IT Infrastructure at Your Service

Today's challenging business climate is driving a move toward delivering IT functions as a service

>> IN TODAY'S CHALLENGING ECONOMIC and competitive environment, organizations are faced with tightening budgets and reduced resources. They are looking for creative and effective ways to get the greatest return on investment, while achieving or sustaining business growth and profitability. This delicate balance especially affects one business function in any enterprise—corporate IT services.

While IT capabilities are arguably the lifeline of most companies, IT departments are also under increasing pressure to achieve more with reduced capital and constrained operating budgets for infrastructure facilities, technology acquisition and refresh, and staffing. Adding to the challenge of sustaining operations with tighter budgets is the fact that IT departments are being asked simultaneously to support more services and more users—with the expectation of higher performance and, in some instances, with formal internal SLAs accompanying internal IT charge-backs to the lines of business.

In the face of these financial and operating challenges, businesses are moving away from the traditional model of building and maintaining their own internal IT infrastructure to an outsourced, services-oriented business arrangement. This external services-based approach to delivering IT services is now becoming recognized in the industry as Infrastructure-as-a-Service, or IaaS. The basic concepts of IaaS have been around since the late 1990s, with its elements evolving since that time as either a web hosting service or ASP (Application Service Provider) service now known as SaaS (Software as a Service). What distinguishes IaaS service from these older variants is the more comprehensive approach that service providers are taking to deliver support for all major aspects of a corporate IT infrastructure, via a hosted service model.

That service depth makes it possible for a corporate IT department to fully outsource not only the enterprise data center facilities, but also all of the hardware, operating systems, databases, storage, security, middleware, business applications and all associated monitoring, maintenance and end-user support–essentially everything that constitutes IT functions. IaaS pricing is still evolving, but many elements of an IT infrastructure can be obtained on a pay-as-you-go monthly basis. This service-oriented approach represents a major change in the way organizations acquire, fund and deliver IT services.

U.S. and global businesses of all sizes are now examining the benefits, risks and challenges of the IaaS business model. Some of the key considerations organizations must understand and assess before adopting IaaS include:
- Strategic and tactical benefits of the IaaS model
- Selecting the right IaaS provider
- Implementing IaaS
- Managing the IaaS provider

IaaS Delivers Business Value

The basic concept of IaaS—as a set of hosted data center services that allow technology and support to be obtained for a monthly fee instead of requiring up-front investment capital—gives companies the financial latitude to not only conserve capital but also to better align operating expenses with revenue streams. Depending on the size of the company's IT operations and data center facilities requirements, this

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capital expenditure avoidance can be a significant driver in the company's decision to use an IaaS model. Linking monthly IaaS payments to corporate monthly income not only allows for better stewardship of a company's financial performance, but also supports cash-flow management. It is essential that IT executives remain mindful of these types of financial considerations—especially in the 41 percent of companies where IT reports to the CEO (for more information, see *CIO* magazine's 2008 State of the CIO survey, located at www.cio.com).These CIOs have to interact with board members, C-level executives and other stakeholders outside of IT, where IT can be viewed as a cost center and not as a strategic partner or business-oriented service provider.

Financial considerations, however, are only one aspect of assessing an IaaS solution on a hosted platform. Equally important are the business issues of scaling and growing the corporate IT infrastructure to stay in step with the growth and expansion of the core business of the corporation itself. And this business growth may be occurring along several dimensions–rate of customer acquisition, addition of new services and lines of business to the corporate portfolio, mergers and acquisitions, and geographic expansion within the United States and acros the globe. A services-oriented approach to procuring and adding IT infrastructure will likely give the company a right-sized, right geography, and right cost-based IT infrastructure scale and time-to-market than may be possible through organic and internally sourced methods.

Most of the well-established IaaS hosted platform providers maintain and support state-of-the-art, highly

engineered, fully redundant, highly available, highly secure, certified and independently audited data center facilities staffed by highly trained and credentialed technical resources with skills that are perennially in short supply. Such resources are typically beyond the investment reach of many corporations on an individual basis. However, by leveraging an IaaS solution from such service providers, the value and benefits of these resources and capabilities are available cost effectively to businesses of all sizes.

Another factor in evaluating a hosted IaaS model is the inherent flexibility of this type of service arrangement. Although most reputable service providers offer fairly comprehensive IT services on an IaaS-type arrangement, it is not an all-or-nothing proposition. Corporations have the flexibility to be highly selective in the IT elements they may choose to outsource to a service provider. Depending on their business imperatives, or availability of critical technical IT skills, or appetite for business risk, companies may benefit from IaaS arrangements in many different forms. For example, some companies may start out by leveraging IaaS for data center backup services, gain confidence, and then move to outsourcing primary data center services. Others may start with basic data center facilities, associated wide area and IP networking, security, and backup services before exploiting the fuller breadth of managed hosting services. In terms of typical IaaS adoption, most companies outsource the common elements of their IT infrastructure, to include hardware, operating systems, security, data storage, and backup needs—while retaining control of, and in-house support for, business-specific applications. By offloading all the nonmission-critical service layers of their IT platforms to the hosted IaaS provider, such companies are astutely focusing their resources on core mission-critical applications that are the true underlying drivers of their business value and competitive distinction.

