

Cybersecurity



Inside This Issue

- **Despite macro headwinds, 2022 saw the second-highest annual level of sector M&A and investment volumes**, fueled by healthy spending growth and available capital across a widening array of well-heeled buyers and investors. The total number of transactions also remained near historical highs, with 163 acquisitions and 1,217 investments reported
- **Last year's 8.9x median M&A deal value / last 12-month revenue multiple declined only slightly** from 2021's 9.0x, and remained materially higher than 2020's 7.0x
- **We forecast 2023 investment, M&A activity and valuation levels in line with five-year historical averages**, though fewer spike valuations and lower burn tolerance may reduce median valuation multiples (especially given the material increase in median valuations since 2020). Overall number of transactions, based on a slower 2H versus 1H 2022, will likely decline in 2023 from last year's near highs
- **2022 proved to be the most dangerous year cyber-wise**, with big jumps recorded in ransomware, distributed denial of service, zero-day and operational technology attacks. Expect more of the same in 2023, catalyzing stricter government and industry regulations worldwide
- **Overall, cyber spend can be characterized as moving up and left: up into cloud infrastructure, application and data protection; and left timeline-wise toward prevention**. Regarding the latter, while threat detection and response remain critical, we see great investment momentum ahead in areas supporting preventive threat exposure management
- **While profitability is more valued than a year ago, growth and innovation will remain the primary value drivers in cyber**. The rapid re-making of the security landscape will continue apace, placing a premium on leading-edge technologies to close exposure gaps arising as organizations drive more digitalization and automation into operations

Year-end 2022 Report

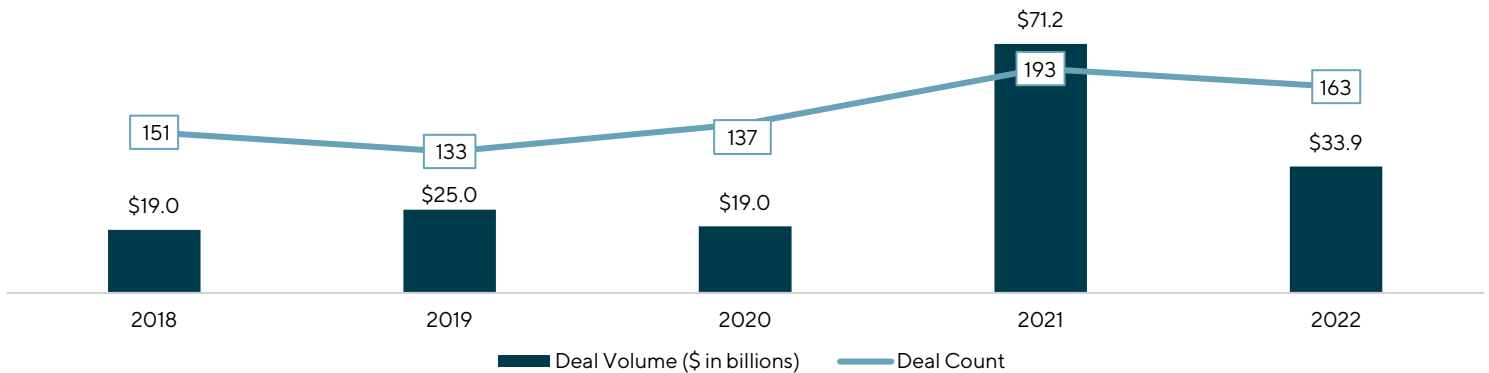
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2022 Cybersecurity M&A Activity

