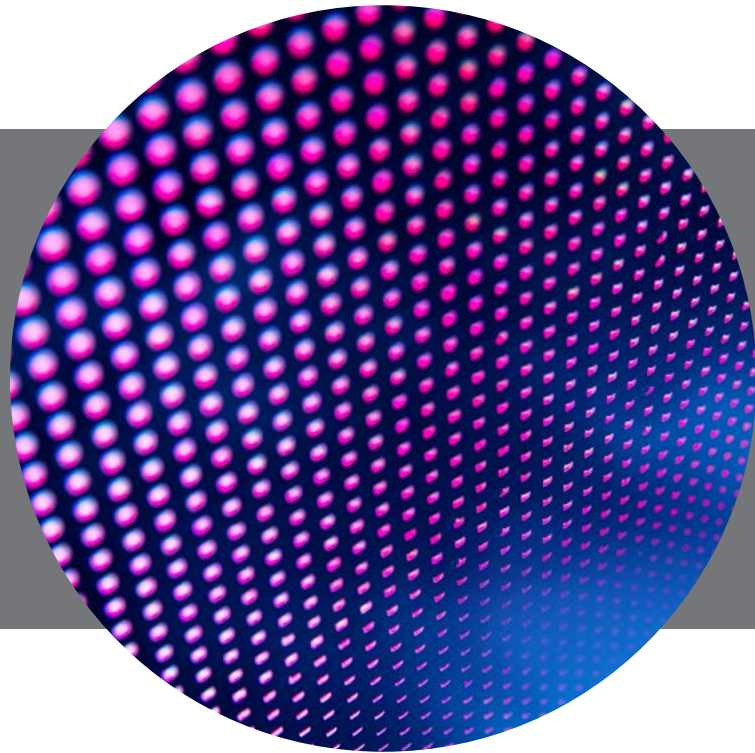


IS YOUR CLOUD ENVIRONMENT EVOLVING THE RIGHT WAY?



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A SHIFT IN YOUR IT ENVIRONMENT

Cloud computing has emerged as a fundamental building block of digital transformation and businesses around the world are implementing cloud strategies as part of their broader business transformation blueprint. However, the many solution choices and complex business challenges can make for some difficult decision-making.

Adding to the mix, customer expectations and technological advances are dictating the pace of change in IT organizations. While legacy IT infrastructure and support models have provided a stable foundation in the past, they are often no longer sufficient to meet the demands of this ever-evolving digital business landscape.



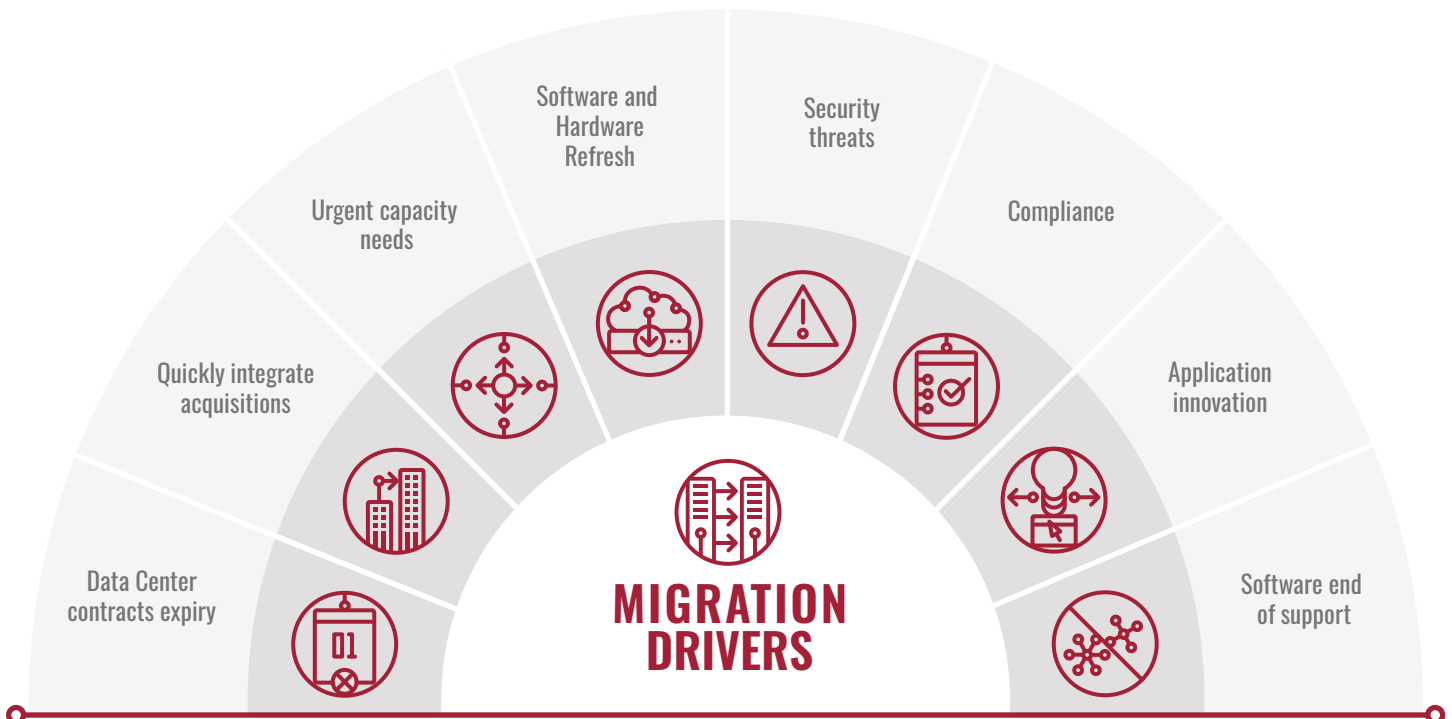
**CLOUD COMPUTING IS THE FOUNDATION FOR DIGITAL BUSINESS.
CLOUD COMPUTING AND SERVICES WILL BE A**

