Dehdashti Family Graph Deployment Options

Types of Website Hosting

The following contains a brief overview of the different ways websites can be hosted. It outlines the pros and cons as well as the best use case for each type.

1. Shared Hosting

- **Overview:** Multiple websites share the same server resources (e.g., CPU, memory).
- **Best for:** Small blogs, personal sites, or low-traffic sites.
- **Popular Providers:** Bluehost, HostGator, SiteGround.
- **Pros:** Affordable, easy to set up.
- **Cons:** Limited resources, slower performance under heavy traffic.

2. Virtual Private Server (VPS) Hosting

- **Overview:** A physical server is divided into smaller virtual servers, providing dedicated resources for each user.
- **Best for:** Medium-sized businesses or websites with growing traffic.
- **Popular Providers:** DigitalOcean, Linode, Vultr.
- **Pros:** More control and resources than shared hosting.
- **Cons:** More expensive, requires technical knowledge.

3. Dedicated Hosting

- **Overview:** A single server is dedicated to one website.
- **Best for:** High-traffic websites or resource-intensive applications.
- **Popular Providers:** InMotion, Liquid Web, A2 Hosting.
- **Pros:** Full control over the server, excellent performance.
- **Cons:** Expensive, requires significant technical expertise.

4. Cloud Hosting

- **Overview:** Websites are hosted across multiple virtual servers in the cloud, allowing for scalability.
- **Best for:** Websites with fluctuating traffic or needing high availability.
- **Popular Providers:** Amazon Web Services (AWS), Google Cloud Platform (GCP), Microsoft Azure.
- **Pros:** Scalable resources, reliable, pay-as-you-go.
- **Cons:** Can get costly, complex to set up.

5. Managed WordPress Hosting

- **Overview:** Hosting optimised for WordPress, where the host handles performance, security, and updates.
- **Best for:** WordPress sites with moderate to high traffic.
- **Popular Providers:** WP Engine, Kinsta, Flywheel**.**
- **Pros:** Optimised for WordPress, hassle-free management.
- **Cons:** Limited to WordPress, higher costs.

6. Static Site Hosting

- **Overview:** Hosting for static websites, where no backend processing is required.
- **Best for:** Static websites like portfolios, documentation, or simple blogs.
- **Popular Providers:** Netlify, Vercel, GitHub Pages.
- **Pros:** Fast, simple, free/low-cost.
- **Cons:** Limited to static sites.

7. Platform-as-a-Service (PaaS)

- **Overview:** Hosting platforms that provide environments to deploy and scale apps easily without managing the infrastructure.
- **Best for:** Developers who want to focus on code rather than server management.
- **Popular Providers:** Heroku, Render, Fleek.
- **Pros:** Easy deployment, auto-scaling.
- **Cons:** Can become costly for large-scale applications.

Hosting Services

The following lists the different hosting services to get the website running. A particular focus has been given on services that offer low cost or free options. For each service a list of their tiers are provided along with the benefits and disadvantages of each.

Heroku

Heroku is a cloud platform as a service (PaaS) that enables developers to build, deploy, and manage applications. It offers a variety of plans to suit different needs.

Tiers and Payment Plans:

- **Hobby** (from $5USD/month)**:** Paid tier with increased resources for more complex applications.
- **Production** (from $0.035/hour or $25/month): Offers a scalable platform for production applications.
- **Advanced** (from $0.347/hour or $250/month**:** For “mission critical” apps with complex functionality that require high availability, low latency and high volume of concurrent requests/
- **Enterprise:** Customised solutions for large-scale applications with advanced features. That need to meet the control, compliance and collaboration needs of large scale organisations

Benefits:

- Easy deployment and management.
- Scalability and flexibility.
- Large ecosystem of add-ons.
- Reliable infrastructure.

Disadvantages:

- Can be more expensive for large-scale applications.
- Limited control over the underlying infrastructure.

Render

Render is a cloud-based platform for deploying web applications, databases, and sites. It offers a simple and intuitive interface for managing applications. Also allows for deployment straight from github repositories.

Tiers and Payment Plans:

- **Free:** This plan provides a comprehensive set of features including cron jobs for scheduled tasks, web services for dynamic applications, and static sites for fast content delivery. It also supports one-off jobs and background workers for additional task automation, offers free instances with 100GB bandwidth, and includes managed PostgreSQL for reliable database hosting. The platform ensures high availability and enables auto deploy from Git for seamless code updates.
- **Professional** ($19USD/month)**:** Paid tier for web applications with increased resources such as instant rollbacks, increased bandwidth, chat support and email support
- **Organisation** ($29USD/month)**:** Paid tier for database instances. This tier allows for audit logs and longer log retention. Also allows for autoscaling.
- **Enterprise** (Custom**:** Paid tier for sites): This is a fully custom tier where render will create a custom setting to meet your web app needs.

Benefits:

- Easy to use and manage and set up.
- Allows deployment straight from github repostirories
- Affordable pricing.
- Scalability and flexibility.
- Good performance.

Disadvantages:

- Limited customization options.
- Fewer add-ons compared to Heroku.
- Website will “spin down” after inactivity, making new requests take longer (upwards of over a minute) to execute.

Netlify

Netlify is a cloud-based platform for deploying and hosting web applications. It is particularly well-suited for static sites and serverless functions.

