HSM Global Market Study

Sponsored by HP Atalla

Independently conducted by Ponemon Institute LLC

Publication Date: July 2014

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Ponemon Institute, July 2014

Part 1. Introduction

Ponemon Institute is pleased to present the HSM Global Market Study sponsored by HP Atalla. The purpose of this research is to provide a competitive analysis of the hardware security module (HSM) marketplace in three global regions.[1]

We surveyed 580 IT and IT security practitioners in the United States, Asia and Latin America about their use of hardware security modules (HSM).[2] All organizations represented in this research use HSMs. Seventy-one percent of respondents say their use of HSMs is extensive or moderate and 28 percent say usage is light. Seventy-two percent are the primary users of the vendor's products and 53 percent influenced the selection of the vendor.

Hardware Security Modules (HSM) are devices specifically built to create a tamper-resistant environment in which to perform cryptographic processes (e.g. encryption or digital signing) and to manage keys associated with those processes. HSMs often provide cryptographic acceleration that is measured in terms of operations. These devices are used to protect critical data processing activities associated with server based applications and can be used to strongly enforce security policies and access controls. These modules are physical devices that traditionally come in the form of a plug-in card or an external network connected appliance and are often validated against security standards such as FIPS 140-2 level 3.

Some of the most noteworthy findings according to the topics above are shown below:

- **HSMs are mostly used for key management purposes or payments**. On average, organizations have approximately 13 HSMs for key management purposes followed by an average of 8 HSMs for payments.

- **The purpose for deploying HSMs will shift in the next 12 months**. Currently HSMs are deployed mainly for authentication, application level encryption, document signing and SSL. In the next 12 months, HSMs for all purposes will increase significantly. The greatest increases will be for SSL, payments processing and authentication. Reasons for the growth in deployment are due in part to regulations in place, such as PCI DSS, concerns about the security and privacy of payment processing and new mobile payment schemes.

- **What is the importance of the physical security of HSMs?** The need for HSM physical security is most important for key management solutions, tokenization/format preserving encryption (FPE) solutions and payments HSMs.

- **What do organizations want in their HSM solutions**? The features considered most important are: automated management of keys, automated enforcement of policy, system performance and latency, tamper resistance by dedicated hardware and centralized management interface.

- **What is the ideal solution?** The most important reasons for selecting their present HSM solution or vendor are the cost and value of the solution, high interoperability with other encryption or key management solutions and ease of use. Of least concern are proven track record of the product or vendor, worry-free installation and product certification.

[1] The Asian regional cluster sample is composed of English speaking Asia-Pacific countries, including: Australia, New Zealand, India, Singapore and Malaysia. The LATAM cluster is composed of Spanish-speaking countries in Central and South America plus Mexico.
[2] Approximately 36 percent of all initial sample returns indicated that the respondents' organizations did not use HSM in any capacity. These individuals were screened from the final sample.

- **Respondents generally hold positive perceptions about their HSM solution providers.** The most positive perceptions are: the HSM solution cannot be compromised by operational or environmental conditions and they are completely tamperproof. Respondents in the US are especially positive about the HSM logging mechanisms that are fully protected against unauthorized modification, substitution or deletion.

- **How important is HSM to key management strategies**? Most organizations represented in this research say HSM is either very important (35 percent of respondents) or important (31 percent of respondents) to their encryption key management strategy. The level of importance increases in the next 12 months. Thirty-eight percent say it will be very important and 32 percent say it will be important to their key management strategy.

- **The development of key management systems is mostly outsourced**. The source of their organization's key management systems is mostly externally developed custom system (57 percent of respondents) and commercial, off-the-shelf key management component (52 percent of respondents).

- **Will organizations deploy key management interoperability protocol (KMIP)?** Seventy-nine percent of respondents say their organization has deployed or plans to deploy sometime in the future key management interoperability protocol (KMIP). Sixty-two percent say KMIP adoption is very important or important to HSM procurement and deployment decisions.

- **Key management strategies improve security and reduce costs**. The majority of respondents (53 percent) say they do not have a key management strategy that is independent of the various uses of cryptography within their organization. Of the 47 percent who say they do have a strategy, the primary drivers are to improve security (64 percent) and reduce operational cost (55 percent).

Part 2. Key findings

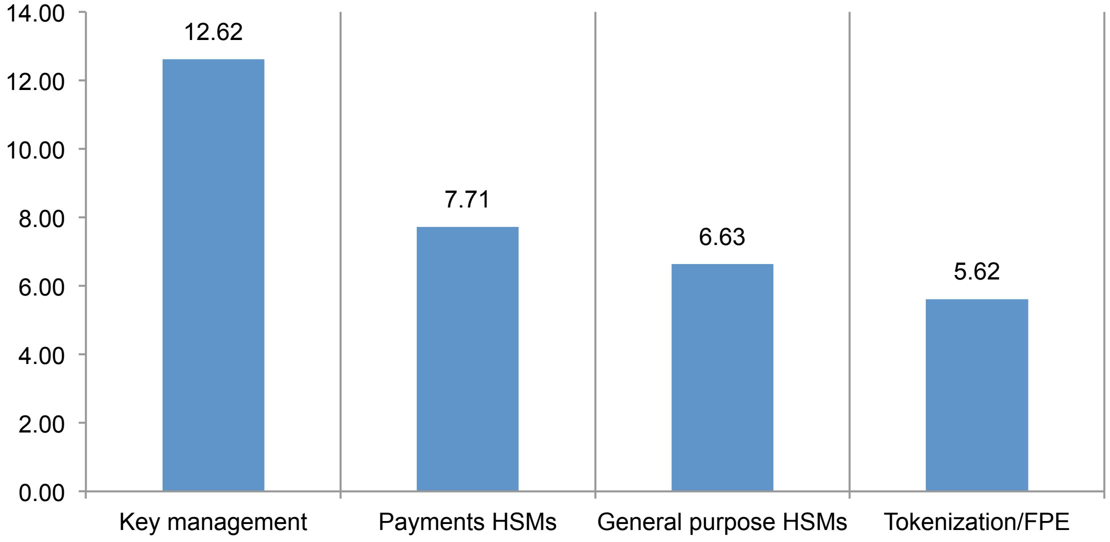
In this section we present an analysis of the consolidated key findings for the U.S., Asia and LATAM. The complete audited findings are presented in the appendix of this report. We have organized the report according to the following themes:

- Current and projected use of HSMs
- Solution features & vendor perception
- Drivers for adoption
- Current and projected budget
- The global view
- Competitive analysis

Current and projected use of HSMs

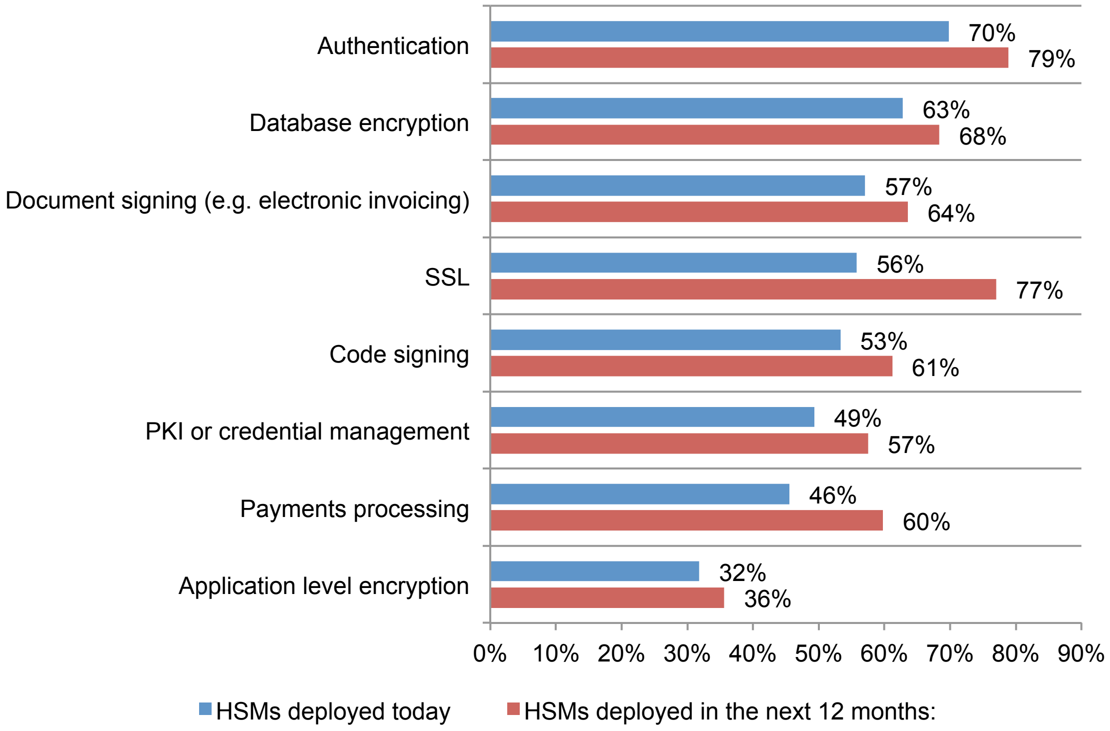
HSMs are mostly used for key management purposes or payments. As shown in Figure 1, on average, organizations have approximately 13 HSMs for key management purposes followed by an average of 8 HSMs for payments, an average of 7 for general purposes and an average of 6 for tokenization/FPE.

