Post-Quantum

Cryptography Conference

From Noise to Clarity: Adding Intelligence to the PQC Migration

James Howe
Head of Cryptography at SandboxAQ

KEYFACTOR CRYPTO4A SSL.com ENTRUST HID

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PKI Consortium

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Adding Intelligence to the PQC Migration

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Presentation outline

1. **The 'Haystack' Challenge**
   Why traditional discovery methods can result in noisy inventories.
2. **A New Approach**
   Integrated discovery and management, utilizing existing infrastructure.
3. **Real-World Insights**
   Practical lessons learned.
4. **Achieving Agility**
   Outcomes and the path forward.

The Global Mandate for PQC Readiness

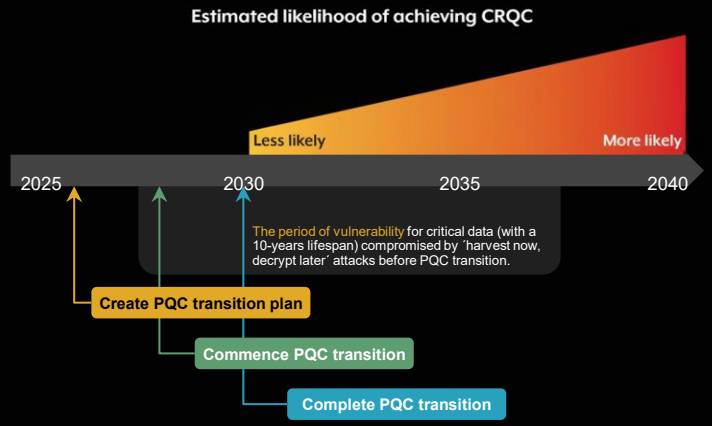
Governments and security agencies worldwide have issued a clear and urgent mandate: **prepare for the quantum threat**

Following NSM-10, the goal is to mitigate quantum risk by 2035, starting with a complete inventory.

The NCSC has also set a 2035 target date for completing the PQC transition.

ACSC has issued guidance for organizations to begin planning their migration, starting with a complete cryptographic inventory.

The EU roadmap calls a cryptographic inventory an "essential step and 'no-regret' move" for every organization.



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The PQC Migration Imperative

The quantum threat and the urgent need for PQC.

PQC migration

A complex, multi-faceted challenge for large enterprises.

- Vast, distributed IT environments
- Numerous legacy systems and cryptography
- Fragmented software ecosystem
- Disparate and diverse hardware

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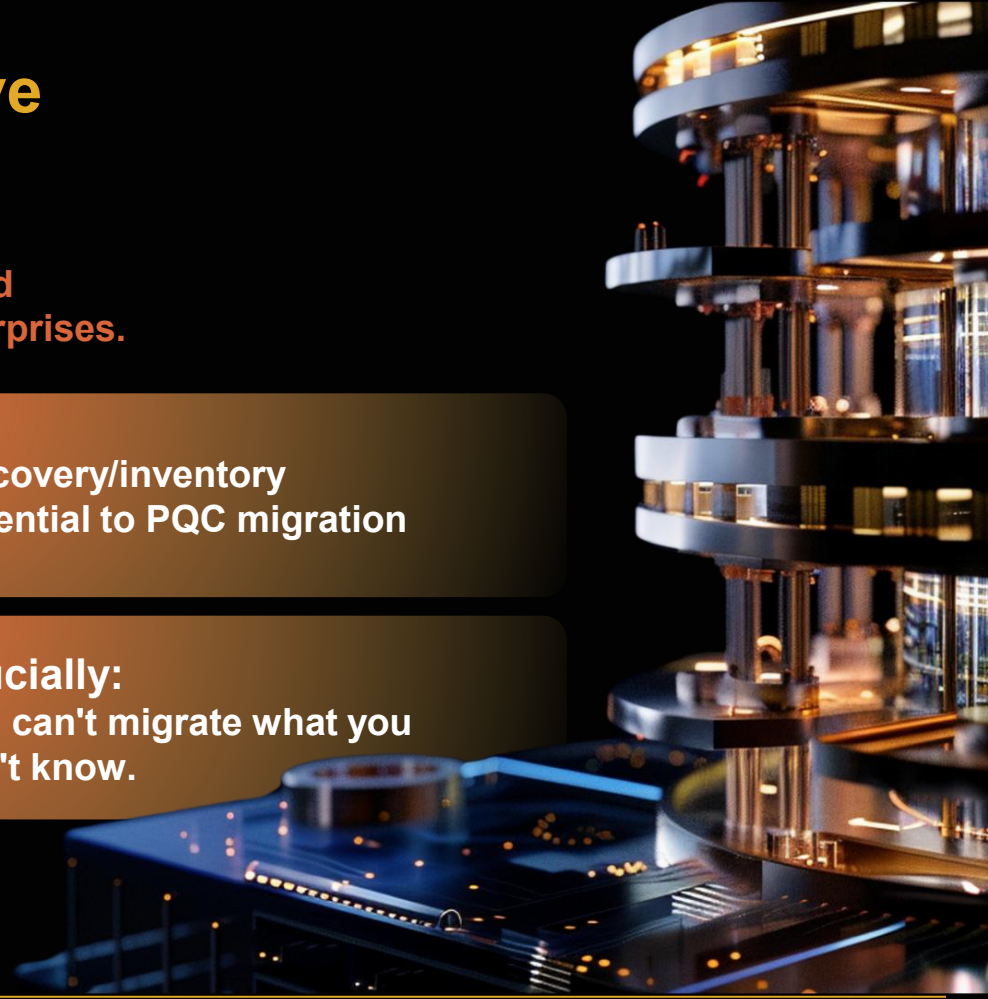
Discovery/inventory essential to PQC migration

