

Over the Next Horizon

Payment Security Trends in 2024, 2025, and Beyond

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Introduction

Why spend time looking to the future?

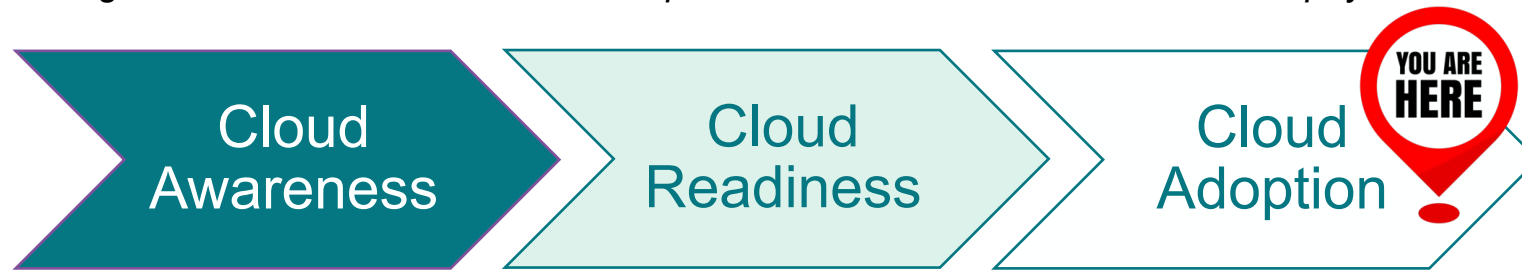
- Payment security is an incredibly fast-moving field; preparation helps prevent “security whiplash”
- Security is no longer solely a cost center for many organizations, it can drive customer-centric innovation
- For PCI community members, familiarity with future trends will help you better advocate for you, your customers, and your partners
- It’s fun!



Payment Security: The Here and Now

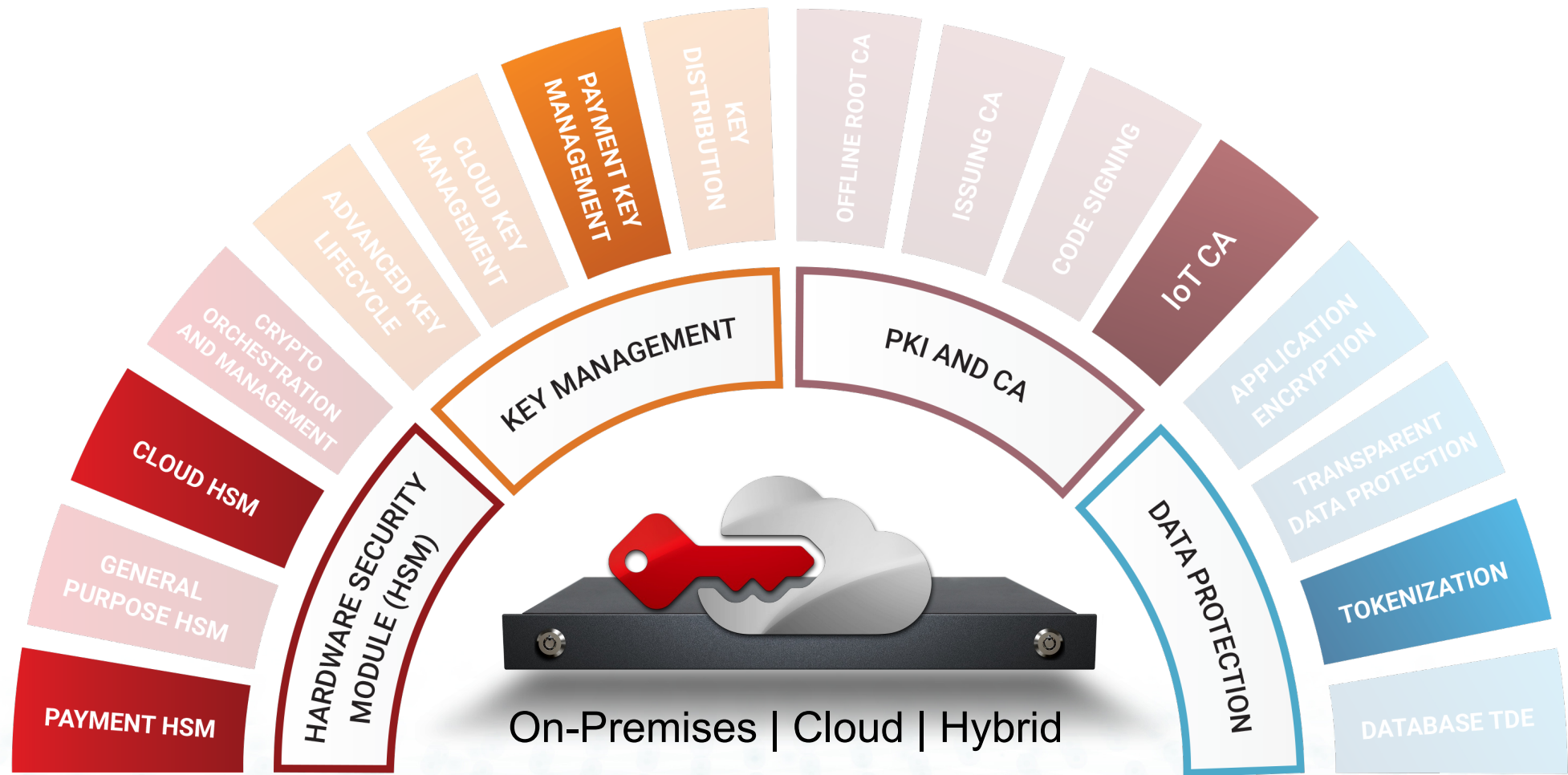
What have we seen so far in 2024?

