

# Cloud Server Management Solution

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"Secure, scalable, and efficient hosting for your cloud projects!"

This cloud-based server management platform leverages Oracle Cloud Infrastructure, Virtualmin, and Cloudflare Zero Trust to provide a robust environment for hosting multiple websites and projects. It simplifies server management with a centralised dashboard, enhances security with a Zero Trust architecture, and ensures scalability with OCI's flexible infrastructure. Designed for efficiency, it streamlines hosting, resource monitoring, and secure access, making it the perfect solution for managing diverse cloud projects.

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## Objective:

To create a secure, scalable, and efficient cloud server management platform for hosting multiple cloud-based projects and websites. This solution integrates robust technologies to ensure ease of use, strong security, and efficient resource management.

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## Problem:

- 1. Need for Centralized Hosting:**
    - a. Hosting multiple projects and websites across different platforms was cumbersome and inefficient.
  - 2. Security Challenges:**
    - a. Ensuring secure access to servers, especially with growing cyber threats, required a modern approach beyond traditional security perimeters.
  - 3. Complex Server Management:**
    - a. Managing resources such as virtual hosts, databases, and storage for diverse projects was time-consuming without a unified interface.
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## Solution:

A cloud server management platform combining:

- 1. Oracle Cloud Infrastructure (OCI):** Provides high-performance, scalable cloud computing resources.
  - 2. Virtualmin:** A powerful web hosting control panel to streamline server management.
  - 3. Cloudflare Zero Trust:** Ensures secure, controlled access to servers.
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## Key Features:

- 1. Centralised Hosting with Virtualmin:**
    - a. Manage multiple virtual hosts, databases, and websites from a single dashboard.
    - b. Easy deployment and management of cloud-based projects and applications.
  - 2. Enhanced Security with Cloudflare Zero Trust:**
    - a. Implements a Zero Trust architecture, ensuring that only authenticated and authorised users can access the server.
    - b. Supports integration with Google OAuth and email-based authentication for added security layers.
  - 3. Scalability with Oracle Cloud Infrastructure:**
    - a. Flexible resource allocation with virtual machines (VMs) to accommodate growing project demands.
    - b. High availability and robust performance for hosted projects.
  - 4. System Monitoring and Analytics:**
    - a. Real-time tracking of CPU, memory, disk I/O, and network I/O usage.
    - b. Historical data visualisation for resource optimisation.
  - 5. Customizability:**
    - a. Host multiple SSL-enabled websites, databases, and mail domains.
    - b. Create and manage virtual servers tailored to specific project needs.
  - 6. Automation and Efficiency:**
    - a. Automated updates for software and security patches.
    - b. User-friendly file and web app management via Virtualmin.
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## Technologies Used:

- 1. Oracle Cloud Infrastructure (OCI):**
    - a. Provides the underlying cloud infrastructure for scalability and reliability.
  - 2. Virtualmin:**
    - a. A web-based server management control panel for hosting and managing websites, databases, and more.
  - 3. Cloudflare Zero Trust:**
    - a. Implements a modern security approach by enforcing strict access policies.
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## Challenges Addressed:

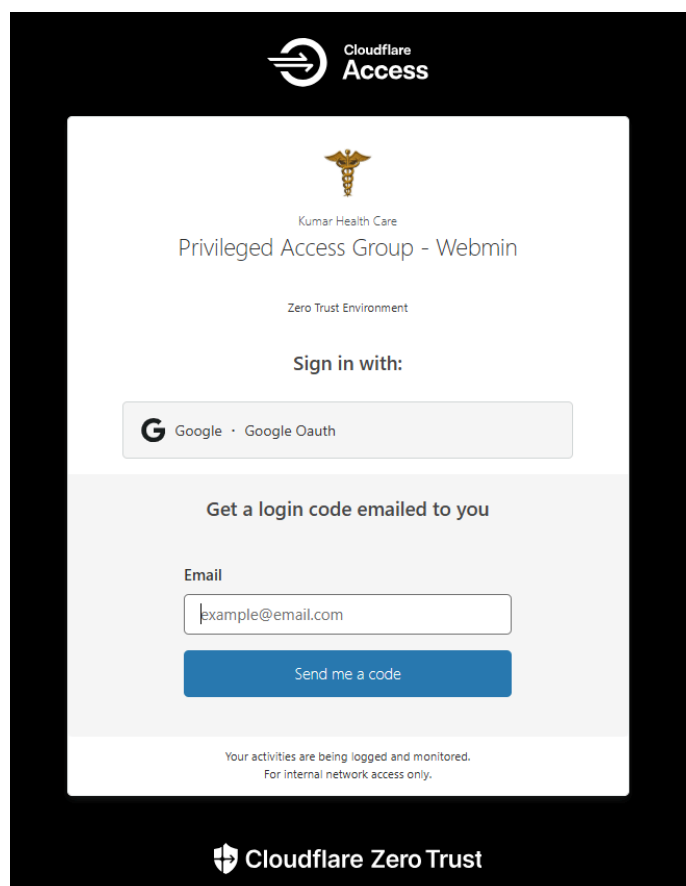
- 1. Complexity of Multi-Project Hosting:**
  - a. A unified platform reduces the overhead of managing separate environments for each project.
- 2. Security Concerns:**
  - a. Zero Trust architecture significantly mitigates risks from unauthorised access.
- 3. Scalability Issues:**
  - a. OCI's flexible VMs allow seamless scaling without downtime.

## Impact:

- 1. Streamlined Management:**
    - a. Virtualmin's interface simplifies server administration tasks.
  - 2. Enhanced Security:**
    - a. Zero Trust ensures safe access, protecting hosted projects from threats.
  - 3. Time and Cost Efficiency:**
    - a. Centralised hosting saves time and reduces costs compared to managing multiple separate environments.
  - 4. Future-Ready:**
    - a. Easily scalable for future projects, ensuring the platform grows with your needs.
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## Visual Cues:

- 1. Cloudflare Zero Trust Login Page:**
    - a. Demonstrates secure user authentication via OAuth and email.
  - 2. Virtualmin Dashboard:**
    - a. Showcases server metrics like CPU, memory, and disk usage.
  - 3. Statistics History:**
    - a. Graphs for CPU, memory, disk, and network usage trends over time.
  - 4. Virtualmin Resource Counts:**
    - a. Illustrates hosted resources, including virtual servers, databases, mail domains, and SSL websites.
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Webmin Virtualmin

### System Information

CPU

REAL MEMORY

LOCAL DISK SPACE

System hostname	<a href="#">server1234567890.com (1 / 218)</a>	Operating system	Ubuntu Linux 24.04.1
Webmin version	2.20.2	Usermin version	2.1.02
Virtualmin version	7.20.2	Authentic theme version	21.20.7
Time on system	Tuesday, November 26, 2024 9:00 PM	Kernel and CPU	Linux 6.8.0-1016-oracle on aarch64
System uptime	7 days, 9 hours, 20 minutes	Running processes	246
CPU load averages	0.64 (1 min) 0.33 (5 mins) 0.15 (15 mins)	Real memory	4.53 GiB used / 17.44 GiB cached / 23.41 GiB total
Local disk space	117 GiB used / 76.72 GiB free / 193.72 GiB total	Package updates	All installed packages are up to date



### Virtualmin Counts

Virtual servers	17
DNS domains	0
Virtual websites	16
SSL websites	13
Mail domains	4
Databases	14
Mail/FTP users	9
Mail aliases	21