

Network security concerns increasing with rise of IIoT

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It's tough to imagine life without the internet and the many devices and gadgets it supports and connects. Everything, from smartphones and computers to your refrigerators — will soon be connected by the Internet of Things (IIoT). Along with taking care of our mundane needs, the state-of-the-art IIoT solutions and products also cater to a plethora of industrial requirements. The myriad factors of IIoT can connect multiple devices — both legacy and modern systems — together, to derive business intelligence in real-time. According to IndustryArc Research, the Industrial IIoT (IIoT) market is expected to reach an impressive \$123.89 billion by 2021. As more and more companies across various domains are increasingly embracing IIoT and using it to their advantage, it poses serious security threats as well.

What if one of these ordinary, benign devices is hacked to access private and valuable information stored in another connected device? This scenario is not completely unlikely, as was the case in the 2016 massive Distributed Denial-of-Service (DDoS)

attack when large parts of the US and Europe experienced internet disruption. The attack was traced back to a large number of compromised and insecure smart home devices that were used to shut down several major websites.

Security threats: IIoT represents a classic paradox — as its popularity rises, so do the inherent risks. According to a study by leading research company, Gartner, there will be 6.4 billion connected things globally by the end of 2018 and this number is likely to reach 21 billion by 2020. But at the same time, it has sent alarm bells ringing among cybersecurity experts with inadequate security and privacy concerns posing as a threat to consumers. Around the globe, between 2011 and 2016, many homes went without water when multiple water supply plants were hacked. The hackers also succeeded in infiltrating the US power grid a whopping 17 times between 2013 and 2014. As IIoT is estimated to witness a phenomenal growth, one cannot deny the fact that it is a goldmine for cyberattackers. All the above-mentioned attacks point to a larger global problem and here's a look at some of the security threats posed by IIoT.



Unsecured industrial devices: As numerous companies are rapidly adapting IIoT products and solutions, machines and devices don't work in isolation. Increased digitisation and integration of more and more devices make the IIoT ecosystem vulnerable and susceptible to cyber risks. As these devices spawn huge volumes of data and sensitive information, a lack of a robust security architecture can result in serious operational and financial damage.

Data security: Data generated from myriad IIoT devices offers a goldmine of oppor-

tunities to businesses. The cloud provides an easily scalable model to store and analyse this data. However, this data is not entirely secure in transit and during storage. One way to secure it is to create multiple levels of encryption but that can slow systems down.

IIoT applications and devices are developed across different geographical zones and are not governed by any industry standards or regulations. Due to the competitive nature of the field, security is not always a high priority for developers or other decision makers. Businesses can't afford to be late to the market and pay little or no attention to security vulnerabilities that may get detected very close to the time of the product's launch. As a result, security is loosely bolted to the application or device, leaving wide loopholes.

Lack of updates: While computers and cell phone operating systems receive regular security updates, that is not usually the case with IIoT devices. Such a device may have been safe when you first bought it but could become compromised with hackers discovering new vulnerabilities. Companies may offer firmware upgrades, but that often stops when they focus on developing a new

product leaving you with outdated hardware that is potentially risky.

How to secure IIoT devices

Need we elaborate more the security concerns to IIoT devices which resemble sitting ducks to hackers? Little effort and a change in approach to the development process, can secure these devices for future use. Here's a look at a few steps to safeguard IIoT devices and their applications. Default passwords: Many devices have fallen prey to hackers in the past due to default passwords. The use of long, complex passwords is the first step to prevent any kind of hacking. Experts suggest that you use a variety of numbers, symbols and varying letter case in your passwords to keep your data and devices safe.

Automate testing process: Developers must place testing at the start of the development process and make security a high priority. By automating the testing process, they can prevent IIoT devices and applications from becoming a security risk.

Encrypted software and firmware: While inter-connectivity of IIoT devices offers many advantages, even one weak IIoT de-

vice can act as a rotten apple, leading to the leak of valuable data from other devices. Viruses are used to send out unencrypted information and hijack other devices connected to your network. By using encrypted software and hardware, you can prevent any such leaks of sensitive information from IIoT devices.

