WINDSOR GROUP
SOURCING ADVISORY

CLOUD COMPUTING SERVICES:

WHAT'S YOUR ENTERPRISE IT FORECAST

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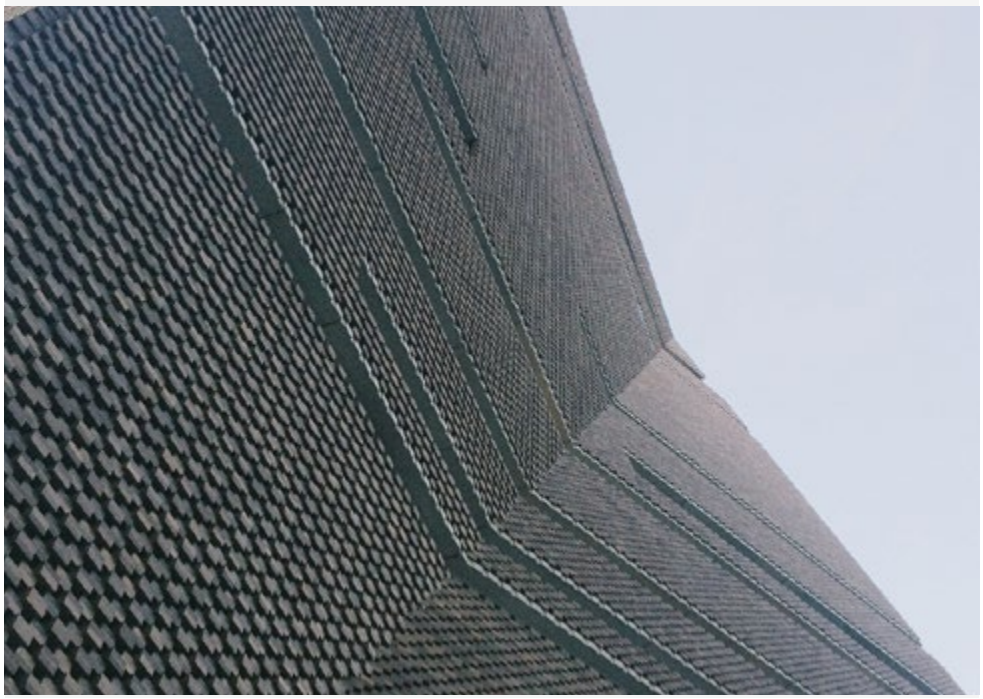
INTRODUCTION



Cloud computing seems to be on a constant rise. The global outbreak of COVID-19 may have slowed down other developments, but has highlighted the flexibility and agility of cloud computing.

70% of the world's organizations using cloud services today plan to increase their spending in this area after the pandemic-enforced disruption. In 2021, cloud computing continues to be an important ally that helps organizations enjoy increased scalability, business continuity and cost efficiency.

The pandemic has also reinforced the need for on-demand computing. Today, customers, employees and C-suite execs expect the best of both worlds: stable financials on one hand, as well as a strengthened ability to bring new products or services to market to remain competitive in the post-COVID era. Digital interactions are now the preferred means of communication, whether you're operating on behalf of hundreds of clients or engaging directly with consumers.

Employees want mobility and consumers want faster services, but often offering these improvements requires more storage capacity as well as greater transaction speed and diversified accessibility.

Is your enterprise ready?

Many of the largest enterprises have been cautious about embracing cloud computing because more is at stake, such as more data, greater complexity and sensitive corporate and customer information. So, there tends to be more overall worry and concern. However, the adaptability of cloud computing has proven it to be an effective solution, even for operations of significant size in industries such as financial services, healthcare, eCommerce, and government.

Greater assurances, economies of scale, and the clear fact that cloud computing is here to stay all converge to make CEOs and CIOs alike reconsider how cloud computing can make their enterprise more agile and more productive in the coming years.

Whether your enterprise is privately held, a Wall Street favorite, or a public agency, it's required of you to do more with less. In many ways, IT's future is becoming software-driven rather than hardware-driven, bringing cloud computing into sharper focus. Failing to take the cloud seriously could be a lost opportunity. This whitepaper can help you learn more about what to expect from cloud computing and what to look for in a cloud solution that could be the key to growing your enterprise.

