Integrating Technology, Driving Growth

TechTalk

GALAXY Integrating Technology | Driving Growth

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10 — YEARS OF — TechTalk

A DECADE OF KNOWLEDGE SHARING

"Future is Now" articles from TechTalk which have become use cases today.

AUGUST 2015 ISSUE 38
The World's first Robotic Hotel

APRIL 2014 ISSUE 22
Wireless electricity? It's here

AUGUST 2016 ISSUE 50
World's first 3D-Printed Office Building completed in Dubai

OCTOBER 2015 ISSUE 40
Spaceflight wants to send Satellites up to Space with Elon Musk's SpaceX Falcon 9 Rocket

SEPTEMBER 2014 ISSUE 27
Emerging payment options include Contactless Cards, Mobile Purchases

MD SPEAKS

Anoop Pai Dhungat
Chairman & Managing Director

Dear Readers,

I am proud to announce that TechTalk has completed 10 years and now has entered its second decade. I thank all of you for supporting us all these years and your words of encouragement will keep us going much further. I also thank all the contributors and our editorial team at Galaxy for the hard work they have put in to keep TechTalk relevant through the ever changing world of technology.

Over the past couple of years, thanks to disruptions due to lockdowns, a lot of organisations have had to fast track their digital journey. Some had to reach their customers & suppliers digitally, some had to enable their workers to work digitally from anywhere and some had to simply find new digital ways of doing business. We, at Galaxy, have helped our customers implement all these use cases in a very secure and time bound manner. Using state of the art tools from renowned OEMs, our technical experts are capable of designing and implementing complex solutions encompassing the complete IT spectrum - right from Infrastructure to Applications. Do reach out to us for a free consultation on how we can help you make the most of your technology investments.

Stay safe and happy reading.

Future Is Now

Invisibility devices may soon no longer be the stuff of science fiction

Invisibility devices may soon no longer be the stuff of science fiction. A new study published in the De Gruyter journal Nanophotonics by lead authors Huanyang Chen at Xiamen University, China, and Qiaoliang Bao, suggests the use of the material Molybdenum Trioxide (a-MoO3) to replace expensive and difficult to produce metamaterials in the emerging technology of novel optical devices.

The idea of an invisibility cloak may sound more like magic than science, but researchers are currently hard at work producing devices that can scatter and bend light in such a way that it creates the effect of invisibility. Thus far these devices have relied on metamaterials – a material that has been specially engineered to possess novel properties not found in naturally occurring substances or in the individual particles of that material – but the study by Chen and co-authors suggests the use of a-MoO3 to create these invisibility devices.

Possessing some unique properties, this material can provide an excellent platform for controlling energy flow. The team's simulation results showed that when cylindrical or rolled up a-MoO3 materials replace metamaterials, the simplified invisibility concentrator can gain the effects of electromagnetic invisibility and energy concentration that would be demonstrated by a near perfect-invisibility device. As a result, the study shows that hyperbolic materials such as a-MoO3 and Vanadium pentoxide (V2O5) could serve as a new basis for transformation optics, opening the possibility of photonic devices beyond invisibility concentrators, including improved infrared imaging and detection systems.

Transformation optics has been a hot topic in physics over recent decades thanks to the discovery that the path light takes through a continuous medium can be the same as its propagation through a curved space that has undergone a coordinate transformation. The consequence of this is that the behaviour of light can be manipulated as it passes through a material, something that has led to the creation of a multitude of novel optical devices, such as invisibility cloaks – a camouflage material that could cover an object and bend light around it making it almost disappear – and other optical illusion devices.

"It is the first time that 2D materials have been used for transformation optical devices. Usually, we need metamaterials but this is much simpler," says Chen. The researcher continued by explaining that the first application for the results of this study might be a large size energy concentrator capable of improving such devices. "We are now performing experiments by rolling up the a-MoO3, the results of which we hope will appear very soon."

Reference: "Invisibility concentrator based on van der Waals semiconductor a-MoO3" by Tao Hou, Sicen Tao, Haoran Mu, Qiaoliang Bao and Huanyang Chen, 30 November 2021, Nanophotonics.

https://bit.ly/39Ywd8Q

What is microservices architecture?

The number of mentions of "microservices architecture" plunged 42% between January 2019 and September 2020, according to a recent Gartner social media analytics study. This trend points to growing disillusionment with microservices architecture - a design paradigm that aims to increase agility, deployment flexibility and precise scalability by applying service-oriented architecture and domain-driven design principles to distributed applications (i.e., microservices).

