ActiveState

Python 2 End of Life

Survey Results

Executive Summary

ActiveState undertook to survey a wide array of Python users to better understand how they had been preparing for the pending End Of Life (EOL) for Python 2, which occurred on January 1, 2020. For 6 weeks over October and November 2019, we sought responses from organizations around the globe, and garnered more than 1,250 participants from multiple regions worldwide.

The report shows that sentiment is evenly split between those that feel prepared for EOL and those that could use more time. But when it comes to application strategy, the majority are planning to migrate to Python 3 despite the opportunity cost such a project entails. Readers should find the survey data useful when it comes to understanding the challenges, strategies and tactics of survey respondents when it comes to solving their own Python 2 EOL pains.

Table of Contents

Key Sentiments

The following is a keyword map to navigating the end of life for Python 2. It highlights a number of things respondents told us were key to their journey.

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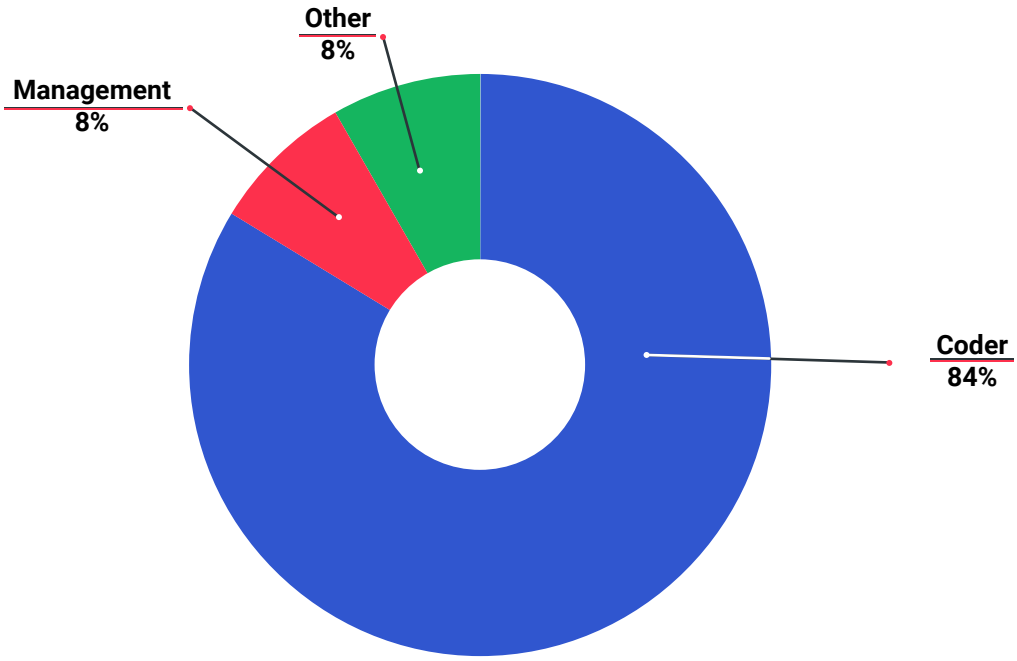
Part 1
Participants

This section of the report is designed to provide insight into the demographics of the survey respondents.

Q1: Primary Role

Which role do you primarily identify with?

