

REAL WORLD ATTACK SIMULATION RESULTS

# Close Microsoft Threat Detection, Investigation and Response Gaps With Vectra AI

With modern cyberattacks, different doesn't always mean malicious, and normal doesn't always mean benign. Learn how security teams can go beyond the basics to reinforce their hybrid / multi-cloud defense.

**VECTRA<sup>®</sup>** **Integrity360**  
your security in mind

## Modern attackers no longer need to hack their way in, they try to log in.

According to the *Microsoft Digital Defense Report 2024*, Microsoft customers face over 600 million cybercriminal and nation-state attacks daily. If left undetected, these attacks could lead to costly business disruptions, ransomware incidents, and theft of high-value data. Attackers only need to be right once. The question is: can security teams rely solely on native security solutions to stay safe? **Unfortunately the answer is no.**

### To effectively defend against today's attack – defenders need to:

#### 1 ASSUME BREACH

see and stop attackers who are moving seamlessly in the environment and across the network, Active Directory, Entra ID, M365, Azure, and Copilot for M365.

#### 2 RELY ON AI DETECTIONS

because different doesn't always mean malicious, and normal doesn't always mean benign.

#### 3 HAVE RELIABLE PRIORITIZATION

so you don't miss an attack and can take swift actions on urgent and real threats.

Here, we reveal real attack simulations and red team results on multi-cloud and hybrid cloud environments. You'll discover:



How attackers were able to bypass native defenses.



How security teams detected and stopped them before damage occurred.



How Vectra AI reinforces defenses for hybrid / multi cloud security.

# Vectra AI's 360° coverage for the **Microsoft ecosystem**

We fill gaps to complement native solutions



## DEFENDER XDR + SENTINEL OFFERS:

- Baseline threat intel and anomaly detection
- Posture management
- Endpoint coverage
- Logs that enable customized workflows

## Vectra AI extends visibility and value by providing:

### Comprehensive threat coverage:

- Detect attacks Defender misses by securing Network, Active Directory, Entra ID, M365, Copilot and Azure against hidden threats.

### Credential attack visibility:

- Gain visibility at every stage of identity attacks.

### Hybrid-Cloud protection

- Protect hybrid services for Azure organizations that have data center workloads.

### Connect the dots:

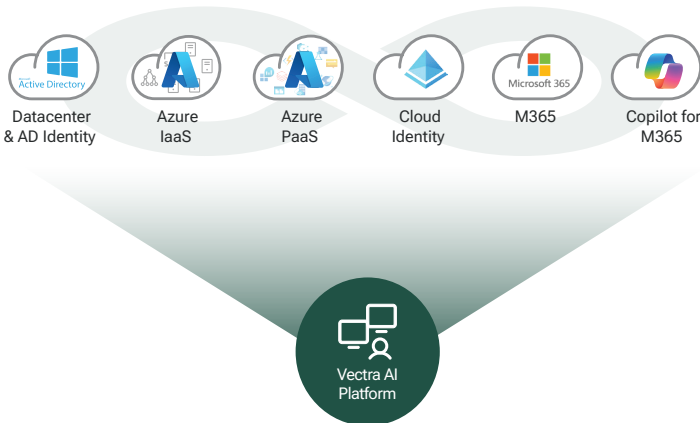
- AI correlates attacker behaviors across domains, prioritizing the most urgent risks across the Microsoft ecosystem.

### Accelerated investigation:

- Vectra's enriched metadata and logs add context beyond what's available in a SIEM for deeper threat hunting and investigation.

### MXDR:

- Vectra's 24/7 MXDR hybrid attack experts alleviate the operational burden in threat detection and response.



