

Search Engines

How a Library Works

- Imagine
 - that we built a new school.
 - that a semi showed up one day and unloaded 10,000 brand new books for the library.
 - Our class was asked to go unpack them and just put them on the shelf wherever they fit best.
 - How would anyone find anything after that?????
- How is our library organized?

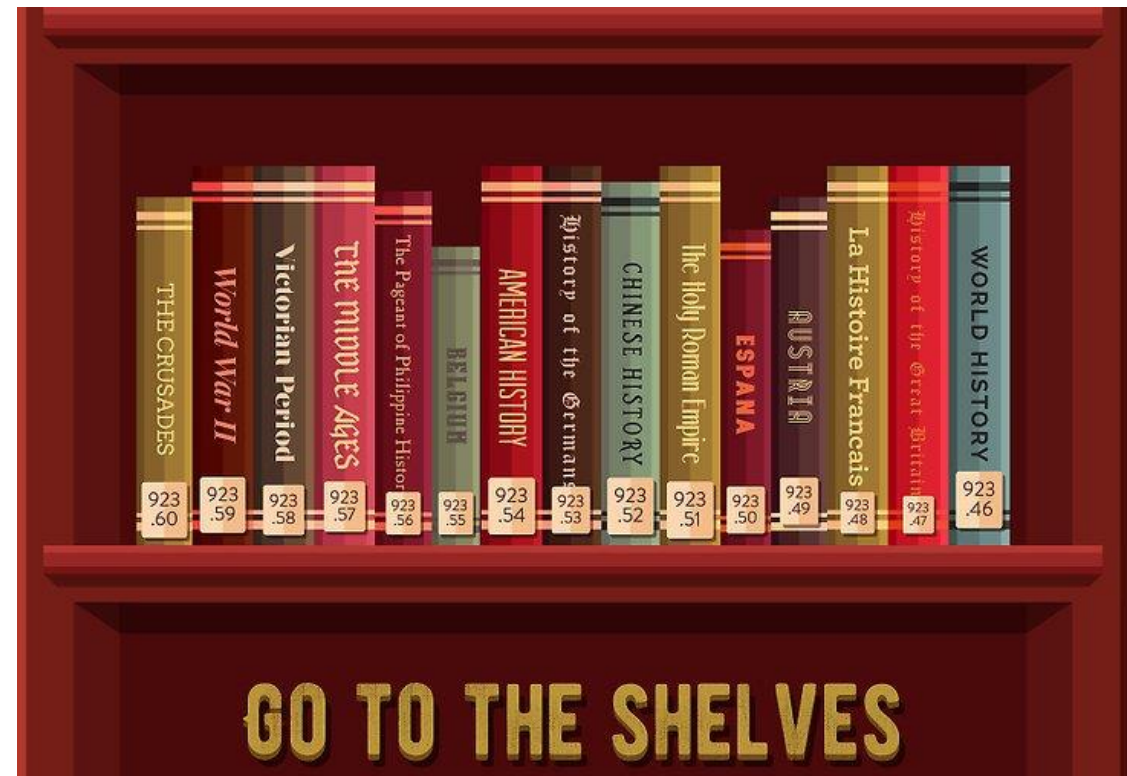


Library Organization

- Fiction?
 - Books that are not true (novels)
 - Organized by Authors last name, and then generally organized alphabetically by book name when the same author writes multiple books.
- Non Fiction?
 - Books based on facts!
 - Explained on the next slides

Dewey Decimal System

- 000 – General works, Computer science and Information
- 100 – Philosophy and psychology
- 200 – Religion
- 300 – Social sciences
- 400 – Language
- 500 – Pure Science
- 600 – Technology
- 700 – Arts & recreation
- 800 – Literature
- 900 – History & geography



Dewey Decimal System

- 500 – Science
 - 500 – Science
 - 510 – Math
 - 520 – Astronomy
 - 530 – Physics
 - 540 – Chemistry
 - 550 – Earth Sciences & Geology
 - 560 – Fossils & Prehistoric Life
 - 570 – Biology
 - 580 – Plants
 - 590 – Animals





- In January 1994, Jerry Yang and David Filo, started a website called “Jerry and David's Guide to the World Wide Web” based upon a hierarchy structure. They were in college at Stanford University studying Electrical Engineering.
- In April 1994, was renamed “Yahoo!” which meant “Yet Another Hierarchically Organized Oracle”
- The yahoo.com domain was created on January 18, 1995.
- Today, Jerry Yang is worth 2.3 billion dollars and David Filo is worth 3.4 billion dollars



