Capgemini

Art of the Possible:

CLOUD
WITH CARE

PITFALLS ON THE JOURNEY TO THE CLOUD

How are you planning your journey to the cloud? Avoid the common pitfalls that can derail even the best of intentions.

The race to the cloud is on for cost savings, elastic capacity, and as a backbone for future innovation. But even with the best intentions, few organizations have the right talent or take the time to execute to avoid expensive and risky missteps that can prevent attaining the full benefits of a cloud migration.

"The cloud" often implies a monolithic hosted platform that is a simple alternative to on-premises legacy systems, with cost savings that come from converting substantial capital expenditures to more manageable monthly operating expenditures. The reality is that the cloud can be as simple or complex as you make it, and the benefits can be much further ranging than just shifting CAPEX to OPEX. The most benefit stems from knowing how to build and manage your cloud estate such that it easily adapts to your evolving business needs.

Moving to the cloud with care is a primary way to build a flexible, productive, and innovative business. We think of "cloud with care" as making sure that the application modernization and/or virtual machine (VM) migration is done in a thoughtful way to take advantage of cloud-enabled services to help increase agility, improve economics, and create better value for the company – financially and technologically – than can be achieved with legacy on-premises systems. Our approach to cloud with care means guiding and helping our customers to be successful in their journey to ensure it is done smoothly and effectively and yields the benefits they are anticipating.

Over the years, the cloud experts at Capgemini have seen a wide variety of challenges and outright problems that companies have experienced in moving to the cloud. Quite often our consultants and architects have stepped in to rescue the situation. In other cases, our experts have helped companies steer clear of the pitfalls that can derail them or reduce the effectiveness of the digital transformation built around the cloud.

Here are five of the top mistakes that can derail your journey to the cloud.

1 Not fully understanding what you already have

2 Failing to align and communicate with the whole business

3 Inadequately monitoring the resources used and failing to contain costs

4 Trying to do things the same way as before

5 Failing to invest now to save later

NOT FULLY UNDERSTANDING WHAT YOU ALREADY HAVE

1

Having decided to migrate one or many applications to the cloud, your organization is probably anxious to make it happen quickly, but don't underestimate the value of a thorough discovery of what you have today. This assessment is a top determinant of whether a migration project fails or succeeds.

Discovery helps determine what is running where (on-premises or already in the cloud); what the data and application dependencies are; who is using these services and when; what shadow IT might exist; what pieces are in an application's software stack; and more.

Documenting all the hardware, software, and networking pieces and mapping the relationships of the applications and data is a big challenge because IT is dynamic. In fact, in a survey of 750 global cloud decision-makers and users for the 2021 State of the Cloud Report, more than half of the respondents said understanding application dependencies is the top cloud-migration challenge.

Once you have a good understanding of what you have and how it all ties together, you can make clear decisions on what to migrate, as well as when and how. For example, by understanding the dependencies among applications, it's easier to schedule what should get moved when and in what order, and to communicate the migration plan to the owners and users of those applications.

Not doing this could create unexpected problems that lead to time and budget overruns and the very real potential of disrupting systems that used to run smoothly. Capgemini was called in to rescue one company that had moved a financial application and its associated data to the cloud. Weeks later, an application still remaining on premises crashed when it couldn't access data from a database that had been moved. This crucial data connection had been overlooked and it caused an uproar when the application, quite literally, broke.

A configuration management database (CMDB) is a place to start but it rarely contains the full extent of the information needed. What's more, the data is often out of date. A CMDB commonly details servers and infrastructure but lacks information about how they map to applications.

More than half of enterprises say application dependencies is a top cloud-migration challenge.

Discovery tools can sweep your network and dig down to provide details on dependencies. Still, discovery is a team effort and application owners must participate. They have knowledge that might not be discovered by an automated scan. For example, one Capgemini client had a server that was more than 20 years old – ancient by today's standards – that ran an application once a quarter. Few people even knew of its existence and the discovery tool overlooked it due to the outdated nature of the server. The person who runs the quarterly application disclosed the server's existence and its data dependencies. Without this person's knowledge, the application could have been broken when its data was migrated to the cloud.

FAILING TO ALIGN AND COMMUNICATE WITH THE WHOLE BUSINESS

2

While it's often the IT department that orchestrates a cloud migration, the lines of business should be the primary beneficiaries of a more agile computing environment in the cloud. One common failure point is a lack of alignment between IT and the business units.

Large multinational enterprises, in particular, often have many different divisions or lines of business that aren't aligned in their IT. This shadow IT can cause a lack of alignment with overall business priorities.