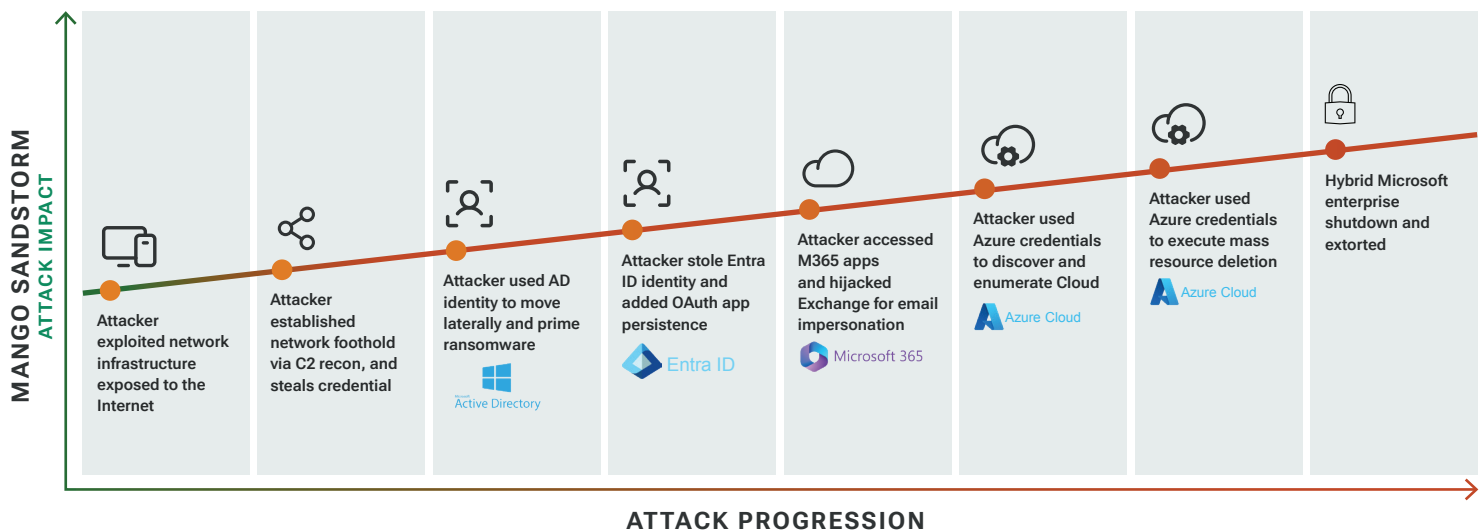
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# The Microsoft threat Surface is huge

Spanning across Active Directory, Microsoft Entra ID, M365 and Azure

Attackers can **move across different Microsoft attack surface seamlessly**—targeting critical resources and data.



- Prevention fails and native solutions fail to detect such attacks
- Attackers can start the attack at any of the **above attack surfaces**

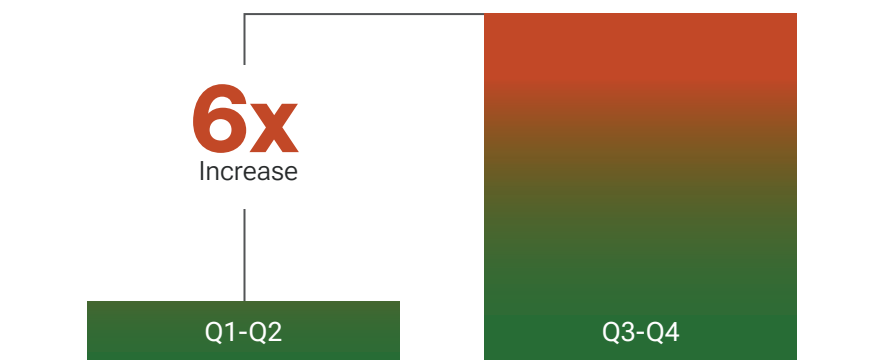


# 2024 attack trends from Vectra MDR

Microsoft security helps but does not fully solve the problem



## Malicious Identity Attacks 2024\*



- Vectra MDR finds that customers with premium licenses (E5) continue to have fewer incidents.
- However, 57% of E5 customers had a validated compromise stopped by Vectra AI.
- 6X increase in malicious identity attacks.

