



5 MYTHS ABOUT CONTENT DELIVERY NETWORKS AND THE TRUTHS YOU SHOULD KNOW

5 CDN MYTHS | WHITE PAPER

CONTENTS

INTRODUCTION	4
MYTH 1: THE BIGGEST, OLDEST CDNs OFFER THE BEST PERFORMANCE	5
MYTH 2: MORE SERVERS EQUALS FASTER SPEED	6
MYTH 3: E-COMMERCE REVENUE DEPENDS ON PAGE SPEED ONLY	7
MYTH 4: ROBUST CDNs REQUIRE PROFESSIONAL SERVICES TO CONFIGURE	7
MYTH 5: CDNs USING TRADITIONAL DNS ROUTING ARE MORE EFFICIENT	8
CONCLUSION	9

INTRODUCTION

Every CTO knows the benefits of using a content delivery network (CDN) to deliver content to end users worldwide. According to Forrester Research, delivering web content and applications via CDN gives e-commerce sites a significant speed advantage, resulting in a direct lift in sales and profitability.¹

But which CDN provider is the right one for your organization?

Years ago, your choice of CDN providers was very limited. Today, there are many content delivery providers, each claiming to offer the fastest delivery speeds with the most robust array of options. Some of these claims are valid, while others are little more than marketing hype.

When evaluating CDN providers, it is important to cut through the myths and get down to the facts. To do that, you have to ask the right questions.

This white paper will help you sort through the myths around CDNs, learn the best criteria for evaluating CDN providers, and gain the best possible ROI from your CDN investment.

¹ *eCommerce Web Site Performance Today: An Updated Look At Consumer Reaction To A Poor Online Shopping Experience*, Forrester Research, Aug 2009

MYTH 1 THE BIGGEST, OLDEST CDNs OFFER THE BEST PERFORMANCE

Any CDN competing for today's e-commerce business must be powerful and flexible enough to keep up with many changes, as fast as they come. That's a big problem for legacy CDNs built for an obsolete version of the Internet.

Legacy CDNs were built with networking techniques and topologies that existed back in the 1990s. In those days, you used your home phone to connect to the Internet, mobile devices required a shoulder strap and Ethernet never ran faster than 100 mbps.

Those techniques served business needs well in their day. But a lot has changed over the years. Equipment has become more powerful. Web applications have become richer. Networking has become more flexible. And system architects have developed a new set of best practices far different from the ones they used 15 years ago.

Legacy providers who try to run high-performance CDNs over antiquated frameworks quickly discover that they have wired themselves into a corner. They can't squeeze any more speed out of their existing infrastructure, but they can't keep up with the newer, more scalable CDNs built from the ground up.

That leaves a legacy provider with two choices...

- Modernize their entire network, a giant rip-and-replace effort that would cost millions and risk disrupting service to clients
- Continue to operate with older, slower methods, and compete based on name recognition and marketing fluff

You can't solve today's content delivery problems using yesterday's infrastructure. The safe bet is no longer the legacy CDNs that have been around for over 15 years.

A CDN purpose-built for e-commerce using streamlined architecture and modern networking techniques will yield faster, more accurate results.

MYTH 2 MORE SERVERS EQUALS FASTER CONTENT DELIVERY

Because CDNs are in the business of serving web content from servers closest to their end users, you might think that the provider that owns the most server boxes around the globe would offer the fastest delivery times.

In fact, that's just another myth. Ownership of actual hardware has no bearing on delivery speed, thanks to a cooperative technique called "peering." Peering essentially means sharing connected resources on the Internet to ensure that content always finds the optimal route from a server to an end user.

Think of this as the difference between driving to work on a country road, and driving through a maze of city streets. If there's an accident or traffic jam on the country road, you have no other option but to sit there waiting. But in a city, you have many more choice for your morning commute. If your regular road gets blocked, you can easily bypass the slowdown and take an alternate route.

The more routes available to you, the better your chances of arriving at work on time. The same holds true for CDNs. The more networks they peer with, the faster and more reliable their content delivery will be.

Back when the first CDNs were built, peering was expensive and inefficient. Many different ISPs created many different networks, each with its own set of routing issues to overcome. As a result, a legacy CDN needed to own as many boxes as possible to work around the peering issues that plagued content delivery.

The Internet is a far different place now. End users are accessing content from a myriad of devices with all different types of connections. Audiences are far more global. End user expectations are constantly changing and can directly impact your bottom line.

This reality calls for an entirely new strategy.

Rather than try to acquire as many boxes as possible, new-generation CDNs build SuperPOPs—single locations with hundreds of servers, each optimized to peer with as many networks as possible. The net result is a faster and more efficient way to get web content from edge servers back to an individual browser, using the technologies of today instead of yesterday.

EDGECAST SUPERPOPS



MYTH 3 E-COMMERCE REVENUE DEPENDS ON PAGE SPEED ONLY

Comparing CDNs would be easy if page load times were the only metric to consider. But there are other factors to consider and some are so important that they can even trump delivery speed.

