



# Dynamic Web Acceleration



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# The Total Cost of Ownership for Accelerating Dynamic Sites and Application

## Overview

A growing number of organizations are delivering mission-critical applications and dynamic content to end users – whether employees, partners, or customers – via the Internet. This shift is necessary to satisfy growing demands for anywhere, anytime access to processes and data, along with expectations for interactive site experiences. However, it's challenging for organizations to ensure that dynamic applications and content are delivered quickly and reliably – especially when users are located far from a company's origin server. Plus, dynamic content is noncacheable due to its highly personalized and time-sensitive nature, which negates the effectiveness of traditional caching techniques in speeding up performance. Unfortunately, this critical issue simply cannot be ignored – when applications and content are slow or unavailable, application adoption and usage plummet and site abandonment soars.

As organizations weigh their options for addressing this issue, most find themselves comparing the choice of building out datacenters against outsourcing dynamic web and application delivery to a content delivery network (CDN) provider like CDNetworks.

This document presents information on total cost of ownership of both options, along with critical ROI considerations, making it clear why CDNetworks Dynamic Web Acceleration solution is the smart choice.

## Overview of CDNetworks Dynamic Web Acceleration

CDNetworks Dynamic Web Acceleration is a service that enables organizations to quickly and reliably deliver applications and dynamic content from their centralized infrastructure to users around the world. Because CDNetworks' global network delivers LAN-like performance for any web traffic running over HTTP/HTTPS, it eliminates the need for organizations to build out costly datacenters.

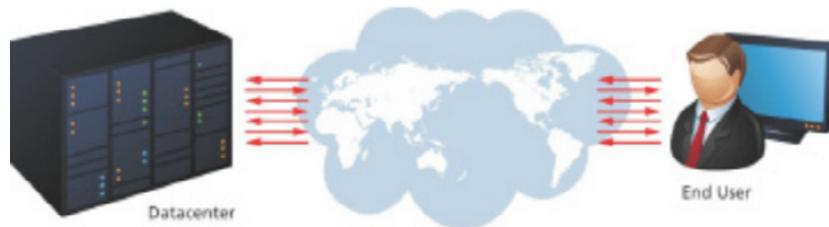
The Dynamic Web Acceleration solution uses advanced technologies to speed up and optimize the way application servers interact with the network. As a result, it overcomes the limitations of the legacy TCP/IP protocol, a narrow-band transmission protocol ill-suited to address the sophisticated delivery requirements of highly dynamic web application and content.

Using a state-of-the-art optimally tuned TCP stack across the Internet middle mile, Dynamic Web Acceleration transparently reduces response time and increases application availability. This standards-compliant solution is designed to address network latency and the request/response nature of web-based applications. By increasing TCP throughput and maintaining a pool of open connections, Dynamic Web Acceleration significantly reduces the number of round-trips between the end user and application server, thereby accelerating application response time to provide a LAN-like experience.



Figure 1. Without Dynamic Web Acceleration, the numerous round-trips required to server non-cacheable content result in unacceptable delays.

Figure 2. Dynamic Web Acceleration optimizes data transfers to ensure dynamic content is delivered quickly.



## Total Cost of Ownership to Build Out Datacenters and Deliver Distributed Applications

Most businesses recognize the value of extending the reach of applications and business processes and delivering personalized, timely content. But few consider all that is required to enable this strategy. Managing multiple, globally distributed datacenters housing mission-critical application servers can be expensive and resource-intensive. Moreover, to adequately ensure optimal delivery of applications and content around the world, most organizations would need to build out an inordinate number of datacenters.

## The Exorbitant Costs of In-House Dynamic Application and Content Delivery





## Fixed Costs of Building a Datacenter

- Legal fees
- Real estate
- Site construction
- Hardware
- Web and application servers
- Software licenses
- Capital costs incurred if expansion is required

## Ongoing Data Center Operating Costs

- Property Taxes
- Heating and cooling
- Electricity
- Leased lines
- Migration for software updates

## Personnel Costs

- Property Taxes
- Heating and cooling

## Total Cost of Ownership to Build Out Datacenters and Deliver Distributed Applications

Those organizations that opt to depend upon their own datacenters to manage and deliver distributed applications must evaluate the consequences of downtime and slow application server response times. After all, even a distributed datacenter architecture is subject to the unpredictable nature of the Internet unless it's complemented by advanced technologies able to monitor and route around congestion and outages. The following are factors that organizations must consider as they assess the ramifications of poorly performing or unavailable applications or web pages.

## Productivity Cost Associated with Employees

- Downtime in minutes, hours, or days
- Average number of employees accessing applications and/or pages
- Average employee salary
- Financial impact due to lost productivity

## Opportunity Cost Associated with Partners

- Downtime in minutes, hours, or days
- Average number of partners accessing applications and/or pages
- Revenues associated with application usage
- Financial impact due to lost opportunity and damaged reputation



## Revenue Lost with Customers

- Average monthly volume of site traffic/application use
- Percentage of downtime
- Average transaction value
- Percentage of abandoned transactions
- Revenue loss, both immediate and long term

## Time to Payback

Beyond basic ROI, most IT projects today must show a fast payback. By outsourcing dynamic web acceleration to CDNetworks, a typical business will realize positive net results within 90 days, versus a typical two-year time-to-payback when doing it all in house. This is because there is virtually no CapEx with CDNetworks.