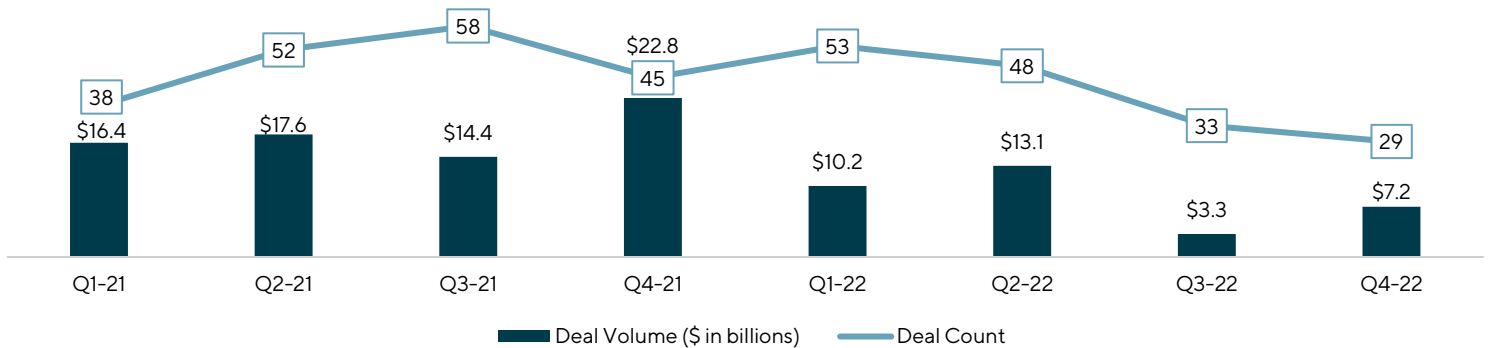
Declines from a Record 2021, but Strength Remains

- Cybersecurity mergers and acquisitions (M&A) activity levels and values remained healthy in 2022, despite macro headwinds and public market declines. While below 2021 record highs, global cyber M&A deal volume reached \$34 billion in 2022, well above the historical average and the second-highest annual volume ever
- Acquisition count in 2022 of 163 transactions was 16% below 2021's 193, and 19% above 2020's 137 deals. Based on available data, median M&A deal sizes saw a steep year-on-year decline to \$73 million in 2022, from \$150 million in 2021. This was due to fewer big-ticket deals (10 > \$500 million deal value in 2022 versus 23 in 2021) – reflecting rising borrowing costs and a higher proportion of acquisitions by smaller, growth-stage private vendors
- While many sector M&A transactions do not have publicly disclosed multiples, available data shows an overall median sector deal value / last-12-months (LTM) revenue multiple of 8.9x in 2022, versus 9.0x in 2021 and 7.0x in 2020
- 2H 2022 saw a material decline in M&A and investment activity and volume compared to the first half of the year, suggesting a potentially weaker start to 2023. On a positive note, M&A valuation multiples showed no pattern of decline through 2022
- Financial sponsors and their portfolio companies constituted about three-quarters of all acquisitions in 2022, both in terms of number and volume of acquisitions – a record, fueled by high cash availability and public market valuation declines. While stabilizing public markets and the rising cost of debt may reduce this proportion in 2023, we expect continued financial sponsor leadership in M&A – aided by >50 pre-initial public offering (IPO) unicorns that seek to bolster their capabilities and scale
- Thematically, customer focus is moving up and to the left: up into cloud infrastructure, application and data protection; and left timeline-wise toward prevention. Thus, the most active financial sponsor investment areas in 2022 comprised data protection, risk & compliance management, cloud security and attack surface and vulnerability management. In M&A, it was identity & access management, managed detection & response, data protection, fraud prevention and application security
- We expect emphasis on 'pre-bang' prevention to continue in 2023, supporting continuing strong transaction activity in the areas noted above, as well as: cyber risk ratings, cloud governance, application programming interface (API) and Software as a Service (SaaS) app security, zero trust network access, and internet of thing (IoT) / operational technology (OT) security

Annual M&A Deals and Volume (2018 - 2022)

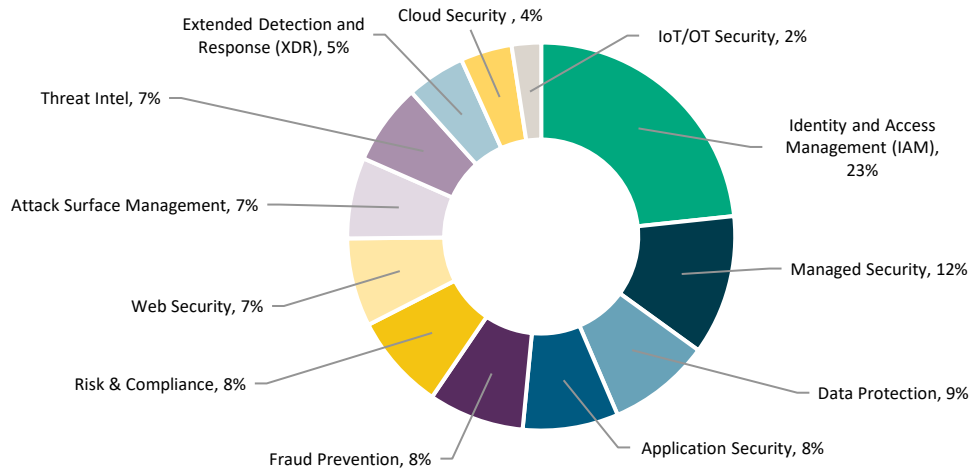


Quarterly Cyber M&A Activity (Q1-21 - Q4-22)



