During the five decades since its introduction, IBM AIX® has embraced its reputation in providing security and adaptability to meet the demands of enterprise organizations in highly complex industries. Many regulated mission-critical workloads depend on AIX as a platform of choice, while IT professionals rely on it for scalability within their environments.

Understanding how AIX is used within these complex environments, analyzing top IT initiatives related to the operating system, and examining its future outlook provides essential insight and guidance to IT professionals. That's why the AIX Community Survey, now in its fourth consecutive year of administration, has evolved to include diverse respondents across countries, industries, company sizes, and titles within the IT industry. In Q4 2019, 200 IT professionals across more than 11 industries in North America, EMEA, Latin America, and the APAC region participated in the AIX Community Survey. Results, data, and insights from this survey will be discussed in the subsequent pages of this report.
The AIX Community Survey revealed that the IBM AIX operating system is highly reliable within enterprise organizations today. More than 50 percent of respondents recognize that AIX is core to their business because they run more than half of their business applications on AIX. Similarly, 86 percent of respondents will continue to remain with the AIX platform, with 43 percent of users either increasing their footprint or maintaining their existing footprint in the future.

Cybersecurity and Other IT Concerns
The survey identified a number of IT concerns and challenges for AIX environments within organizations today. Most notably, cybersecurity issues, including mitigating security risks, regulatory compliance, and secure file transfer, was the top item noted by more than half of all respondents. This is of particular concern because organizations often lack the resources and staff to focus exclusively on cybersecurity.

In fact, 62 percent of organizations had less than five resources completely focused on cybersecurity, with 11 percent indicating they had no full-time resources dedicated. This is fairly significant given that the threats organizations face are constantly changing and that AIX server level protection may be ignored or misunderstood. Ultimately, this finding reinforces the need for increased native scanning capabilities and tools, and ongoing education for IT professionals.

Other top concerns included high availability and disaster recovery capabilities, a concern to 49 percent of respondents, modernizing applications for 37 percent of participants, and cloud computing, including managed services and Software as a Service (SaaS), for 33 percent of respondents.

An Emerging Skills Gap
It is worth noting that this particular marketplace employs an experienced demographic. According to the survey, 51 percent of respondents have more than 16 years of experience on AIX. IT professionals proficient in AIX are typically first-generation, which is why more than 36 percent of respondents also indicated the skills gap for AIX is increasing. The lack of formal education on AIX may mean more younger IT professionals will enter the workforce lacking basic skills and knowledge of the operating system, contributing to concerns for trying to mitigate increasing risks within the AIX environment and to meet ongoing regulatory compliance.

The Road Ahead
Even with the challenges that exist within the AIX community, IT professionals are largely committed to maintaining their AIX footprint and recognize the value AIX delivers for their organization. Most notably, 83 percent of respondents indicated that AIX gives them a high return on investment. Despite the pressure this market is facing to migrate or move to another platform, AIX continues to stack up to other similar technologies in the same environment and deliver tangible value to the organizations relying on it to run their business. It is also important to note that IBM’s AIX UNIX has continued to outpace Solaris and HP UX, which has not always been the case over the past decade.
The AIX Community Survey, now in its fourth consecutive year of administration, has evolved to include a broader array of respondents across countries, industries, company sizes, and titles within the IT industry. In Q4 2019, 200 IT professionals across more than 11 industries in North America, EMEA, Latin America, and the APAC region participated in the AIX Community Survey.

**Company Location**
Thirty-five percent of respondents were located within Europe, 26 percent are in the United States, and 19 percent are representative from Asia. The remaining 20 percent of respondents are from Africa, Australia, Canada, Latin America, or identify as other.

**Figure 1: Where are you located?**

- **Europe**: 35%
- **USA**: 26%
- **Asia**: 19%
- **Africa**: 7%
- **Australia**: 5%
- **Canada**: 3%
- **Other**: 3%
- **Latin America**: 2%
IBM’s AIX Community Survey Findings

DETAILED FINDINGS: PARTICIPANT DEMOGRAPHICS

A RICH DIVERSITY OF PARTICIPANTS CONTRIBUTES TO GLOBAL INSIGHTS FOR THE AIX COMMUNITY.

Company Size
While IBM AIX is most often used by enterprise organizations with more than 10,000 employees, increasing numbers of mid-size companies are using the operating system since introducing scale-out systems specifically targeted for this community. According to the AIX Community Survey, 70 percent of participants are from organizations with more than 1,000 employees. Further, 35 percent of respondents work in organizations with employees of 10,000 or more, 14 percent are between 5,000 and 9,999, and 21 percent are between 1,000 and 4,999. The remaining 30 percent are less than 1,000 employees.