Figure 1. How many HSMs does your organization currently deploy?
Extrapolated average



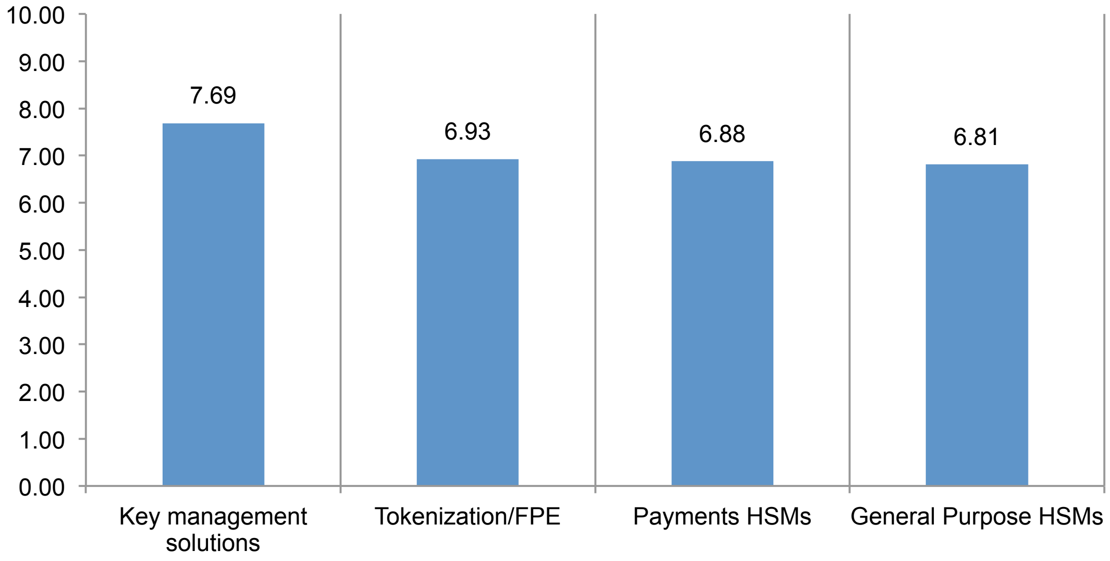
The purpose for deploying HSMs will shift in the next 12 months. Currently HSMs are deployed mainly for authentication, application level encryption, document signing and SSL, as shown in Figure 2. In the next 12 months, HSMs for all purposes will increase significantly. The greatest increases will be for SSL, payments processing and authentication. Reasons for the growth in deployment are due in part to regulations in place, such as PCI DSS, concerns about the security and privacy of payment processing and new mobile payment schemes.

Figure 2. The purpose for deploying HSMs
More than one choice permitted



What is the importance of the physical security of HSMs? The need for HSM physical security is most important for key management solutions, tokenization/format preserving encryption (FPE) solutions and payments HSMs (Figure 3).

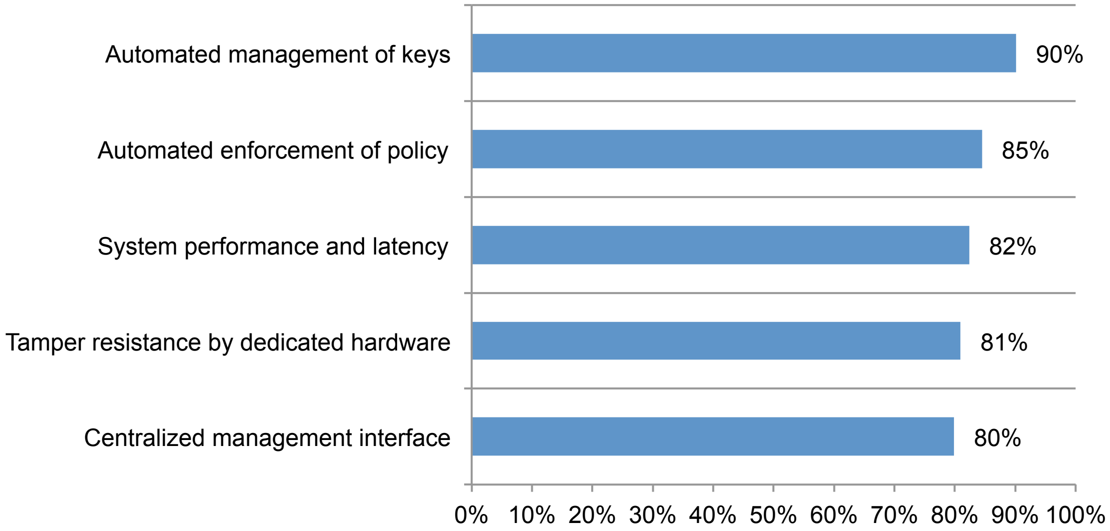
Figure 3. How important is the physical security of HSMs
0 = least important to 10 = most important



Solution features & vendor perception

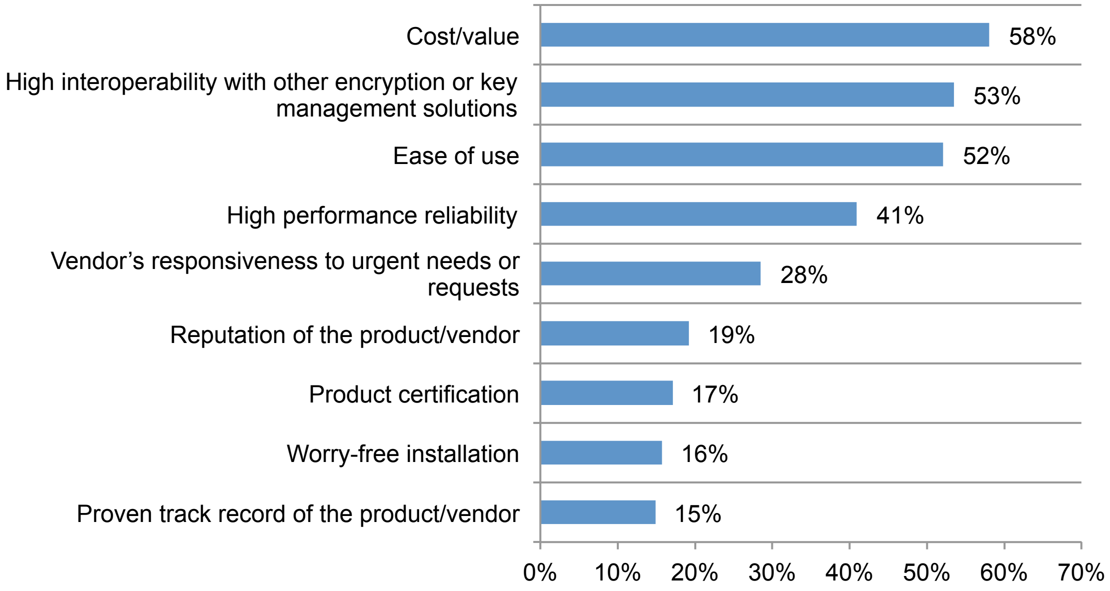
What do organizations want in their HSM solutions? Features considered most important are: automated management of keys and enforcement of policy, system performance and latency, tamper resistance by dedicated hardware and centralized management interface (Figure 4).

Figure 4. Important features associated with HSM solutions
Very important and important response combined



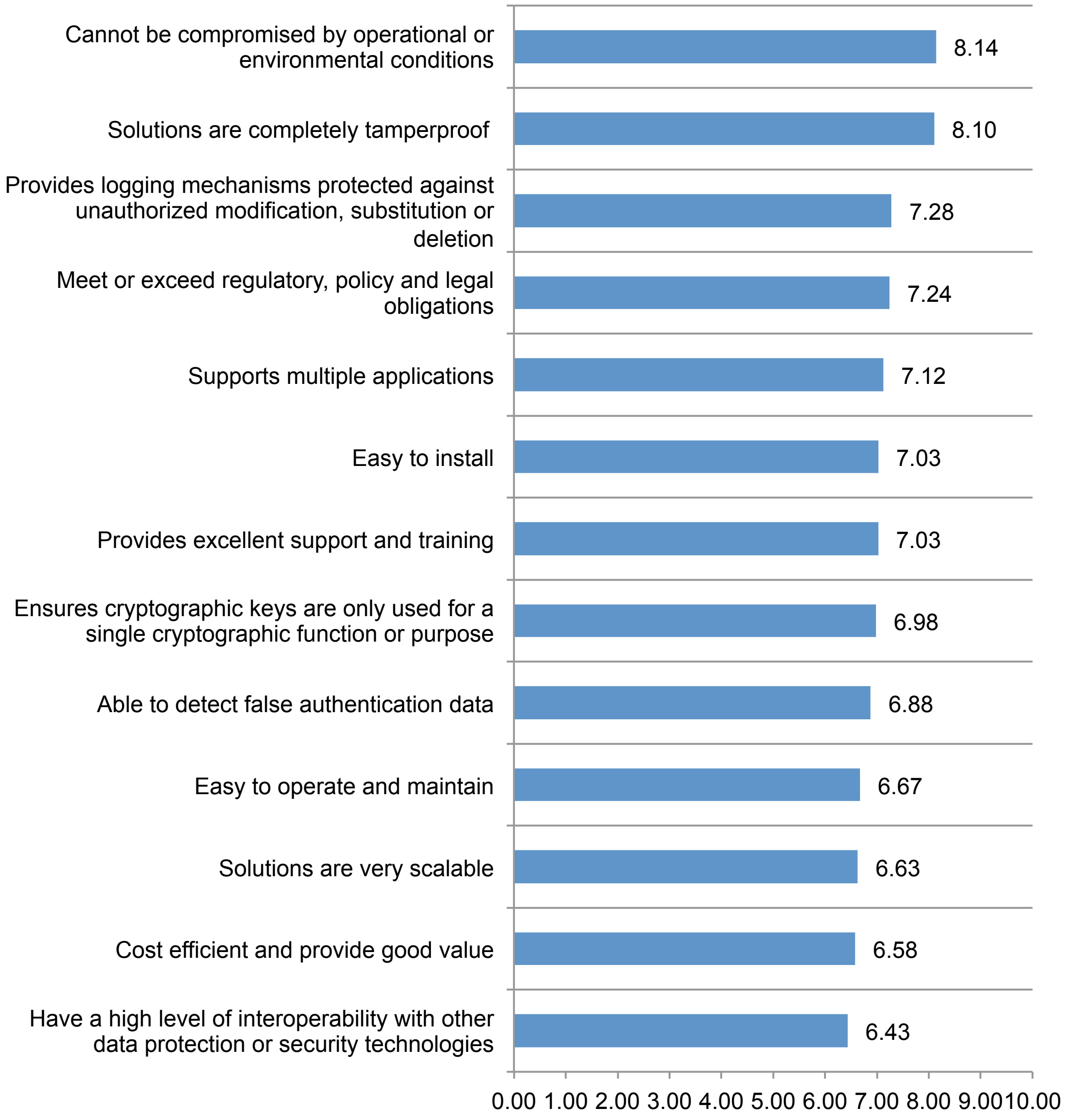
What is the ideal solution? The most important reasons for selecting their present HSM solution or vendor are the cost and value of the solution, high interoperability with other encryption or key management solutions and ease of use (Figure 5). Of least concern is the proven track record of the product or vendor.

