



linode

Migrating Workloads to the Alternative Cloud

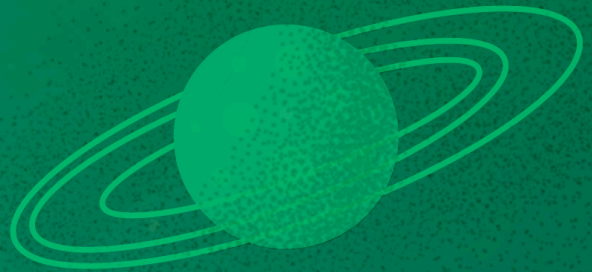


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Introduction

It's no surprise that alternative cloud providers are an increasingly popular choice for small and medium-sized businesses (SMBs). This rising category of cloud providers delivers the same core technical underpinnings of the larger hyperscalers with price-performance advantages that make them an attractive choice for companies moving from on-premises to the cloud or for organizations exploring hybrid or multicloud environments.

Alternative cloud providers offer SMBs a legitimate alternative to AWS, Azure, and Google Cloud Platform (GCP), with comparable, and often better, performance at a more attractive price. But there's a potential challenge that cannot go unmentioned: Once you decide that an alternative cloud provider is the right choice, how do you approach migration?

As a leading alternative cloud provider, Linode has developed three ways to migrate your website, data, and apps:



Do-it-yourself (DIY)
with 24/7/365 live
Customer Support



Work with an in-house
team of experienced
cloud consultants



Leverage an alternative
cloud provider's
extensive partner network

Regardless of your approach, your cloud provider should have your back every step of the way, from analysis and planning to testing and production deployment. Each cloud migration option addresses a different set of needs. Let's take a closer look at these three migration options so that you can make the best choice for your move to the alternative cloud.

DIY Migration

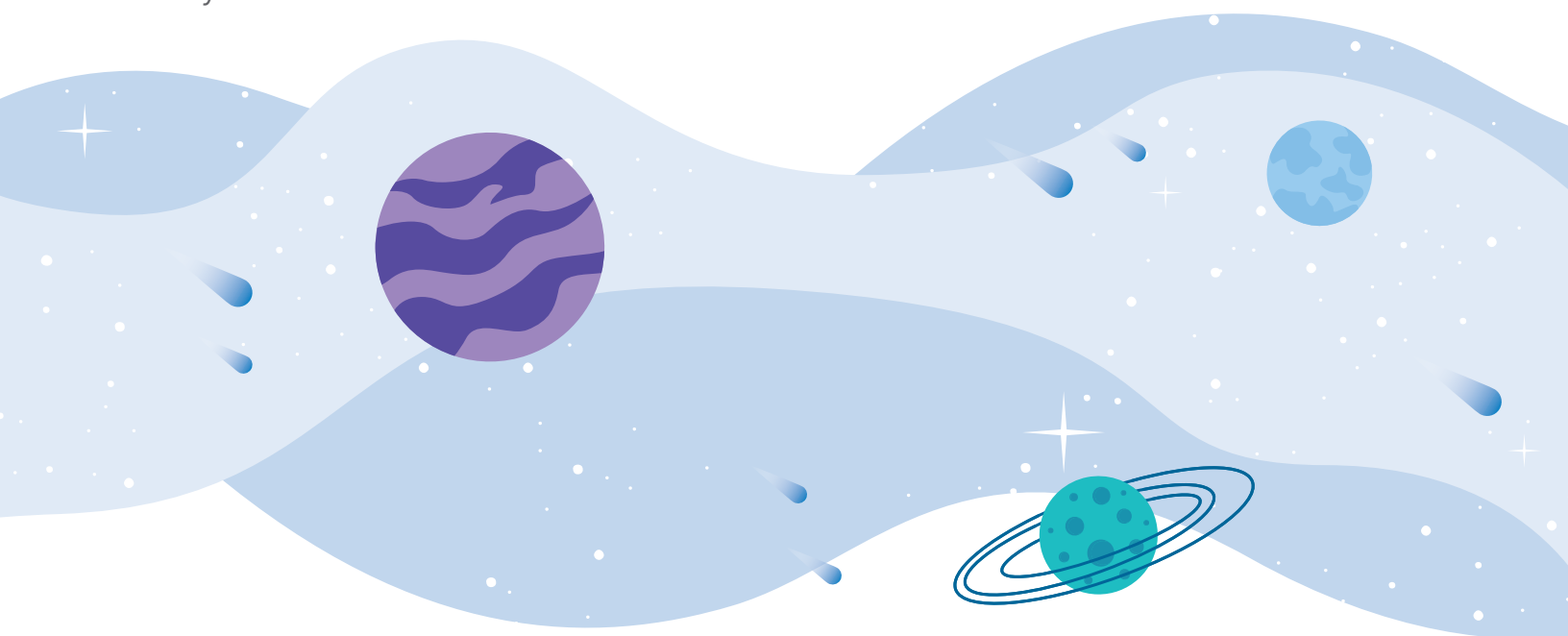
Regardless of your migration project's size, you have the time and experience to pull it off on your own. You're comfortable reading documentation and using the Linux command line, or you have sufficient expertise in your organization to handle anything that comes up.

