

**I made a website!**  
**Now what?**

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# Disclaimer

There are many great tools at CERN (OpenShift).

This presentation is not about those tools.

**This presentation is about  
external tools**





# Hosting



# Cloud hosting

## Physical server vs VPS:

- Billed for real usage (per second on AWS)
- Easy to scale



# Hosting providers

- **AWS** (EC2 and Amazon Lightsail)
  - Free tier for 1 year (2x t2.micro, 1 DB, 5GB storage, etc.)
  - *Complex pricing model*
- **DigitalOcean**
  - From \$5/month (512MB RAM, 20GB storage, 1TB transfer)
  - Additional storage from \$0.10/GB/month
- **Linode**
  - From \$5/month (1GB RAM, 20GB storage, 1TB transfer)
  - Additional storage from \$0.10/GB/month
- **Heroku**
  - PaaS: more expensive, but easier to use (less configurable)
  - 1 dyno free forever (512 MB RAM, 10k PostgreSQL rows)



# Server parameters

- **Storage** - 20GB is plenty (use AWS S3 for more)
- **Transfer** - 1TB is usually more than enough
- **CPU** - 1 CPU is fine for simple website
- **RAM** - the more the better (caching, DB, etc.)



# Cloud computing



# When a VPS is not enough

- **AWS**

- Free tier for 1 year (VPS, DB, S3, Lambda and more)
- More features than competition
- Longest time on market == more 3rd party libraries

- **Google Cloud**

- \$300 free credits to spend during first 12 months
- "Always free" tier with VPS (1 f1-micro, 30GB storage), DB (1GB NoSQL), storage (5 GB), messaging, logging, serverless functions, but also NLP, speech and vision API

- **Azure**

- 30 days free trial with \$200 free credits, some services free for 12 months and some free forever
- Good support for Windows applications



# Static websites



# When a VPS is too much

- **GitLab pages**

- Supports any static site generator
- Free Continuous Integration
- Slightly more complicated setup

- **GitHub pages**

- Supports only Jekyll (to use other static site generators, you need to precompile files locally)
- Easy, out-of-the-box setup

Both are **free** and offer separate websites for projects and organizations.



# With no back-end

- **Surge.sh**
  - Unlimited websites, custom domains and SSL for free
  - CLI and dashboard interface
  - Global CDN, clean URLs for SEO
  - Paid plan (\$13/month/project) - password protection, custom redirects, CORS
- **Netlify** - same features as Surge, plus:
  - Compatible with all main static site generators
  - Form handling
  - 1-click rollbacks
  - Assets optimization
  - Split testing



# With a *simple* back-end

- **Firebase** (free plan)
  - Hosting (1 GB stored, 10 GB/month transferred)
  - Database (1 GB and 100 connections)
  - Cloud storage (5 GB of storage, 1 GB/day bandwidth)
  - Sync data between devices (1 GB of storage, 10 GB of bandwidth)
  - Cloud functions (125K invocations per month, 40K CPU-seconds and GB-seconds)
  - Authentication
  - Analytics, performance monitoring
  - Test lab (10 test/day on a virtual device and 5 test/day on a physical device)



# Domain



# Domain providers

- **Namecheap**
  - \$10.69 for **.com**, \$12.48 for **.org**, \$32.88 for **.io**
- **Namesilo**
  - \$8.99 for **.com**, \$10.79 for **.org**, \$42.99 for **.io**
- **1&1**
  - \$14.99 for **.com**, \$19.99 for **.org**, \$49.99 for **.io**
  - **1st year:** \$0.99 for **.com**, \$0.99 for **.org**, \$34.99 for **.io**



# SSL certificate



# Let's Encrypt

The screenshot shows the Let's Encrypt website homepage. At the top left is the Let's Encrypt logo, which includes a sun icon and the text 'Let's Encrypt'. To the right of the logo is the text 'LINUX FOUNDATION COLLABORATIVE PROJECTS'. Below this are navigation links: 'Documentation', 'Get Help', 'Donate', and 'About Us'. The main content area features a large banner with a geometric background. The banner text reads: 'Let's Encrypt is a new Certificate Authority: It's free, automated, and open.' Below this text is a 'Get Started' button. At the bottom of the page, there are two sections: 'FROM OUR BLOG' and 'MAJOR SPONSORS'. The 'FROM OUR BLOG' section includes a date 'Oct 24, 2016' and a link to 'Squarespace OCSP Stapling Implementation'. The 'MAJOR SPONSORS' section displays logos for mozilla, Akamai, CISCO, and others.

Over **1 000 000** free certificates issued.

Very easy to follow **installation instruction**.