Figure 5. Most important reasons for selecting your present HSM solution/vendor
Three responses permitted



Respondents generally hold positive perceptions about their HSM solution providers. Figure 6 lists the perceptions respondents have about their vendors. The most positive perceptions concern the security of their HSM solutions. Specifically, HSM solutions cannot be compromised by operational or environmental conditions and they are completely tamperproof. Respondents are not as positive about the scalability, cost effectiveness and interoperability of their solutions or vendors.

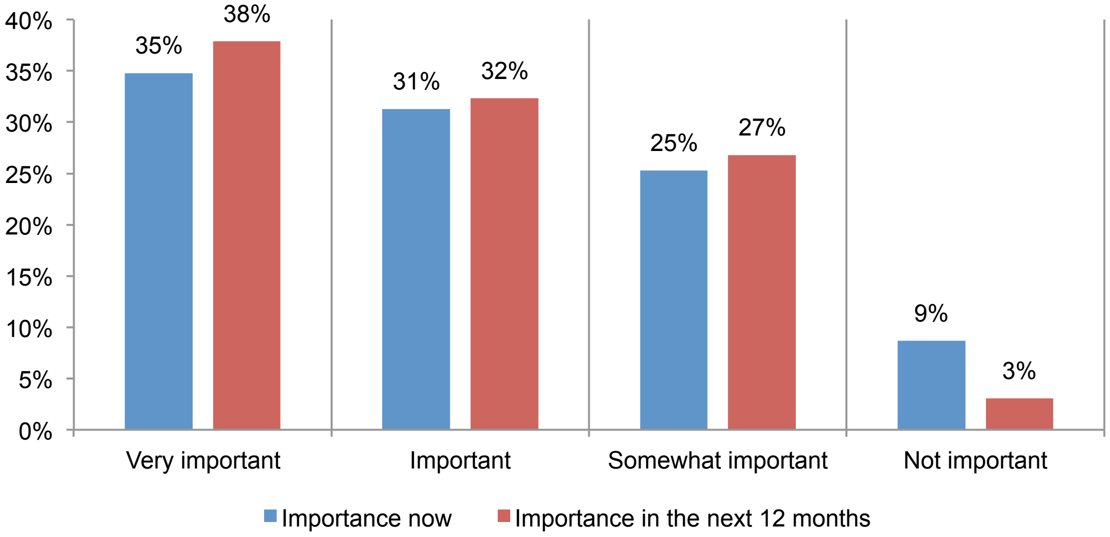
Figure 6. Perceptions about the HSM product/vendor
0 = Disagree completely to 10 = Agree completely



Drivers for adoption

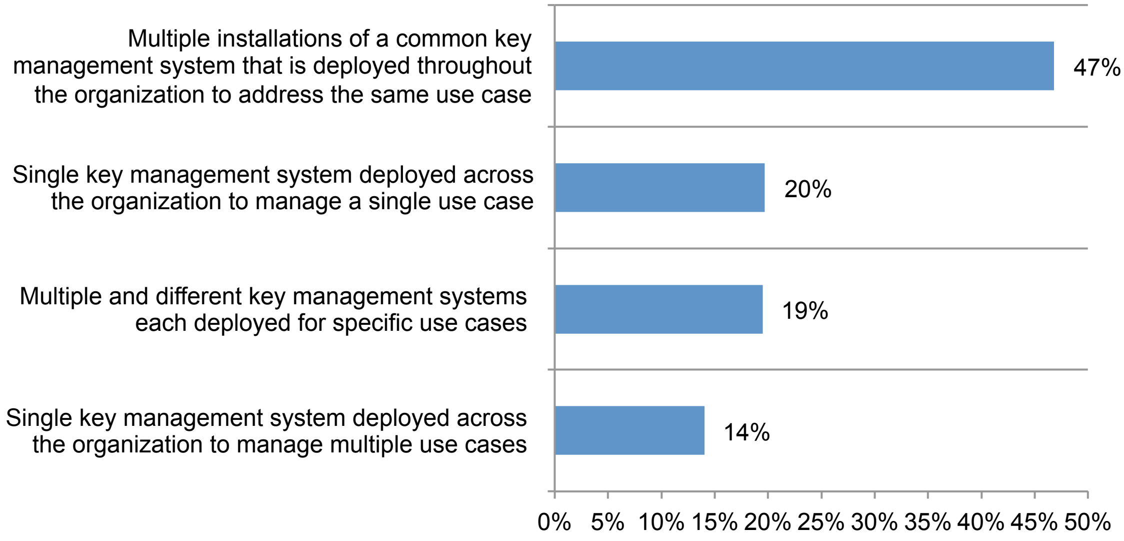
How important is HSM to key management strategies? According to Figure 7, most organizations represented in this research say HSM is either very important (35 percent of respondents) or important (31 percent of respondents) to their encryption key management strategy. The level of importance increases significantly in the next 12 months. Thirty-eight percent say it will be very important and 32 percent say it will be important to their key management strategy.

Figure 7. How important is HSM to your key management strategy?



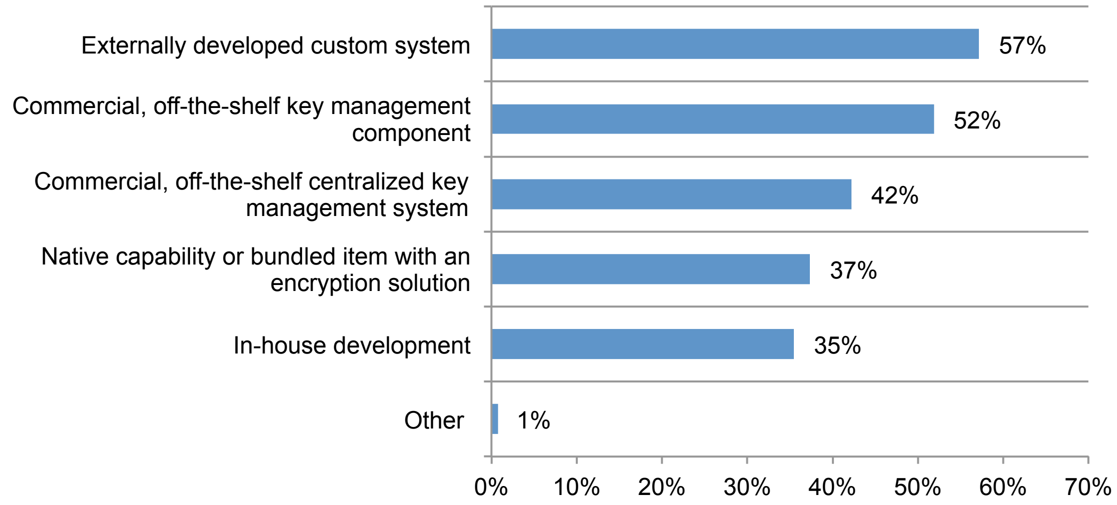
The key management systems used. The key management systems most often used are multiple installations of a common key management system that is deployed throughout the organization to address the same use case (47 percent of respondents) followed by a single key management system deployed across the organization to manage a single use case (20 percent of respondents), as shown in Figure 8.

Figure 8. Types of key management systems in use
More than one choice permitted



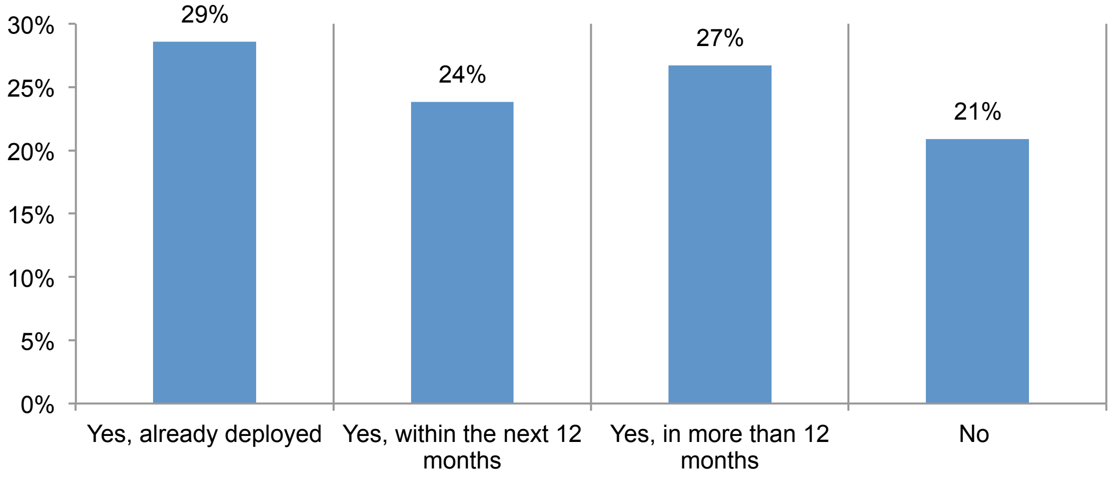
The development of key management systems is mostly outsourced. Figure 9 reveals that the source of their organization's key management systems is mostly externally developed custom system (57 percent of respondents) and commercial, off-the-shelf key management component (52 percent of respondents).

