INTERNET TECHNOLOGY:INTRODUCTION

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HISTORY OF WEB APPLICATIONS

- 1945-1969
  - First Computer (ENIAC)
  - ARPANET

Military Applications

- 1970-1979
  - Computers were very expensive

Business Applications

- 1980-1989
  - PCs
  - Word excel
  - TCP/IP protocol stack
  - www first web browser and website in 1989

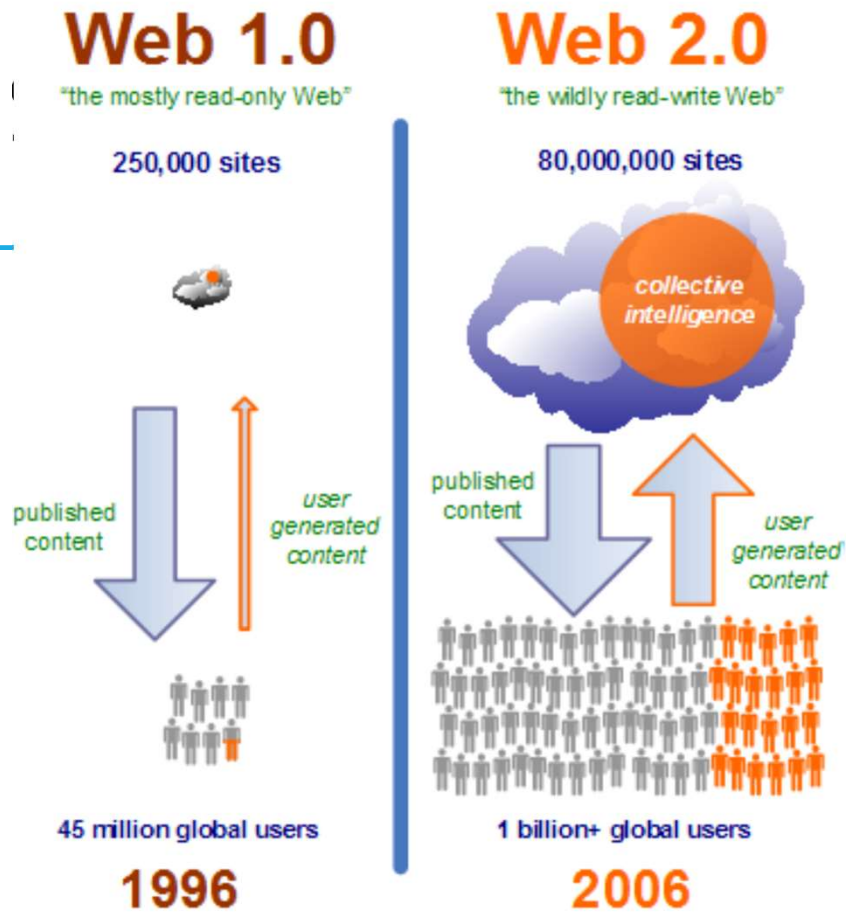
PC Applications

HISTORY OF WEB APPLICATIONS-WEB 1.0

- 1990-1999
  - The first website by Tim Burners Lee in 1990
  - The goal was to create a common information space in which people communicate by sharing information
  - Amazon, Google were formed
  - Read only web
  - Simple but massive valuation of internet based companies
  - Mostly static web pages
  - Less user interaction
  - Mozec –the first GUI based browser that later led to Netscape Navigator in 1994 and then Mozilla
  - Internet Explorer
  - Browser war

HISTORY OF WEB APPLICATION

- 2000-2009
  - Interactive with Ajax
    - Updated without reloading the entire page
    - User experience comparable with desktop applications
  - Social networking
  - Wikipedia, Facebook, Amazon EC2
  - Online commerce
  - Line blurring between desktop and web applications
  - Read-write web/ people-centric web
  - Cloud computing



