



RICE[®]

Web Development

COMP 431 / COMP 531

Lecture 18: Web Hosting

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Part II – Back End Development

Homework Assignment 6
(Draft Back-End)
Due Thursday 11/16

Assignment 6: Draft Backend Web App

- Frontend Application on Surge

- Landing, Main, Profile view
- It **ALL** works
- Upload images on articles, profile picture, etc

- End-to-End Tests

- There's a list of scenarios to write

- Site Review

- Your site will be reviewed by COMP 531 students

- Backend Application on Heroku

- MongoDB
- `POST /login`
- `PUT /logout`
- `POST /register`
- `GET /headlines/:users`
- `PUT /headline`
- `GET /articles/:id`
- `POST /article`
- Stubs for everything else

- Unit Tests

- Update headline
- Add an article

http://localhost:80

- Our app is hosted “locally” and is technically accessible from the web
- Normally we want it somewhere else

Perhaps a web hosting service
They provide space on a server



Here would be good

Web Hosting

- Free
 - you get what you pay for
 - NeoCities, Weebly, WordPress, Blogger, ...
- Shared(\$5/mo)
 - one box lots of clients
- Virtual Dedicated (\$15/mo)
 - you get a VM on an otherwise shared box
 - Root, can be managed or unmanaged
- Dedicated (\$100/mo)
 - Your own physical box
 - Root, can be managed or unmanaged
- Cloud
 - VMs all the way

Static Hosting



surge

[Pricing](#) [Tour](#) [Help](#) [Blog](#) [@surge_sh](#)

Static web publishing *for* **Front-End Developers**



HostGator

Customer Portal

Web Hosting

My Account

Billing

Hosting ^{BETA}

Domains

Support

Hosting Account



Hosting
Dashboard



Email



Website
Traffic



Files &
Folders



Domains



Databases



Software &
Services



Security



SSL
Certificates



Google
Apps



Constant
Contact



Payment
Sphere

Google Apps for Work



Work smarter in the cloud

Professional email, online storage,
shared calendars, video meetings
and more. Built for business,
designed for teams.

Hosting

Control Center

Special Offers



[Cloud
Backup](#)



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- Promote
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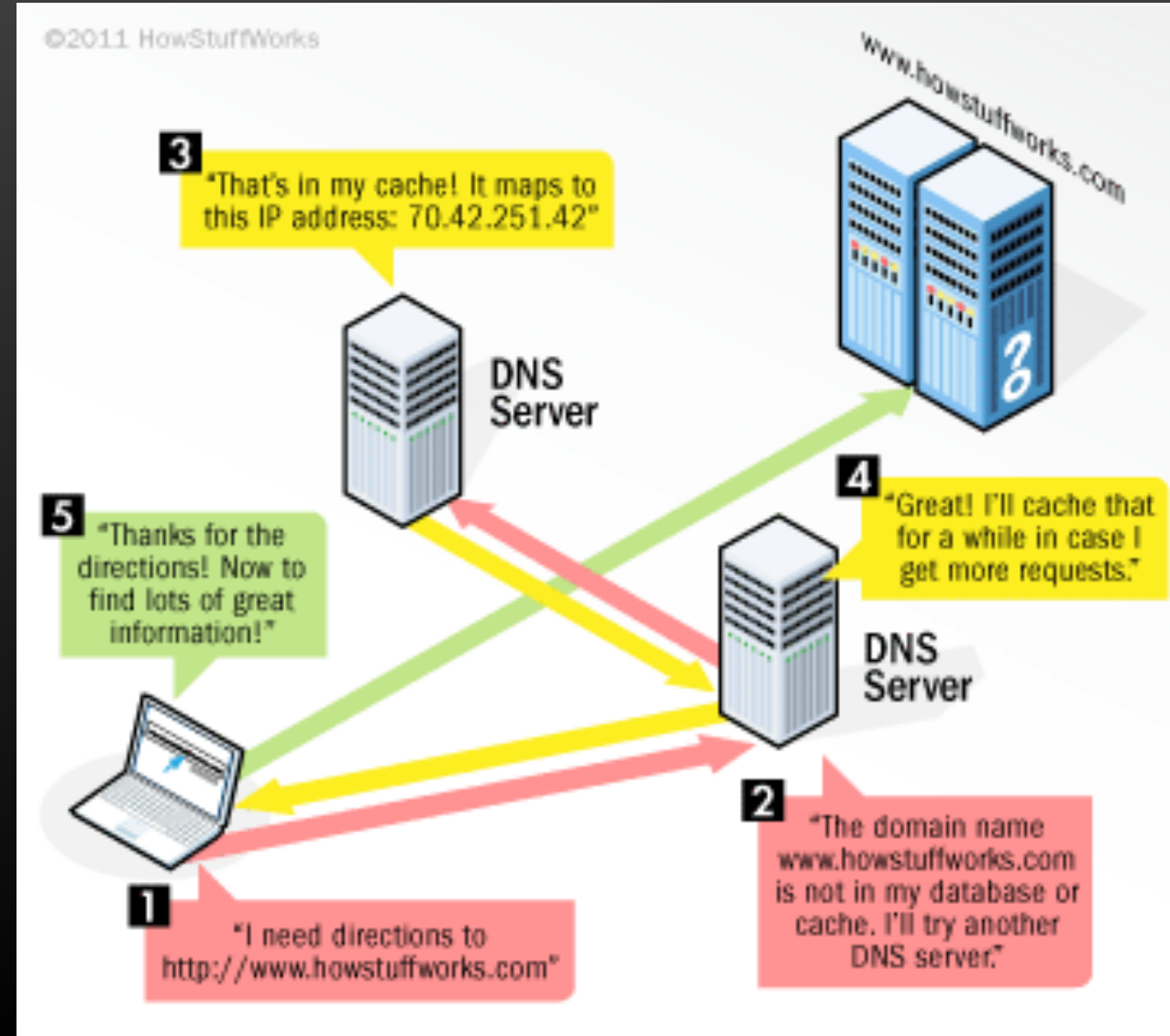


