Chief Information Security Officer (CISO) Priorities for 2026



Prepared by Edward Amoroso
CEO TAG | Professor NYU
Former CISO AT&T | Former Board M&T Bank
eamoroso@tag-cyber.com
Version 1.0 | 11/18/25

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First, Let's Talk About AI





Real or Fake?

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THE GARDEN-OF-EDEN THEOREM FOR FINITE CONFIGURATIONS

S. AMOROSO AND G. COOPER

ABSTRACT. In [1] Moore showed that the existence of mutually erasable configurations in a two-dimensional tessellation space is sufficient for the existence of Garden-of-Eden configurations. In [2] Myhill showed that the existence of mutually indistinguishable configurations is both necessary and sufficient for the existence of Garden-of-Eden configurations.

After redefining the basic concepts with some minor changes in terminology, and after restating the main results from [1] and [2], we shall establish the equivalence between the existence of mutually erasable configurations and the existence of mutually indistinguishable configurations. This implies that the converse of Moore's result is true as well. We then show that by limiting the universe to the set of all finite configurations of the tessellation array, both of the above conditions remain sufficient, but neither is then necessary. Finally, we establish a necessary and sufficient condition for the existence of Garden-of-Eden configurations when only finite configurations are considered.

1. The tessellation structure and the Garden-of-Eden theorems. he tessellation array, which was first used by Von Neumann [3] in taining his results on machine self-reproduction, can be visualized an infinite two-dimensional Euclidean space divided into square lls, in the fashion of a checkerboard, where each cell can hold any mbol from a finite set A. We use the set Z^2 of ordered pairs of integers to name the cells in the tessellation array. An *array configuration*, ., a symbol placed in each cell, is formally a mapping $c: Z^2 \to A$. The striction of an array configuration c to a subset S of Z^2 will be denoted by $(c)_S$. We speak of this as the *configuration of S in array configuration c*. Each cell will behave like a deterministic and synchronous finite-state machine, and the symbol in cell (i, j) at time t will depend on the symbol in cell (i, j) at time $t-1$ as well as the symbols in certain neighboring cells at time $t-1$. In this paper, as in [1] and [2], we fix the neighbors of any cell to be those cells (including the cell itself) which have each of their coordinates differing by at most 1 from the coordinate of the given cell. Figure 1 shows the neighbors of cell (i, j).

Received by the editors September 2, 1969 and, in revised form, November 3, 1969.
AMS subject classifications. Primary 0288, 0280, 9440.
Key words and phrases. Garden-of-Eden, self-reproducing, automata, tessellation automata, cellular automata, iterative arrays.

(i−1, j+1)	(i , j+1)	(i+1, j+1)
(i−1, j)	(i , j)	(i+1, j)
(i−1, j−1)	(i , j−1)	(i+1, j−1)

FIGURE 1

The function σ which specifies the symbol to be placed in a cell at time t given the symbols in the neighbors of the cell at time $t-1$ is to be the same for all cells in the tessellation array. This function σ, which we call a *local transformation*, acting on all cells simultaneously determines a *global* transformation τ which maps the set of all array configurations to the set of all array configurations. Any global transformation defined in this way, i.e., from a local transformation, will be referred to as a *parallel* transformation.

Moore's result. Let S be an arbitrary finite nonempty subset of the set of cells of the tessellation array (i.e., containing exactly all neighbors of any cell

For finite $S_1 \subset Z^2$, a configuration $(c_1)_S$ w to be *erasable* if there exists an array confi (b), and (c) below hold.

(a) $(c_1)_{N(N(S_1))-S_1} = (c_2)_{N(N(S_1))-S_1}$,
(b) $(c_1)_{S_1} \neq (c_2)_{S_1}$, and
(c) $(\tau(c_2))_{N(S_1)} = (\tau(c_1))_{N(S_1)}$.

Such c_1 and c_2 will be said to be *mutuall*

An array configuration c is said to be configuration if no array configuration c' ex



THEOREM 1. (MOORE'S GARDEN-OF-EDE *to a given tessellation structure, if erasable there exist Garden-of-Eden configurations.*

The proof of this result is found in [1].

Myhill's result. Let S be any finite nonempty set of cells. Distinct



CISOs have been pressured to “do something” on AI Security.



Funded start-ups and vendors are selling AI security POCs.



Getting from AI security POC to production: *Good luck*.

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What are the Top Enterprise AI Security Issues?

What most vendors think:

- Prompt injection
- Model hallucination
- Bias and discrimination
- Model theft
- Data poisoning
- LLM leakage
- Stopping AI attacks

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What are the Top Enterprise AI Security Issues?