Search

[Options](#)

[Yellow Pages](#) - [People Search](#) - [City Maps](#) -- [News Headlines](#) - [Stock Quotes](#) - [Sports Scores](#)

- [Arts](#) - - [Humanities](#), [Photography](#), [Architecture](#), ...
- [Business and Economy \[Xtra!\]](#) - - [Directory](#), [Investments](#), [Classifieds](#), ...
- [Computers and Internet \[Xtra!\]](#) - - [Internet](#), [WWW](#), [Software](#), [Multimedia](#), ...
- [Education](#) - - [Universities](#), [K-12](#), [Courses](#), ...
- [Entertainment \[Xtra!\]](#) - - [TV](#), [Movies](#), [Music](#), [Magazines](#), ...
- [Government](#) - - [Politics \[Xtra!\]](#), [Agencies](#), [Law](#), [Military](#), ...
- [Health \[Xtra!\]](#) - - [Medicine](#), [Drugs](#), [Diseases](#), [Fitness](#), ...
- [News \[Xtra!\]](#) - - [World \[Xtra!\]](#), [Daily](#), [Current Events](#), ...
- [Recreation and Sports \[Xtra!\]](#) - - [Sports](#), [Games](#), [Travel](#), [Autos](#), [Outdoors](#), ...
- [Reference](#) - - [Libraries](#), [Dictionaries](#), [Phone Numbers](#), ...
- [Regional](#) - - [Countries](#), [Regions](#), [U.S. States](#), ...
- [Science](#) - - [CS](#), [Biology](#), [Astronomy](#), [Engineering](#), ...
- [Social Science](#) - - [Anthropology](#), [Sociology](#), [Economics](#), ...
- [Society and Culture](#) - - [People](#), [Environment](#), [Religion](#), ...

[Yahoo! New York](#) - [Yahoo! Shop](#) - [Yahooligans!](#)

[Yahoo! Japan](#) - [Yahoo! Internet Life](#) - [Yahoo! San Francisco](#)

- This is what Yahoo looked like on October 17, 1996!



YAHOO!

- This is what Yahoo looked like on April 1999
- Pretend we click on “Science”

- [Arts and Humanities](#)
[Architecture](#), [Photography](#), [Literature](#)...
- [Business and Economy \[Xtra!\]](#)
[Companies](#), [Finance](#), [Employment](#)...
- [Computers and Internet \[Xtra!\]](#)
[Internet](#), [WWW](#), [Software](#), [Multimedia](#)...
- [Education](#)
[Universities](#), [K-12](#), [College Entrance](#)...
- [Entertainment \[Xtra!\]](#)
[Cool Links](#), [Movies](#), [Music](#), [Humor](#)...
- [Government](#)
[Military](#), [Politics \[Xtra!\]](#), [Law](#), [Taxes](#)...
- [Health \[Xtra!\]](#)
[Medicine](#), [Drugs](#), [Diseases](#), [Fitness](#)...
- [News and Media \[Xtra!\]](#)
[Current Events](#), [Magazines](#), [TV](#), [Newspapers](#)...
- [Recreation and Sports \[Xtra!\]](#)
[Sports](#), [Games](#), [Travel](#), [Autos](#), [Outdoors](#)...
- [Reference](#)
[Libraries](#), [Dictionaries](#), [Phone Numbers](#)...
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- [Social Science](#)
[Anthropology](#), [Sociology](#), [Economics](#)...
- [Society and Culture](#)
[People](#), [Environment](#), [Religion](#)...

- [Acoustics](#) (54)
- [Agriculture](#) (1461) **NEW!**
- [Alternative](#) (1098) **NEW!**
- [Amateur Science](#) (17)
- [Anthropology and Archaeology@](#)
- [Artificial Life](#) (149) **NEW!**
- [Astronomy](#) (1856) **NEW!**
- [Aviation and Aeronautics](#) (407)
- [Bibliographies](#) (5)
- [Biology](#) (9501) **NEW!**
- [Books@](#)
- [Chat](#) (6)
- [Chemistry](#) (1049)
- [Cognitive Science](#) (89)
- [Complex Systems](#) (19)
- [Computer Science](#) (1415)
- [Dictionaries](#) (15)
- [Earth Sciences](#) (2647) **NEW!**
- [Ecology](#) (402) **NEW!**
- [Education](#) (406) **NEW!**
- [Employment](#) (38) **NEW!**
- [Energy](#) (484) **NEW!**
- [Engineering](#) (4294) **NEW!**
- [Events](#) (32)
- [Forensics](#) (47) **NEW!**
- [Geography](#) (467) **NEW!**
- [Geology and Geophysics@](#)
- [History](#) (77)



