

# Enabling the Next Infrastructure Paradigm: Automation, Infrastructure as Code, and Cloud Migrations

by [Guy Currier, Analyst, Futurum Group](#)

SPONSORED BY

StackGen 

## The Agility Imperative

In a modern enterprise digital landscape, organizations are increasingly migrating between cloud platforms not merely for technical benefits but to support strategic business imperatives ranging from cost savings to market expansion. This shift represents a fundamental rethinking of how modern enterprises approach their technology infrastructure.

There are compelling reasons to implement this kind of agility. Scalability demands push organizations toward platforms that can seamlessly grow and contract with their evolving business needs. Cost optimization becomes non-negotiable with the first, inevitable runaway cloud services bill. Competitive advantage today more or less requires access to cutting-edge technologies, which the cloud providers are continuously racing to deliver with innovative offerings. Performance requirements continue to increase to meet customer expectations for richer and richer digital experiences. And the various, many, and multiplying compliance considerations are driving migrations as data sovereignty and security standards evolve across global markets.

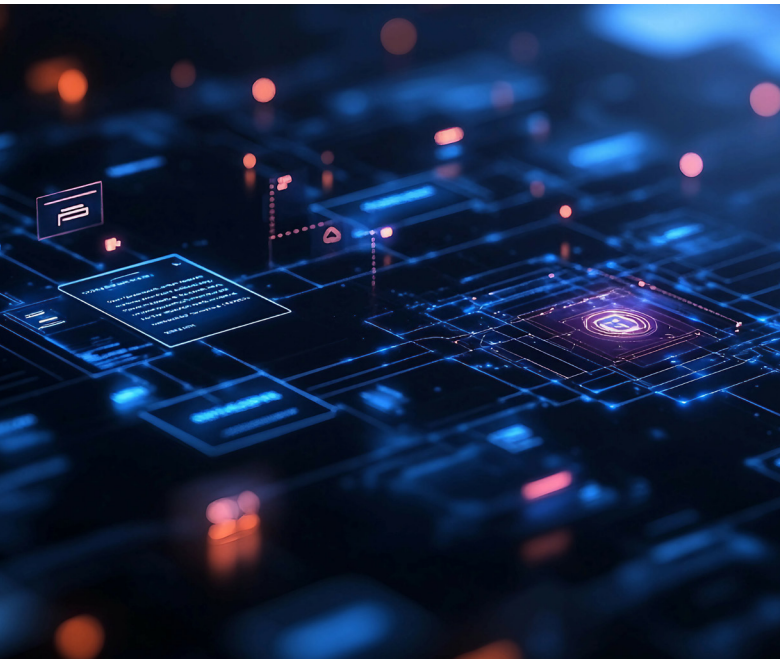
## Hidden Complexities

Despite these compelling business cases, cloud-to-cloud migrations are the source of significant friction in the technology ecosystem—the opposite of agility. The research highlighted in this report shows how migrations introduce substantial challenges that impact productivity and increase risk. When an organization attempts to translate from one cloud's architecture to another without clear, complete configuration mapping and proper tools, complexity mounts and can completely overwhelm the endeavor. And that's not even to mention security and compliance risks, which frequently emerge during environment transitions and create new vulnerabilities.

## Key Takeaways

- Organizations are at varying stages of infrastructure as code (IaC) matures, with the majority not significantly using it yet.
- Insufficient training and expertise create significant challenges in ensuring compliance and governance for IaC-based deployments.
- Most companies rely on a combination of manual review and automated tools for infrastructure auditing and discovery.
- Cloud-to-cloud migrations create notable productivity challenges for teams, often reducing process bottlenecks.
- Automated generation of infrastructure as code appears to be a highly valuable option for streamlining cloud-to-cloud migrations.

The research also showed that the talent shortage is notably acute when it comes to infrastructure-as-code. Many organizations lack the specialized knowledge needed for successful migrations. Environment-specific differences between cloud providers make direct translation nearly impossible, requiring sophisticated adaptation strategies. Resource demands—both for time and for budget—typically exceed initial estimates, creating project strain and engendering skepticism among the leadership about future migration initiatives, stymieing progress.