Gartner defines microservice as an application component that is tightly scoped, strongly encapsulated, loosely coupled, independently deployable and independently scalable. Microservices architecture can deliver great benefits, but success is often elusive due to misconceptions about why, when and how to use it.

"The two issues that trip up software engineering teams are complexity and cultural disruption," says Anne Thomas, Distinguished VP Analyst, Gartner. "The complexity comes up because microservices must be rigorously independent to attain the architectural benefits, and developers must adopt new patterns and abide by numerous architectural constraints to ensure that the microservices are actually independent. As for the cultural disruption, success depends on changing team structures, improving distributed computing skills and using mature agile and DevOps practices."

Microservices architecture can improve agility and increase scalability but isn't right in all circumstances. In fact, it could be absolutely wrong. To improve the likelihood of success, software engineering leaders should, before setting up a microservices platform, answer three essential questions related to microservices architecture: Why, when and how?

Why?

The ideal answer to "why" will result in a business case with a clear return-on-investment benefit. Software engineers most frequently adopt microservices architecture to enable continuous delivery of new application features. In fact, if you aren't trying to implement a continuous delivery practice, you are better off using a more coarse-grained architectural model — what Gartner calls "Mesh App and Service Architecture" and "miniservices."

The following core truths about microservices architecture can help leaders avoid misconceptions as they develop a compelling why:

- Microservices architecture improves agility. It facilitates agile DevOps and continuous delivery practices, enabling software engineering teams to increase the cadence at which they can deploy new features.
- Microservices architecture is complex. Given its focus on implementing functionality as a set of distributed components that can be independently developed, tested, deployed, scaled and updated, it requires complex design.
- Microservices will not save you money. It typically costs more to implement than a monolithic architecture.
- Microservices are not the same as APIs. Microservices architecture is one way to implement the functionality behind an API, but it is distinct from the API itself.
- Microservices should not be shared. Independence is key to achieving the agility goals of a microservice architecture.
- Microservices are not the same as containers. Most teams deploy microservices in containers, but you aren't using microservices architecture unless you also employ design patterns that ensure the independence of the components.

When?

If your software engineering team has already adopted miniservices and agile DevOps and continuous delivery practices, but you still aren't able to achieve your software engineering cadence goals, then it may be time to adopt a microservices architecture. You will need to be selective, however. The architecture is very complex and it's inappropriate to use it indiscriminately. Your teams must be pragmatic, not dogmatic, about when they apply the architecture. Not every aspect of a distributed application should be a microservice.

It's vital that teams understand when it is appropriate to decompose functionality into separate, independently deployable services rather than maintaining the functionality in a monolith or coarse-grained module. An overarching principle governing decomposition is, "What changes together should stay together."

