



HOW MATURE IS YOUR CLOUD?

In with the new

Faster. Better. More secure. These are the current demands and expectations of the perpetually shifting landscape of technologies. Your customers no longer wait for big software releases every couple of years. They expect a constant stream of improvements, experiments and traditional software development patterns can't keep up. We're no longer building software for months on end to then manually push onto a server on-premises. We now favor services over servers, automation over manual work and virtualized servers we can create in seconds. The seismic changes of cloud migration, and ultimately cloud maturity, can be difficult to manage, but those who embrace the transition make themselves more agile and secure.

Today's cloud landscape

Organizations not only want to move faster but do it within a reasonable budget. The expanding demand for cloud services has delivered multiple options from many players. Migrating to Amazon Web Services (AWS), Google Cloud Platform, Microsoft Azure or another provider takes careful analyzing, planning and optimizing. But making your organization's cloud mature can cost much less than traditional computing, and yield better performance and reliability as a bonus.

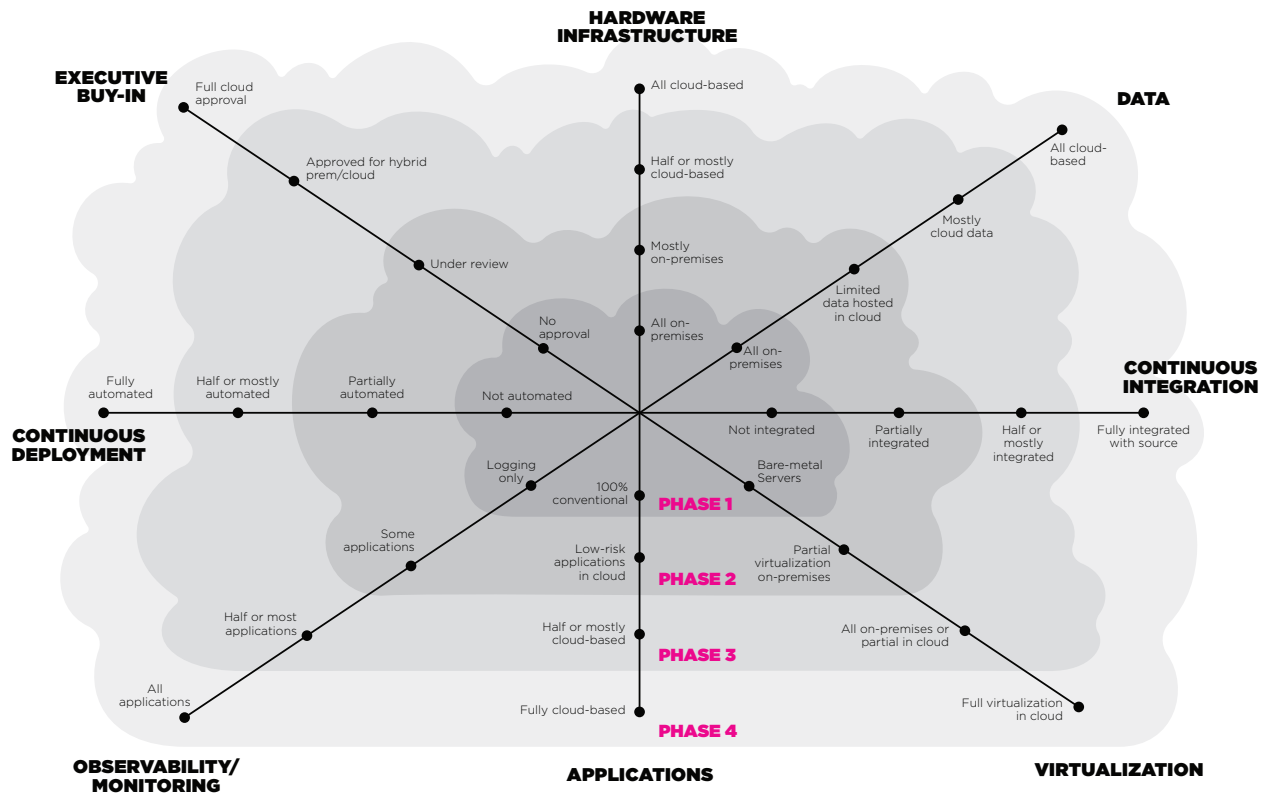
Map your cloud maturity

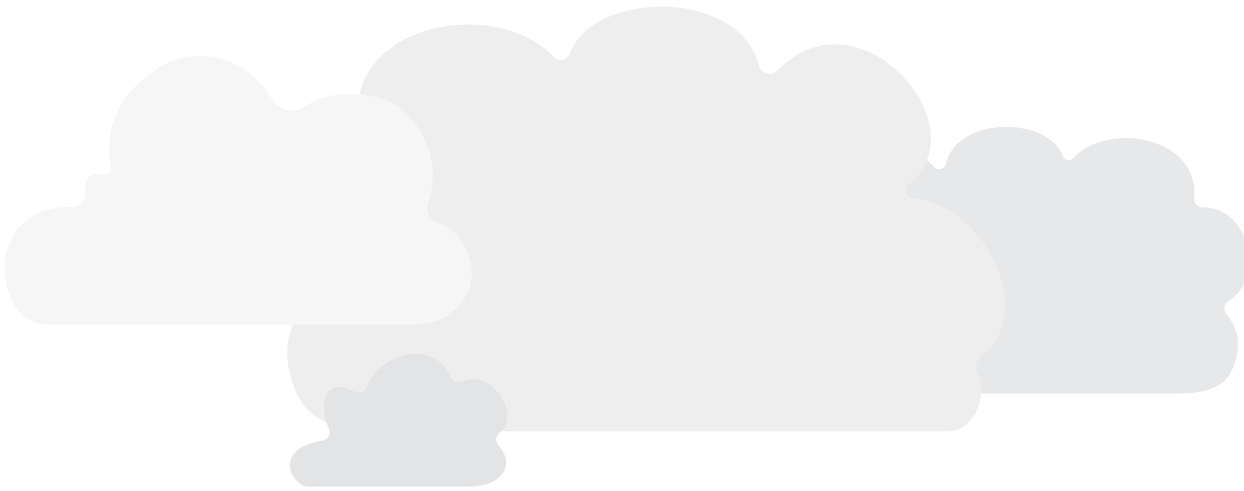
The map below can help you understand how mature your organization's cloud is by mapping your current cloud state against the following eight factors.

Though all of the factors operate on a scale, you don't need to go to the end of the scale for everything. Every organization is different. Successful cloud-native organizations land at different parts of each vector.

- **Executive buy-in** - Is management reviewing proposals or giving you the green light for 100% in the cloud?
- **Hardware infrastructure** - Does it live on-site in a data center, fully in the cloud or somewhere in between?