Sources: 451 Research / S&P Capital IQ, Crunchbase, Pitchbook, public sources and Lincoln estimates

2022 Cyber M&A Transactions by Sub-sector



Notable 2022 Cybersecurity M&A Transactions

Announced	Acquirer	Target, Subsector	Deal Value/ Multiple of LTM Revenues	Announced	Acquirer	Target, Subsector	Enterprise Value/Multiples of LTM Revenues
May-22	BROADCOM	vmware® Cloud Security	\$61.0 billion / 5.3x ⁽¹⁾	Apr-22	VECTOR CAPITAL	WatchGuard® Network and Infrastructure Security	\$1.5 billion / 4.6x
Apr-22	THOMABRAVO	SailPoint Identity and Access Management	\$6.9 billion / 14.4x	Mar-22	helpsystems	ALERT LOGIC™ MDR	\$700 million / 5.0x
Apr-22	Kaseya	datto Data Security	\$6.2 billion / 8.9x	Mar-22	SentinelOne®	Attivo NETWORKS. Identity Threat Detection & Response	\$617 million / 17.6x
Aug-22	opentext™	MICRO FOCUS® AppSec	\$5.7 billion / 2.1x	Apr-22	TURN // RIVER	tufin Network Security	\$570 million / 4.2x
Mar-22	Google	MANDIANT MDR, Threat Intel	\$5.3 billion / 11.6x	Sep-22	newfold digital	MarkMonitor™ Digital Risk Management	\$303 million / ND
Oct-22	VISTA	KnowBe4 Risk and Compliance	\$4.6 billion / 14.9x	Nov-22	paloalto NETWORKS	Cider Application Security	\$195 million / ND
Apr-22	KKR	Barracuda® Email and Network Security	\$4.0 billion / 7.3x	Oct-22	KKR	NETSPI® Risk and Compliance	ND / ND
Aug-22	THOMABRAVO	PingIdentity. Identity and Access Management	\$2.8 billion / 9.1x	Nov-22	INTEL471	spiderfoot Threat Intelligence	ND / ND
Mar-22	TA ASSOCIATES	VERACODE Application Security	\$2.5 billion / 8.3x	Dec-22	VERACODE	CRASHTEST SECURITY Security Testing	ND / ND
Oct-22	THOMABRAVO	ForgeRock® Identity and Access Management	\$2.3 billion / 12.0x	Dec-22	proofpoint	illusive Identity Threat Detection & Response	ND / ND

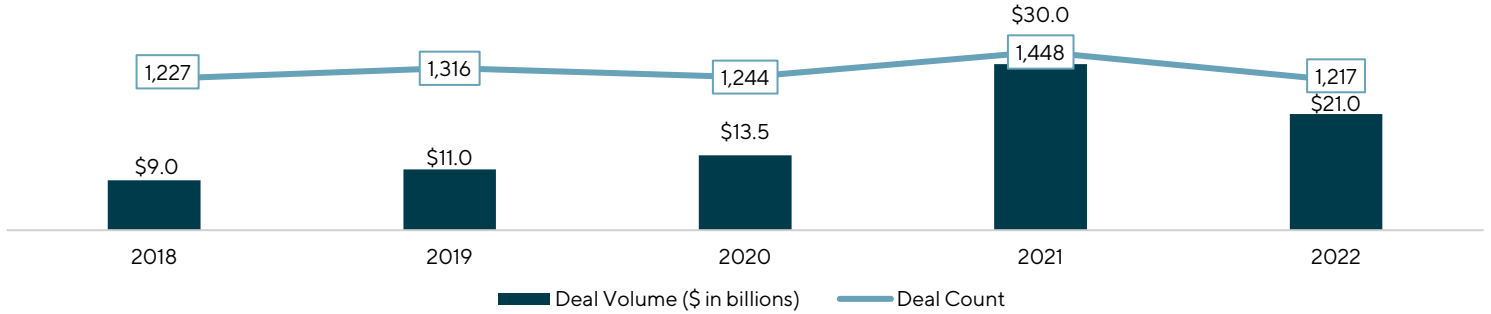
Sources: 451 Research / S&P Capital IQ, Crunchbase, Pitchbook, public sources and Lincoln estimates
 Note: (1) Transaction excluded from M&A totals because it is only partly cyber-related