Plenty of people know—or enjoy figuring out—how to migrate their workloads to the alternative cloud on their own. Still, DIYers occasionally need help. That's when something like Linode's 24/7/365 worldwide Customer Support comes into play. Linode's Support team has no tiers and no hand-offs. Highly-trained service professionals are dedicated to finding solutions while providing an unparalleled customer experience.

“We will answer questions as basic as ‘How do I use SSH?’ to specific questions about cPanel and WHM settings,” said Brian Fuller, a member of Linode's Customer Support and Community teams. “Most of the time, because of our excellent documentation library, we're able to find the right document to provide to the customer that'll help solve their problem directly.”

Ample documentation is available to support anyone [migrating to Linode](#), including some general best practices and how to migrate from GCP. For instance, Linode's guide, [“Migrating a Google Cloud Platform VM Instance to Linode”](#), describes a recommended strategy for migrating services from a GCP virtual machine instance to Linode. While the specific steps you'll need to carry out will vary depending on the software you use, the high-level outline is generally the same regardless of your service.

When it comes to migrating workloads to Linode, Fuller suggests coming to Customer Support first. “Typically, we're able to provide answers to your questions right then and there. We're careful to funnel customers to our Professional Services team when we're confident that it will save you both time and money.”



DIY Cloud Migration Best Practices

There are plenty of reasons to migrate to the cloud, including reducing costs, improving efficiency, and preparing your infrastructure for future growth. But once you decide to migrate your infrastructure or a particular workload to the alternative cloud, what do you do next? Research, requirements gathering, and resource planning with your internal teams are very likely your next steps.



Evaluate and Test Providers

You're likely familiar with the big three cloud computing providers, but alternative cloud providers offer the same benefits and infrastructure without the overhead. No matter the provider, your evaluation should include:

- **Select a Plan Size:** Review CPU, RAM, and overall storage limits. At a minimum, look for a cloud provider that can store the amount of data you currently use.
- **Test Performance:** The number of data centers and availability zones covered will vary by cloud provider. Check for markets important to your business and customer base, and use the provider's speed test tool (if available) to experience the performance first hand.



Confirm Your Software Stack

Understand the dependencies you need to evaluate for your provider of choice. This effort could be as simple as pulling up your latest architecture diagram or might require consultation from your team and the cloud provider.

- **Consult Your Team:** Getting an accurate list of your software stack is a crucial step to identify any requirements or account for installations on the new provider. For example, if you are running WordPress, you might need to install LAMP on your instance to support your website.
- **Provider Support:** In shared environments, it might be hard to know what's running or supporting your applications. Ask your cloud provider for the information you need.