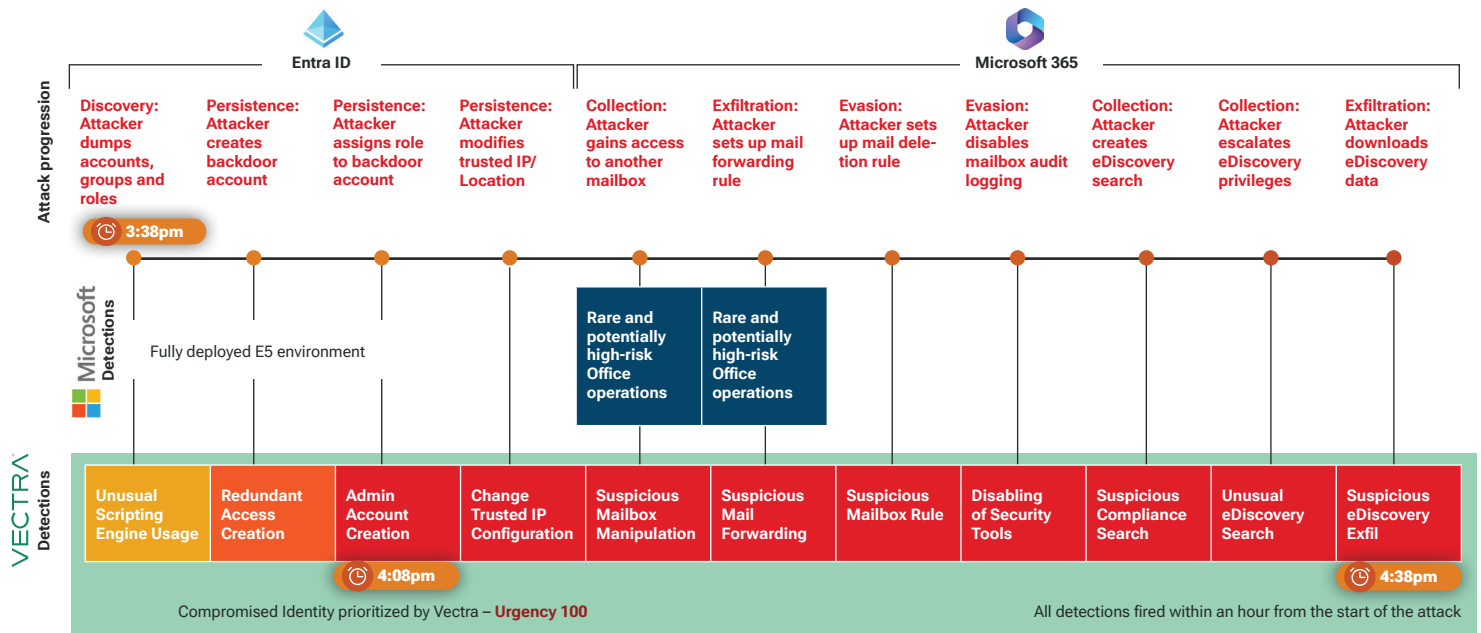
“Vectra AI covers not only the basics, but with the detection models, it really looks at the identities traversing through Microsoft Azure and Office 365, and that gives us a complete picture.”

**FABIAN HEIZ**  
CISO at Coop

# ATTACK SIMULATION RESULT #1:

Ransomware attack by Scattered Spider

## Vectra AI extends value of E5 by finding 11x additional attacker technique

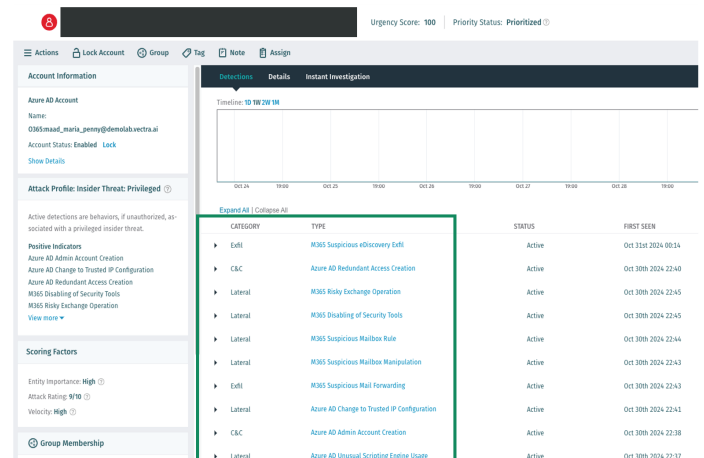
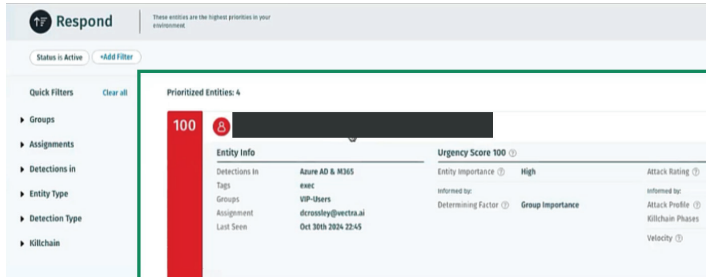


- Defender XDR detected **1 technique** with low priority
- Vectra AI provided more assurance by detecting **11 techniques**, with AI prioritization and actionable insights
- Besides Scattered Spider, Vectra AI also covers attack techniques associated with: APT28, APT29, APT33, Ke3chang, LAPSUS\$, Magic Hound, FIN4, Chimera, Fox Kitten, Kimsuky, Silent Librarian, C0027, SolarWinds Compromise, and unknown attackers

