

A BEST PRACTICE GUIDE FOR CLOUD TRANSFORMATION

Lenovo

Finding your cloud strategy

The right cloud strategy, properly executed, has a transformative effect across IT operations, IT customer experience, and IT service delivery. Sounds good, doesn't it? But what exactly is cloud? And, more importantly, how can it be put to work effectively for your organization?

When it comes to your cloud strategy, the most important thing is to have a good understanding of the options, benefits, and trade-offs. Use this guide to help you get the most from a cloud transformation in your organization.

WHAT DOES CLOUD ADOPTION MEAN FOR YOUR ORGANIZATION?

Ask ten IT professionals this question and you'll get ten different answers. However, there will be some common responses:

- New application servers deployed in minutes, not days or weeks
- Scaling up or down is quick and seamless
- High automation for a self-service
- Dramatically simplified support and sustaining efforts
- Eliminates operational bottlenecks
- IT teams spend less time on mundane tasks and can focus on higher value IT projects

Recognize any of those answers? Of course, there are countless other reasons you may have for considering a move to cloud. The key point is that embracing the cloud is about embracing a positive change; a change to a more agile and innovative IT landscape that creates value for your organization today, and a more flexible future.

Ready to find out more?

Read on as we dispel some common cloud misconceptions, then learn more about cloud service models, operational models and look at what you need to start putting together a successful cloud strategy.



SOME COMMON MISCONCEPTIONS ABOUT CLOUD

Cloud has been the talk of the IT town for many years now, but there are still misunderstandings and misconceptions about what the term “cloud” really means. Let’s clear things up a little.

Misconception #1: Cloud is a specific technology

Much of the confusion around cloud can be attributed to some overly creative marketing by technology vendors selling their products as a golden ticket to IT utopia. The reality is that cloud is not a product or a particular technology at all.

Misconception #2: Cloud must be remote

The name “cloud” is also misleading if it’s interpreted as a distant place, or conceptually remote. Cloud is an IT delivery and consumption model which can be delivered via an external provider, or by an internal organization from within the organization’s own data centers. No matter where it resides, cloud enables simplified consumption of IT. The technical complexity of the delivery is completely hidden from consumers, who can seamlessly leverage their organization’s cloud capabilities and services from anywhere.

Misconception #3: Cloud is hardware

Hardware alone cannot deliver a cloud solution. Oversimplified marketing would lead you to believe virtualization alone, converged infrastructure alone, or hyperconverged infrastructure alone can deliver an on-premise, private cloud. While these technologies can be valuable components in a cloud environment, they still require substantial augmentation through user-built automation, front-end services and complex integrations to achieve even a minimally effective cloud model.

Misconception #4: Cloud is software

Cloud also cannot be delivered by software alone. Some virtualization software providers would have you believe their products deliver a cloud, but once again, it’s a single feature in the complex landscape of cloud delivery. It’s the tightly integrated combination of hardware, management software, and task automation that come together to deliver a cloud experience.

SHOULD YOU BUILD YOUR OWN CLOUD?

If you’re considering building your own cloud, think very carefully, and ask yourself if there is an unavoidable reason to go down this path?

Remember, anything you build yourself, you must maintain yourself. Some hardware vendors offer additional software products, tools, and automation frameworks to develop and customize cloud capabilities, but take care not to overlook the construction and sustaining effort required when assessing cost and complexity.

Consider whether your staff have the required skill sets. Examine why your organization values a custom assembled and maintained solution over a turnkey option before committing to this route.



PRIVATE OR PUBLIC. OR BOTH?

There's a lot to like about both private and public cloud. Each can deliver the capabilities and flexibility which the cloud has come to promise. Let's now look at a few factors that divide them.

Public cloud

At one time, public cloud was the only complete turnkey cloud option. Public cloud shook up the IT status quo by proving it was possible to dramatically accelerate application deployment and deliver self-service while simultaneously reducing the development and maintenance burden on technical staff.