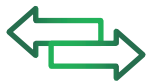
DIY Cloud Migration Best Practices



Confirm Your OS and Distribution

The underlying operating system (OS) that runs your workload is an important factor when moving from one platform to another. There can be some differences in the location of system files and the commands the OS uses to operate from one OS to the next. To make a move easier, try to match the OS and distribution as closely as possible.

- Many virtual machines run on the **Linux** kernel, an open source operating system. But your software could run using a specific Linux distribution. Be sure to confirm not only the distribution but also the version supported by your new provider.
- It's possible to run most **Windows** services on Linux. For instance, you can host ASP.NET core on Linux with Nginx. Windows users should be comfortable with the Linux command line, installing software, and installing operating systems. Also, it's important to understand and plan for the challenges you can encounter when moving to a different operating system, particularly around software compatibility.



Choose a Migration Strategy

There are two methods of migration. The primary difference is the ability to troubleshoot along the way.

- **Individual Services:** While the process of copying over the configuration and data relevant for each service might take more time, it will likely be beneficial in the long run. With easier troubleshooting for each service, the result is an environment that is guaranteed to boot correctly.
- **Full Clone:** This process involves creating a virtual machine on your new provider platform and performing a full clone of your existing disk on your current host. While migration is possible with this method, there could be differences in the system configuration between providers, and your new provider's management console might not work as expected.

DIY Cloud Migration Best Practices



Create a Backup

Before starting any migration, it's essential to create a backup of essential information, which provides an excellent opportunity to identify software configuration settings that you should preserve and that don't need replication on your new provider.

- **Database Storage:** You might need to perform a database dump, which creates a file on disk encapsulating your database data that you can copy over as a normal file. If this isn't possible, you might need to ask your current host for an alternative method to export your data.



Impacting “TTL” (Time to Live)

Any migration will take time, but a DNS manager gives you the control to execute a seamless cutover with zero downtime for your customers.

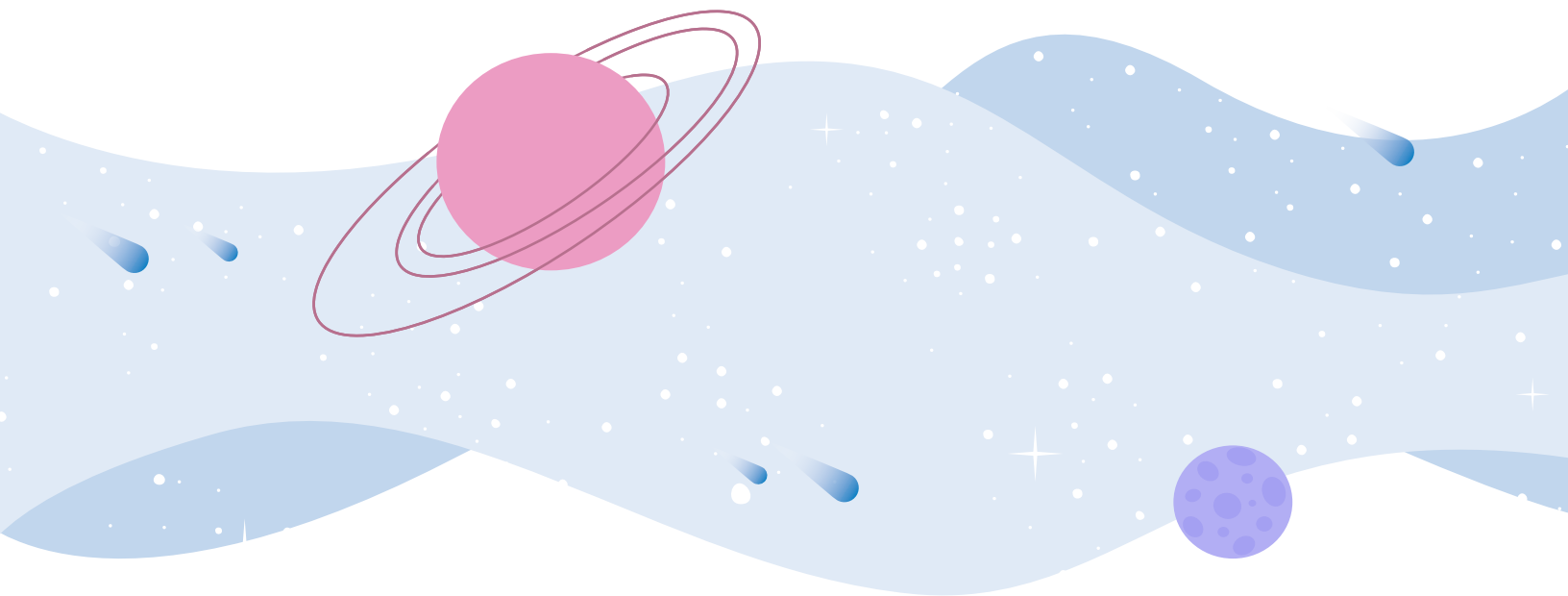
- **Using a DNS Manager:** The first step is to determine if your new provider has a DNS manager or if you're staying with your current service. In either case, you'll need to associate your domain with your new IP address when you migrate your service.
- **Shortening the TTL:** DNS addresses don't often change server IP addresses, so the default TTL is typically 24 hours. Consider shortening TTL to a lower default like 300s/5m to ensure that when your domain information updates, it will take effect quickly.