In order to nip security issues in the bud, there needs to be a radical change in the development process. Developers must check each device thoroughly for all possible lacunae at preliminary stages. Even as tech companies and governments across the world are waking up to the IIoT security threat, the first line of defence begins with you. Each user must take time to go over security features carefully and adhere to them. It's vital to remember that as consumers if you don't demand security, manufacturers will never prioritise it. As the web of the internet spreads wider, IIoT promises endless opportunities, but its inherent security risks must be recognised and addressed to promise a safer future for all concerned stakeholders.

(The writer is co-founder and CEO of Integration Wizards)

Jerusalem embassy: Trump won, but the cost?

Barely miles from the festivities, mass protests that erupted six weeks ago raged anew, more than 2,000 people were injured and the death toll climbed beyond 50.

Julie Hirschfeld Davis

President Donald Trump and senior members of his administration exulted Monday over the opening of the United States' new embassy in Jerusalem, dismissing as "unfortunate propaganda" the violence raging along the border with Gaza, where Israeli soldiers killed dozens of Palestinian protesters and wounded thousands more in bloody clashes as the celebrations unfolded.

For Trump, the opening of the embassy was an opportunity to keep a campaign promise, and was yet another example of his willingness to upend decades of conventional thinking on foreign policy and to do what other US presidents had not dared. But the split-screen image of the carnage nearby was a sobering reminder that what Trump is claiming as a foreign policy coup has only complicated the prospects for West Asia peace the president has said he is seeking.

The White House said the violence in Gaza would not hinder its efforts to seek an end to the conflict between the Israelis and the Palestinians, but the administration also made it abundantly clear Monday that Trump was siding with Israel.

"The responsibility for these tragic deaths rest squarely with Hamas," said Raj Shah, a White House deputy press secretary, who referred to Gaza as "southern Israel." "Hamas is intentionally and cynically provoking this response, and as the secretary of state said, Israel has the right to defend itself."

Asked whether the White House was urging restraint by the Israelis, Shah again blamed Hamas, a Sunni militant group. "This is a gruesome and unfortunate propaganda attempt," he said.

The violence threatened to overshadow an otherwise triumphant day for Trump, coming as Israel is celebrating the 70th anniversary of its Independence, an occasion marked by Palestinians as the "nakba," or "catastrophe," in which hundreds of thousands of them fled or were expelled from their homes.

"For many years, we failed to acknowledge the obvious, the plain reality that Israel's capital is Jerusalem," Trump said in a video message recorded for the embassy's opening ceremony. "We extend a hand in friendship to Israel, the Palestinians and to all of their neighbours. May there be peace."

Lawmakers in both parties praised the move, which pointed up a rare bit of common ground between the president and Sen Chuck Schumer, D-N Y, the Senate minority leader, who called it "long overdue" and applauded Trump for making it.

But barely 40 miles from the festivities in Jerusalem, mass protests that erupted six weeks ago raged anew, smoke rising into the air as more than 2,000 people were injured and the death toll climbed beyond 50.

The violence drew international rebukes. Turkey pulled its ambassadors from Israel



LOST KINGDOM OF HEAVEN: A Palestinian throws stones towards Israeli security forces during clashes after a protest marking the 70th anniversary of Nakba, also known as Day of the Catastrophe in 1948, and against the US' relocation of its embassy from Tel Aviv to Jerusalem. AFP

and Washington, and South Africa withdrew its envoys from Israel. France called on Israel to exercise restraint.

The Palestinians were enraged about Trump's decision in December to recognise Jerusalem as the capital of Israel, and have since refused to negotiate with his administration over potential terms for an end to the long-running conflict. They argue that in recognising Jerusalem and moving quickly to relocate the US Embassy there from Tel Aviv, the United States has shown itself to be an unreliable broker for peace and has forfeited its role as a credible mediator.

On Monday, Jared Kushner, Trump's son-in-law and senior adviser, whom he entrusted with ending West Asia conflict, argued that moving the embassy to Jerusalem was not an abandonment of the peace process, but a precursor to it. He made only glancing reference to the bloodshed.

"As we have seen from the protests of the last few months and even today, those provoking violence are part of the problem and not part of the solution," Kushner said. "When there is peace in this region, we will look back upon this day and remember that the journey to peace started with a strong America recognising the truth."