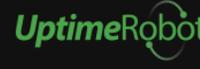


# Monitoring



# Is your website up?

 and  **StatusCake**

- Free
- 5 minutes check rate
- 50 monitors (  ) vs unlimited (  **StatusCake** )
- 1 location (  ) vs 1 random location (  **StatusCake** )
- Integration with email, webhooks, Twitter, Hipchat, Pushbullet, Slack and many more
- Content matching (  )
- Free email-to-SMS (  )
- Paid SMS packages



# Web analytics

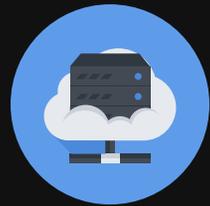


# What your users do?

- **Google Analytics** - free and packed with features, but not much privacy.
- **Piwik** - free and open source that you can install yourself.
- **Heap** - when you don't know what events you are interested in yet.



# Files storage



# Amazon S3

- Prices from **\$0.023** - **\$0.025** per GB (USA or Europe)
- Prices go down to **\$0.004** per GB (Glacier Storage)
- Transferring data out costs **\$0.05** - **\$0.25** per GB
- Free transfer of data into S3
- Free transfer of data between services (the same region)
- Plenty of plugins and libraries



**CDN**



# Pay as you go

- **Amazon CloudFront**
  - Transfer price: **0.085 - 0.25 \$/GB**
  - Free storage
  - Paid transfer between data centers and HTTP(S) requests
- **CDN77**
  - Transfer price: **0.049 - 0.185 \$/GB**
  - Free storage (up to 50GB)
  - Free HTTP(S) requests
  - Minimum recharge: **\$149** (valid for 1 year)



# Monthly plans

- **CloudFlare**
  - Free package: 3 page rules
  - \$20/month: 20 page rules
  - \$200/month: 50 page rules
- **MaxCDN**
  - 100GB/month (2 PoP): **\$9**
  - 500GB/month (3 PoP): **\$39**
  - 1TB/month (5 PoP): **\$79**
  - **\$15** per month to use PoP outside of US and Europe



# Error tracking



# Finding bugs in production

- **Sentry**
  - Free: 10k events per month, 7 days history, 1 user
  - Paid plans starting from \$26/month (100k events, 90 days history, unlimited users)
  - [Open source version](#) that you can host yourself
- **Rollbar**
  - Free: 5k events per month and 30 days history
  - Paid plans starting from \$49/month (100k events, 180 days history)
  - Unlimited users, unlimited projects
- **Airbrake** - free plan for 1 user, 25 errors/min, 30 days history



# Sending emails



# Email campaigns

- **MailChimp**
  - 12,000 emails per month for free
  - 2,000 subscribers for free
  - Transactional emails with mandrill (in paid plans)
- **SendinBlue**
  - 9,000 emails per month (max 300 per day)
  - Unlimited subscribers
  - Also transactional emails (free)
  - Transactional SMS (paid)



# Transactional emails

- **Amazon SES**
  - 62,000 free emails per month
  - Attachments: \$0.12/GB
  - Fees for receiving emails
- **Mailgun**
  - 10,000 free emails per month
  - Free incoming emails
  - Attachments up to 25MB (free)
- **SendinBlue**



# Continuous Integration



# Hosted services

- **Travis CI** (for GitHub)
  - Free for open source (public) and students
  - Paid plans starting from \$69/month
  - First 100 builds are free (total, not per month!)
- **Circle CI** (for GitHub and Bitbucket)
  - 1500 build minutes for free
  - Additional containers cost \$50/month
  - FOSS gets 4 Linux containers and OS X plan for free
- **Codship** (for GitHub, Gitlab and Bitbucket)
  - 100 builds/month free
  - Paid plans starting from \$49/month



