So, in order to do this, you usually need to implement it in a more sophisticated language and then bring the data to it by downloading each row of data. Then you need to push the sentiment analysis rating back into the database. That means a round trip for every row in the database you use. If you have millions of rows, that creates a lot of network traffic. But with the way, one of the OEMs has integrated Wasm, you are already in the database, so you don't incur that overhead.

Wasm is the future: Providing a faster, more secure, and more efficient way to bring things together.

Wasm, though more lightweight, may not replace containers any time soon. But you can expect Wasm to become part of a whole lot of software going forward.

Whether on the server or on the edge, Wasm lets you create custom logic that runs much closer to the data than it could before—and you can do it securely, efficiently, and with greater flexibility.

You can compile your existing programs to Wasm, push them into the database, and run them there. That means that you may not have to rewrite that code and put it somewhere the data is not. With Wasm technology, you can have the best of both worlds.

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Special Focus

Dark & Deep Web Monitoring & Takedowns as a service

Information security organisation today strive to build a more secure and cyber security-aware digital world by delivering innovative advance cybersecurity applications with AI, Machine learning, Computer vision, and other cutting-edge technologies.

Businesses must meet compliance laid down by regulators one of such compliance needs to cover the protection of an organization in the external cyber security landscape.

Internet is growing exponentially every day, attackers are breaking into systems and creating the havoc majorly stealing data. But the question is what happens to this stolen, leaked data? Well, "Dark Web" is the alley where these data are dumped, sold, or bid for.

Most of the times these breaches are silent, and before the actual impact surfaces up, they get converted into a disaster for the business. As such, it has become essential for organizations to opt for continuous dark web monitoring, to maintain surveillance of any data breach in the hidden web.
So, what is the Dark & Deep Web?

Apart from well known World Wide Web the web surface is also divided into other two sections of the internet:

Deep web or hidden web's content is not indexed by traditional search engines and therefore its content is not available for search by general audience.

Dark web is the part of deep web that can publicly be accessible only through special software's like TOR, Freenet, I2P etc, thus offering the advantages of anonymity and limited policing. Dark Web sites serve as a platform for Internet users for whom anonymity is essential, since they not only provide protection from unauthorized users, but also usually include encryption to prevent monitoring.

Galaxy is now associated with various OEM's to meet today's compliance requirement of Dark & Deep web Monitoring Service for all businesses.

The Dark web monitoring service employs rigorous algorithms powered by AI to identify criminal activities, data and identity theft that might be targeting your organization. These methods combined with predictive analysis, natural language processing and live feed sources, elevate the detection capabilities, and bring out the information that is critical - the information that can be utilized to identify, stop and limit the cybercrimes against your organization, customers and employees.

Dark Web Monitoring can protect the business by providing awareness of compromised credentials before identity theft or data breaches can occur & severely impact the business. It helps in getting the insights of leaked financial data, employee information, customer personal and identifiable information, leaked credentials, source code leaks and other sensitive information.

The sophisticated AI algorithms will dig, correlate, clean and provide the relevant information in real-time. The service will automatically connect to multiple Dark Web services out on web, including Tor, I2P and Freenet, to search for compromised credentials and sensitive information. It will leverage leading-edge robot technology that mimics human behaviour to interact with cybercriminals and infiltrate their networks. The service has access to vast threat intelligence databases gathered from varied sources over a period of time which helps visualization of the threat map by real-time correlation within the extensive threat intelligence database.

The OEMs also come up with monitoring addon service for - phishing, rogue mobile application, social media, domains, brand monitoring along with takedowns. This monitoring service helps detect anomalies through different sources and integrations which allow early detection of phishing attacks which help in squashing and protecting and later early take down.

Monitoring involves a heuristic approach in analysing the phishing feeds for your brand's presence, verification of all the deceptive pages that are impersonating your brand and notify you, further forwarding them for the takedown and assuring a safe bubble so your clients feel safe and confident. The takedown services involve trying to get the phishing site shut down by digging through ISPs, hosting providers, domain registrars, law enforcement and other authorities on their own until they get to the right person.

These AI-powered SaaS software's provides actionable intelligence into Dark web, Deep web, surface web & cybercrime activities targeting organizations brand value & individuals.

"Galaxy offers solutions helping organizations to opt for continuous dark web monitoring to maintain surveillance of any data breach in the hidden web, allowing you to keep your brand safe." To talk to our experts, email us at marketing@goapl.com

Tech News

98% of Indian enterprises using public cloud chose a Multicloud strategy

Multicloud is the new reality in enterprise technology according to a study by 451 research, commissioned by Oracle Cloud Infrastructure conducted among 1,500 executives and senior decision-makers at enterprises - including India.

The study reveals that 98 percent of enterprises in India are using or plan to use at least two cloud infrastructure providers and 33 percent are using four or more. Also, 96 percent reported in India they are using or plan to use at least two cloud application providers (Software-as-a-Service), with 51 percent using cloud applications from five or more providers.

As organizations faced new challenges such as increased levels of remote work and collaboration with new business partners and suppliers, they adopted a multicloud strategy to gain the flexibility and scalability they needed for this new reality. The top two drivers of multicloud strategies for Indian enterprises are data sovereignty and cost optimization.

"The 'one-stop-shop' mentality has died when it comes to the cloud. Instead, multicloud is the reality of enterprise technology environments as these organizations seek to get the right mix of solutions and capabilities they need to operate effectively," said Melanie Posey, research director, Cloud & Managed Services Transformation at 451 Research.

"Multicloud is here to stay, and enterprises are choosing this model for the benefits it provides for a range of different business and operational requirements, like business agility or access to best-of-breed technology."

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RBI to extensively use AI, MI driven tools for data analysis

"With India's G-20 presidency during the period of Utkarsh 2.0, it confers a unique opportunity to showcase our accomplishments in the realm of digital payments and strive towards broad basing of acceptance of the Indian Rupee in bilateral and multilateral trade," the document said.

Utkarsh 2.0 harnesses the strengths of Utkarsh 2022 by retaining the six vision statements as well as core purpose, values and mission statement, the RBI said and added that collectively, they create a strategic guiding path," it said. The Vision in Utkarsh 2.0 that will guide the Reserve Bank of India over the period 2023-25 include, 'Excellence in performance of its functions'; Strengthened trust of citizens and institutions in the RBI; and enhanced relevance and significance in national and global roles.

"In this age of data, the bank plays the dual role of data collection as well as information dissemination. With this comes the responsibility of reliability of data collected to create meaningful and accurate information.

"Therefore, adoption of AI and ML driven tools for data analysis and information creation will be an integral part of Utkarsh 2.0," the document said. It further said the achievement of the milestones under the Utkarsh 2.0 will strengthen the regulatory landscape for the well-being of the financial sector and enhance the trust of citizens in the RBI.

"The strategy framework will also make the bank a listening oriented, transparent organisation equipped with best-in-class and environment friendly digital and physical infrastructure," it added. Utkarsh 2.0, the strategy framework being put in place for the period 2023-25, sets out the priorities, activities and desired outcomes under each of the objectives of the bank for the period between 2023 and 2025.

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