Crucially:
You can't migrate what you don't know.



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Deepening Insight

Practical Integrations with Key Tools

Holistic approach
Bridges data silos for unparalleled cryptographic visibility.

Creates overall data landscape map, leveraging CMDBs and other tool insights.

Qualys.

Import certificate, secrets & TLS configs to analyze potential crypto. vulnerabilities & misconfigurations

CROWDSTRIKE

Orchestrates filesystem scanning to enable seamless scanning of remote hosts.

servicenow

Ingest certificate/asset data from its CMDB capabilities for centralized management & enhanced security posture

Ingest data to enhance key management and security monitoring.

paloalto NETWORKS

Ingest and analyze TLS handshake data from Next-Generation Firewall log files.

CBOM
Cryptography Bill of Materials

Upload/analyze CBOMs for comprehensive insight.

Lessons from the Field

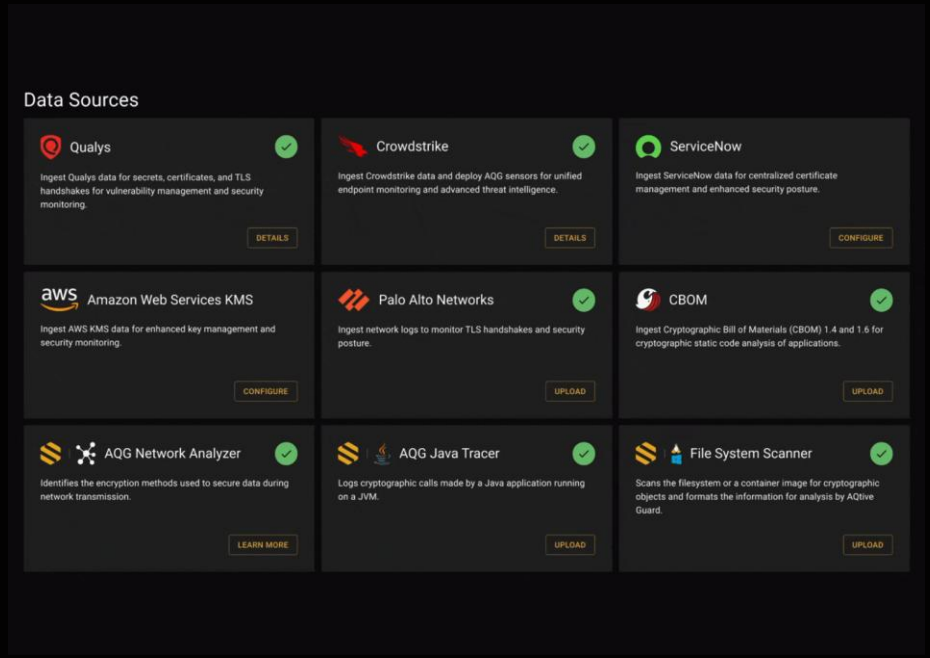
Customer-Driven Innovation

Customer feedback revealed key pain points

- High operational overhead managing numerous, siloed security agents.
- Drove the development of 3rd party ingestion for faster time-to-value, optimizing sensor deployment.
- Reduced alert fatigue via unique alerts.
- Enabled flexible asset profiling.

