



CLOUD BASED DNS: THE MISSING LINK IN A TRULY CLOUD OPTIMIZED ENTERPRISE

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The cloud is soaring in popularity, as more and more enterprises leverage the various advantages on offer. Enterprises gain big through the pay-as-you-go pricing, global scale, and reliable performance offered by cloud-based systems.

However, even as most enterprises understand the benefits on offer, many are yet to embrace the cloud wholeheartedly. Many enterprises, despite migrating resources to the cloud, cannot reap the full potential benefits. A major reason behind such lackluster relationship with the cloud is many enterprises continuing with their legacy or in-house Domain Name System (DNS) service.

The Importance of DNS

Domain Name System (DNS) is a distributed and hierarchical internet database that maps human-recognizable and visible URLs to numerical IP addresses. It is the critical link between the all-important users and the business. The first interaction of a user with a company's online service is invariably a series of DNS queries, with such queries directing the user to the correct website or email inbox.

Many enterprises underestimate the importance of DNS, regarding it as a minor issue. However, the DNS is just as important as storage and web hosting, and can have far reaching implications. The DNS choice may inhibit the enterprise from leveraging the cloud fully, and also expose it to the risk of **cyber attacks** and various other inefficiencies. The benefits of having websites and applications running on optimized and powerful infrastructure can be rendered to naught if such resources are served by an inadequate, latency-causing, and downtime prone DNS.

Cloud-Based DNS Prevents Downtime

The efficacy and performance of the DNS have a direct influence on how quickly a website loads, how smoothly a user navigates the website, and whether a company's online resources remain online always.

Downtime can be expensive. DNS failure causes downtime and poor performance, leading to website slow down. Eventually the website, complete with its applications, data and content becomes unavailable, and causes user frustration, lost sales, and often irrevocable damage to the business reputation. Estimates drawn up by the Information Technology Intelligence Consulting research suggest that one hour of downtime costs an enterprise **more than \$100,000**, on average.

In-house or on-premises DNS are mostly single-server solutions with a limited number of DNS nameservers, deployed in very few data centers. Such set-ups are easy to establish, but remain highly susceptible to outrages and downtime, as they have limited global reach, poor visibility, and comparatively retarded availability.

The DNS requests made by the user resolve to a single physical location, with the company having no control over the location selected by the DNS service. A user in New Zealand could very well be served by a nameserver in the United Kingdom, selected randomly, resulting in a degraded user experience, and more chances of downtime. When the data center to which the user is directed is not able to provide a good experience, the entire user experience is degraded. Not only the initial page load but all subsequent page loads, including downloads, will be slow.

Businesses would do well to add or even migrate entirely to a

cloud-based DNS service, to mitigate the inefficiencies of the on-premises DNS. A cloud-based DNS offers abundant services, such as failovers, reduced latency, and the ability to balance traffic between content delivery networks (CDNs) or across regions. Reputed cloud-based servers have an international network of DNS nameservers hosted in data centers spread across the globe, with multiple bandwidth providers.

While in-house DNS solutions mostly use a unicast network, cloud-based DNS services largely leverage “anycast,” a geographically distributed network. The intelligent anycast network routes DNS queries intelligently to the closest topological location rather than any random location, to deliver consistently high performance for users, at all times, and at all locations. The admin may set policies to direct users to the desired location, automatically. For example, the website admin could make sure all users in mainland Europe are directed to the Zurich data center, and in the eventuality the Zurich data center is down, redirect to the Glasgow rather than far-off San Francisco data center.

Sending requests to the “best” or the desired data center is only part of the equation. Although a data center may be the best location



depending on its geographic proximity, conditions within that center could degrade due to many reasons. Smart cloud-based DNS providers either reduce the percentage of traffic to such a degraded data center or reroute all traffic to other locations. Routing traffic to other data centers enables IT teams to work on improving the conditions within the affected data center without worrying about downtime.

The business empowered to make such decisions and preempt downtime, based on real-time conditions, perfectly suits the needs of a highly fluid business environment, making cloud-based DNS a source of competitive advantage.

Incidentally, despite the critical importance of DNS and the potential havoc of downtime, DNS failure is surprisingly commonplace. Aberdeen estimates **about 78% of enterprise websites** suffering four or more disruptions per month. As more-and-more businesses shift from on-premises DNS to cloud-based DNS, this figure will go down.

Cloud-Based DNS Boosts Security

There are specific security concerns related to DNS, considering DNS servers are especially susceptible to distributed denial of service (DDoS) attacks, among other threats. About 2/3rd of all DNS-related troubles are owing to DDoS attack vulnerability and DNS protocol security. A well-designed DNS network copes with such attacks effectively.

Designing and maintaining robust, scalable, and highly secure on-premises DNS service overcoming the common limitations, to deliver top-notch performance, however requires considerable time, money, technical expertise, and know-how. Most businesses lack such resources. Forrester Consulting estimates **less than 25% of firms**

deploying on-premises DNS as “very knowledgeable” in most DNS components or use cases. Even when businesses have such resources, they would be better off spending it to further their core competence.

Migrating to a cloud-based DNS is far easier, to get effective solutions to the issues plaguing on-premises solutions. The specialist expertise required to design and maintain robust DNS is best left to businesses whose core focus is managing DNS servers itself. In any case, the distributed architecture of the cloud offers inherent protection against DDoS attacks.

Overcoming the Migration Challenge

Apart from the specific advantages mentioned above, a cloud-based DNS offers all the conventional advantages of the cloud, such as easy deployment, flexibility, reliability, agility, near-perfect uptime, and cost-effectiveness, compared to running the same services on premise. A high degree of built-in redundancy ensures the DNS infrastructure is always available to respond to queries correctly. The utmost scalability on offer means Cloud DNS is in-effect purpose-built to address the web performance needs of enterprises. The cloud provider offers a web-based portal to simplify the DNS transfer and gain valuable insights into DNS traffic.

The scalability offered by cloud-based DNS perfectly suits start-ups. Using cloud-based DNS to navigate in real time enables a company to start small and migrate its systems in a gradual manner. For example, the company could leverage a traffic steering policy such as ratio load balancing, to keep operations running, while testing parts of its service and infrastructure, and carry out the migration gradually.

However, despite such obvious advantages of cloud-based DNS, migration challenges inhibit many companies from adopting

cloud-based DNS services.

The vendor's role is critical to the process, with two of the most important selection criteria being service and expertise.

Most businesses have limited knowledge or expertise in DNS matters, and rely on their cloud partner to configure and troubleshoot for them.

Forrester Consulting, in a survey of mid-market and enterprise firms, "The Drivers And Inhibitors Of Cloud-Based External DNS," reveals that **74% of external DNS** deployed by companies remaining on-premises. However, a majority of such firms are now open to migrating to cloud-based DNS. As the advantages of cloud-based DNS become more and more obvious, the move to the cloud is accelerating by the day. Clearly, cloud-based DNS is the future.

To know more about migrating to a cloud-based DNS, write to us at services@suyati.com

Reference

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We enable you to create insights driven customer engagement across all touch points to build a unified marketing approach. Our custom technology solutions have been deployed successfully in companies across the globe, especially in the US, UK, Europe and Australia.

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