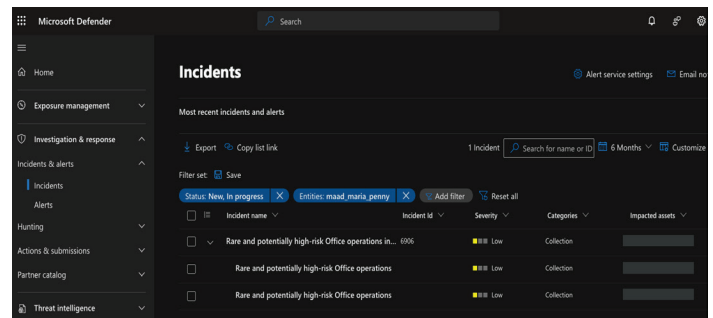
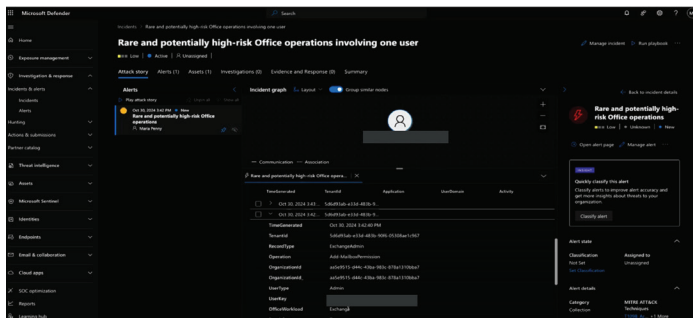
## In a ransomware attack by Scattered Spider, Vectra AI finds 11x more attacker techniques than E5, with better clarity and less effort

### VECTRA<sup>®</sup>

Vectra AI prioritized incidents, connected the dots between attack surfaces, and provided detailed alert context:



Microsoft generated one low severity alert with limited actionable insights on attacker behaviors before and after:



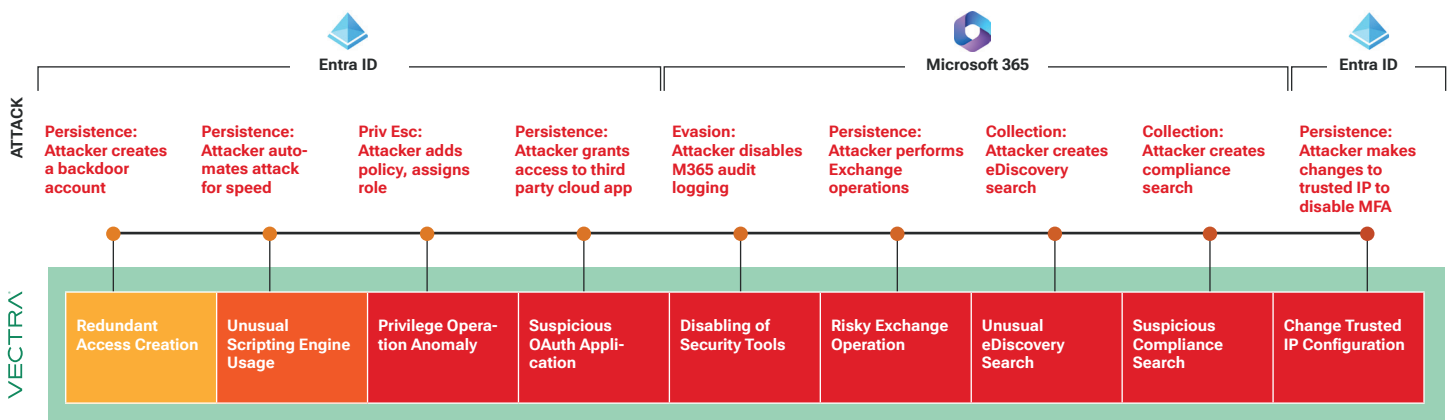


# ATTACK SIMULATION RESULT #2:

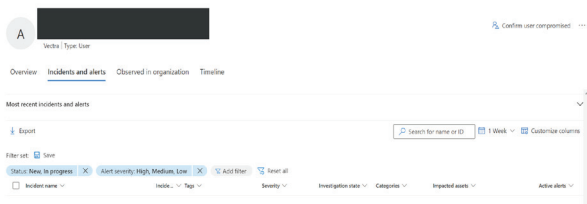
Ransomware attack with Fortune 500  
finance customer