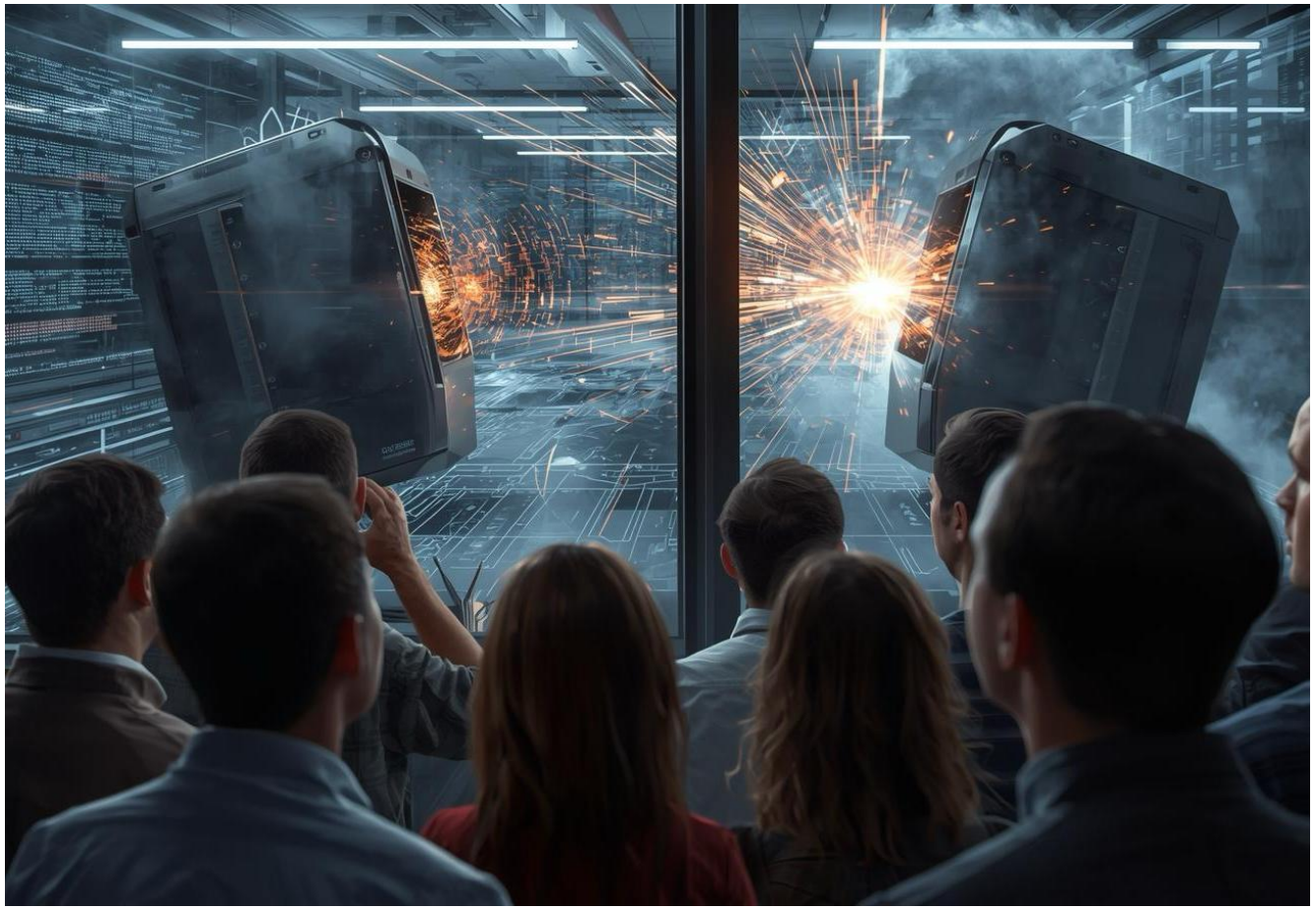
What most vendors think:

- Prompt injection
- Model hallucination
- Bias and discrimination
- Model theft
- Data poisoning
- LLM leakage
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What CISOs actually think:

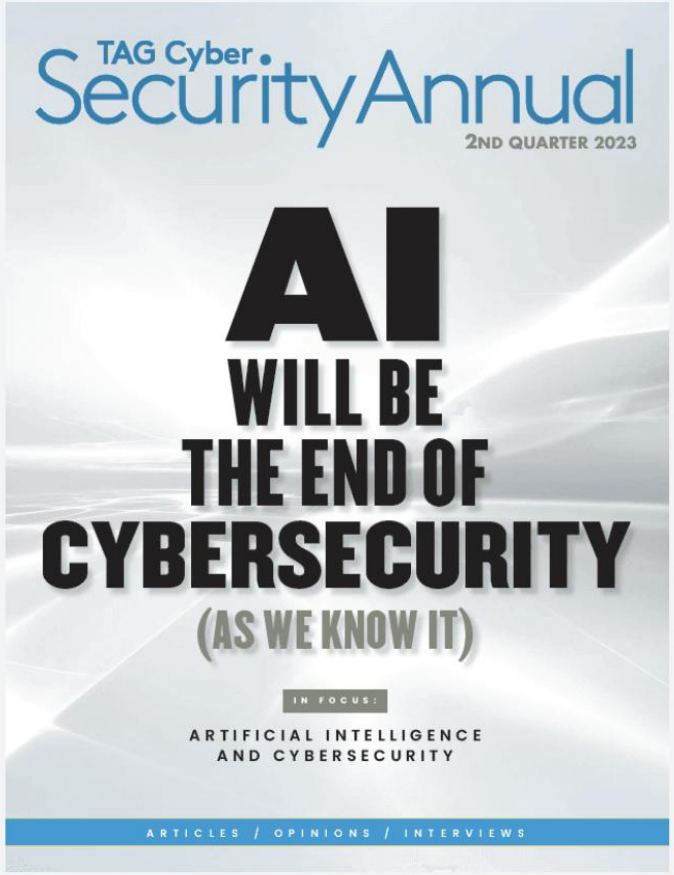
- Identifying AI usage
- Assigning guard rails
- Third-party AI usage
- SaaS/platform AI usage
- OWASP for AI APIs
- AI corporate policies
- Making boards happy

Recent Claude Attack: Glimpse at AI Future



- Chinese state-sponsored attackers hijacked Claude Code to run an AI-driven espionage campaign.
- Claude performed most of the attack autonomously, including recon, exploitation, and data theft.
- Security guardrails were bypassed by tricking the model through role-play and prompt manipulation.
- Only a handful of intrusions succeeded, but the scale and speed showed new AI-enabled threat potential.
- The event highlights urgent risks for critical infrastructure and the need for AI-specific security controls.