Figure 9. What is the source of your organization's key management system(s)?
More than one choice permitted



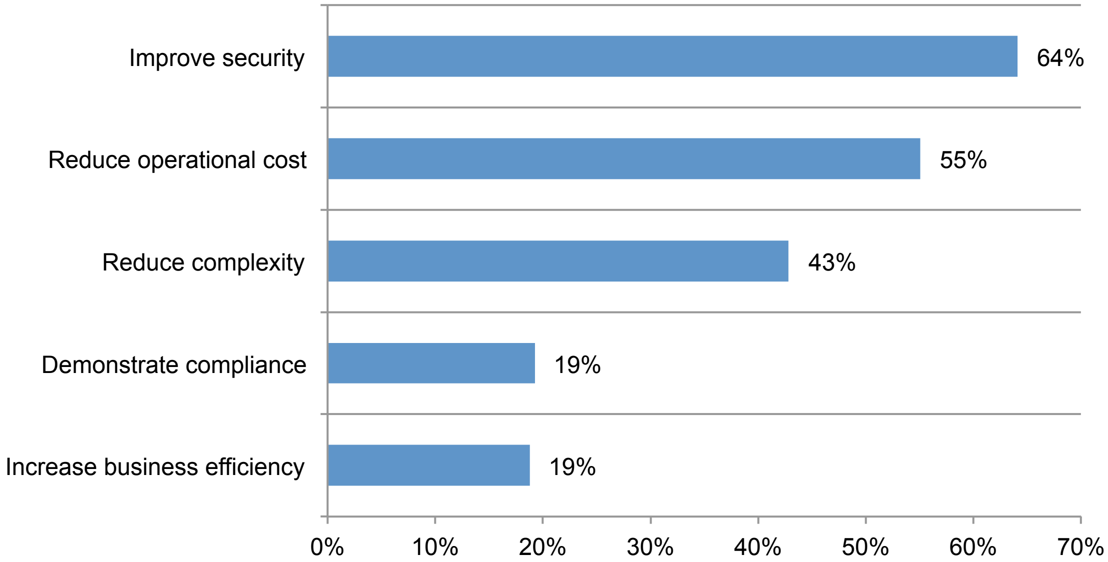
Will organizations deploy key management interoperability protocol (KMIP)? According to Figure 10, 79 percent of respondents say their organization has deployed or plan to deploy sometime in the future key management interoperability protocol (KMIP). Sixty-two percent say KMIP adoption is very important or important to HSM procurement and deployment decisions.

Figure 10. Does your organization deploy, or plan to deploy, KMIP?



Key management strategies improve security and reduce costs. The majority of respondents (53 percent) say they do not have a key management strategy that is independent of the various uses of cryptography within their organization. As shown in Figure 11, of the 47 percent who say they do have a strategy, the primary drivers are to improve security (64 percent) and reduce operational cost (55 percent).

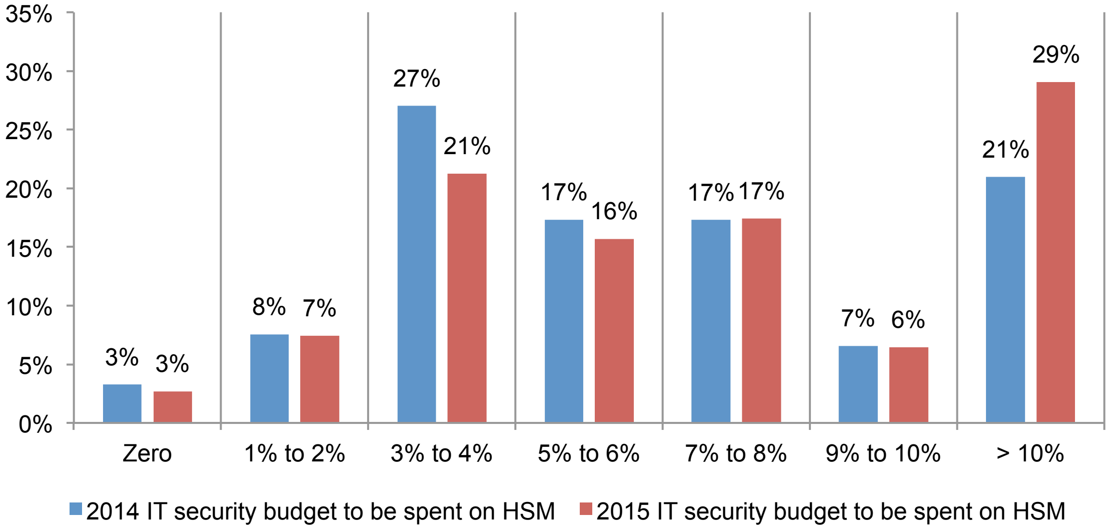
Figure 11. The primary drivers for developing a key management strategy
Two choices permitted



Current and projected budget

What organizations are spending on HSM. The total IT budget for the organizations represented in this research is extrapolated at an average of $146 million. Figure 12 shows the current and expected allocation of budget for HSM solutions. Spending on HSM is expected to increase an average of 9 percent.

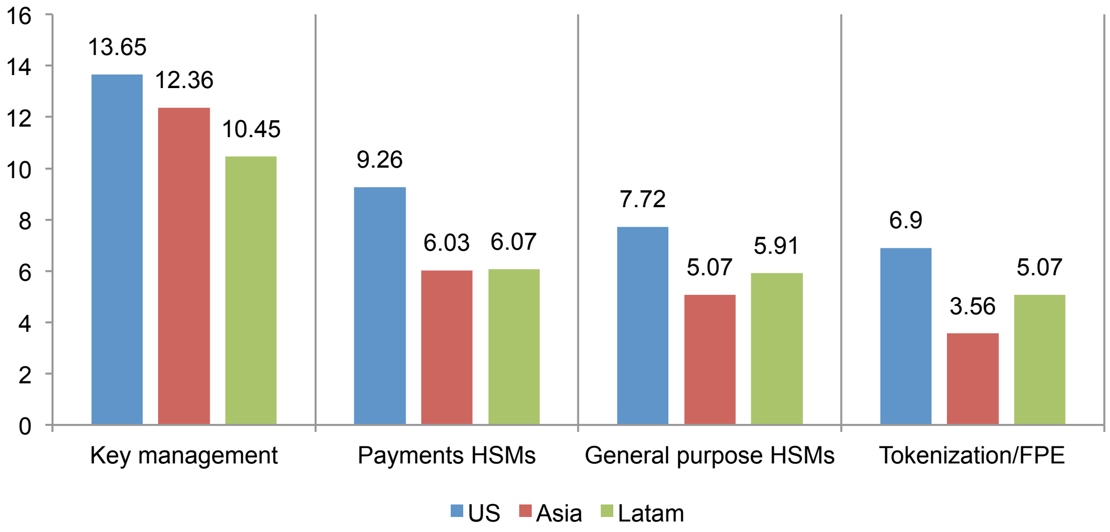
Figure 12. Percentage of IT security budget spent on HSM



The global view

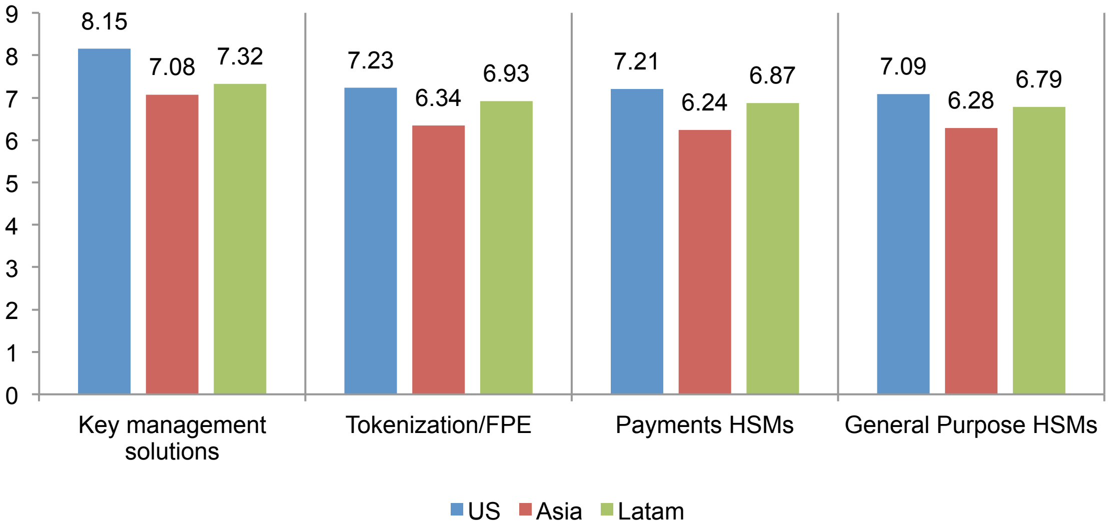
Survey results across three global regions are generally consistent for product features, vendor selection criteria and the importance of HSM physical security. However, as shown in Figure 13, there are differences in the current and projected usage of HSMs. Specifically, respondents in the US report the highest rate of usage for all HSM use cases – namely, payments, general purpose, tokenization/FPE and key management. Respondents in Asia report the lowest use of HSMs for tokenization/FPE and general purposes.

Figure 13. How many HSMs does your organization currently deploy?
Extrapolated average



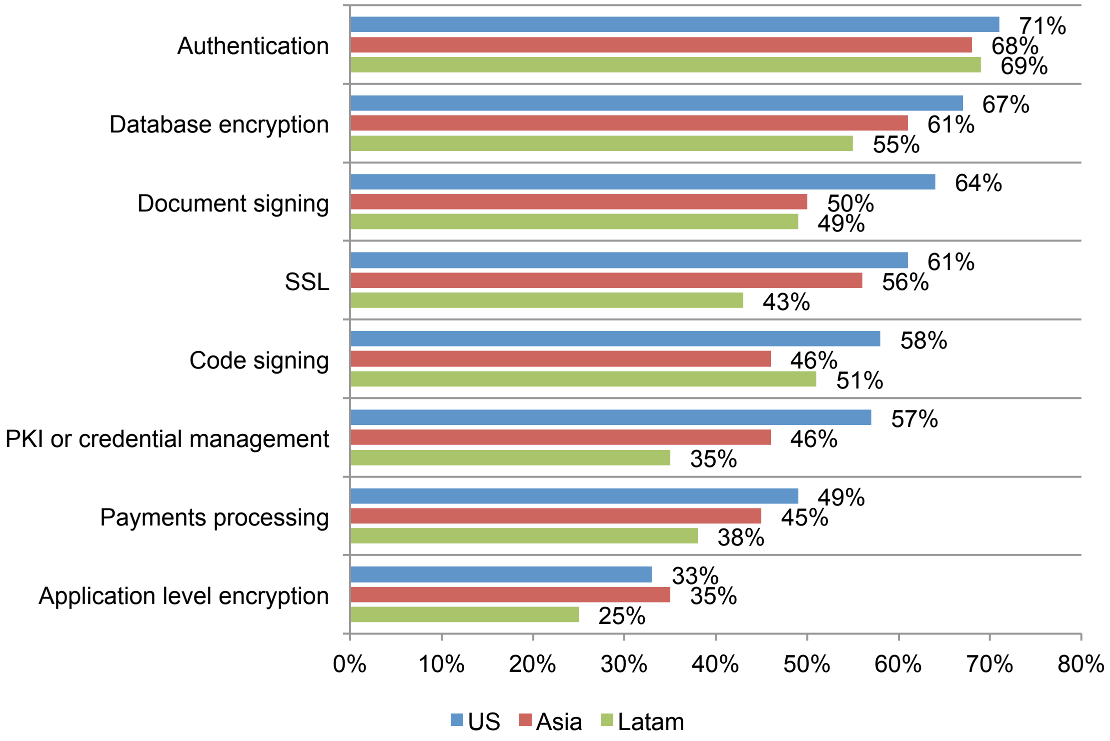
In the U.S., respondents have slightly greater concern for the physical security of HSMs, as revealed in Figure 14. The region with the least concern about physical security is Asia.