## In a ransomware attack simulation with a Fortune 500 customer, Vectra AI finds 9 attacker techniques that E5 missed

Scattered Spider compromised a user and gained legitimate access to the account



### Microsoft 0 DETECTIONS (Fully deployed E5 environment)



### VECTRA<sup>®</sup> 9 DETECTIONS

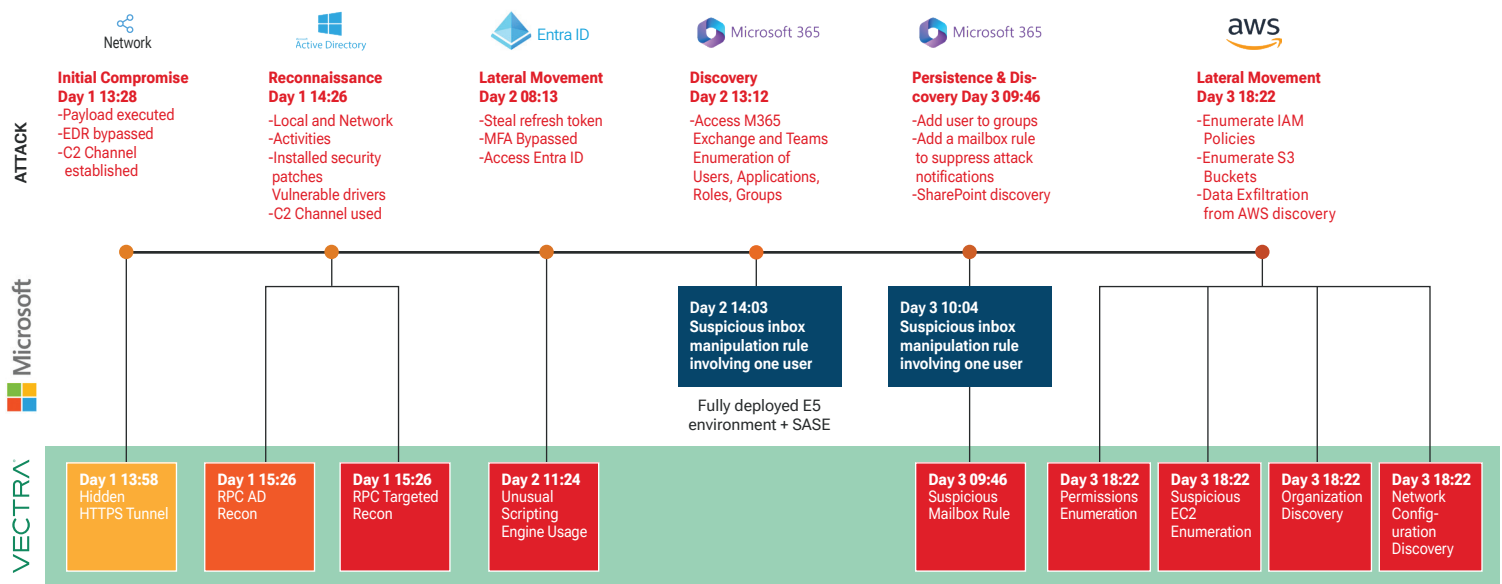
The screenshot shows the Vectra AI console interface. The 'Incidents and alerts' tab is selected, and the 'Most recent incidents and alerts' section is visible. The console shows 9 detections, each with a category, type, first seen, and last seen date.

Category	Type	First Seen	Last Seen
Recent	RISK Suspicious Compliance Search	Apr 25th 2024 09:33	Apr 25th 2024 09:33
Recent	RISK Unusual eDiscovery Search	Apr 25th 2024 09:33	Apr 25th 2024 09:33
Lateral	RISK Risky Exchange Operation	Apr 25th 2024 09:38	Apr 25th 2024 09:21
Lateral	RISK Disabling of Security Tools	Apr 25th 2024 09:38	Apr 25th 2024 09:21
Lateral	Abuse AD Privilege Operation Anomaly	Apr 25th 2024 11:15	Apr 25th 2024 09:13

# ATTACK SIMULATION RESULT #3:

Network to cloud attack with large insurance group

In a network-to-cloud offensive security assessment at a large insurance group, Vectra AI extended E5 visibility to find attacker techniques across 5 domains