HISTORY OF WEB APPLICATIONS-WEB 3.0

- 2010-2019
  - HTML5
  - Responsive design
  - Mobile applications, IoT
  - Intelligent web in terms of recommendation systems
  - Sematic web
  - *It provides a common* framework that allows data to be shared and reused across application, enterprise, and community boundaries
  - Machine facilitated understanding of the information on the www
  - Intelligent web
    - Linking information from different websites to predict user behavior

WEB 2.0 AND WEB 3.0 ENABLERS

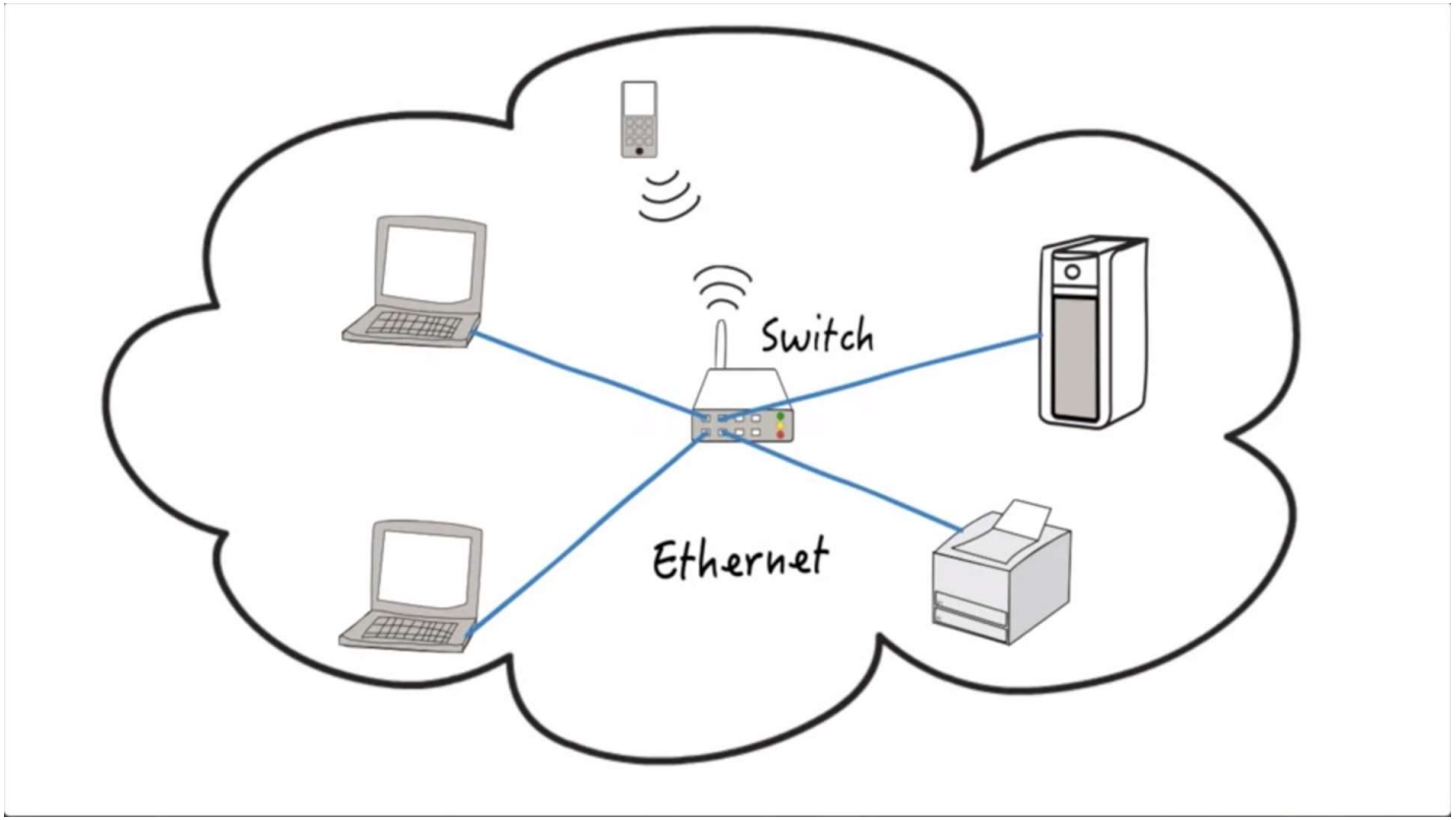
- Javascript
- Ajax-asynchronous delivery of content
- Web services interoperability through REST API
  - The ability to use services from other websites
- cloud computing (IAAS, SAAS, PAAS)
- Web enabled devices (IoT)
- Powerful mobile phones with location information
  - As powerful as a supercomputer just a decade ago
  - Sensors for richer user experience
  - Crowdsourcing