The impacts of this non-alignment are myriad. IT costs can be much higher than they need to be as the enterprise fails to capture economies of scale, may pay for more licenses than needed, can't get the best vendor agreements, and might deploy disparate technologies that don't work together. Moreover, cloud sprawl leads to a lack of overall control, oversight, and visibility, and this comes back to uncontrolled costs. If the organization doesn't know what its cloud spend is, the enterprise is probably spending too much. In addition, there's a risk of noncompliance with important regulations governing the business.

For example, one multinational enterprise was planning to move its financial system to the cloud. A date was set for the transition and it was then learned that one business unit was undergoing a regulatory audit and a disruption in the financial system operations was strictly prohibited, so the migration had to be postponed. The lesson here is that all business

and regulatory issues need to be well understood before a firm migration schedule is set.

All business and regulatory issues need to be well understood before a firm migration schedule is set.

Even simple communication can often avoid problems. The IT group can say "This is how this is going to impact you. This is a big deal to your business, and you are going to have to tell us when we can take certain pieces of your business down so we can make these transformations."

On the one hand, IT groups sometimes have grandiose ideas of saving money on overhead by moving to the cloud while a business group is running an application it needs every day, 365 days a year. Revenue would be lost if the application is unavailable for even a day. These stakeholders need to get in alignment with how to move forward to yield the best possible outcome.

INADEQUATELY MONITORING THE RESOURCES USED AND FAILING TO CONTAIN COSTS

3

One goal of every cloud migration is reducing computing costs. This is realistic, given that many of the infrastructure and support costs are shifted from an internal IT budget to a third-party provider, but this is not automatic and is a common failure point for many companies. They don't adequately monitor and manage cloud resources to optimize the cost model. Soon, costs spiral.

In the 2021 State of the Cloud Report cited earlier, 79 percent of respondents said managing cloud spend is a top challenge. For example, simply trying to understand the cost implications of cloud software licenses can be a problem, with survey respondents estimating that 30 percent of their cloud spend is wasted. Some of that waste comes from not taking advantage of all cloud provider discounting options and failing to leverage automated policies to shut down unneeded workloads and right-size virtual instances.

The most common mistake companies make is turning off virtual machines but forgetting about the associated storage. Cloud providers continue to charge for that storage, even though it's no longer needed. We ask, "Are you doing garbage collection and waste management in the cloud for resources that are orphaned and no longer being used? What's

your process and your policy to do that?" Most companies are so anxious to get to the cloud that they don't care about wasted resources until they see the effect on the monthly bill.

Cloud pricing can be confusing because you are charged for individual resources as you consume them. Unlike your own physical datacenter, spinning up a virtual machine or containers and the associated resources in the cloud is nearly instantaneous. It's easy to lose track of the resources you've allocated – especially if you've got a large application development group. That means you've got to have tools, policies, and procedures for cost management.

It's easy to lose track of the resources you've allocated – especially with large application development groups.

All the major cloud providers have basic tools that allow you to track your monthly spend. You can get alerts when you reach thresholds to help in your resource planning and to control runaway costs. Third-party tools provide much more extensive capabilities for monitoring and visualizing your cloud usage and managing the associated costs. You've got to be aware of what is driving costs in order to control them. Otherwise, the cost benefits of the cloud will quickly evaporate.