[Google
AdWords
Credits](#)

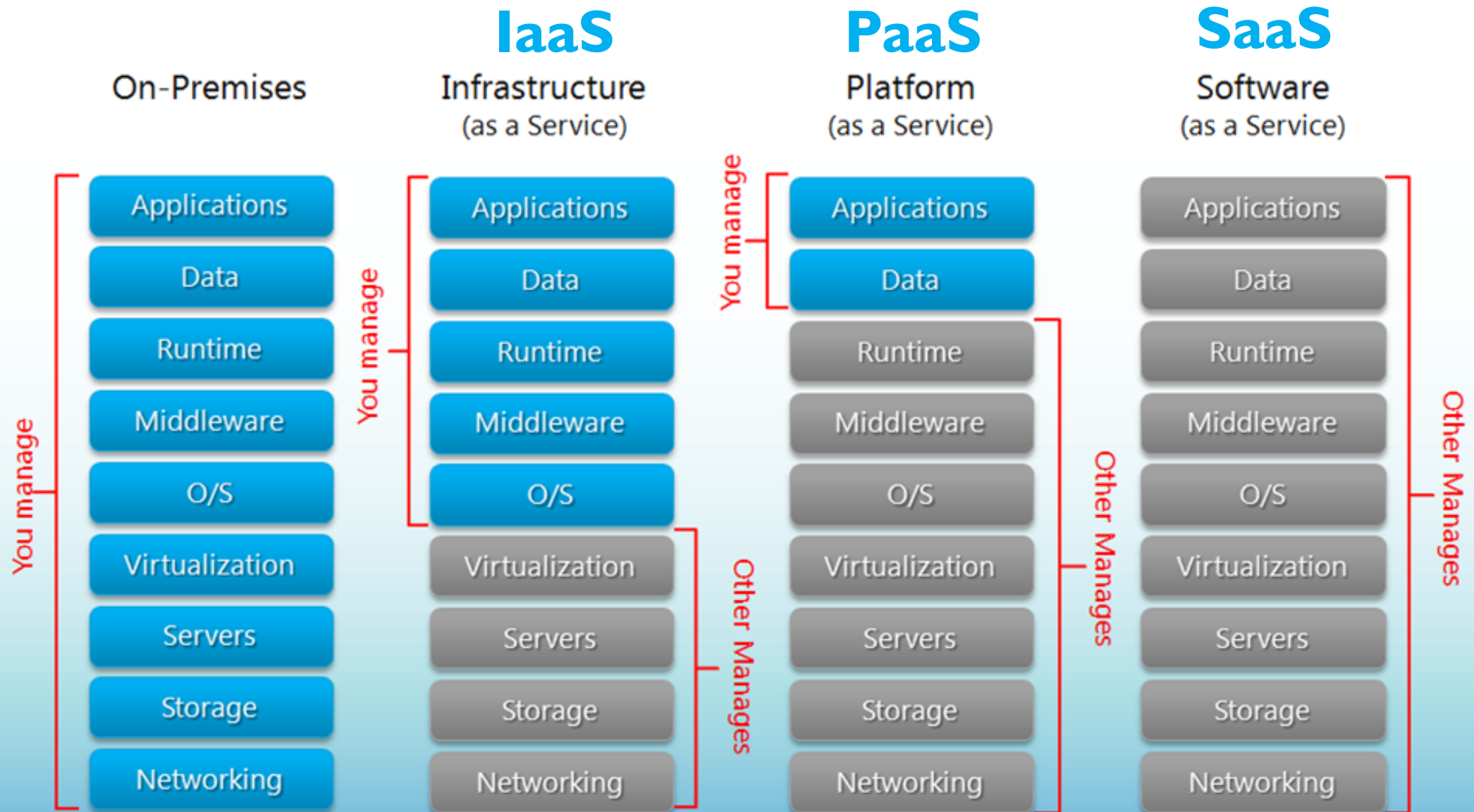
Walk Me Through

Domain Name System

- Links “name” to “IP address”
- The web hosting service provides us an IP address
- We register a name for this IP address with their DNS
 - Typically hosters will do both