Tiers and Payment Plans:

- **Free:** This plan offers live site previews with collaboration UI for real-time teamwork, a global edge network for fast content delivery, and instant rollbacks for quick recovery. It includes 100GB bandwidth and 300 build minutes for moderate traffic and builds, with support for static assets and dynamic serverless functions to enhance site functionality. Ideal for single users, it provides a single member seat for account access.
- **Pro** ($19USD/month **:** This hosting plan offers robust features like background functions for server-side logic, password-protected sites for securing content, and 1TB bandwidth to handle significant traffic. It provides 25,000 build minutes, ensuring ample resources for CI/CD processes, and includes team audit logs for enhanced tracking and collaboration. Additionally, it supports organisation-owned private Git repos and offers Slack & email notifications to keep teams updated.
- **Business:** This plan includes advanced security features such as a secrets controller for managing sensitive data, and org-level SSO and SCIM for streamlined authentication and user management. It offers organisation management tools and custom billing options for flexibility. Additionally, it allows for easy deployment of new sites using org-wide themes and components for consistent branding.

Benefits:

- Excellent performance for static sites.
- Easy to use and manage.
- Strong serverless capabilities.
- Global CDN for fast delivery.

Disadvantages:

- Less suitable for complex dynamic applications.
- Limited control over the underlying infrastructure.

https://www.netlify.com/pricing/

Vercel

Vercel is a platform for building and deploying modern web applications. It offers a serverless architecture and a focus on performance and developer experience.

Tiers and Payment Plans:

- **Free:** This plan offers importing your repo and deploying in seconds, enabling quick project setup with automatic CI/CD for seamless integration and deployment. It includes serverless compute for scalable backend operations, and provides traffic & performance insights for monitoring. Security is enhanced with DDoS mitigation and a web application firewall (WAF). For assistance, community support is available for troubleshooting and collaboration.
- **Pro** ($20USD/month)**:** This plan focuses on secure team collaboration with tools for managing access and workflows. It includes frontend observability tools for monitoring and debugging, along with advanced protection features for enhanced security. The platform scales with you, offering flexibility as your project grows, and provides spend management to control costs. Email support is available for additional help when needed.
- **Enterprise:** This plan offers guest and team access controls for secure collaboration, along with SCIM & directory sync for streamlined user management. It includes managed WAF rulesets for enhanced security, multi-region compute & failover for reliability, and a 99.99% SLA ensuring high availability. For added reliability, it comes with advanced support for priority assistance.

Benefits:

- Excellent performance optimization.
- Serverless architecture.
- Strong focus on developer experience.
- Global CDN for fast delivery.

Disadvantages:

- Limited control over the underlying infrastructure.
- Can be more expensive for large-scale applications.

AWS Amplify

AWS Amplify is a comprehensive development platform from Amazon Web Services (AWS) designed to simplify the process of building and deploying full-stack web and mobile applications. It is part of the AWS ecosystem and offers integration with other AWS services.

Tiers and Payment Plans:

- **Free:** Basic tier for small applications with limited resources. Only free for 12 months and limits build hours as well as data storage and band-width
- **Paid:** Various paid tiers based on usage and resources.

Benefits:

- Integration with other AWS services.
- Scalability and flexibility.
- Strong focus on mobile development.
- Reliable infrastructure.

Disadvantages:

- Can be complex for developers new to AWS.
- Can be more expensive for large-scale applications.

DigitalOcean

DigitalOcean is a cloud infrastructure provider that offers a variety of services, including virtual private servers (VPS), managed databases, and object storage. It allows developers to build and deploy web applications on a flexible and scalable platform.

Tiers and Payment Plans:

- **Free Tier**: Deploy up to 3 static sites or apps with fast code publishing
- **Basic Tier** (starting at $5/month): Includes 1 vCPU, 512MB RAM, and 1GB SSD. Suitable for small applications.
- **Professional Tier** (Starting at $12/month): Includes 1 vCPU, 1GB RAM, and 1GB SSD. Suitable for more demanding applications.

Benefits:

- Flexible and scalable platform.
- Affordable pricing.
- Wide range of services.
- Good performance.

Disadvantages:

- Requires more technical expertise to manage compared to PaaS platforms.
- Can be more complex to set up and manage.

Google App Engine

Google App Engine is a PaaS platform that allows developers to build, deploy, and manage web applications. It offers automatic scaling, managed infrastructure, and a variety of programming languages.

Tiers and Payment Plans:

- **Standard:** Pay-as-you-go plan based on usage.
- **Flexible:** Custom pricing based on resource allocation.

Benefits:

- Automatic scaling and managed infrastructure.
- Variety of programming languages.
- Integration with other Google Cloud Platform services.
- Reliable infrastructure.

Disadvantages:

- Can be more expensive for large-scale applications.
- Limited control over the underlying infrastructure.

Recommended Hosting Option:

The basic tier from Digital Ocean will be sufficient for the web app. Whilst it does incur a cost of $5/month, the tier gives 1 vCPU, 512MB RAM, and 1GB SSD which will be sufficient for an app with a handful of users. The free tier can suffice as well, however the lack of CPU power can cause delays in requests if multiple users are active at the same time.

Services like Render, Fleek and Vercel can host the web app, however they were designed to host static web pages and tend to “spin down” when the site is not active