Ebook:

5 WAYS TO REDUCE NETWORK LATENCY

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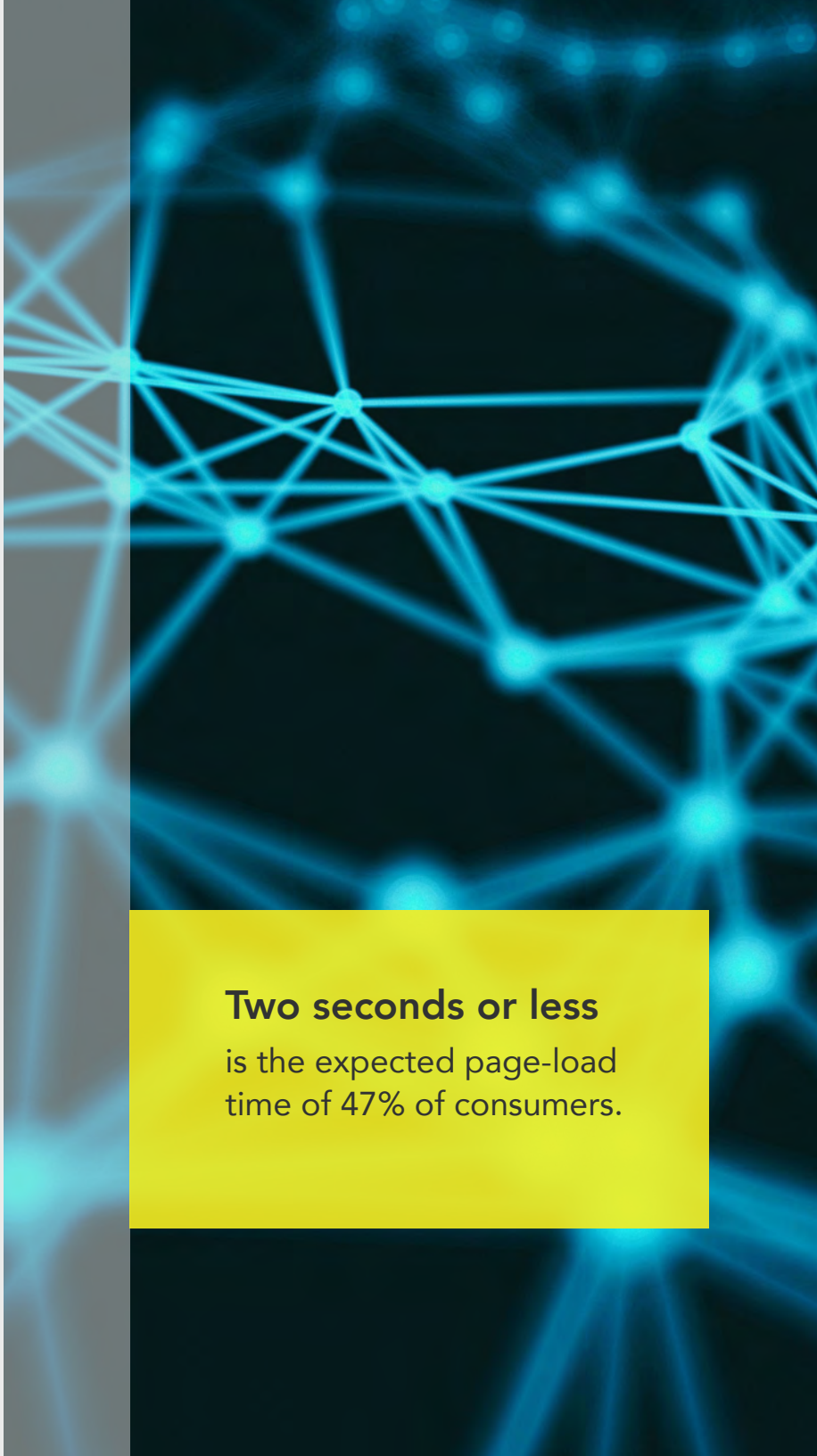
Introduction

In the past few years, the world of online digital business has dramatically changed. New features and targeting tactics are constantly being created and the number of players in the space continues to grow.

Ultimately, each provides a different service, but they can all pinpoint latency as something that can make or break the business.

Latency (the length of a delay that end users experience when trying to access content) can mean losing hundreds of impressions (and subsequently, revenue). Whether it's display, mobile, or video ads, visitors are not likely to wait around for your ad to load to see what it's all about.

With the right DNS setup, latency caused by DNS can be greatly decreased, helping you reduce the load time of your content within your network. Being mindful of the following five elements of your DNS from a managed DNS provider can greatly affect how your network performs.



1 – Using The Right Equipment

If you're not in the business of DNS, chances are that you probably don't think twice about whether or not you're using the best equipment, or whether or not you should wonder what your DNS provider has under the hood.