Figure 14. How important is the physical security of HSMs?
0 = least important to 10 = most important



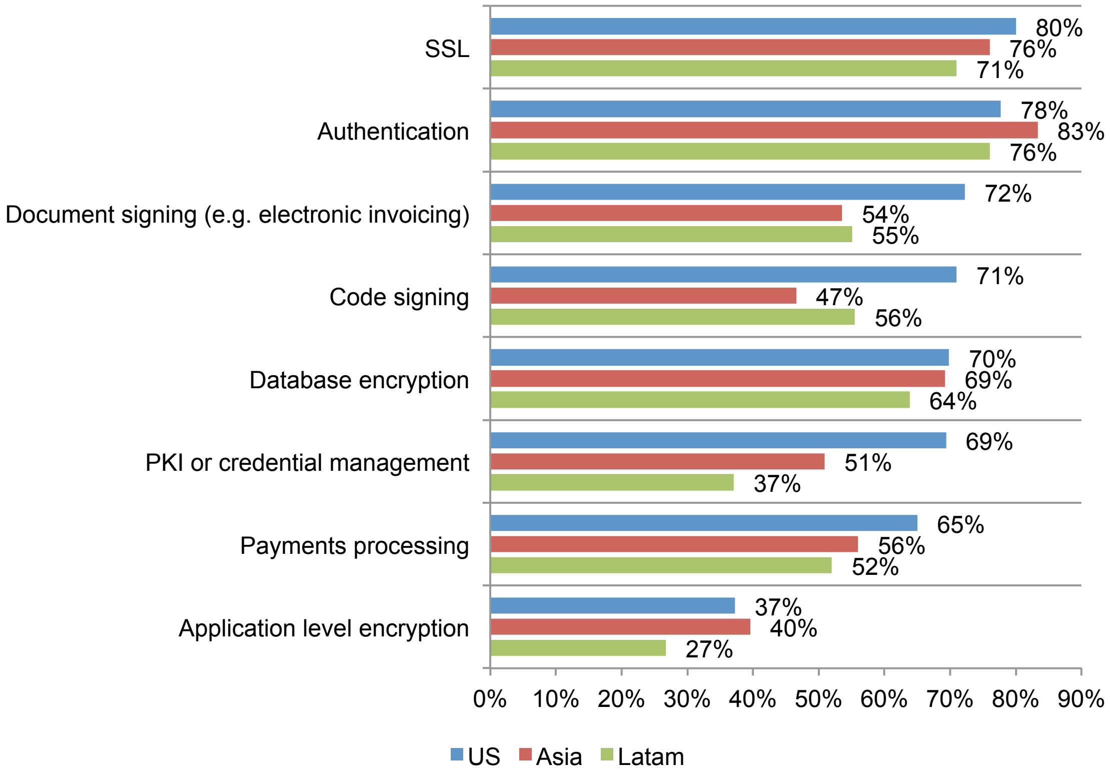
According to Figure 15, the top reasons to use HSMs among all regions is authentication and database encryption. Respondents in the U.S. are more likely to use HSM solutions for all purposes with the exception of application level encryption.

Figure 15. The purpose for deploying HSMs



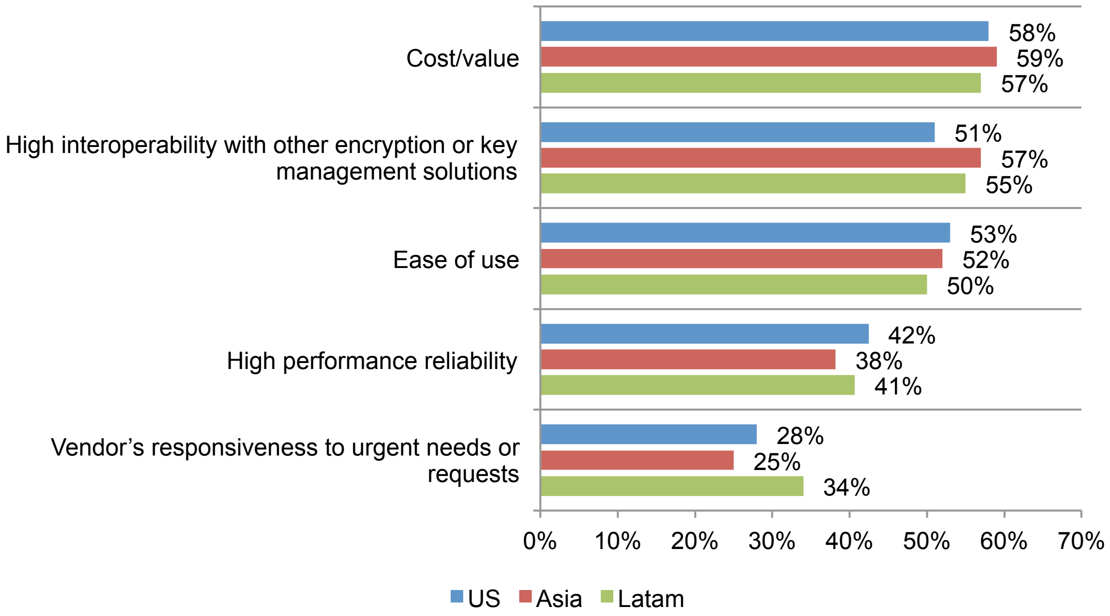
The purposes for deploying HSMs will increase over the next 12 months, according to Figure 16. The U.S. will use the most HSMs for SSL, document and code signing. Asia will increase HSMs use for application level encryption.

Figure 16. HSMs deployed in the next 12 months



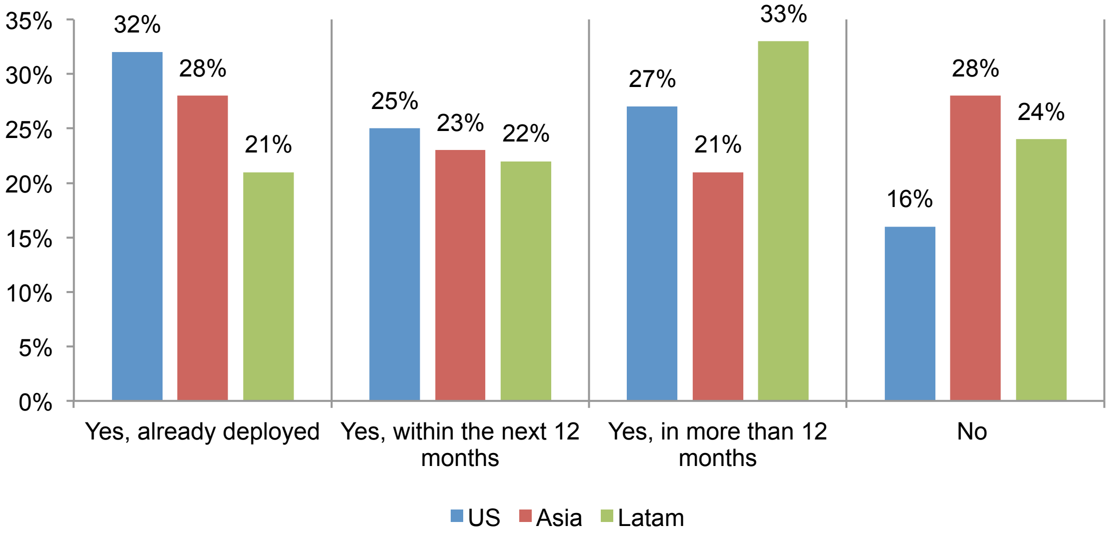
The reasons for selecting a vendor seem to be consistent across all regions, according to Figure 17. However, LATAM respondents see vendor responsiveness as more important than respondents in other regions.

Figure 17. Most important reasons for selecting your present HSM solution/vendor
Three responses permitted



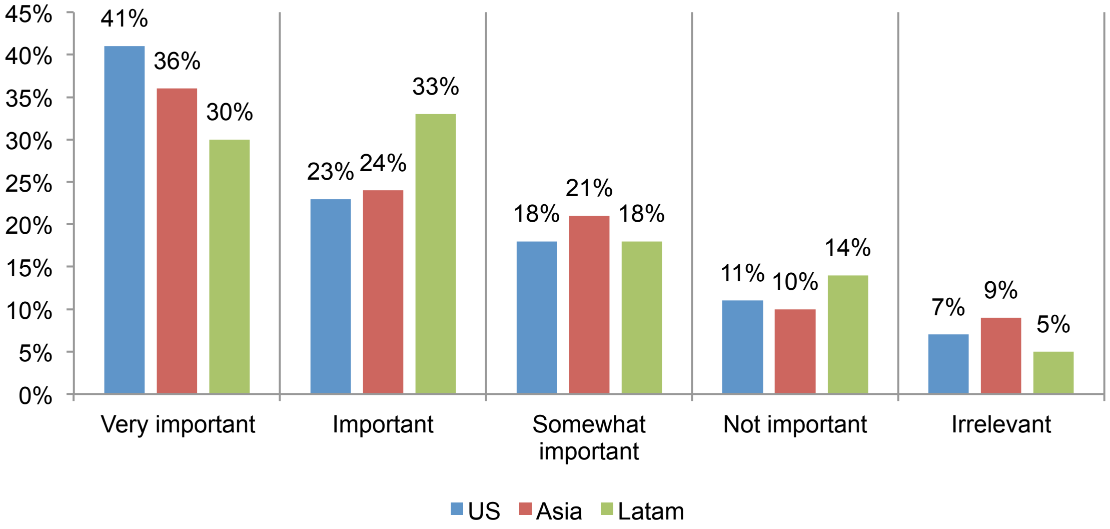
According to Figure 18, LATAM will increase its deployment the most in more than 12 months. The region less likely to deploy KMIP is Asia.