TRYING TO DO THINGS THE SAME WAY AS BEFORE
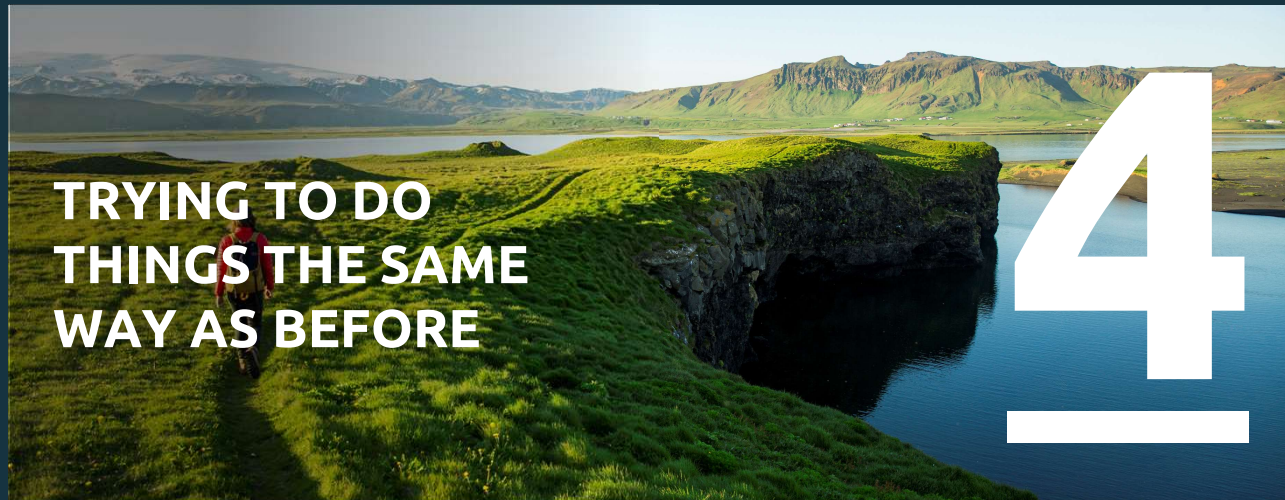
Organizations new to cloud computing may have an inherent bias towards the familiar. You had complete control over technical elements in your on-premises datacenter so you might expect to maintain that level of touch in the cloud, or you might hesitate to adopt unfamiliar services that are available in the cloud or to relinquish control to a managed service provider. These are missteps that constrain the true value of cloud computing.

Some companies try to replicate their old datacenter by simply moving virtual machines into the cloud. This merely creates the same issues they had before – having to patch security on the servers, having to manage them, and so on. In this scenario, cloud adoption is slower and the benefits lag. This is actually the lowest level of cloud maturity.

The better way forward is a model that is more streamlined and tuned for cloud operations and success.

Disruption is not necessarily a bad thing. It simply means you need to come up with ways to do things differently. This may include letting the Infrastructure-as-a Service (IaaS) provider secure and patch the servers and adopting levels of automation that weren't available before. This is disrupting an inefficient system to create a better one.

This is an opportunity to let go of cumbersome old processes and to modernize application development, reskill people and give them new responsibilities, reallocate budgets, simplify data backup and recovery, and determine how this new environment will be governed to ensure security and compliance.

Companies try to replicate their old datacenter by simply moving virtual machines into the cloud. This merely creates the same issues they had before.

Traditional relationships, too, might have to be reconsidered. Long-term associations with people, vendors, or suppliers may not align with your plans for the cloud. Always balance your relationships with your overall business objectives.

FAILING TO INVEST NOW TO SAVE LATER

5

By now you should recognize that moving to the cloud with care involves considerable forethought and planning. The discovery and assessment phase alone could take weeks or even months, and determining business needs and aligning with stakeholders takes time as well. These are investments in both time and money that will pay dividends later when the cloud migration goes quickly and smoothly. Failing to make these investments early on, however, will lead to project delays, cost overruns, and a less effective implementation of cloud-based solutions.

We have seen many cases in which companies want their initial cloud undertaking to be low cost but end up paying more later, whereas spending a bit more up front on tools, licenses, or products that handle security, file management, or database backups differently might lower the total operating cost over the years. Do you want to look only at the initial financial outlay or the ROI of the total cloud journey?

There are numerous areas where you should invest now to insure ROI later. Attempting to do everything without help to save money is very short-sighted. For something as big, important, and complex as cloud migration, what you don't know can hurt you.

Another key area of investment is cyber expertise. While security principles remain constant, tools and techniques are inherently different. Here are some important points to consider.

- Moving applications and data to the cloud does not pass the responsibility and liability to the cloud provider. You are still ultimately responsible for the risks and consequences of the applications and associated data.

- A cloud provider may claim its platform was secure initially, however, that is only a snapshot in time. The cloud provider does

- not provide the initial applications or the evolution of those applications over time.

- A DevSecOps program will be key to ongoing hygiene and success.

- The consequences and cost of cloud application breaches are significant. As a best practice, look for cloud providers with a security model that includes distinct separation and backup of critical data and applications.

If your enterprise still has a traditional hub-and-spoke network architecture but you intend to move many applications to the cloud, or you have many mobile or remote workers (such as those still working from home), now is the time to consider reorienting your network around a secure access service edge (SASE) architecture. SASE is the convergence of wide area networking (WAN) and network security services like cloud access security broker (CASB), Firewall-as-a-Service (FWaaS), and Zero Trust into a single, cloud-delivered service model. If implemented correctly, SASE will provide flexibility, cost savings, reduced complexity, Zero Trust capabilities, threat prevention, and data protection.

Carefully consider and prioritize the investments you make now because a strategy for a secure network to cloud migration will ultimately pay dividends later.