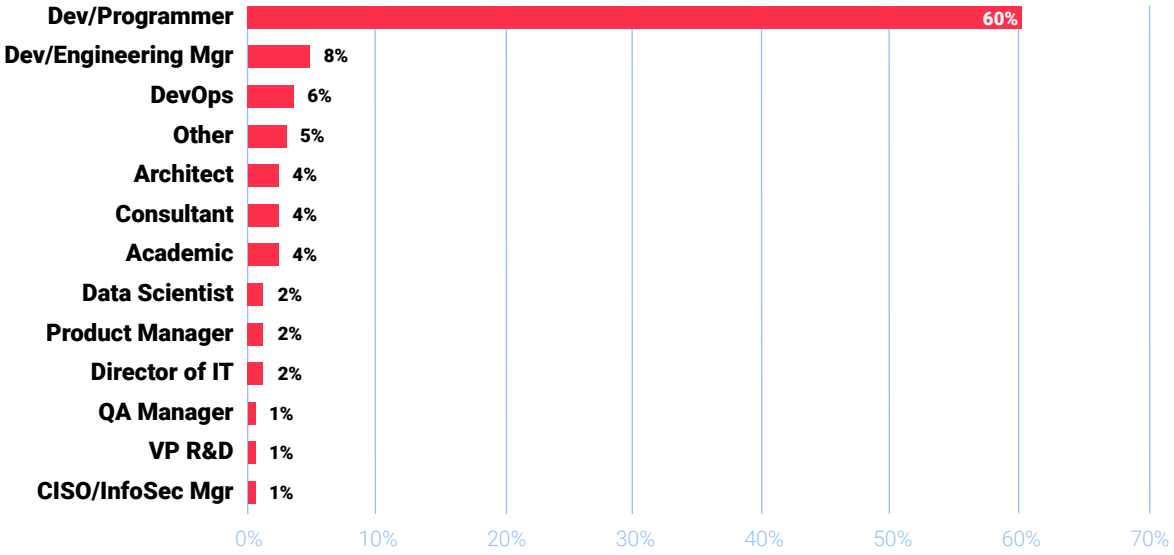


Out of 1,252 responses, the vast majority of respondents (83.68%) work with code in some capacity. The remainder of respondents hold a management position (8.28%) or other role (8.04%).

The responses indicate that the overwhelming majority of survey participants work directly with Python 2 code.

Q2: Job Function

Which title best describes your job function?

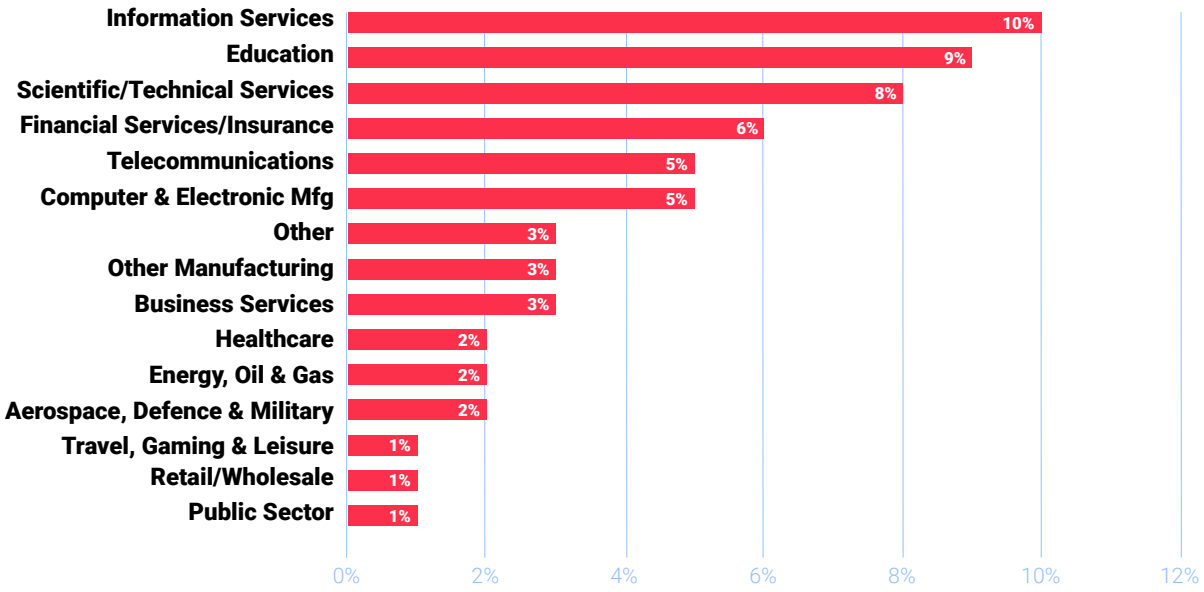


Survey respondents were asked to select the category which best described their job function. By far and away the largest contingent of respondents identified as either a developer or a programmer (59.97%). The next largest contingent is Development/Engineering Manager (7.80%) followed by DevOps (6.11%) and Other (5.31%). The rest of the respondents identify themselves as either a Data Scientist (2.17%), Product Manager (1.77%), Director of IT (1.69%), QA Manager (1.21%), VP R&D (1.13%) or CISO/InfoSec Manager (0.72%).

The responses here strongly reinforce the fact that the survey data can be viewed as a snapshot of the end-to-end Python 2 EOL issue from a very hands-on perspective, since the respondents are dealing with everything from day-to-day coding to migration to maintenance to deployment issues.

Q3: Industry

Which industry best describes your organization?

