Centralized Server Management

To streamline the administration of the entire infrastructure, a centralized management node was deployed. This allows for simultaneous updates, command execution, and service monitoring across all virtual machines from a single interface.

1. Master-Slave Architecture

The management system follows a Master-Slave topology where a dedicated VM acts as the orchestrator for other infrastructure components.

Role	Hostname	IP Address	Operating System
Master Node	webmin-master	10.252.252.27	Debian 13 (Trixie)
Slave Node 1	wiki-server	10.252.252.31	Debian 13
Slave Node 2	dns-server	10.252.252.25	FreeBSD 14
Slave Node 3	vpn-portal	10.252.252.109	Debian 12

2. Master Node Installation

The Master Node was installed on a clean Debian VM. The official Webmin repository was used to ensure the latest security updates.

```
# Download and run the setup script
curl -o setup-repos.sh
https://raw.githubusercontent.com/webmin/webmin/master/setup-repos.sh
sh setup-repos.sh

# Install Webmin with recommended dependencies
apt install webmin --install-recommends -y
```

3. Network & DNS Integration

To enhance usability, a local domain was assigned to the management interface.

- **DNS Record:** A new A-Record was added to the FreeBSD BIND9 server.
  - Record: `webmin.berkay.local` → `10.252.252.27`
- **Reverse Proxy (Optional):** Initial tests were performed with Nginx Proxy Manager (NPM) for SSL termination, though direct DNS resolution was preferred for internal stability.

4. Security Hardening

Strict security measures were applied to the management port (10000).

Firewall Configuration (UFW):

```
sudo ufw allow 10000/tcp
sudo ufw reload
```

Access Control: Configuration was modified in `/etc/webmin/miniserv.conf` to trust the local domain and prevent unauthorized referers.

```
referers=webmin.berkay.local
trust_real_ip=1
```

5. Centralized Operations

With this setup, the following tasks are now automated across the cluster:

- **Cluster Shell Commands:** Run `apt update` or `pkg update` on all servers at once.
- **Unified Monitoring:** View CPU, RAM, and Disk usage for all nodes in one dashboard.
- **User Management:** Create or modify administrative accounts globally.

— **Summary:** The deployment of the Webmin Master Node successfully unified the management of Debian and FreeBSD systems, reducing administrative overhead and increasing infrastructure visibility.

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