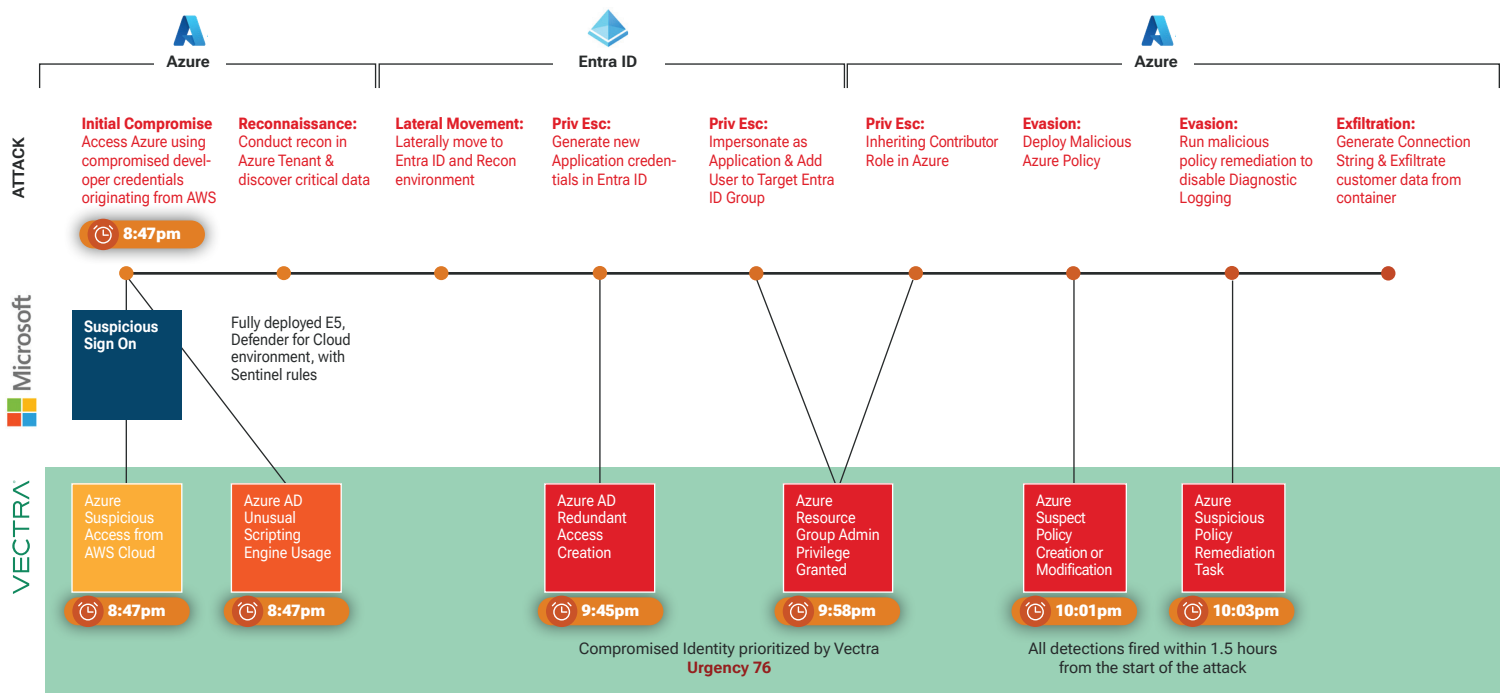
- Defender XDR identified **2 techniques** with low priorities
- Vectra prioritized the attack with **9 techniques** detected across **5 domains**
- Initial Vectra AI detection within 30 minutes of initial compromise, 24 hours before initial Microsoft Detection

# ATTACK SIMULATION RESULT #4:

Multi-Cloud Attack Targeting Azure  
and Entra ID - Large global fintech

## Vectra AI extends value of E5 by finding 5 additional attacker technique

Attacker compromised an Azure identity and gained legitimate access to the organization



- Defender XDR identified **1 technique** but **suspicious sign on can be evaded by attacker** (e.g. using VPN to log in from same country)
- Vectra prioritized the attack with **6 techniques** detected, **connecting the dots** across Azure and Entra ID

# How Vectra AI reinforce hybrid / multi-cloud security

Attack Signal Intelligence – AI to find and stop attackers. Our approach delivers the most accurate attack signal intelligence for the SOC.



x000,000s hosts and accounts monitored both human and machine in real-time

**We integrate visibility** to hundreds of thousands of hosts and accounts—both human and machine—across network, identity, cloud, M365, Copilot with endpoint and email on the roadmap.

## 1. Coverage to find threats

Thousands of observed events

**Unified coverage** comes from our pre-built, domain specific, behavior-based AI detections – observing thousands of potential threat events.

## 2. Clarity to act quickly

Single digit prioritized entities

**Signal Clarity** comes from our ability to automatically triage and correlate threat events to prioritize and alert on entities under attack – not in the thousands, but in the single digits per day.

## 3. Control to stop threats

Minutes to respond

**Human Control** comes from our Instant investigations that automatically aggregates and contextualizes hybrid-attacker progression and lateral movement so analysts can rapidly and confidently respond minutes after an attack starts.