2022 Cybersecurity Investment Activity

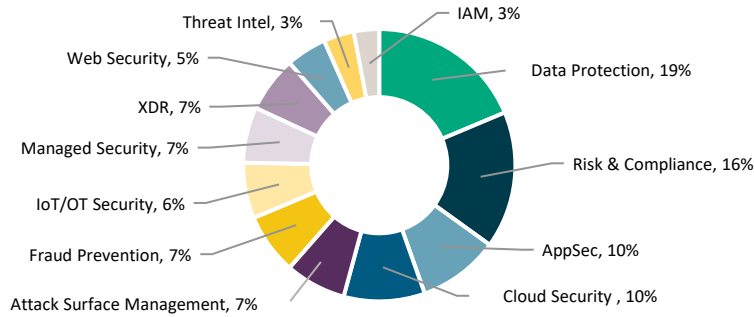
Sector Showed Resilience in a Turbulent Macro Environment

- Despite market uncertainty, 2022 cyber venture and growth investments remained strong, with total funding reaching \$21 billion across 1,217 companies, versus 2021's total funding of \$30 billion across 1,448 companies
- 2023 sector investment activity should remain in line with the five-year historical average, due to powerful secular demand trends, and cyber's above-average growth outlook versus other areas of technology. However, greater discernment and higher borrowing costs will favor vendors with credible visibility to profitability. That said, growth and innovation will continue to be the primary valuation drivers

Annual Cyber Growth Investment Activity (2018 - 2022)