This feedback loop was critical for refining the solution.

Moved from "what we thought was needed" to **"what customers actually need."**



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The Next Challenge: A High-Fidelity Haystack

While integration achieves comprehensive discovery, it introduces the challenge:

actionable intelligence by filtering out the noise.

We now have all the data, but it's still just data. A unified inventory can contain hundreds of thousands of cryptographic objects.

Endpoints

A clean Windows installation alone contains **200-300** keys & certs.

Applications

Each application adds another **1-10** objects.

Infrastructure

Devices like load balancers and firewalls generate **5-10** objects per node.

Supply Chain

A typical enterprise starts with thousands of third-party objects *before counting a single asset generated for its own internal applications.*

The Next Challenge: A High-Fidelity Haystack

This massive scale leads to the critical question:

"How do I see from this haystack the things that I need to change?"

Inventories are full of noise, this isn't a discovery issue but a contextual one.

Some examples:

- Weak keys in a developer's sample code.
- Deprecated CAs in a standard Linux trust store.
- Certificates managed by a third-party application you can't control.
- A legacy root cert in a standard OS trust store that uses a deprecated signature algorithm.
- A weak TLS cipher suite offered by a third-party API your organization consumes.

The Solution: From Haystack to Actionable Insight

So, how do we find the needles in this high-fidelity haystack?

- The answer isn't more data; it's **more intelligence.**
- We can solve this problem with intelligent triage, powered by an enrichment engine.
- This engine is powered by a database built from millions of publicly known assets from OSs, containers, and applications
- This is the baseline, and can be further enriched by path, location, common CAs, etc.

Example:
The Weak Key Problem

A scanner finds a weak 512-bit RSA key. Is this a Critical threat?

Enrichment could show this in developer sample code, gets removed

But that same key found in a production environment is a huge issue!

The Impact of Enrichment

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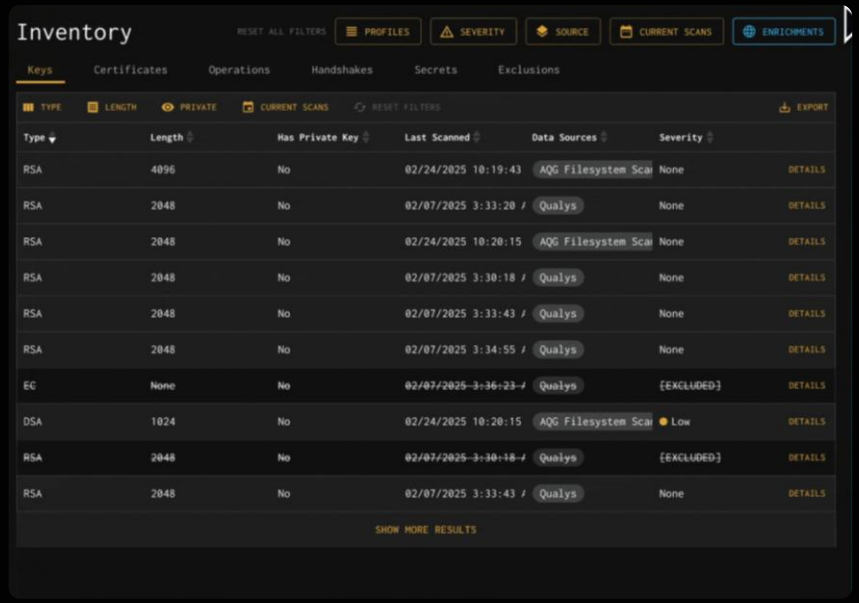
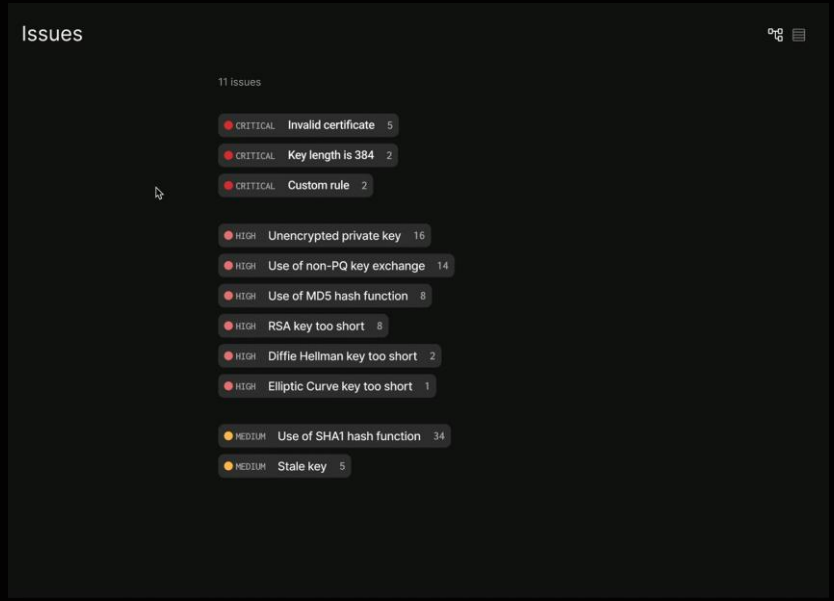