- [Humor, Jokes and Fun@](#)
- [Hydrology@](#)
- [Information Technology](#) (59) **NEW!**
- [Institutes](#) (63)
- [Journals](#) (18)
- [Libraries](#) (20)
- [Life Sciences](#) (16)
- [Magazines@](#) **NEW!**
- [Mathematics](#) (1605)
- [Measurements and Units](#) (114) **NEW!**
- [Medicine@](#)
- [Meteorology@](#)
- [Museums and Exhibits](#) (116)
- [Nanotechnology](#) (24)
- [News and Media](#) (133)
- [Oceanography@](#)
- [Organizations](#) (178)
- [Paleontology@](#)
- [Paradoxes](#) (5)
- [Physics](#) (1315) **NEW!**
- [Psychology@](#)
- [Religion and Science@](#)
- [Research](#) (139)
- [Space](#) (845) **NEW!**
- [Sports@](#)
- [Indices](#) (46)
- [Usenet](#) (33)

YAHOO!®

- [Anatomy](#) (94)
- [Animal Behavior](#) (25)
- [Archives](#) (1)
- [Biochemistry@](#)
- [Biodiversity](#) (37)
- [Biological Safety](#) (7)
- [Biomedical Engineering@](#)
- [Biomedical Ethics](#) (58)
- [Biophysics@](#)
- [Biotechnology](#) (134)
- [Botany](#) (784) **NEW!**
- [Cell Biology](#) (56)
- [Circadian Rhythms@](#)
- [Companies@](#)
- [Conferences](#) (25)
- [Developmental Biology](#) (33)
- [Ecology@](#)
- [Education](#) (233)
- [Employment](#) (34) **NEW!**
- [Evolution](#) (59)
- [Exobiology](#) (7)
- [Genetics](#) (208)
- [Immunology@](#)
- [Institutes](#) (58)
- [Journals](#) (34)

- [Magazines](#) (7)
- [Marine Biology](#) (142)
- [Mathematical Biology](#) (11)
- [Metadata](#) (3)
- [Microbiology](#) (194)
- [Model Systems@](#)
- [Molecular Biology](#) (289)
- [Mycology](#) (69)
- [Neurosciences@](#)
- [Organizations](#) (46)
- [Paleontology@](#)
- [Parasitology](#) (26)
- [Pharmacology](#) (64)
- [Phenology@](#)
- [Physiology@](#)
- [Psychobiology](#) (12)
- [Radiobiology](#) (8)
- [Reproductive Biology](#) (6)
- [Software@](#)
- [Structural Biology](#) (28)
- [Vision](#) (19)
- [Zoology](#) (6623) **NEW!**
- [Indices](#) (21)
- [Usenet](#) (19)



YAHOO!®

Then you would click on the website

- [Carl Meyer's Pages](#) - includes research on effectiveness of marine reserves for conservation of coral reef fish, and research on tiger sharks in Hawaii.
- [Carson, Rachel \(1907-1964\)](#) (8)
- [Earle, Sylvia \(1935- \)](#) (5)
- [Exxon Valdez Oil Spill Restoration](#) - provides information about the impact of the oil spill, the status of recovery of injured resources, and services and information about ongoing restoration and research activities.
- [GeoCrust Project](#) - uses data collected within the Portuguese satellite-based Vessel Monitoring System (VMS) to improve the stock assessment of the main commercial crustacean species.
- [Hydro Active](#) - offering interactive water related programming and video.
- [Live DMS Ocean Biological Model](#) - a Marine Biological model has been made available to the public. Just enter your local marine data and run the model to calculate the DMS output of your local coastal waters.
- [Marine Biology Learning Center](#) - comprehensive resources on coral reefs, marine ecology, oceanography, dolphin biology, ocean conservation, biodiversity, coral reef fishes, and research expeditions.
- [Marine Biology Web \(MBWEB\)](#) - educational resource for marine biology students with reference lists organized by subject.
- [Marine Science Online Magazine](#) - updates from laboratories, classroom tools, profiles of scientists, scientific news highlights, and links.
- [Marinecareers.net](#) - guide to marine science career possibilities. Also provides profiles of scientists in related fields.
- [Medakafish](#)
- [Micro Shells](#) - searchable database and directory of shells measuring only several millimeters.
- [Ocean Link](#) - interactive site with educational material on a wide variety of marine life.
- [Paul Yancey's Deep-Sea Pages](#) - includes pictures of bathyal and abyssal animals found off the Oregon coast.
- [Reefs of the Gulf](#) - headquarters for the NR-1 submarine's research cruise of coral reefs in the Gulf of Mexico.
- [Research on Exxon Valdez Oil Spill](#) - research papers on the effects of oil spills on shoreline ecology, marine life, birds, and archeological sites.
- [Safari Splash](#) - for six days, a team of scientists, divers, archeologists, and kids explored the ocean environment of Barkley Sound, B.C.
- [Sea and Sky](#) - explore the splendors of the sea and the wonders of the universe through information, images, sounds, links, and interactive games.
- [Usenet - gov.us.topic.nat-resources.marine](#)
- [Western Region Marine and Coastal Surveys](#)