For instance, let's say your marketing department runs an effective holiday promotion. Suddenly, your website is flooded with thousands of new sales all at once. However, your back-end shopping engine isn't equipped to handle the concurrency issues, so it starts rendering an error page after customers enter their credit card information.

Rather than risk losing sales, you want your CDN configured to detect traffic signatures based on rewritten URL headers aimed at a single origin. This will allow you to float a friendly page that can be served up from cache while your back-end catches its breath in time to complete the sale.

New-generation CDNs offer this kind of re-configuration as a self-service option. This is a good thing; if you are losing sales by the second, you want this change propagated across your entire edge perimeter immediately.

But if you're using a legacy CDN with outdated architecture, that won't happen immediately. In fact, it may not even happen this week without a call to your CDN provider and a visit from their consultants. The net result is that you risk hundreds of thousands in lost sales because of your CDN's slow and inefficient configuration process.

Yes, page load time is a crucial factor in giving the end user a pleasant buying experience. But it's certainly not the only factor. On Internet time, business changes come fast and furious. Your enterprise needs a CDN that can keep up, and change business rules on the fly with a minimum latency period.

MYTH 4 ROBUST CDNS REQUIRE PROFESSIONAL SERVICES TO CONFIGURE

In this era of rapid-fire business change, you will certainly need to modify your CDN options as your business needs change. Another myth you will hear from legacy providers is that their features are so powerful and so complex that they require professional services to configure.

This myth serves their interests well, since legacy CDNs make significant revenues on professional services. For example, at the end of 2013, the largest legacy CDN had 745 technical and professional service employees billed out at \$300 per hour, earning them \$128+ million in revenue.²

But there's a more lucrative reason why CDNs aggressively market professional services to clients, and why these services make some CDNs so sticky and potentially challenging to change.

"The more of a pain it is for [clients] to integrate," explains Gartner analyst Lydia Leong, "the more they have to use recurring professional services every time they update their site, the less likely it is that they're going to move to another CDN."³

Nobody likes to feel locked in to a provider. And nobody likes to be dependent on expensive consultants to make changes to fit every urgent business change. High-volume sites cannot afford the downtime it takes to schedule, organize, and contract with an outside professional services team. There simply isn't time for all that.

IT leaders have come to expect a certain level of autonomy in the form of intuitive configuration options that the average IT staff member can set, without having to wrestle with a manual or call a help desk. That's why self-service options are so valuable.

When it comes to adjusting CDN options, IT leaders know what the firm needs far better than outside consultants. Changing a business rule should take a few mouse clicks, not a call to outside hired guns. Self-service options give CIOs the control they need to make sure the technology supports the business, not the other way around. If your CDN doesn't support self-service, it's costing you time, money, and flexibility.

² Akamai Corporation 2013 Annual Report, accessed Sept 2014 from http://www.akamai.com/html/investor/financial_reports.html

³ Lydia Leong, Cloud Pundit blog, 24 Aug 2012, accessed Sept 2014 from <http://cloudpundit.com/2011/08/23/what-makes-akamai-sticky/>

MYTH 5 CDNs USING TRADITIONAL DNS ROUTING ARE MORE EFFICIENT

As you know, the Domain Name Service (DNS) translates a human-readable URL into an IP address that directs your browser to the web page you're looking for.

Fifteen years ago, when the Internet was "young," DNS was the only way for CDNs to serve up edge-cached content. But compared to today's faster options, traditional DNS has become a digital relic.

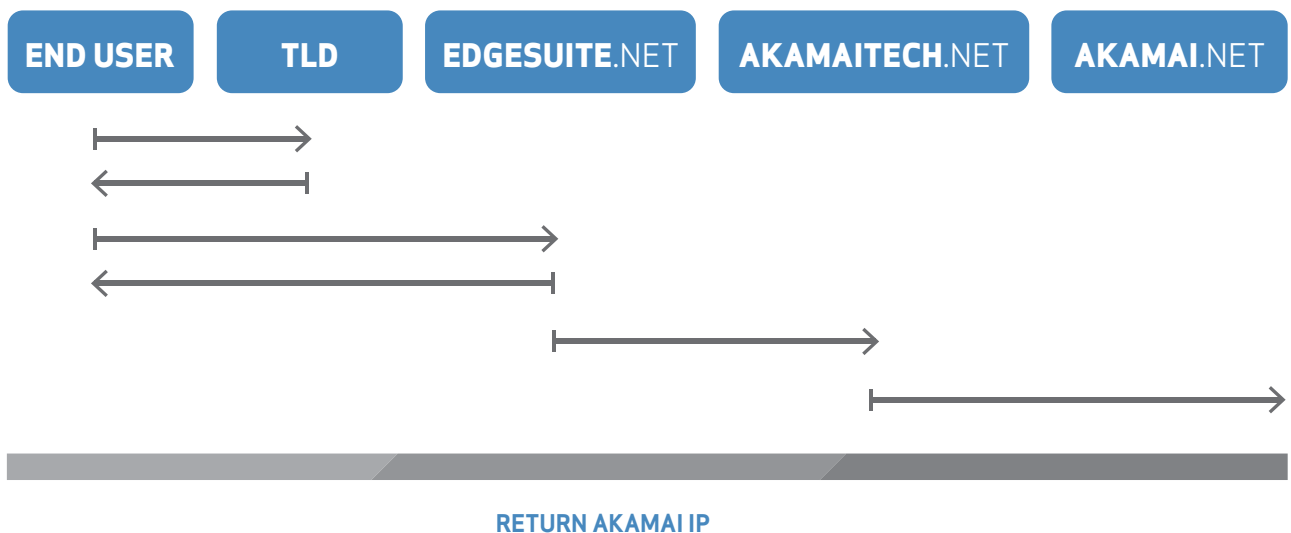
Even the "father of DNS" who invented DNS in 1983, Paul Mockapetris, admits that his system is showing its age. "It might be time for DNS 2.0," he told BusinessWeek magazine recently. "I am perfectly willing to admit that."⁴