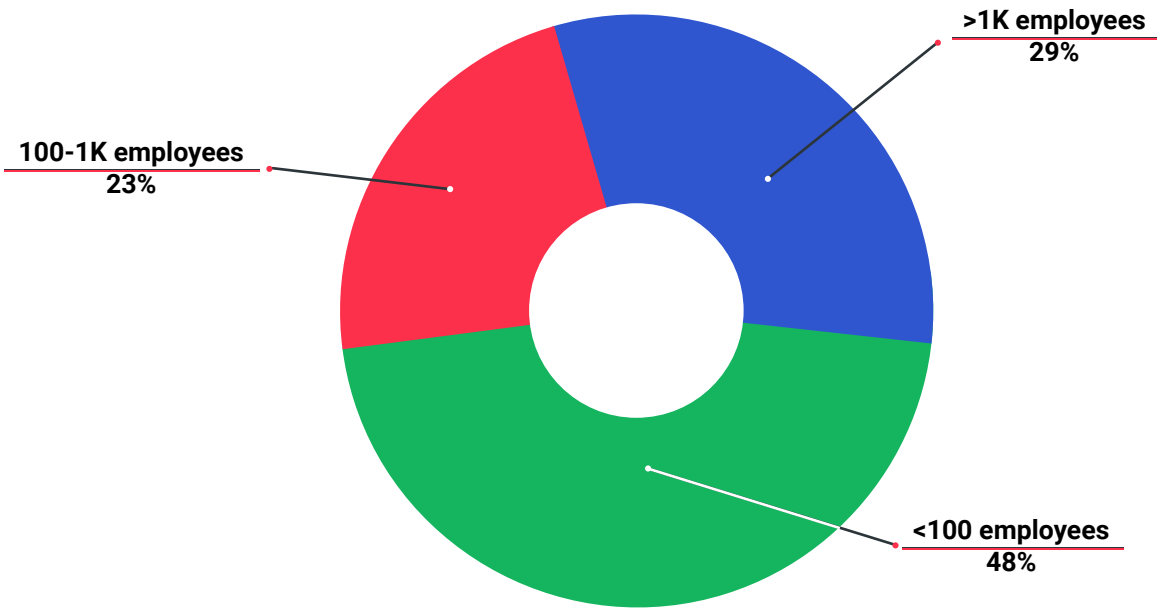


Survey respondents were asked to select the category that best represented their industry. Information Services is top ranked at 10.37%, followed by Education (9.49%), Scientific or Technical Services (7.64%), Financial Services & Insurance (6.11%), Telecom (4.98%) and Computer/Electronics Manufacturing (4.74%). Less well represented are Other Industry (3.46%), Other Manufacturing (3.14%), Business Services (3.14%), Healthcare (2.41), Energy, Oil & Gas (2.09%), Aerospace Defense & Military (2.01%), Travel, Gaming & Leisure (1.21%), Retail/Wholesale (0.96%) and Public Sector (0.72%).

The fact that Python is a general purpose programming language is well represented by the fact that no single industry dominants the results.

Q4: Organization Size

How large is your organization?

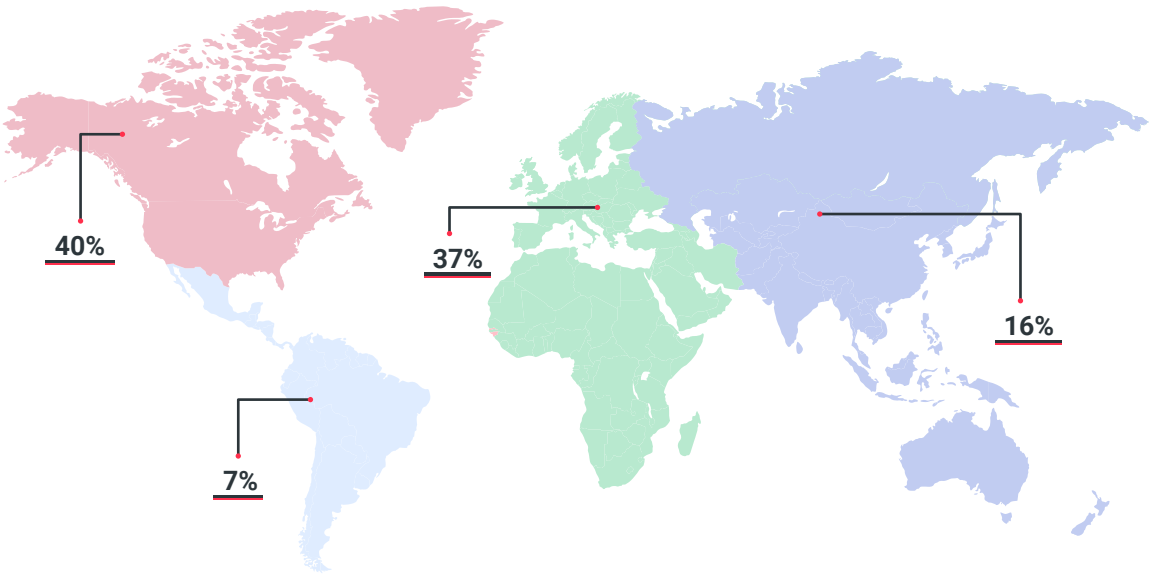


Survey respondents were asked to indicate the size of their organization based on number of employees. The responses are split between those in Small and Medium-sized Businesses (SMBs with less than 100 employees) at 47.87% versus those that belong to Mid-Sized Businesses (MSBs with 100 to 1,000 employees) at 23.53%, and those that are employed by Large Enterprises (LEs with greater than 1,000 employees) at 28.59%.