THE NATURE OF CLOUD COMPUTING

Anyone who uses a smartphone or shops online understands the value of cloud computing. Technically, it's an Internet hosted distributed system of remote servers that store, manage and process data. The National Institute of Standards and Technology (NIST) has identified five essential characteristics that define cloud computing:

- **On-demand self-service** - individual users can automatically provision whatever computing capabilities they need.
- **Broad network** - access from any platform, from mobile devices and laptops to workstations.
- **Resource pooling** - a provider aggregates resources such as data processing, memory, storage and network bandwidth to serve multiple users simultaneously, with service levels that fluctuate as needed regardless of the provider's or customer's physical location.
- **Rapid elasticity** - demand-based scalability of capabilities enables anytime-from-anywhere access.
- **Measured service** - resource usage can be automatically "metered" - measured, controlled, and reported to help providers and customers optimize those resources.

Cloud infrastructure brings everything together as a cohesive resource. There's a physical layer made up of hardware components that forms the foundation, and an "abstraction" layer of software that enables specific services. There are three recognized service models -- Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS) and Infrastructure-as-a-Service (IaaS). We'll talk later about how you can deploy these models to meet your individual needs.

What's the difference between virtualization and the cloud?

Although both aim to increase computing efficiency, they address different parts of the system. Virtualization allows a single piece of hardware to run multiple infrastructure resources, consolidate servers effectively and keep pace with growth. The cloud enables users to share software and other computing resources.

WHO'S USING THE CLOUD?

As the internet has become a mainstay of business and social interaction, the world's largest enterprises have recognized the value of transitioning to the cloud. That includes systems planners and program managers on the front line of corporate IT, finance and business managers.

Cloud computing is an outsourced capability because you don't have to buy or maintain applications or other tools. Any upgrades are automatically available, so you're never at risk of falling behind, and inherent scalability means you can grow or contract quickly to meet either planned or unforeseen business fluctuations.

Indeed, without agility, you're going nowhere. We've all learned over the past few years that the future of business, domestic or global, is uncertain.

What can cloud computing do for you?

Even for the largest enterprises, emerging technologies and access methodologies are forcing a relook at how to deliver essential functionality that customers expect, and employees require. It's not just a matter of reproducing your existing data center in some other format, the cloud represents a different approach to growing and managing your entire enterprise.

It's an "asset-light" model.

Unlike traditional rack-based infrastructure, cloud computing lets you offload commodity activities, freeing up resources for more valuable core tasks and initiatives. And while curbing costs is a must-do, the cloud transcends financial benefits to boost crucial flexibility and agility. You'll need that to maintain a leadership position in your industry and continue to impress constituents with your innovation and responsiveness.

The cloud's strongest advantage is its elasticity. Its ability to scale and adapt to various situations supports:

- Standardization
- Automation
- User self-service
- Vast, immediate scalability
- Process integration
- Greater collaboration

In the end, you can create a new business model that links not just internal members and processes but customers, partners and vendors.

System security and data protection

Shifting control to someone else requires trust that they're fully invested on your behalf. For providers, hosting a cloud computing infrastructure is their only business, so it's in their best interest to ensure you experience available, reliable and secure services. Unlike your in-house IT staff, they don't have to deal with other competing pressures.

Providers have you covered for physical security (not applicable with cloud computing) and data protection protocols. They understand you must meet rigorous government and industry compliance standards, not to mention customer expectations. They're aware a breach of either one could have dangerous consequences.

On the compliance side, they'll likely take a conservative approach since protecting infrastructure is only a small part of what's needed to meet Payment Card Industry Data Security Standards (PCIs), HIPAA requirements, etc. On the customer side, loss of confidence is a substantial hidden cost enterprise managers sometimes overlook. We can look to several real-world examples to see how a security failure could do irreparable damage to your brand reputation and customer loyalty.

Any good provider can demonstrate their technology, platforms, and processes comply with federal security regulations. However, many clouds avoid this issue by keeping each client's data separate. The cloud architecture, including hypervisors, VM-ware, etc., has been around for a long time, so it's known throughout the industry to be reliable. Nonetheless, because your goal is 100% service availability, liability should be negotiated with your provider.

Performance

Other than security, this is the biggest concern among large, complex enterprises. Availability is instrumental for survival, and companies processing massive volumes of transactions must ensure the fastest possible speed at all times. For Ecommerce clients, every minute of downtime translates into lost sales and customer frustration. Even the slightest slowdown can irritate consumers to the point of abandoning their transactions.

