CDN-on-Demand: An Affordable DDoS Defense via Untrusted Clouds

Abstract: CDN-on-Demand is a software-based defense that administrators of small to medium websites install to resist powerful DDoS attacks, with a fraction of the cost of comparable commercial CDN services. Upon excessive load, CDN-on-Demand serves clients from a scalable set of proxies that it automatically deploys on multiple IaaS cloud providers. CDN-on-Demand can use less expensive and less trusted clouds to minimize costs. This is facilitated by the clientless secure-objects, which is a new mechanism we present. This mechanism avoids trusting the hosts with private keys or user-data, yet does not require installing new client programs. CDN-on-Demand also introduces the origin-connectivity mechanism, which ensures that essential communication with the content-origin is possible, even in case of severe DoS attacks.

A critical feature of CDN-on-Demand is in facilitating easy deployment. We introduce the origin-gateway module, which deploys CDN-on-Demand automatically and transparently, i.e., without introducing changes to web-server configuration or website content. We implement CDN-on-Demand and evaluate each component separately as well as the complete system.

Joint work with Yossi Gilad, Michael Sudkovitch and Michael Goberman.

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