- Widespread cloud adoption for payment applications and payment hardware security modules
 - Source: [pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/payments-in-2025.html](https://www.pwc.com/gx/en/industries/financial-services/publications/financial-services-in-2025/payments-in-2025.html)

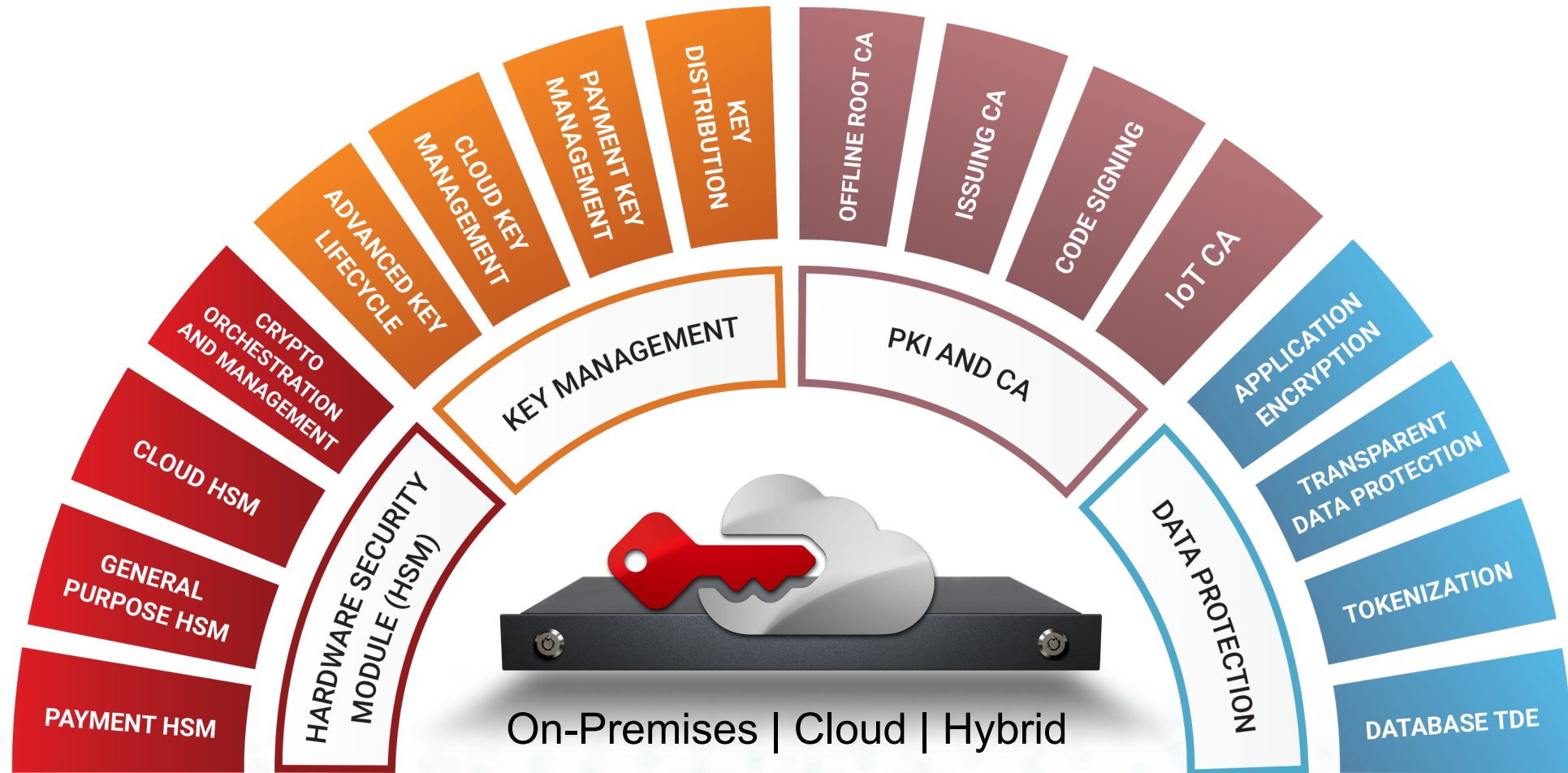


- Alignment of consumer-centric technology and security enhancements
 - Mobile payments, contactless/Tap-to-Pay, biometrics
- Legacy security challenges are less significant – (e.g., will card cloning soon fade into obscurity?)
- Post-quantum cryptography readiness is becoming a priority
- Enterprise security infrastructure consolidation for payment and general-purpose cryptography

Payment Security: The Historical View



2024 Trend: Enterprise Security Infrastructure Consolidation



Payment Security: What's Coming in 2025?

What to watch for, and how to prepare

- AI chatbots taking on increasingly sensitive responsibilities, but the risk of prompt injection and other attack vectors must be mitigated
- Region-specific payment trends
 - ASEAN QR code-based payments, India's UPI initiative
 - The rise of "super apps" and the risk/reward parallels to the cloud
- Expanded types of cardholder verification methods (CVM)
- Further growth in HSM-as-a-Service and cloud adoption

Payment Security: What's Coming in 2025?

What to watch for, and how to prepare

- The concept of “cryptographic inventory” will grow in prominence
- Biometric payment methods strengthen the payment security landscape
- Readiness for post-quantum cryptography will increase, and the industry will begin seeing meaningful real-world adoption



Over the Next Horizon

Payment Security Beyond 2025



Payment Security in the Future