- **Data** - Is your data on-premises with servers, all in the cloud or in between?

- **Continuous Deployment** - Are new software launches deployed automatically, manually or somewhere in between?
- **Continuous integration** - Is new code introduced manually, through automation or a mix?
- **Observability and monitoring** - How and where are you logging system behavior, including aggregation, storage and quality control?
- **Applications** - Are they hosted on a traditional web server, hosted in a cloud service or both?
- **Virtualization** - Are you using conventional bare-metal machines, all virtual or both?





The four phases of cloud maturity

Need help mapping your cloud maturity? Dividing your cloud migration process into stages can help you make sense of the mess of considerations and put your organization on a path to success. By looking at a framework of cloud maturity, you can get clear on where you are now and where you want to go.

Through mapping how organizations across industries successfully migrate to the cloud, we've outlined the key stages you can expect in your cloud migration journey. The phases we've outlined can serve as your guide to see where your organization stands, so you can make informed decisions on your cloud strategy moving forward.

Keep in mind these aren't concrete rules. Your transformation will look different from others, even those in your industry.

Phase 1: Experimentation + foundation

Hardware infrastructure | All on-premises

In this phase, your infrastructure is at square one. You likely have all of your servers located on-premises or in a data center through a colocation provider.

Data | All on-premises

All of your data lives on servers, through file and database servers. These servers are bare metal, physical servers living in your data center.

Integration | Not integrated

You don't leverage any continuous integration processes in your organization; code is typically in batches, which can make code errors more time consuming and tedious to locate.