- Started in 1995 as a research project by Larry Page and Sergey Brin Ph.D. students at Stanford University.
- In March 1996 their software started crawling the Internet and began ranking the websites based upon how many websites linked back to them.
- They registered Google.com on September 15, 1997.
- Google is a 1 followed by 100 zeros.
- Today Larry Page is worth about 49 billion dollars and Sergey Brin is worth about 45 billion dollars

The Google logo, featuring the word "Google" in its characteristic multi-colored font (blue, red, yellow, blue, green, red).

Search the web using Google!

Google Search

I'm feeling lucky

Special Searches
[Stanford Search](#)
[Linux Search](#)

[Help!](#)
[About Google!](#)
[Company Info](#)
[Google! Logos](#)

Get Google!
updates monthly:
 your e-mail

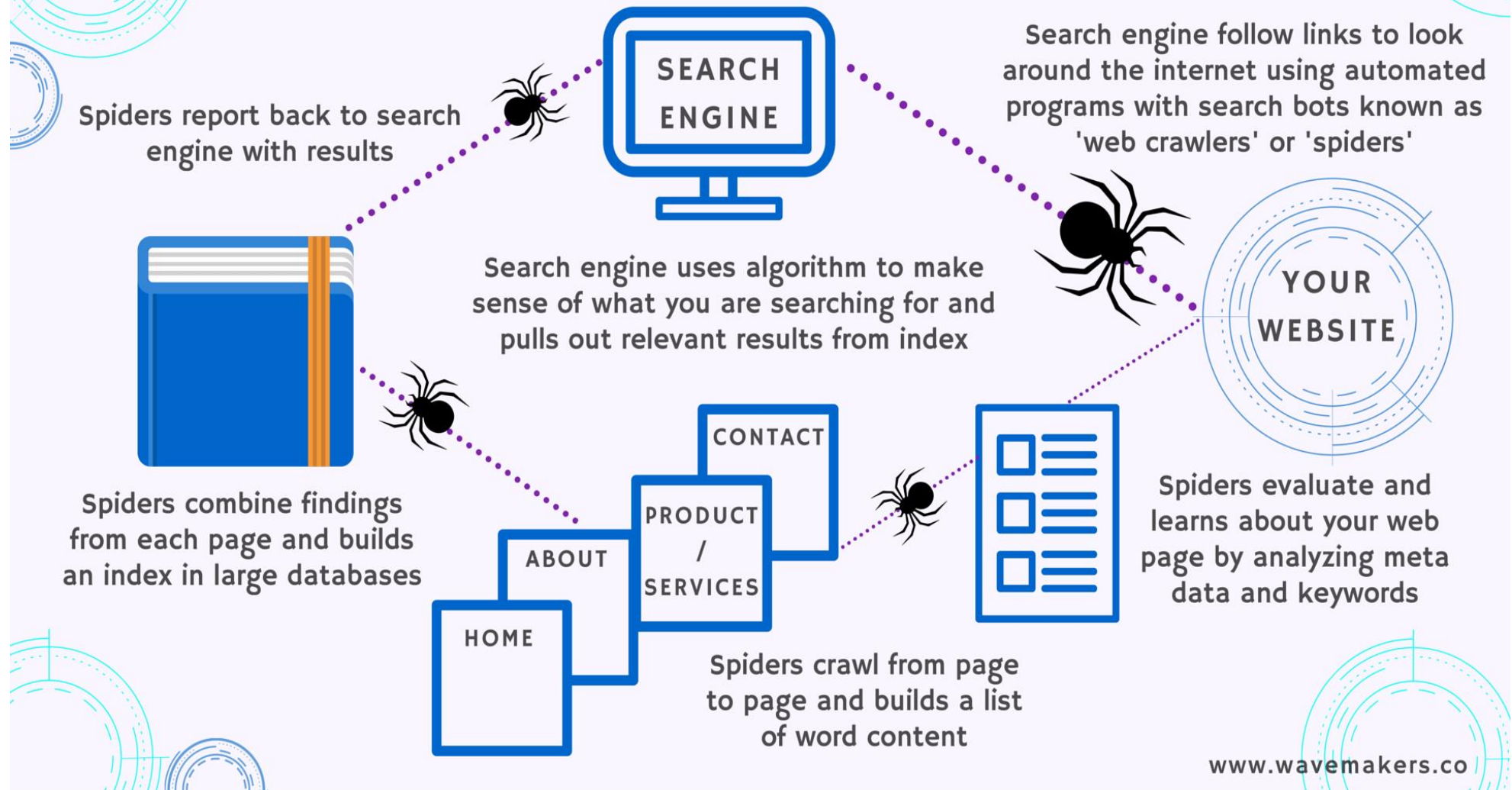
Subscribe [Archive](#)