What's realistic to expect?

- Payment security will continue to be a lighthouse for other industries
- Interoperability between payment methods and schemes will grow, and payments between individuals and institutions will get faster and more secure
- AI “super assistants” could make assessments and infrastructure reviews continuous rather than periodic, building on the trajectory set by automated, ASV-based scanning in PCI DSS and attestation/monitoring in PCI MPoC
- AI could transform the field of fraud analytics, with detailed risk profiles created and updated dynamically for each cardholder. When paired with new CVM types, particularly biometrics, the cost of fraud could plummet.
- Post-quantum cryptography will see widespread adoption

Payment Security in the Future

What's not realistic to expect?

Biohacking or implantable payment methods could gain popularity.



Source: <https://www.bbc.com/news/business-61008730>

My verdict: not likely, but it gives new meaning to the term “embedded cryptography”!

Neuro-signals could become the leading method of cardholder and payment authentication

- Biometric authentication is gaining traction, with numerous financial institutions conducting pilots
- Research by University of New Brunswick and Indian Institute of Technology scientists suggests that EEG-based neuro-signals can be used as a reliable authentication mechanism
- Interested in learning more? Check out the study: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6864782/>

My verdict: the research is promising, but most people will prefer to keep their brain waves private!

Preparing for the Future

Payment Security Today, Tomorrow, and Beyond

Thank You

Questions? Feel free to reach out:



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