Figure 2: How many employees does your organization have?

Primary Industry
The diversity of industries represented in the AIX survey was fairly broad, and included more than 11 sectors. Banking and finance made up the largest representation of these verticals at 34 percent. Second was technology at 14 percent. All other industries were at 10 percent or below.

Figure 3: What is your primary industry?
Experience with AIX
The results of the survey indicate there is significant expertise in the AIX community. More than three-quarters of survey participants indicate having more than 11 years of experience with AIX, with 51 percent having more than 16 years of expertise. This reflects the aging nature of these first-generation professionals. Just seven percent of respondents have between one and five years of experience, which likely indicates that fewer professionals are entering the workforce as AIX specialists each year.

AIX Administrators
Nearly three-quarters of all respondents indicate their organization has less than five AIX administrators. Given that 35 percent of respondents work in companies of 10,000 employees or more, this could be problematic as it represents a lean approach to dealing with the demands of the AIX infrastructure, including meeting regulatory compliance and mitigating ongoing risks within the business. Instead, AIX professionals must look to do more with less by increasing reliance on automation and tools that reduce the need to manually interpret data and monitor ongoing security risks within their environment. The reliability and stability of the platform allow AIX administrators to easily manage many virtual machines (VMs).
AIX Hardware and Software Usage
To better understand how a typical AIX infrastructure looks within each business, the survey asked a number of questions about hardware and software usage. Within this market, organizations frequently scale out rather than scale up, which means investing in smaller servers, but more of them. This typically saves money over the long term in software license costs. Yet when asked about the number of IBM POWER servers they currently own, the results were fairly mixed. Specifically, 49 percent of respondents indicated they own between 1 and 10 IBM POWER servers, while 42 percent own between 11 and 100 servers. Nearly one in 10 own more than 100 servers.

Number of Partitions
Participants were also asked to report on the number of partitions, or VMs, they run on AIX. Typically when companies scale out, they also have multiple partitions. According to respondents, 20 percent run more than 500 VMs of AIX, 21 percent run between 201 and 500, 13 percent run between 101 and 200 partitions, and 26 percent run between 26 and 100. Just 20 percent of respondents run between 1 and 25 partitions of AIX. These findings confirm that these are highly virtualized environments, where organizations can easily create and manage multiple partitions. However, the volume of VMs can be problematic when it comes to OS upgrades because the effort is considerably more time consuming.
What AIX Environments Really Look Like Across Organizations

Existing IBM POWER Servers
To determine how well they are staying updated, survey participants were asked about how current they are on their own IBM POWER servers. Respondents could select from any category depending on the server types within their existing environments. More than 87 percent of survey participants currently have the POWER8® model and 55 percent have adopted the POWER9® model. Just 23 percent of respondents have the POWER6® model or older, which are no longer supported. Sixty-one percent are still using the POWER7® model, which is no longer supported as of the end of December 2019.

This data reflects how progressive these organizations are in making the shift to newer hardware. It also indicates that many businesses have a mixed environment and likely phase their upgrades for a variety of reasons, including possible test environments on other servers or applications that they are not yet able to move forward due to software licensing or support from the application owner.

Primary Operating System
Survey participants were also asked about which version of AIX is their primary operating system level. The majority of respondents, or 53 percent, indicated they are still on AIX 7.1, while a similarly significant number, 41 percent, are on AIX 7.2. It is possible that more than half of these users are sticking to 7.1 for the time being based on the time commitment required to upgrade across instances.
DETAILED FINDINGS: THE DATA CENTER
WHAT AIX ENVIRONMENTS REALLY LOOK LIKE ACROSS ORGANIZATIONS

Upgrade Roadblocks
To better understand the motives and mindset of respondents, the survey asked what was holding them back from upgrading to the latest AIX software and hardware. Most notably, 38 percent of respondents listed budget as their top roadblock. The second item was tied between application limitations and sufficiency of the current OS or POWER model at 31 percent. This is fairly significant in that respondents do not see a compelling reason to move or upgrade their AIX infrastructure at this time; however, it is recommended to stay current as cybersecurity is better addressed with each upgrade.

Evaluating Linux on POWER
A related question asked participants whether they had evaluated Linux on POWER to run core applications or new workloads. Interestingly, more than 50 percent of respondents had looked at running Linux on POWER, with 30 percent indicating they are planning to or already have moved in some way.

Figure 10: If you are not on 7.2 or POWER9, what is keeping you from upgrading to AIX 7.2 and/or POWER9?