Given the range of responses, it's safe to say that all businesses - no matter the size - are affected by Python 2 EOL.

Q5: Geographic Location

Where is your organization headquartered?



Survey respondents were asked to indicate the geographic location of their organization's headquarters by region. The responses are split fairly evenly between North America (39.84%) and EMEA (37.34%), but also included a number of participants from the Asia Pacific (16.21%) and Latin America (6.61%) regions.

The results show that while Python 2 usage is widespread around the globe, there is a distinct bias in our data with 84% of respondents being from the Western hemisphere, as opposed to the Eastern hemisphere (16%).

Part 1 Summary

Overall, the results show that the roles most interested in responding to our survey were those most directly impacted by Python 2 EOL, and who will be playing a hands-on role in both the strategic and tactical implementation of their organization's plan. Additionally, while a wide range of industries are represented in the data, there is a bias toward SMBs and Western opinions.

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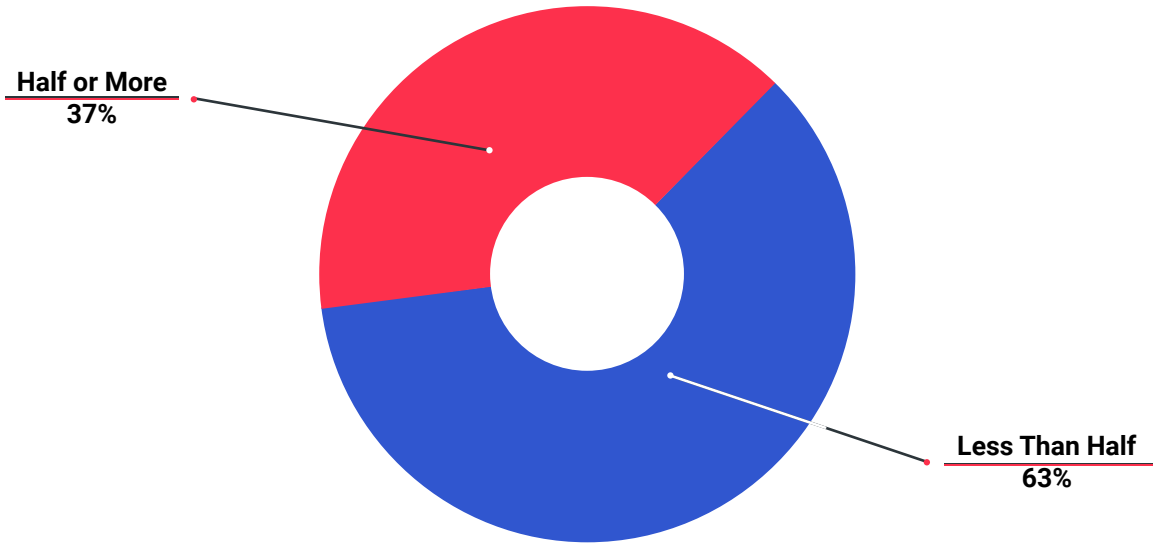
Part 2
Python 2 EOL Planning

This section of the survey was designed to help understand the impact of Python 2 EOL, as well as how prepared respondents felt for addressing the challenges.

Q6: Number of Python 2 vs Python 3 Applications

How many of your Python apps are Python 2?