AI: The End of Cybersecurity as We Know It.



TAG 2023 2nd Quarterly

We don't have to tell you there's been a lot to read recently about artificial intelligence. In this issue, we have useful information to add about AI, and we promise it isn't what you've already been reading for months.

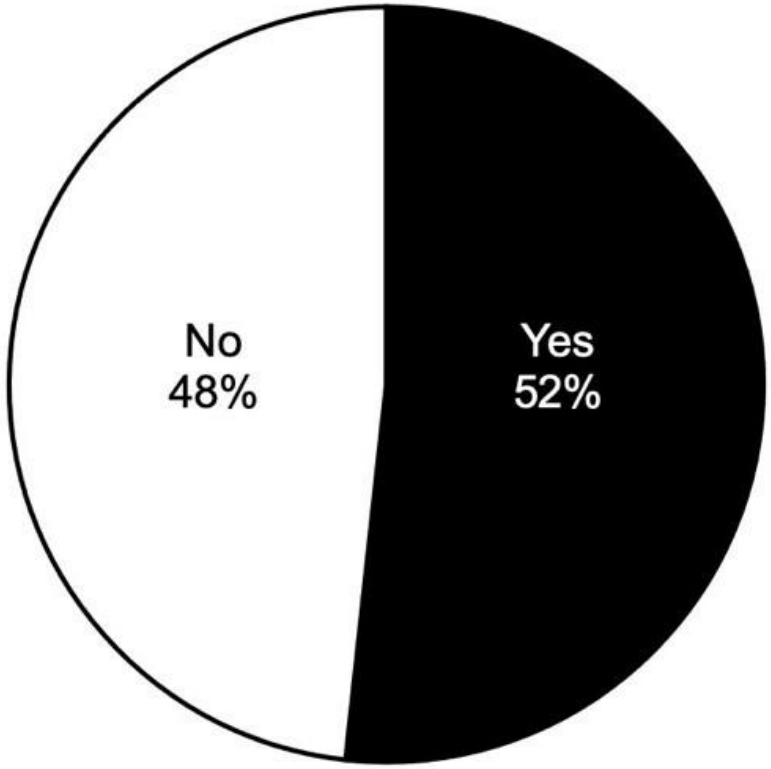
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Now, Let’s Talk About Security Budgets




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CISO as Teacher’s Pet on Budgets: 2000 to 2024