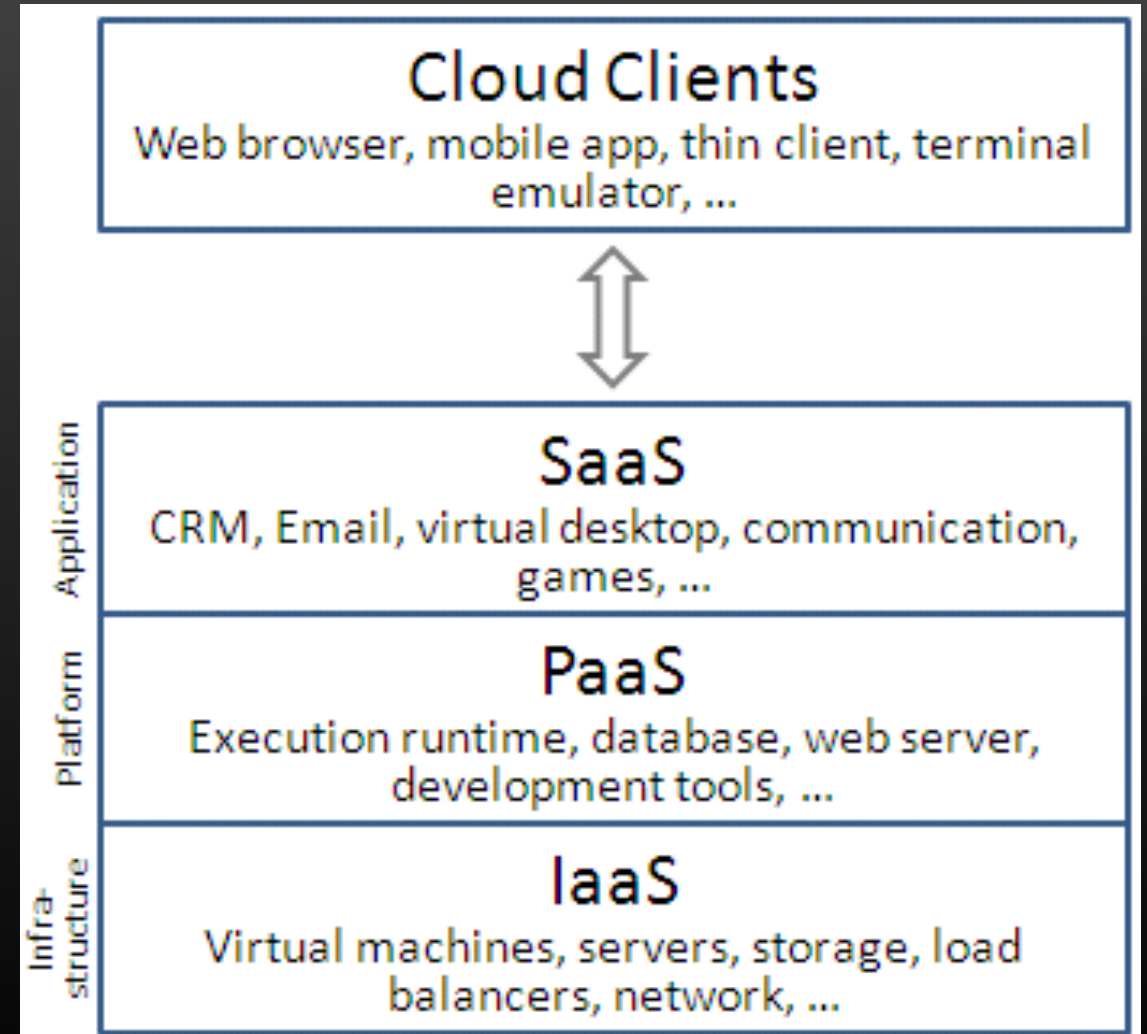


Separation of Responsibilities



Cloud Hosting (PaaS)

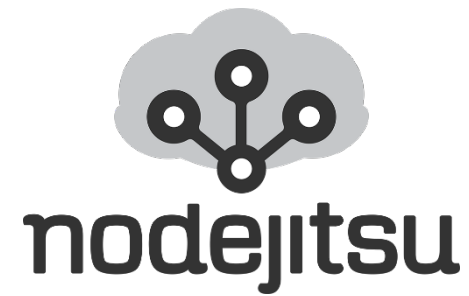
- Web hosting services act as SaaS
 - they provide you a running server
- Cloud hosting is PaaS
 - They provide you a platform
- We therefore run our own server on their box (a VM)
 - Sometimes a canned server
- As a service, they provide
 - Resiliency, redundancy, scalability, uptime, etc...



