

The Future of IT and How to Manage it

F R O S T  S U L L I V A N



A Frost & Sullivan White Paper

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EXECUTIVE SUMMARY

This White Paper analyzes the shift we are witnessing in enterprise IT and presents Frost & Sullivan's vision for the future of IT – one characterized with an *"Everything as a Service"* (XaaS) environment. The shift is expected to transform the role of CIOs and their teams with service integration and vendor management at the core of their new responsibilities. However, that vision is yet to be realized and in this phase of transition, CIOs are looking for support. The change is being driven by a possible disconnect between the Line of Businesses (LoBs) and enterprise IT that impacts many enterprises today. This disconnect is creating new challenges for the CIO such as managing multiple service providers and vendors, ensuring disaster recovery and business continuity planning, securing a greater threat vector, and overcoming inconsistencies across disparate IT systems.

In addition, the White Paper describes how enterprise IT assessment needs to transform to overcome these challenges and better align to enterprise considerations around business, commercial and technology aspects. It also presents an enterprise IT assessment framework for CIOs to create an environment that sets the stage for the future of IT by leveraging on the capabilities of a Trusted Managed Hybrid IT Partner.

THE FUTURE OF IT

With increasing adoption of cloud computing, many organizations now manage hybrid IT environments which consist of mainframe, x86 and cloud technology. Thus, it becomes a necessity for enterprises to integrate cloud services with other IT assets. This has set the stage for the third phase of IT evolution – the Hybrid IT Era – which we are observing today. Currently, services are delivered through a mix of self-owned and third-party environments. Most enterprises work with multiple service providers to enable the delivery of their IT resources. **The management of these complex heterogeneous IT environments requires increasingly scarce and costly resources. This has given rise to a "new normal" – one characterized by the separation of IT into "Shadow IT" and "Corporate IT".**

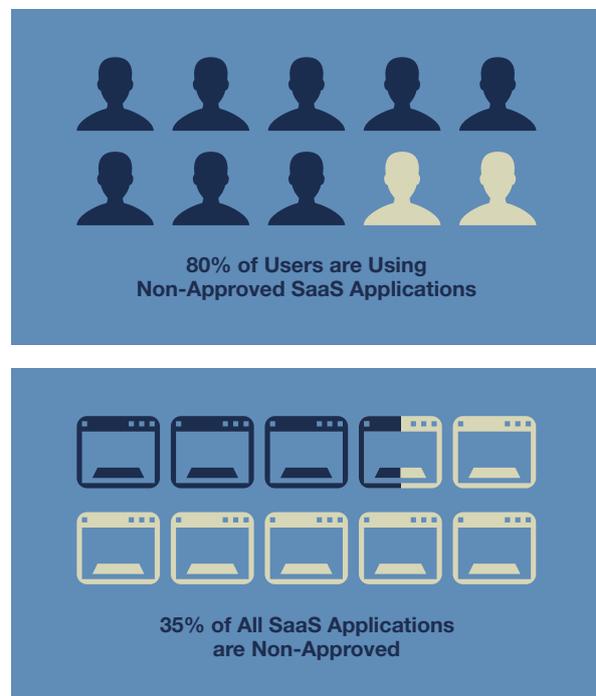
Today, LoBs are tasked with driving business growth in a volatile macro-economic environment. Their increased focus on innovation and disruption is translating into unprecedented demands on corporate IT.

That stated, corporate IT has not been able to keep pace with business agility and lower risk-reward tradeoffs. This is primarily attributed to lack of flexibility and agility in changing systems and processes and continuing dependence on archaic legacy systems. Indeed, it is difficult to add value to a business if too much emphasis is placed on technical integration and vendor procurement, and too little on competitive differentiation, innovation and business agility. Due to a lack of support, LoBs have taken IT into their own hands giving rise to widespread proliferation of Shadow IT.

According to a recent Frost & Sullivan survey of 600 respondents¹, more than 80 percent of respondents admit to using non-approved SaaS applications in their jobs. Non-approved applications represented more than 35% of all SaaS apps used in the company. By directly reaching out to external vendors to service their requirements, LoBs are able to meet their immediate business needs quickly. However, this has created new challenges for enterprise IT. These concerns include reduced security and data privacy; threat to corporate reputation in case of compromised security; loss of data; greater threat of malware and viruses; and lack of disaster recovery considerations.

To address the challenges associated with hybrid IT and realize the benefits of cloud computing, corporate IT can be expected to move progressively to an Everything-as-a-Service (XaaS) model of computing. As enterprises increasingly demand that all their IT resources are delivered as a service, corporate IT is likely to transform into an internal service provider.