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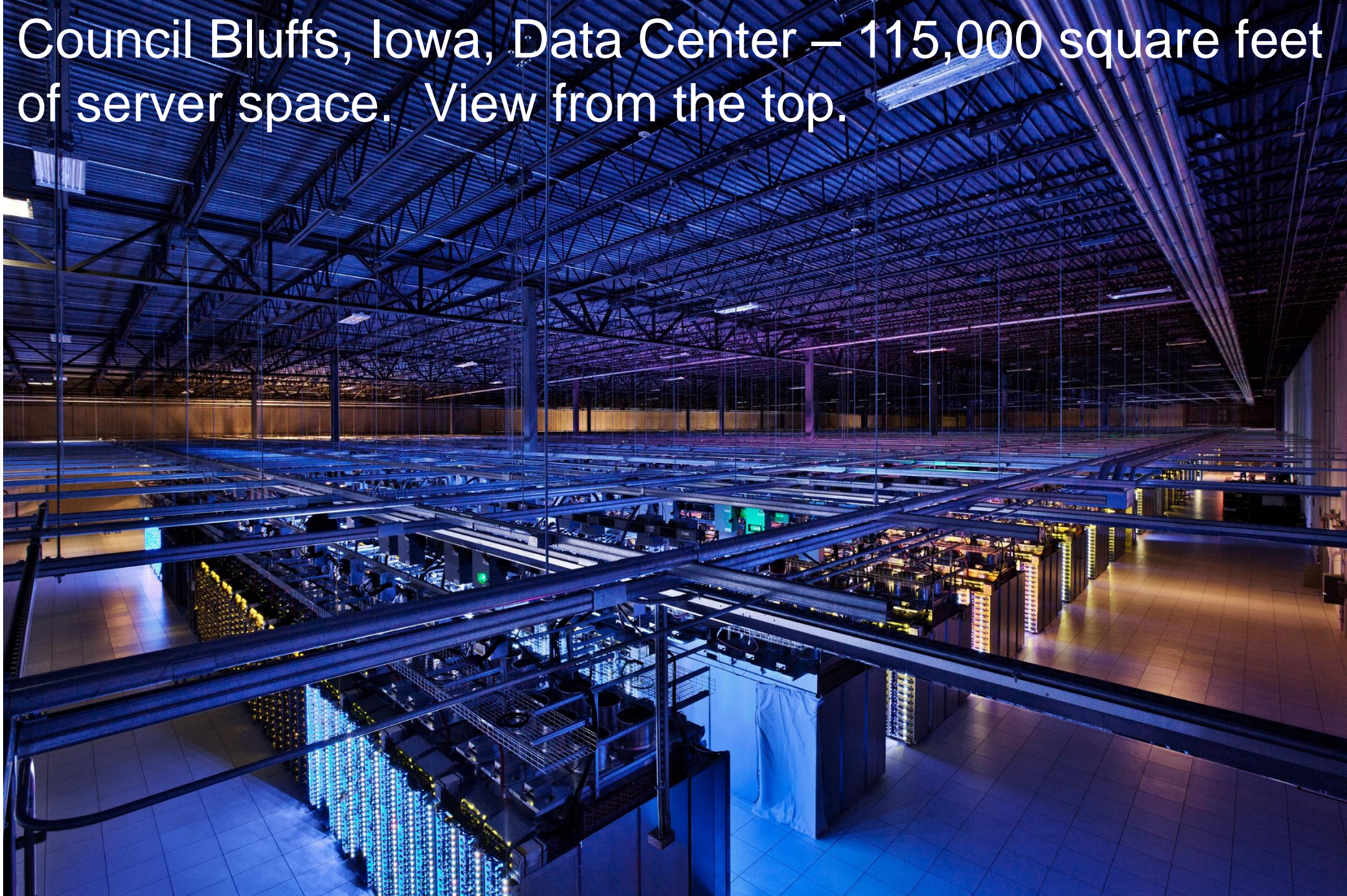
- This is what Yahoo looked like on December 2, 1998