- Budget: 38%
- Application limitations: 31%
- Current OS and/or Power model is sufficient: 31%
- Not applicable: 18%
- Other: 17%
- Changing platforms: 15%
- No time: 15%

Figure 11: Have you evaluated Linux on POWER to run any of your core applications and/or new workloads?

- No, we have not evaluated Linux on POWER: 47%
- Yes, we have no plans to move applications to Linux on POWER: 23%
- Yes, we have already moved applications to Linux on POWER: 16%
- Yes, we plan to move applications to Linux on POWER in the future: 8%
- Yes, we are in the process of moving applications to Linux on POWER: 6%
DETAILED FINDINGS: THE DATA CENTER
WHAT AIX ENVIRONMENTS REALLY LOOK LIKE ACROSS ORGANIZATIONS

Running AIX Alongside Linux or IBM i
Finally, survey participants were asked about what they are running on their server. Nearly two-thirds of respondents indicated they are not running AIX on the same frame as Linux or IBM i, while one-third confirmed they are. These findings show IBM has opportunity to convince customers to move workload to Linux on POWER versus Linux on x86.

Figure 12: Are you running AIX on the same frame as Linux and/or IBM i?

- 35% Yes
- 65% No
DetaileD FindinGs: iT iIniTiatives

IT Professionals Share Increasing Challenges and Concerns across Their AIX Environments.

Top IT Concerns
In order to understand the challenges and issues that IT professionals face on a regular basis, the AIX Community Survey asked respondents to rank their top five concerns for their AIX environment over the coming year. Despite diversity across industries and organization size, it is clear that IT professionals expressed commonality in the challenges they encounter in their businesses.

Specifically, the top five responses by rank include cybersecurity at 53 percent, high availability/disaster recovery at 49 percent, reducing IT spending at 43 percent, modernizing applications at 37 percent, and the growing AIX skills gap at 36 percent. We will take a deeper dive into a few of these concerns throughout this section. Overall, these findings reflect the growing concern for mitigating risks and ensuring organizations are well positioned to respond to the threats they constantly face within their environments.

Concerns for AIX Knowledge and Skills
As noted previously, this particular marketplace employs an experienced demographic. According to findings mentioned earlier (see Figure 4), 51 percent of respondents have more than 16 years of experience on AIX. IT professionals proficient in AIX are typically first-generation, which is why more than 36 percent of survey participants indicated the skills gap for AIX is increasing and is a leading concern in their organization.

The lack of formal education on AIX may mean more younger IT professionals will enter the workforce lacking basic skills and knowledge of the operating system, contributing to concerns for trying to mitigate increasing risks within the AIX environment and to meet ongoing regulatory compliance. In addition, universities are no longer teaching UNIX, but they are instead concentrating on Linux-based education. Companies running AIX may consider changing experience requirements for new employees and shift to hiring Linux-oriented students and then train them on AIX differences.

Figure 13: What are the top IT concerns for your AIX environment over the next year?

<table>
<thead>
<tr>
<th>Concern</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cybersecurity</td>
<td>53%</td>
</tr>
<tr>
<td>High availability / disaster recovery</td>
<td>49%</td>
</tr>
<tr>
<td>Reduce IT spending</td>
<td>43%</td>
</tr>
<tr>
<td>Modernizing applications</td>
<td>37%</td>
</tr>
<tr>
<td>AIX skills</td>
<td>36%</td>
</tr>
<tr>
<td>Cloud computing</td>
<td>33%</td>
</tr>
<tr>
<td>Automation, RPA, workload automation</td>
<td>21%</td>
</tr>
<tr>
<td>Data growth</td>
<td>18%</td>
</tr>
<tr>
<td>Big data / analytics / business intelligence</td>
<td>16%</td>
</tr>
<tr>
<td>Capacity management</td>
<td>16%</td>
</tr>
<tr>
<td>Artificial intelligence / machine learning</td>
<td>16%</td>
</tr>
<tr>
<td>Enterprise systems management tools &amp; SLA management</td>
<td>15%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
</tr>
<tr>
<td>Data access</td>
<td>11%</td>
</tr>
<tr>
<td>Mobile access</td>
<td>7%</td>
</tr>
<tr>
<td>Document management</td>
<td>2%</td>
</tr>
</tbody>
</table>
Cybersecurity Concerns
Cybersecurity can include a broad range of challenges within IT. To drill down on the greatest cybersecurity challenges among IT professionals, the AIX Community Survey asked participants to select their greatest challenges from all that apply. Interestingly, the continuous flux within their environments, where threats change constantly, was ranked highest at 52 percent. The lack of knowledge and skills was next at 44 percent. This also corresponds to the evolving technologies that professionals must learn at 43 percent, and a complexity of government and industry regulations at 40 percent. See further breakout on compliance in Figure 16.