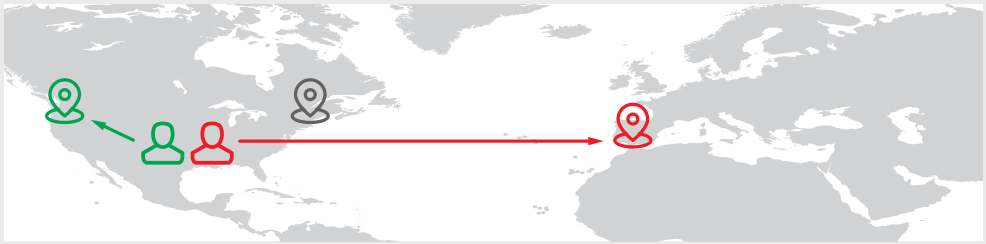
Certain equipment can help reduce delays when processing DNS queries. By analyzing the network topologies, your DNS provider should be able to determine how to reduce the number of network interfaces, routers, switches, and servers that every DNS packet must traverse. The fewer intermediaries the packet needs to pass through, the faster the resolution time, the more eyes on your content, and the more revenue you can bring in.

2 – Going The Distance

When a request is made to serve content, the information has to travel over miles of fiber optic cable to get to its end destination and populate. It boils down to about 1 millisecond of network latency for every 200 kilometers of cable traversed. The farther the server answering a request to serve content is from the end user, the more latency that user will experience.

In various cities all over the world, there are major hubs where these cables converge. Placing DNS points of presence (PoPs) in these cities allows for less distance to be traversed when the end user makes a DNS query. Removing your data centers even one hop away from a major hub (see sidebar) can add milliseconds to your resolution time. When every millisecond counts, creating your network around these major cities is your best bet at combating latency.

Latency increases with distance traversed



Poor website performance

Makes 79% of shoppers less likely to revisit a website.

Since you know your business best, you can analyze where the majority of your traffic comes from and what locations would be the most advantageous to set up shop in. For instance, if all of your customers are from the U.S. and they also primarily have U.S.-based customers, setting up a robust, global network may not be necessary, whereas if you have a global presence, you will most likely need PoPs all over the world.

3 – Routing For Success

Without proper routing, you can still see latency issues, even if you have PoPs in all the right places. Setting up anycast routing can be incredibly beneficial in the quest toward reducing latency.

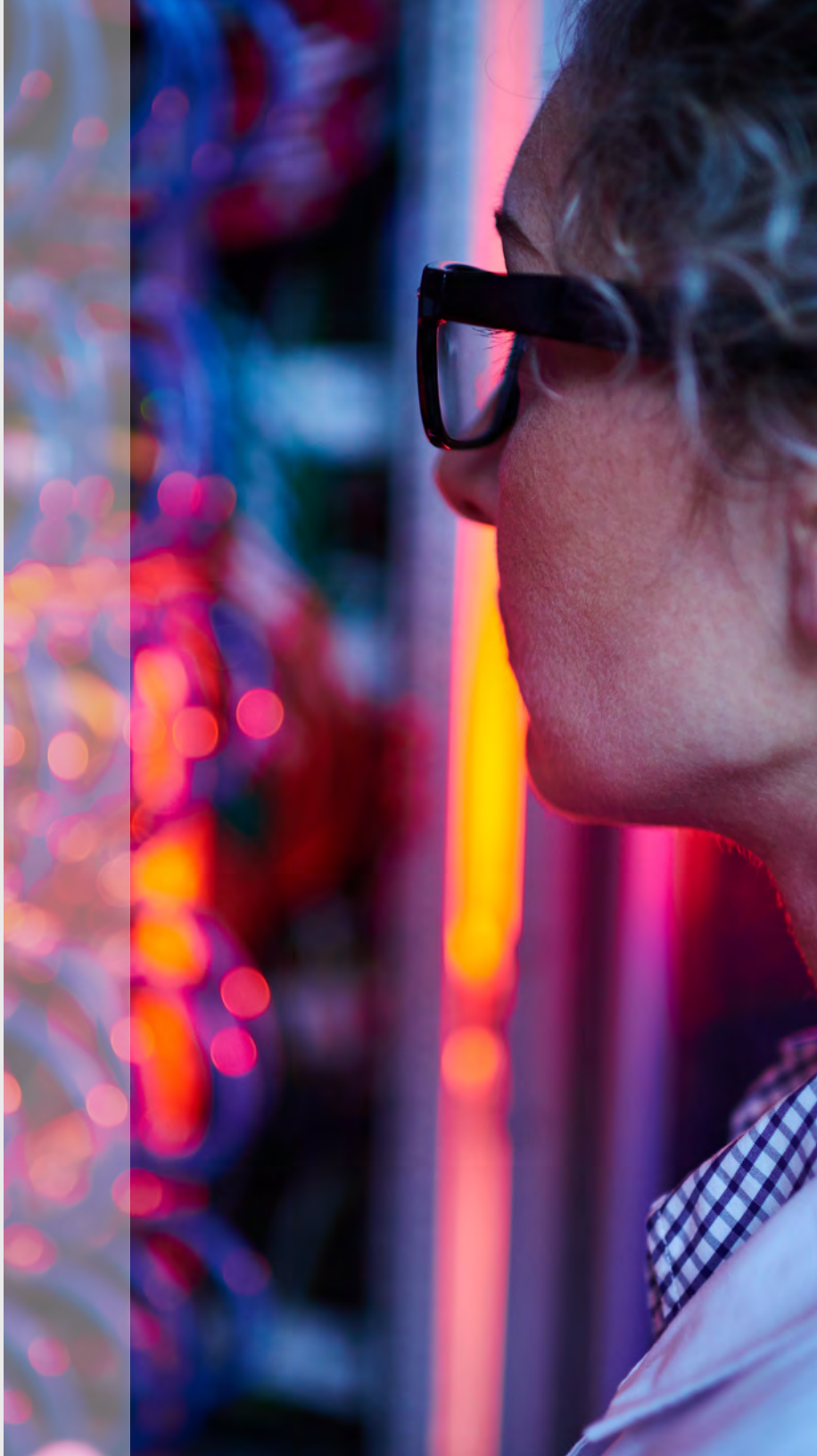
In simple terms, anycast means that when a request is made, the end user will be sent to the PoP closest to you in the network. For example, if someone from Massachusetts is trying to load content, they will most likely be sent to an East Coast data center.

