Akamai

DNSSEC for Enhanced DNS

When the Domain Name System (DNS) was invented in 1983, it was designed to be scalable and distributed, but not necessarily secure. This made DNS vulnerable to cache poisoning, data forgery, and other DNS attacks. The Domain Name System Security Extensions (DNSSEC) was developed to make DNS more secure and establish authenticity and integrity of DNS data. Although it has been a decade since the first widely accepted DNSSEC standard was published, DNSSEC is now gaining traction with ".gov" and ".org" with the announcement to fully deploy DNSSEC by the Root Zone operators.
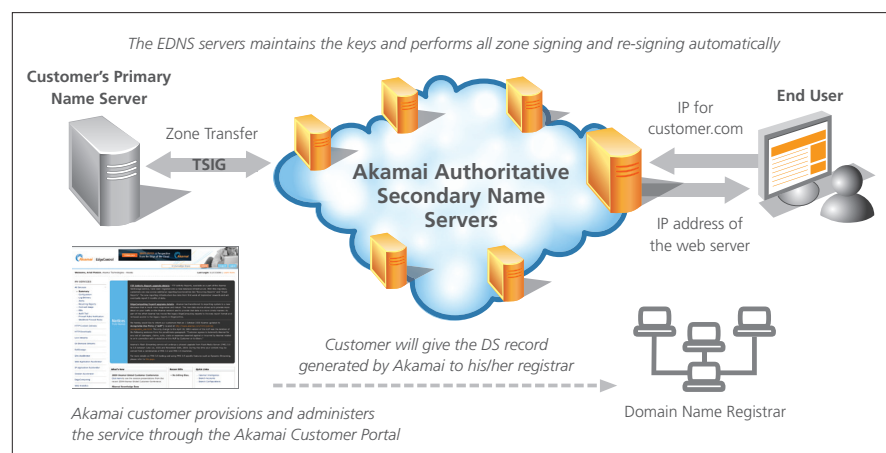
As one of the largest producers and consumers of DNS services, Akamai is rolling out support for DNSSEC. DNSSEC is now available for Akamai's secondary DNS Service, Enhanced DNS (EDNS).

Using Akamai, U.S. Government Agencies can meet the Office of Management and Budget (OMB) DNSSEC mandate even if the primary name server (master name server) is not DNSSEC ready. If DNSSEC is already implemented, agencies can utilize Akamai's EDNS service and leverage the global reach, scalability, security, and reliability of Akamai's DNS infrastructure while maintaining compliance.

In addition to government agencies, businesses and organizations can also leverage the DNSSEC service to thwart attacks by DNS impersonators and rogue DNS servers.

How DNSSEC for Enhanced DNS Works

Enhanced DNS works today by performing secure zone transfers from the customer's master name server and uploading the zones to multiple Akamai-administered name servers. For existing Enhanced DNS customers, DNSSEC can easily be enabled on Akamai's customer portal. TSIG (Transaction Signature) authentication must be configured for the customer zone transfer to Akamai to ensure that the data is authentic before signing it. And finally, the customer will have to instruct the Domain Registrar that the Akamai name servers will authoritatively resolve the customer's zone and give the Delegation Signer (DS) record to the registrar.

The EDNS servers maintains the keys and performs all zone signing and re-signing automatically

Customer's Primary Name Server

Zone Transfer

TSIG

Akamai Authoritative Secondary Name Servers

IP for customer.com

End User

IP address of the web server

Customer will give the DS record generated by Akamai to his/her registrar

Domain Name Registrar

Akamai customer provisions and administers the service through the Akamai Customer Portal

Once configured, Akamai is responsible for rotating the Key Signing Key (KSK) and the Zone Signing Key (ZSK). KSKs will be rotated annually and ZSKs will be rotated weekly. To manage the KSK and the ZSK, Akamai leverages its proven key management infrastructure used to store SSL keys for the secure content delivery service.

BUSINESS BENEFITS

Comply with OMB DNSSEC mandate: Akamai helps agencies meet the Office of Management and Budget (OMB) DNSSEC mandate even if the primary name server is not DNSSEC ready. Akamai signing solution is NIST SP 800-81r1 compliant, as required by the OMB mandate

Enhance data integrity: Akamai DNSSEC solution prevents DNS forgery by rogue DNS servers, making your DNS responses more secure and reliable

Reduce infrastructure cost and increase scalability: With Akamai solution, there is NO investment in additional hardware and bandwidth. With DNSSEC, as DNS traffic increases, Akamai provides on-demand scalability for the additional DNS traffic along with infrastructure offload

Fully Managed Service: Implementing the Akamai DNSSEC solution is as simple as checking a "Sign and Serve DNSSEC" check-box on the Akamai EdgeControl portal. The need to manage keys is eliminated and key rotations and zones do not need to be signed periodically. This results in significant reduction in operational overhead

The Akamai Difference

Akamai® is the leading cloud platform for helping enterprises provide secure, high-performing user experiences on any device, anywhere. At the core of the company's solutions is the Akamai Intelligent Platform™ providing extensive reach, coupled with unmatched reliability, security, visibility and expertise. Akamai removes the complexities of connecting the increasingly mobile world, supporting 24/7 consumer demand, and enabling enterprises to securely leverage the cloud. To learn more about how Akamai is accelerating the pace of innovation in a hyperconnected world, please visit www.akamai.com and follow @Akamai on Twitter.

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