Figure 1: Proliferation of Shadow IT



Source: Frost & Sullivan

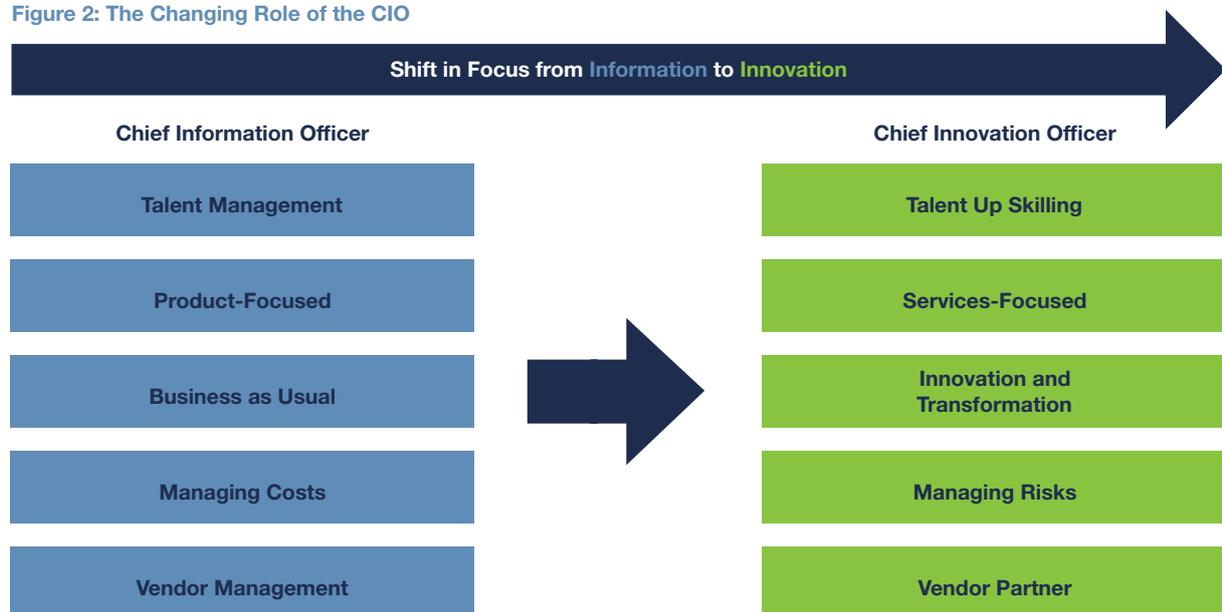
¹The online survey was conducted in September 2013. Valid responses were returned by 300 IT employees and 300 Line of Business employees of large businesses (1,000 employees or more), representing a range of industries, in three geographic areas (North America, UK, Australia/New Zealand).

FROM CHIEF INFORMATION OFFICER TO CHIEF INNOVATION OFFICER

The disruptive impact of technology is causing the role of the IT department and the CIO to change. For example, in a retail environment, a CIO is now likely to focus upon ways in which shopping can become an entirely self-service experience and how to integrate multiple channels to the customer. In a progressive organisation, CIOs are taking a much broader role in the business by closely aligning IT strategy with the overall business goals. Indeed, the role of a CIO is shifting from information to innovation.

For example, as the XaaS model becomes more widely adopted, its ability to transform business and engender innovation becomes more apparent. Initially, basic cloud services typically augment existing IT assets. Over time, these services automate more and more processes and increase efficiency. Ultimately, the XaaS model will become embedded and create disruption. The ability of the model to launch new products and services with relatively low risk and build entire businesses in the cloud is transforming entire industries. For example, the music, travel and media industries are being transformed by cloud technology. The technology together with the XaaS model is having a growing impact on other industries.

Figure 2: The Changing Role of the CIO



Source: Frost & Sullivan

Another key shift in the role of the CIO will be to manage the IT department as an internal service provider. Over the next few years, Frost & Sullivan expects that future CIOs will engage with fewer service providers and seek ones that manage IT environments end-to-end. **Instead of procuring point products and solutions from multiple vendors and service providers, CIOs will be focused on creating and managing a catalogue of services from fewer service providers – from vendor procurement to vendor management.**

The following three quotes illustrate the demands of today's IT leaders.