2022 Cyber Growth Investments by Vertical

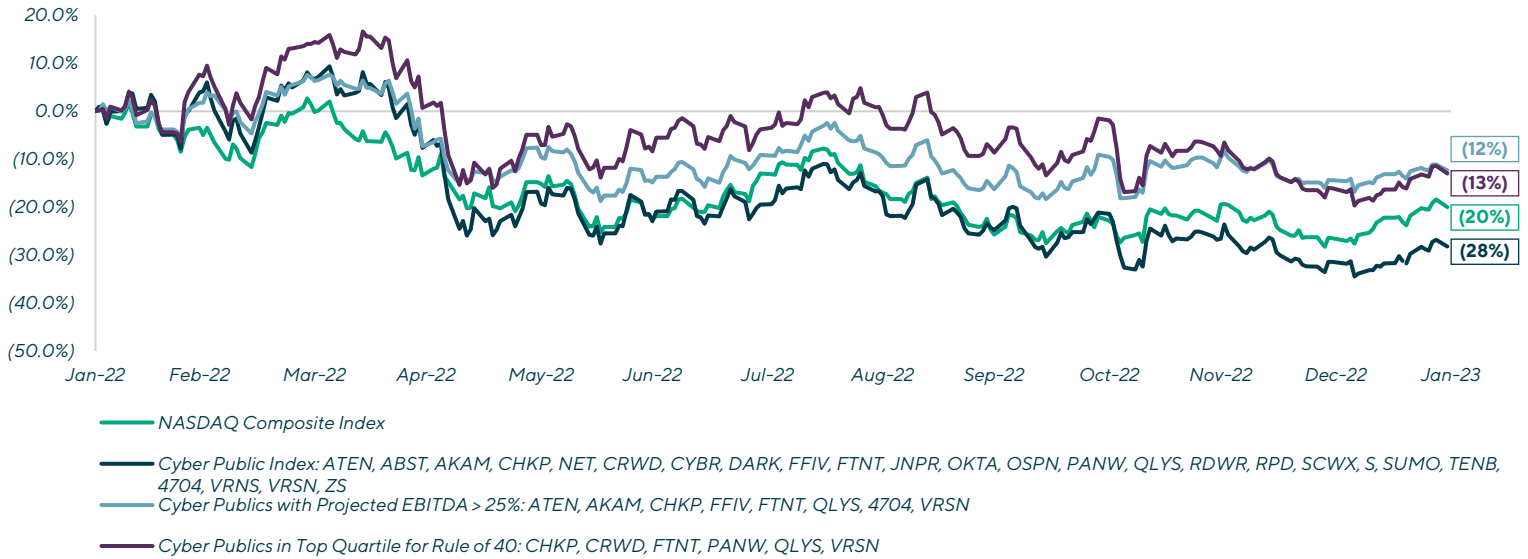


Notable 2022 Cybersecurity Investments

Announced	Company	Subsector	\$ Raised in Round	Announced	Company	Subsector	\$ Raised in Round
Feb-22	securonix	SIEM/SOAR, UEBA	\$1.0 billion	May-22	semperis	Identity Threat Detection and Response	\$200 million
Jan-22	1Password	Identity and Access Management	\$620 million	May-22	pathlock	Attack Surface Management	\$200 million
Apr-22	sonar	AppSec	\$412 million	Dec-22	DRATA	Data Security	\$200 million
Feb-22	BlueVoyant	MDR	\$250 million	Dec-22	snyk	AppSec	\$197 million
Jul-22	Acronis	Data Security	\$250 million	Jun-22	Coralogix	Security Operations / Incident Response / Threat Intel	\$142 million
Jul-22	Coalition	Risk and Compliance	\$250 million	Apr-22	FORTRESS	IoT/OT Security	\$125 million
Apr-22	CRITICALSTART	MDR	\$215 million	Oct-22	VERSA NETWORKS	Secure Access Service Edge	\$120 million
May-22	Abnormal	Email Security	\$210 million	Sep-22	Malwarebytes	Endpoint Detection and Response	\$100 million

Cybersecurity 2022 Public Index Moved in Line with Broader NASDAQ Decline

- 2022 saw the cyber sector undergo rapid changes in the public market, with 11 public companies taken private (17 in total since 2021) and the cyber public index of 25 vendors declining by 28%, versus NASDAQ's 20% drop in 2022. The greater relative decline is attributable in part to the sector trading on average materially above overall technology, media and telecom trading multiples
- Among public cyber vendors with projected 2023 EBITDA greater than 25%, mean share price declined only 12% in 2022. Additionally, public cyber vendors in the top quartile for Rule of 40 saw only a 13% decrease in average share price, highlighting the increasing importance of profitability and operational efficiency in a more challenging economic environment
- Following Vista's and Thoma Bravo's role leading half of all public cyber takeouts since 2021, we foresee more financial sponsors jumping-in in 2023. This activity reflects a perception that the public markets may be becoming over-sold, and that more can be accomplished to transform certain companies once they are private
- A majority of the 50 largest security vendors revenues-wise are now private. While private equity owners may be content to run these businesses for cash, over time most envision going back out as public companies. To get there, these behemoths will be highly active on the M&A front, leveraging balance sheets and cash flow to acquire innovation and growth



Cybersecurity Public Valuations Come Back to Earth

Vendors with Mix of Growth and Profitability Continue to be Rewarded in Public Markets

- The importance of Rule of 40 has become more pronounced, as cyber investors increasingly prefer companies that not only demonstrate strong growth, but also have a profitable business model
- The shift away from growth at all costs has been driven by rising interest rates and somewhat tightening access to capital. Consequently, profitable growth is more highly correlated than growth only with revenue valuation multiples
- At year-end 2022, Rule of 40 had a 72% correlation⁽¹⁾ with public cyber vendor 2023E enterprise value / revenue multiples. In comparison, 2023E revenue growth had a 44% correlation with 2023E revenue multiples

Cyber Public Vendor Performance at Year-end 2022

Vendors	2023E Revenue Growth	2023E EBITDA Margin	Rule of 40 ⁽²⁾	Actual vs. Estimated Results for Latest Quarter Reported		EV/Revenue CY 2023E ⁽³⁾
				Revenue (\$ in millions)	EPS	
VeriSign, Inc.	8.4%	72.6%	81.0%	beat by .05	beat by 1.58	15.0x
Cloudflare, Inc.	34.9%	13.6%	48.5%	beat by 4.0	beat by .06	12.1x
Zscaler, Inc.	31.4%	16.3%	47.7%	beat by 14.8	beat by .03	9.5x
CrowdStrike Holdings, Inc.	33.0%	20.4%	53.4%	beat by 5.8	beat by .08	8.3x
Fortinet, Inc.	21.0%	29.0%	50.0%	beat by 25.6	beat by .06	7.3x
Qualys, Inc.	15.6%	41.3%	56.9%	beat by 1.0	beat by .08	7.0x
CyberArk Software Ltd.	21.8%	2.3%	24.2%	beat by 1.8	beat by .15	6.7x