**\$300 BILLION
BUSINESS BY 2021.**

While digital transformation initiatives have brought IT infrastructure shortcomings to the forefront, the IT C-suite, directors and managers who traditionally deployed, managed, and secured the network infrastructure and applications are **constantly under pressure to align their investments to business objectives such as revenue growth and cost avoidance**. As an IT leader, you may face similar challenges:

- The **increasing complexity** of the IT infrastructure (cloud, containers)
- New **software development methodologies** (DevOps, CI/CD)
- Business demands for **application agility** (microservices, cloud-native apps)
- **Technology obsolescence** (end of life hardware/software)
- **Budget constraints** (CapEx, OpEx)
- **Skill-set shortages** (staffing, retention)
- **Infrastructure/network downtime** (SLAs, business continuity)

Migration drivers, such as the ones shown below, are forcing CIOs and IT Directors to turn to the cloud to host their critical applications and services.



BEYOND THE DIRECT OPERATIONAL BENEFITS, THE CLOUD PROMISES MANY BUSINESS BENEFITS:



BUSINESS AGILITY

from applications deployed on
scalable IT infrastructure



COST REDUCTION

through flexible cloud
consumption models



PRODUCTIVITY ENHANCEMENTS

through process/
service automation



BUSINESS CONTINUITY

through highly available
cloud architecture



APPLICATION RESILIENCY

through enhanced security
of IT environment

**ORGANIZATIONS MUST DEVELOP SOUND CLOUD STRATEGIES WITH A CLEAR
UNDERSTANDING OF THE VARIOUS OPTIONS AVAILABLE TO ADDRESS THEIR NEEDS.**

PREPARING FOR A STRATEGIC CLOUD MIGRATION

Migration to the cloud requires detailed planning and support from cross-functional business units and stakeholders. **The business objectives and the expected outcomes must be clearly identified and documented.**

When building your business case for the migration, it is essential to capture the **Total Cost of Ownership (TCO)** of the existing environment and the projected TCO of the future state. This can enable you to calculate the **Return on Investment (ROI)** of your migration project.

While some cost components of a premise-based deployment are apparent, others are not. On-premise IT costs typically include the following:

- System hardware
- System software and licence
- Installation services
- Maintenance costs for the contracted term
- Hardware and software upgrades
- Network connectivity
- Space and power
- Training and certification

In addition to the above, the **headcount expenses** pertaining to the administration and management of IT systems can be significant.

Soft benefits such as improved customer experience and productivity enhancements are often harder to quantify in a business case. However, the **tangible and intangible benefits of the project should be clearly articulated** to ensure executive buy-in and approval.



“There should be unambiguous alignment on the business outcomes sought from a cloud migration. As you get into the complexities of platform choice, applications, and services, having a clear view of the outcomes and the expected ROI will help you with your decision-making process”

– Craig Tavares, Aptum Head of Cloud

WHICH CLOUD SERVICE IS RIGHT FOR YOU?