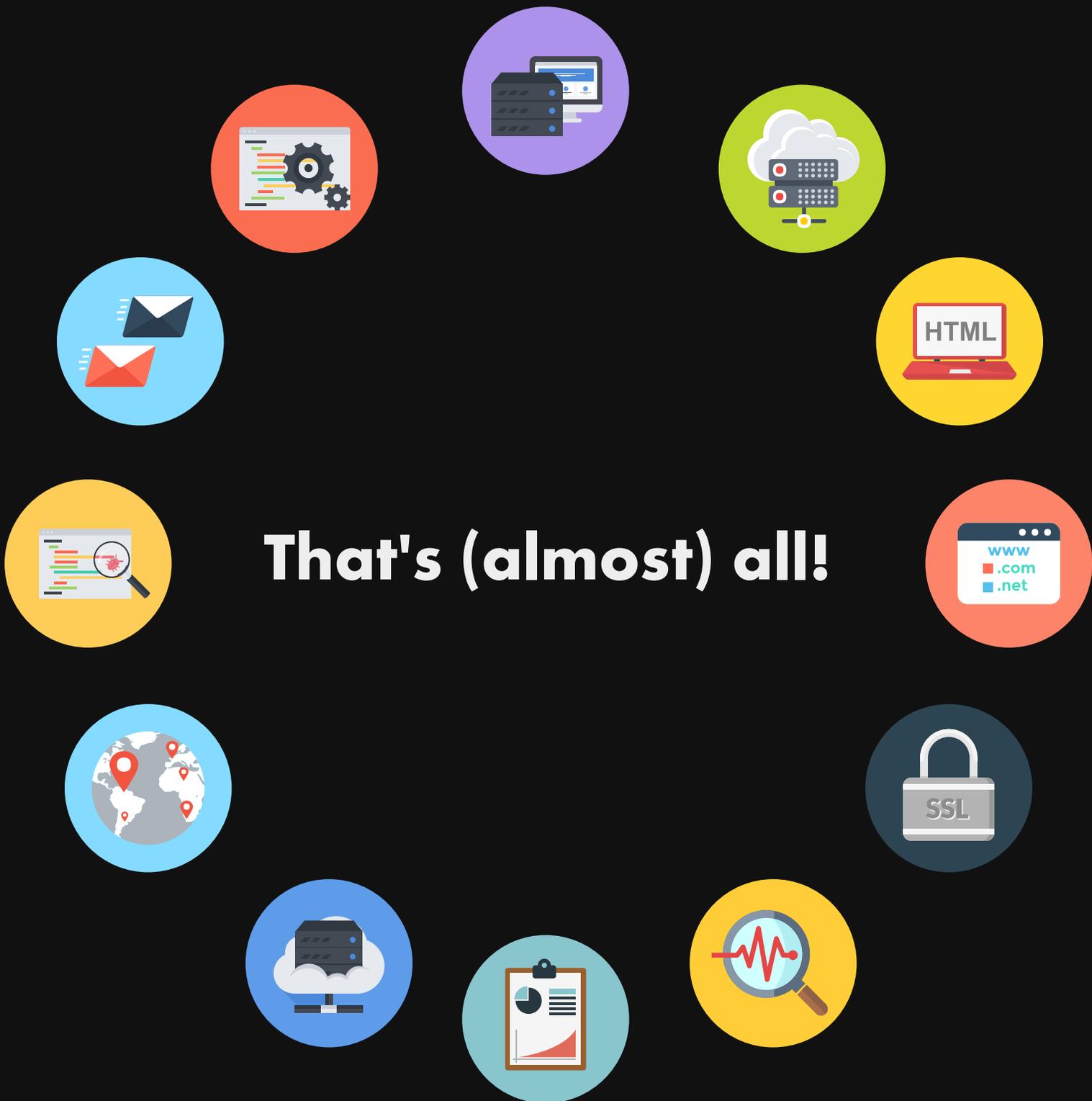
# Self-hosted software

- **Jenkins**

- Free and open source
- Self-contained, easy to install Java program
- 1000+ plugins
- Cross-platform

- **GoCD**

- Free and open source
- Paid support provided by ThoughtWorks
- Multiple plugins
- Cross-platform



**That's (almost) all!**

# Stack on a budget

The screenshot shows a GitHub repository page for 'Stack on a budget'. At the top, it indicates '255kb committed on GitHub Merge pull request #149 from ehteng/master' and 'Latest commit 2994d46 on Jun 21'. Below this is a commit history table:

File	Commit Message	Time Ago
pages	Updating Sentry's pricing	4 months ago
.travis.yml	Update travis script	7 months ago
CONTRIBUTING.md	Moves pages in a folder	10 months ago
LICENSE.md	Add MIT license	a year ago
README.md	Merge branch 'master' of https://github.com/joseluf/stack-on-a-budget ...	5 months ago

Below the commit history, the 'README.md' file is selected and displayed. The content of the README includes a title 'Stack on a budget' and a 'Table of Contents' section with the following items:

- **Activity feeds**
  - PubNub
  - Pusher
  - Stream
- **App hosting**
  - AppHarbor
  - AWS EC2
  - Azure App Service
  - GearHost
  - Gomix
  - Google App Engine
  - Google Compute Engine
  - Heroku
  - IBM Bluemix
  - OpenShift
  - Zeit Now
- **Application performance monitoring**
  - Opbeat
- **App Testing**
  - Sauce Labs

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	<b>Docker</b> Containers	<b>3.66K</b> Votes	<b>1.36K</b> Fans	<b>5.45K</b> Stacks
	<b>Heroku</b> PaaS	<b>3.07K</b> Votes	<b>1.17K</b> Fans	<b>3.09K</b> Stacks
	<b>Slack</b> Team Messaging	<b>5.82K</b> Votes	<b>2.32K</b> Fans	<b>7.6K</b> Stacks

# Student Developer Pack

**DigitalOcean** (50\$ credits), **GitHub** (unlimited private repos), **Namecheap** (free .me domain), **SendGrid** (15k emails per month), **Sentry** (500k events per month, unlimited projects), **Stripe** (waived transaction fees on first \$1000), **Transifex** (\$99 plan for free)

# Student Developer Pack

The best developer tools, free for students



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There's no substitute for hands-on experience, but for most students, real world tools can be cost prohibitive. That's why we created the GitHub Student Developer Pack with some of our partners and friends: to give students free access to the best developer tools in one place so they can learn by doing.

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**Do you know  
any tools?**



**Or do you have  
any questions?**