Migrate with Assistance from In-house Cloud Consultants

Maybe you're not an expert Linux administrator, or perhaps you want the convenience of knowing that expert cloud consultants will complete your migration. If you would rather focus on your core business needs while your project is migrated to the alternative cloud, consider working with a provider's Professional Services team.

If a DIY migration strategy sounds daunting, alternative cloud providers will offer a Professional Services team of cloud consultants dedicated to helping you migrate workloads with minimal stress and downtime. The Professional Services team at Linode regularly receives referrals from Customer Support. Many of these referrals are dealing with workload migrations from hyperscale providers as companies seek to align their infrastructure and business needs, often moving to a multicloud architecture.

Professional Services can handle everything from content transfer and DNS records to the cutover of your traffic. Although anyone can spin up a Linode in less than a minute on their own, working with an experienced team to provide guidance for architecture, migrations and software deployments makes everything easier for users unfamiliar with certain add-ons.



Migrate with Assistance from In-house Cloud Consultants

WORKING WITH LINODE PROFESSIONAL SERVICES

When you contact Linode Professional Services for assistance with migration, you can expect the team to walk you through these basic steps:

- 1) **Release:** The Professional Services team will need your permission in writing to take a look at your infrastructure.
- 2) **Discovery:** You'll speak with a team member who will examine your current infrastructure and application performance requirements to ensure that the infrastructure can be migrated to Linode. In addition, the team member will ask you some "big picture" questions about your business challenges and offer advice on how Linode can help you achieve your business objectives.

"If we can host your infrastructure, we're eager to get you on our platform," said Ben Ellis, Professional Services Development Lead at Linode. "If we can't migrate you—for instance, if your database is too big or if you're using an incompatible service on AWS or proprietary primitive offerings on another provider for which we do not have a comparable service—we'll let you know right away, and we'll connect you with one of our great Linode Partners."

- 3) **Statement of Work:** Next, Linode will provide you with a no-obligation, hassle-free quote that includes a description of the work and a timetable for completion. Qualifying projects are eligible for free infrastructure credits to make the transition to Linode at no additional cost.
- 4) **Migration:** Lastly, the team conducts the migration followed by User Acceptance Testing, which typically takes about one week.

.infomedia

Based in Birmingham, Alabama, Infomedia has been providing website design and hosting services since 1994. The company manages a growing list of 400-500 websites. Rather than hosting its own servers on-premises, Infomedia partners with third-party cloud providers.

Michael Stuckey, Head of Support Development at Infomedia, describes why Infomedia decided to partner with Linode. “Our longevity as a company is due to our commitment to innovation, both in terms of design and underlying technology, so we need a hosting partner that supports that and enables us to move quickly,” he said. “We’ve had to part ways with numerous hosting companies that just couldn’t keep up with our pace. The relationship always starts well, but then we encounter growing pains and discover we cannot move as quickly as we would like.”