Together, these findings make sense and truly go hand-in-hand. What IT departments have to protect is constantly changing, so they need to have the right skills to do it all. And without the right tools and education, they cannot keep up with shifting threats and evolving technologies.

Resources Focused on Cybersecurity
Sixty-two percent of organizations had less than five resources completely focused on cybersecurity, with 11 percent indicating they had no full-time resources dedicated. This is alarming given that the threats organizations face are constantly changing and that AIX server level protection may be ignored or misunderstood. Ultimately, this finding reinforces the need for increased native scanning capabilities and tools, and ongoing education for IT professionals.

Figure 14: What are your greatest cybersecurity challenges?

- Threats change constantly: 52%
- Lack of knowledge and skills: 44%
- Evolving technology: 43%
- Complexity of government and industry regulations: 40%
- Management underestimates security risks: 30%
- Other: 5%

Figure 15: How many IT staff members are solely focused on cybersecurity?

- None: 35%
- 1: 16%
- 2: 35%
- 6-10: 9%
- More than 10: 7%
**DETAILED FINDINGS: IT INITIATIVES**

**IT PROFESSIONALS SHARE INCREASING CHALLENGES AND CONCERNS ACROSS THEIR AIX ENVIRONMENTS.**

**Regulatory Compliance**

The increasing number of regulations and industry mandates that organizations face today means there is more auditing, compliance reviews, and reporting required of each business. Year over year, fewer companies comply with no regulations at all. And more companies than ever face regulations today than even just a few years ago. This means IT teams must start to automate data collection, reviews, and reporting to avoid manual, error-prone, and time-consuming processes.

![Figure 16: What regulations do you adhere to?](image-url)

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCI</td>
<td>49%</td>
</tr>
<tr>
<td>SOX / JSOX</td>
<td>35%</td>
</tr>
<tr>
<td>GDPR</td>
<td>30%</td>
</tr>
<tr>
<td>HIPAA</td>
<td>22%</td>
</tr>
<tr>
<td>None</td>
<td>13%</td>
</tr>
<tr>
<td>Other</td>
<td>12%</td>
</tr>
<tr>
<td>DOD</td>
<td>5%</td>
</tr>
<tr>
<td>NERC</td>
<td>4%</td>
</tr>
</tbody>
</table>
Leveraging Security Solutions and Tools

While there are numerous cybersecurity challenges that IT professionals face within the context of their AIX environments, there are also powerful tools available that IT professionals are aware of and are planning to implement within their organizations. Examining the highest rated solutions already in place, 66 percent have network firewalls, 63 percent have patch management, and 62 percent have privileged user management. More than half of all respondents have SIEM/SYSLOG solutions, compliance and audit reporting, and encrypted and secure managed file transfer.

With other tools readily available, many organizations also recognize they can leverage solutions that mitigate their risks and support greater automation within their AIX environment. The highest ranked solution that companies plan to put in place is multi-factor authentication at 28 percent, followed by compliance and audit reporting and file integrity monitoring tied at 26 percent. These findings make sense as organizations are concentrated in highly regulated industries and as multi-factor authentication grows in adoption across businesses. Finally, with the high volume of partitions that these organizations use (see Figure 7), it makes sense that patch management would be a top-rated item for greater adoption in the AIX environment. Patch management and configuration review is an important task. And while AIX is a very securable platform, human error is also inevitable. Automation is essential for verifying configuration settings for security are as expected and intended.
An Integral Platform
Even with the broader challenges and concerns that exist within the AIX community, survey participants recognize the valuable role that AIX plays within their IT infrastructure. In fact, more than 50 percent of respondents believe that AIX is integral to their business because they are running more than half of their core business applications on AIX. Another 25 percent of respondents run between a quarter to half of all their applications on AIX. These results indicate AIX is a mainstay for IT experts today.

Business Applications Make the Difference
As AIX continues to support major business applications and databases, coupled with the strong commitment of IBM to keep application vendors on AIX, it is certain that the AIX community will continue to remain strong around this operating system.

Oracle and SAP are two of the most common applications that run on AIX, followed by homegrown applications written in-house. These homegrown applications are extremely sticky and hard to duplicate because they have been built for a specific business purpose. Banking and healthcare sectors often rely on core applications running on AIX, including FIS, Temenos, Intersystems, Epic, Cerner, and other vendors shown in Figure 19.