Figure 18. Does your organization deploy, or plan to deploy, KMIP?



As revealed in Figure 19, the majority of respondents in all regions consider the adoption of KMIPs as very important or important to HSM procurement and deployment decisions.

Figure 19. How important is the adoption of KMIP to your HSM procurement and deployment decisions?



Competitive analysis

Our survey included the analysis of nine leading HSM solution providers. Respondents were asked to rate their vendors according to 14 attributes listed in Figure 20. This bar chart reports the results for users of HP/Atalla compared to average results for all nine vendors. Each attribute is rated using a 0-to-10 point scale from disagree completely (0) to agree completely (10).

As can be seen, HP Atalla earns ratings that are above the average for 11 of 14 attributes. HP Atalla's highest product/vendor ratings pertain to meeting regulatory obligations, excellence in vendor support and training, and scalability of HSM solutions.

Figure 20. HSM product or vendor attributes
0 = Disagree completely to 10 = Agree completely

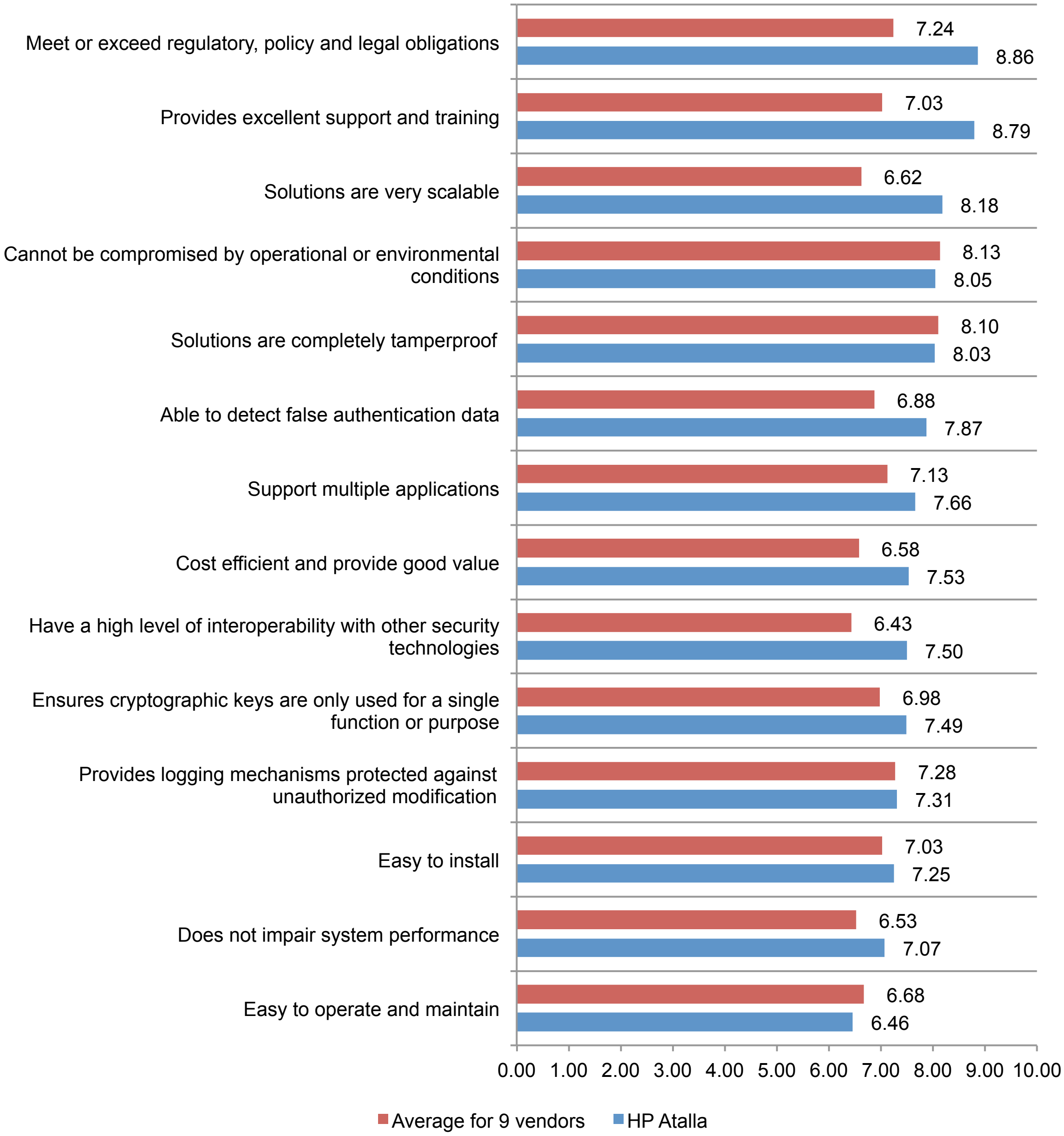


Figure 21 reports the average attribute scores for nine vendors including HP Atalla. Please note that competitor names are removed to preserve confidentiality. As shown, HP Atalla and vendor A achieve the highest average score at 7.72 on the 0-to-10 scale described above. The overall average score (indicated by the dashed line) is 7.04, which suggests respondents tend to hold a favorable view of HSM solutions deployed by their organizations.

Figure 21. Average HSM attribute scores for nine vendors
Each bar reflects the grand average for 14 product/vendor attributes

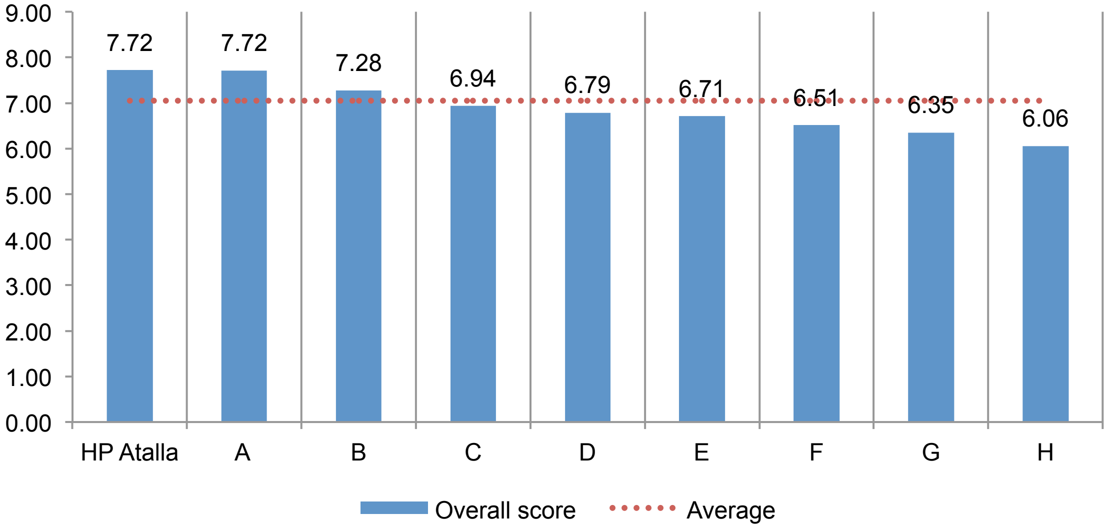
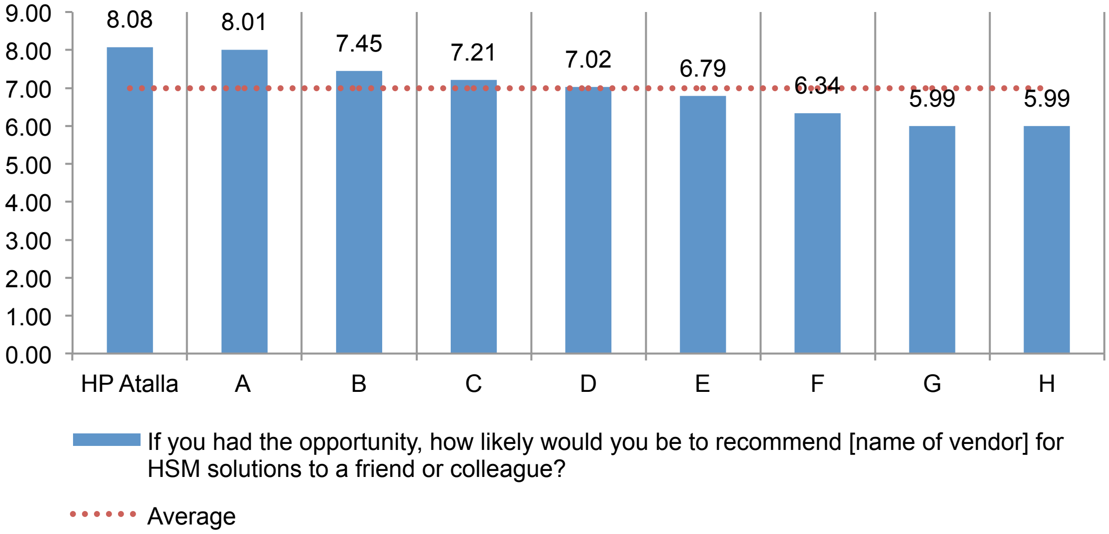


Figure 22 reports the average promoter scores for nine vendors including HP Atalla. Here again, HP Atalla achieves the highest promoter score at 8.08, which means it is the most likely HSM vendor to be recommended to friends and colleagues. The average promoter score (indicated by the dashed line) is 6.99, which supports our proposition that respondents hold a favorable view of their HSM solutions provider.