Note: (1) Represents the correlation coefficient between the two arrays of data described above; (2) The Rule of 40 is calculated as 2023 projected revenue growth plus 2023 projected EBITDA margin; (3) Multiples as of 12/31/2022

Vendors	2023E Revenue Growth	2023E EBITDA Margin	Rule of 40 ⁽²⁾	Actual vs. Estimated Results for Latest Quarter Reported		EV/Revenue CY 2023E ⁽³⁾
				Revenue (\$ in millions)	EPS	
SentinelOne, Inc.	54.6%	(20.1%)	34.5%	beat by 4.3	beat by .06	5.9x
Palo Alto Networks, Inc.	23.9%	24.7%	48.6%	beat by 12.2	beat by .14	5.8x
Tenable Holdings, Inc.	20.1%	13.2%	33.3%	beat by 4.6	beat by .12	5.3x
Okta, Inc.	18.2%	3.8%	22.0%	beat by 15.7	beat by .24	5.2x
Check Point Software Technologies Ltd.	5.0%	44.9%	49.9%	beat by 5.8	beat by .10	5.1x
Varonis Systems, Inc.	11.6%	9.3%	21.0%	miss by -1.1	miss by -.01	4.3x
Akamai Technologies, Inc.	4.3%	42.0%	46.2%	beat by 5.7	beat by .04	4.1x
A10 Networks, Inc.	9.6%	26.5%	36.1%	beat by 1.1	beat by .02	3.7x
Rapid7, Inc.	16.6%	8.6%	25.1%	miss by -0.2	beat by .09	3.5x
Darktrace plc	26.4%	17.4%	43.9%	N/A	N/A	3.5x
Absolute Software Corporation	16.8%	22.7%	39.5%	miss by -0.4	beat by .14	3.0x
F5, Inc. ⁽¹⁾	11.4%	33.9%	45.4%	beat by 8.3	beat by .11	2.9x
Trend Micro Incorporated	12.5%	25.2%	37.7%	beat by 4.8	beat by .67	2.5x
Juniper Networks, Inc.	7.5%	20.4%	27.8%	beat by 66.3	beat by .08	2.0x
Radware Ltd.	2.5%	14.6%	17.1%	miss by -3.9	miss by -.01	1.9x
Sumo Logic, Inc.	16.6%	(8.9%)	7.7%	beat by 4.8	beat by .11	1.9x
OneSpan Inc.	6.3%	0.6%	6.9%	beat by 4.5	beat by .14	1.6x
SecureWorks Corp.	(4.6%)	(17.5%)	(22.2%)	miss by -1.5	beat by .05	0.9x

Note: (1) Only F5, Inc. has reported Q4 2022 performance as of the time of this writing - all others show comparisons for Q3; (2) The Rule of 40 is calculated as 2023 projected revenue growth plus 2023 projected EBITDA margin; (3) Multiples as of 12/31/2022

Looking Ahead to 2023 and Beyond

- **Modernity has propelled cybersecurity to a position of prominence in board rooms, war rooms and living rooms.** What was once known as IT security – protecting assets in organizations’ tech closets – now defends our way of life. The organizations, data and physical infrastructure making up our world depend on security for much of their useful existence; mal-doers know this
- **The cyber industry is running two races: the first, to outmaneuver threats, and the second to keep pace with technology innovation.** While short-term activity trends are important barometers for vendors, investors and customers, these oscillations exist within a long-term, growthy upward line in cyber demand, going out well beyond 2023. Successful vendors will be those developing the most effective solutions – as proven by rapid adoption – and will continue to garner investment and acquisition interest at attractive values, regardless of macro indicators
- **Google once described cybersecurity (or lack of it) as the greatest threat to humankind.** It is also arguably the most dynamic and complex of challenges. As cyber-insurers are learning, it’s difficult to apply actuarial science to predict losses; unlike fire, breaches never burn the same way twice. Further, in security one can do the right things 99% of the time, yet be successfully attacked (and so be 100% wrong)
- **Not surprisingly, despite an estimated \$250 billion of cyber customer spend in 2022 (in a potentially \$2 trillion TAM)⁽¹⁾, last year proved to be the most dangerous cyber-wise on record,** with no let-up expected in 2023. For example, Microsoft detected a 130% jump in ransomware attacks in 2022, while Cloudflare found a 79% rise in denial-of-service attacks. Partly in connection with unrest in Ukraine, cyberspace conflict and espionage is rising to unprecedented levels, spilling over to real-world shutdowns, rather than ‘mere’ data theft. These include successful attacks in 2022 that halted Toyota car production, closed hospitals, caused flight delays in 50 countries and took Costa Rica’s government offline
- **In response, governmental entities worldwide will impose further, more stringent regulatory requirements.** As a notable example, in 2022 the U.S. Securities and Exchange Commission proposed mandatory 8-K reporting of material cybersecurity incidents within four business days, and disclosures on company policies to manage cybersecurity risk. Analogous requirements are being promulgated in other countries
- **All this points to higher cyber spending growth in 2023 by organizations trying to keep up with challenges.** In Q4 2022, Gartner Research predicted total sector spending growth to rise in 2023 to 11.3%, versus 7.2% in 2022. This year for the first time, companies forecast cyber will be the largest spending category in information technology budgets, according to a Spiceworks Ziff Davis survey. The underlying secular demand trend will act as a back-stop against material declines in sector activity and valuations. However, the IPO market will likely remain largely closed in 2023 – despite a bumper crop of excellent go-public cyber candidates