### Research Insights

In 2025, Techstrong Research polled our community of infrastructure and systems management readers and viewers to identify those involved in infrastructure as code (IaC) and in cloud-to-cloud migrations and gain insight into how this strategic area of infrastructure management and cloud use is developing. Our findings reveal that organizations are mostly at the beginning of their journey from manual infrastructure configuration to automated deployment and management of entire ecosystems.

### Analyst View

Infrastructure as code (IaC) adoption remains somewhat rudimentary in many organizations, at least compared to the tools and capabilities available today. Nearly half of organizations haven't yet meaningfully integrated IaC into their operations, and challenges in infrastructure visibility further exacerbate these struggles. Despite the continuing cloudification of everything, we are still significantly relying on manual work, which hampers efforts to streamline operations, enforce compliance, and be more agile. The difficulty becomes even more pronounced during cloud-to-cloud migrations, where issues such as configuration complexity, skill shortages, and high resource costs slow progress and dampen productivity.

Although over a quarter (26%) of organizations say their IaC implementations are a core part of their app dev, more are just starting with IaC (28%) and in total roughly half (49%) are not significantly using IaC yet.

Infrastructure visibility is even further behind IaC. The vast majority (82%) of organizations either perform manual infrastructure auditing and discovery or have no consistent method. Only 18% use automated scanning as their typical method; an additional 39% use at least some automation but are also using those manual methods.

Organizations struggle to ensure compliance as they automate infrastructure. Respondents cited an average of 2.6 challenges as their "biggest" challenges automating—indicating that organizations are facing multiple significant compliance challenges as they automate. Most often cited as a challenge was talent gaps (35%), but not significantly more than numerous others ranging from lack of visibility to inconsistent application of policies. A third of respondents said that ensuring security or compliance is one of the biggest challenges they face during cloud-to-cloud migrations.

There are numerous difficulties with cloud-to-cloud migrations. Here also, an average of 2.6 challenges were cited on average as "biggest" and covered a relatively wide range, including the compliance

issue just mentioned. The complexity of mapping configurations was a significant leader here, but not by much; this was cited by only a little over a third of respondents, who were almost as frequently concerned about several other issues such as IaC talent gaps and the time and cost required to perform a migration.

One thing our poll made clear: automatic IaC generation could make a big difference. Nearly three quarters (72%) of respondents said automation would be very or extremely helpful to their organization generally, and with respect to cloud-to-cloud migrations specifically, nearly half cited automatic IaC generation as the approach that would help the most—more often than any other approach. And other approaches respondents considered most helpful are actually secondary benefits of automatic IaC generation: IaC standardization (37%) and environment-to-environment translation (33%), for example.

Cloud-to-cloud migrations need more automation capability. The vast majority (78%) of infrastructure teams that have performed cloud-to-cloud migrations say that they reduce their productivity or create process bottlenecks (51% total) or at least increase the amount of automation they need (27%).

Automating the process of creating infrastructure as code seems like it could be a pivotal opportunity to overcome these issues. Nearly three-quarters of those involved in IaC at their organizations believe automatic IaC generation could deliver substantial benefits and address the key challenges of IaC and cloud migrations, such as maintaining compliance and standardization or performing the necessary environment-to-environment translation that keeps applications working properly. For migrations in particular, the ability to automatically generate IaC stands out as the most impactful solution. By equipping teams with tools that simplify IaC creation, standardize practices, and reduce configuration complexity, organizations could unlock new levels of efficiency and scalability.

## Recommendations

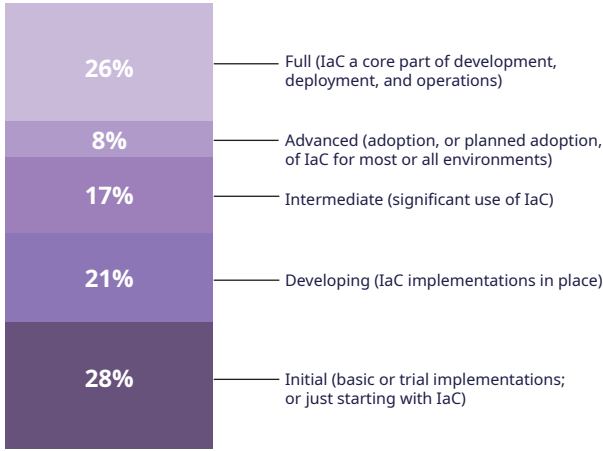
Addressing the challenges of automation and cloud-to-cloud migration in order to achieve the next tier of infrastructure agility requires a new tier of tools as well as some investment in team expertise and capabilities. Architects and systems managers should:

- Invest in automated infrastructure as code generation which can significantly reduce the complexity of configuration mapping and translation between cloud environments. This minimizes human error and accelerates the migration process.
- Prioritize upskilling and specialized training in cloud migration and infrastructure as code (IaC) to bridge critical expertise gaps, reducing misconfigurations and operational inefficiencies.
- Establish comprehensive security and compliance frameworks to safeguard against vulnerabilities and regulatory risks during migration and ensure the tools and automation support proper, continuous configuration and protection.
- Ensure that tools and services enable cloud-native to reduce the potential for vendor lock-in or compatibility issues that can hinder migration and limit future flexibility.

By implementing these recommendations, organizations can reach a new paradigm of agile infrastructure, mitigate the risks and challenges of strategic cloud-to-cloud migration, ensuring smoother, more secure, and cost-effective responsiveness for the enterprise as a whole.

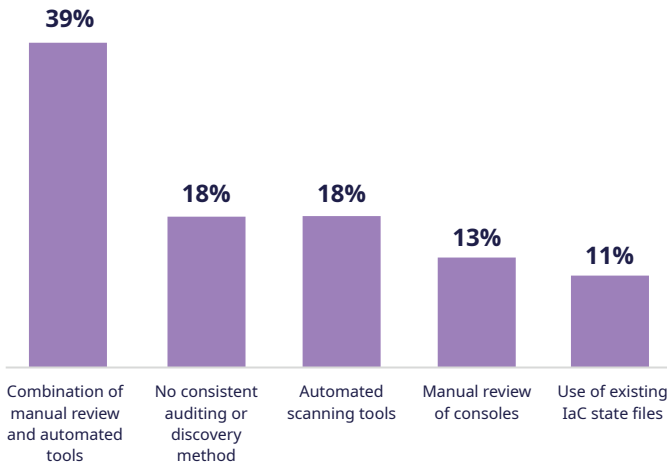
**Research Results**

**How would you best describe your organization’s current level of maturity with respect to infrastructure as code (IaC)?**



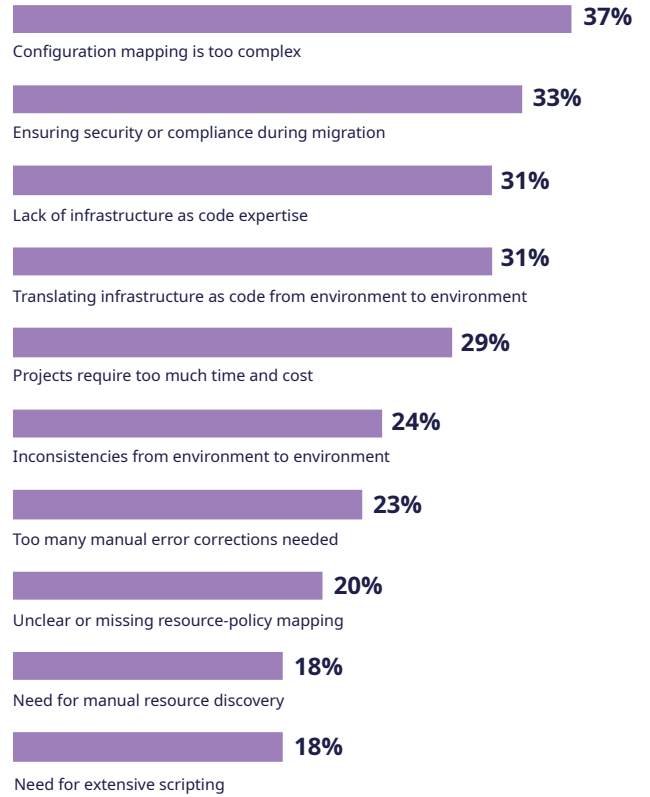
Organizations display a wide range of infrastructure as code (IaC) maturity, with no single approach dominating the landscape. The largest segment of respondents (28%) categorize themselves as just beginning their IaC journey, with only basic or trial implementations. One quarter (26%) report having reached full maturity, where IaC is a core part of their development, deployment, and operations processes. One-fifth (21%) say they are in the developing stage, indicating that IaC implementations are in place but not yet comprehensive or fully integrated.