Figure 3: Demands of Today's IT Leaders

An Asian Gaming Provider Headquartered in Japan

“ We opted for an end-to-end service provider with global data center coverage to ensure easier vendor management and reduce time lost in procuring hardware and software across multiple vendors and integrating it all together. This has helped us have a common service provider to handle storage, processing and distribution. Alternatively, a network provider would need to have strategic relationships with data center providers to provide a seamless connectivity experience. We were able to gain pricing advantage, especially for cloud storage solutions given the large quantum of data stored in multiple locations. ”

An Engineering Company Headquartered in the EU

“ It is preferable to select one service provider that offers a range of services and managed services capabilities as opposed to multiple service providers. Organisations are increasingly opting for an integrated service provider that provides 'one neck to choke', rather than different offerings from various providers. The key reasons are to ensure consistency in service through a single provider and drive business agility. Especially when on the cusp of a new product, the IT demands can skyrocket and traditional IT is unable to meet the requirements at such a rapid pace. ”

A global Manufacturing Company Headquartered in the US

“ Consistency is an essential attribute all service providers must deliver. From an organization's viewpoint, it is important to deliver a consistent level of service across a heterogeneous IT environment. Integration should be seamless and quick even if it involves a variety of service providers across different regions. ”

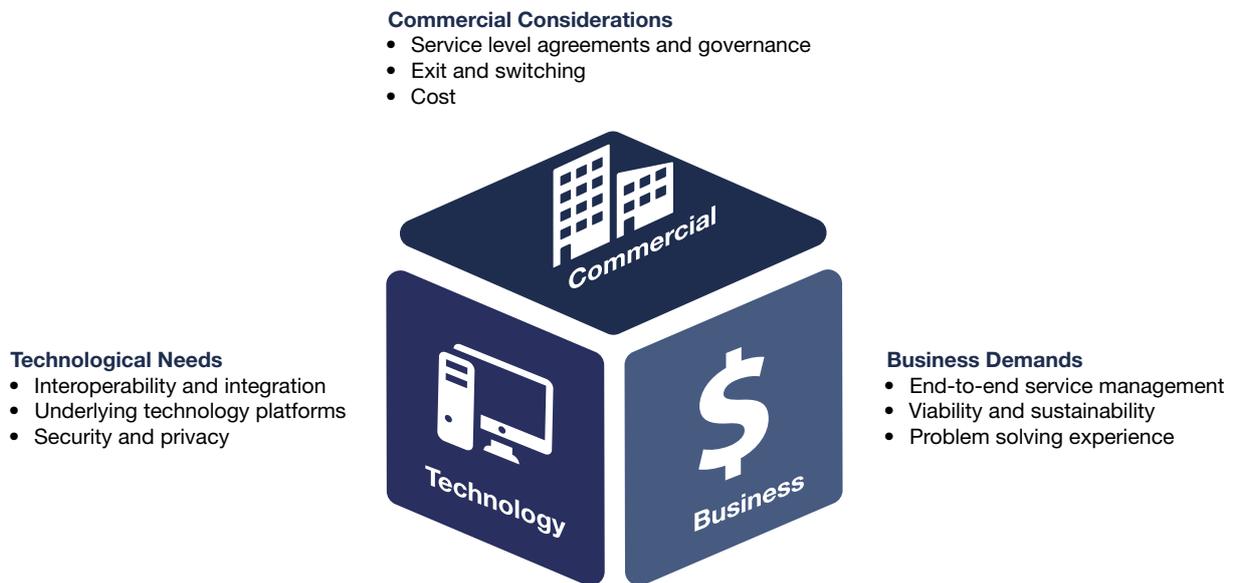
Source: Frost & Sullivan

**COMMERCIAL, BUSINESS AND TECHNOLOGICAL:
THE THREE DIMENSIONS OF ENTERPRISE IT**

Frost & Sullivan research has found that enterprises across verticals are struggling to overcome similar challenges. Discussions with leading regional and global enterprises provide clues on the missing link between what is available and what will help them meet their business challenges – the XaaS model.

To embark on the path towards XaaS where significant technology-driven disruption and innovation will be realized, technology decision-makers need to consider three dimensions of enterprise IT – business, commercial and technological – and understand the implications of each. Together, they provide a framework to evaluate enterprise IT. Multiple parameters need to be considered under each dimension to identify an enterprise’s current stage in terms of IT evolution, as highlighted in Figure 4.

Figure 4: The Three Dimensions of Enterprise IT



Source: Frost & Sullivan

Commercial considerations relate to cost efficiency and controls. Enterprises need to ensure they get the right services, at the right quality level and competitive price. To achieve this, enterprises need to implement enhanced Service Level Agreements (SLAs) that can be monitored through a single pane of glass and a comprehensive risk governance framework. Enterprises also need to avoid vendor lock-ins with a clear understanding of the direct and indirect implications as well as the costs of exiting a current service provider and switching to a different one. Lastly, enterprises need to understand the total cost of ownership to evaluate their IT environments and demand flexible pricing models to align their costs with business requirements.