Note: (1) McKinsey, Oct-22

Looking Ahead to 2023 and Beyond (continued)

- Areas of high interest, broadly defined, and activity in 2023 will largely fall into these areas:
 - Preparedness:** Third-party risk / vendor risk management, security awareness training (non-professionals), training and certification (professionals)
 - Prevention:** API security, attack surface and vulnerability management, breach attack simulation, cloud AppSec, data governance, risk & compliance management, threat intelligence, validation and advanced authentication, zero trust network access
 - Protection:** cloud infrastructure protection, cloud / network security policy management, XDR / SOAR, fraud detection, managed detection & response, SaaS app protection, secure access service edge

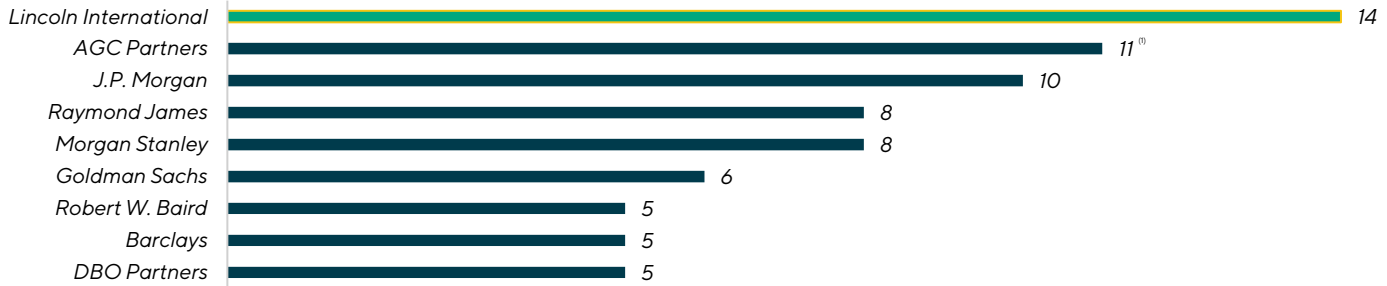
Recent Cyber Take-Private Activity and Leading Cyber IPO Candidates