Kushner nodded to the challenges of forging

a peace agreement, saying that "it will not be an easy road, and it will be filled with difficult moments and tough decisions." But dismissed the problems neatly: "If we dream big, if we lead with courage, we can change the trajectory for millions from hopeless to boundless."

But many analysts now believe that Kushner's plan — drawn up with David M Friedman, Trump's envoy to Israel, and Jason D Greenblatt, his top international negotiator — has even less chance of advancing than it once did.

Aaron David Miller, a vice president at the Woodrow Wilson International Centre for Scholars who has advised Democratic and Republican presidents on West Asia, said that while he once viewed forging a peace deal in West Asia as "mission impossible," on Monday it became "mission impossible on steroids."

Jerusalem, the bellwether

"They've hyped up the anxiety, the frustration and the obsession with Jerusalem, ensuring that Jerusalem becomes the bellwether of whether this peace plan flies or not," Miller said of Trump and his advisers. "Instead of taking Jerusalem off the table, they have made Jerusalem the table."

Administration allies argued instead that moving the embassy and recognising Jeru-

salem as Israel's capital could have a positive effect on the prospects for peace, essentially forcing the Palestinians back to the negotiating table.

"The long-delayed, symbolic move addresses a historic injustice: Israel is the only country in the world not allowed to choose its own capital," Jim Phillips, a senior research fellow for Middle Eastern affairs at the conservative Heritage Foundation. He said the step "could have a positive impact in the long run if it shocks Palestinian and other Arab leaders into recognising that the longer they wait to genuinely accept Israel's existence and sign a peace treaty, the less they can expect to gain from such a treaty."

On Monday, such an agreement remained a long-off hypothetical. Shah said that the Trump plans for resolving the conflict would be released at an "appropriate time." For now, the administration's diplomatic focus is elsewhere, preparing for historic denuclearisation talks between Trump and Kim Jong Un, the leader of North Korea.

"What today is about is following through on what the president promised and believes," Shah said. "We've, for decades, walked on eggshells, pretending that Jerusalem isn't the capital of Israel, when it obviously is." **International New York Times**

Funding your new enterprise

Narendra Shyamsukha

Today's generation is being universally felicitated for its ambitious, go-getter attitude and its courage at not letting financial constraints stand in the way of career goals. New enterprises and entrepreneurs are a vital sign of an economy's health. There are many ways to get your plans across to investors, but you would still have to convince potential investors of the viability of your plans.

One of the most obvious methods to start a new business is by paying out of your own pocket, otherwise called Bootstrapping. It may require you to save money over time or use funds earmarked for a contingency.

In case your start-up needs large capital funding, associating with a partner who has deep pockets is a safe alternative. By one estimate, 28% of all globally renowned business entities had co-founders precisely for this reason. However, the commercial goal of your partner should be same as yours. If you have friends or family that have the means to collectively fund your enterprise, go for it.

Informal funding sources: The most democratic method to raise money is a way called crowd-funding. As an entrepreneur, you can pitch and put up detailed business plans and the amount of fund necessary on the crowd-funding platform. Users of the platform can read this information and if it strikes a chord with them, they pledge money or pay any amount as a donation. Note that, because crowd-funding is a highly competitive arena, you are unlikely to garner finances if somebody else has a better idea.

Venture capitalists are organisations that have corpuses of pooled funds from a number of members or the public. They scout for promising start-ups with high growth potential. They buy equity in your firm in exchange for funds. The advantage of a VC is that they also provide mentorship and expertise while periodically evaluating the business for sustainability and scalability.

Another variety of financiers are Angel Investors, who may be individuals or groups with surplus cash. They may be successful businessmen with an interest in supporting upcoming start-ups.

If you live and operate in a major city in India, your search for funding is likely to lead you to platforms called incubators or accelerators. Incubators al-

low start-ups access to space, training and value chain networking in a bid to help them develop. Accelerators simply do the same thing on a larger scale and often help existing businesses reach maturity faster.