Daniel Weaver, Web Developer and System Administrator at Infomedia, added: “At the end of the day, Infomedia is the one responsible to our clients for performance and reliability, so we’re seeking cloud providers that can give us more scalability, more control, more access, and less downtime. The other providers we’ve been with have always claimed 99.9% uptime, and never delivered on that promise.”

Infomedia tested the waters with Linode by hosting its development server and a handful of larger clients on Linode for a couple of years. “When we’ve done server migrations in the past, it was a tremendous amount of work, and the process has not been without flaws, so we had concerns, especially about downtime,” admitted Stuckey. “We’ve also had subdomains slip through the cracks in the past, and we didn’t want to have things fall off again.”

Pleased with Linode’s customer service and reliable performance, Infomedia decided to expand the relationship, migrating 150 customer websites with help from Linode Professional Services.

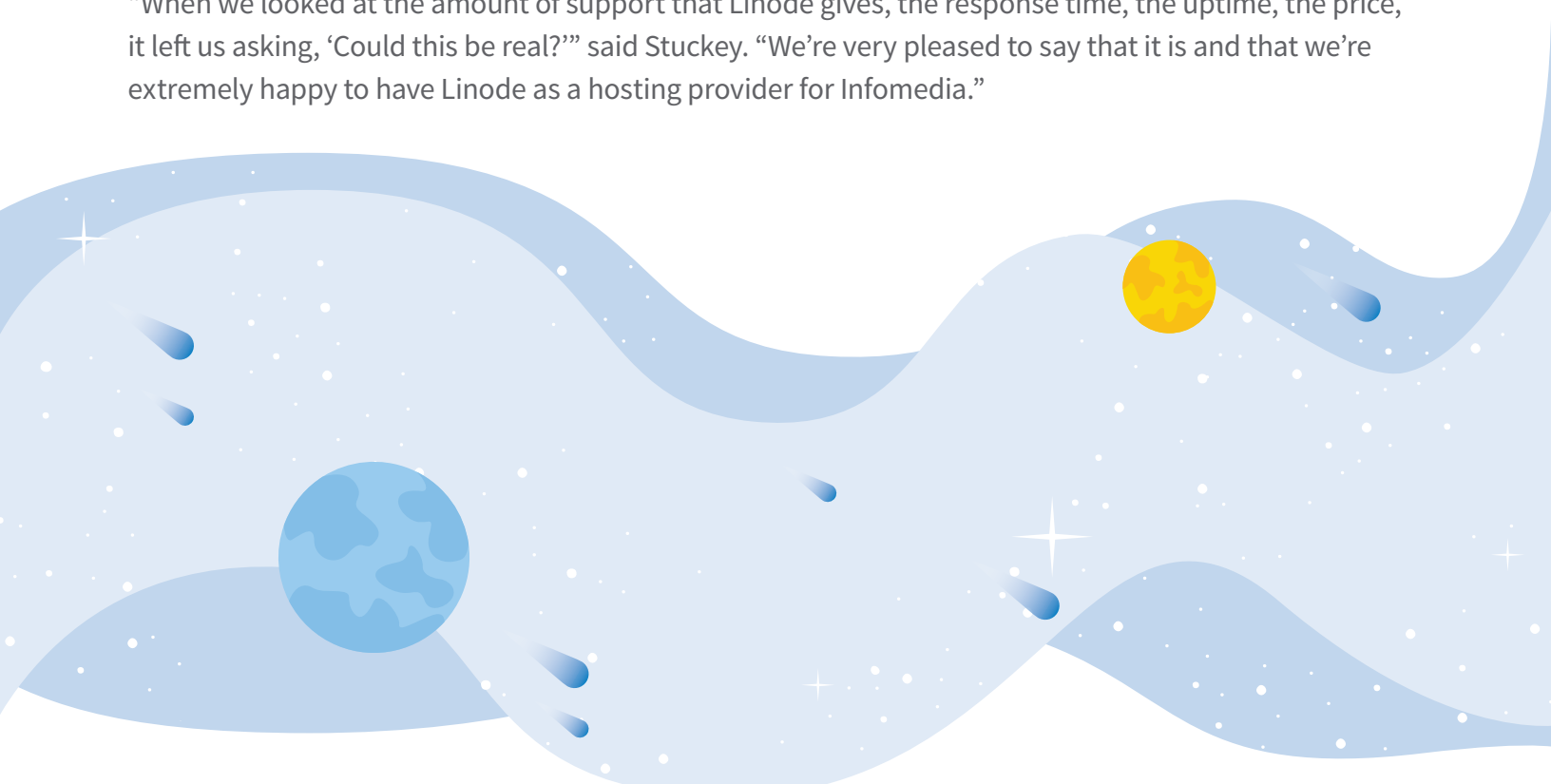
“As it turns out, this migration with Linode was different from any other migration that we’ve ever done,” continued Weaver. “I attribute that to the fact that we had a Linode cloud consultant involved in the process with us from day one. Although we chose to stay involved in the process, we certainly could have taken a completely hands-off approach if we had wanted to. Linode made this migration easy, and the job was completed smoothly in 90 days, start to finish.”