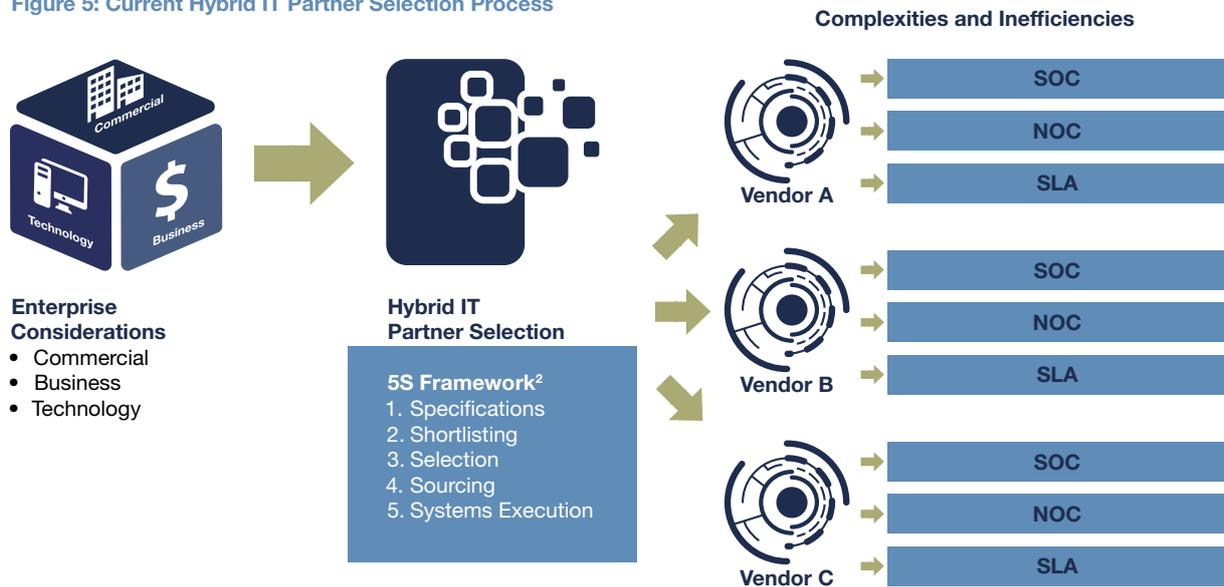
Business demands are directly linked to an enterprise's business outcomes. The adopted services must enable and facilitate a viable and sustainable business model for the enterprise. An end-to-end service management capability is essential to meet the needs of an organization across different functions, as well as at various stages of business development. In addition, when resolving a problem, response time, level of support and trouble-shooting expertise are critical factors that contribute to business outcomes.

Technological needs are the principal requirements for enterprises' IT environment transformation. Security and privacy remain priorities for most enterprises. While perimeter security and access controls continue to be primary concerns for enterprises, they are increasingly evaluating response times to take corrective measures and identify the compromised systems and data. With the emergence of hybrid multi-cloud environments, interoperability is crucial. Furthermore, an integrated management platform that is able to manage and control through a single API, exchange data between various formats, and orchestrate complex cross-domain processes should be incorporated. Underlying platforms including servers and network layers need to be evaluated as well.

PLANNING THE NEXT STEP WITH AN IT ENVIRONMENT ASSESSMENT FRAMEWORK

The transition to an XaaS environment can be tricky. It requires a departure from the current way of doing things across all three dimensions of the enterprise IT. For IT systems to be outsourced, enterprises have traditionally opted to work with various parties. For each point solution, a different vendor, service provider or consultant is contracted. Based on Frost & Sullivan research with enterprise IT departments, the typical vendor procurement process can be illustrated as in figure 5 below.