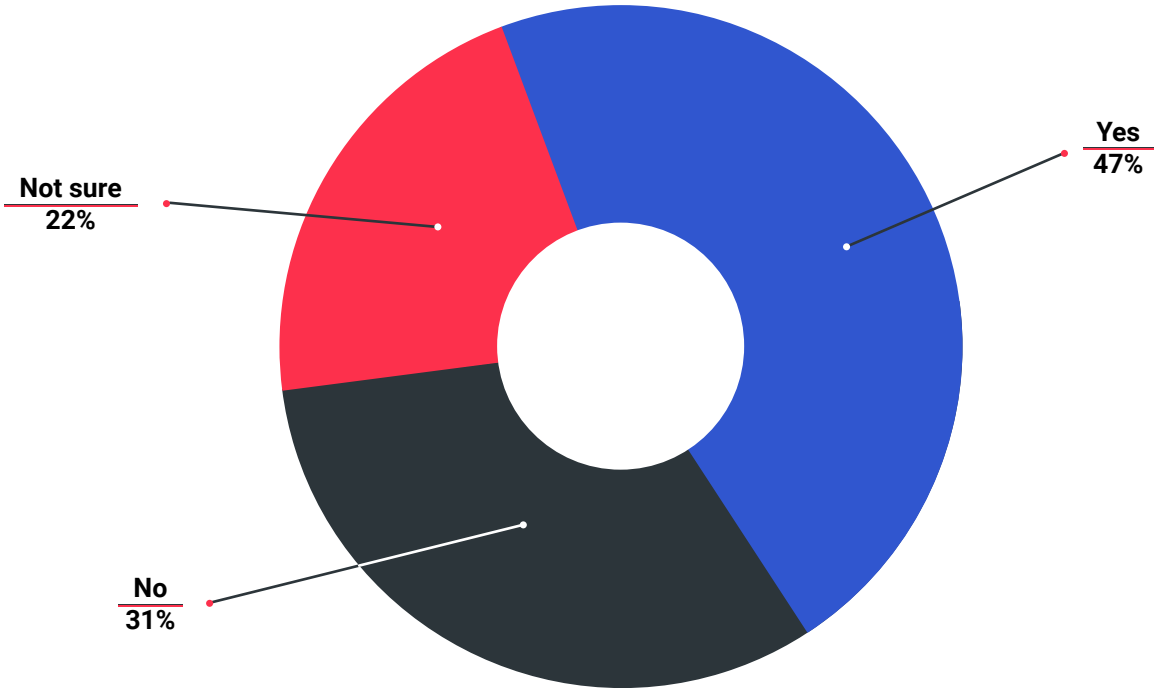


Survey respondents were asked to provide a ratio of Python 2 applications to Python 3 applications in their business unit or organization. The chart shown above summarizes the data into those for whom Python 2 applications represents less than half of all their Python apps (62.99%), as opposed to those for whom Python 2 applications represented 50% or more of all their Python apps (37.02%).

The data provides a snapshot of the current situation for each respondent. As will be shown from data collected in later in the survey, the fact that almost two-thirds of respondents indicated their Python 2 apps represent “less than half” of their Python applications is largely a result of the fact that many organizations are already well on the road to migrating to Python 3.

Q7: Mitigation Planning

Has your Organization Planned for Python2 EOL?

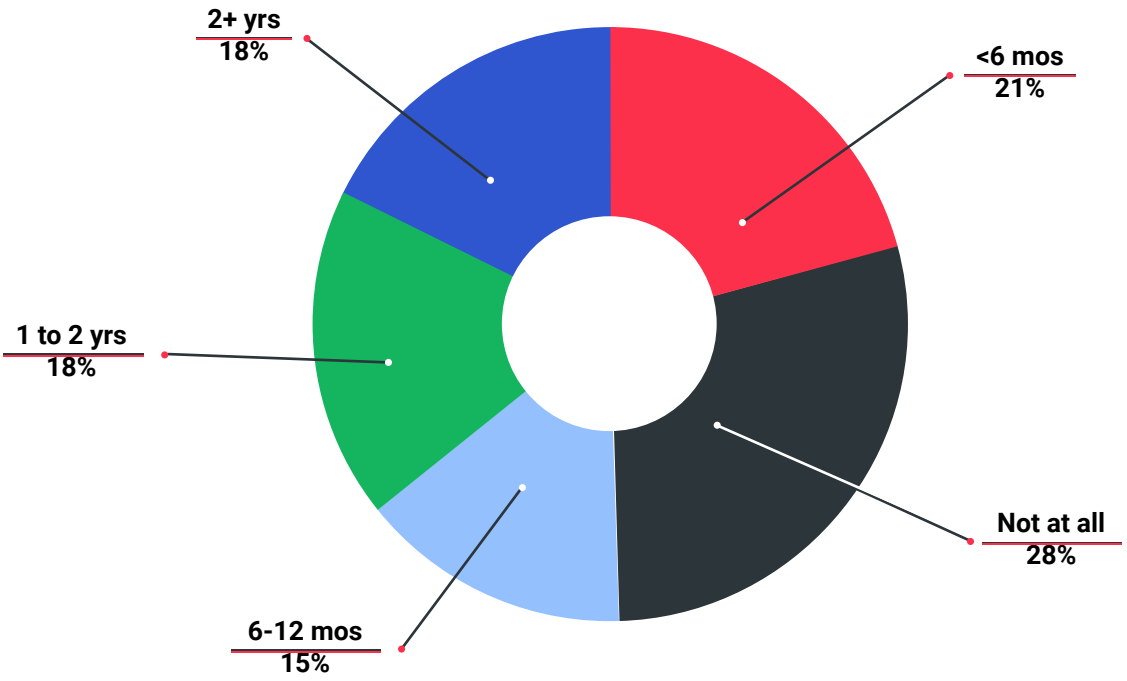


Survey respondents were asked whether their organization or business unit had already put in place a plan to deal with the impending Python 2 EOL deadline. Almost half of all respondents (46.83%) indicated they are aware of the impending EOL, and have a plan in place to deal with it. Some (21.93%) are aware of Python 2 EOL, but are unsure whether their organization has a plan in place. A surprising number of respondents (31.24%) are aware of Python 2 EOL, but have no plan in place to deal with it yet.