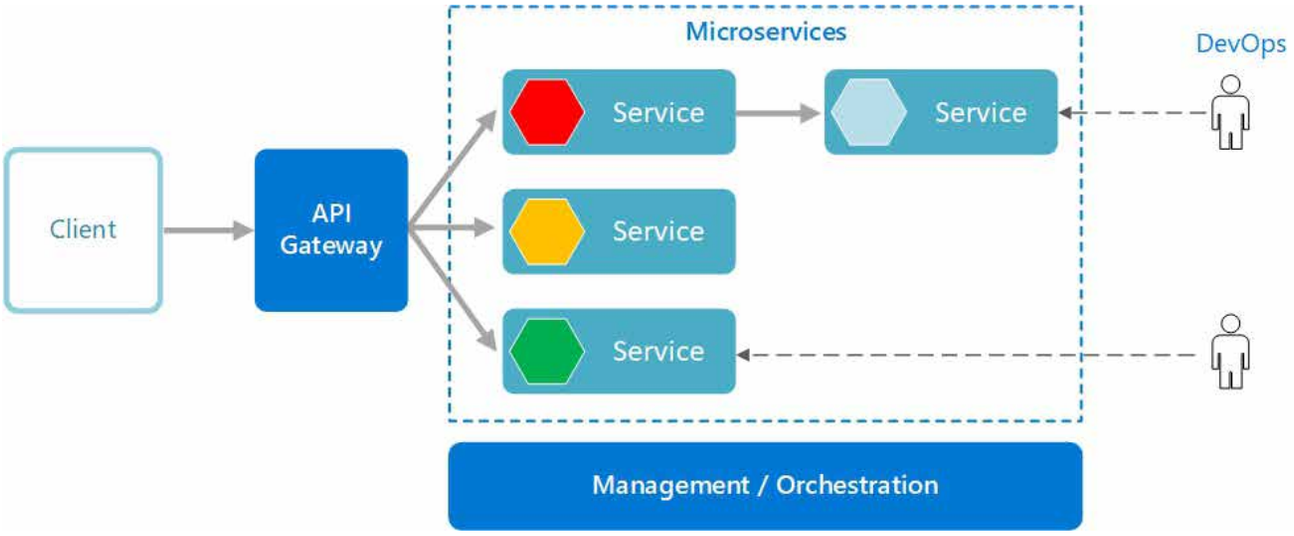
Technology Focus

How?

To be successful with microservices, software engineering leaders will need to change or emphasize:

- team structures and responsibilities.
- the operating model.
- knowledge and application of distributed computing architecture patterns.
- agile and DevOps adoption.

Team structures should be aligned to the same business domains as the microservices to allow a single, cross-functional team to take responsibility for the full set of business capabilities and work autonomously to deliver to them. This team structure functions best with a product-oriented operating model, whereby engineering teams have the authority to make product decisions and are measured based on their ability to deliver business outcomes. Success requires team members to be skilled in agile and DevOps practices and have knowledge of a variety of distributed computing architecture patterns.



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GALAXY WINS CHANNELWORLD PREMIER 100 AWARD 2022 BY FOUNDRY

We are delighted to inform that Galaxy Office Automation Pvt. Ltd. has received the ChannelWorld Premier 100 Award 2022 by Foundry at the 13th edition of Premier 100 Awards & Symposium 2022.

Special Focus

Netskope

The enterprise data center is no longer the foundation for all enterprise applications, data, users, and devices. Digital transformation, the adoption of SaaS, IaaS, and Edge computing platforms have turned the enterprise network inside out, inverting historical designs. Network and security architectures, designed for a waning era, are unable to effectively meet the dynamic secure-access needs of today's cloud-first business. It's increasingly clear that disparate point tools can no longer support enterprise security requirements. Security technology integration and architectural considerations are now equal to, or more important than, best-of-breed product functionality.

Netskope is partnering with the leading companies in cloud technology. From integrations with cloud storage services, to delivering cloud forensics to your SIEM, to providing closed-loop workflows with your identity management system, Netskope enhances your existing infrastructure to deliver the most comprehensive and efficient cloud security in the industry. The remote workforce has exploded globally with more employees working from home than ever before.

On any given day, approximately 60% of workers are remote. The overwhelming majority (89%) of enterprise users are in the cloud. More workloads are running in Infrastructure as a Service (IaaS) than in the enterprise data center and more applications are delivered via Software as a Service (SaaS) than from the enterprise infrastructure.
Embracing the cloud enhances workforce productivity but brings numerous security challenges.

Employees want to use their own devices to access a wide variety of both managed and unmanaged apps, increasing the opportunity for credential-based attacks. Attackers are moving to the cloud to blend in, increase success rates, and evade detections. Nearly half (44%) of threats are cloud-based, with the top techniques being phishing and malware delivery. Cloud services make it all too easy for employees to put sensitive information in the wrong place or share it with the wrong people. Not to be overlooked, malicious insiders or disgruntled employees are more likely to attempt exfiltration of company sensitive data when outside the office environment.

THE NETSKOPE SECURITY CLOUD PLATFORM

The Netskope Platform was designed in the cloud, for the cloud, with high performance and scalable micro services on-demand.

The Netskope Security Cloud Platform includes the following solutions:

- CASB API-enabled protection for managed apps and cloud services (e.g. Office 365, Salesforce, Box, Dropbox), providing cloud policy controls with threat protection and DLP for data-at-rest.
- NG SWG with granular policy controls for protecting cloud services, applications, websites, and data for any user, location, or device. Decodes API / JSON-based communications, courtesy of the unique Cloud XD™ technology to better secure thousands of cloud applications, both managed and unmanaged. Includes inline defenses like advanced threat and data protection, SSL/TLS inspection, URL filtering, acceptable use, and more.
- Cloud Security Posture Management (CSPM) providing continuous assessment of IaaS public cloud resources and configurations, including Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP).
- Zero Trust Network Access (ZTNA) providing secure, private access from users to specific apps, data resources, or cloud environments to replace legacy remote access VPN solutions.
- A single console and single architecture providing unified policy definition across SaaS, IaaS and web with cloud performance and scale, courtesy of the NewEdge global network infrastructure.

