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SAVING IOT

The proliferation of IoT devices has made homes and businesses
more vulnerable to cyberattacks. Stockholm-based RIoT Secure has
developed a solution with the ability to eliminate all threats

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IOT BREAKTHROUGH:

RIOT SECURE'S GAME-CHANGER

RIoT Secure's ground-breaking approach to IoT security solutions has led to its inclusion in Business Worldwide Magazine's annual Global Corporate Excellence Awards". Here we discuss how the company is pioneering a safer, more connected future for IoT.

Founded in 2017 by entrepreneurs Aaron Ardiri and Bjorn de Jounge, RIoT Secure offers a unique lifecycle management platform that ensures security technology exists in the foundations of IoT software development and is available on all IoT devices.

Navigating the challenges of a connected world

The IoT landscape holds huge potential for future innovation, but in a world where our surroundings are not just interconnected but also intelligent, the proliferation of smart devices also raises significant concerns about privacy and security.

Today, virtually any device with an internet connection has the potential to be an easy entry point for cybercriminals. In 2022 there were over 7 billion IoT devices in use worldwide, and according to Statista, that number is expected to reach over 29 billion IoT devices by 2030. According to a report by Cisco, it's estimated that there are now three times more networked devices on the planet than there are humans. As the world continues to become even more reliant on electronic devices, they also present a huge risk. Billionaire businessman and philanthropist Warren Buffet calls cybercrime the number one problem with mankind, and says cyberattacks present a bigger threat to humanity than nuclear weapons.

Hackers lurking in the shadows

A huge part of IoT security issues stems from shadow IoT devices. The IoT landscape has faced a series of significant security breaches over the years, underscoring the escalating need for robust cybersecurity solutions. The Stuxnet attack in 2010 demonstrated vulnerabilities in PLCs, which was a wake-up call about the potential for cyber warfare. Subsequent incidents, such as the Foscam camera breaches in 2013 and the Jeep infotainment system hack in 2015, highlighted the risks to consumer privacy and safety. The Mirai botnet in 2016 took advantage of insecure IoT devices, causing widespread internet outages. By 2019, the stakes rose with life-critical devices being targeted, exemplified by the St. Jude pacemaker BLE exploit, and the

approach, which RIoT Secure refers to as the "Internet of Disconnected Things", employs a separation of concerns concept allowing developers to focus on their different IoT applications, regardless of their chosen runtime environment or programming language. RIoT Secure takes care of communication, security and the lifecycle of the actual IoT device itself, drastically reducing the development effort to bring a product from concept to production

Until now, programming qualifications have been focused on higher level languages like Java, JavaScript, and Python, but the rise of IoT means that universities must now recognise the role that lower level languages like C and Assembler play in cybersecurity. The RIoT Secure platform addresses this problem head on, with a dedicated microcontroller for communication and security, offering unprecedented levels of security and customisation that virtually eliminates outside threats.

With one microcontroller specifically for security, developers no longer need to think about bringing in complex security features. This new solution is so flexible that they can use their own preferred programming languages and runtime environments, creating IoT applications that are functional, reliable and safe.

RIoT Secure has notably enhanced Scandinavian Airlines' Ground Service Handling operations, deploying a security solution that not only elevates operational efficiency but also fortifies safety and adaptability. This deployment successfully demonstrates RIoT Secure's ability to respond to the dynamic and security-sensitive aviation environment, ensuring constant, seamless device updates and maintaining the highest standards of safety and operational integrity.

What is a microcontroller?

A microcontroller is like a "brain" that does all the thinking for connected devices, it is a compact integrated circuit designed to perform a specific operation in an embedded system. Often likened to a miniaturised computer, it contains a process core, memory and programmable input/output peripherals. Microcontrollers are used in automatically controlled devices and products, such as automobile engine control systems, implantable medical devices, remote controls, office

Devil's Ivy exploit affecting a multitude of IP cameras. The persistence of these security issues was further evidenced by the Log4Shell remote execution exploit in 2021, impacting a vast array of IoT devices and services. Each of these milestones serves as a stark reminder of the evolving nature of threats and the importance of staying ahead in cybersecurity measures.

Ransomware attacks have also become particularly prevalent, with dedicated threats known as Ransomware for IoT (R4IoT). This new form of malware targets weak IoT devices to gain initial access, and then installs ransomware without

in the IT network to disrupt business operations.