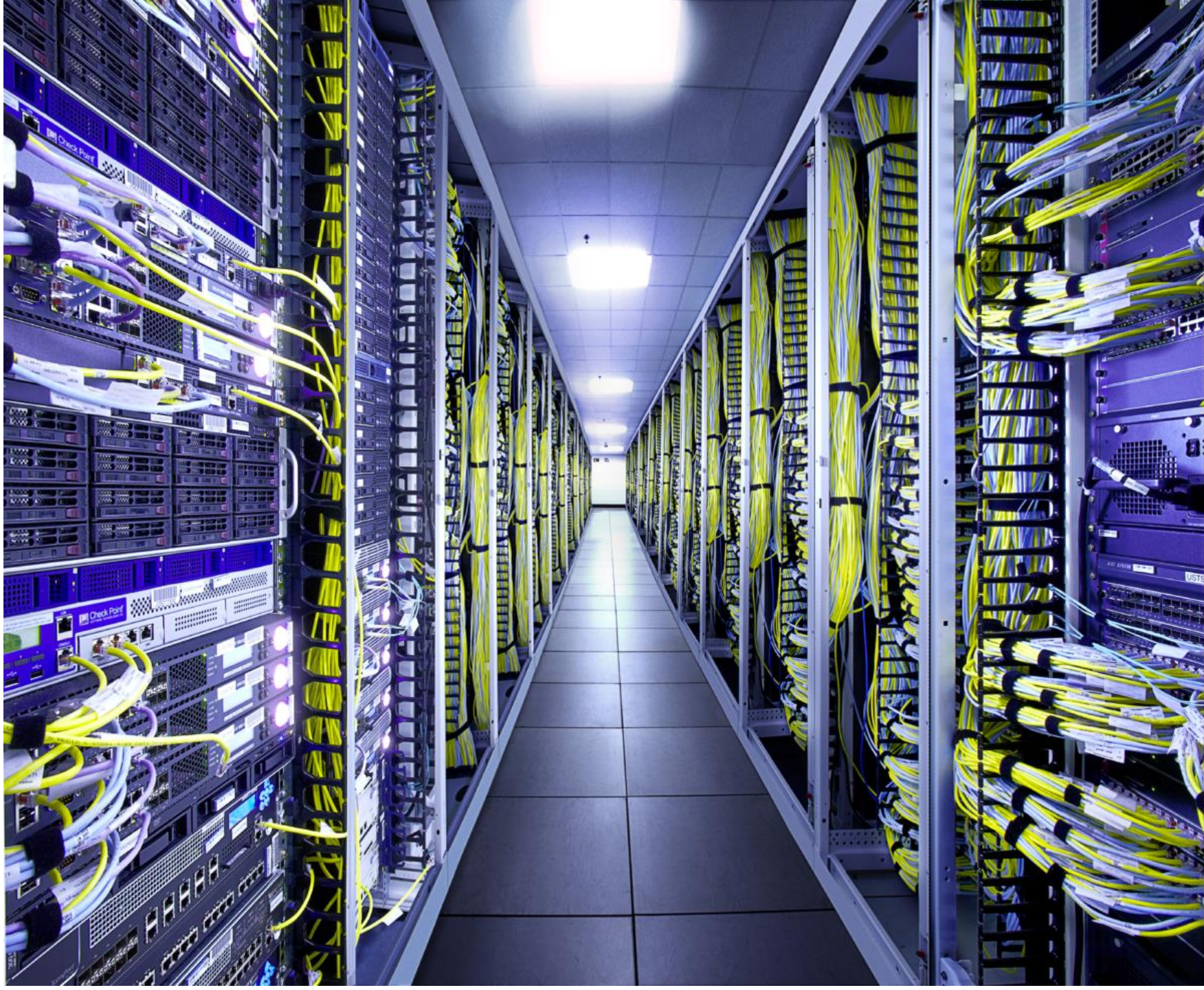
How do Search Engines collect data?