As shown in Figure 1, in a legacy CDN, DNS implements a hierarchy of servers, each with the ability to cache certain web content. When an HTTP web request comes in, a legacy CDN performs a 3-hop lookup of the URL on a central DNS server. With the resulting IP address, the CDN checks its edge servers to see if the content is cached there.

If not, the request crawls through a series of parent servers in a further attempt to locate the requested resource. If the CDN still hasn't gotten lucky, it finally grabs the content from the original source server.

On its way back down the ladder, the CDN stores the requested content on all of the previous servers that didn't have it in the first place. This wild goose chase could result in many additional Internet hops on its way back to the user's browser, taking up a great deal of precious time and bandwidth. All in all, this isn't the smartest way to design a caching system.

FIGURE 1: DNS GRAPHIC

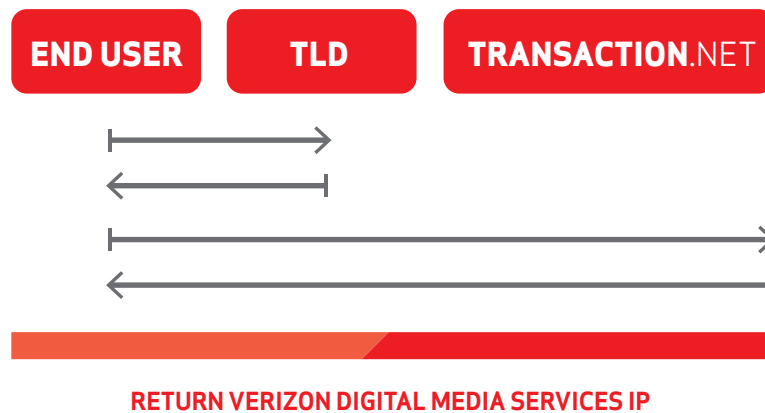


⁴ Bernhard Warner, Q&A: Paul Mockapetris, Inventor of the Domain Name System, Wants to Filter the Web, BlombergBusinessWeek, 4 Apr 2013 accessed Sept 2014 from <http://www.businessweek.com/articles/2013-04-04/q-and-a-paul-mockapetris-inventor-of-the-domain-name-system-wants-to-filter-the-web>

As shown in Figure 2, next-generation CDNs use a faster method called IP Anycast. A CDN using this method assigns the same IP address to all of its name resolution servers, using configuration options to immediately find the SuperPOP closest to the end user in only one hop. With the IP address in-hand, IP Anycast quickly determines which content-rich POP can fill the request in the fewest number of hops.

This just-in-time approach to Internet routing is quicker and far more efficient than old-style DNS. It results in fewer time-devouring hops, giving your customers faster response times. And that means a better user experience, and ultimately more online sales.

FIGURE 2: IP ANYCAST



CONCLUSIONS

It's not what you see on your monthly invoice that brings the biggest ROI from a CDN. It's what you don't see that can make or break your CDN investment.

Because of its outdated architecture and business rules, your legacy CDN may be adding unwanted latency to your online content, costing you thousands in lost sales.

Today's e-commerce organizations need a fast, yet nimble CDN with the core technologies to meet the rapidly evolving challenges of global competition. If you want to give your customers an outstanding user experience available on the Internet today, you should take a serious look at Verizon Digital Media Services and their EdgeCast Network.

Verizon Digital Media Services offer a robust suite of end-to-end solutions for superior online experiences. Built on an unparalleled modern architecture, Verizon's EdgeCast Network uses IP Anycast to peer with 2,500+ networks and route your users to the content they need with the fewest number of Internet hops. And you can change your EdgeCast settings with a myriad of robust self-service configuration options that never require outside consultants.

Why not see for yourself, and test the Verizon's EdgeCast Network against your legacy CDN today?

The benefits you could gain include a bigger sales lift, lower costs, more autonomy, and a lot fewer technical headaches than you experience today. And that's no myth.