**How do you typically audit or discover existing infrastructure?**



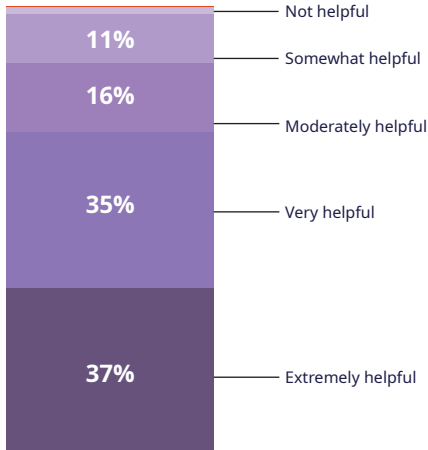
When it comes to auditing or discovering existing infrastructure, organizations predominantly rely on hybrid approaches rather than fully automated solutions. The most common method by a significant margin is a combination of manual review and automated tools, used by 39% of respondents. The second and third most common responses reveal interesting insights about the state of infrastructure management: 18% of organizations report having no consistent auditing or discovery method, indicating a significant gap in systematic infrastructure management, while an equal percentage (18%) use automated scanning tools as their primary approach. Only a very small group (11%) use existing IaC files to discover and audit their environment.

**What are the biggest challenges your team faces with cloud-to-cloud migrations?**



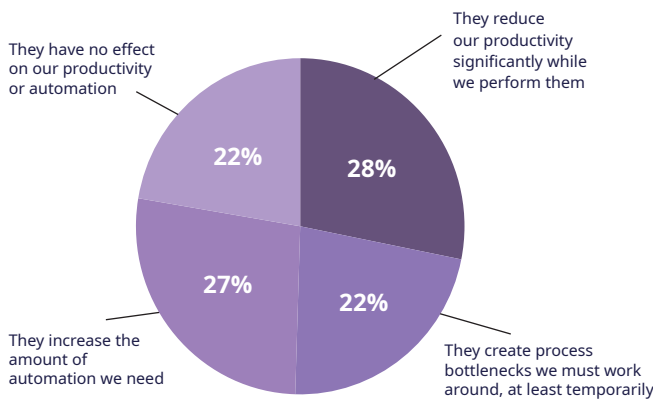
Cloud-to-cloud migrations present several significant challenges for organizations, with configuration complexity being the most prominent issue. Configuration mapping is considered too complex by 37% of respondents, making it the top challenge. Security and compliance concerns during migration follow closely at 33%, highlighting the critical importance of maintaining proper security postures during cloud transitions. The third most cited challenge is the lack of infrastructure as code expertise at 31%, which aligns with the findings from the compliance and governance question and reinforces the industry-wide skills gap in this area.

**How helpful would it be to your organization to be able to automatically generate infrastructure as code (e.g., from existing resources, from application code, or based on architectural designs)?**



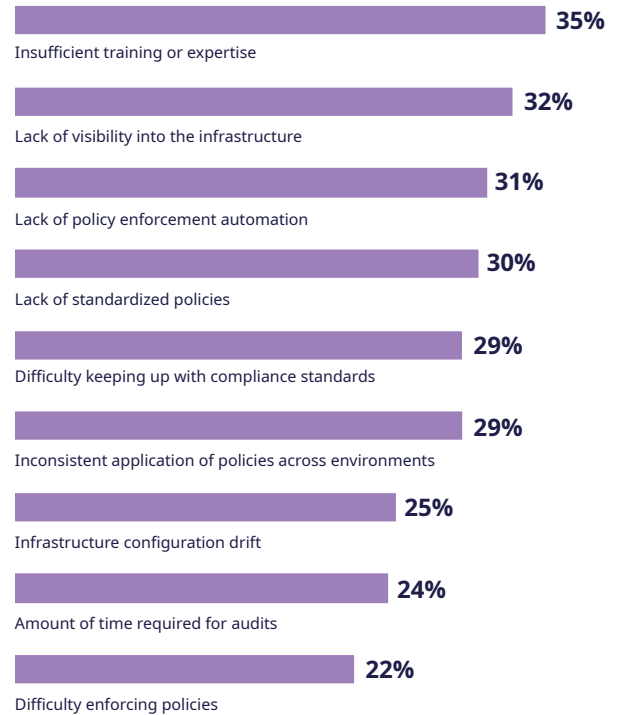
Respondents showed overwhelming support for automated infrastructure as code generation capabilities. An impressive 37% of respondents believe that automatically generating infrastructure as code would be extremely helpful to their organization, whether from existing resources, application code, or architectural designs. This is closely followed by 35% who consider it very helpful, indicating that nearly three-quarters of all respondents see significant value in this capability.