Choosing an IaaS Provider

As discussed earlier, the underlying concept of IaaS has been around in the industry for some time, with varying definitions and ranges of service options. However, not all service providers have the breadth and depth of industry and technology experience to replace the in-house managed and controlled IT infrastructure

Infrastructure as a Service: Total Cost of Ownership

Enterprise Operations

Revenue-Aligned Growth

"Just-in-Time" Business Sales

Business Agility with Enterprise Mission

Capital and Asset Management

0%   Level of Outsourcing   100%

Source: NTT America
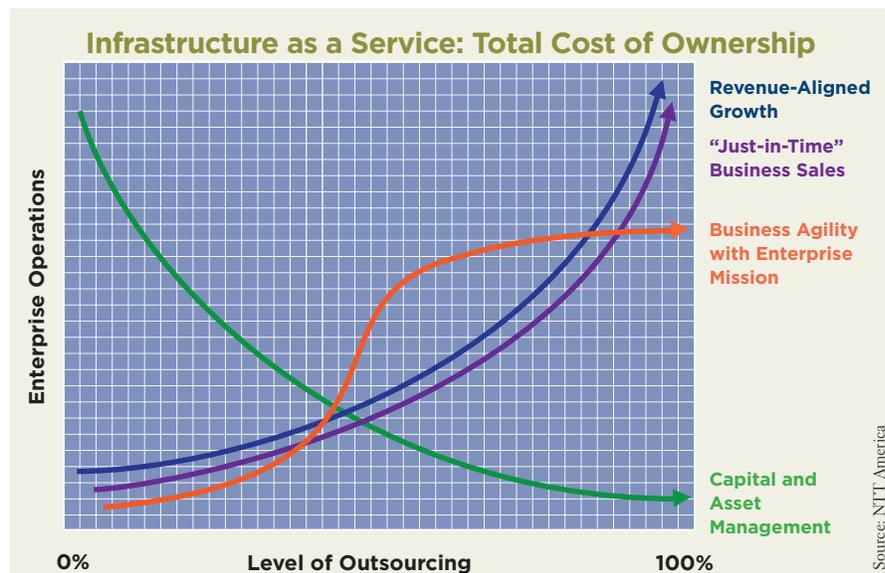
for a company. While the payback, in terms of capital preservation, reduction in cost of operations, cost-effective delivery of services and scale is impressive with an IaaS business model, the choice is not risk-free. It behooves any company to assess IaaS hosting service providers carefully, both in terms of the capabilities and credentials of the service provider as well as the types of internal IT services that lend themselves to being delivered on this basis.

Choosing the best managed hosting partner for their needs is actually one of the more significant decisions companies face when venturing into the realm of hosted services and IaaS. It is important to keep in mind that, while a good IaaS service provider displays the attributes of a true strategic partner and is focused on providing added value to the company's IT department, it should be willing to provide proof of concept, and build the relationship at the pace that is comfortable for the company. Some other key questions to consider include: Is the hosting provider willing and able to understand the business and technical pain points, and the overall needs of the company to provide a targeted solution, as opposed to a one-size-fits-all approach? Is the service provider flexible in its service-delivery approach and willing to accommodate the company's risk profile for outsourcing at the pace and depth that works for the company? Does the IaaS provider have the expertise, scale and geographic coverage—whether national or global—that will complement or supplement the necessary in-house capabilities of the company? Is the IaaS provider using technology that is not only up to date, but also stable, widely compatible with other technology standards, and field tested for reliability?

Moving from an in-house IT infrastructure to a mixture of in-house and outsourced IaaS services does entail changes and modifications to the business-as-usual mode of IT operations, as well as maintenance and support methods and procedures. Once in place, this change will result in improved overall business operations and financials for the company. However, the process to get there does require work in partnership with a stable and seasoned service provider who can bring professional expertise to oversee, guide and advise throughout the transition process, until steady operations are in place.

Transitioning to an IaaS Framework

An experienced IaaS service provider is the key to ensuring that the company's IT operations migrate successfully from an internally controlled environment to a hybrid or fully outsourced model—one where overall responsibility for the IT platform shifts to the service provider, but the enterprise

is afforded a holistic and ongoing view into key performance metrics and maintains discretionary control of select IT service elements. The IaaS service provider will typically have an established series of processes, procedures and change-management methodologies, including project management resources that bring hands-on operational expertise to enable a smooth and stable transition from the existing environment to a new, hosted environment.

Recognizing that migrating from a well-understood internal environment to one delivered by a third party can cause trepidation on the part of an enterprise, NTT America has implemented many customer-facing and internal technical review checkpoints that allow affected team members to review and address a customer's transition issues and ongoing operational requirements. Working with a dedicated project management staff helps both the customer and NTT America's technical review teams operate with a detailed plan. Project managers develop a schedule and a framework of roles and responsibilities to minimize disruption during the migration to an IaaS framework. Working within this methodical, task-by-task structure, NTT America's resources implement a customer's new environment seamlessly. NTT America ensures overall customer comfort with this transition by maintaining compliance with independent industry certifications such as SAS70 and Safe Harbor.

