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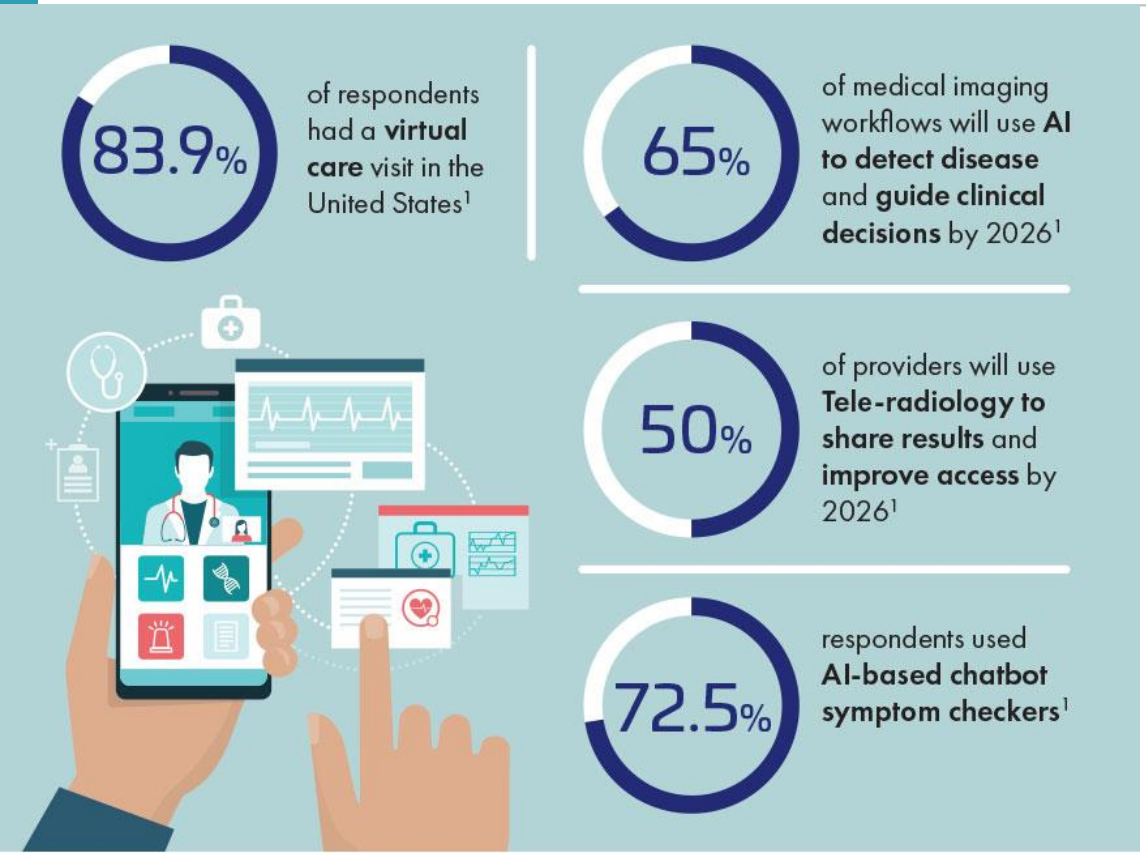
Building a future we can all trust

Protecting healthcare and life-sciences data from a cyber-attack pandemic

eBook

Digital solutions enable expansion of patient-centric care and medical development



The healthcare and life sciences industries have been eagerly adopting new transformative technologies. Once slow to adopt, healthcare-related industries have, even before the pandemic, been rapidly embracing digitalization to enable patient-centric care that is more effective for patients and safer for patients, healthcare professionals and researchers.

The Covid-19 pandemic has put this trend on overdrive, driving the adoption of connected health technologies that make a wide range of virtual care services possible.

