Cloud Technologies

Ancestors (hosting)

- University/Company page/server hosting

AWS and modern cloud computing

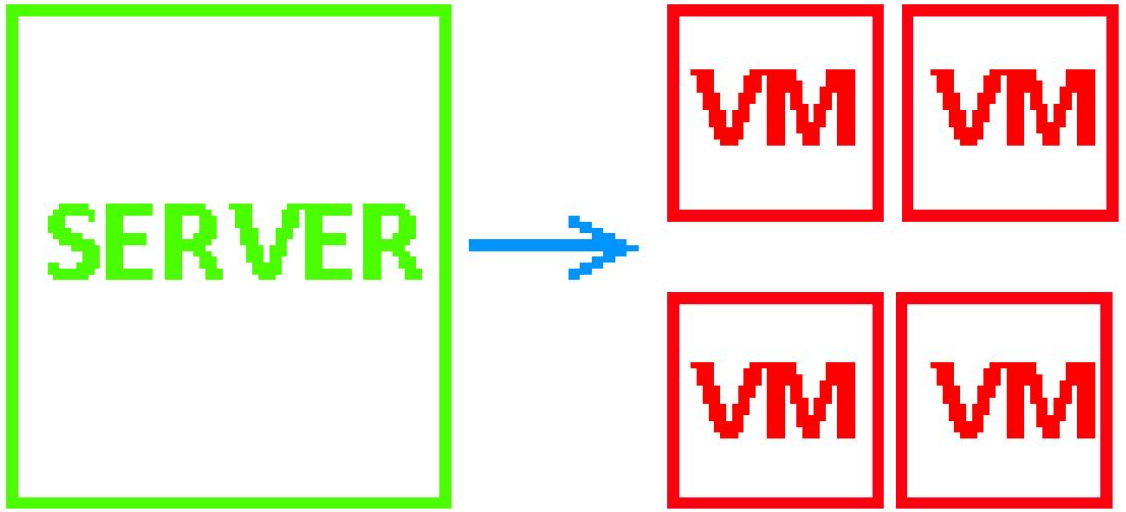
- 2006 - AWS EC2 (Elastic Cloud Compute)
- 2008 - Microsoft Azure