Industry data based on detailed tests repeatedly shows the cloud can consistently deliver high performance. That's even more true with the advent of hybrid, multi-cloud configurations that work across data supercenters, support better cross-connections, and combine with managed hosting, alleviating the fear of being tied to a single provider.

Sharper focus

Cloud computing can ease you out of the "components" business, the need to purchase and maintain equipment and physical facilities, along with the associated costs. You can stop worrying about declining legacy systems and the imminent retirement of key IT staff and concentrate on mission-critical activities that drive improved customer experience and increased revenue.

You can't be competitive if you can't be innovative, and time is most equivalent to money when it comes to getting new ideas off the table and into the marketplace. The cloud provides the ideal environment for developing and testing new business ideas, because you can quickly and inexpensively ramp up to see if your concept works. If not, you can shut it down and move on to the next idea. Plus, it's all backed by the security and control offered by your service provider. This is an area no enterprise can ignore, and it's a low-risk but highly relevant way to get a feel for the cloud, as well.

Optimizing costs

The proportion of IT spending on cloud technology will increase in the aftermath of the COVID-19 crisis. It is projected to constitute 14.2% of the total global enterprise IT spending market in 2024, up from 9.1% in 2020.

Cloud computing isn't necessarily cheaper, but it enables you to more effectively use allocated funds. For today's largest organizations, it's all about optimizing costs. With the cloud, you pay only for what you use, and typically contracts are shorter. You can eliminate capital investment because your provider is responsible for purchasing the technology, you're merely using it.

The cloud puts the resources that assure development and testing right at your fingertips.

Disaster recovery

Every cloud has a positive side, and this one comes with substantial cost benefits. Cloud-based disaster recovery delivers far better separation than traditional models. And rather than maintaining expensive data centers that aren't used but exist solely "just in case," you only pay for additional usage if you need it. You can scale up to test your recovery plan or if there's an actual event, but the rest of the time you can ignore it.

ENTERPRISE CLOUD COMPUTING STRATEGIES

- **Software-as-a-Service (SaaS)** - consumers are empowered to use a provider's web-based application, with access via diverse devices and interfaces, but they have no contact or control over the application itself.
- **Platform-as-a-Service (PaaS)** - consumers can deploy enterprise-created or commercial applications onto cloud infrastructure, retaining control over the applications.
- **Infrastructure-as-a-Service (IaaS)**- consumers can replace physical equipment such as servers, storage, and networking with cloud-based infrastructure, retaining control over operation but not the infrastructure itself.

There are several types of clouds:

Public cloud

We're all familiar with this type of cloud infrastructure because we use it every day. Public clouds are open to any individual or company. They're Internet-based but "housed" with the provider, and they can be owned and managed as business enterprises by government organizations and academic institutions, sometimes jointly. The global end-user spending on public cloud services is expected to grow by 18.4% in 2021.

Private cloud

Exclusively available to a single organization, a private cloud is designed to serve any number of business units or individual consumers that constitute that organization. Private clouds can be owned and managed internally or outsourced to a third party, onsite or offsite. Some enterprises prefer this concept because it keeps their data and computing resources entirely isolated.

Community cloud

A variation known as community cloud can be created to serve multiple organizations with a shared goal or concern, such as mission or security requirements, with access restricted to the defined group. Community clouds offer the same ownership and management options as a private cloud.

Hybrid or multi-cloud solutions

As the name implies, hybrid clouds combine two or more of the above scenarios, using either standardized or proprietary technology to cross connect them. It is predicted that more than 90% of global enterprises will rely on a hybrid cloud by 2022.

Each service is a set of tools you can use to build your own unique cloud formation.

The need to be more customer-centric is fueling corporate desire for hybrid solutions uniquely

tailored for their enterprise. Companies can alleviate any lingering concerns by adopting public clouds for what can be shared and private clouds for what cannot. For internal development and testing, companies can use public cloud resources to get up and running quickly, then move to their private cloud if results will be retained.

It's also possible to construct a "secure multi-tenant cloud" instead of a public cloud, following the concept of multitenant architecture that allows several customers to share something such as physical infrastructure or servers that are virtually segmented to separate each client's data. Whether this might work for you depends on your industry and how you audit performance, etc.

