# Content Distribution Network with Web Application Firewall

(CDN with WAF)

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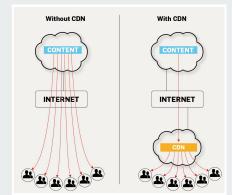
### **Project Overview**

The aim of our project is to design and develop our own version of a CDN with an emphasis on cyber security.

Motivation: CDNs can help users load websites faster by serving your static resources in nodes. Ensuring a faster response and content download time due to reduced latency.

Also, this helps to balance the load on a single server to multiple caching servers

Supervised by Akamai Technologies: Karl Redgate





#### • What is a CDN? Why is it so crucial nowadays?

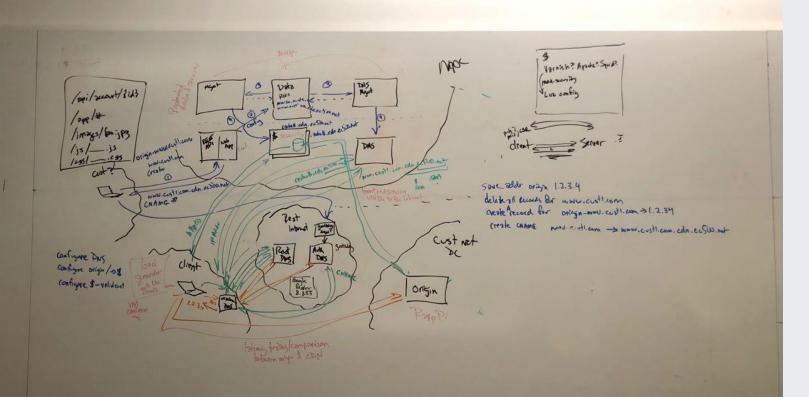
#### Features of our system:

- Use virtual machines instances on MOC OpenStack to simulate the origin server
- Dynamically balance workload across multiple computing resources
- Customize our own DNS services to guarantee best fetching speed for clients
- Develop firewall to filter and track cyber attacks
- Provide REST API to the clients for managing servers
- Provide visual interface for demo purposes, developed in React.js



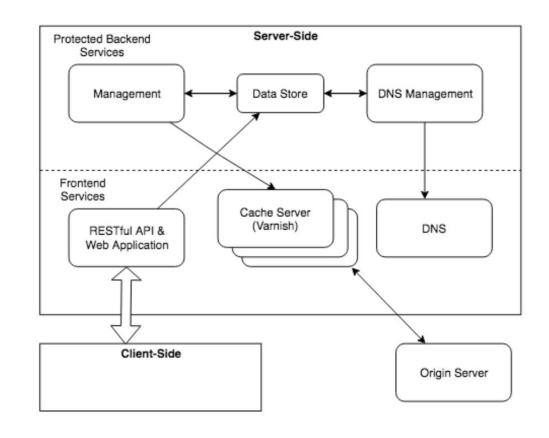
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#### **Initial Solution Architecture**

#### CDN





#### **Demo Plan**

Demonstrate Web user interface to display back-end modules and processes.

- Basic user management functions without infrastructure (Deliverable 1)
- Data Store Server (Deliverable 2)
- Management and DNS Management Server (Deliverable 2)

Demonstrate client-side usage with Cache access.

- Without load balancing (Deliverable 3)
- With load balancing but without security layers (Deliverable 4)
- With security layers (Deliverable 5)

Load Scaling Demonstration (autoscale) (bonus)



### **User Stories**

- As a website visitor, I would like low latency of this website, so that I can save my time and enjoy my free time.
- As a website owner, I would like low latency for website visitors in different area, so that my website will be more competitive and get more customers.
- As a website owner, I would like the CDN has clear API and intuitive UI design, so that I can use this CDN service simply and efficiently.
- As a website owner, I would like the CDN has firewall to filter and track cyber attack, so that my website can be safe while using this CDN service.



### On going discussion..

User Management and API: Flask vs. Django (Leaning towards Django?)
NGINX - Final performance comparison (Varnish vs NGINX load balancing test?)
TLS Support - Hitch with Varnish Caching

## Thank you, Questions?