PaaS Providers

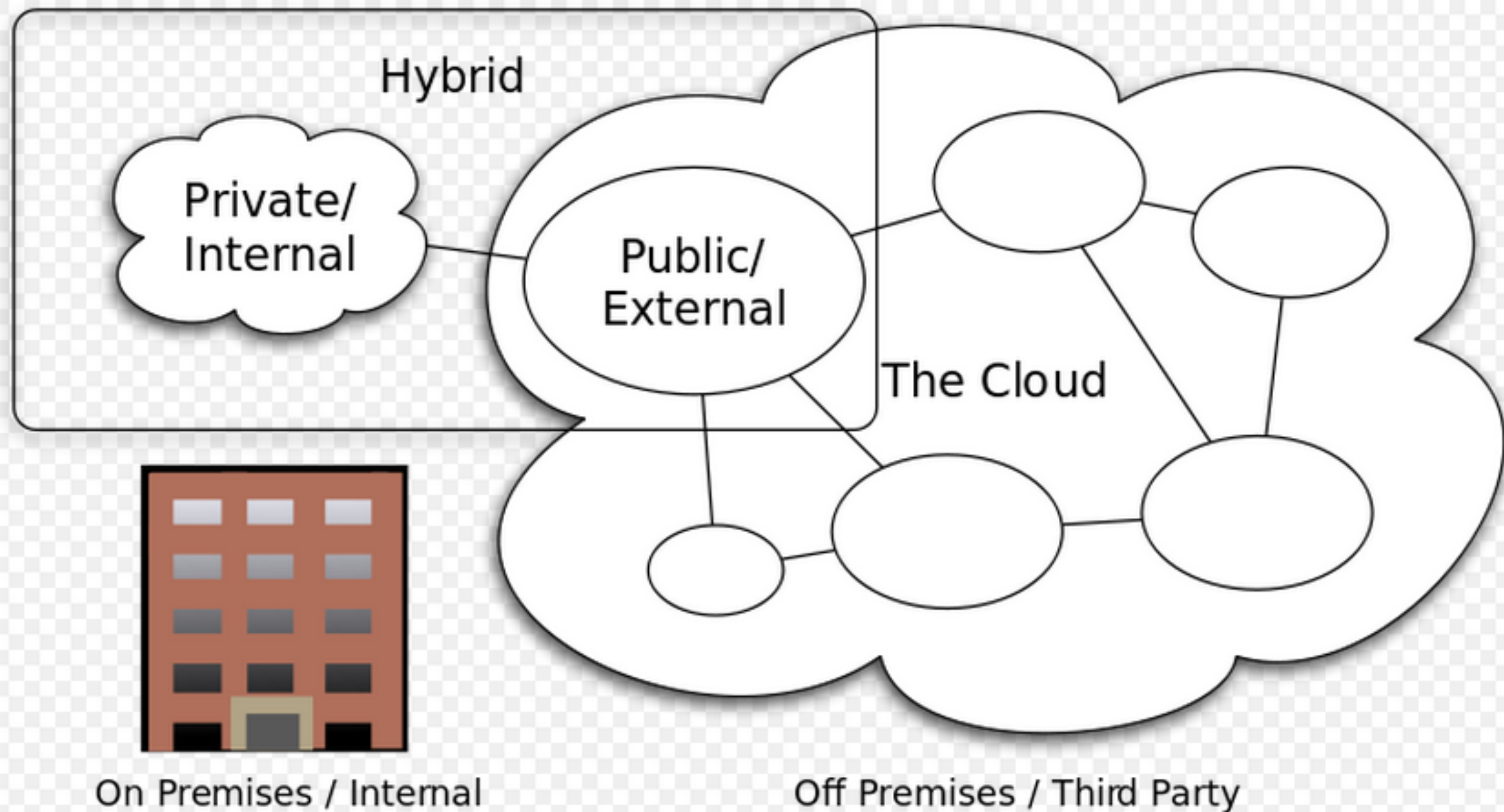


Microsoft
Azure



OPENS SHIFT








Cloud Computing Types


Amazon Web Services

Compute

 **EC2**
Virtual Servers in the Cloud


 **EC2 Container Service**
Run and Manage Docker Containers


 **Elastic Beanstalk**
Run and Manage Web Apps

 **Lambda**
Run Code in Response to Events

Storage & Content Delivery


 **S3**
Scalable Storage in the Cloud

 **CloudFront**
Global Content Delivery Network


 **Elastic File System** **PREVIEW**
Fully Managed File System for EC2