# 1. Coverage to find threats

**VECTRA AI'S 170+ ADVANCED MACHINE LEARNING MODELS ACROSS NETWORK IDENTITY AND CLOUD CONTINUOUSLY LEARN AND ADAPT TO EVER-EVOLVING ATTACKER BEHAVIORS**

Access	Persist	Command & Control	Escalate & Evade	Recon & Discover	Lateral Movement	Exfiltration & disruption
New host	MFA disabled	Hidden HTTPS tunnel	New host	Kerberoasting (x4)	Privilege access anomaly (x6)	Smash and grab
Suspected compromise access	Trusted IP change	Hidden DNS tunnel	Log disabling attempt	Internal darknet scan	Suspected remote exec	Ransomware file activity
Brute-force attempt / success	Admin account creation	Hidden HTTP tunnel	Disabling security tools	Port scan	Suspicious remote desktop	Data gathering
Disabled account	Account manipulation	Hidden ICMP tunnel	Suspicious mailbox rule	Port sweep	Suspicious admin	Data smuggler
TOR Activity	Redundant access	Multi-homed fronted tunnel	Log disabling attempt	SMB account scan	Shell knocker	Hidden tunnel exfil (x4)
Unusual scripting engine	Device/factor registration	Suspicious relay	Suspect privilege operation	Kerberos account scan	Automated replication	Botnet abuse
Suspicious OAuthApp	Logging disabled	Suspect domain activity	Suspect privilege manipulate	Kerberos brute-sweep	Brute-force	Crypto mining
Suspicious sign-on	User hijacking	Malware update	Suspect console pivot	File share enumeration	SMB Brute force	External teams access
Suspicious sign-on with MFA fail	ECS hijacking	Peer-to-peer	Suspect cred access EC2	Suspicious LDAP query	Kerberos brute force	Ransomware SharePoint activity
Suspicious teams app	Suspect login profile manipulation	Suspicious HTTP	Suspect cred access SSM	RDP Recon	SQL injection activity	Suspicious SharePoint download
Suspicious copilot access	Security tools disabled	Stealth HTTP post	Suspect cred access ECS	RPC recon	Internal stage loader	Suspicious SharePoint sharing
Suspicious CSP access	SSM hijacking	TOR activity	Suspect cred access Lambda	RPC targeted recon	Suspicious active directory	Exfil before termination
Suspicious credential usage	Suspect policy manipulation	Novel external port	Diagnostic logging disabled	Unusual eDiscovery search	NovelAdmin protocol	Suspicious mailbox forwarding
Root credential usage	Suspicious app service action	Threat intel match	Subscription admin abuse (x4)	Unusual compliance search	NovelAdmin share access	eDiscovery Exfil
TOR activity	Managed identity abuse	Vectra threat intel match	TVM/ARC DSC execution	Suspect eDiscovery activity	ICMP internal tunnel	Power automate activity (x3)
Suspicious CSP access	Suspicious policy (x3)		Suspect key vault privilege granted	User permission enumeration	Risky exchange op	Ransomware S3 activity
TOR activity	Suspect app service (x3)		Privilege anomaly: root scope	EC2 enumeration	Internal spear phishing	Suspect public S3 charge
	Anonymous app service webjob		Privilege anomaly: Management group scope	S3 enumeration	File poisoning	Suspect public EBS charge
			Suspicious VM serial console usage	Suspect escalation recon	Mailbox manipulation	Suspect public EC2 charge
				Organization discovery	DLL hijacking	Suspect public RDS charge
				Suspicious Copilot access	Privilege operations anomaly	Suspect external access grant
				Azure credential dump	Suspicious runbook usage (x2)	Suspicious disk download
				Suspect key vault cred dump	Suspicious RunCommand execution (x3)	Cryptomining
				Suspect key vault enumeration	Suspicious extension (x3)	Suspect public change (x2)
						Suspect mass resource delete

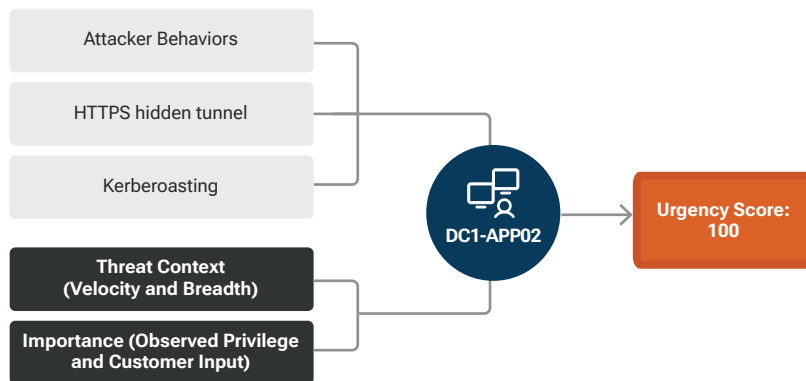
	Data center network & identity, IaaS, IoT/OT
	Identity: Azure AD (Entra ID)
	SAAS: Microsoft 365
	GenAI: Copilot for M365
	PaaS: AWS
	PaaS: Azure

Vectra provides coverage for what attacks do before and after the sign-in, with visibility into living-off-the-land tactics that allow teams to stop attackers before damage.