Misconceptions

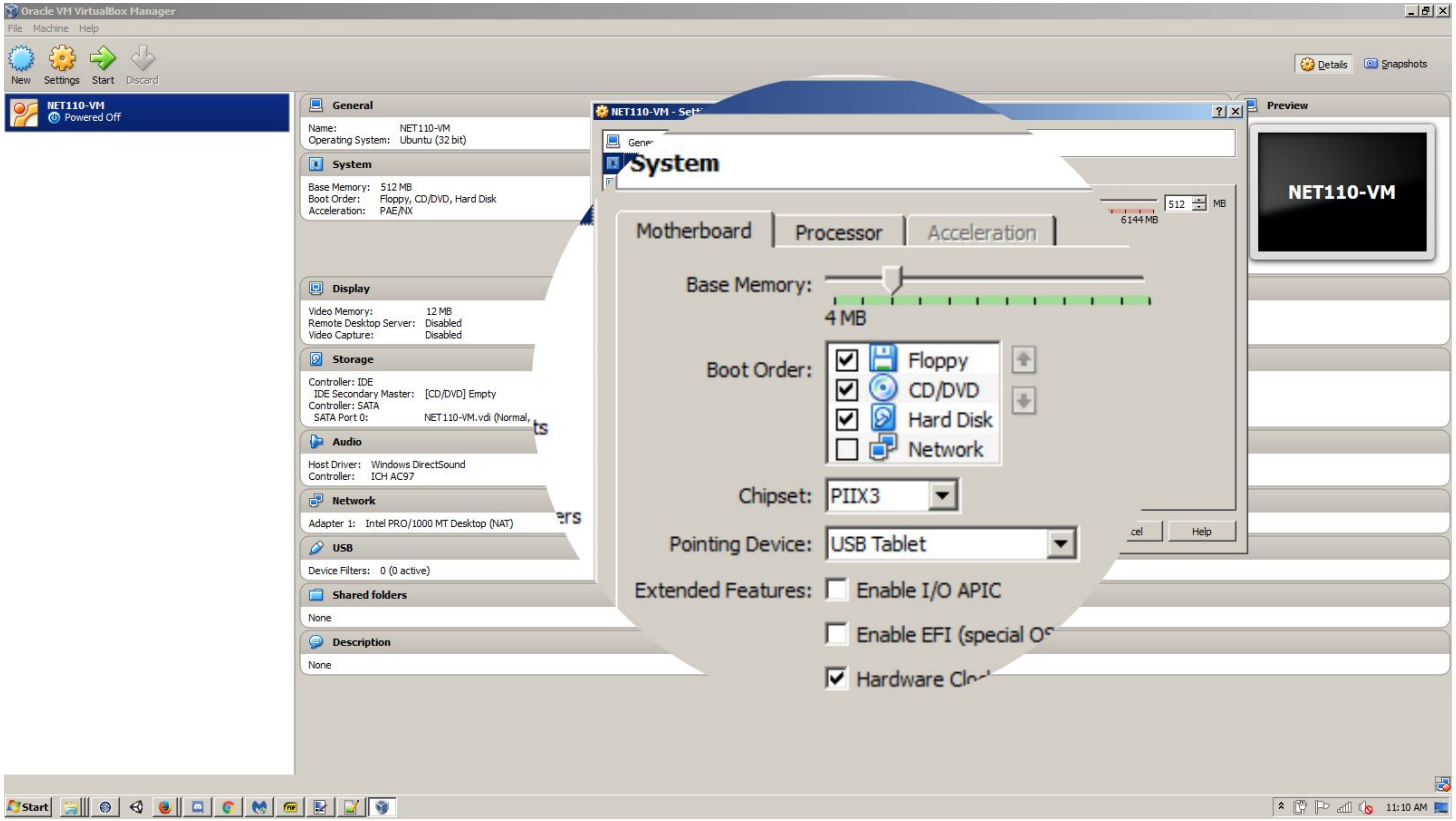
10101
10011
00000
00000

Hosting

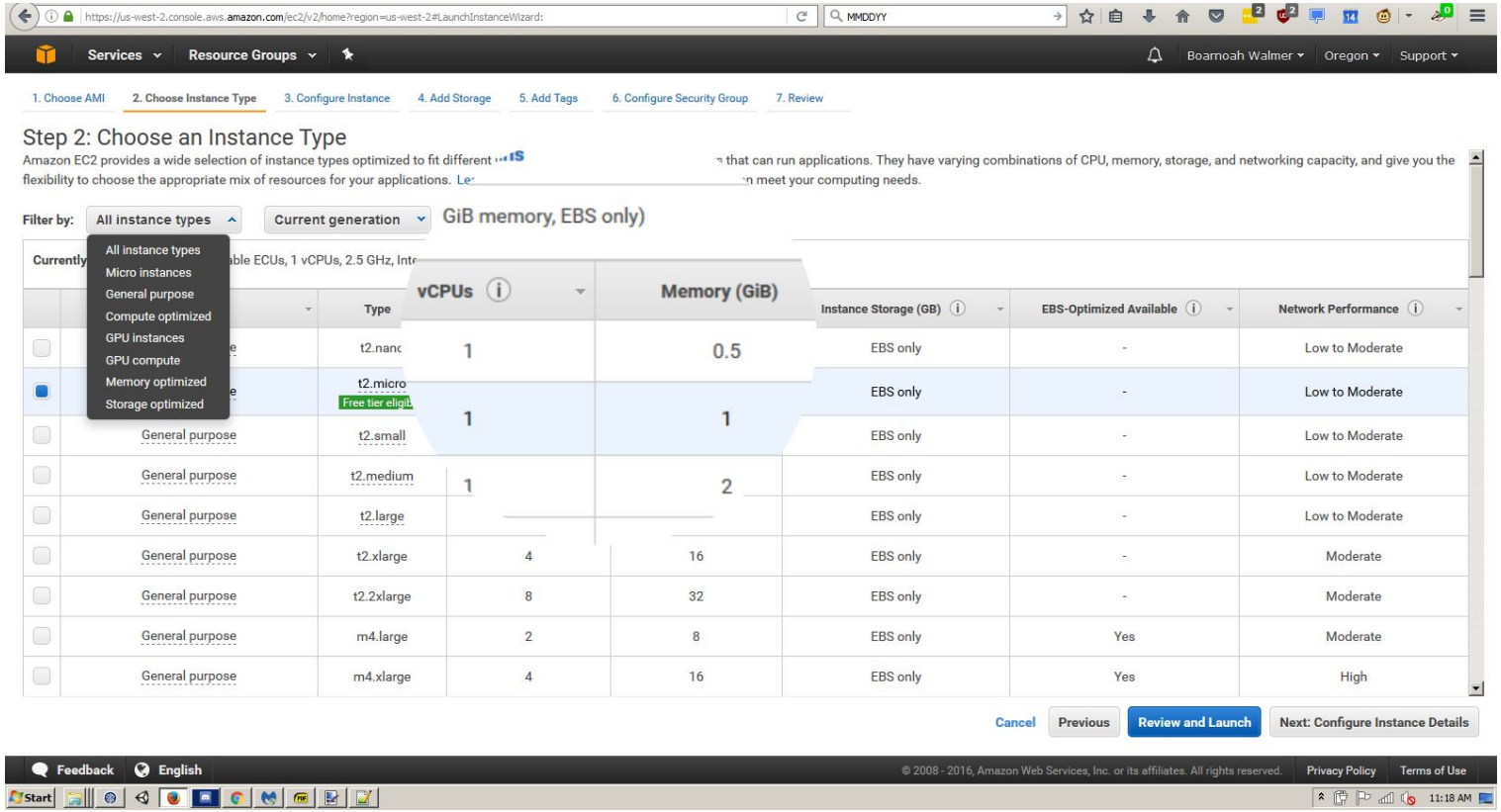
- Dedicated
- Shared



Virtual Machines



Virtual Machines (Cloud)



Premade Templates

Red Hat

Free tier eligible

Red Hat Enterprise Linux 7.3 (HVM), SSD Volume Type - ami-6f68cf0f

Red Hat Enterprise Linux version 7.3 (HVM), EBS General Purpose (SSD) Volume Type

Root device type: ebs Virtualization type: hvm

Select

64-bit

SUSE Linux

Free tier eligible

SUSE Linux Enterprise Server 12 SP2 (HVM), SSD Volume Type - ami-e4a30084

SUSE Linux Enterprise Server 12 Service Pack 2 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.

Root device type: ebs Virtualization type: hvm

Select

64-bit

Free tier eligible

Ubuntu Server 16.04 LTS (HVM), SSD Volume Type - ami-a9d276c9

Ubuntu Server 16.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).

Root device type: ebs Virtualization type: hvm

Select

64-bit

Windows

Free tier eligible

Microsoft Windows Server 2016 Base - ami-bdb618dd

Microsoft Windows 2016 Datacenter edition. [English]