Figure 22. Average promoter scores for nine vendors
0 = Not at all likely to 10 = Extremely likely



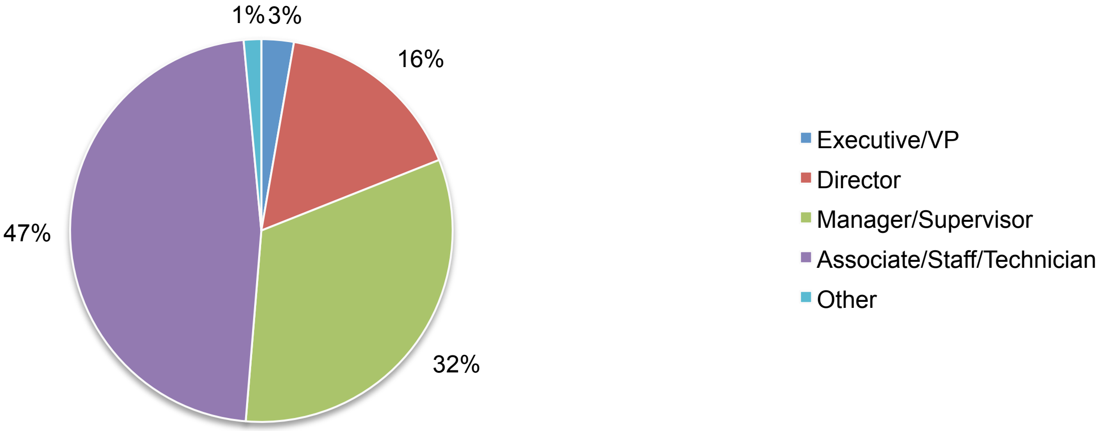
Part 3. Methods

A sampling frame of 28,265 experienced IT and IT security practitioners in the United States, Asia and Latin America were selected as participants to this survey. Table 1 shows 991 total returns. Screening and reliability checks required the removal of 411 surveys. Our final sample consisted of 580 surveys or a 2.1 percent response rate.

Table 1. Sample response	Freq	Pct%
Total sampling frame	28,265	100.0%
Total survey returns	991	3.5%
Rejected and screened surveys	411	1.5%
Final sample	580	2.1%

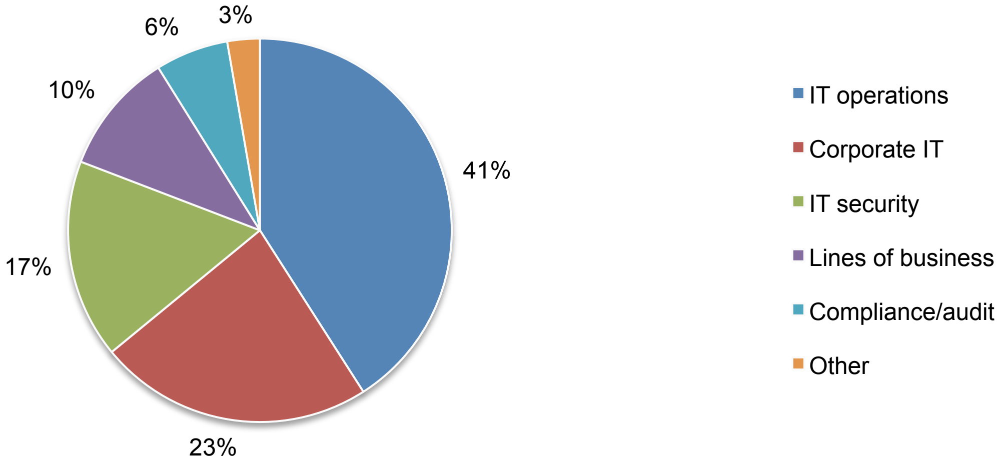
Pie Chart 1 reports the respondent's organizational level of their current position within the organization. By design, 51 percent of respondents are at or above the manager/supervisory level.

Pie Chart 1. Current position within the organization



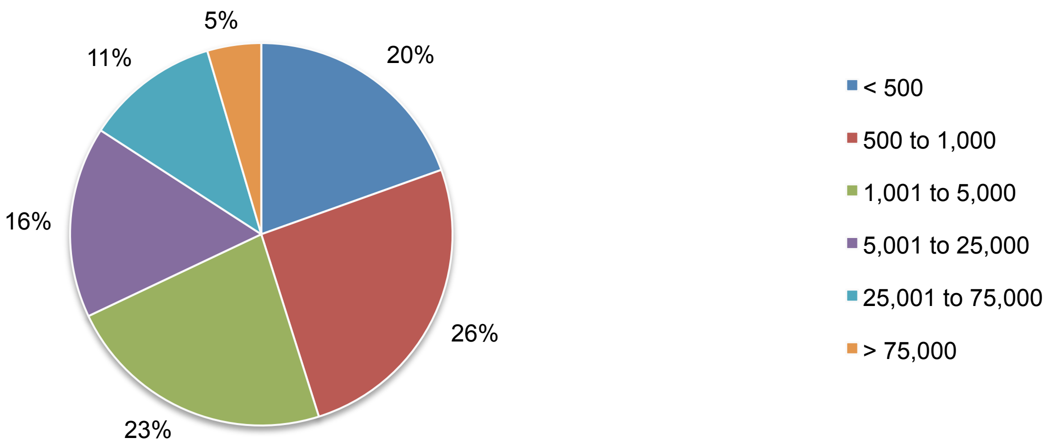
Pie Chart 2 reports the respondents functional location within the organization Forty-one percent of respondents are located within IT operations and 23 percent report their job function is in Corporate IT.

Pie Chart 2. The functional area that best describes your organizational location



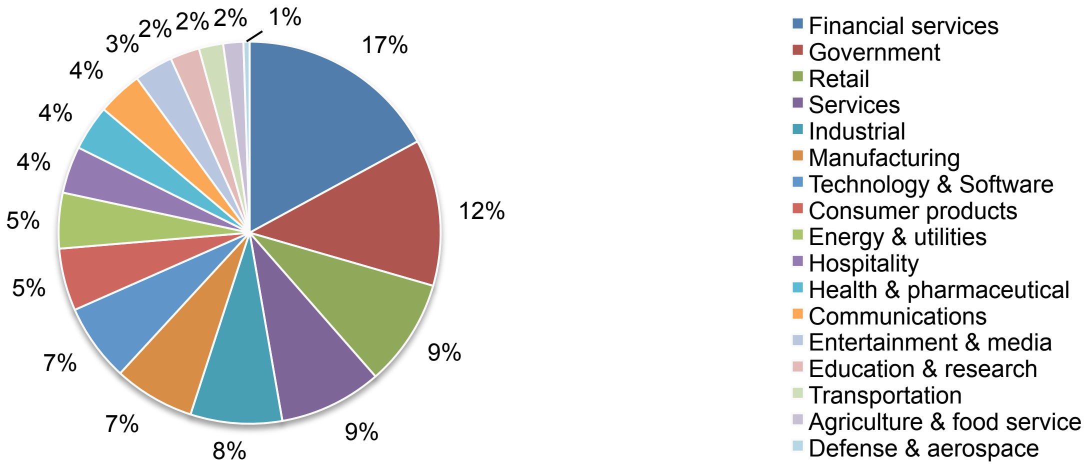
As shown in Pie Chart 3, 55 percent of respondents are from organizations with a worldwide headcount of 1,000 or more employees.

Pie Chart 3. Worldwide headcount of the organization



Pie Chart 4 identifies the organization’s main industry focus. Financial services are identified as the largest segment at 17 percent. This was followed by government at 12 percent.

Pie Chart 4. The organization’s main industry focus



Part 4. Caveats to this study

There are inherent limitations to survey research that need to be carefully considered before drawing inferences from findings. The following items are specific limitations that are germane to most web-based surveys.

- Non-response bias: The current findings are based on a sample of survey returns. We sent surveys to a representative sample of individuals, resulting in a large number of usable returned responses. Despite non-response tests, it is always possible that individuals who did not participate are substantially different in terms of underlying beliefs from those who completed the instrument.

- Sampling-frame bias: The accuracy is based on contact information and the degree to which the list is representative of individuals who are IT or IT security practitioners. We also acknowledge that the results may be biased by external events such as media coverage. Finally, because we used a web-based collection method, it is possible that non-web responses by mailed survey or telephone call would result in a different pattern of findings.

- Self-reported results: The quality of survey research is based on the integrity of confidential responses received from subjects. While certain checks and balances can be incorporated into the survey process, there is always the possibility that a subject did not provide accurate responses.

Appendix: Detailed Survey Results

The following tables provide the consolidated frequency or percentage frequency of responses to all survey questions contained in this study. All survey responses were captured in April 2014.

Survey response	Combined
Total sampling frame	28265
Total returns	991
Screened or rejected surveys	411
Total	580
Response rate	2.05%

Part 1. Screening Questions

S1. What best describes your organization's use of hardware security modules (HSM) today?	Combined
Extensive	28%
Moderate	43%
Light	28%
None (STOP)	0%
Total	100%

S2. Please select the name of the **primary HSM vendor** engaged by your company today. Please select only one.	Combined
Thales/nCipher	18%
HP/Atalla	16%
Safenet/Eracom	16%
Utimaco	12%
FutureX	10%
AEP Keyper	6%
IBM	9%
Infogard	8%
Trustway Bull	5%
None of the above (STOP)	0%
Total	100%

S3. What best describes your role with respect to the above HSM vendor? Please select all that apply.	Combined
Responsible for selecting the vendor	41%
Responsible for funding the vendor's products	40%
Influenced the selection of the vendor	53%
Primary user of the vendor's products	72%
None of the above (STOP)	0%

Part 2. HSM usage

Q1. With respect to the following four use cases, how many HSMs does your organization currently deploy?	
Q1a. Payments HSMs	Combined
Zero	28%
1 to 5	26%
6 to10	18%
11 to15	9%
16 to 20	4%
More than 20	15%
Total	100%

Q1b. General purpose HSMs	Combined
Zero	34%
1 to 5	26%
6 to10	17%
11 to15	9%
16 to 20	5%
More than 20	11%
Total	100%

Q1c. Tokenization/FPE	Combined
Zero	36%
1 to 5	28%
6 to10	17%
11 to15	8%
16 to 20	5%
More than 20	6%
Total	100%

Q1d. Key management	Combined
Zero	10%
1 to 5	26%
6 to10	15%
11 to15	8%
16 to 20	6%
More than 20	36%
Total	100%

How important is the **physical security** of HSMs used by your organization today? Please use the 0 to 10-point scale below each one of the four use cases presented.	
Q2a. Payments HSMs (i.e., transaction switching/authorization, terminal key management, and card issuing)	Combined
Zero	3%
1 to 2	9%
3 to 4	11%
5 to 6	14%
7 to 8	17%
9 to 10	45%
Total	100%

Q2b. General Purpose HSMs (i.e., signing, certificate operations, and application crypto support)	Combined
Zero	3%
1 to 2	9%
3 to 4	12%
5 to 6	16%
7 to 8	16%
9 to 10	44%
Total	100%

Q2c. Tokenization/Format Preserving Encryption (FPE) solutions	Combined
Zero	3%
1 to 2	9%
3 to 4	10%
5 to 6	16%
7 to 8	17%
9 to 10	46%
Total	100%