 **Glacier**

Developer Tools


 **CodeCommit**
Store Code in Private Git Repositories


 **CodeDeploy**
Automate Code Deployments


 **CodePipeline**
Release Software using Continuous Delivery

Management Tools

 **CloudWatch**
Monitor Resources and Applications

 **CloudFormation**
Create and Manage Resources with Templates

 **CloudTrail**
Track User Activity and API Usage


 **Config**
Track Resource Inventory and Changes


 **OpsWorks**
Automate Operations with


Internet of Things


 **AWS IoT** **BETA**
Connect Devices to the cloud

Mobile Services

 **Mobile Hub** **BETA**
Build, Test, and Monitor Mobile apps


 **Cognito**
User Identity and App Data Synchronization

 **Device Farm**
Test Android, Fire OS, and iOS apps on real devices in the Cloud

 **Mobile Analytics**
Collect, View and Export App Analytics

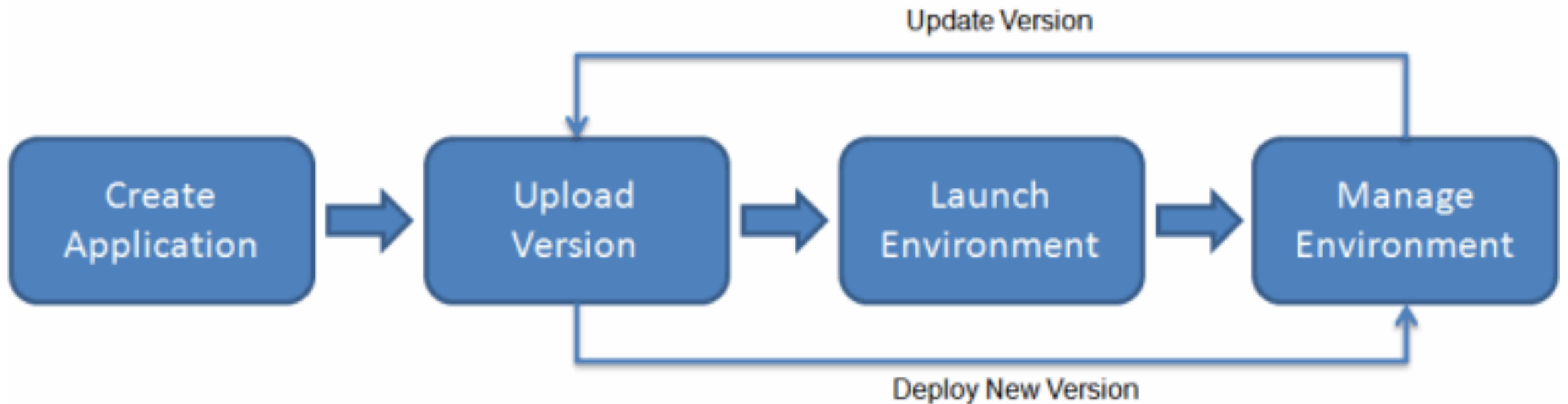
 **SNS**
Push Notification Service

Application Services

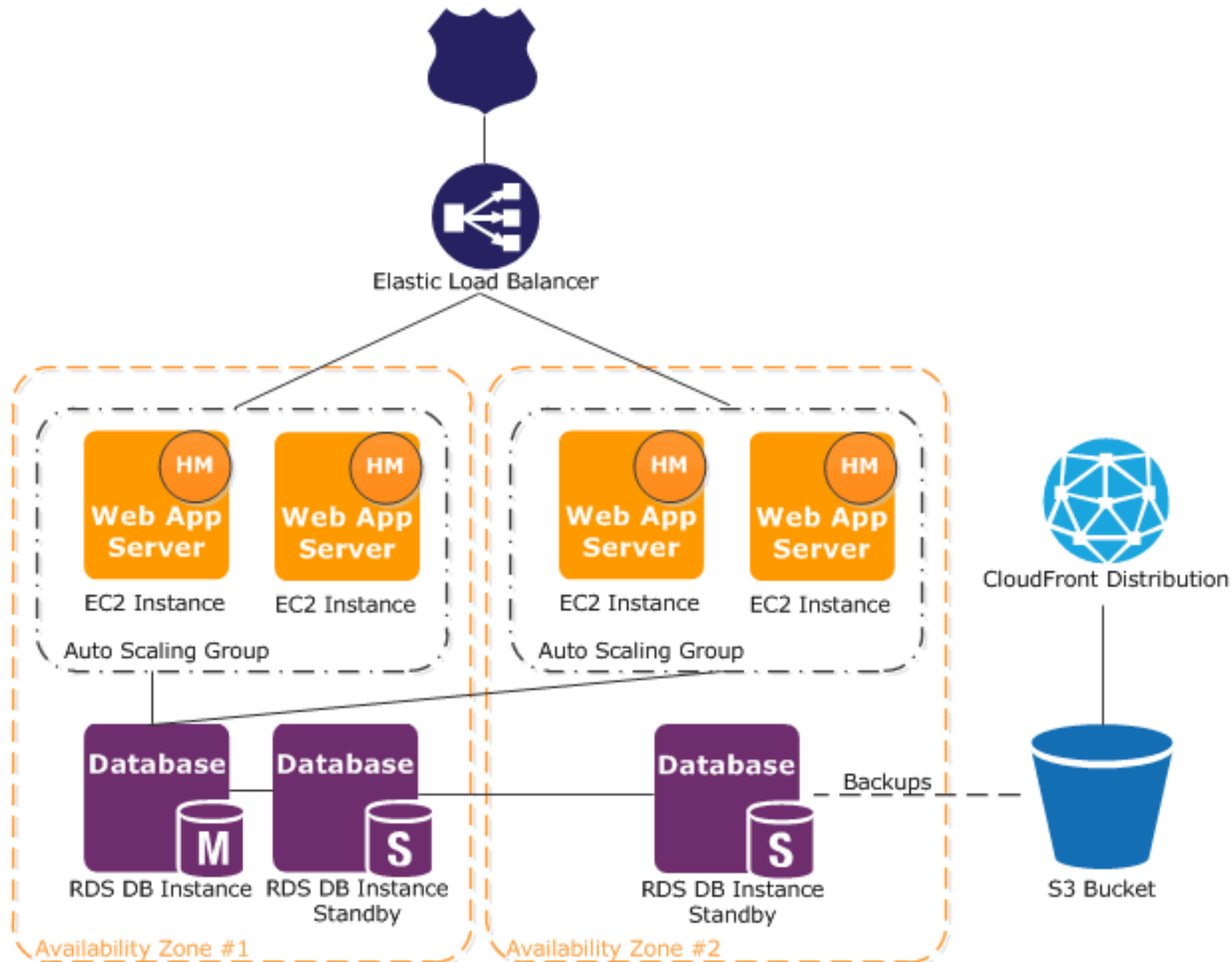
 **API Gateway**
Build, Deploy and Manage APIs