Root device type: ebs Virtualization type: hvm

Select

64-bit

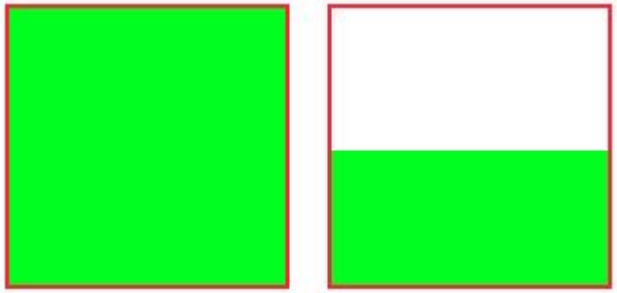
Scaleable

- Needs = Create Instances

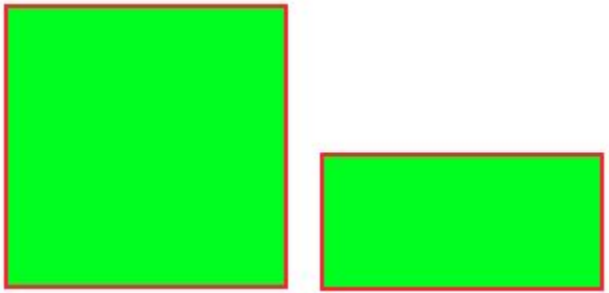
- Needs = Delete Instances

Efficient

- Traditional



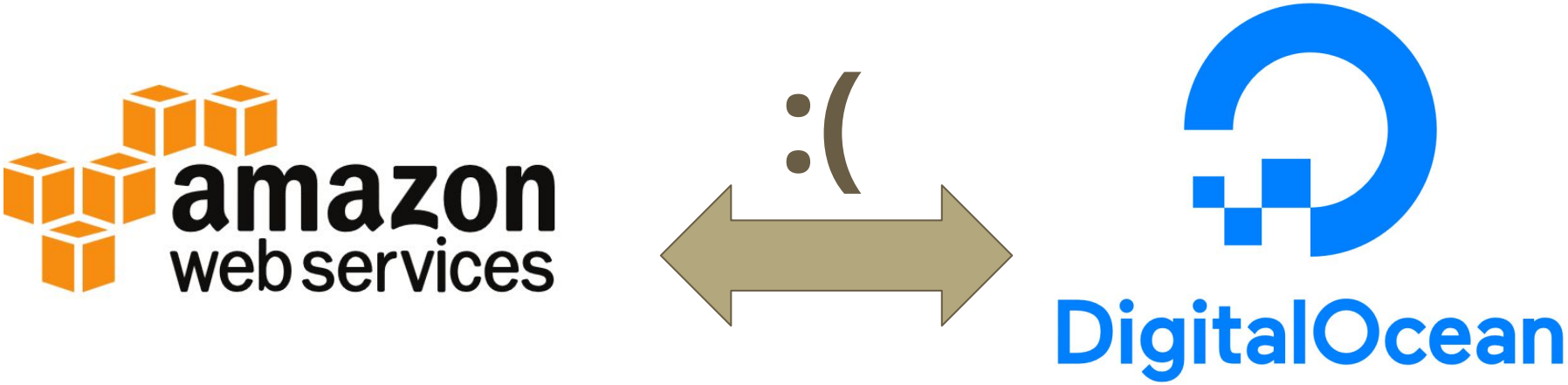
- Cloud



Reliable

- Uptime guarantees
- Servers @ data centre

Vendor Lockin



Long term costs

- Data is expensive

from Americas to EMEA					
Compute Engine Network Internet Egress from North America to Western Europe	Feb 1 - Feb 3	YASP	89.772	Mebibytes	0.01
Compute Engine Network Load Balancing: Data Processing Charge in NA	Feb 1 - Feb 6	YASP	5.458	Gibibytes	0.04
Compute Engine Network Load Balancing: Forwarding Rule Minimum Service Charge in Americas	Feb 1 - Feb 6	YASP	141.279	Hours	3.53
Compute Engine Preemptible Highcpu Intel N1 16 VCPU running in Americas	Feb 1 - Feb 8	YASP	0.183	Hours	0.03
Compute Engine Preemptible Highcpu Intel N1 2 VCPU running in Americas	Feb 1 - Feb 29	YASP	10450.967	Hours	209.02
Compute Engine Preemptible Highcpu Intel N1 4 VCPU running in Americas	Feb 1 - Feb 10	YASP	0.6	Hours	0.02
Compute Engine SSD backed PD Capacity	Feb 1 - Feb 29	YASP	2281.727	Gibibyte-months	401.27
Compute Engine Standard Intel N1 1 VCPU running in Americas	Feb 1 - Feb 6	YASP	140.3	Hours	7.02

[redacted]

Amount due in USD: $986.81

http://blog.opendota.com/2016/03/20/financials/

Data Issues

- Costly
- Stone age internet infrastructure (slow)