For example, IDC found 83.9% of 1,500 US survey respondents, who had a care visit during the initial pandemic wave. had a virtual visit for the first time. And 72.5% used AI-based chatbot symptom checkers. [1]

Looking to the future, IDC predicts that by 2026, "65% of medical imaging workflows will use AI to detect underlying disease and guide clinical intervention, while 50% will use teleradiology to share studies and improve access to radiologists." [1]

1: IDC, FutureScape: Worldwide Health Industry 2021 Predictions (https://www.idc.com/getdoc.jsp?containerId=US45834920)

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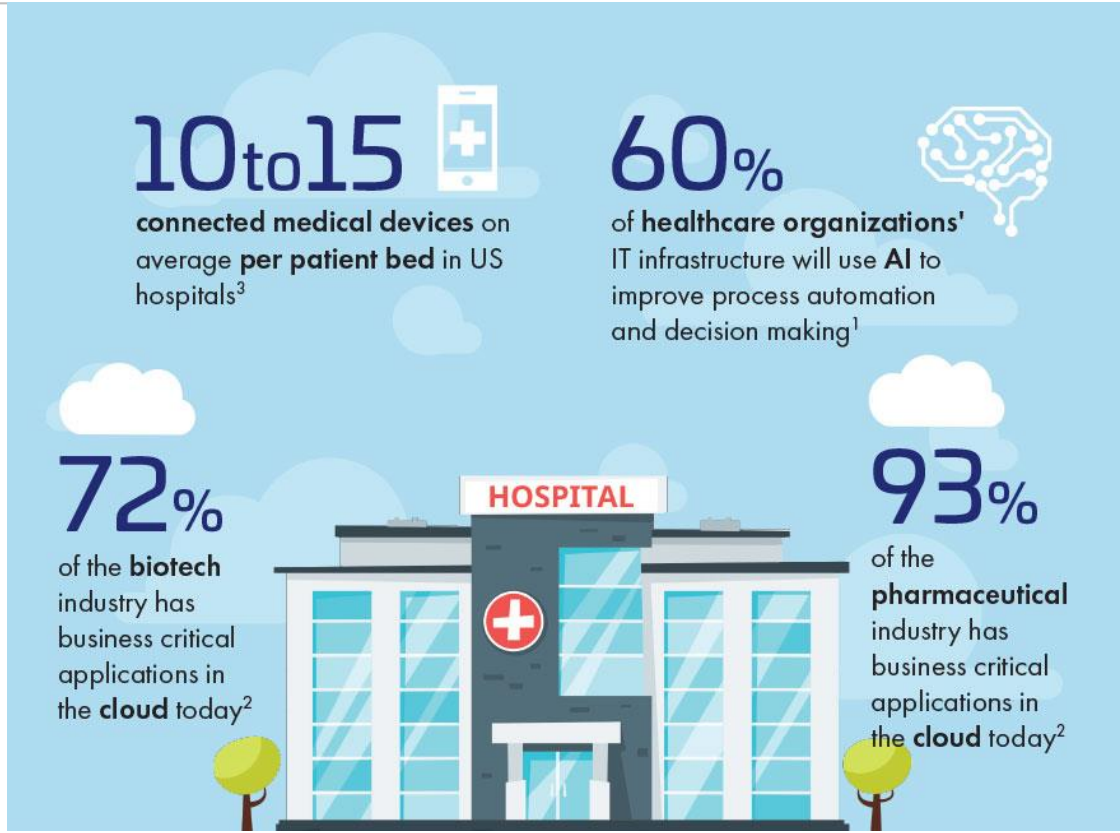
Driving adoption of a digital infrastructure

The healthcare and life science industries embrace of digitalization has been all encompassing. According to IDC, 93% of pharmaceutical companies and 72% of biotech companies already have business-critical applications in the cloud, including product lifecycle management, analytics, revenue management, and much more.

At the other end of the spectrum, the proliferation of connected medical devices and the internet of medical things (IoMT) have dramatically accelerated. Today there are 10 to 15 million medical devices in U.S. hospitals with an impressive average of 10 to 15 connected medical devices per patient bed.[3]

When combined, the ability to collect data in real time together with the massive processing power of the cloud provide the opportunity for dramatically improved decision making. IDC predicts that by 2024, "the proliferation of data will result in 60% of healthcare organizations' IT infrastructure being built on a data platform that will use AI to improve process automation and decision making.