Deployment | Not automated

Without automated deployment, you launch software releases in big packages. Developers manually code the final product with no automation deployment process or any tools in place.

Virtualization | Bare metal servers

You have dedicated physical servers churning through data on-premises. This is considered a single-tenant environment. While benefits of bare metal servers include security and customization, it's expensive and difficult to scale.

Applications | 100% conventional

Your applications are all conventional, which are operating system dependent and not nearly as scalable as cloud native apps. They also don't use containers or virtualization at this point.

Observability and monitoring | Logging only

There is a current process for how you are logging, including aggregation, storage, quality control and analysis, but there is no application monitoring process in place. While logging is critical to ensure systems are functioning, it can't help you with overall application performance.

Buy-in | No approval

At this stage, you'll have no approval from the executive team to move to the cloud. This could mean that cloud conversations have not happened, or there is some resistance from leadership.

Where to focus | Create a proof of concept

You'll need a foundational proof of concept, which is a small-scale test of your team's ability to migrate workloads to the cloud. By successfully moving an application to a cloud service and integrating it, you'll get a taste of the work ahead of you. Be sure to document and report the process along the way. The documentation of the migration will offer you and your leadership an early cloud migration roadmap.

Start small with the proof of concept. The best candidate for this test is a low-risk application with few dependencies. If you try moving one of your company's bread-and-butter applications, you may end up with critical problems, like shutting down a major revenue source. To make the most of this effort, establish an innovation team and appoint a migration architect to serve as the point-person for structuring and planning the migration.

Phase 2: Migration + standardization

Hardware infrastructure | Mostly on-premises

In the second phase of cloud maturity, you're working with a limited hybrid infrastructure. While you've migrated some bare metal servers to virtual servers, most of your data—including a dedicated database server and file servers—are still in the data center.

Data | Limited data housed in cloud

You've developed a cloud data strategy and have started migrating low-risk workloads to the cloud. While some data is now living on a cloud environment, the bulk is still housed on-premises.

Continuous integration | Partially integrated

You have continuous integration tools and processes to automate code builds and testing, but you are still predominantly introducing code in batches manually.

Deployment | Partially automated

At this level, some of your deployment may be automated, and you may have standards for deployment to the cloud. However, your company is still predominantly deploying manually, which requires human effort to move from development into production.

Virtualization | Partial virtualization on-premises

Your team is testing on-premises virtualization tools, with plans to expand the use of virtual machines. You have likely established an innovation team to lead the organization in testing and documenting virtualization and cloud migration.

Applications | Low-risk applications in cloud

You've successfully completed and documented a proof of concept, as well as migrated one or more low-risk applications. While the high-risk, mission-critical applications are still housed on-premises, you've started groundwork for what migrating these bigger applications will look like.

Observability and monitoring | Some applications

While you're primarily ensuring systems are functioning, your organization has (or is) deploying monitoring tools and processes to collect metrics and logs on some of your low-risk applications. This step is critical to getting results in observability because it's impossible to create observability into a system that isn't collecting the data you need.

Buy-in | Under review

Your executive team has agreed to the proof of concept, and is now watching for the results to determine the organization's cloud future.

Where to focus | Observability and tool testing

Consider adding observability features at this point to see how the applications in the cloud are handling day-to-day traffic and load. This is also the perfect time to test different solutions and vendors. Changing vendors and processes is easy now; it won't be later.

Phase 3: Repetition + expansion

Hardware infrastructure | Half or mostly cloud-based

You've moved most servers to virtual machines, replacing traditional bare metal servers. Depending upon your organization and industry, you're analyzing if all workloads can be cloud-based in place of applications hosted on a conventional server structure.

Data | Mostly cloud data

You have data living both on-site in database servers and in virtual machines or services in the cloud. Some organizations stay at this hybrid stage for strategic and security purposes. Specifically, you can make data scalable by housing it on a public cloud, while keeping the most sensitive data stored on a private storage environment.

Continuous integration | Half or mostly integrated

You've integrated on-premises and cloud-based applications, and should have some automation in place at this point for creating environments and moving software.