Today, the same kind of turnkey automation is available in emerging private cloud options. While this opens the gate to private cloud for more organizations, there are still a few situations where public cloud is the best solution:

- Your organization doesn't have and doesn't want its own data center
- You need temporary capacity to try something out then destroy it
- Your organization experiences seasonal capacity bursts that don't warrant investment in your own infrastructure
- Your applications require specialized micro-services from a specific public cloud provider

For all the great features of the public cloud, there are also common concerns:

- Security and compliance concerns
- Upward cost trends and unpredictable cost spikes
- Not always the fastest performance
- Not always the lowest cost option

Private cloud

The right private cloud solution will provide the agility of public cloud but with added control and security for workloads and data. With your own private cloud, you have access to a dedicated pool of IT resources with cloud delivery capabilities. You'll have scalability and self-service while retaining control. You can also choose where and how your IT resources are deployed. The net result is:

- Better security
- Better cost containment
- Certainty about your data security and sovereignty
- Better control for service level agreements

CLOUD SERVICE MODELS

A "cloud service model" is basically a description of how cloud services are delivered. While the versatility of cloud has evolved over the years, these common models are still the basic options for cloud consumption.

Software-as-a-Service (SaaS)

Delivers fully managed applications directly to end-users over the web, with no local hardware or software for IT to manage. This is the simplest of all cloud experiences.

Platform-as-a-Service (PaaS)

Delivers a managed operating environment with utilities to streamline application development and is generally intended for software developers rather than application end-users.

Infrastructure-as-a-Service (IaaS)

Provides a fully-automated, self-service facility for consumers to obtain fundamental computing, networking and storage resources for arbitrary application use cases.



CLOUD OPERATIONAL MODELS

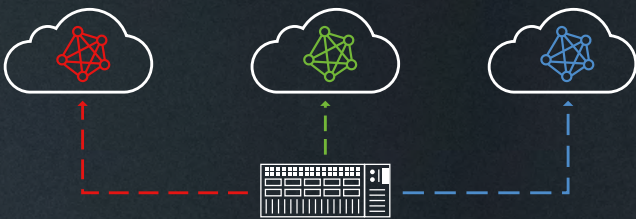
A “cloud operational model” describes how your cloud is architected and assembled. We’ve touched on the many different kinds of cloud, so let’s look at the various cloud operational models that can be employed and how each might meet your organization’s unique priorities.

Single cloud

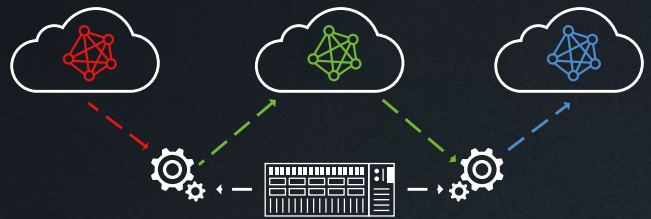


As the name implies, this means utilizing just one operating platform to manage one collective pool of IT resources with cloud delivery capabilities. A single cloud is constrained by the capabilities of the chosen platform. While this greatly simplifies deployment and support, the obvious trade-off is that IT consumers must be prepared to work within these limits. The good news is when the proper selection criteria is applied, the level of composability (resource choices) of a single cloud is good enough for many workloads to run without compromise.

Multi-cloud

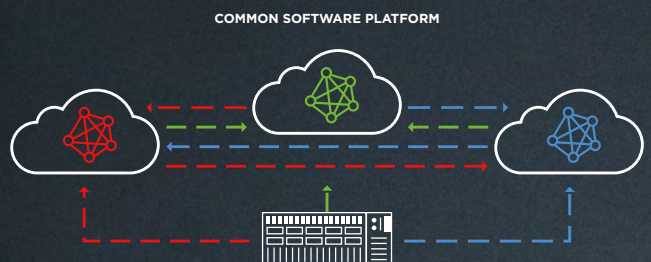


Some organizations leverage more than one cloud environment, each with specialized capabilities, to meet the varied requirements of different workloads, applications or services. This is a multi-cloud strategy. There may also be economic reasons, such as opportunistically leveraging costs among providers, or strategic purposes, such as avoiding vendor or provider lock-in. In the simplest multi-cloud environment, each cloud is a discrete IT silo, managed independently with no interoperation. That’s not to say they have to be completely separate. Multi-cloud orchestration software can deploy workloads to different cloud platforms, but in a basic multi-cloud model, such orchestration is often limited to the initial provisioning aspects.



A more advanced form of multi-cloud involves adding tools and automation to convert and move workloads and data between platforms, creating “bridges” that allow workloads to operate across multiple clouds. The bridging process can be complex, requiring technical reconfigurations, refactoring and data conversion. This can take significant investment in development and maintenance of the tools and automation that make it seamless. So, bridged multi-cloud is best suited for organizations which experience only predictable changes in their application environment and workloads.