1: IDC, FutureScape: Worldwide Health Industry 2021 Predictions (https://www.idc.com/getdoc.jsp?containerId=US45834920)
2: IDC, Life Science Market Trends for 2021 (https://www.idc.com/getdoc.jsp?containerId=US46583321)
3: Fierce Healthcare: 82% of healthcare organizations have experienced an IoT-focused cyberattack, survey finds (https://www.fiercehealthcare.com/tech/82-healthcare-organizations-have-experienced-iot-focused-cyber-attack-survey-finds)

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But making a cyber-attack pandemic an even bigger challenge

17.3 million

people were affected by **cyberattacks** on US healthcare facilities in 2020[4]

436

data breaches on healthcare facilities in the US alone in 2020[4]

$21 Billion

was the estimated **cost** of **ransomware attacks** in the healthcare industry in the US in 2020[5]

82%

of **healthcare** organizations have experienced an **IoT-focused cyberattack**[3]

While the digitalization of the healthcare and life sciences industry has led to better patient care, it has also made these industries potentially more vulnerable to attacks by cybercriminals.

According to US Health and Human Services breach portal, 17.3 million people were affected by cyberattacks on 436 US healthcare facilities in 2020[4].

2020 was also the year when "ransomware" became a household name around the world, especially by the frequent attacks on healthcare facilities and the dire effects on critical care. The HIPAA Journal estimated the cost of US healthcare ransomware attacks alone at $21 billion in 2020.[5]

But the threat is a lot bigger. A survey of 230 healthcare security leaders in China, Germany, Japan, the UK, and the US found that a whopping 82% of their healthcare organizations had experienced an IoT-focused cyberattack.[3]

3: Fierce Healthcare: 82% of healthcare organizations have experienced an IoT-focused cyberattack, survey finds (https://www.fiercehealthcare.com/tech/82-healthcare-organizations-have-experienced-iot-focused-cyber-attack-survey-finds)
4: US Department of Health and Human Services (HHS) (https://ocrportal.hhs.gov/ocr/breach/breach_report.jsf;jsessionid=1736E73C98EAA4AD21BE71FC1336B05D)
5: Hipaa Journal: Cost of 2020 US Healthcare Ransomware Attacks Estimated at $21 Billion (https://www.hipaajournal.com/cost-2020-us-healthcare-ransomware-attacks-21bn/)

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Stricter regulations and growth of sensitive data add compliance risk

Digitalization, including the internet of medical things (IoMT), has forced healthcare and life sciences organizations to capture ever-increasing amounts of sensitive patient data to make healthcare easier and better.

But privacy regulations, such as HIPAA, GDPR, CCPA, and global standards such as ISO 27799:2016 on health informatics, raise the bar for healthcare and life sciences organizations, obligating the protection of sensitive personal data and levying substantial fines for not doing so.