The use cases for cloud adoption will vary based on business requirements. While there are many “as-a-service” cloud offers available in the market today, **Infrastructure as a Service (IaaS)**, **Platform as a Service (PaaS)**, and **Software as a Service (SaaS)** remain the three key models of cloud computing.

The fastest-growing segment of the market is cloud system infrastructure service (IaaS), which is forecast to grow 24% year on year to reach \$50 billion in 2020 and \$74 billion by 2022.

– Gartner, *Gartner Forecasts Worldwide Public Cloud Revenue to Grow 17.3% in 2019*

“Cloud is no longer about cheap servers or storage — it’s now the best way to turn great ideas into amazing software, faster.”

– Forrester



“All companies will eventually have a hybrid solution. However, their applications, readiness, and size of their business will determine whether they use hyperscale, public or private cloud services.”

– Robert Harley, Aptum Product Manager, Cloud Services

PICKING THE RIGHT PLATFORM FOR YOUR BUSINESS

Service providers offer a wide range of platforms and services such as **colocation, hosting, cloud, connectivity, and security**. It is important to pick the right services that meet the specific requirements of your hybrid IT environment.

At a high level, here are the services that you should consider while moving your applications and workloads to a service provider.

MANAGED PRIVATE CLOUD

A private cloud serves a **single customer** and can be run in a company's data center or outsourced to a "Managed private cloud service" provider. Private clouds are optimal for predictable workloads where the flexibility of virtual machines is a benefit. Private cloud infrastructure is ideal for companies that have **stringent security or compliance requirements**.



You should consider a **private cloud** if:

- Your applications require **dedicated IT infrastructure**
- You want to enhance the **security and reliability of your applications**
- Your **server utilization** is not optimized
- You have applications that have **compliance and data residency requirements**

PUBLIC CLOUD

Public cloud services use **highly-redundant shared infrastructure** and offer **global scalability** and **high resiliency** for mission-critical applications.



A **public cloud** infrastructure may be appropriate for you if:

- Your current IT environment is **underperforming** and is **due for an upgrade**
- You are embarking on a **data center consolidation**
- You are looking for **disaster recovery options**
- Your business-critical applications need to be more **scalable and flexible**

HYPERSCALE PUBLIC CLOUD

A distributed computing environment that can **flexibly scale on demand from a few servers to thousands of servers and compute resources** is referred to as **hyperscale computing**. Using automation, standardization, and highly-available architecture and virtualization technologies, hyperscale clouds allow companies to run applications at Internet-scale.



Your business can benefit from an **hyperscale public cloud** environment if:

- Your applications need **massive scalability on demand**
- You need to **improve your applications' time to market**
- You need an **on-demand development and test platform**
- You have **applications that see huge peaks and seasonal usage**
- You have **portable applications that run distributed workloads**



MANAGED HOSTING

Managed hosting services are used by many businesses to **host their web and applications servers**. Fully customizable and upgradable hosting infrastructure ensure the **availability and performance of your applications** and **frees up your technical teams** to focus on other critical areas of your IT operations.

Use cases for hosting include web servers, eCommerce applications, streaming media, and gaming.



COLOCATION

Applications that require **detailed fine-tuning and hardware configurations** may be better off in a colocation environment. Colocation allows technical teams to configure and directly control the bare metal for ultimate flexibility and cost control.

A colocation service is right for your company if:

- You have **high-touch workloads**
- You have **space and power constraints**
- You are looking for **“remote hands”** and **backup support**
- You have **skilled resources** to manage the IT infrastructure



“Companies that often encounter spikes in their workloads should explore cloud solutions for the flexibility offered.

One example is an eCommerce application scaling to meet the demands of “Black Friday” shoppers. The autoscaling features of the cloud are hard to replicate in a cost-effective way on customer premise-based physical servers.”

– Robert Harley, Aptum Product Manager, Cloud Services



HYBRID SOLUTIONS

A typical hybrid cloud comprises a **blend of on-premise applications, data center-hosted services, and one or more cloud platforms**. Network connectivity services are a fundamental enabler of hybrid solutions.

“Enterprise workloads running in both private and public clouds are expected to jump nearly 20% in two years. Hybrid clouds will see the most growth in that two-year timeframe.”