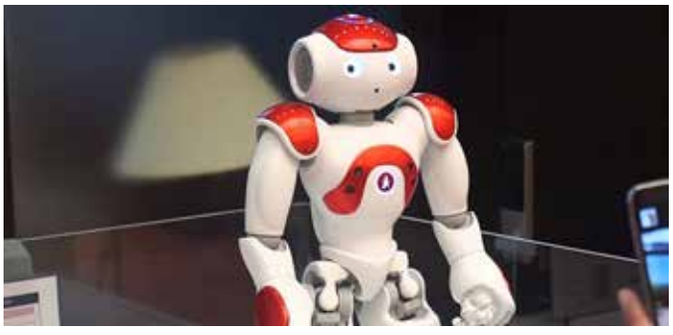
Galaxy helps you to build a SASE-ready architecture with Netskope Security Cloud and your existing security infrastructure. To talk to our experts, email us at marketing@goapl.com

Tech News

Lakshmi, country's first banking robot, makes debut in Chennai

CHENNAI: Endearing, interactive and superfast with data, India's first banking robot Lakshmi made her debut on Thursday in the city. Launched by the Kumbakonam based City Union Bank, the artificial intelligence powered robot will be the first on-site bank helper. Top private lender HDFC Bank, which is also experimenting with robots to answer customer queries, is testing its humanoid at its innovation lab. Lakshmi, which took more than six months to develop, can answer intelligently on more than 125 subjects. Want to know your account balance? Interest rates on home loans? Deferred payments or possible charges to be incurred on fixed deposit closure? Lakshmi can answer it all. "Apart from answering generic questions, we have also programmed it to connect to the core banking solution. If a customer wants to know his bank account details or transaction history, the robot can flash the answer on its display," said N Kamakodi, MD and CEO, City Union Bank.

Sensitive financial information like account details are displayed discreetly on the robot's screen and not voiced. "Lakshmi only talks out loud on generic subjects. If you visited our branch with your girlfriend, she won't embarrass you by showing your low account balance," joked its CEO. Lakshmi, who currently speaks in English, gestures, turns around and engages in a very life-like manner in conversations. Unlike most robots her speech is not formal, but more relaxed and casual. "Since its artificial intelligence, the robot is constantly learning from customers - the more interactions it has with customers the better it gets," said a bank executive. And what if a question stumps Lakshmi? "She then asks you to get in touch with the branch manager. But at the back-end, we will be collecting all the questions she was unable to answer and equip her with better data sets, so she can service customers.



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Delhi Metro deploys IoT extensively for smoother and faster completion of phase-IV

For its ongoing phase-IV project, the corporation is, for the first time, using "Internet of Things" (IOT) – a web of construction plants and machinery interconnected over the internet through devices like GPS, sensors, QR codes, data loggers, CCTV and drone cameras, etc. The Delhi Metro Rail Corporation is known for introducing the national capital, and even the rest of the country, to the best global practices when it comes to construction site management. For its ongoing phase-IV project, the corporation is, for the first time, using "Internet of Things" (IOT) – a web of construction plants and machinery interconnected over the internet through devices like GPS, sensors, QR codes, data loggers, CCTV and drone cameras, etc.

A DMRC official said apart from efficiency and on-time completion of construction work, an important aim of adopting IoT in the phase-IV project was the safety of not only workers and DMRC employees but also motorists who travelled near the construction sites. For instance, all cranes being used at phase-IV construction sites have "Data Loggers", which are compact, battery-powered devices with sensors, microprocessor and data storage. The data logger in cranes being used by DMRC also comes with an alert facility through SMS and web. "It gives an alert on any malfunctioning or tampering with its Automatic Safe Load Indicator and also sends out an SMS," the official said, adding that the data was recorded in its storage drive. Overloading beyond a crane's capacity can lead to major accidents and the alert through data loggers help avoid that.

The official said that both fixed CCTV cameras and Pan-Tilt-Zoom cameras, with at least one-week backup, were being used at all construction sites. "This helps in monitoring construction sites and also has a live view of all areas of work sites," he said. For the first time, DMRC is using QR codes on all its plant and machinery, apart from lifting tools and tackles, electrical distribution boxes, etc. "It facilitates quick access to all papers pertaining to plant and machinery like registration documents, PUC certificates, operator competency, etc.

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