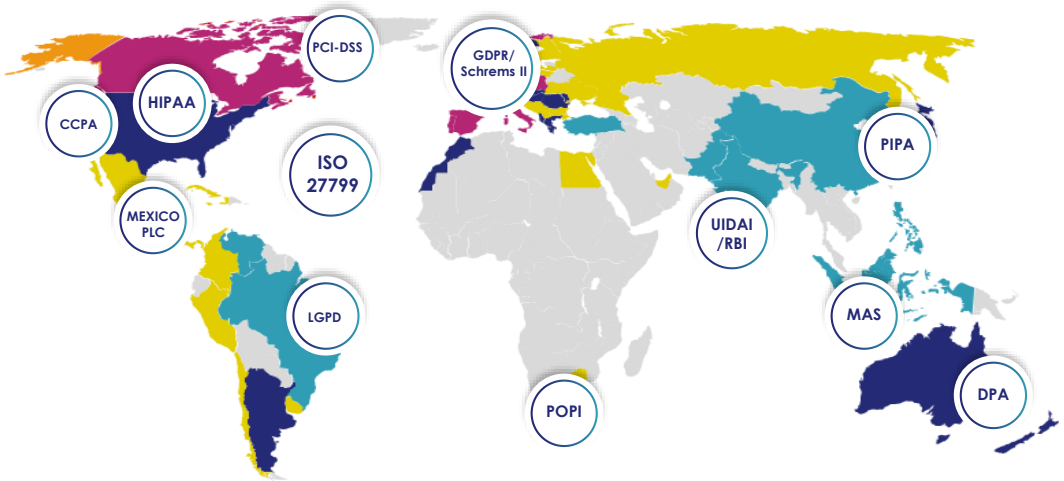
Healthcare and life sciences organizations find themselves in a difficult situation.

The world of telemedicine, home health care, the IoMT, virtual clinical trials, and more have converged with SaaS, IaaS, PaaS, the cloud, big data, and AI to create advances for patients and health care and life sciences organizations alike.

But this convergence has created major privacy and data protection vulnerabilities and place healthcare and life sciences organizations at risk.

Exponential growth of sensitive data

Expanding number of data privacy regulations



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How Thales Cloud Protection and Licensing can help

Thales enables healthcare and life-sciences organizations to accelerate digital transformation by reducing risk, complexity, and cost.

Accelerate digital transformation

Adopt innovations such as **cloud, big data, AI, and IoMT** faster with a framework for a zero-trust world

Scale security across enterprise hybrid IT

Automate and streamline data and **identity protection** with **scalable** solutions for multiple use cases

Reduce risk and complexity

Simplify privacy compliance with centralized data governance and de-identified sensitive data

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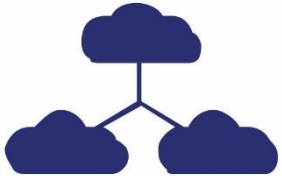
Accelerate digital transformation

Digital Records and Signatures



Multi-cloud

Internet of Medical Things (IoMT)

Artificial intelligence

Big Data

Adopt innovations such as digital signatures, multi-cloud environments, Internet of Medical Things (IoMT), AI, and big data **faster with a framework for a zero-trust world**

Secure digital identities, applications, IoMT devices and cryptographic keys with a **certified root of trust**

Protect data in multi-cloud environments with **BYOK, HYOK, BYOE, centralized key management**

Adopt a **zero-trust** posture for all environments with **MFA**, intelligent **SSO**, and **centralized access control**

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Accelerated medical research in APAC

Centralized control over medical research data across multiple environments

Challenge

Research organization needed to make high volumes of **sensitive medical research** data securely available for scientists in **multiple remote locations**.

But **lack of visibility** over data security across multiple environments **created vulnerabilities.**

Needed **to replace several open source encryption** solutions, which were complex to manage and had **no security accreditation** or roadmap for platform support.

Solution

Replaced existing solutions with **CipherTrust Manager** to securely manage encryption keys in various environments.

Manages the full lifecycle of all encryption keys, including secure key generation, backup/restore, clustering, deactivation, and deletion.

Separates encryption keys from their sensitive data stored in various VM clusters and database servers.

Results

Accelerated medical research by enabling **secure collaboration** of research data across multiple locations and teams of researchers.

Dramatically **improved compliance** with health and privacy legislations.

Protected intellectual property and years of R&D investment.

Ensured scalability of data security governance into **new cloud** and physical environments being added to further facilitate R&D.

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Accelerate secure cloud migration in EMEA

Zero trust access control and authentication for cloud services

Challenge

Thousands of health care professionals working remotely needed access to sensitive patient records.

Required **secure access through a variety of endpoints** including personal tablets, laptops, and smart and legacy cell phones.