2025 TAG Survey – Roughly 100 CISOs

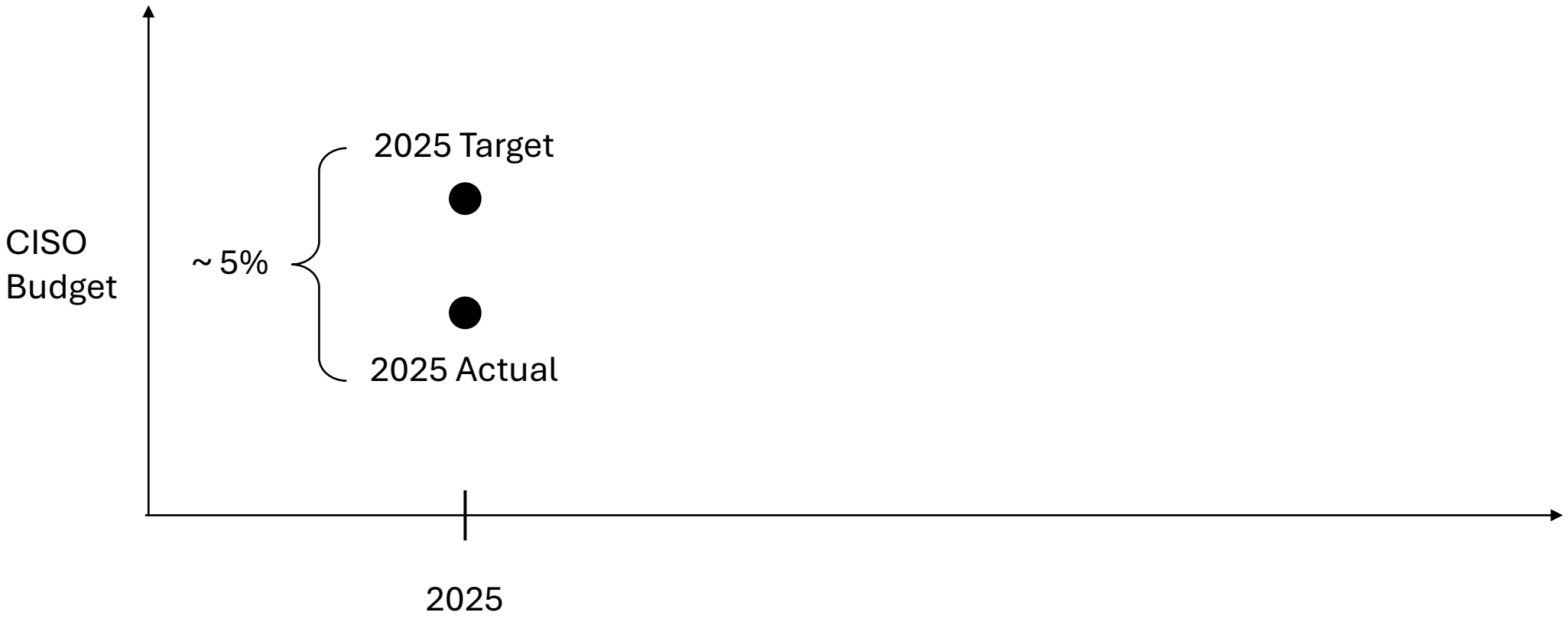


Question: Is your security budget increasing in 2026? (yes or no)

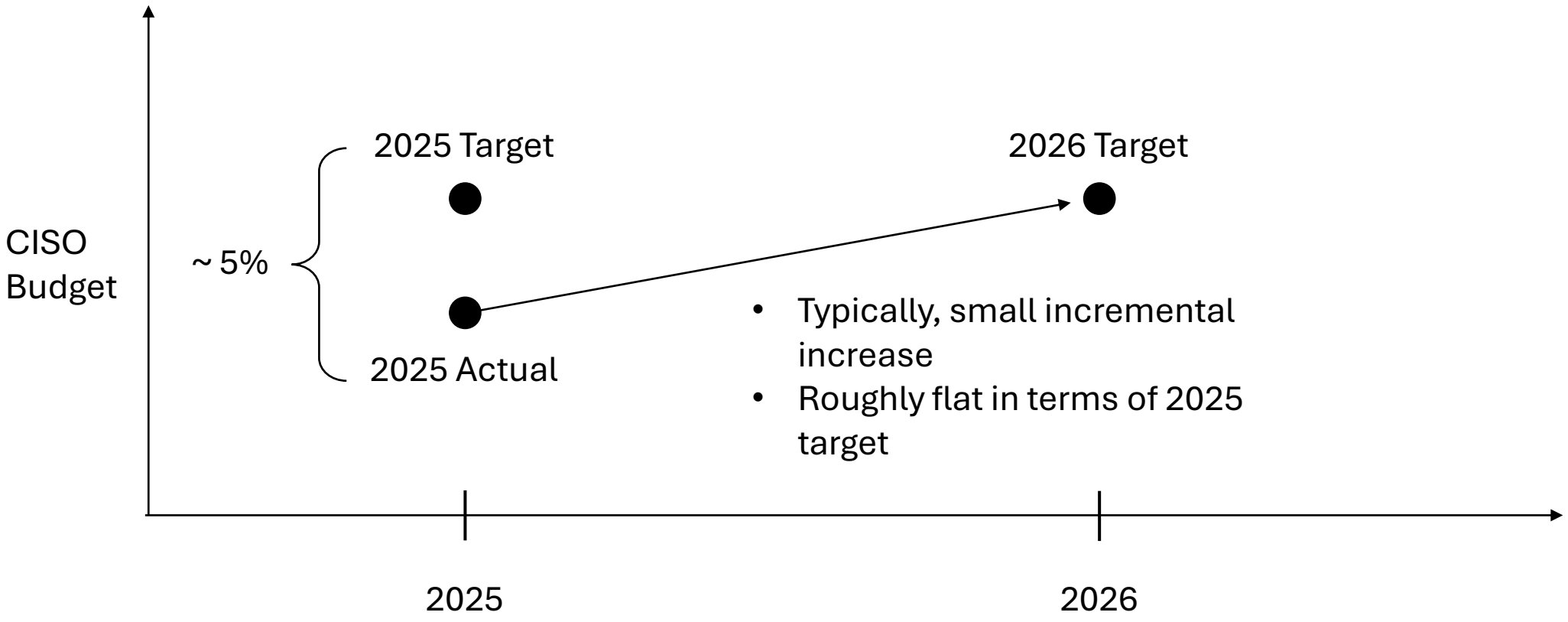
Are CISOs Ignoring Financial Warning Signs?



When we inspected . . .