## 2. Clarity to act quickly

### AI PRIORITIZATION AND CORRELATION CONNECT THE DOTS AND FIND WHAT'S URGENT



#### CONNECTING THE DOTS::

Scores based on behavior and context

Considers and learns what's important

Connects activity **across domains**

Automatically resolves benign activity

#### CONNECTS ACTIVITY ACROSS DOMAINS

76	dale@demolab.vectra.ai	Urgency Score 76	Assign
<b>Entity Info</b>			
Detections in	Azure, Azure AD & M365	Entity Importance	Medium
Tags	—	Informed by	Attack Profile
Groups	—	Determining factor	Observed Priority
Assignment	—		Insider Threat: Privileged
Last Seen	Nov 25th 2024 14:34		KiChain Phases
			Latent, C&C
			Velocity
			High
			Show Active Detections

#### PROVIDES CONTEXT ON ATTACKER BEHAVIORS

dale@demolab.vectra.ai | Urgency Score: 76 | Priority Status: Prioritized

**Account Information**

**Azure AD Account**

Name: 0365dale@demolab.vectra.ai

Account Status: Enabled

**Azure AD Account**

Name: dale@demolab.vectra.ai

Object ID: 3af685da-35c6-4c68-a595-cbab56975d12

Show Details

**Attack Profile: Insider Threat: Privileged**

Active detections are behaviors, if unauthorized, associated with a privileged insider threat.

**Positive Indicators**

- Azure AD Admin Account Creation
- Azure AD Privilege Operation Anomaly
- Azure AD Redundant Access Creation

**Detections** | Details | Instant Investigation

Timeline: 1D 1W 2W 1M

Expand All | Collapse All

CATEGORY	TYPE
Lateral	Azure Resource Group Admin Privilege Granted
C&C	Azure AD Redundant Access Creation
C&C	Azure AD Admin Account Creation
Lateral	Azure AD Privilege Operation Anomaly

## 3. Control to stop threats

### Active posture monitoring

Vectra AI enables teams to shift left by identifying security gaps across networks, identities, cloud services, and GenAI tools like Microsoft Copilot for M365. We actively monitor over 20 AI-enhanced data streams and hundreds of attributes to find how attackers could bypass control in your environment in a future attack with the context to reduce your attack surface.

### Accelerated investigations and intuitive threat hunting

Vectra AI instantly delivers answers to analysts' top questions from metadata across network, cloud, and identity in every case — without the need to write a single query. When deeper investigation is required, teams have access to all 20 data streams with integrated context, accelerating the path to identifying threats.

### Comprehensive response capabilities

Vectra AI's native integrations with EDR, AD and Entra ID allow security analysts to manually or automatically take the right action at the right time to stop an attacker wherever they are in the environment.

### Integration with Microsoft Sentinel

Vectra AI natively integrates with Microsoft Sentinel, enhancing existing workflows, removing the need to manage custom analytics while maximizing time.

### MXDR to alleviate operational burden

Vectra's 24/7 MXDR hybrid attack experts alleviate your operational burden in threat detection and response.



## Uncover your gaps in Microsoft environments: Offensive security test

Here are three tools / services that allow your team to uncover gaps across your Microsoft environment:

1

### Uncover network/ network-to-cloud gaps

[Vectra's Offensive Security Service](#) uses certified experts and trusted tools like Cobalt Strike and Outflank to deliver seamless, controlled assessments. The team validates attack signals, identifies vulnerabilities, and provides actionable insights to address network or network-to-cloud security gaps, enabling informed decision-making.

2

### Uncover identity gaps

[MAAD-AF](#) is an open-source tool for testing Microsoft 365 and Entra ID security through adversary emulation. It helps security teams replicate attacker tactics, and identify gaps in existing identity detection and response capabilities.

3

### Uncover cloud gaps

[Halberd](#), a free open-source multi-cloud security testing tool, helps security teams test their defenses against attack techniques across Microsoft 365, Microsoft Entra ID (formerly Azure AD), Microsoft Azure and AWS—all in one platform through adversary emulation.



**Schedule an Offensive Security Test  
with Vectra AI**

**See Vectra AI in Action**

## About Vectra AI

Vectra AI, Inc. is the cybersecurity AI company that stops attacks others can't. The Vectra AI Platform delivers integrated signal across public cloud, SaaS, identity, and data center networks in a single platform. Vectra AI's patented Attack Signal Intelligence empowers security teams to rapidly detect, prioritize, investigate and stop the most advanced hybrid cyber-attacks. With 35 patents in AI-driven detection and the most vendor references in MITRE D3FEND, organizations worldwide rely on the Vectra AI Platform and MDR services to move at the speed and scale of hybrid attackers. For more information, visit [www.vectra.ai](http://www.vectra.ai).