Q2d. Key management solutions	Combined
Zero	3%
1 to 2	6%
3 to 4	6%
5 to 6	10%
7 to 8	13%
9 to 10	62%
Total	100%

Q3. For what purpose does your organization presently deploy or plan to deploy HSMs? Please select all that apply.	
Q3a. HSMs deployed today:	Combined
Application level encryption	32%
Database encryption	63%
SSL	56%
PKI or credential management	49%
Document signing (e.g. electronic invoicing)	57%
Code signing	53%
Authentication	70%
Payments processing	46%
Other (please specify)	0%

Q3b. HSMs deployed in the next 12 months:	Combined
Application level encryption	36%
Database encryption	68%
SSL	77%
PKI or credential management	57%
Document signing (e.g. electronic invoicing)	64%
Code signing	61%
Authentication	79%
Payments processing	60%
Other (please specify)	0%

Part 3. Perceptions about the HSM product/vendor. Please rate each statement about your **primary HSM product/vendor** using the 0 to 10-point scale from "Disagree completely" to "Agree completely" below each item.	Combined
Q4. My organization's HSM solutions are completely tamperproof.	8.10
Q5. My organization's HSM solutions cannot be compromised by operational or environmental conditions.	8.14
Q6. My organization's HSM solutions are able to detect false authentication data.	6.88
Q7. My organization's HSM solutions meet or exceed regulatory, policy and legal obligations.	7.24
Q8. My organization's HSM solutions provide logging mechanisms that are fully protected against unauthorized modification, substitution or deletion.	7.28
Q9. My organization's HSM solutions ensure cryptographic keys are only used for a single cryptographic function or purpose.	6.98
Q10. My organization's HSM solutions support multiple applications.	7.12
Q11. My organization's HSM solutions have a high level of interoperability with other data protection or security technologies.	6.43
Q12. My organization's HSM solutions are very scalable.	6.63
Q13. My organization's HSM solutions are easy to install.	7.03
Q14. My organization's HSM solutions are easy to operate and maintain.	6.67
Q15. My organization's HSM vendor provides excellent support and training.	7.03
Q16. My organization's HSM solutions are cost efficient and provide good value.	6.58

Q18. How important are the following 14 features associated with HSM solutions? Please rate each feature using the adjacent scale from very important to irrelevant. Very important and important responses combined	Combined
Automated enforcement of policy	85%
Automated management of keys	90%
Support for the widest range of applications	58%
Centralized management interface	80%
System scalability	65%
Tamper resistance by dedicated hardware	81%
Conformance with security standards	55%
Support for format preserving encryption	58%
Support for tokenization	43%
Support for point-to-point encryption	64%
System performance and latency	82%
Support for emerging algorithms	59%
Supports longer encryption keys	44%
Formal product security certifications	56%

Q19. What are the most important reasons for selecting your present HSM solution/vendor? Please select your **top three** choices.	Combined
Cost/value	58%
Ease of use	52%
Worry-free installation	16%
High performance reliability	41%
High interoperability with other encryption or key management solutions	53%
Proven track record of the product/vendor	15%
Reputation of the product/vendor	19%
Vendor's responsiveness to urgent needs or requests	28%
Product certification	17%
Total	300%

	Combined
Q20. If you had the opportunity, how likely would you be to recommend [**name of vendor**] for HSM solutions to a friend or colleague? Not at all likely = 0 to extremely likely = 10	6.99

Part 4. Key management

Q21. Does your organization deploy, or plan to deploy, the **Key Management Interoperability Protocol** (a.k.a. KMIP) as part of its key management activities?	Combined
Yes, already deployed	29%
Yes, we plan to do so within the next 12 months	24%
Yes, we plan to do so in more than 12 months	27%
No	21%
Total	100%

Q22. If yes, how important is the adoption of KMIP to your HSM procurement and deployment decisions?	Combined
Very important	37%
Important	25%
Somewhat important	19%
Not important	11%
Irrelevant	7%
Total	100%

Q23. In your opinion, how important is HSM to your key management strategy?	
Q23a. Importance today:	Combined
Very important	35%
Important	31%
Somewhat important	25%
Not important	9%
Total	100%

Q23b. Importance in the next 12 months:	Combined
Very important	38%
Important	32%
Somewhat important	27%
Not important	3%
Total	100%

Q24a. Does your organization have a key management strategy that is independent of the various uses of cryptography within your organization?	Combined
Yes	47%
No	53%
Total	100%

Q24b. If yes, what are the primary drivers for developing a key management strategy? Please select the **top two choices**?	Combined
Increase business efficiency	19%
Reduce operational cost	55%
Reduce complexity	43%
Demonstrate compliance	19%
Improve security	64%
Other (please specify)	0%
Total	200%

Q25. What types of key management systems does your organization use? Please select all that apply.	Combined
Single key management system deployed across the organization to manage multiple use cases (e.g. tape backup, email, etc)	14%
Single key management system deployed across the organization to manage a single use case	20%
Multiple installations of a common key management system that is deployed throughout the organization to address the same use case	47%
Multiple and different key management systems each deployed for specific use cases (e.g. tape backup, email, etc)	19%
Total	100%

Q26. What is the source of your organization's key management system(s)? Please check all that apply.	Combined
In-house development	35%
Externally developed custom system	57%
Native capability or bundled item with an encryption solution	37%
Commercial, off-the-shelf centralized key management system	42%
Commercial, off-the-shelf key management component (e.g. HSM)	52%
Other (please specify)	1%

Part 5: Budget estimation

Q27a. Are you responsible for managing all or part of your organization's encryption and/or key management budget?	Combined
Yes	59%
No (Go to Part 5)	41%
Total	100%

Q27b. Approximately, what is the dollar range that best describes your organization's total IT budget for 2014 including the amortized value of capital (CapX) expenditures?	Combined
< $1 million	3%
$1 to 5 million	10%
$6 to $10 million	11%
$11 to $50 million	15%
$51 to $100 million	25%
$101 to $250 million	17%
$251 to $500 million	10%
> $500 million	9%
Total	100%

Q27c. Approximately, what percentage of the 2014 IT budget will go to IT security activities?	Combined
Zero	0.00
1% to 2%	0.15
3% to 5%	0.28
6% to 10%	0.29
11% to 20%	0.17
21% to 30%	0.09
> 30%	0.02
Total	1.00

Q27d. Approximately, what percentage of the 2014 IT security budget will be spent on HSMs?

Q27d-1. Payments HSMs	Combined
Zero	3%
1% to 2%	8%
3% to 4%	27%
5% to 6%	17%
7% to 8%	17%
9% to 10%	7%
> 10%	21%
Total	100%

Q27d-2. General purpose HSMs	Combined
Zero	6%
1% to 2%	12%
3% to 4%	25%
5% to 6%	28%
7% to 8%	17%
9% to 10%	7%
> 10%	6%
Total	100%

Q27d-3 Tokenization/FPE	Combined
Zero	14%
1% to 2%	13%
3% to 4%	23%
5% to 6%	27%
7% to 8%	16%
9% to 10%	7%
> 10%	0%
Total	100%

Q27d-4 Key management	Combined
Zero	0%
1% to 2%	12%
3% to 4%	20%
5% to 6%	18%
7% to 8%	17%
9% to 10%	7%
> 10%	26%
Total	100%

Q27e. Estimating one year into the future, what percentage of the 2015 IT security budget will be spent on HSM?

Q27e-1. Payments HSMs	Combined
Zero	3%
1% to 2%	7%
3% to 4%	21%
5% to 6%	16%
7% to 8%	17%
9% to 10%	6%
> 10%	29%
Total	100%

Q27e-2. General purpose HSMs	Combined
Zero	6%
1% to 2%	12%
3% to 4%	25%
5% to 6%	21%
7% to 8%	20%
9% to 10%	7%
> 10%	9%
Total	100%

Q27e-3. Tokenization/FPE	Combined
Zero	9%
1% to 2%	11%
3% to 4%	26%
5% to 6%	28%
7% to 8%	15%
9% to 10%	7%
> 10%	4%
Total	100%

Q27e-4. Key management	Combined
Zero	0%
1% to 2%	6%
3% to 4%	18%
5% to 6%	18%
7% to 8%	15%
9% to 10%	7%
> 10%	35%
Total	100%

Part 6: Organizational and respondent characteristics

D1. What organizational level best describes your current position?	Combined
Executive/VP	3%
Director	16%
Manager/Supervisor	32%
Associate/Staff/Technician	47%
Other (please specify)	1%
Total	100%

D2. Check the functional area that best describes your organizational location.	Combined
Corporate IT	23%
IT operations	41%
IT security	17%
Compliance/audit	6%
Lines of business (LOB)	10%
Other (please specify)	3%
Total	100%

D3. What is the worldwide headcount of your organization?	Combined
< 500	20%
500 to 1,000	26%
1,001 to 5,000	23%
5,001 to 25,000	16%
25,001 to 75,000	11%
> 75,000	5%
Total	100%

D4. What best describes your organization's main industry focus?	Combined
Agriculture & food service	2%
Communications	4%
Consumer products	5%
Defense & aerospace	1%
Education & research	2%
Energy & utilities	5%
Entertainment & media	3%
Financial services	17%
Health & pharmaceutical	4%
Hospitality	4%
Industrial	8%
Manufacturing	7%
Government	12%
Retail	9%
Services	9%
Technology & Software	7%
Transportation	2%
Other	0%
Total	100%

Ponemon Institute

Advancing Responsible Information Management

Ponemon Institute is dedicated to independent research and education that advances responsible information and privacy management practices within business and government. Our mission is to conduct high quality, empirical studies on critical issues affecting the management and security of sensitive information about people and organizations.

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About HP Atalla

HP Atalla solutions build on HP's more than 35 years of innovation in encryption technology, and deliver advanced protection for data stored on-premise and in the Cloud as well as unstructured data such as; confidential emails, payment information and electronic health records. Designed for organizations that need to protect sensitive information, including financial institutions, retailers, energy companies, healthcare providers and governments. HP Atalla encryption solutions safeguard data throughout its entire life cycle – whether at rest, in motion, or in use – across cloud, on-premises and mobile environments, to ensure continuous protection of an organization's most sensitive information, while maintaining optimal performance and flexibility. More info: **hp.com/go/atalla**