Announced	Acquirer	Target, Subsector	Enterprise Value	Upcoming IPO Candidate, Subsector	Most Recent Pre-Money Valuation with Equity Raise / Date ⁽²⁾	Money Raised to Date ⁽³⁾
May-22	BROADCOM	vmware Cloud Security	\$61.0 billion	LACEWORK Cloud Security	\$7.0 billion / Nov-21	\$1.9 billion
Jan-22	VISTA Event Security	citrix Cloud, Data and Network Security	\$16.5 billion	netskope Cloud Security	\$7.2 billion / Nov-21	\$1.5 billion
Mar-22	PERMIRA Advent International	McAfee Endpoint Security	\$14 billion	Fireblocks Blockchain Security	\$7.2 billion / Nov-21	\$1.2 billion
Apr-21	THOMABRAVO	proofpoint Email, Human Security	\$12.3 billion	ARCTIC WOLF Managed Security	\$4.1 billion / Sep-21	\$1.1 billion
Aug-21	NortonLifeLock	Avast Endpoint Security	\$9.2 billion	snyk Application Security	\$7.2 billion / Dec-22	\$1.1 billion
Apr-22	THOMABRAVO	SailPoint Identity & Access Management	\$6.9 billion	TANIUM Endpoint Management	\$8.9 billion / May-21	\$980 million
Apr-22	Kaseya	datto Data Security	\$6.2 billion	1Password Identity & Access Management	\$6.2 billion / Jan-22	\$920 million
Dec-21	PERMIRA	MICRO FOCUS Messaging Security	\$5.8 billion	onetrust Risk & Compliance	\$5.1 billion / Apr-21	\$920 million
Aug-22	opentext™	mimecast Application Security	\$5.7 billion	cybereason XDR	\$2.4 billion / Jul-21	\$745 million
Mar-22	Google	MANDIANT MDR	\$5.3 billion	Secure Fraud Prevention	\$4.4 billion / Nov-21	\$650 million
Oct-22	VISTA	KnowBe4 Risk & Compliance	\$4.6 billion	WIZ Cloud Security	\$5.8 billion / Oct-21	\$620 million
Aug-22	THOMABRAVO	PingIdentity Identity & Access Management	\$2.8 billion	Transmit Identity & Access Management	\$2.2 billion / Jun-22	\$580 million
Oct-22	THOMABRAVO	ForgeRock Identity & Access Management	\$2.3 billion	illumio Data Security	\$2.9 billion / Jun-21	\$560 million
Feb-23	FP FRANCISCO PARTNERS	sumo logic Security Analytics	\$1.7 billion	AXONIUS Attack Surface Management	\$2.4 billion / May-22	\$395 million
Apr-22	TURN // RIVER	tufin [®] Network Security	\$570 million	Recorded Future Threat Intelligence	\$225 million / Oct-17	\$85 million

Note: (1) Lincoln advised Turn/River and raised debt in support of its transaction of Tufin; (2) Includes latest disclosed series funding round; (3) Sum of known capital raised

Lincoln International is a Leading Banker to Cybersecurity Leaders

Cybersecurity M&A Deal Count by Bank (2021 - 2022)



Source: 451 Research / S&P Capital IQ
 Note: (1) Excludes asset acquisition

Select Recent Lincoln Banker Cybersecurity M&A & Financing Transactions

<p>2022</p> <p>ELLIOTT has sold ThreatINSIGHT a division of Gigamon® to FORTINET</p> <p>Sell-Side</p> <p></p>	<p>2022</p> <p>illusive has been sold to proofpoint a portfolio company of THOMABRAVO</p> <p>Sell-Side</p> <p></p>	<p>2022</p> <p>zecOps has been sold to jamf</p> <p>Sell-Side</p> <p></p>	<p>2022</p> <p>apax NEW ALPHA ASSET MANAGEMENT have acquired a majority stake of MAILINBLACK</p> <p>Buy-Side</p> <p></p>	<p>2022</p> <p>UNIFIED COMPLIANCE FRAMEWORK® The Science of Compliance.™ has been recapitalized by Allomer Capital</p> <p>Sell-Side</p> <p></p>
<p>2022</p> <p>TURN // RIVER has acquired and taken private tufin</p> <p>Acquisition Financing Buy-Side</p> <p></p>	<p>2022</p> <p>code42 has sold CRASHPLAN to MILL POINT CAPITAL</p> <p>Sell-Side</p> <p></p>	<p>2022</p> <p>A majority stake of eperi has been sold to EQUISTONE</p> <p>Sell-Side</p> <p></p>	<p>2021</p> <p>IK Partners has acquired TRUESEC from SOBRO</p> <p>Buy-Side</p> <p></p>	<p>2021</p> <p>DFLABS has been sold to sumo logic</p> <p>Sell-Side</p> <p></p>
<p>2021</p> <p>Management and investors ELRON arvato BERTELSMANN have sold SECURED TOUCH to Pingidentity</p> <p>Sell-Side</p> <p></p>	<p>2021</p> <p>WICKS has sold SONTIQ to TransUnion</p> <p>Sell-Side</p> <p></p>	<p>2021</p> <p>AGARI has been sold to helpsystems</p> <p>Sell-Side</p> <p></p>	<p>2021</p> <p>Advent International with EURAZEO have acquired planet datatrans.</p> <p>Buy-Side</p> <p></p>	<p>2020</p> <p>portshift has been sold to CISCO</p> <p>Sell-Side</p> <p></p>

* Completed by Lincoln professional while employed at a prior firm



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