PaaS Usage in Practice



MyApp.elasticbeanstalk.com



Amazon Web Services

Amazon S3 Pricing

Standard Storage

First 1 TB / month \$0.0300 per GB

Free Tier*

As part of AWS's Free Tier, new AWS customers can get started with Amazon EC2 for free. Upon sign-up, new AWS customers receive the following EC2 services each month for one year:

- 750 hours of EC2 running Linux, RHEL, or SLES t2.micro instance usage
- 750 hours of EC2 running Microsoft Windows Server t2.micro instance usage
- 750 hours of Elastic Load Balancing plus 15 GB data processing
- 30 GB of Amazon Elastic Block Storage in any combination of General Purpose (SSD) or Magnetic, plus 2 million I/Os (with Magnetic) and 1 GB of snapshot storage
- 15 GB of bandwidth out aggregated across all AWS services
- 1 GB of Regional Data Transfer

Amazon EC2 Pricing

On-Demand Instance Prices

| | vCPU | ECU | Memory (GiB) | Linux/UNIX Usage |
|------------|------|----------|--------------|------------------|
| t2.micro | 1 | Variable | 1 | \$0.013 per Hour |
| t2.small | 1 | Variable | 2 | \$0.026 per Hour |
| t2.medium | 2 | Variable | 4 | \$0.052 per Hour |
| t2.large | 2 | Variable | 8 | \$0.104 per Hour |
| m4.large | 2 | 6.5 | 8 | \$0.126 per Hour |
| m4.xlarge | 4 | 13 | 16 | \$0.252 per Hour |
| m4.2xlarge | 8 | 26 | 32 | \$0.504 per Hour |

\$5 /mo
\$0.007 /hr

512MB Memory

1 Core Processor

20GB SSD Disk

1TB Transfer

SIGN UP

\$10 /mo
\$0.015 /hr

Most Popular Plan

1GB Memory

1 Core Processor

30GB SSD Disk

2TB Transfer

SIGN UP



Free

Ideal for experimenting with cloud applications in a limited sandbox.

SLEEPS AFTER 30 MINS OF INACTIVITY

MUST SLEEP 6 HOURS IN A 24 HOUR PERIOD

CUSTOM DOMAINS

512 MB RAM | 1 web/1 worker



Free



Hobby

Perfect for small scale personal projects and hobby apps.

ALL FREE FEATURES +

NEVER SLEEPS

MULTIPLE WORKERS FOR MORE POWERFUL APPS

512 MB RAM | 10 Process Types

\$7 per dyno/month
prorated to the second