It's clear that safeguarding against cyber threats has become more important than ever. Striking the balance between connectivity and security is a continuous challenge that demands robust protocols and vigilant cybersecurity measures.

The RIoT Secure solution

RIoT Secure has stepped up to the challenge by developing a comprehensive lifecycle management platform that offers an easy, developer-centric security solution which can be effortlessly embedded into any IoT device. This game-changing

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IoT devices have transitioned from simple, 'dumb' nodes that simply relay sensor data to the cloud for analysis, to powerful, 'smart' devices capable of advanced edge computing with machine learning. This evolution has empowered them with greater processing power to analyse data and make intelligent decisions locally using artificial intelligence. This shift of complexity to the edge magnifies the importance of robust lifecycle management, as the need for regular firmware updates becomes critical to maintain functionality, security, and performance in an ever-evolving technological landscape.

As well as cost and energy efficiency, low-powered micro-controllers can be tailored for specific applications, using just the right amount of processing power and functionality and allowing IoT devices to be more focused and efficient.

Ultimate protection against hackers

The RIoT Secure platform offers an ultimate level of protection against hackers and data snooping by providing hardware abstraction where the customer's device is effectively isolated from the outside world. All firmware and data is optimised to minimise network traffic, while being fully encrypted using industry standards, complete with integrity checks ensuring the security of IoT devices at all times.

RIoT Secure has won two accolades in the 2023 awards - "Best IoT Lifecycle Management Platform" and "Most Innovative IoT Security Solution of the Year" for its groundbreaking approach to IoT device protection. Recognized for pioneering a flexible, robust security solution tailored to needs of resource-constrained IoT devices, the company has set new industry benchmarks and the accolade underscores its leadership in adapting cybersecurity to the evolving IoT landscape. The award celebrates its success in integrating advanced lifecycle management, enhancing device autonomy, and ensuring that IoT devices can securely manage data and execute AI-driven decisions at the edge.

machines, appliances, power tools, toys, and other embedded systems. They offer a cost-effective means to add intelligence and functionality to various products and processes, handling tasks like sensor reading, motor actuation, or communication.

A key feature of RIoT Secure's platform is the hardware sandbox, where the customer develops its solution on a dedicated microcontroller. By isolating the application microcontroller from all types of potential threats, such as malware or unauthorised access, the hardware sandbox ensures the integrity of IoT devices,

preserving the confidentiality, integrity, and availability of critical data.

A Win/Win solution for the evolving IoT ecosystem

Another key benefit of micro-controllers is that because they are designed for specific use cases, their development requires fewer resources — often meaning a lower price point that can be passed onto customers. Their smaller size is another plus point, allowing device manufacturers to make discreet, sleek and more energy efficient devices.

To find out more and view all case studies and recent press, visit https://www.riotsecure.se/press/

Revolutionize IoT Security with RIoT Secure's Advanced Lifecycle Management Platform

In an era where the Internet of Things (IoT) is rapidly expanding, RIoT Secure emerges as a beacon of safety, offering cutting-edge security solutions tailored for the IoT ecosystem. Understanding the critical need for robust security in IoT, RIoT Secure specializes in addressing the unique challenges faced by developers in this dynamic field.
RIoT Secures innovative lifecycle management platform, revolutionizes how IoT devices communicate and are secured. By incorporating a dedicated microcontroller for communication and security, it provides a hardware sandbox, ensuring that an application-focused microcontrollers can operate efficiently and securely, even in resource-constrained environments. This award winning and pioneering approach allows developers to focus and concentrate on creating groundbreaking IoT applications, with freedom from the burdens of requiring complex communication and security development effort.

RIoT Secure's platform isn't just about robust security; it's a gateway to enhanced performance and ease of use. It offers a multitude of advantages, including separation of concerns, hardware isolation, simplified security management, scalability, and compatibility with low-powered microcontrollers. These benefits not only bolster the security of IoT devices but also streamline development processes, paving the way for faster product launches. With extensive support for a wide range of microcontrollers, RIoT Secure ensures your IoT projects are not just secure, but also versatile and future-proof.

Join the IoT revolution with award winning RIoT Secure

where innovation meets security, ensuring your IoT devices stay reliable and secure in an ever-evolving digital landscape.

Best IoT Lifecycle Management Platform

Most Innovative Security Solution of the Year

Emerging Company of The Year Enterprise Market

for more information visit our website: **www.riotsecure.se**