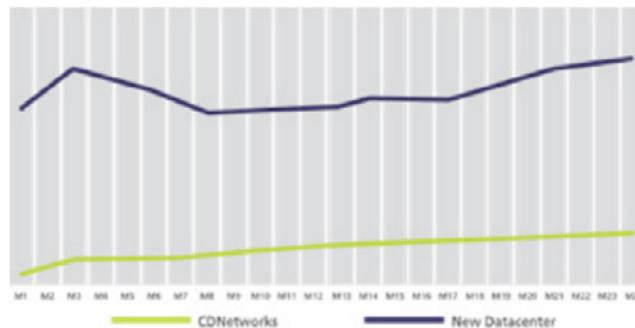


Figure 4. High capex costs associated with building a new datacenter vs. low cost of CDNetworks' Dynamic Acceleration solution.

## High-Value Business Benefits

Delivering applications and dynamic content via the Internet has become a must. But the Internet was not designed to guarantee the levels of responsiveness required to satisfy today's customers, employees, and partners. Unfortunately, it's cost-prohibitive and ineffective for a single organization to try to address this weakness by building out global datacenters. And too much is at risk to pursue this strategy.

Now organizations can cost-effectively web-enable critical business processes and satisfy expectations for a highly interactive site experience. CDNetworks has developed advanced capabilities that overcome the limitations of TCP/IP to ensure the fast and reliable delivery of dynamic content. We help our customers maximize revenue and productivity by enabling the following:

- Fast application response time
- Increased application and site usage
- Higher end-user satisfaction
- Higher adoption and conversion rates
- Brand loyalty



# About CDNetworks

Founded in January of 2000, CDNetworks Science & Technology provides global solutions and services that cover content distribution and acceleration, server hosting and renting and network optimization for ISP. It's a premier comprehensive service provider of CDN and IDC. CDNetworks was publicly listed on Shenzhen Stock Exchange in October, 2009.

Headquartered in Shanghai, CDNetworks Science & Technology also has three offices in other three global cities in China: Beijing, Guangzhou and Shenzhen. CDNetworks also has set up subsidiaries in America, Hong Kong, Malaysia, Tianjin, Nanjing, Jinan and other places all 9 of them. In Xiamen and Silicon Valley of US, it has set up a R&D center in each place. There are over 2,000 employees in CDNetworks and more than 60% of them are in research and development. Our customers cover a wide of range of industries and types of portals, from Internet companies in streaming media, gaming, e-commerce, search browsers and social media to governments, enterprises and various ISPs. At present, our customers are up to 3,000 and we are proud to say that our company is second to none in this industry in terms of number of customers and business range it covered.

Holding the Business License for Cross-region Value-added Telecommunications Business (IDC, ISP) issued by Ministry of Industry and Information Technology of China, CDNetworks Science & Technology is also a member to Asia-Pacific Network Information Centre (owning Autonomous System) and a member to China Internet Network Information Center (owning Autonomous System).

## CDNetworks Science & Technology Enjoys Many Firsts in This Industry

- First publicly listed company in China that is specialized in CDN and IDC
- The most profitable CDN and IDC company in China
- The first company in China that has developed CDN platform independently
- The first company in China that has developed the technology of dynamic acceleration
- The first company in China that has developed the CDN content distribution platform with cloud architecture
- Largest CDN content distribution platform in China in terms of scale
- The first CDN company in China that has passed the compliance certification of PCI DSS V3.0

## Quality Global Resources

A complete coverage of ISPs in China, and in cooperation with big three telecommunication companies (China Mobile, China Telecommunications, and China Unicom) and two specialized network (China Education and Research Network and China Science & Technology Network). CDN content distribution and acceleration nodes of CDNetworks cover the entire globe and besides its nearly 500 domestic nodes, CDNetworks has deployed almost 60 nodes overseas, in San Jose, Los Angeles, Dallas, Chicago, New York, London, Amsterdam, Paris, Mumbai, Singapore, Sydney and other cities. Its service has expanded to developed countries and regions in 6 continents, North America, Europe, Asia, South America, Asia and Oceania. Acceleration requirements from customers around the world can be supported with our quality resources.



## Rich Experience of Professional Experience

With 15 years of operation experience in acceleration and improvement of Internet user experience, CDNetworks is a premier service provider of Internet acceleration and it also has been serving Four Web Portals (sina.com, souhu.com, qq.com and 163.com ) for many years. CDNetworks knows clearly the basic structure and applications of the Internet in China.

CDNetworks is committed to providing its customer with one-to-one professional service and in serving many foreign and domestic big brands with quality acceleration, it has collected many years of service experience, which in turn can help us better meets customers' needs of informationization and business development.

## One-Stop Sales Network

In Beijing, Shanghai, Guangzhou, Shenzhen and other cities or regions, CDNetworks has set up subsidiaries or offices that cover regions with more than 80% of China Internet users. Business consultation and business process are available in each office of CDNetworks for 7\*24, with fast response and other one-stop sales service.