Deployment | Half or mostly automated

Few of your applications still need to be shipped manually, and most workloads are now automated from the development environment to staging and production. You can trigger deployment in one step.

Virtualization | All on-premises or partial in cloud

You're running fully virtual environments, either on-premises or in the cloud, using minimal bare metal servers.

Applications | Half or mostly cloud-based

Your organization is considered a "hybrid" model. You should have several production-level applications currently in the cloud, and full integration between cloud and on-premises software packages.

Observability and monitoring | Half or most applications

You have expanded monitoring to most of your applications, with tools extracting and contextualizing application data to help your organization improve performance.

Buy-in | Approved for hybrid prem/cloud

Your leadership has committed to cloud maturity, and your task now is to validate their decision. Executives usually stay involved in the process and need communication around successes (as well as failures) as they happen.

Where to focus | Execution and automation

Now that you're nearly to a fully mature cloud, the goal is to increase the flow from an idea to a feature as fast as possible. You need to enable developers to commit code and have it pushed through environments and testing with minimal human intervention. This is a self-service approach that enables faster, smoother development. Your priority should be on automation and building continuous deployment systems with automated integration tools. Your previous experience of moving applications is valuable here.

Phase 4: Observation + optimization

Hardware infrastructure | All cloud-based

You're operating in a "cloud-first" environment. You no longer have bare metal servers and your organization is able to scale efficiently as needed.

Data | All cloud-based

All of your data has been migrated to the cloud.

Continuous integration | Fully integrated with source

Development and innovation from your software teams are rapid and agile with continuously integrated software. Testing and code shipment are completely automated and baked into the overall workflow.

Deployment | Fully automated

Deployment processes are fully automated, and provide predictable, reproducible results. This affords your engineering teams considerable autonomy.

Virtualization | Full virtualization in cloud

You've moved all of your virtual machines into the cloud, with no remaining servers on-premises.

Applications | Fully cloud-based

You've successfully moved all applications to the cloud, and all new applications are built in the cloud.

Observability and monitoring | All applications

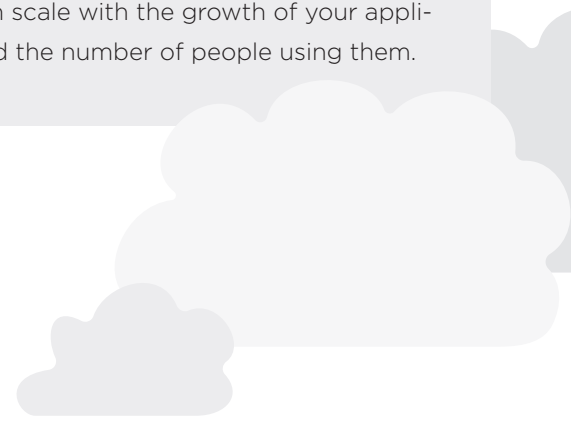
You've shifted focus to observability, self-healing and scaling. You should have consistent reporting from all of your systems in order to analyze issues and scale in the future.

Buy-in | Full cloud approval

You've delivered on your cloud goals, your leadership team is fully invested and now you're maintaining and improving by optimizing continuously.

Where to focus | Sustain and scale

Focus on sustaining and increasing your efficiency. Get an understanding of your systems' MTTR (mean time to repair) so that failures can be quickly resolved. Build in tests that disable services and monitor your system's ability to handle the problem. Performance testing should be frequent and automated so you can quickly spot issues and resolve them. You should also start exploring ways of scaling the architecture to maximize resource usage and prepare for growth. Containers, microservices and orchestration are key considerations to ensure your system can scale with the growth of your applications and the number of people using them.



Conclusion

Having a solid understanding of where you are and where you want to be is essential. A good place to start determining your needs is at the industry level. What are others in your industry doing? Do you have any regulatory considerations that could impact how your data is stored? How large is your organization, and how fast are you growing? Asking questions like these can help narrow your focus and start building a plan. Without a concrete plan, cloud transformations can be very problematic. Taking things one step at a time and methodically working through the process will reduce risk and pain points.

Implementing a strong cloud strategy starts with tech skills.

Talk to us about starting a pilot.

sales@pluralsight.com

+1 888-368-1240 | +1 801-784-9007