Also required secure access to **sensitive data** in applications such as **Office 365 and Citrix.**

Solution

SafeNet Trusted Access was integrated to provide secure multi-factor authentication access to **Microsoft Azure AD** and **Citrix Digital** workspace.

Employees were able to use the **authentication method** that **best suited their environment**.

Smart phones use **OTP push** solution; legacy mobile phones use **SMS OTP;** and others use SafeNet **OTP 110 hardware tokens.**

Results

Accelerated secure migration to the cloud with integration of Safenet Trusted Access **done in hours**.

Achieved **significant savings** on on-premises i**nfrastructure, maintenance, patching,** and **support** with cloud-based solution.

Fully automated token management and reporting features ensure better **productivity and low maintenance.**

Flexible policy and federation capabilities allow **scalability** to additional cloud for new applications within minutes.

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Scale security across enterprise Hybrid IT

SaaS, PaaS, IaaS services

On-premises legacy systems

File repositories and databases

External party collaboration

Remote medical devices

Automate and streamline data and **identity protection** with **scalable** solutions for **multiple use cases**

Centralize key management for **third-party** security solutions across **cloud, hybrid** and o**n-premises** environments

Minimize the threat of data breach by **de-identifying** all sensitive data in **all new environments and legacy platforms,** including **partners and suppliers**

Centralize access management with **single sign on** to all **IaaS, PaaS, SaaS,** and **on-premises** platforms.

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Protection of sensitive data across hundreds of pharmacies in North America

Protection of sensitive data across legacy systems and new platforms

Challenge

Pharmacy chain had to **protect sensitive data** flowing between **hundreds of locations and its headquarters**.

Data included **patient records, financial information and intellectual property**, each falling under different compliance requirements.

Constant release of new IT capabilities required that the solution be **extremely flexible and scalable**.

Solution

Deployed Ciphertrust Transparent Encryption to protect sensitive data at rest multiple locations.

Centralized key management granular controls allowed the precise definition of which users are permitted access to which assets in the network.

Enabled the seamless protection of a **dynamic infrastructure** with **legacy systems** and constantly changing **new platforms.**

Results

Achieved comprehensive data security coverage across multiple locations and systems.

Enabled continued compliance with multiple healthcare, financial, and other regulations.

Had **no noticeable performance impact** on the systems achieving **low financial and operational overhead**.

Ensured future scalability and growth by enabling easy addition of security to new platforms and data stores.

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Protection of Covid-19 test records in APAC

Re-purpose highly secure payments infrastructure to protect health records

Challenge

Thousands of ad-hoc Covid 19 testing locations in Australia had to report high volumes of testing data quickly and securely to central locations.

Lack of connectivity hindered quick record processing and **protecting patient privacy**.

There was an **immediate need for an automated**, highly secure digital solution to support **millions of tests.**

Solution

Thales partners effectively **repurposed a secure payments infrastructure** to capture and process securely high volumes of testing data.

All **sensitive data was encrypted** with FIPS 140-2 level 3 Thales **payShield Hardware Security Modules**.

Results

Fast processing of millions of tests while protecting sensitive data privacy achieving:

- Currently processing **1,000,000 tests monthly**
- **20% reduction** in processing a patient in the field
- **74% reduction** in laboratory capture and processing time
- **ZERO errors** in patient data collection

