Content Distribution Network with Web Application Firewall
(CDN with WAF)

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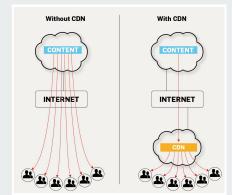Samit "Jade" Dhangwattanotai
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Project Overview

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

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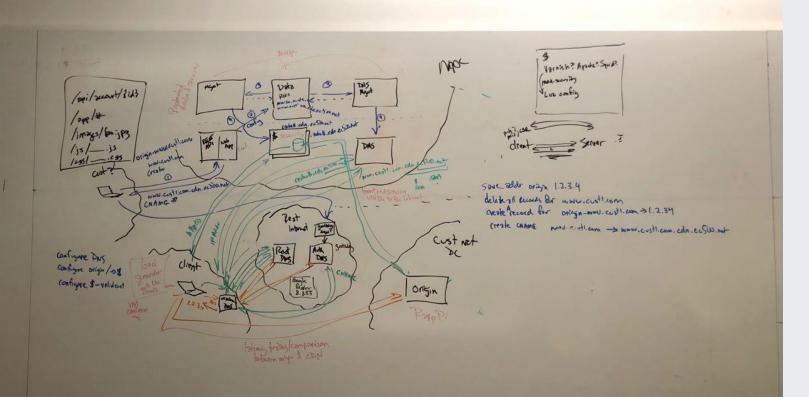- **What is a CDN? Why is it so crucial nowadays?**

- **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
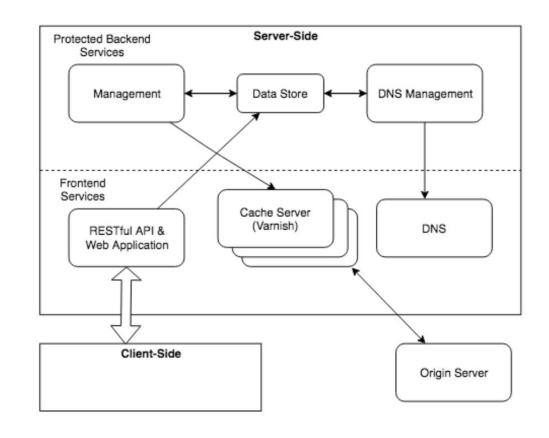 - Provide visual interface for demo purposes, developed in React.js

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..

REST API: Flask vs. Django (Leaning towards Django?)
NGINX - Intering features. (If use as cache)
TLS Support

Thank you, Questions?