**Cost Analysis for the Land Pricing Tool Deployment** **Currency Conversion:** Costs are presented in USD, with INR equivalents calculated at an exchange rate of $1 = ₹85.67.

**Overview of the Land Pricing Tool**

The Land Pricing Tool is a custom-built web solution designed for the Divisional Commissioner of Konkan Division, Maharashtra. This comprehensive application enables users to upload Microsoft Word files containing land transaction details and process 7/12 land record images to compute accurate land rates per square meter. The system combines document analysis with real-time web scraping of government databases to cross-reference and validate land assessment data, delivering bilingual outputs in English and Marathi. Built using Flask and advanced Python libraries including pandas, python-docx, DocTR for OCR processing, and Playwright for automated data retrieval, it demands a robust hosting setup with GPU acceleration to support its computational, storage, and data management needs. This analysis explores two hosting options to determine the most cost-effective and practical approach.

**Hosting Option 1: AWS-Powered Infrastructure**

This option utilizes a combination of Amazon Web Services (AWS) components to power the Land Pricing Tool.

**Base Infrastructure Costs**

* **Compute Power:**
  + Service: Amazon EC2 (g4dn.xlarge instance, 4 vCPUs, 16 GiB RAM, 125 GB NVMe SSD)
  + Role: Hosts the Flask app and handles document processing.
  + Monthly Cost: $205.13 (₹17,575.49)
* **Disk Space:**
  + Using 125GB SSD provided with Compute
* **Network Access:**
  + Service: Amazon VPC (1 public IP)
  + Role: Provides internet connectivity for the app.
  + Monthly Cost: $3.65 (₹312.69)
* **Performance Tracking:**
  + Service: Amazon CloudWatch (basic metrics)
  + Role: Monitors system health and resource usage.
  + Monthly Cost: $5.00 (₹428.35)
* **Load Balancing:**
  + Service: Application Load Balancer (ALB)
  + Role: Ensures scalability and handles SSL termination.
  + Monthly Cost: $22.37 (₹1,916.64)

**Note:** Includes SSL certificate (via AWS Certificate Manager), encryption layer (via RDS and S3), and performance monitor extension (via CloudWatch) at no additional cost. Encryption for downloaded documents with a passcode and wrapper API token-wise cost are implemented in the application code, incurring no extra infrastructure cost.

**Data and File Management Costs**

* **Database:**
  + Service: Amazon RDS (MySQL, db.t3.small, 20 GB SSD)
  + Role: Stores processed land transaction records.
  + Monthly Cost: $23.67 (₹2,027.86)
* **Temporary Storage:**
  + Service: Amazon S3
  + Role: Holds uploaded Word files briefly during processing.
  + Monthly Cost: $1.64 (₹140.50)

**Total Monthly Cost for Option 1:** $263.86 (₹22,606.84) **Total Yearly Cost:** $3,166.32 (₹271,282.08)

**Hosting Option 2: Supabase-Integrated Setup**

This alternative leverages Supabase for streamlined database and storage needs alongside AWS compute resources.

**Base Infrastructure Costs**

* **Compute Power:**
  + Same as Option 1: $205.13 (₹17,575.49)
* **Disk Space:**
  + Same as Option 1
* **Network Access:**
  + Same as Option 1: $3.65 (₹312.69)
* **Performance Tracking:**
  + Same as Option 1: $5.00 (₹428.35)
* **Load Balancing:**
  + Same as Option 1: $22.37 (₹1,916.64)

**Note:** Includes SSL certificate (via Supabase), encryption layer (via Supabase), and performance monitor extension (via Supabase or CloudWatch) at no additional cost. Encryption for downloaded documents with a passcode and wrapper API token-wise cost are implemented in the application code, incurring no extra infrastructure cost.

**Data and File Management Costs**

* **Database and Storage:**
  + Service: Supabase Pro Plan
  + Role: Manages land transaction data and temporary file storage in one platform.
  + Monthly Cost: $25.00 (₹2,141.75)

**Total Monthly Cost for Option 2:** $263.55 (₹22,580.23) **Total Yearly Cost:** $3,162.60 (₹270,962.76)

**Cost Comparison Table**

|  |  |  |
| --- | --- | --- |
| **Component** | **Option 1: AWS Full Stack** | **Option 2: Supabase Hybrid** |
| Compute (EC2) | $205.13 (₹17,575.49) | $205.13 (₹17,575.49) |
| Network (VPC) | $3.65 (₹312.69) | $3.65 (₹312.69) |
| Monitoring | $5.00 (₹428.35) | $5.00 (₹428.35) |
| Load Balancer (ALB) | $22.37 (₹1,916.64) | $22.37 (₹1,916.64) |
| Database + Storage | $25.31 (₹2,168.36) | $25.00 (₹2,141.75) |
| **Monthly Total** | **$261.46 (₹22,401.23)** | **$261.15 (₹22,374.62)** |
| **Yearly Total** | **$3,137.52 (₹268,814.76)** | **$3,133.80 (₹268,495.44)** |