Figure 5: Current Hybrid IT Partner Selection Process



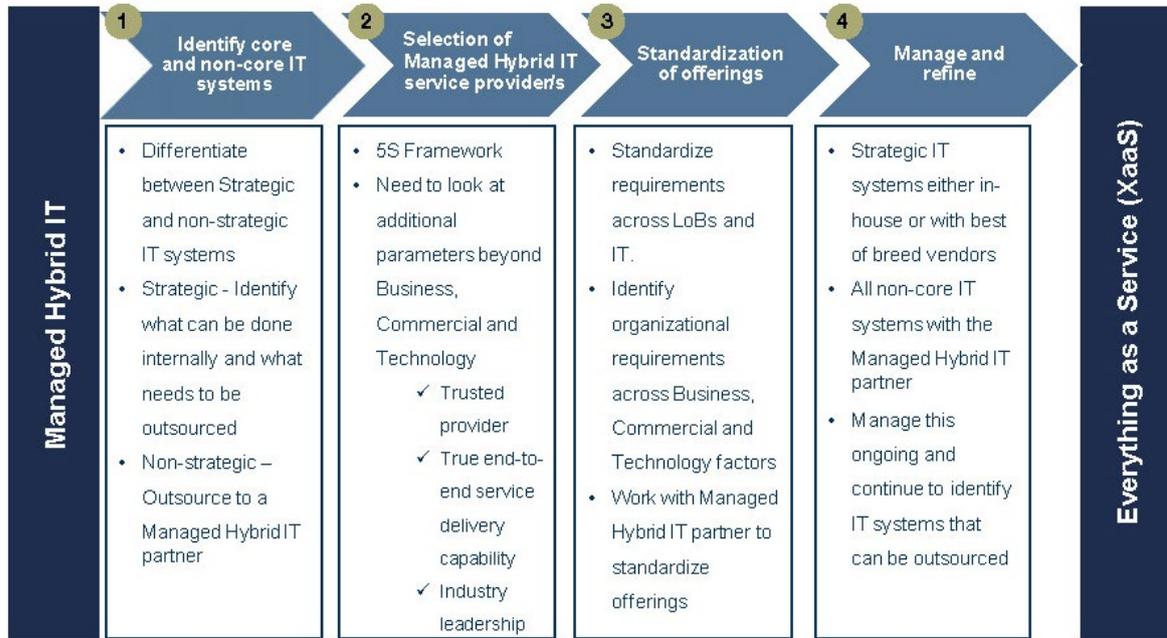
Source: Frost & Sullivan

As observed from the figure above, **the current hybrid IT partner selection process results in the engagement of multiple vendors and service providers with point solutions to be integrated together. This can lead to complexities and inefficiencies that pose new challenges for the CIO.** The CIO is now tasked with managing multiple service providers with diverse Security Operations Centers (SOCs) and Network Operations Centers (NOCs). The situation also results in the CIO spending significant time addressing the inconsistencies across disparate IT systems. Each vendor has different SLAs that address different parts of the enterprise considerations, and may be dependent on the underlying technology partner. Other challenges for the CIO's team include ensuring redundancies across multiple points of failure, securing a greater threat vector across a broader footprint of partners and integrating the disparate IT systems. Despite these obstacles, such an environment is increasingly common.

To overcome the challenges and move towards an XaaS environment, Frost & Sullivan recommends enterprises adopt a 4-step IT environment assessment framework as illustrated in figure 6. The framework is useful for continuously evaluating and adding new service capabilities as enterprise IT requirements evolve to become an internal service provider.

²Frost & Sullivan's Analysis

Figure 6: Enterprise IT Assessment Framework

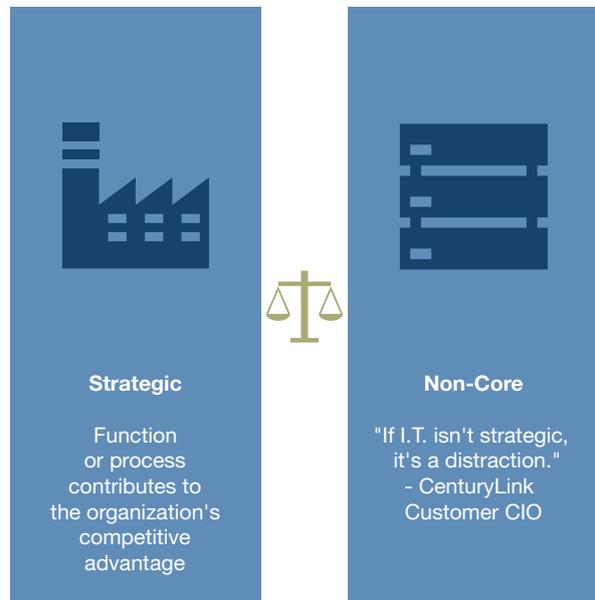


Source: Frost & Sullivan

1. Identification of core and non-core IT systems:

This critical step differentiates between core and non-core IT systems and business processes. This distinction between core and non-core stems from the extent to which it contributes to an enterprise’s competitive advantage or strategic business functions. Another factor to consider is the ability of the enterprise to perform the functions internally. Based on this bifurcation, an enterprise can choose functions to be outsourced to a Managed Hybrid IT service provider and ones to continue running in-house or be outsourced to a best-of-breed solution provider. Given that non-core functions add little strategic or competitive advantage, they may be the first to be outsourced.