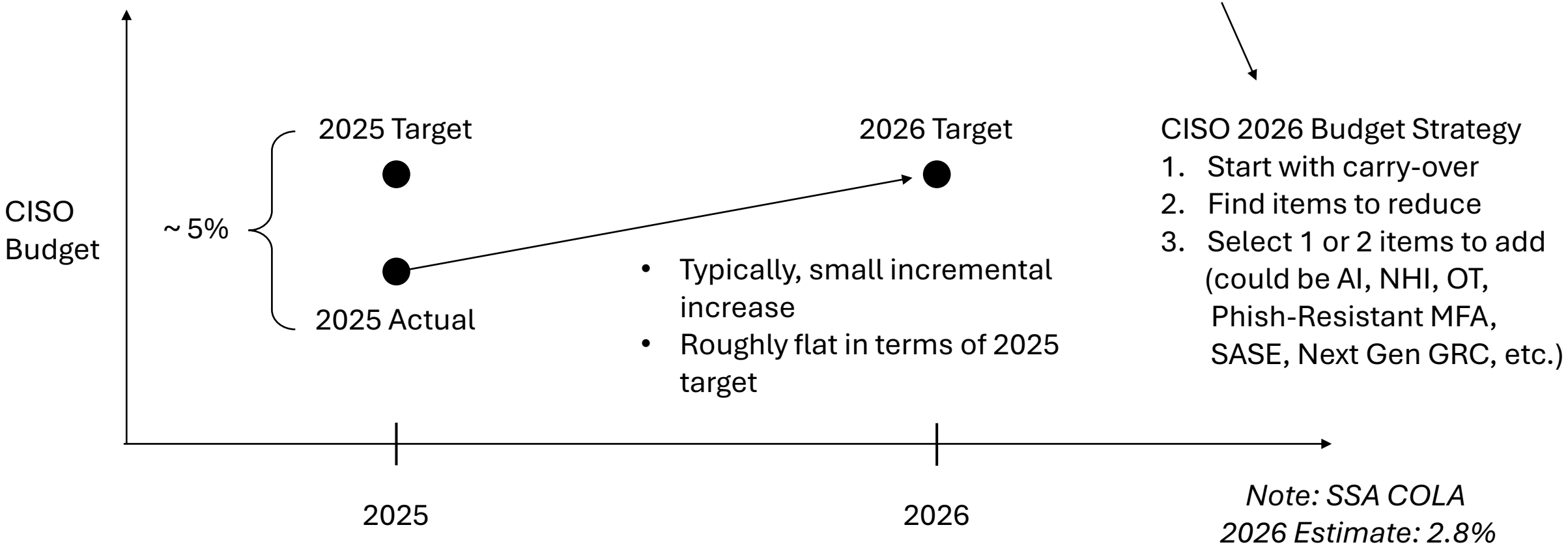


When we inspected . . .



When we inspected . . .

How cybersecurity vendors should view CISO budgets in 2026



CISO 2026 Budget Strategy

1. Start with carry-over
2. Find items to reduce
3. Select 1 or 2 items to add (could be AI, NHI, OT, Phish-Resistant MFA, SASE, Next Gen GRC, etc.)

Note: SSA COLA 2026 Estimate: 2.8%

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Budgets 2025 and Beyond: CISO Treated Like Peers



Let’s Talk Platforms



Here's what we've been doing:

1. Rationalize and Upload the Excel Spreadsheet of CISO's Security Vendors

R	VENDOR NAME	PRODUCT	DESCRIPTION	SERVICES PROVIDED	EMAIL
1	Vound	Intella	Forensics Software	Forensics	sam.dollard@vound-software.com
2	Center for Internet Security (CIS)		Configuration Standards	Standards	amanda.gregory@ciscurity.org
	Rapid 7		For incident response		managed@rapid7.com
3	Rapid 7	insightVM		Security Testing	samuel_ozinga@rapid7.com
	Rapid 7	insightIDR			samuel_ozinga@rapid7.com
	Rapid 7	Insight Platform	Copied on all comms for all apps		iker@rapid7.com
	Rapid 7	Account Executive			hannah_dolcinack@rapid7.com
4	IT Governance USA	ISO Auditing		Auditing	itracey@itgovernanceusa.com
5	LastPass US LP	LastPass	Password Wallet	Password Wallet	ericka.wollerscheid@gmo.com
6	Fortra	Cobalt Strike	Cobalt Strike	Adversary Emulation	cobalt.custops@fortra.com
15	Fortra	Cobalt Strike	Adversary Simulations	Red Team Testing	cobalt.custops@helpsystems.com
7	FS-ISAC		advances cybersecurity and resilien	Insurance intelligence	lbetz@fsisac.com
9	JFrog		Open Source Inspection	Software Repository	thoop@jfrog.com
10	CISO (Kenna)	Vulnerability Manager	Risk Rating	Tracking technology risk findings.	cohannan@cisco.com
11	Security Scorecard		Third Party Risk Management	Vendor risk scores	mcham@securityscorecard.io Minh Pham



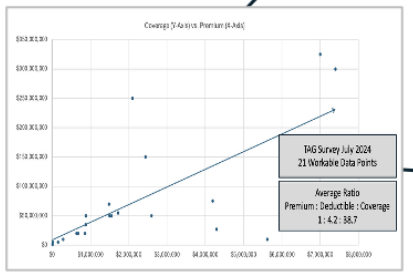
5. Vendor News, Hacks, Updates, Acquisitions via RSS Feeds

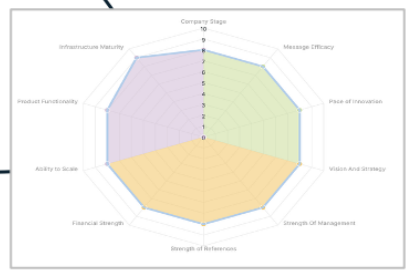
TAG AI-Powered Cyber Vendor Management (CVM) Platform