**Which of the following best describes how cloud-to-cloud migrations impact your team's productivity?**



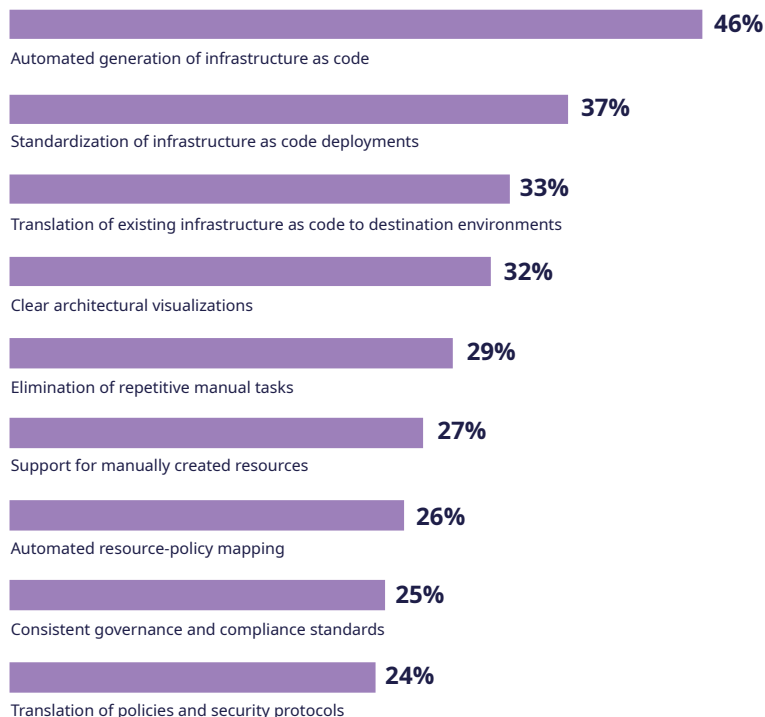
Cloud-to-cloud migrations have a significant impact on team productivity, with many organizations reporting negative effects. The most common response, cited by 28% of respondents, was that migrations "reduce our productivity significantly while we perform them," indicating substantial disruption during the migration process. The second most common impact was the need for increased automation, reported by 27% of respondents. The third most frequent response was that migrations "create process bottlenecks we must work around, at least temporarily," cited by 22% of respondents, further emphasizing the operational challenges associated with cloud transitions.

**What are the biggest challenges you face in ensuring compliance and governance for your IaC-based deployments?**



Ensuring compliance and governance for IaC-based deployments presents multiple challenges for organizations, with talent issues being the most prominent concern. Insufficient training or expertise leads the list of challenges at 35%, highlighting the significant skills gap in this area. Following closely behind, 32% of respondents cite lack of visibility into the infrastructure as a major challenge, indicating that many organizations struggle to maintain a comprehensive understanding of their cloud resources. The third most common challenge is the lack of policy enforcement automation at 31%, suggesting that many organizations have yet to implement tools that can automatically ensure compliance with established policies.

**Which of the following would most help streamline your cloud-to-cloud migrations?**



Respondents showed a strong preference for automation and standardization to streamline cloud-to-cloud migrations. Automated generation of infrastructure as code was the clear leader, cited by 46% of respondents as the most helpful potential solution. Standardization of infrastructure as code deployments was the second most popular solution at 37%, indicating a desire for more consistency in how IaC is implemented across different environments. Translation of existing infrastructure as code to destination environments ranked third at 33%, highlighting the importance of being able to efficiently adapt existing configurations to new cloud environments.



**This Techstrong PulseMeter is sponsored by StackGen.**  
**To learn more about StackGen, visit [StackGen.com](https://StackGen.com).**