Hybrid cloud



The term “hybrid cloud” is frequently over-generalized to mean just a multi-cloud environment. Yes, a hybrid cloud is a multi-cloud environment, but the difference is it’s controlled by an integrated software platform that spans the different environments. This means you can utilize the specific capabilities of different clouds, but disruptive orchestration (reconfiguration and conversion) across platforms is unnecessary. Seamless deployment across clouds with different capabilities and capacities empowers an organization to easily pivot operations. This makes a hybrid cloud ideal for organizations which need to rapidly address unpredictable or rapid changes to requirements.

Another common misconception is a hybrid cloud requires a combination of off and on-premise delivery. While this is often the case, a hybrid cloud could actually be delivered entirely on-premise, or entirely off-premise, or as a combination. A hybrid cloud can also seamlessly combine private and public cloud services. The capability of a hybrid cloud can range from providing fully distributed IaaS, to leveraging common PaaS facilities, to simply delivering specific services focused on data replication or disaster recovery.

PREPARING FOR LAUNCH: THE FOUNDATIONS OF CLOUD STRATEGY

Like any major IT project, a move to the cloud will require a solid strategy that ensures the investments you make will deliver value for your business. But how should you begin?

Considering the different operational models, service models, and benefits of private and public cloud services, which approach is the most suitable for your organization? The most crucial point is the features, benefits, and cost profile of your investment in cloud should map back to your organization's core business priorities, and how these different models can serve them, either individually or collectively. Here is some general guidance:

- A single cloud can be easily used to consolidate mixed business workloads, and will do so effectively if it's composability features include the ability to select IT resources that suit specific workloads.
- A discrete, multi-cloud approach requires more IT staff investment in development and management, but delivers the ability to leverage the strengths of different cloud platforms according to their suitability for particular workloads.
- Hybrid cloud is the most sophisticated model and can enable truly seamless operations and workload mobility across multiple cloud environments. Of course, this capability can come at a premium, and careful consideration around vendors and providers should not be overlooked.

There's no silver bullet in cloud, but with the diversity of service and operational models available, and the breadth and depth of support available from vendors and service providers, shaping your cloud to be whatever you need it to be is certainly achievable. Essentially, you need to make sure you're educated on your options in cloud, and you're asking the right questions before formulating your strategy:

1. Which applications are you planning to migrate? Which of these applications are mission-critical, or are connected to a service level agreement?
2. Would you consider investing in refactoring any or all of your applications?
3. Does your organization have a preference for a specific hypervisor (virtualization software)? You might already have in-house skills or prior investments in VMware or Microsoft, or it might not matter—as long as your workloads and applications run.
4. Do you have specific criteria around data compliance, data security, disaster recovery, and business continuity? You should also consider any issues around the geographical location and sovereignty of your data.

5. What is your resource consumption likely to be? Will you have predictable, consistent requirements? Or do you anticipate peaks and valleys? Are there any seasonal or special events that may warrant burst capabilities? If so, what will the impact be if demand cannot be met?
6. Are you running any specialized applications or workloads that necessitate certified platforms? (For example, SAP HANA)
7. Do you anticipate any organizational roadblocks?
8. Will there be any critical factors that will affect deployment? (For example, specific timelines, expansion plans, special projects or launches.)
9. What's the optimal number of cloud solutions needed to meet the requirements of your organization? (i.e. A single cloud might not deliver optimal performance for all workloads, but too many cloud solutions is inefficient and adds complexity.)

BUILD YOUR CLOUD IN THE SHAPE OF YOUR ORGANIZATION'S FUTURE

There is a cloud option that will suit just about any business or organization, but it will take a little education and a solid strategy to pull together the cloud that will be a perfect fit for your requirements. We are in the early days of a major shift in IT. The simplified, transformed, and automated infrastructure that's the cutting edge today, will quickly become the new normal. The landscape shifts so rapidly, that unless you embrace transformation and lead the change, you risk being left behind.

At Lenovo, we know there is no one-size-fits-all solution in cloud. We offer a portfolio of cloud solutions that recognizes our commitment to meeting our customers' strategic objectives and specific technical requirements.

So, when you choose Lenovo, you'll be choosing a cloud solution that truly fits your organization.

Are you ready to drive change with the right cloud strategy for your business?

Talk to a Lenovo data center expert today, or visit solutions.lenovo.com to learn more about our complete portfolio of cloud solutions.

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