Privacy

- Five Eyes (US, UK, CA, AU, NZ)
- PRISM

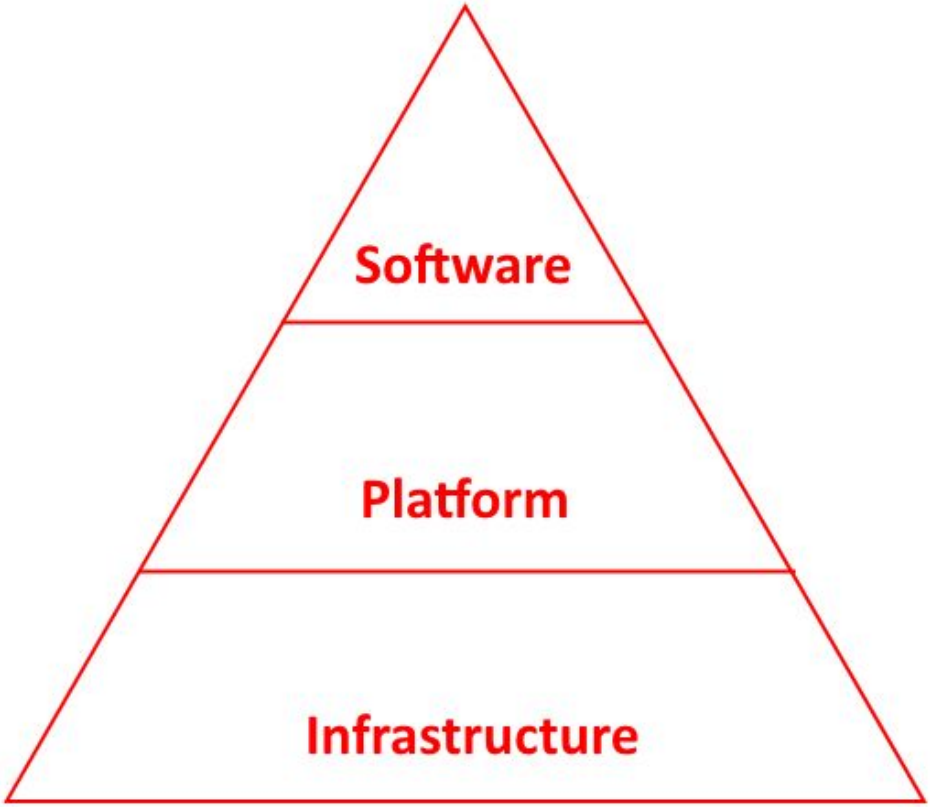
http://www.vice.com/en_ca/read/the-man-in-the-web-2113

Extraordinary Rendition

HALF-LIFE 2

… as a Service

- Different vendors for each stage of stack



Software as a Service (SaaS)

NETFLIX

Platform as a Service

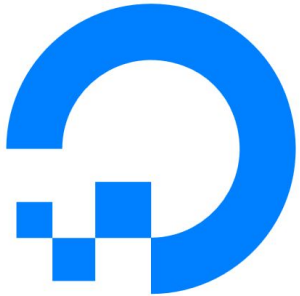
JavaScript content delivery

Microsoft Azure

Cloud Compute

Google Compute Engine (Cloud Compute)

Infrastructure as a Service (IaaS)



DigitalOcean

Rackspace

Applications

- Personal Projects, Students
- Startups, Prototypes
- Large scale compute tasks

Personal Projects

Amazon EC2

Resizable compute capacity in the Cloud.

Learn More »

750 hours per month of Linux, RHEL, or SLES t2.micro instance usage

750 hours per month of Windows t2.micro instance usage

For example, run 1 instance x 1 month or 2 instances x half a month

Expires 12 months after sign-up.

Amazon S3

Secure, durable, and scalable object storage infrastructure.

Learn More »

5 GB of Standard Storage

20,000 Get Requests

2,000 Put Requests

Expires 12 months after sign-up.