– Vanson Bourne, [Enterprise Cloud Index survey](#)

87%

SAY THAT THE IT TREND OF HYBRID CLOUD IS HAVING A **POSITIVE IMPACT ON THEIR BUSINESSES**

97%

OF COMPANIES SAY THAT THE **MOBILITY OF THE APPLICATION BETWEEN CLOUD ENVIRONMENTS IS NEEDED**

91%

OF COMPANIES SAY THAT HYBRID CLOUD IS **THE IDEAL IT MODEL FOR ORGANIZATIONS**

A COMPREHENSIVE CLOUD STRATEGY IS NOT COMPLETE WITHOUT THE REQUIRED CONNECTIVITY SERVICES AND THE CONTROLS NEEDED TO KEEP YOUR APPLICATIONS SECURE.



“Cloud first does not mean that every application moves to the cloud. Instead, the cloud becomes the first consideration. Companies recognize the economic benefits of not running their own data centers and see the opportunity the cloud offers in terms of scalability and functionality.”

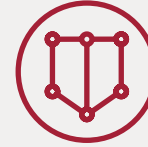
– Craig Tavares, Aptum Head of Cloud



MANAGED CONNECTIVITY SERVICES

The right connectivity solution will help you **unlock the full potential of a cloud deployment**. While an Internet connection may be sufficient for non-critical applications, a **QoS-enabled MPLS circuit** may be the right choice for workloads that require ultra-low latency and reliability. An **SD-WAN** can help prioritize traffic and route it through preferred networks to optimize application performance and costs.

Be aware of hidden charges. **Variable charges such as data transfers costs should be clearly understood** and factored into your OpEx budgets to avoid surprises. The right partner can help you assess these costs and help you form a holistic view of solution architectures that factors in connectivity as well as the DC and cloud components.

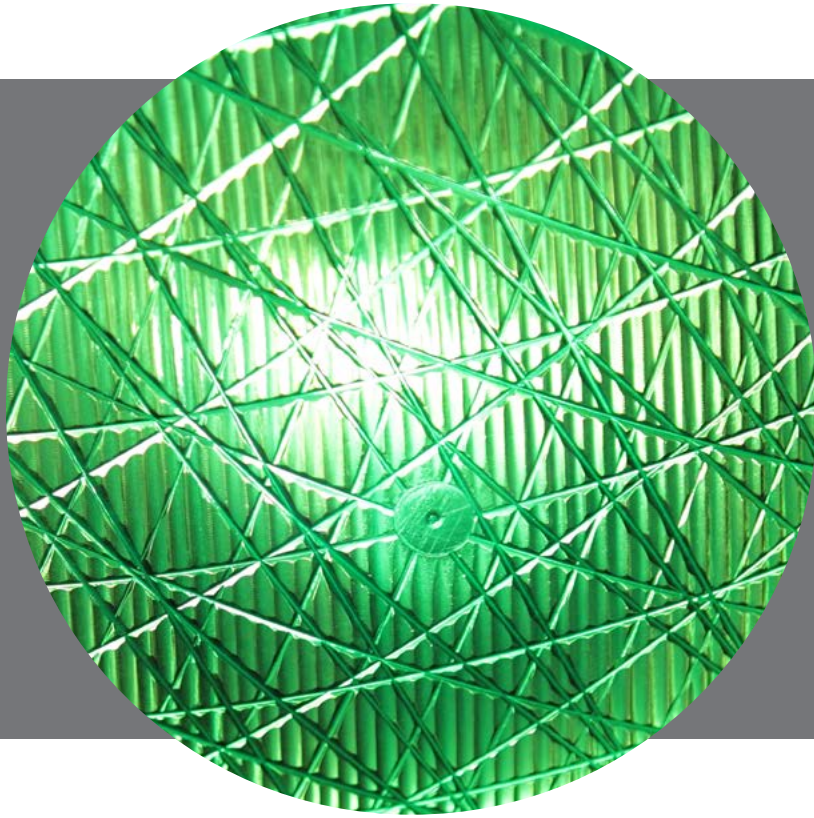


MANAGED SECURITY SERVICES

Security is fundamental to all well-managed data centers. In addition to the physical access controls and the inherent network security available within cloud services, providers often offer incremental services which may include the following:

- **Managed firewalls**
- **DDoS mitigation**
- **Managed Detection and Response (MDR)**
- **Anti-Virus and Anti-Spam scanning**
- **Web application firewall**
- **Vulnerability scanning**

Your cloud service partner will help you pick the security solutions which best fit your evolving needs.



A PHASED APPROACH: WHERE TO BEGIN

Cloud migrations are done in a phased manner. Moving less critical applications first will allow companies to test and learn before business-critical applications are moved. Though a cloud-first approach has become the norm now for application development, legacy business applications were developed in the customers' premises and continue to run on internal servers. As businesses migrate their workloads to the cloud, they are likely to operate in a hybrid environment for the foreseeable future.