HOW DO SEARCH ENGINES WORK?



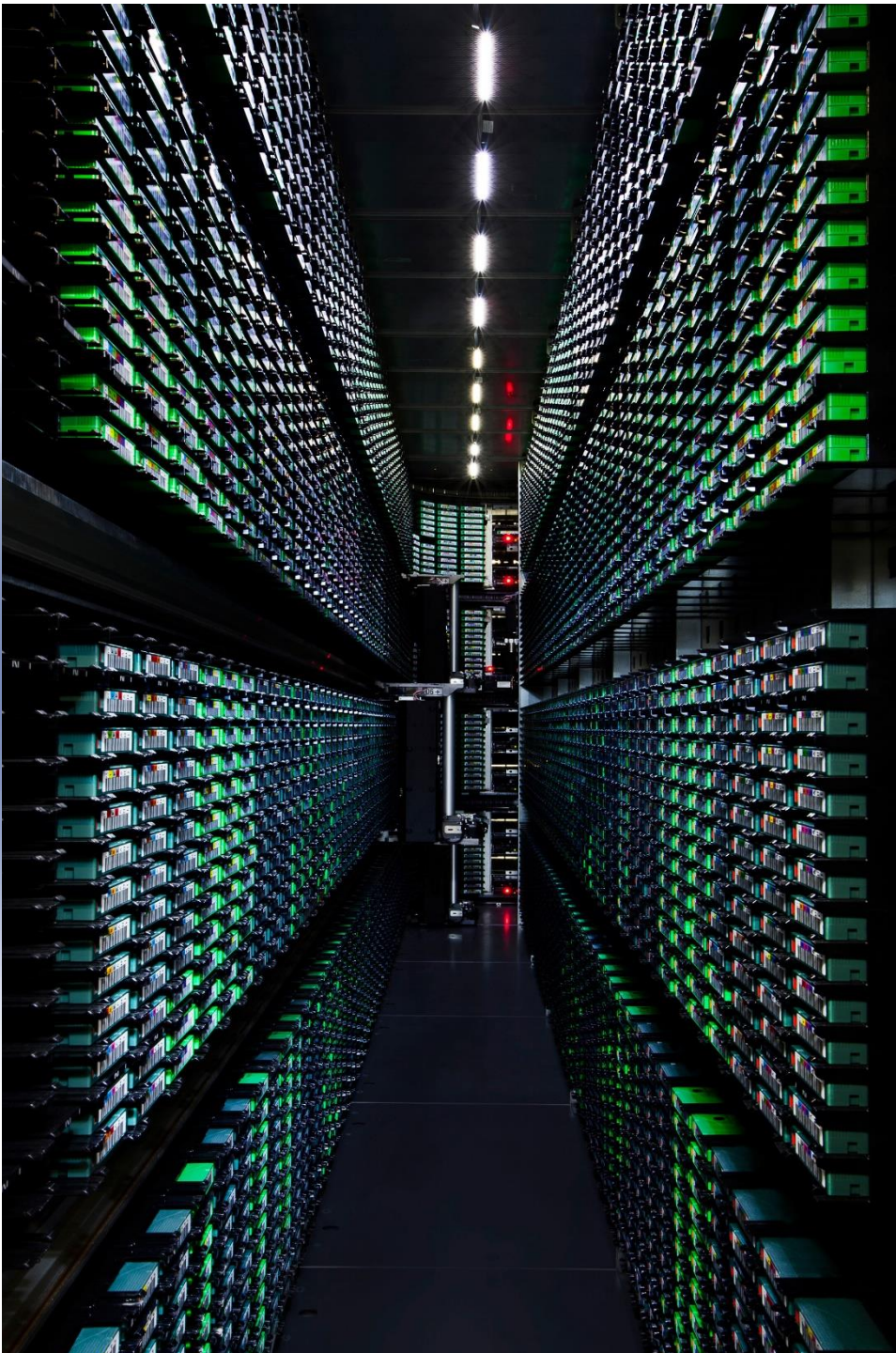
Council Bluffs, Iowa, Data Center – 115,000 square feet of server space. View from the top.