While awareness is high, it's surprising to note that the majority of all respondents either have no detailed plan, or are unsure they have an extensive plan in place.

Q8: Planning Period

How long has your organization been planning for EOL?

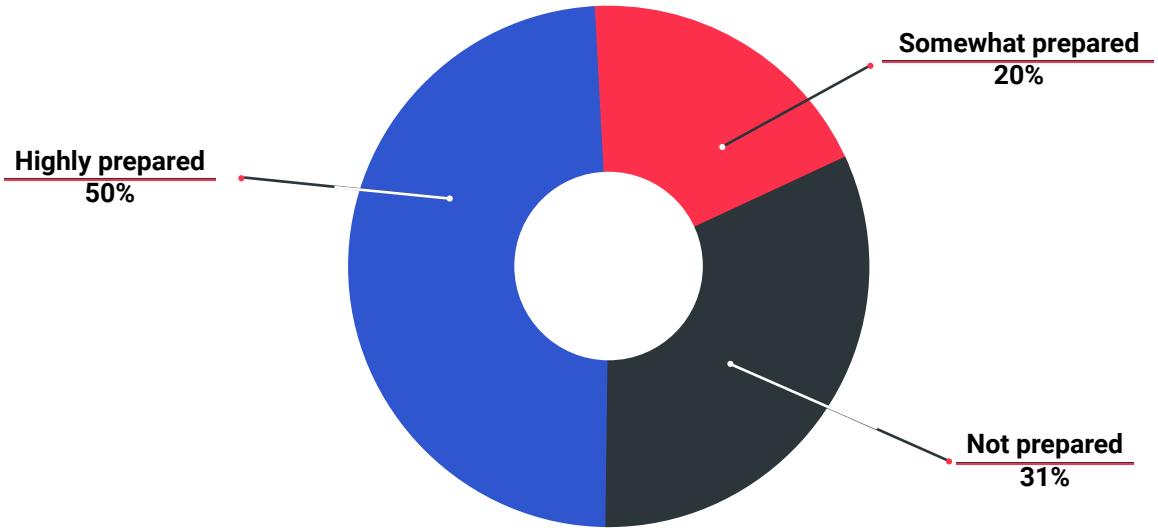


Survey respondents were asked to indicate how long their organization or business unit had been planning in advance of the January 1, 2020 EOL date. Respondents are divided equally between long term planners (1+ years, ~36%) and short term planners (<1 year, ~36%), with non-planners being in the minority (~29%). Specifically, non-planners comprise 28.61% of all respondents, while short term planners are divided into those that have been planning for <6 months (20.87%) and 6-12 months (14.83%). Long term planners have been planning for 1-2 years (18.05%) and 2+ years (17.65%).

Planning does not seem to be a key focus for almost 50% of all respondents, who have been planning for less than 6 months, or else have no plan at all.

Q9: Preparation

How prepared do you feel for Python2 EOL?



Survey respondents were asked to rate how prepared they feel at this point, just weeks before Python 2 EOL. Sentiment is equally divided between those that feel highly prepared (~50%) versus those that feel only somewhat + not at all prepared (~50%). Specifically, 50.49% feel highly prepared, whereas only 19.94% feel somewhat prepared, and 29.58% feel unprepared.

Given the dearth of planning indicated in the previous questions, it's not surprising that 50% of respondents feel only somewhat or not prepared for Python 2 EOL.

Part 2 Summary

Overall, it would seem that the sentiments of those that will be working hands-on with their organization's Python 2 code are split 50/50: half believe they are prepared, while the other half would clearly prefer they had more time for planning.

