Cloud Computing Case Study: Meridian Legal Associates

Organization Overview

Meridian Legal Associates is a mid-sized law firm based in Nakuru, Kenya, specializing in corporate law, intellectual property, and employment litigation. The firm was established in 2015 and has grown from 5 attorneys to 45 employees across three offices (Nakuru, Eldoret, and Mombasa).

Current Structure:

- **25 attorneys** (partners and associates)
- **15 support staff** (paralegals, legal assistants, and administrative)
- **5 IT and operations staff**
- **3 office locations** with plans for remote work capabilities

Business Context:

The firm handles sensitive client data, including contracts, legal briefs, financial documents, and confidential communications. They are subject to attorney-client privilege requirements and must comply with various data protection regulations. The firm has been growing rapidly and needs to modernize its IT infrastructure to support collaboration, security, and scalability.

Current IT Challenges

Legacy Systems Issues:

- **Outdated email server**: Running on-premises Exchange 2016 with frequent outages
- **File sharing chaos**: Mix of USB drives, email attachments, and an aging Windows file server
- **Security vulnerabilities**: Weak password policies, no centralized authentication
- **Backup failures**: Inconsistent backup strategy with several data loss incidents
- **Website limitations**: Static website hosted on shared hosting with poor performance

Growth-Related Challenges:

- **Remote work requirements**: COVID-19 accelerated the need for secure remote access
- **Inter-office collaboration**: Difficulty sharing large files between offices

- **Client portal needs**: Clients requesting secure file sharing capabilities
- **Mobile access**: Attorneys need secure access to documents from court and client meetings

Technical Requirements Analysis

1. Email Infrastructure Requirements

Business Needs:

- Secure email for 45+ users with room for growth
- Large attachment support for legal documents
- Web-based email access
- Secure client communication

Technical Specifications:

- Minimum 25GB storage per user (scalable to 100GB)
- Support for TLS encryption and S/MIME
- IMAP/POP3 support for email clients
- Webmail interface (Roundcube/SOGo)

Compliance Requirements:

- Encrypted storage and transmission

2. Owncloud File Sharing with ZFS Backups

ZFS Benefits for Legal Environment:

- Data integrity: Built-in checksums prevent silent corruption
- Snapshots: Point-in-time recovery for document versions
- Deduplication: Efficient storage of similar documents
- Encryption: Native encryption for data at rest
- Scalability: Easy expansion as storage needs grow

File Sharing Requirements:

- Secure client file sharing portal
- Internal document collaboration
- Version control for legal documents

Owncloud Configuration:

- **User management**: LDAP integration with existing Active Directory

- **Storage**: 100GB initial capacity with expansion capability
- **Security**: End-to-end encryption for sensitive files

ZFS Backup Strategy:

- **Primary storage**: ZFS with RAID-Z2 configuration
- **Snapshot schedule**: Hourly snapshots retained for 24 hours, daily for 30 days
- **Offsite backups**: Weekly encrypted backups to cloud storage

3. Website Hosting Requirements

Website Needs:

- Professional corporate website
- Attorney profiles and practice areas
- Blog/news section for thought leadership
- Contact forms and consultation scheduling

Technical Requirements:

- **Performance**: <3 second load times
- **Security**: SSL/TLS encryption, DDoS protection
- **Scalability**: Handle traffic spikes from high-profile cases
- **CMS**: WordPress with legal-specific plugins

Hosting Architecture:

- **Load balancing**: Distribute traffic across multiple servers
- **CDN integration**: Global content delivery
- **Database optimization**: Separate database server
- **Monitoring**: 24/7 uptime monitoring
- **Backup**: Daily automated backups

Proposed Cloud Architecture

Component Integration

Open Source Email Stack:

- **Mail Server**: Postfix (SMTP) + Dovecot (IMAP/POP3)
- **Webmail**: Roundcube or SOGo
- **Spam Filtering**: SpamAssassin + ClamAV
- **Database**: PostgreSQL or MySQL
- **Web Server**: Nginx or Apache
- **SSL/TLS**: Let's Encrypt certificates

File Sharing Platform (Self-hosted Owncloud):

- ZFS storage backend with enterprise SSD pool
- Integrated with Azure AD for authentication

Website Hosting (Free/Low-Cost with Cloudflare):

- **WordPress** on AWS/Azure free tier (students can use free tier)
- **Static site generators** (Hugo, Jekyll) for cost-effective hosting
- **GitHub Pages** or **Netlify** for free static hosting
- Cloudflare Free tier for CDN and basic security
- Free SSL certificates through Let's Encrypt
- Basic DDoS protection (Cloudflare Free tier)

Domain Configuration:

- **Free subdomains**: Use services like freedns.afraid.org
- **Educational domains**: .edu domains for students
- **Test domains**: Use example.com for testing
- **Local development**: Use localhost and local DNS

Network Security:

- VPN access for remote users
- Cloudflare security layer for all web services