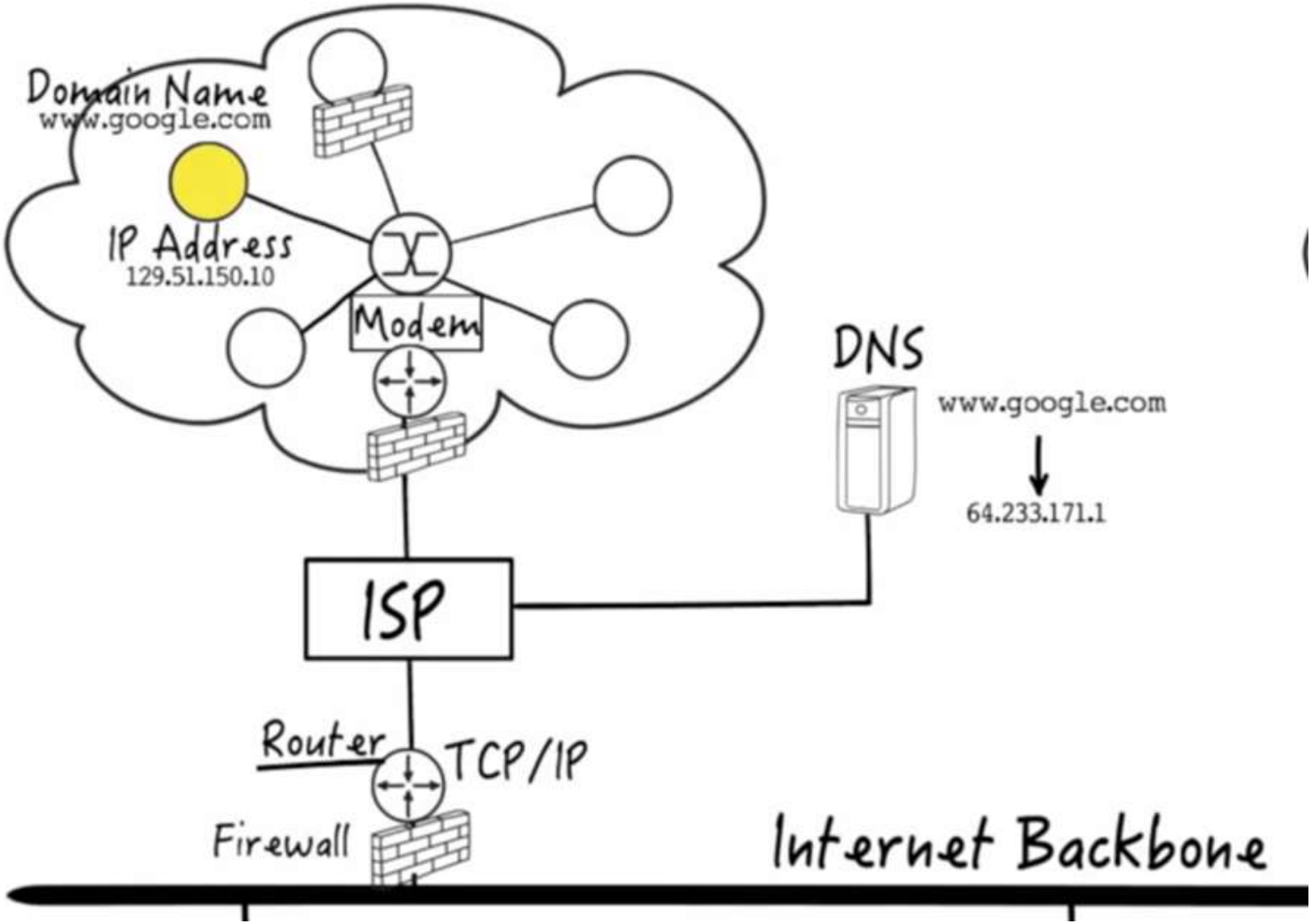
WEB 4.0

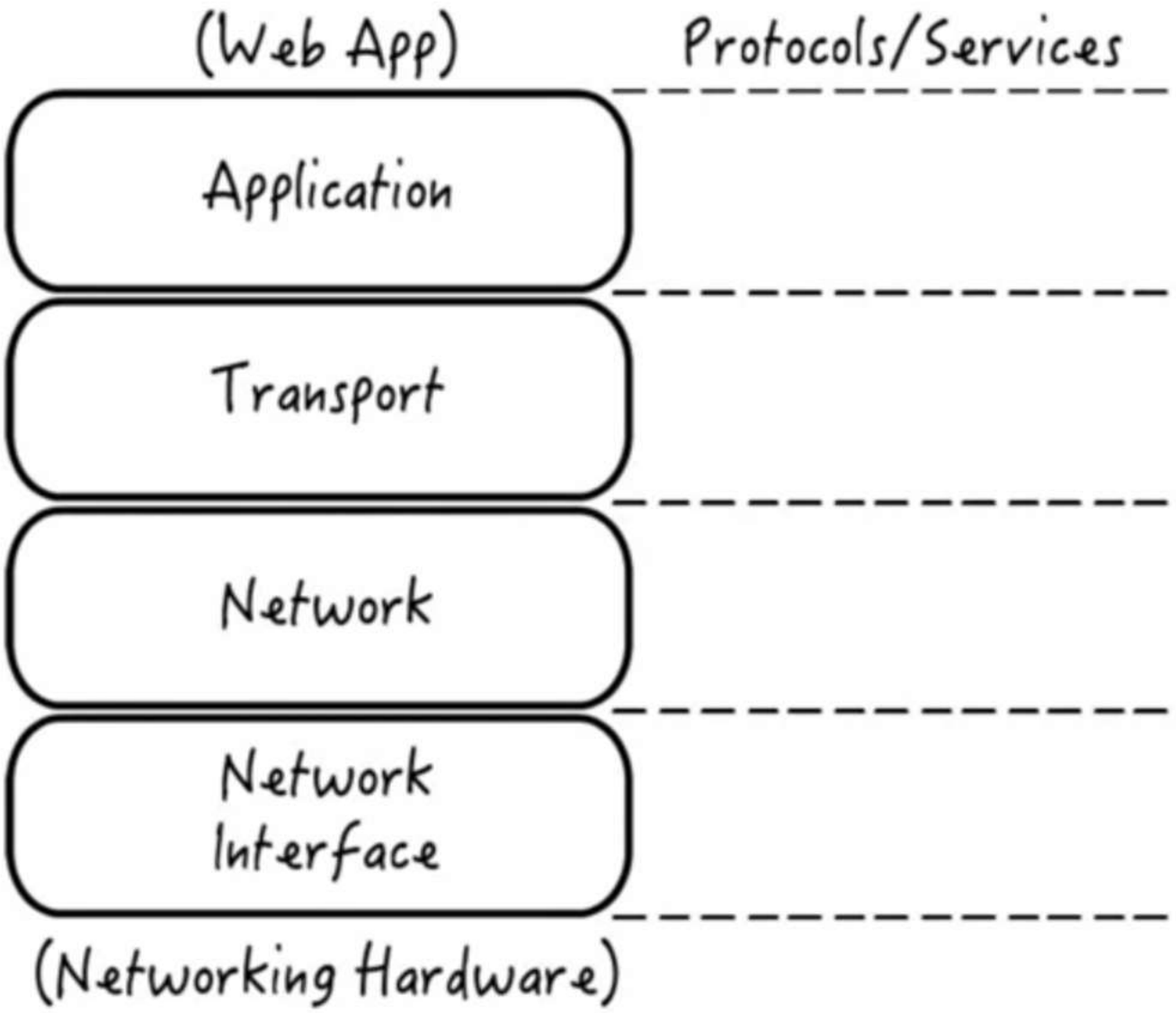
- Web 4.0
  - web of things
  - read-write-execution-concurrency web
- It ensures global transparency, governance, distribution, participation, collaboration into key communities such as industry, political, social and other communities
- WebOS will be such as a middleware that will start functioning like an operating system