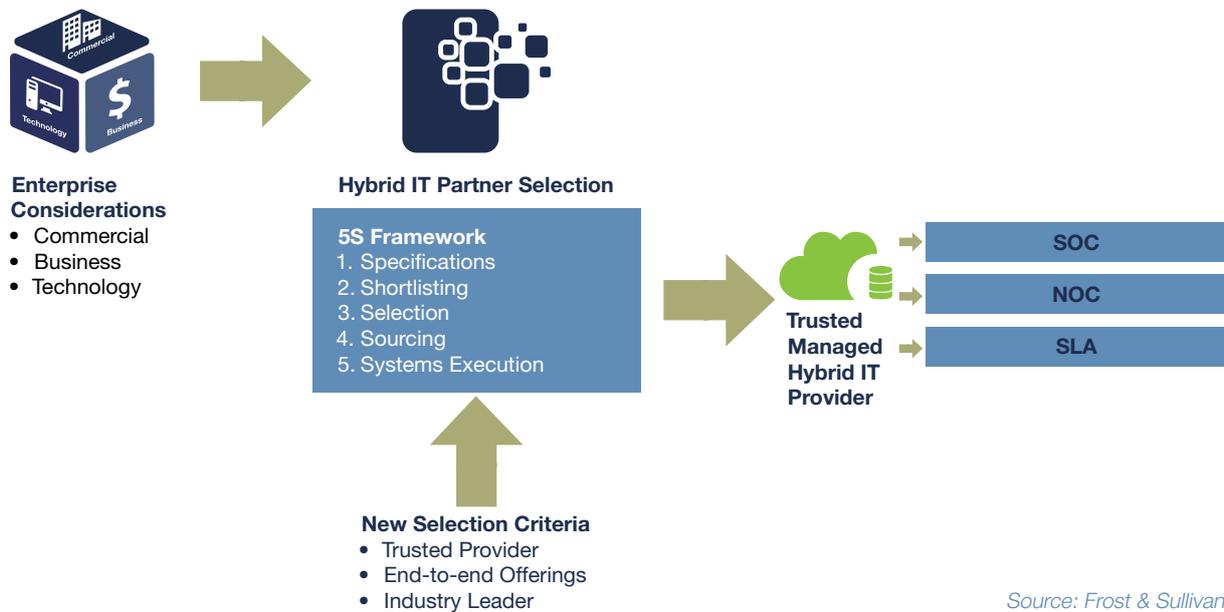
Figure 7: Identification of Core and Non-Core IT Systems



Source: Frost & Sullivan

2. **Selection of service provider/s:** While enterprises cannot avoid a Managed Hybrid IT environment, Frost & Sullivan recommends consolidating all non-core activities with a single trusted Managed Hybrid IT provider as opposed to working with multiple vendors. In order to select a single trusted Managed Hybrid IT provider, it is essential to go beyond the traditional vendor assessment process and evaluate a vendor holistically. Frost & Sullivan opines that three new factors should be introduced to the vendor selection process – trust, end-to-end service provisioning, fulfilment and billing capabilities, and industry leadership. A single trusted Managed Hybrid IT provider can benefit the CIO in four crucial ways:
- Alleviate the challenges as highlighted above and free up the CIO’s time to concentrate more on core or strategic IT systems to help innovate and disrupt.
 - Assist enterprises on the journey to the future state of XaaS by proactively guiding an enterprise’s IT evolution through a consultative approach.
 - Implement a seamless end-to-end IT enterprise built on a hybrid environment while providing integration across service fulfillment, assurance and billing. These should be supported by a centralized SLA management, network operations center (NOC), and security operations center (SOC).
 - Offer industry leadership in terms of the services offered today as well as the future direction.

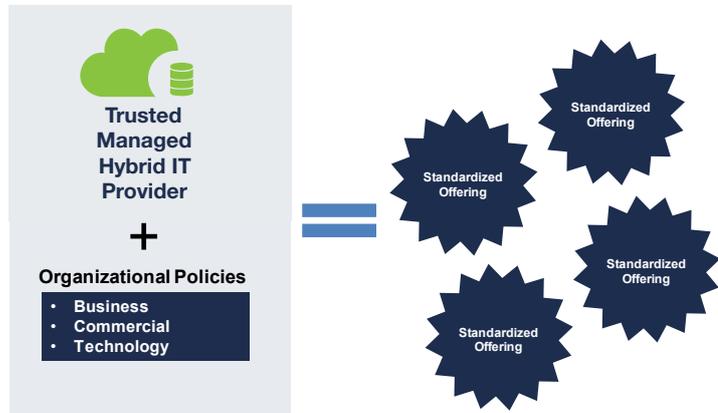
Figure 8: Selection of Service Provider/s



Source: Frost & Sullivan

3. **Standardization of offerings:** This is the stepping stone to an XaaS environment. At this stage, the enterprise, in partnership with the Managed hybrid IT partner, consolidates business, commercial and technological considerations across LoBs into enterprise-wide considerations. Each service delivered by the Managed hybrid IT provider is then standardized