.infomedia

In addition to managing the migration, Linode has provided additional value to Infomedia through its relationship-based service approach. “Linode offers something truly unique these days: a real person who answers the phone!” said Stuckey. “With Linode, you can have a conversation with real people who are generous enough to give you the keys to the kingdom if that’s what you want, but the Linode team is also there with a personable, no-arrogance service approach to help when you need it. I also love that they don’t pretend to have answers when they don’t. They are humble enough to admit when they don’t know, and then they promptly figure it out.”

Another significant value-add is Linode’s price. “When we started looking at the numbers, we quickly realized that we could save so much money in the long run by going with Linode,” said Stuckey. And even in the short term, it was a no-brainer from a price-performance perspective. For instance, Infomedia could get two dedicated servers up and running for less than the cost of one dedicated server with other service providers.

“When we looked at the amount of support that Linode gives, the response time, the uptime, the price, it left us asking, ‘Could this be real?’” said Stuckey. “We’re very pleased to say that it is and that we’re extremely happy to have Linode as a hosting provider for Infomedia.”



Call on Third-Party Partners

Enterprise-level businesses might find that they have special migration requirements. If your migration project has an unusually high level of complexity, you could turn to a consultancy specializing in complex migrations and system integrations.

Occasionally, a migration project requires professionals with specialized expertise or the bandwidth to accommodate simultaneous longer-term projects. This is typically the case when you have complex workload portfolios, audit and compliance needs, or applications that demand a broad array of cloud services or custom configurations.

If that sounds like you, take a look at the Linode [Partner Program](#). Linode Partners include third-party providers that collaborate with our technical team to plan and execute complex migrations. Linode Partners allow you to maintain a fairly granular level of control and help you keep your underlying infrastructure primitives running and available at contractually defined service levels.

PARTNER PROFILE



BitPusher is a managed application hosting company based in San Francisco, California. The company serves the DevOps community with a full range of services, from providing 24/7 monitoring and support to expanding, revamping, and migrating entire infrastructures.

“Our specialty is getting to know our clients’ applications at a very granular level,” said Daniel Lieberman, CEO and founder of BitPusher. “We build a strategy for each client based on an understanding of what matters to them, taking into consideration their existing state and anticipating future needs. Then, we strive to deliver the most efficient strategy for improving, building, migrating, or managing that best protects their interests.”



The first step in BitPusher’s client engagement approach is understanding the client’s business priorities. “We discuss each of the six virtues of operations—availability, security, performance, scalability, data correctness, and cost efficiency,” said Lieberman. “They are all important, but any given infrastructure cannot maximize them all, so what are the client’s priorities?”