Static Page Hosting

GitHub Pages

+

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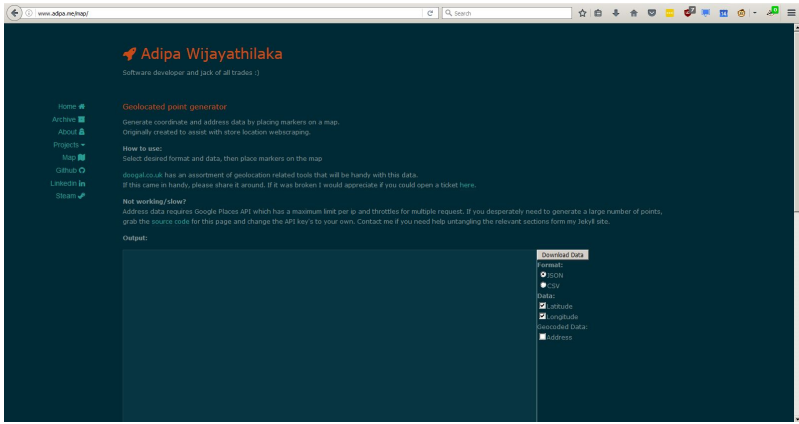
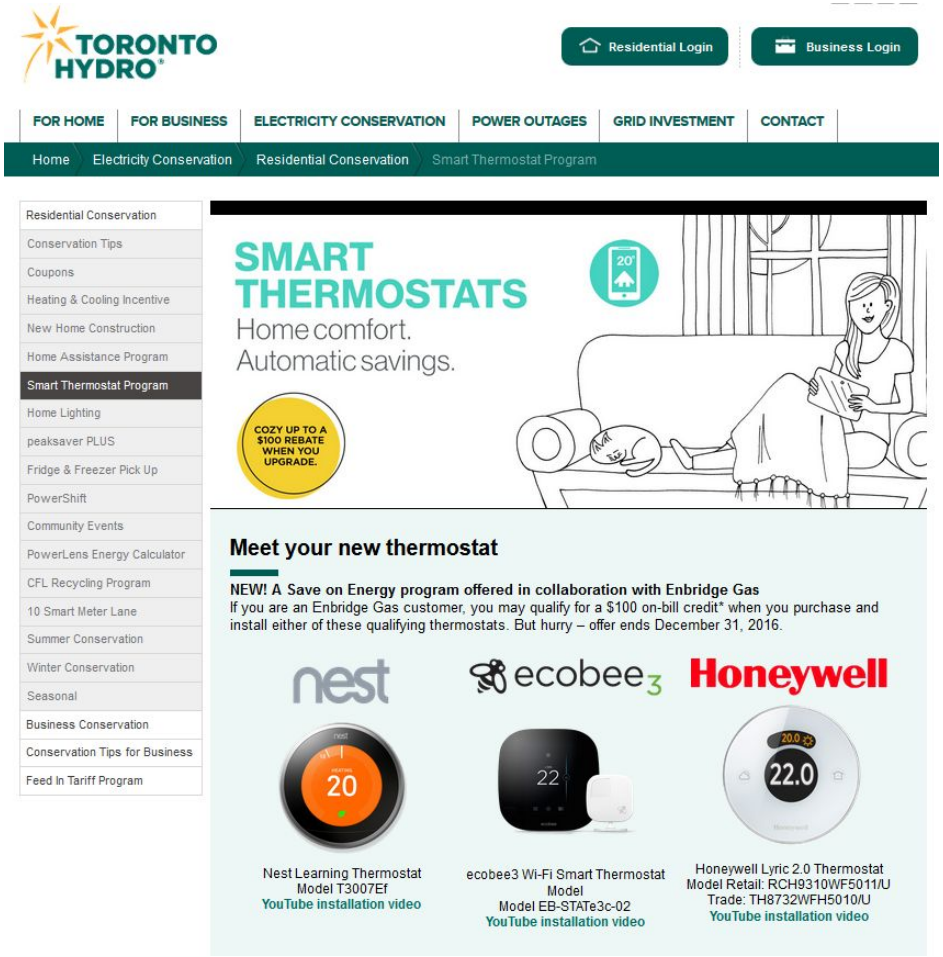


namecheap

(Free Student Domain)

Home Automation

- “Internet of Things”



Companies

NETFLIX

UBER

Large Scale Compute (“Big Data”)

- Analytics
- Simulations

Ex:

Google BigData/BigQuery