A competent managed DNS provider will likely have complete control over their anycast routing system so that they can optimize the paths that their clients' customers use to connect to DNS servers. But just because a service states that it has an anycast network, it doesn't mean that you are allowed to utilize it to its full potential, so be aware of this when choosing a provider.

4 – Monitoring Your Performance

Tracking DNS performance can aid in catching problems quickly and fixing them as fast as possible so as to not greatly affect the latency of the network. While it helps to monitor internally, you or your DNS provider should also work with third-party monitoring providers. This is especially important if you are using a provider since a third party will give you an unbiased perspective.

Monitoring is especially important if you have your own clients relying on your service. Not only can website performance be affected by a problem with DNS, but the ability to send email or connect to payment gateways or other partners can be disrupted. Keeping an eye on your performance and avoiding any major interruption will keep you – and ultimately your customers – up and running.



5 – Using The Right Features

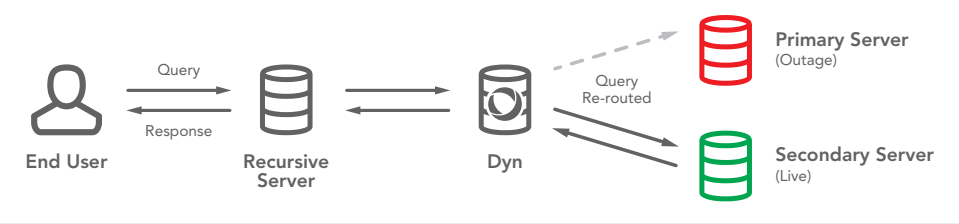
So what if you have a managed DNS provider that has the four previous points covered, but aren't sure what they offer you for features? Not all businesses are created equally and have many different reasons to need specific features than others.

A company that does business all over the world will have a greater need for global load balancing than a company that is solely U.S.-based. While both will want to route their traffic accordingly based on geography, the global company needs to be able to get more granular with their geographic rules like making specific rules based on regions, states, etc. For the U.S.-based company, it might be sufficient to just set up general geographic zone rules like East Coast versus West Coast.

Failover is another feature that will greatly benefit any network. By setting up failover, you and your customers are assured that if an outage or disruption to a server is to happen, the traffic will be seamlessly rerouted to an active PoP so that the end user is none the wiser of any disturbance.

Multiple features can be used together to get the best performance possible out of your DNS and to ensure reduced latency.

Outages are invisible to site viewers with Active Failover.



The Outcome: Reduce Latency, Increase Revenue

Implementing these different tactics can help reduce your overall network latency. While some of these points may require some investment, they will ultimately help in reducing your overall network latency. Being able to provide a seamless service to your customers will boost their confidence in your network and in turn will help you build long-lasting relationships which, along with reducing latency, has the potential to increase revenue.

Need to brush up on your DNS Lingo?
Check out our eBook on DNS Terminology at: **hub.dyn.com**

Terms Defined:

Latency is the length of delay end users experience trying to access content online.

Hop is each time a packet has to go from one resolver to another. The less hops, the faster the resolution time.

Anycast DNS is a way to route your traffic to the fastest nameserver on the network.

Rethink DNS.

Oracle Dyn is global business unit (GBU) focused on critical cloud infrastructure. Dyn is a pioneer in DNS and a leader in cloud-based infrastructure that connects users with digital content and experiences across a global internet. Dyn's solution is powered by a global network that drives 40 billion traffic optimization decisions daily for more than 3,500 enterprise customers, including preeminent digital brands such as Netflix, Twitter, LinkedIn and CNBC. Adding Dyn's best-in-class DNS and email services extend the Oracle cloud computing platform and provides enterprise customers with a one-stop shop for infrastructure as a service (IaaS) and platform as a service (PaaS).

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