4. Reports to CISO via TAG CVM Portal

2. TAG Runs Analytics on Vendors

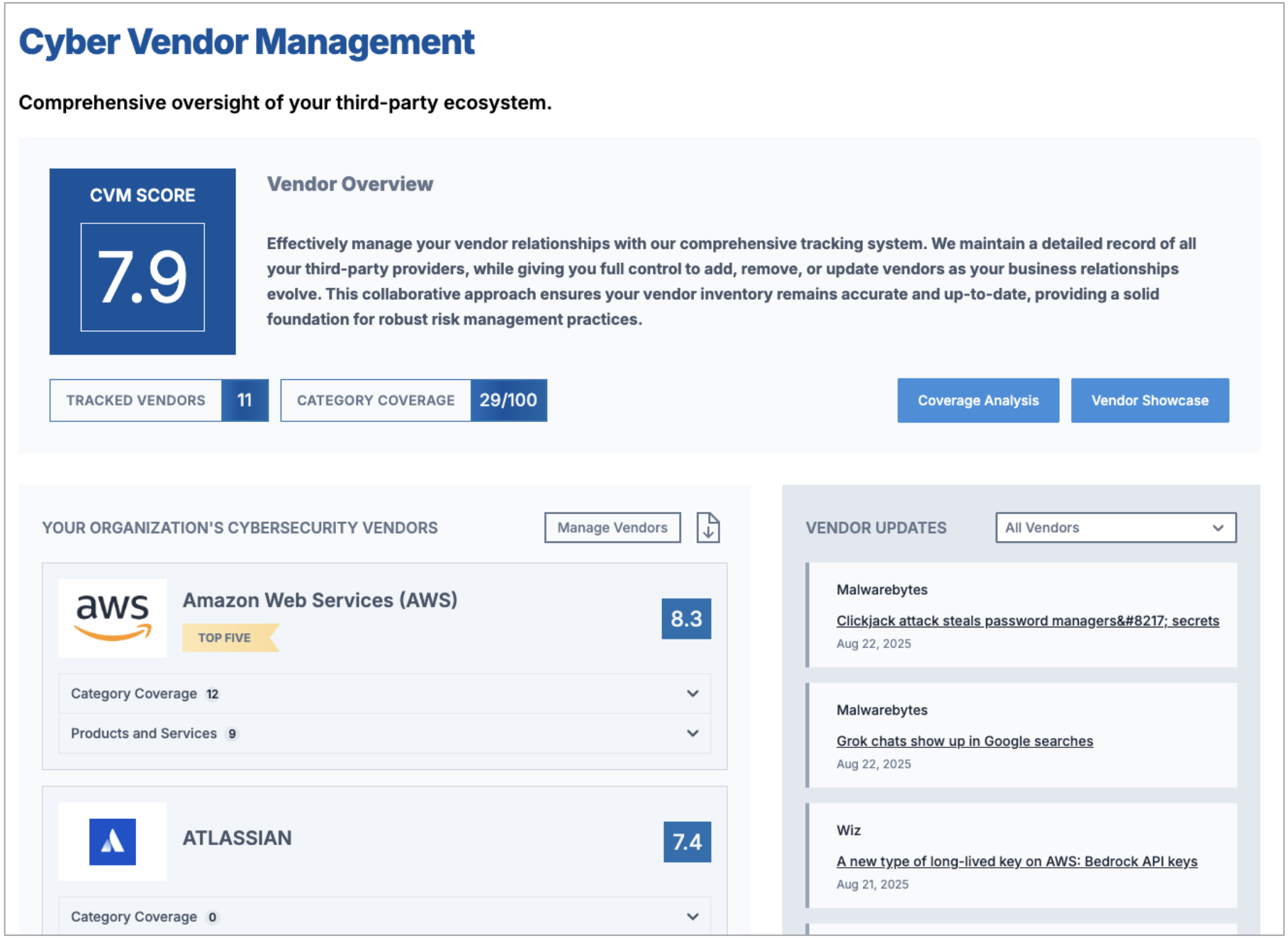




3. Leverage TAG's Quantitative Navigators and Taxonomy

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Sample TAG CVM Dashboard:



Emerging trends regarding cyber vendors (Hint: notice the word **platform** below):

1. Zero cases of breaking up a **platform** to deploy separate atomic products.
2. Many cases of combining atomic point solutions into a **platform**.
3. Supermarket companies with unrelated vendors are not treated as **platforms**.
4. Clear preference to leverage **platforms** to reduce the number of vendors.
5. An uncomfortable number of CISOs know their **platforms** but not their vendors.
6. Many weird **platform** budget sharing with IT and other adjacencies.