Determining which applications move to the cloud and which ones stay in the company's premises, hosted or colocation environments will depend on multiple business considerations.

Businesses migrating workloads to the cloud often start with their **Disaster Recovery (DR) application**. A cloud-based DR solution can be set up without impacting a company's production environment and comes at a price tag lower than a premise-based DR solution. The compute resources in a cloud DR are only billed for when the recovery is initiated which reduces a company's business continuity costs.

START WITH AN IT INFRASTRUCTURE ASSESSMENT

An infrastructure assessment of the existing environment is an integral part of the cloud migration process. Companies can use internal resources or engage a cloud service provider to conduct the evaluation and identify the elements of the network, their inter-dependencies, and any risks that the move may cause. A typical infrastructure assessment will include the following:

- **Servers, software applications, and their inter-dependencies**
- **Server configurations and utilization**
- **Categorize servers by function (Development, production, QA, other)**
- **Network configurations, segmentation, and access controls**
- **Security and firewall rules**
- **Backup schedules and policies**
- **Business continuity requirements**
- **Change management controls**

Based on the data gathered through the infrastructure assessment, you can structure your workloads and determine which of the six categories below are the most logical choices for each workload.



“A thorough understanding of the existing services, applications, infrastructure, and their interdependencies is the starting point to assessing risk. Some workloads may have dependencies that will prevent them from being moved or re-designed within the cloud.”

– Robert Harley, Aptum Product Manager, Cloud Services

UNDERSTAND YOUR MIGRATION DECISIONS

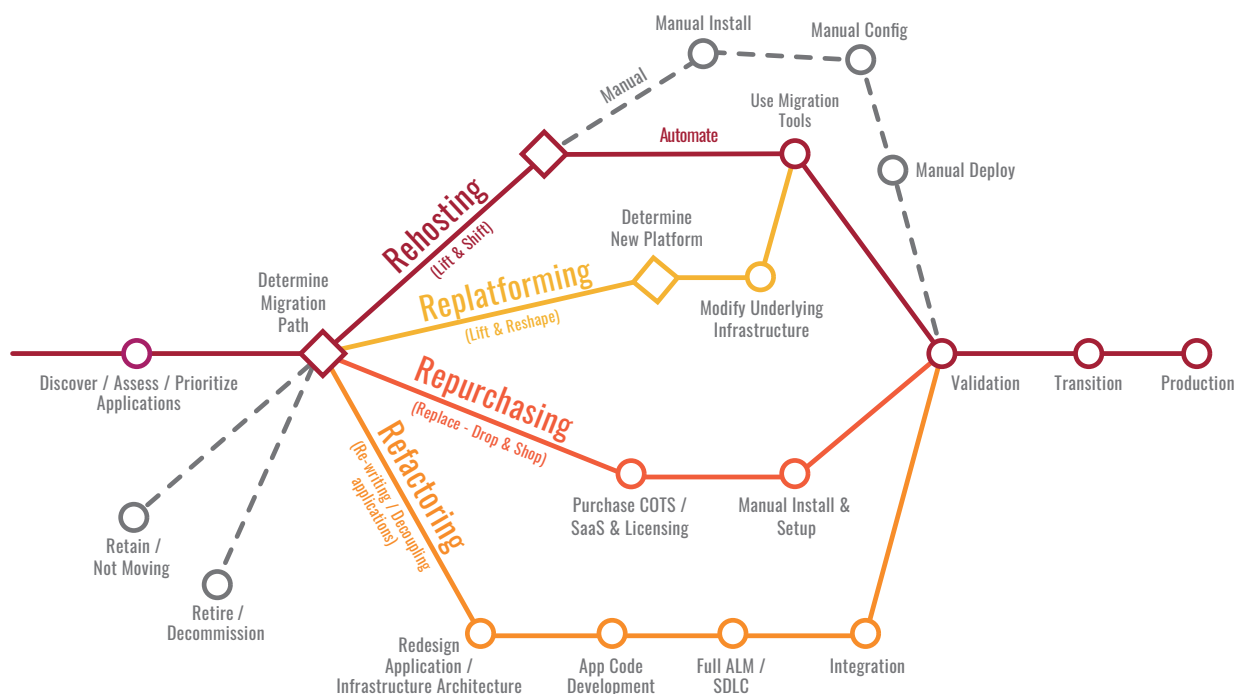
REHOST

Companies choose the rehosting option when **migrating legacy workloads**, or when they need to **migrate applications expeditiously to meet a business case**. While rehosting will not unlock the full benefits of the cloud, it gets you into the cloud quickly and efficiently paving the way for future optimization and cost savings.