Angel network

For instance, the Jain International Trade Organisation (JITO) is a body of successful Jain businessmen, knowledge workers and professionals covering various fields across the globe. It organises a programme called "Investor Pitch Day" in various metropolises in India, where JITO's angel network hears pitches and presentations from potential candidates, while others participate simply to learn from the experience.

The ventures that attempted to seek funds included Clinivantage, a healthcare initiative that partners major hospitals and laboratories along with the government to enable last mile access to remote and impoverished communities, Stylenook, which makes and delivers clothing articles as designed by end consumers and Satva Ras, which manufactures and markets completely natural, fresh cold-pressed juice. Altogether, JITO has received \$3 million worth of proposals of which \$1 million have so far been executed.

Formal sector funding: The options discussed above are relatively new age and easier to access. However, banks and microfinance institutions have traditionally been there to help with either working capital or initial funding. While the former lets you complete one revenue-generating cycle without any hitches, the latter requires them to assess your business plans, assets and competencies quantitatively before a loan is sanctioned. There is still room for qualitative evaluation and the process may not be altogether objective.

Apart from banks, the other authoritative option to meet funding requirements is the Pradhan Mantri Micro Unit Development and Refinancing Agency Limited (Mudra). This public fund is disbursed to entities in the microenterprise sector. You must submit your detailed business plan and if that gets approval, you will be sanctioned a loan. You will obtain a Mudra card, which functions like a credit card with which you can purchase raw materials and meet other operating expenses.

(The writer is founder, Chairman, ICA Edu Skills)

WHAT'S THE BUZZ

Yogurt may help chronic inflammation

Eating yogurt may help reduce chronic inflammation, a factor in bowel disease, arthritis and asthma, according to a study.



The research explored the hypothesis that yogurt may help reduce inflammation by improving the integrity of the intestinal lining. This could help prevent endotoxins — pro-inflammatory molecules produced by gut microbes — from crossing into the blood stream. "I wanted to look at the mechanism more closely and look specifically at yogurt," said

Brad Bolling, an assistant professor at the University of Wisconsin-Madison in the US.

While anti-inflammatory medications like aspirin, naproxen, hydrocortisone and prednisone can help mitigate the effects of chronic inflammation, each comes with its own risks and side effects.

The study enrolled 120 premenopausal women, half obese and half non-obese. Half of the participants were assigned to eat 12 ounces of low-fat yogurt every day for nine weeks; a control group ate non-dairy pudding for nine weeks. Bolling and his team took fasting blood samples from participants and evaluated an assortment of biomarkers that scientists have used over the years to measure endotoxin exposure and inflammation. The results showed that while some of the biomarkers remained steady over time, the yogurt-eaters experi-

enced significant improvements in certain key markers, such as TNF, an important inflammation-activating protein.

Pig virus can pose threat to humans, says study

A potentially fatal viral infection that affects pigs can readily find its way into human cells, say scientists, raising concerns about the potential for outbreaks that threaten our health.

Researchers at Ohio State University and Utrecht University collaborated to better understand the new virus and its potential reach.

The study is the first to point to the possible transmission of this virus between species. Porcine deltacoronavirus was first identified in 2012 in pigs in China, but it was not associ-

ated with disease. It was first detected in the US in 2014 during a diarrhea outbreak in Ohio pigs and has since been detected in various countries. Young, infected pigs experience acute diarrhea and vomiting. The disease can be fatal. As of yet, no human cases have been documented, but scientists are concerned about the possibility.

Exergaming may keep Alzheimer's at bay

Exergaming — playing interactive video games that require physical exercise — can improve complex thinking and memory skills help people at risk of Alzheimer's disease, scientists say.

Older adults with often a precursor to Alzheimer's, showed significant improvement

with certain complex thinking and memory skills after exergaming, according to a new study. "Exergaming is one more thing that could be added to the arsenal of tools to fight back against this cruel disease," said Cay Anderson-Hanley from Union College.

Researchers wanted to target older adults diagnosed with or at risk for MCI. MCI is most common in people over age 55.

Researchers enrolled more than 100 seniors for the study. The results were compared against data collected from a separate group of eight seniors who played video games on a laptop but did not pedal, and also a group from the previous research who only rode a traditional stationary bike with no gaming component.