You can also source multiple clouds with multiple providers. In fact, most large enterprises are choosing this multi-cloud approach, devising the combination of service and deployment models that work best for them. Over time, this could help reduce costs by promoting competition among providers, as well as keeping pressure on them to perform at the
highest level.

Networks are the critical links that enable cloud components to work together. The cloud essentially becomes a core part of your corporate structure, and data centers become nodes. Network exposure varies, most with public cloud or SaaS, least with private cloud or IaaS.

Managed services

Large organizations that have attempted the DIY approach to building an internal cloud have discovered it's a tremendous resource drain and takes longer than they expected. It's a time-waster that detracts from your core business. Likewise, managing your cloud can be more than you had in mind, too. The more complex your enterprise and your cloud computing, the more you'll want to consider managed services.

Managing clouds to the best advantage requires specialized expertise and someone who can put the latest pertinent best practices to work for you to ensure smooth integration and efficient productivity. For this reason, industry watchers expect demand for cloud computing managed services to grow rapidly. The global Cloud Managed Services market size is projected to grow to USD 116.2 billion by 2025 from USD 62.4 billion in 2020.

Costs

It's difficult for even the largest enterprises to justify private cloud costs at the company level, whereas economies of scale can substantially lower costs of outsourced services because providers already have the hardware, software tools and processes in place. Private cloud infrastructure and managed services generally require a minimum monthly fee. There's no commitment in a public cloud, since you pay only for the services you use.

Either way, you're leveraging your provider's expertise as well as its tools, doubling the value of y our investment.

What's the real future of the cloud? Some experts project that every enterprise will have a private cloud built on public infrastructure, using IaaS and possibly PaaS for storage, networking and security.

FITTING CLOUD COMPUTING TO YOUR ENTERPRISE

Cloud computing opportunities are many, but they're highly complex, and harnessing them appropriately takes some strategic thinking. You aren't just switching from one brand of product to another, you're re-envisioning how to deliver the internal and customer-facing IT services that drive your enterprise.

You need an overall strategy that considers applications, platforms, and service models holistically and how they can serve your corporate needs now and prepare you for the future. Factors such as your privacy, compliance, development needs and your budget can also be considered.

At least some providers are evolving toward offering a full-service, end-to-end scope of services all the way up through architecture. Meanwhile, it's vitally important to properly match the services you want with the right provider, several of them if that's what it takes to maximize performance at the best cost.

Call a cloud computing consultant

Most advisors would caution you to start small, but where should you start? A cloud-savvy consultant with an unbiased perspective can help you design a customized solution that will support the kind of current and future performance your enterprise needs to be competitive and profitable.

A consultant can guide you quickly and accurately through your decision- making process, assisting with:

- Conducting a thorough internal assessment that identifies your key business drivers as well as your current total costs. You need both to uncover where the cloud can be most meaningful for your enterprise and to compare solutions and potential providers.
- Helping you analyze server models and how can you put public, private or hybrid configurations to work. Also, what aspects of your operation do you want to keep out of the cloud, at least for now?
- Evaluating potential providers.
- Negotiating an advantageous contract.
- Helping you run a proof-of-concept application to pave the way for broader migration to the cloud.

Effective transition includes communication and education, so everyone within your enterprise is aware of changes and prepared to take effective advantage of them. It's critical that expectations be realistic, and that people be "set up" for success. The larger and more spread-out your enterprise, the more complex this may be, but the more important it also becomes.

CHOOSE YOUR CONSULTANT WISELY

Just like cloud computing, not every choice is a good one. Look for a consultant that has cloud-specific qualifications but also embraces performance-based fees, so you don't wind up paying for help or advice you didn't get or didn't want. It's all about time to market and in this case making smart, strategic decisions as soon as possible. Find a consultant that can leverage your time, money and understands the essential points of cloud computing services.

CONCLUSION

In just the next few years, you can expect to see more clouds gathering. The forecast calls for:

- Doing more with less
- Greater flexibility and scalability
- Faster speed to market
- Leveraging resources across the board

When it comes to IT, it's no longer a matter of owning and operating everything yourself. It's the results that count, including availability, reliability, security, and agility that support day-to-day operations and corporate growth. Enterprise cloud computing can enable that in ways traditional IT arrangements cannot, and outsourcing further streamlines the process, keeping your members focused on their most important work.