Figure 9: Standardization of Offerings

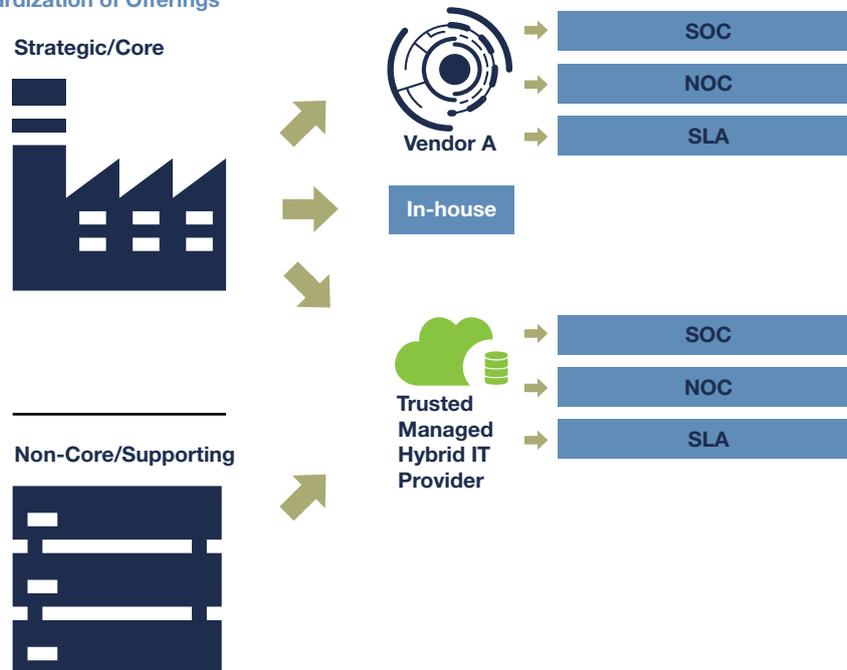


Source: Frost & Sullivan

to meet the universal set of considerations. By aligning with the demands of LoBs, the CIO can successfully reduce any friction that may exist between business and IT. This helps to eliminate shadow IT without compromising on critical issues around security, governance and data privacy. In the end, various IT services may be provided through different delivery models yet conform with enterprise requirements.

4. **Manage and refine:** At the end of the first three steps, enterprises are expected to have outsourced their non-core IT systems to a single trusted Managed Hybrid IT provider. The core/strategic IT systems can continue to be run in-house or outsourced to best-of-breed solution providers. This helps the CIO to shift the focus from vendor procurement to vendor management. Vendor management revolves around continually ensuring that the LoBs' requirements are met, and the Managed Hybrid IT vendor adheres to the SLAs set out in the sourcing stage. Also, the CIO's team should regularly evaluate the core IT systems to identify ones that can be outsourced to the Managed Hybrid IT provider in the future. The emphasis should be on outsourcing allowing the CIO to concentrate on strategic IT systems that create a competitive differentiation. This is the path to XaaS.

Figure 10: Standardization of Offerings



Source: Frost & Sullivan

By identifying key elements under the IT environment assessment framework, enterprises are better able to understand their own IT needs. Nevertheless, this journey of change is best taken with an able and experienced partner that can proactively assist enterprises at each stage.

A SERVICE PROVIDER IN SPOTLIGHT

CenturyLink is a global leader in cloud infrastructure and hosted IT solutions for enterprise customers. It covers a vast spectrum of cloud offerings, including infrastructure services, cloud management, Platform as a Service (PaaS), as well as managed services. With the availability of public cloud, private cloud and network connectivity from one single provider, CenturyLink can provide enterprises with end-to-end Managed Hybrid IT solutions.

The company's public cloud offerings feature advanced self-service automation and rapid feature innovation. Its private cloud offering delivers a range of services from dedicated hardware and physical isolation to enterprise-level security and service level agreements. Leveraging these advantages, CenturyLink Cloud can offer greater agility for enterprises across a broad range of workloads, from mission-critical business applications to application development and testing. In addition, it offers security solutions to ensure compliance and as a global service provider with a highly distributed infrastructure footprint it does not have a single point of failure.

To back up its cloud services delivery, CenturyLink also invests in its hosting capabilities with an expansion plan of its cloud-ready data center presence across the globe. As of September 2014, CenturyLink operates 58 data centers located in 34 cities around the world. As a result of its Tier 3 and Savvis acquisitions, the company has rapidly expanded its cloud capacity and lowered prices.

