

# SoftLayer Investments Drive Growth and Improved Customer Experience

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*A Neovise Vendor Perspective Report*

## Executive Summary

Hosting and datacenter services provider SoftLayer has experienced rapid growth by maintaining high levels of customer experience and by staying on the leading edge of the customer requirements curve. For example, by offering any combination of dedicated servers, virtualized environments and cloud computing solutions, customers have the flexibility to apply the best set of resources for any given application. SoftLayer has also recently made a new set of investments that continue to drive growth and improved customer experience:

### Datacenter expansion

- Grew three existing locations
- Consolidated headquarters and global operations
- Preparing to add additional domestic and international datacenters

### Network expansion

- Grew from three separate points of presence (POP) to ten
- Improved access to SoftLayer network via VPN services
- Added DNS farms at each of its POPs
- Added native support for Internet Protocol version 6 (IPv6)
- Increased number and quality of peering partnerships
- Improved access to high speed metro WAN services

Neovise believes that SoftLayer's commitment to innovation, automation and integration has led to continually improving customer experience, from the datacenter all the way through to the network. This is what makes SoftLayer a world class leader in on-demand infrastructure services and a top choice for the most demanding customers.

## Introduction

Since its formation in 2005, SoftLayer has grown to provide global, on-demand datacenter and hosting services from facilities across the U.S. The company delivers fully automated solutions that empower businesses with complete access, control, security, and scalability. This unique value proposition, along with best-in-class connectivity and technology, has led to high customer adoption rates and 25,000 deployed servers.

The market for datacenter and hosting services is competitive, and service providers in this space do not maintain above average growth without offering leading customer experience. But how exactly is customer experience maintained – or even defined – when service requirements increase and change so frequently? This *Neovise Perspective Report* takes a closer look at how SoftLayer's recent investments are leading to improved customer experience even while expectations are rising.

## Background

A portion of the hosting market has been and perhaps always will be commoditized. After all, the least expensive solution for a personal website may be the right answer. But when it comes to running a business website, a business application or an entire business, quality is far more important than cost. Recognizing the need for quality – which includes performance, availability, security and other attributes – many companies have relied on dedicated servers. By taking a server centric view of hosting, these companies emphasized CPU, RAM and disk capacity in their selection criteria.

As server virtualization became robust and proven, hosting customers realized they could still get high quality from virtual servers, but at lower prices. The same thing is now happening with cloud computing. Through multi-tenant architectures, automation, and pay as you go pricing, the efficiency of hosted datacenter services is increasing dramatically. This once again means greater value for customers. However, while the physical server is still the fundamental building block, it is no longer the primary unit of value. Customers today are looking for flexibility, control, security and scalability – none of which can be measured through server capacity alone.

SoftLayer continually works to meet these demands and stay on the leading edge of the customer requirements curve. By offering any combination of dedicated servers, virtualized environments and cloud computing solutions, customers have the flexibility to apply the best set of resources for any given application. With private and bare metal clouds, and SAS 70 Type II audits to back them, critical business data and resources are secured. Through its comprehensive web portal and API, SoftLayer provides unprecedented access, control and automation of datacenter resources. Yet there are still more requirements, particularly related to customer experience.

## Latest Developments

In order to provide the highest quality of experience, SoftLayer has recently completed major datacenter and network expansion projects, along with related service enhancements.

### Datacenter Expansion

During the worst economy in recent history, SoftLayer has continued to grow rapidly. While many companies focused on cost reduction, SoftLayer invested to grow each of its existing datacenters in Dallas, Seattle and Washington, D.C. By March 2010, the company's 175 employees were serving more than 5,700 customers in over 110 countries. The additional datacenter capacity is allowing these customers to continue their own growth within their existing SoftLayer IT environments.

A further expansion is currently underway with SoftLayer positioned to take over a 60,000 square foot building in the Dallas area. The new space will house corporate headquarters, a new global operations center and additional datacenter space. Having headquarters and operations under one roof will improve operational efficiencies and provide a single, consolidated view to all customer environments within all SoftLayer datacenters. The company is also on track to add an international datacenter as well as another domestic datacenter in 2010.

## Network Expansion

Ultimately, SoftLayer customers must deliver high quality services to their own customers – the end users. Yet, when compute or storage is located in a remote datacenter, the network becomes a far greater determinant of end user experience. If the network is slow, so will be the services to the end user. Prior to expanding its network, SoftLayer had three separate points of presence (POP), one for each of its existing datacenter locations. As shown in the diagram below, there are now ten total POPs.



**Diagram 1** - SoftLayer datacenters and POPs, April 2010

## VPN Services

Prior to the network expansion, customers sent traffic to SoftLayer datacenters over the public Internet. For security they could use an end-to-end VPN from their location to a SoftLayer datacenter. Now customers can use a VPN to simply access the closest POP and then rely on SoftLayer's private 20GBps fiber network the rest of the way. This approach eliminates unnecessary network hops and reduces total latency. It also improves availability by providing multiple routing options.