BE CAREFUL OUT THERE

Your journey to the cloud is sure to be rewarding. There is much to learn – new skills, products, tools, and techniques. At the same time, don't rush to get started without doing your homework and finding the right people who can help guide you and deliver. The cloud is a huge heterogenous world and it should be approached with care. Be aware of the pitfalls that have derailed others before you. Learn from their mistakes and set your goals with confidence.

RESOURCES FOR YOUR CLOUD JOURNEY

Capgemini operates Cloud Computing Centers of Excellence in numerous regions around the world. Our CoEs have a wealth of resources to help you plan and execute your path to the cloud.

Talk with one of our cloud experts

Ryan Murphy
VP and Leader of North American cloud center of excellence
ryan.murphy@capgemini.com

Dave Cronin
VP and Leader of North American cybersecurity center of excellence
dave.cronin@capgemini.com

Dave Newell
Delivery Architect Director, North American cloud & edge center of excellence
dave.newell@capgemini.com

Vince Johnston
Delivery Leader, cloud and data center transformation projects delivery
vince.johnston@capgemini.com

Brian Wydra
Managing Delivery Architect, North American cloud & edge center of excellence
brian.wydra@capgemini.com

Mark Johnson
Managing Delivery Architect, North American cloud & edge center of excellence
mark.johnson@capgemini.com

Hugo Gordillo
Delivery Architect Director, North American cloud & edge center of excellence
hugo.gordillo@capgemini.com
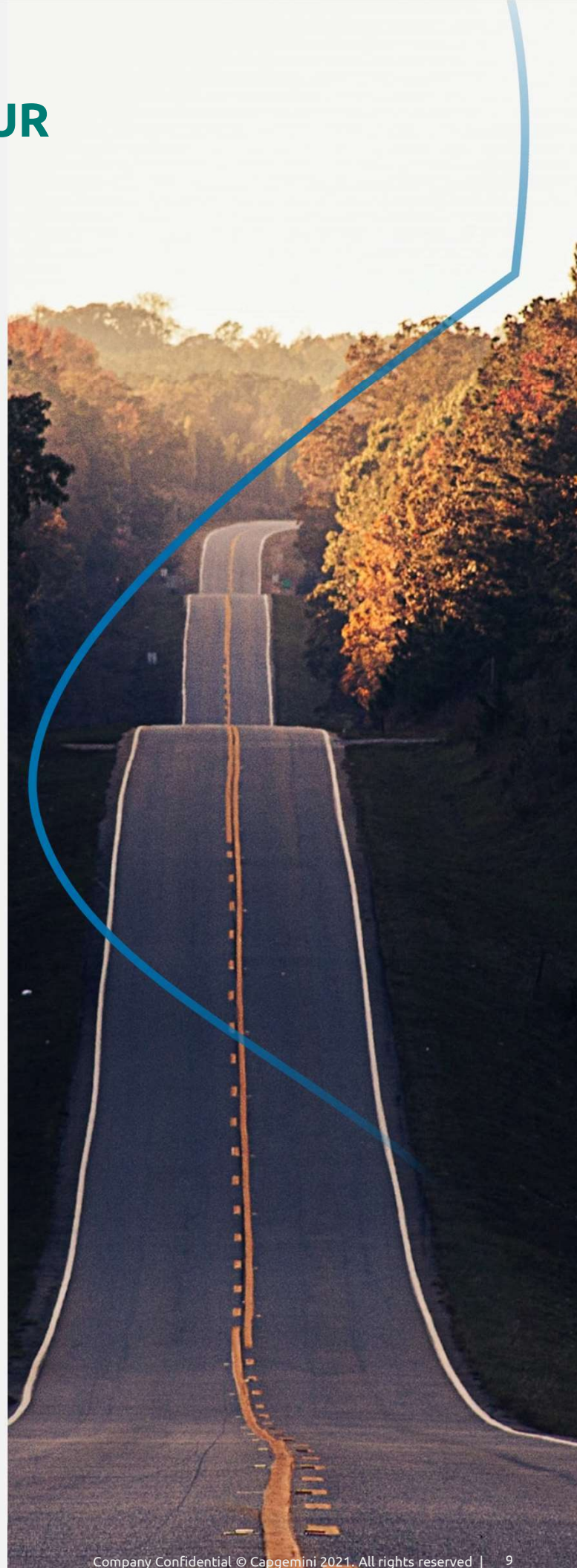
About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 270,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

Get the Future You Want | **www.capgemini.com**