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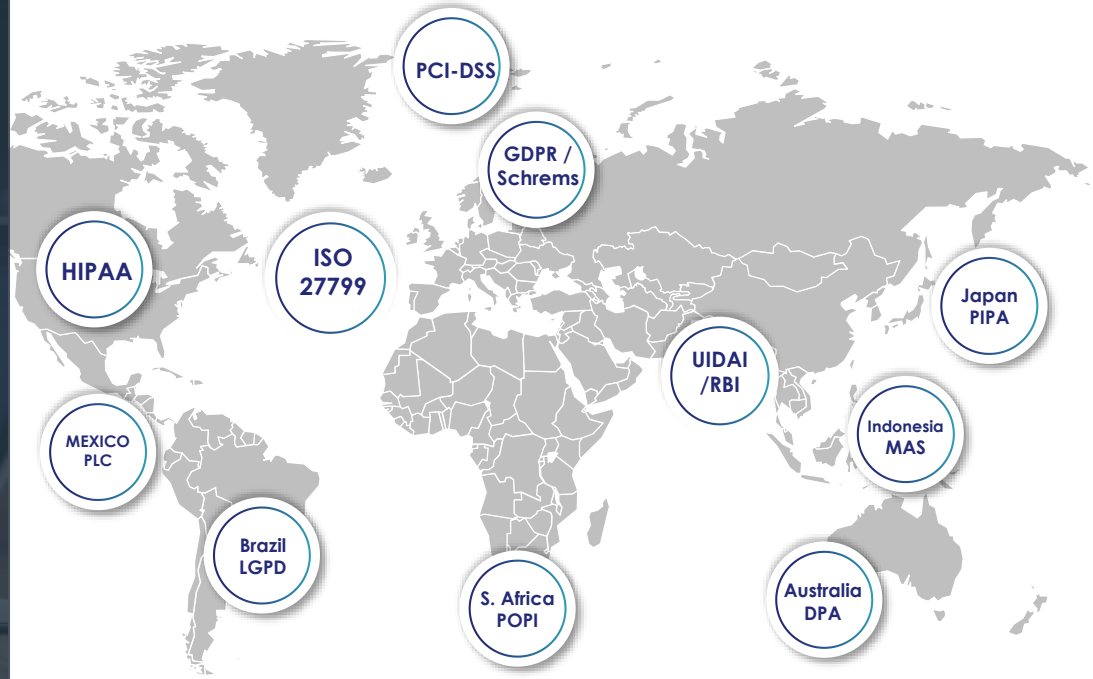
Reduce risk and complexity

Simplify compliance with centralized data and **identity security governance**

Discover and classify data across **hybrid IT** according to sensitivity to **specific** legislation requirements.

Automate data **protection** with **centralized** policy-based enforcement from a single pane of glass.

Apply data **privacy** and **sovereignty** rules through granular **data and access security** controls.



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Accelerate HIPAA and ISO compliance for Fortune 10 Hybrid IT infrastructure

Automate data security for PHI and PII across complex Hybrid IT infrastructure

Challenge

A Fortune 10 organization focused on the development and delivery of drugs and healthcare products wanted to **protect sensitive data** across its **sprawling hybrid IT systems**.

Required a fully automated, enterprise-grade solution that could enforce security policies on a wide variety of **cloud**-based and **on-premises** platforms.

Desired a solution that would **not decrease performance** or **availability** of IT systems.

Solution

Ciphertrust Data Security Platform to centralize the key management of applications such as **Oracle, Microsoft SQL, Nutanix, and Rubrik,** among others.

Simplified data protection by centrally managing **encryption keys** and **configuring security policies** and implementing **granular access controls**.

Protected all sensitive encryption keys in **FIPS 140-2 Level 3** tamper-proof **Luna HSMs**.

Results

Improved HIPAA compliance posture and helped maintain **ISO 27001** and **ISO 9001** certifications with automated and **centralized data security governance**.

Straight-forward implementation of a highly capable solution by highly skilled account advisory team.

High availability and performance of solutions helped **improve resiliency** of the entire hybrid IT infrastructure.

"We were impressed by Thales's depth of **technical talent**, the **reliability** of the solution, and the **ease of implementation.**"

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Improved clinical collaboration and HIPAA compliance

nucleushealth™

Protection of medical images in cloud-based platform for global access

Challenge

NucleusHealth advances care through **cloud-based medical image management**, allowing global access to images by health providers.

Required a fully automated, enterprise-grade solution that could handle enormous amounts of data and protect from **zero day exploits**, **internal** and **external** intrusions, and **unauthorized access**.

Desired a **central console** to define and audit security policies across Hybrid IT for **HIPAA compliance**.