Enhancing Insight

Advanced Intelligence & Actionable Filtering

- Intelligent filtering reduces noise, delivering advanced insights with broader context.
- Deep enrichments provide rich context to: "Is this crypto mine? Do I care?"
- Transforms raw data into a clear, prioritized action plan for PQC migration.
- Eliminates days/weeks of manual investigation by providing rich context.
- Alleviates alert fatigue by focusing security teams on a clear, prioritized list of issues.



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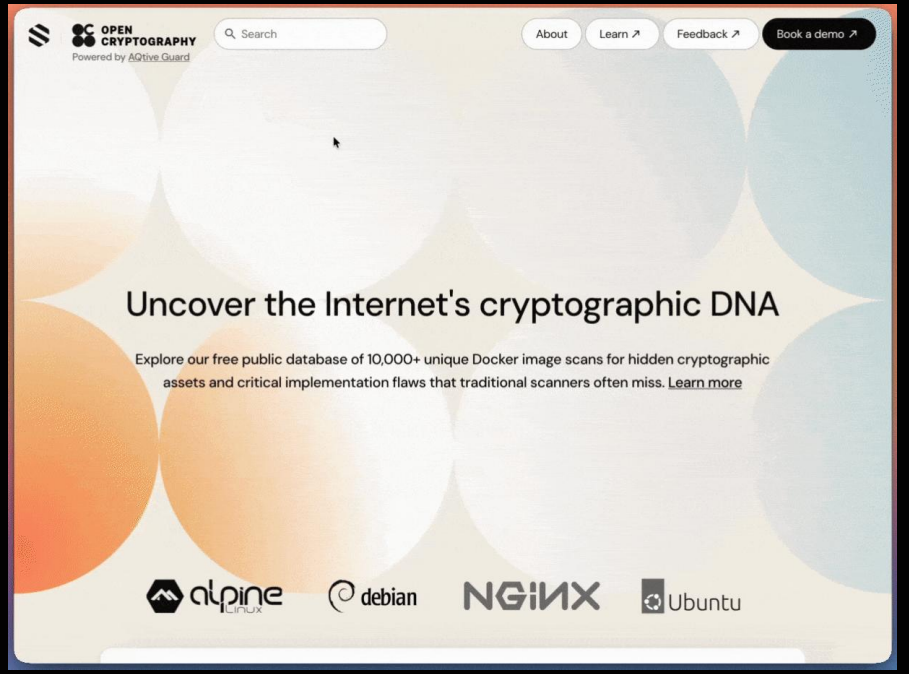
Announcing: *OpenCryptography.com*

Today, we're excited to launch a new initiative for the security and developer communities.

What It Is: A new public website providing open access to a searchable database of cryptographic issues found within public software artifacts.

The Mission: To provide a central, public resource for security professionals, developers, and researchers to search and analyze the cryptographic security of the tools they use every day.

Launching with: An analysis of the cryptographic security of the most popular images on Docker Hub.



From Clarity to Agility: Accelerating the PQC Transition

Achieving a clear, prioritized inventory isn't the end goal; **it's the catalyst that makes a successful PQC migration possible.**

Transforms the Timeline: turns the PQC migration from a multi-year "archeological dig" into a focused, manageable engineering project. **You can now scope, plan, and execute in months, not years.**

Enables Prioritized Remediation: removes chaos by enabling you to surgically target your highest-risk systems and dependencies first.

Establishes Long-Term Readiness: Builds the visibility and control needed to defend against the quantum threat and all future cryptographic challenges.

Thanks for listening!

Any questions?