https://medium.com/@tuhfatussalisah/world-wide-web-from-web-1-0-to-web-4-0-and-society-5-0-48690a43b776
Choudhury, N.WorldWideWeb and its journey from web 1.0 to web 4.0. Int. J. Comput. Sci. Inf. Technol. **2014**, 5, 8096–8100.

BASIC SETUP

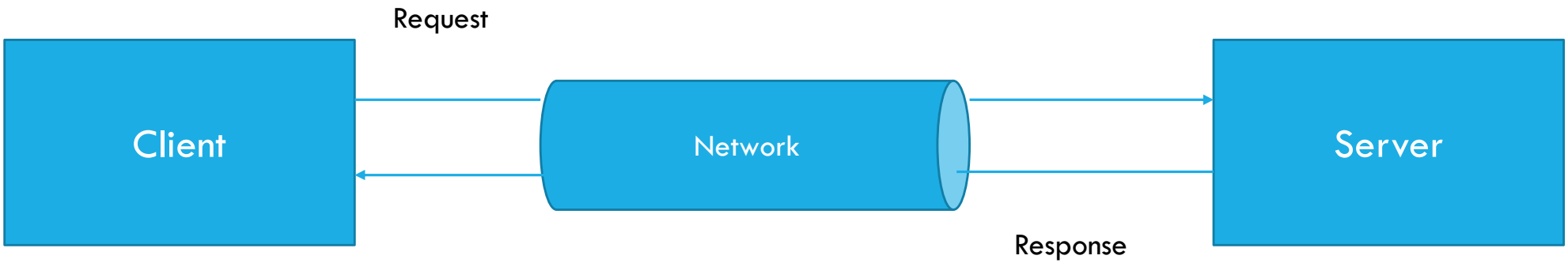



Domain Name
www.google.com
IP Address
129.51.150.10
Modem
DNS
www.google.com
64.233.171.1
ISP
Router
TCP/IP
Firewall
Internet Backbone