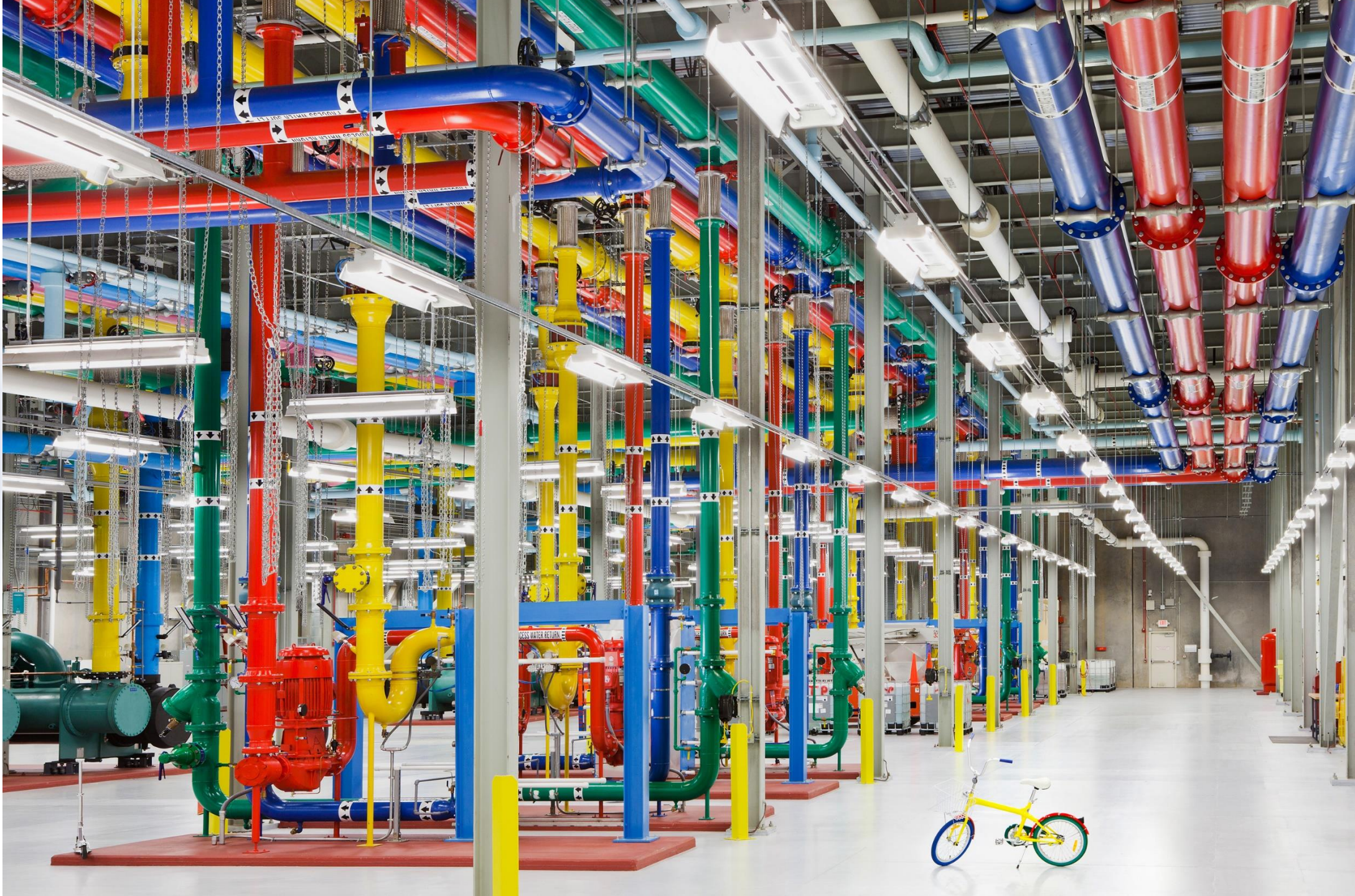


- This is the backup center where a robot swaps special cassette tapes that backup the data incase a hardware failure were to occur.



- Cooling tunnel between the server racks





Using Google

- Follow along with Mr. Larson now using Google.