Load Balancing Strategies: From Theory to Practice with HAProxy

Date & Time

- Event: sdnog weekly workshops
- Date: Saturday 19 July 2025
- Time: 13:00 - 15:30 (Sudan Time)
- language : Arabic

Intended Audience

This workshop is specifically designed for Senior Systems Engineers who are looking to deepen their understanding of load balancing and HAProxy configuration.

Description

This workshop is a comprehensive 2-hour session that includes both theoretical concepts and practical hands-on labs, with a short break about the Importance of load balancing in modern infrastructure

Instructor

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Tutor

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Agenda

Introduction (5 minutes)

- Brief overview of load balancing concepts
- Importance of load balancing in modern infrastructure

Load Balancing Fundamentals (15 minutes)

- Types of load balancers:

```
 * Layer 4 (L4) vs. Layer 7 (L7)
```

- Common load balancing algorithms:

```
 * Round Robin
 * Least Connections
 * IP Hash
```

- Health checks and failure handling

Introduction to HAProxy (10 minutes)

- Overview of HAProxy and its key features
- Architecture and components of HAProxy

HAProxy Configuration Basics (20 minutes)

- Structure of the HAProxy configuration file
- Key sections:

```
 * Frontend
 * Backend
```

- Access Control Lists (ACLs) and `use_backend` rules

Advanced HAProxy Features (20 minutes)

- SSL termination
- Sticky sessions
- HTTP rewriting and redirection
- Logging and monitoring

Live Demo: Setting up HAProxy (30 minutes)

- Installing HAProxy
- Configuring a basic load balancer
- Testing and verifying the setup
- Demonstration of advanced features

Best Practices and Performance Tuning (10 minutes)

- Optimization of HAProxy configuration
- Security considerations
- Scaling HAProxy

Session Hands-On

- Slides "click here"
- HAProxy Lab Setup Guide - Multi-OS Installation

Session's Record

https://drive.google.com/file/d/1CllH3fveQhA-ZHfFC2ydCyyHaUXE6zka/view?usp=share_link

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