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**Figure 18: What percentage of your core business processes run on AIX?**

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Under 25%</th>
<th>25-50%</th>
<th>51-75%</th>
<th>76-100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>23%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 19: Which business applications are you running on AIX?**

- **Oracle**: 77%
- **SAP**: 40%
- **Homegrown applications written in-house**: 35%
- **Other (please specify)**: 19%
- **SAS**: 11%
- **FIS**: 6%
- **Epic**: 5%
- **Intersystems**: 5%
- **Temenos**: 5%
- **Infor**: 5%
- **Cerner**: 2%
- **Manhattan**: 2%
High Return on Investment
To determine how AIX servers stack up to other servers in the marketplace, the survey asked participants whether they believed their AIX server gives them better ROI than others. An overwhelming 83 percent of respondents indicated AIX gives them a high return on investment. This is significant given the pressure to move to the cloud as well as the fact that a high percentage of survey participants use multiple servers and report that AIX delivers high value for their organization.

Figure 20: Do you believe your AIX servers give you a better ROI than other servers?

- **83%** Yes
- **17%** No
AIX IS STILL HIGHLY RELIABLE, HIGHLY DEPENDABLE, AND HIGHLY VALUED WITHIN ORGANIZATIONS TODAY.

Continued Reliance and Investment
IT professionals are largely committed to maintaining or expanding their AIX footprint and recognize the value AIX delivers for their organization. This was evident when survey participants were asked about their future plans for the AIX platform. Specifically, 43 percent are either increasing or remaining the same in their use of AIX, and 86 percent overall will continue to use the platform in some manner. Only a small percentage, 14 percent, are planning to fully migrate off of AIX. A majority of respondents, or 64 percent, who are planning to migrate applications from AIX will be planning to move within two years.

If organizations are planning to move servers, an overwhelming majority of them, 89 percent, are planning to move to a Linux-based server. Software as a Service is the second most selected choice, with 47 percent of respondents planning to move to SaaS. Just 15 percent are moving to Windows-based and eight percent will move to another UNIX variant. When asked about the type of Linux server they are moving applications to, nearly 90 percent indicated x86, 46 percent are moving to public cloud, and 13 percent indicated IBM POWER servers. Despite the pressure this market is facing to migrate or move to another platform, it is clear that AIX is continuing to meet the needs of a large majority of organizations because the servers are optimized for performance and reliability.

**Figure 21: What are your plans for the AIX platform?**
- Increase our AIX footprint: 23%
- No change: 20%
- Not sure: 13%
- Migrate some applications to a new platform: 30%
- Migrate all applications to a new platform: 14%

**Figure 22: What server are you planning to move your applications to?**
- Linux-based: 89%
- Software as a Service: 47%
- Windows-based: 15%
- Other UNIX variant: 8%

**Figure 23: What type of Linux server are you moving applications to?**
- Public cloud: 46%
- x86: 87%
- IBM POWER System: 13%
- Mainframe: 4%

**Figure 24: When will you migrate all applications from AIX?**
- Within 2 years: 64%
- More than 2 but less than 5 years: 32%
- More than 5 years: 4%
CONCLUSION

Known for its longevity and reliability, AIX remains a critical part of the IT infrastructure for many organizations around the world. Many companies run a large proportion of their core business applications on AIX and believe IBM AIX provides high value and ROI. Perhaps most telling is that nearly half of all businesses are looking to expand their AIX footprint in the coming years.

Yet the challenges the AIX community faces—from cybersecurity risks to the skills gap emerging on AIX for IT professionals—all present major issues that must be addressed in the coming years. If organizations are serious about their AIX investment, they must continue to modernize their infrastructure and increase their reliance on tools and solutions that protect their business-critical IT assets, enabling them to do more with less. IT departments cannot survive with their existing resources and expect to safeguard the business in a reliable fashion. Instead they must increase their automation capabilities and leverage solutions that are native to AIX as the next step in protecting their valuable investment.

Even with these challenges in mind, companies remain committed to AIX, as evidenced by its adoption over the last 34 years. IT professionals that took part in this survey repeatedly articulated the significance of AIX within their environments—making the future of AIX just as secure as the POWER Processor it runs on.
About HelpSystems

HelpSystems is a people-first software company focused on helping exceptional organizations Build a Better IT™. Our holistic suite of security and automation solutions create a simpler, smarter, and more powerful IT. With customers in over 100 countries and across all industries, organizations everywhere trust HelpSystems to provide peace of mind. Learn more at www.helpsystems.com.