Next, BitPusher invests in technology discovery, getting to know your technology stack. This phase often happens during a phone call, and a fixed-bid quote gets provided quickly. For larger applications, discovery can involve a deeper investment, with engineer-to-engineer meetings and exploration of stacks and code repos, all under non-disclosure agreements.

Migrations come in many shapes and sizes. “It’s a hundred different flavors of messy at the end of the day,” said Lieberman. “On the one hand, you’ll have a client who knows which servers talk to which other servers over what protocols, and they’ve got all their ducks in a row: that’s an easy migration. On the other hand, we’ll spot some classic red flags either in our conversations with them or when we explore the technology that indicate the migration is likely to be more complex than the client might realize.”

Red flags can include:

- Although there’s an automation system, many components sit outside of it, and there are still processes done manually.
- Engineers can’t answer the question: “What are all the data sources your main application servers need to talk to?”
- A lot of individual, one-off configs still occur.
- When netstat is run on each server, numerous questions arise: What’s this Redis server you didn’t mention? Why are there four different MySQL databases? What are all of these outbound web requests that your inbound web server is sending out?

The ability of migration specialists like BitPusher to spot those red flags can be a huge benefit. “We can help you recognize the complexity of the migration before you get in way over your head with a DIY approach,” said Lieberman.

7 Steps to a Successful Migration

What does a typical migration look like when you're working with a company like BitPusher? Lieberman describes the process:

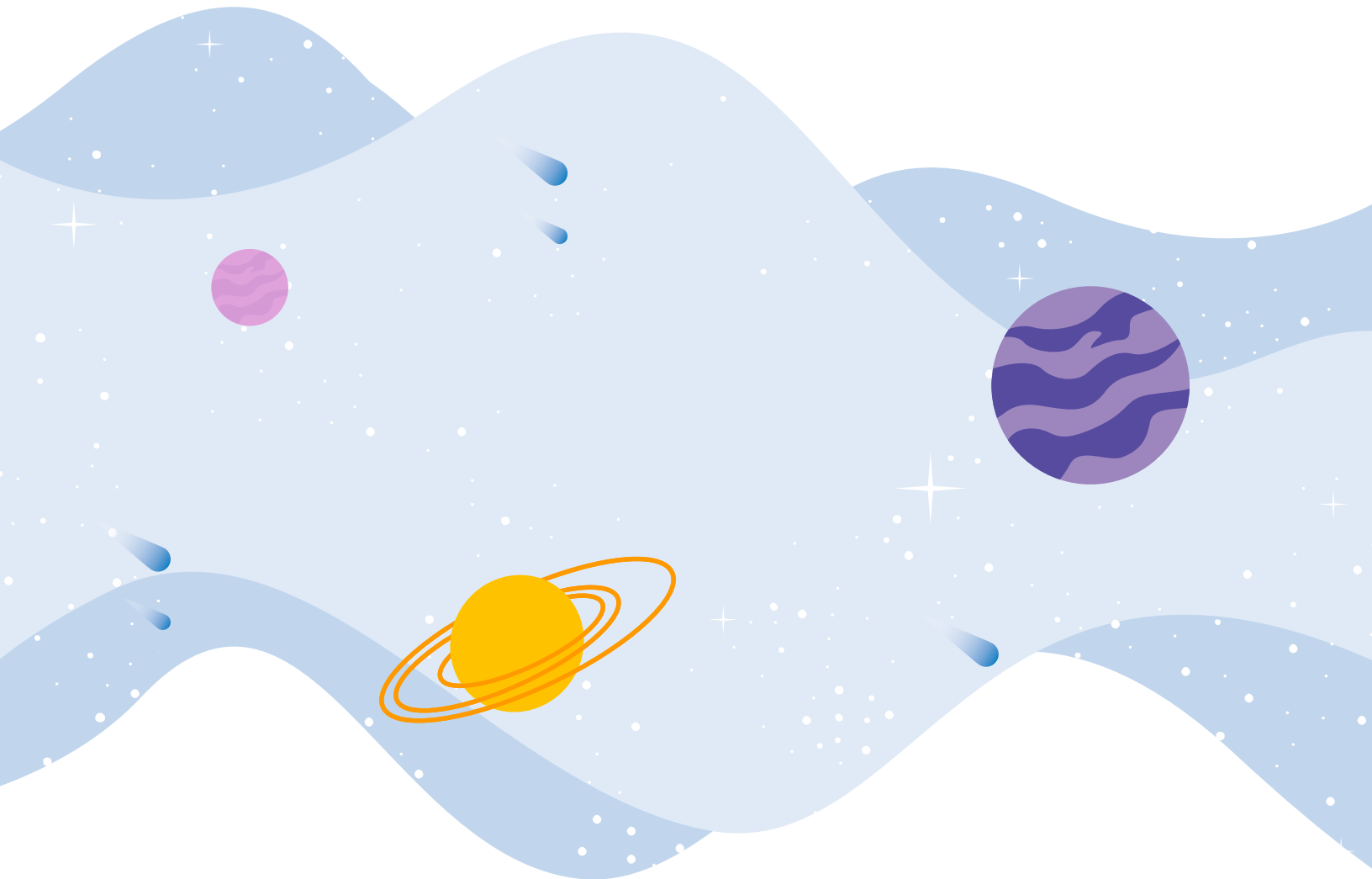
- 1 DISCOVER**
Determine your business priorities and get to know the existing technology.
- 2 TEST ENVIRONMENT**
Build a quick-and-dirty, throw-away version of your stack in the new hosting environment and get your applications running. Useful notes about hidden dependencies and “gotchas” are critical and ensure a real design that will work.
- 3 PLANNING THE BUILDOUT**
Address all the intentional changes that should be made, such as software version upgrades, adding redundancy, putting some workloads behind load balancers, and more. Also, if you have vast amounts of data, a plan is developed that outlines how and when each type of data will be moved. Data syncs will start early.
- 4 NON-PRODUCTION BUILDOUT**
You'll likely have at least one non-production and one production environment. The non-production environment, including monitoring and getting it working, will be built out first along with thorough testing.
- 5 PRODUCTION BUILDOUT**
This stage includes the testing of all applications and failure responses.
- 6 DETAILED PLAN FOR GO-LIVE**
Planning moves to a “super granular,” step-by-step level, including contingencies for the unexpected. “In the most complex of cases, we can overbuild and downsize later,” said Lieberman. “Or, if a client has exceptional concerns about the outcome of a migration, we can have a backout strategy that lets them revert even several days later. We regularly prepare backout plans like that for clients, but we haven't had to use one in over a decade.”
- 7 MIGRATION**
Most migrations occur in a “Big Bang” way with traffic cut-offs, data syncs, and routing any stragglers. Sometimes it will be necessary to do partial migrations where the overall migration gets sequenced into logical parts.

7 Steps to a Successful Migration

In addition to helping you avoid a myriad of potential pitfalls, a migration partner like BitPusher brings other invaluable expertise to bear, such as a deep understanding of how to synchronize data, keeping downtime as short as possible, maximizing performance, and realizing other efficiencies throughout the process to save on costs.

“If you’re moving to a considerably different infrastructure model than you’ve had before, we can help you estimate the sizing you are going to need,” explained Lieberman. “We will collect the data to understand what you are going to need with respect to CPU, networking, and so forth.”

For example, there are certain ways that app servers load that make a huge difference on how much demand there is on the bus or interconnect between memory or CPU. A vendor that specializes in larger workload migrations should have the breadth of knowledge and decades of experience to give you a high degree of confidence that your buildout will perform as expected, taking the most cost-effective approach possible.



About Linode

Linode accelerates innovation by making cloud computing simple, accessible, and affordable to all. Founded in 2003, Linode helped pioneer the cloud computing industry and is today the largest independent open cloud provider in the world. Headquartered in Philadelphia's Old City, the company empowers more than a million developers, startups, and businesses across its global network of 11 data centers.



The World's Largest
Independent Open Cloud

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