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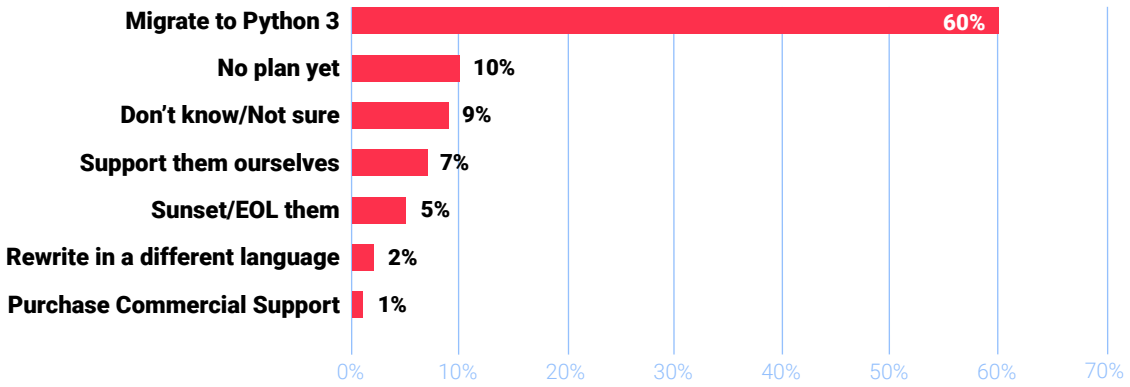
Part 3
Python 2 EOL Mitigation Strategies

This section of the survey was designed to help understand the strategy and tactics organizations are using or planning to use, going forward.

Q10: Application Strategy

What will your organization do with your Python 2 apps?

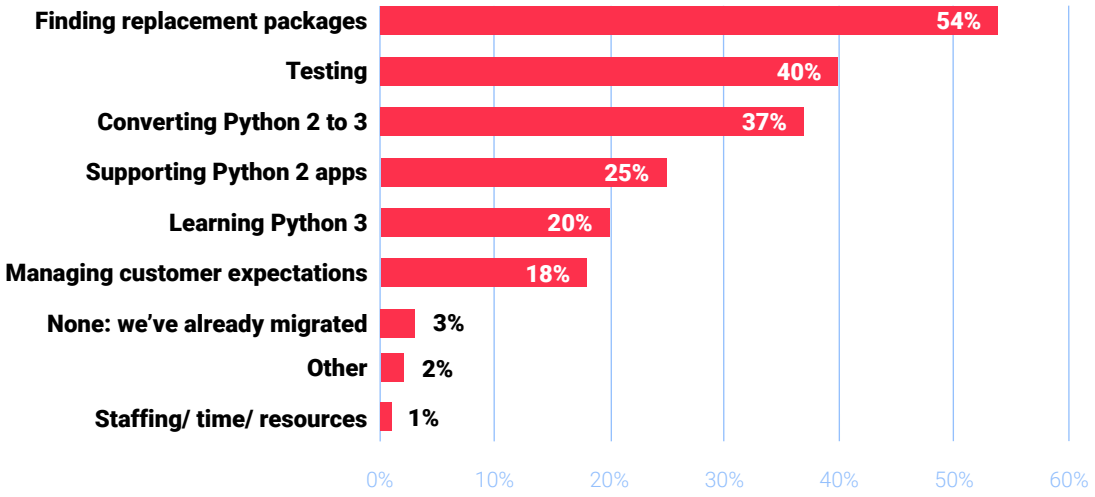


Survey respondents were asked what their organization or business unit was planning to do with their Python 2 applications. The vast majority of respondents (66.05%) have either already migrated, are in the process of migrating, or planning to migrate their Python 2 applications to Python 3. The rest of the respondents either have no strategy as yet (9.60%), are unsure of their strategy (9.27%), or are planning to either support their Python 2 apps themselves (6.77%), purchase commercial support (0.73%), or else sunset them (5.32%). Finally, 2.26% of respondents have decided to abandon Python altogether and rewrite their application in a different language.

When asked about planning, ~30% of respondents in Section 2 of this report feel they have not planned enough, or are unprepared for Python 2 EOL. Curiously, when asked about application strategy, only ~19% feel unprepared. The discrepancy is most likely due to many respondents assuming they will eventually migrate to Python 3.

Q11: Migration Challenges

What challenges do you expect moving from Python 2 to 3? (Check all that apply)