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Managing the Relationship

As noted at the outset, the range of services available within the IaaS framework is quite extensive, and it is possible for a corporate IT department to fully outsource not only the enterprise data center facilities, but also all the hardware, operating systems, databases, storage, security, middleware, business applications, and all associated monitoring, maintenance and end user support. The complexity of managing the technical, business and contractual relationship with the IaaS service provider varies with the number and type of service elements that are moved to the hosted services platform. Enterprise IT and business operations managers must orient their IT management approach to better suit working with a hosted IaaS platform where their IT services are not located on corporate premises or within the direct physical control of

the corporate IT staff.

Experienced IaaS service providers ensure that the perceived loss of control by corporate IT staff is mitigated by a timely, on-demand and holistic view into the on-going performance of the outsourced infrastructure. It is not uncommon for the hosting service provider to track and report on the health of the customer's infrastructure on the basis of metrics that are far more comprehensive than are possible via in-house methods. Many IaaS service providers will also accommodate a customer who wishes to retain remote control of IT functions, provided this does not compromise the overall operational viability of the customer's outsourced infrastructure.

A time-honored way for corporate IT staff to manage a hosting service provider is via service level agreements or SLAs. While conceptually this is reasonable and, in fact, serves as a hallmark of the degree of commercial sophistication of the IaaS service provider, in practice SLAs

are not an effective or reliable tool for managing a service provider. It is more advantageous for companies to select a service provider who is managing its business with all of the necessary engineering, quality assurance, operations controls, monitoring and maintenance—and through industry-standard performance and process metrics—than to rely on service credits and penalty fees to ensure standards of service.

NTT America's Infrastructure as a Service Solutions

NTT America provides a full range of services—all within the scope of IaaS. The bulk of NTT America's managed services are delivered in premier data centers located in Sterling, Va., and San Jose, Calif. These data centers are equipped with enterprise-class technology, and are backed by certified support teams and direct access to certified engineers 24/7/365. These U.S. data centers are linked via a global Tier 1 IP backbone to NTT Communications' network of state-of-the-art data centers around the world.

The IaaS offerings provided by NTT America fit into the plans and business structure of high-growth medium and large companies by offering a range of services that increase flexibility, stability and scalability, and offer the rapid response and cost reduction required to support aggressive growth in highly competitive business environments. Companies employing NTT America's IaaS solutions receive the peace of mind that comes from working with the wholly owned subsidiary of NTT Communications—one of the largest service providers in the world. These services free up human resources and capital resources for companies on a fast-growth curve, so they can stay focused on their own mission-critical and core business operations.

NTT America's IaaS offerings are enhanced by the support of several top-level key industry partners. Its IaaS solutions are bolstered by hardware and software from Hewlett-Packard, Microsoft, Symantec, EMC, Sun Microsystems, and Cisco Systems. Additionally, through its partnership with TerraPass, NTT America is able to provide a carbon-offset service that enables customers to fulfill green IT mandates.

Conclusion

NTT America's IaaS offerings give companies access to cutting-edge technologies and services. This package of solutions can help organizations manage costs and investments in IT facilities and equipment. It also helps them maintain competitive levels of scalability and flexibility, and engenders the freedom to focus not on their background IT infrastructure, but on their core business objectives—the real reasons they're in business.

NTT America's IaaS Framework

>>> **Dedicated Hosting**
A full suite of flexible hosting solutions to improve the performance and reliability of your critical business data and applications.

>>> **Managed Security**
Services and hardware to assess, prevent, detect, and manage security risks and threats to corporations, including Managed Firewalls, Security Scans, Vulnerability Assessments, and Intrusion Detection.

>>> **Managed Storage**
• Data Center Backup and Restore Services — Periodic data backup at your choice of retention period and data size.

• Offsite Vaulting — Copy of your data on a duplicate tape for offsite storage to extend retention period for your data.

• Database Backup — Three backup options of Offline, Online and Mirrored accommodating your database availability needs.

• Storage Area Network (SAN) and Storage Area Network High Availability (SANHA) — Enterprise-class SAN solutions provide the convenience of an outsourced storage environment with guaranteed data availability.

>>> **Monitoring and Maintenance**
Continuous monitoring of hosted IT services on a 7/24/365 basis by skilled and highly trained NOC staff. In the event of service-affecting conditions, corrective actions are taken to restore your service.

>>> **Infrastructure Optimization Services**
Load Balancing Services and Content Delivery Network Services — These services offer you the ability to improve the efficiency of your IT infrastructure, utilize your IT assets more cost effectively, and deliver improved end-user experience.

>>> **Professional Services**
A highly trained professional services engineering staff is available to assess, design and propose solutions tailored to your individual IT and business requirements.

>>> **Colocation Services**
Colocating equipment at NTT America's Premier Data Centers gives you the most advanced and conditioned facilities with state-of-the-art security, safety, performance and reliability.

>>> **Backbone Services**
Tier 1 Internet, IP-VPN & MPLS Services — The highest quality network services to deliver global connectivity.