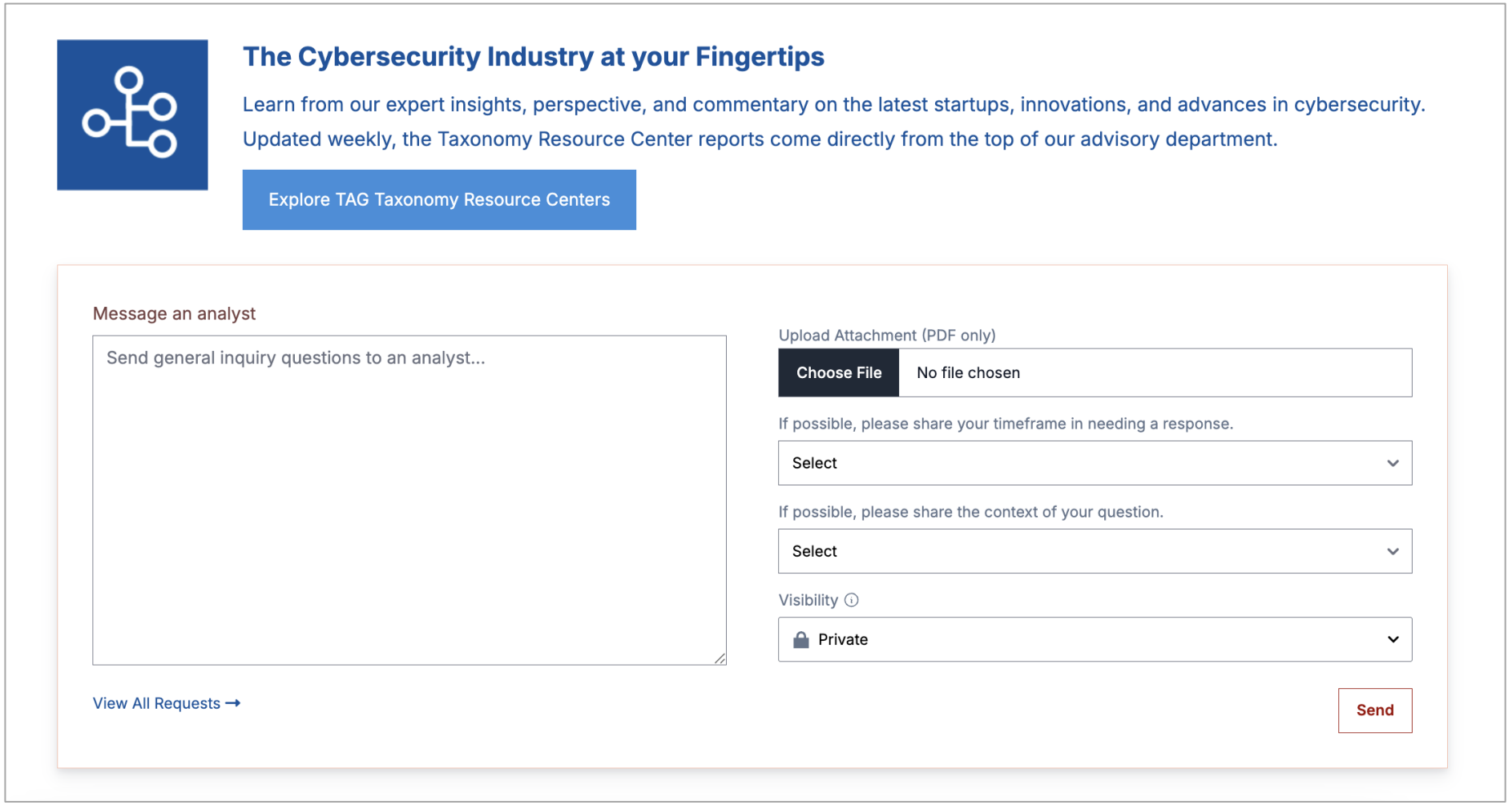
Be careful: Logo consolidation is not a platform



But yes – Acquisitions can build platforms



Some more things we are hearing from CISOs . . .



Roughly 5-6 inquiries per day from the TAG CISO and practitioner community.