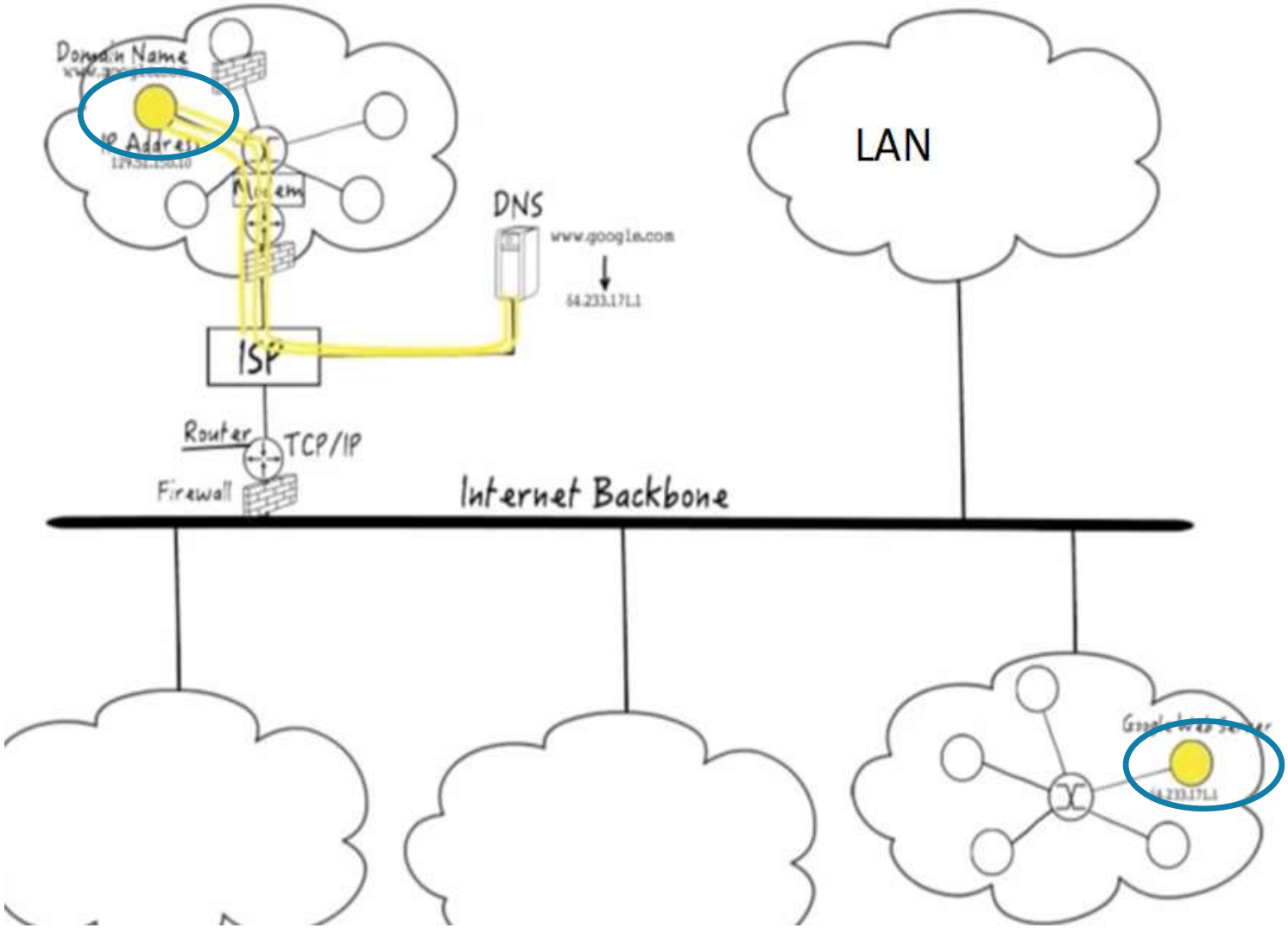
- Net neutrality
- Security and privacy

WEB APP MODEL-CLIENT SERVER ARCHITECTURE



- Listens to requests and provides services/resources
- Connects and requests for services/resources

BASIC SETUP


Domain Name
IP Address
DNS
www.google.com
64.233.171.1
LAN
ISP
Router
TCP/IP
Firewall
Internet Backbone

WEB APP

A web application is accessed by users via the Internet, using a browser as the client, and consists of a collection of client and server-side scripts, HTML pages, and other resources that may be spread across multiple servers, or throughout the world wide web

- www- It is a system of interlinked documents (web pages) accessed via the Internet using HTTP
- web pages contain hypermedia (text, graphics, etc.), along with hyperlinks to the other web pages
- The structure of the web is what makes it useful and gives its value
- A web app is built on WWW and WWW is built on top of the Internet

ADVANTAGES OF WEB APPLICATIONS

- Ubiquity and convenience of using a web browser as a client
- Inherent cross-platform compatibility in todays' browsers
- Update and maintain web apps without distributing and installing software
  - it should be executed on common web browsers
- reduction of IT cost, especially on the maintenance

DISADVANTAGES OF WEB APPLICATIONS

- User experience
- Privacy and security
- Web apps are difficult to debug and develop (programmer's perspectives)

WEB APPS IN WEB 1.0

1. Static web pages- data closely related to presentation
2. More complicated server side scripts for richer applications
3. Incompatibility between browsers
4. Need for more user interaction
5. New technologies for better user experience
    1. Client side scripts
    2. Web caching