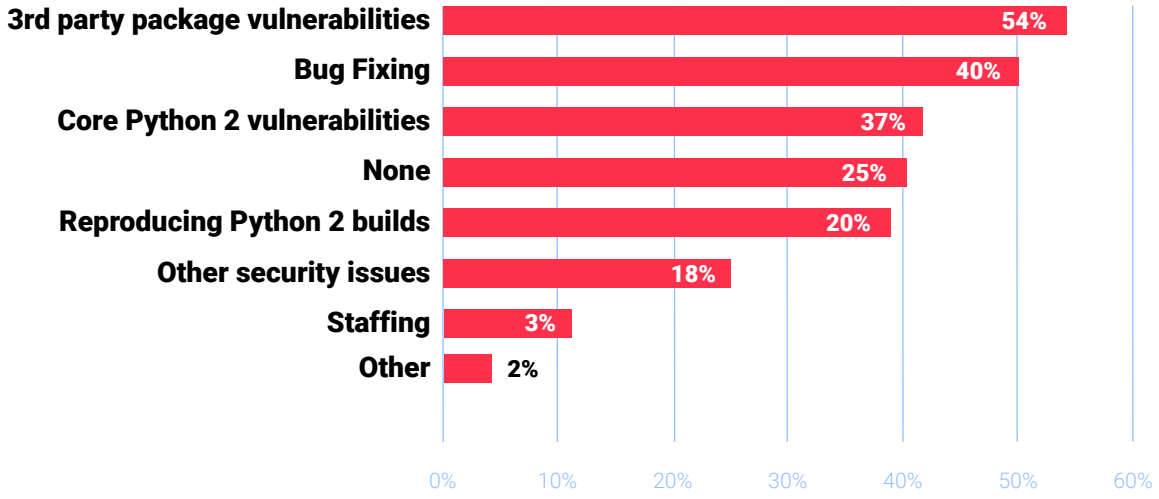


All survey respondents, regardless of whether they currently plan to migrate to Python 3, were asked to provide some insight into the challenges they assume they might face. The majority of respondents (54.27%) believe it will be challenging to find Python 3 packages that offer the same functionality they currently obtain from their Python 2 counterparts. The next most cited challenge is testing (40.35%) followed by performing the actual code conversion from Python 2 to 3 (37.37%), supporting Python 2 applications while undertaking the migration (25.43%), learning to code in Python 3 (20.13%) and managing customer expectations during the transition (17.58%). Staffing, time and resources is cited as a challenge by only 0.83% of respondents. The rest of the respondents have either migrated already (2.57%), or else have various other challenges, such as a dependency on a commercial vendor who has not migrated to Python 3 as yet, blocking their migration plans.

There are no surprises here, other than to note that only 2.57% of respondents (or 31 organizations) had already completed migrating their applications to Python 3 by November 30, 2019. If this survey is indicative of the industry as a whole (and we believe it is), that means the vast majority of organizations did not complete their migration prior to the Python 2 EOL deadline, which occurred just 4 weeks after this survey closed.

Q12: Support Challenges

If supporting Python 2 yourself, what challenges do you expect? (check all that apply)



All survey respondents, regardless of whether they currently plan to self-support, were asked to provide some insight into the challenges they might face should they decide to support their Python 2 applications themselves. While 28.60% of respondents felt comfortable enough with their Python 2 code base to state they expected no challenges, others cited challenges primarily around supporting a code base that they did not code themselves. For example, third-party packages vulnerabilities (38.55%), bug fixing (36.17%), core Python 2 vulnerabilities (29.70%) and other security issues (7.66%) were all top of mind. Staffing problems were also cited by 7.66% of respondents, while the balance (3.23%) mentioned other areas such as utf-8/unicode issues.

Again, there are few surprises here. Python 2 is a well-known and robust language that many organizations have been using for decades, raising the confidence level for those who expect they can support their aging Python 2 code base. However, most of these organizations have always counted on the Python Software Foundation and community to fix code issues and security vulnerabilities.

While some maintainers may offer Python 2 code fixes going forward, most will have moved their packages to Python 3 and won't have the time or resources to allocate to a dead code branch. And when it comes to core Python 2 vulnerabilities, the Python Software Foundation has already stated they will not be providing fixes, which leaves businesses solely relying on their own teams or programmers for hire to help secure their code.

Part 3 Summary

If this survey is indicative of the market as a whole, two-thirds of organizations either are migrating or will shortly be migrating their Python 2 code base to Python 3. That still leaves one-third of all organizations that are either undecided, or have opted not to migrate. The choice to rewrite an application in a new code base is always a difficult decision, given that the time and resources are typically better spent on building new features, or even a new application. However supporting an aging code base - one that you didn't create - will only get more difficult over time as bugs and security vulnerabilities inevitably crop up.

Conclusions

As the Python 2 era comes to a close, most organizations are working diligently to put in place a solution to deal with the fact that no new updates or security fixes for their Python 2 applications are forthcoming from either the community or Python Software Foundation.

We hope the results of this survey will help the reader understand the technical and business challenges organizations are facing due to Python 2 EOL, as well as the solutions they are implementing.

As a founding member of the Python Software Foundation, ActiveState has a proven track record of providing commercial support for Python 2 and Python 3 deployments in enterprises both large and small for the past 20 years. Going forward, ActiveState will continue to support Python 2 for security updates in the core language, as well as many of the popular third-party packages organizations currently rely on.

Interested in learning more? Read about our **Python 2 EOL support** on our website or else **contact us directly.**

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