REPLATFORM

In the context of migration to the cloud, replatforming refers to **changes that you may make to optimize your applications without changing its core architecture**. Migrating a database instance to a database-as-a-service platform, for efficiencies, is an example. Replatforming can be considered the middle ground between rehosting and refactoring.

MIGRATION DECISIONS



Source: Amazon Web Services

REFACTOR

The process of **re-architecting and redeveloping an application**, typically using cloud-native features, is referred to as **refactoring**. Refactoring may involve recoding the application and is generally driven by a strong business need to add features, scalability, and performance that would be unattainable in the application's existing environment.

REPURCHASE

Migration to the cloud may involve **moving to a different product or consumption model**. Switching a CRM application to a SaaS service such as Salesforce.com, or an HR system to Workday are examples.

RETAIN

In all migration scenarios, there are **applications and infrastructure that may not become part of the migration**. These may include legacy applications that are being grandfathered or applications that were recently upgraded. Such applications can be retained as is, and in the future, retired or migrated to the cloud.

RETIRE

An infrastructure assessment often unearths **areas of your IT portfolio that are no longer in use or will be replaced** as part of the migration to the cloud. It is estimated that as much as 10% of an enterprise IT portfolio is unused and can simply be turned off resulting in cost savings.



PLANNING MAKES ALL THE DIFFERENCE

The next step in the cloud migration process is to identify the specifics of the move and the support requirements needed to make it a success. A **discovery and infrastructure assessment of your IT environment** will bring up questions:

- **What are the high-level outcomes you expect from your migration? Cost savings, enhanced solution resiliency, increased scalability?**
- **Which are the applications that should be migrated?**
- **Which applications should go first?**
- **What are the applications that will be retained or retired?**
- **Do you have the expertise to make the right platform choices?**
- **Who will manage the design and build of your new environment?**
- **Which cloud is right for you? Public? Private? Hybrid?**
- **Do you have internal capabilities to manage the migration?**
- **What is the process for the migration?**
- **What are the areas where you need a partner's assistance? Migration services, consulting, professional services?**

The answers to the above will help you plan the next phase of your migration project. As stated earlier, a migration to the cloud should be done in a phased manner. A project-based approach to moving business applications will help reduce the risk and exposure. Less critical applications, or applications on fragile infrastructure are good candidates to be moved first and the learnings used to simplify subsequent moves.



CONCLUSION

As companies roll out new applications and services as part of their digital transformation efforts, a multi-generational IT environment that includes physical, virtual, and hyperscale cloud technologies is becoming the norm.

A highly scalable and flexible infrastructure with predictable costs and guaranteed availability is table stakes for business success.

Beyond the infrastructure itself, there are considerations such as **network connectivity, security, geo-diversity, regulatory compliance, ongoing management, professional services** and other criteria that should be factored in while picking a cloud partner. When dealing with a hyperscale cloud environment, the sheer number of features and functionality can be daunting even for the experienced IT professional.

A trusted partner who can bring holistic solutions to the table is key to any company's cloud journey.

So, is your cloud environment evolving the right way?



“While the cloud is exciting to the IT leader, they have worries about its complexity and the ability of their team to properly architect the solution in a way that fully realizes its benefits. Also, more importantly, that it does not fail. Nobody wants to be responsible for the migration that went wrong!”

– Robert Harley, Aptum Product Manager, Cloud Services

FIND OUT HOW APTUM CAN ACCELERATE YOUR CLOUD JOURNEY

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VISIT THE CLOUD HUB AT INFO.APTUM.COM/CLOUD-HUB FOR MORE RESOURCES RELATED TO YOUR CLOUD JOURNEY.

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Aptum Technologies enables customers to unlock the potential of their data infrastructure to drive tangible business outcomes and maximize the value of their technology investments. Aptum's Data Center, Cloud, Hosting and Connectivity solutions, underpinned with expert Managed and Professional Services, offer genuine choice and adaptability combined with international reach spanning North America, Latin America and Europe. In Canada, through its Fiber business, Aptum is the first neutral host provider of turnkey small cell connectivity, augmenting an extensive metro network across Toronto and Montreal. Aptum is a portfolio company of Digital Colony, a global investment firm dedicated to strategic opportunities in digital infrastructure. For more information, visit www.aplum.com.