THE LAST WORD

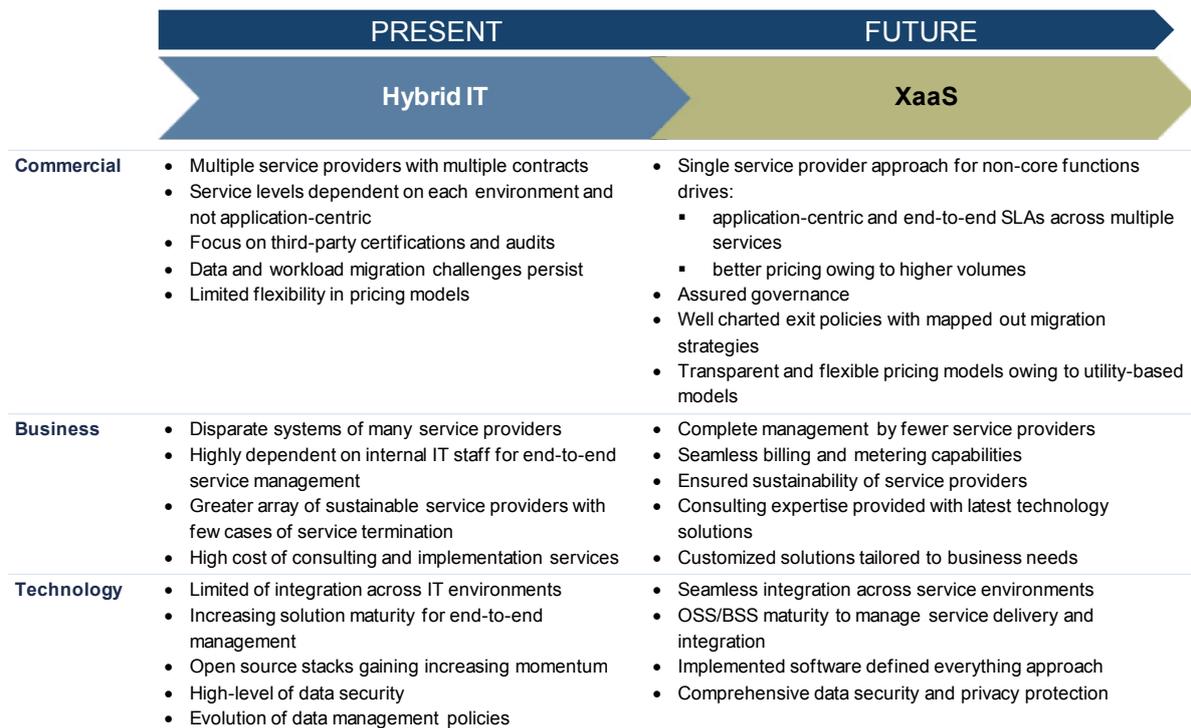
In the past few years, enterprises have augmented and optimized their resources by virtualizing IT infrastructures and shifting fundamental processes to the cloud. This activity has been driven by the desire to control costs and manage IT assets more efficiently. Increasingly, enterprises are seeking benefits from cloud resources centred on agility, flexibility and scalability.

As these benefits are realised, enterprises then move to a situation where all IT resources can be delivered as a service (XaaS). This model creates massive disruption and engenders innovation when implemented. As more businesses and whole industries shift to an XaaS world, the risks associated with many activities fall. The lower risk means that enterprises can, to a greater extent, focus on experimentation and innovation.

Frost & Sullivan predicts that the XaaS model will become a natural progression from hybrid IT. In aligning IT adoption with the enterprise IT environment assessment framework illustrated in this document, enterprises also need to evaluate the risks associated with each stage.

It is essential for organizations to understand the characteristics of different stages and identify current gaps on the journey to an XaaS model. The IT strategy can be aligned with the organization’s current and future needs. The fundamental shifts are illustrated in figure 11 below.

Figure 11: Enterprise IT Assessment Framework



Source: Frost & Sullivan

ABOUT FROST & SULLIVAN

Frost & Sullivan, the Growth Partnership Company, works in collaboration with clients to leverage visionary innovation that addresses the global challenges and related growth opportunities that will make or break today's market participants. For more than 50 years, we have been developing growth strategies for the Global 1000, emerging businesses, the public sector and the investment community. Is your organization prepared for the next profound wave of industry convergence, disruptive technologies, increasing competitive intensity, Mega Trends, breakthrough best practices, changing customer dynamics and emerging economies?

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ABOUT CENTURYLINK

CenturyLink is the third largest telecommunications company in the United States and is recognized as a leader in the network services market by technology industry analyst firms. The company is a global leader in cloud infrastructure and hosted IT solutions for enterprise customers. CenturyLink provides data, voice and managed services in local, national and select international markets through its high-quality advanced fiber optic network and multiple data centers for businesses and consumers. The company also offers advanced entertainment services under the CenturyLink Prism TV and DIRECTV brands. Headquartered in Monroe, La., CenturyLink is an S&P 500 company and is included among the Fortune 500 list of America's largest corporations. For more information, visit www.centurylink.com/technology.

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