Solution

Ciphertrust Transparent Encryption with centralized key management enabled the protection of data across multiple systems, including **Mongo DB** and **Microsoft Azure**.

Automated data security policy-setting, reporting, and regulatory **compliance auditing**.

Provided a **complete separation of administrative roles** with role-based access control, allowing only authorized users access to patient data.

Results

Dramatically **improved HIPAA compliance** posture with automated and centralized data security governance.

Provided **scalability** to support **cloud-based** platforms and protect **petabytes** of data without impacting service level agreements (SLAs).

Enabled a sophisticated **cloud-based dev-ops** environment with automated reporting, **policy**-setting, and **audit** traceability while keeping data protected even from root-level access.

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About Thales

The people you rely on to protect your privacy rely on Thales to protect their data. When it comes to data security, organizations are faced with an increasing number of decisive moments. Whether the moment is building an encryption strategy, moving to the cloud, or meeting compliance mandates, you can rely on Thales to secure your digital transformation.

Decisive technology for decisive moments.

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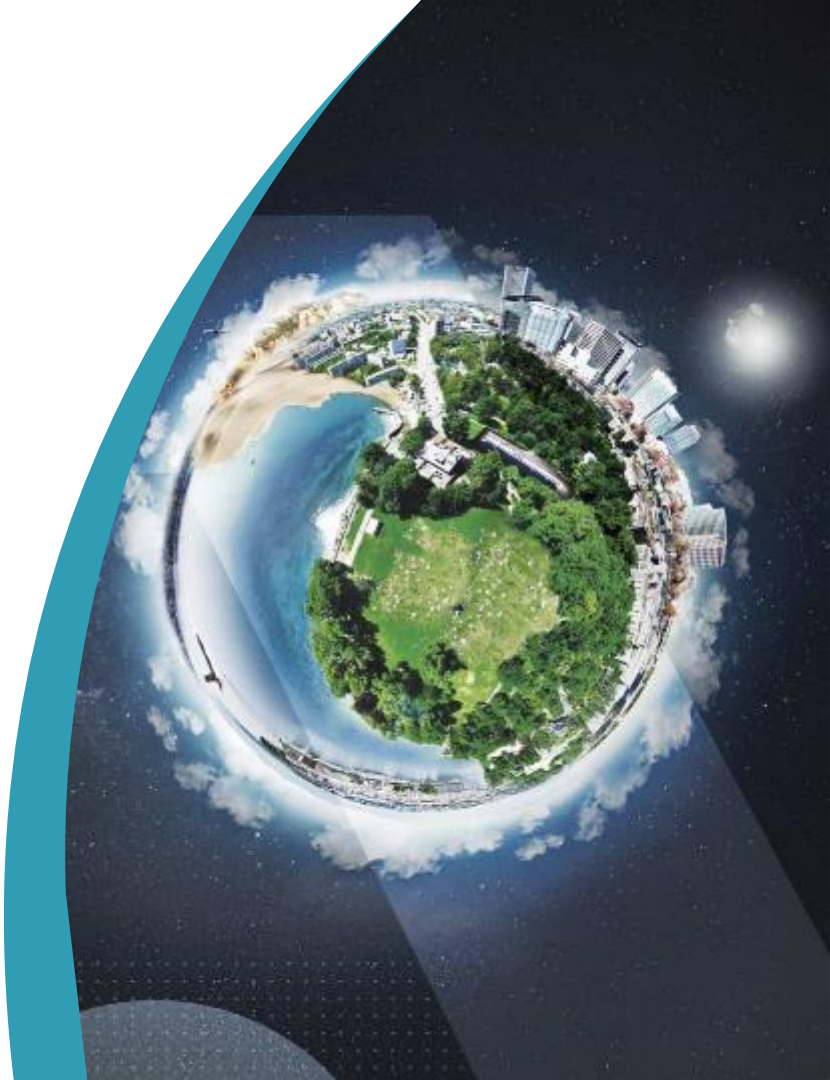
Thank you!



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