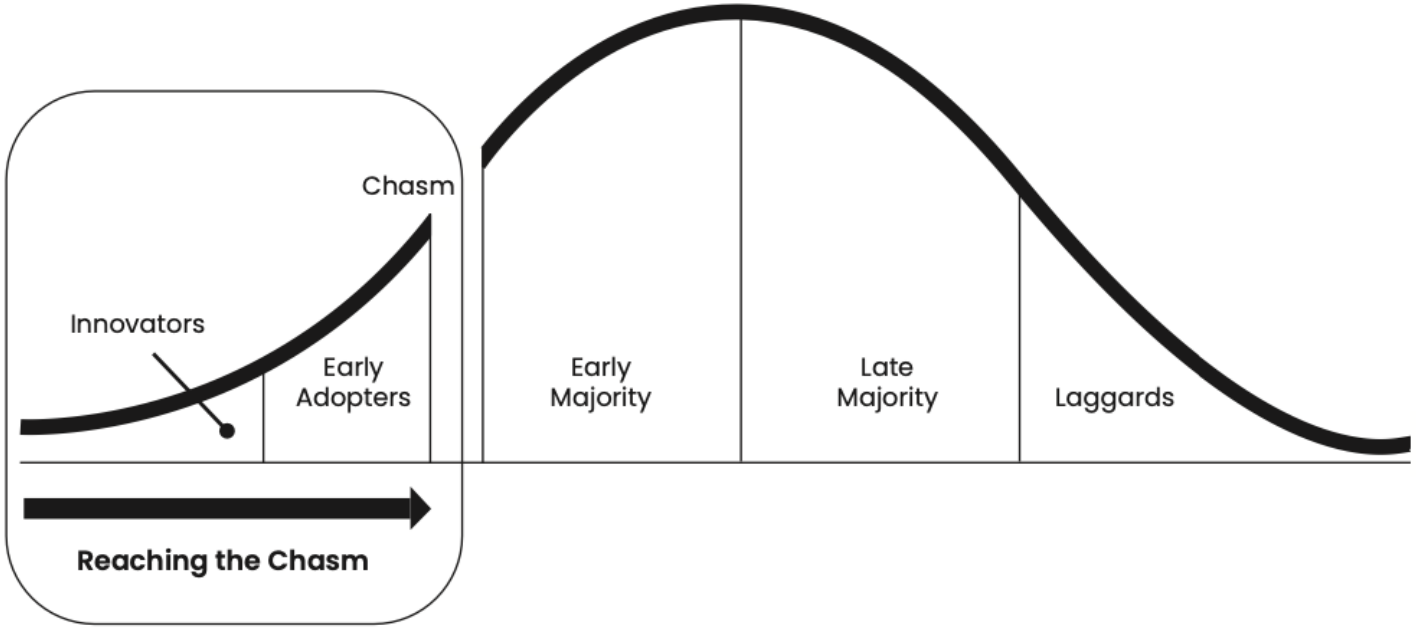
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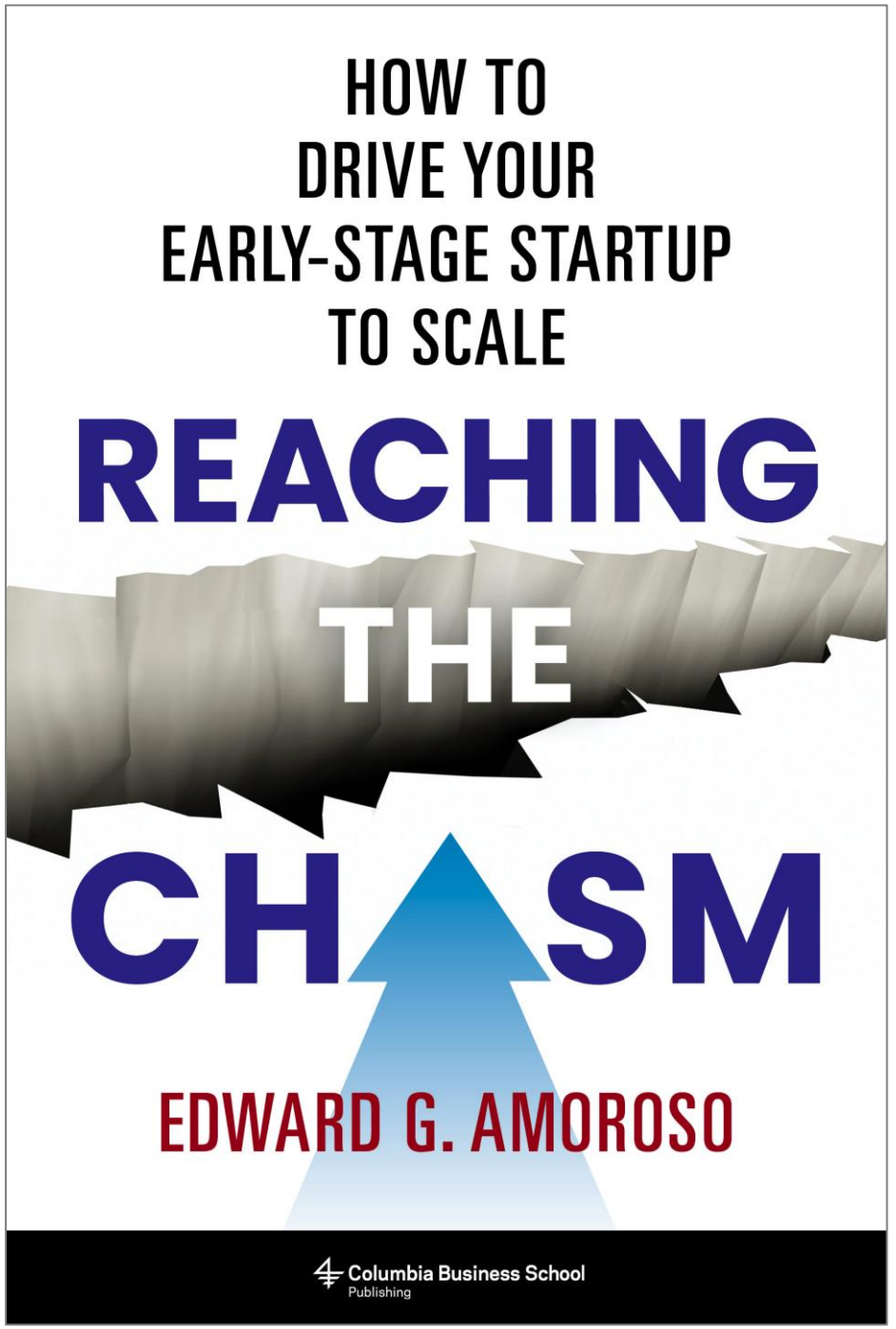


1. How can I drive more secure coding across my large developer community?
2. What is the best way to coordinate BISOs across our organization?
3. Should we be doing more to protect the online personas of our executives?
4. When should we begin to worry about the quantum threat to cryptography?
5. Do these new identify verification platforms work?
6. We are failing access reviews. Is it worth looking at Next Gen IGA vendors?

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My new prequel to “Crossing the Chasm”





Always available for any discussions, follow-ups, or questions

Edward Amoroso
eamoroso@tag-cyber.com
https://www.tag-infosphere.com/
LinkedIn: Edward Amoroso
YouTube: TAG Infosphere



"Next time, you'll be more careful with that algorithmic bias."

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