## DNS Services, IPv6

The Domain Name System (DNS) is a fundamental element of Internet Protocol (IP) networks. Without a properly functioning DNS, it is not possible to locate network attached resources such as servers by name. For users, DNS failures can mean that network delivered services such as websites and applications become unavailable even when they are otherwise properly functioning.

To provide a level of fault tolerance and improved performance, the DNS was architected as a distributed system. However, it is also a hierarchical system which means that a failure of one DNS server can impact all of the resources within the underlying domain. Unfortunately, distributed denial-of-service (DDOS) attacks can be used on a DNS server to impact an entire domain or sub-domain.

To protect against DDOS attacks and other DNS failures, SoftLayer has deployed DNS farms at each of its ten POPs. With information like host name to IP address mappings are served out of multiple locations, this approach provides another level of redundancy. Not only are reliability and availability improved, performance can also be greatly enhanced due to faster DNS lookups. This service is provided at no additional cost to SoftLayer customers.

Most Internet-connected networks are still using IP version 4 (IPv4) addresses. However, the supply of available IPv4 addresses is expected to be depleted within twelve to twenty four months. Because it is an expensive and time consuming process to migrate existing networks to IPv6, which offers a practically unlimited IP address space, too many service providers do not yet support IPv6. SoftLayer customers can rest easy knowing the company has been offering native IPv6 since early 2009.

### ***Increased Peering Partnerships***

Data exchanged between separate organizations over the Internet inevitably crosses multiple separately owned networks. In order to transmit data from one network through another, some form of payment is needed. The payment may be in the form of money, an exchange of services, or a combination. An example of an exchange of services is when two network owners need to send traffic through each other's networks. They can benefit by exchanging traffic and avoiding the transmission costs associated with sending data over an intermediary transit network. However, there is a catch.

In order to exchange traffic at scale, the exchanging networks must physically come together at one or more exchange points. Not coincidentally, SoftLayer now has POPs in each city in the U.S. that is considered a top IP exchange location. These cities are where the largest networks connect and exchange traffic. Still, it is not sufficient to simply be present and willing.

To earn a place in the highest value private exchanges, networks must offer sufficient mutual benefit. SoftLayer does this with its large, high bandwidth private network which is currently seeing sustained rates of 80Gbps and peaks of more than 100Gbps. The result is increased number and quality of peering partnerships. SoftLayer customers benefit from more routing options, higher performance, increased redundancy and higher capacity. End users – or the customers of SoftLayer customers – also benefit by having a “native network connection” to the SoftLayer network. For example, a Comcast customer would experience faster content download when SoftLayer peers directly with Comcast.

### ***Metro WAN Services***

Some applications require very high levels of bandwidth from end to end. However, the public Internet is not set up to deliver sustained traffic levels at Gigabit or even 100 Megabit speeds for individual applications. With SoftLayer's expanded list of POPs, it is now easier and less expensive to obtain direct, private, high speed access to SoftLayer's backbone network. Customers may choose the SoftLayer POP

location closest to their office or end users, and purchase high speed metro WAN services and cross connects from providers including Equinix and Telx. Using this approach, network traffic flows from the customer facilities over private a private metro WAN to SoftLayer's own high speed network, and the uncertainty of the public Internet is left behind. This is important for applications like streaming video, Citrix Xen desktops, cloud bursting from enterprise datacenters to SoftLayer datacenters, and many other bandwidth critical enterprise applications.

## Neovise Perspective

The requirements of business customers for datacenter and hosting services have always been challenging. They also continue to expand as more business critical workloads are moved outside the traditional corporate datacenter to hosted environments. SoftLayer has maintained high customer growth rates in this environment, in part, by staying on the leading edge of the customer requirements curve. While there are hundreds of service providers offering some form of server hosting, it isn't as easy to deliver flexible, secure, reliable and scalable server environments. For SoftLayer this has meant building an infrastructure with enterprise quality IT equipment and high levels of automation. It has also meant delivering agility and flexibility through any combination of dedicated servers, virtualized environments and cloud computing solutions.

At the same time, customer requirements outside the datacenter are now becoming more significant than ever. For many critical business applications, the network now has the ability to either improve or destroy the customer experience. In fact Neovise believes that the network is becoming one of the most important attributes as well as one of the greatest differentiators between hosting and datacenter service providers today. Just as SoftLayer's investments in datacenters, infrastructure and automation have stayed ahead on the customer requirements curve, the company's network expansion and related service enhancements are now delivering leading customer experience.

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Unfortunately, too few service providers have recognized the critical importance of the network. Many providers are still working to meet business class requirements for physical and virtual servers. Still more have not yet delivered the additional benefits of cloud computing. Among those with robust datacenter services, there remain service providers that do not operate at the scale required to provide top tier network access and services. On the other hand, SoftLayer's commitment to innovation, automation and integration has lead to continually improving customer experience, from the datacenter all the way through to the network. This is what makes SoftLayer a world class leader in on-demand infrastructure services and a top choice for the most demanding customers.

### **About Neovise**

Neovise delivers essential knowledge and guidance to key members of the IT community including IT leaders, IT staff, business executives, technology vendors, systems integrators, and service providers. While each of these roles has a separate focus, they all require value added information and advice in order to formulate winning strategies and make optimal decisions.

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