

WEB ENGINEERING

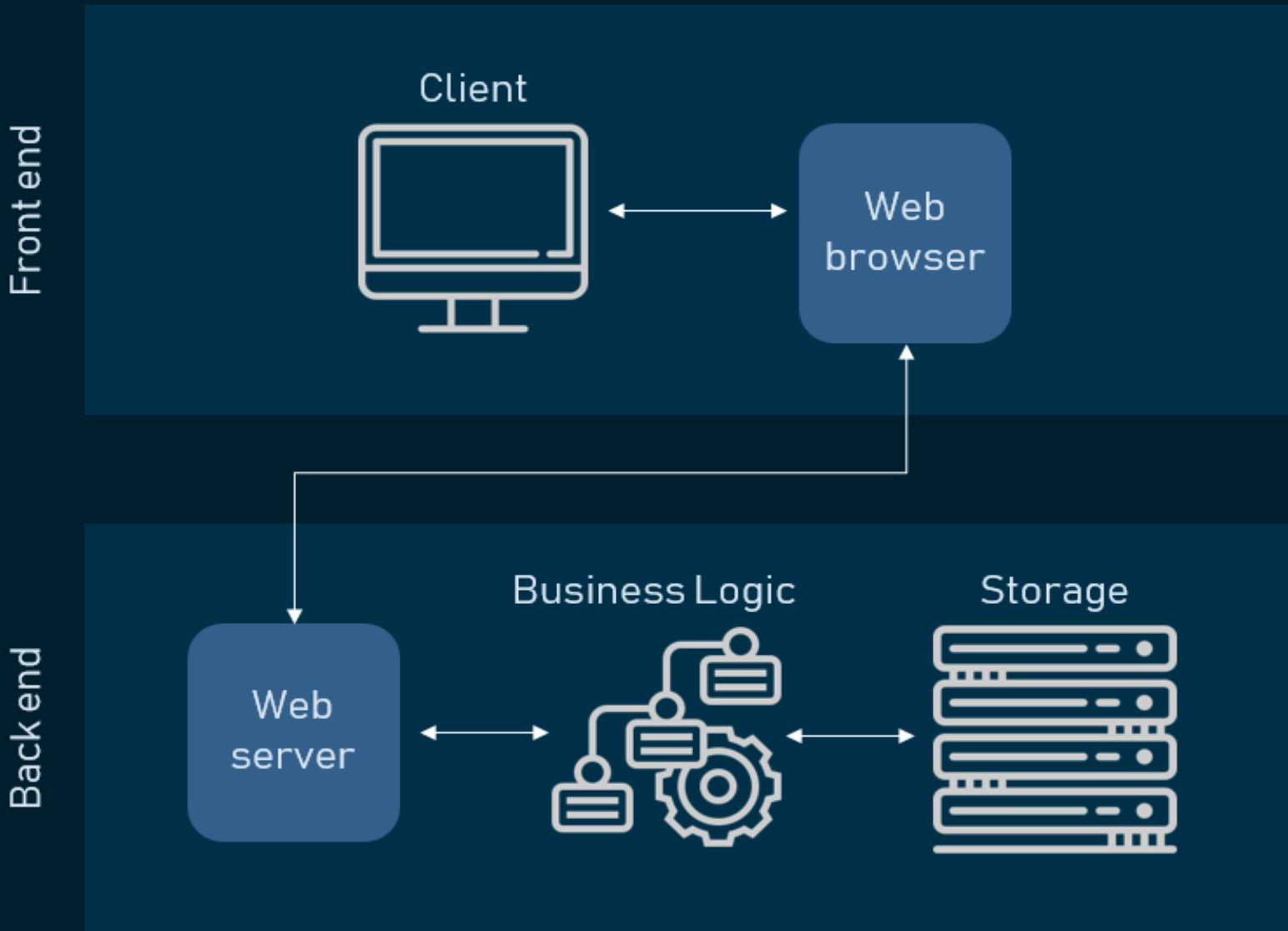
By
Khalid hussain



Web Engineering

Web engineering proposes an agile,
yet disciplined framework for
building industry-quality WebApps.

WEB REQUEST-RESPONSE CYCLE



Web Servers

Web servers are programs that provide documents to requesting browsers.

Servers are slave programs.

- Microsoft's Internet Information Server (IIS) on MS OS (16%)
- Apache (65%)
- nginx (engine-x) 14%

Web Servers

Apache

A patchy version

Fast & reliable available for Linux based systems

IIS

Apache and IIS provide similar varieties of services.

Hypertext Transfer Protocol

- All Web communications transactions use the http protocol
- HTTP consists of two phases: the **request** and the **response**.
- Both contain a header and a body.
- The header contains information about the communication
- the body contains the data of the communication if there is any

HTTP

Full Stack JavaScript Tools and Technologies

Front End



Or



Back End



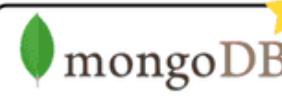
express

Or



KeystoneJS

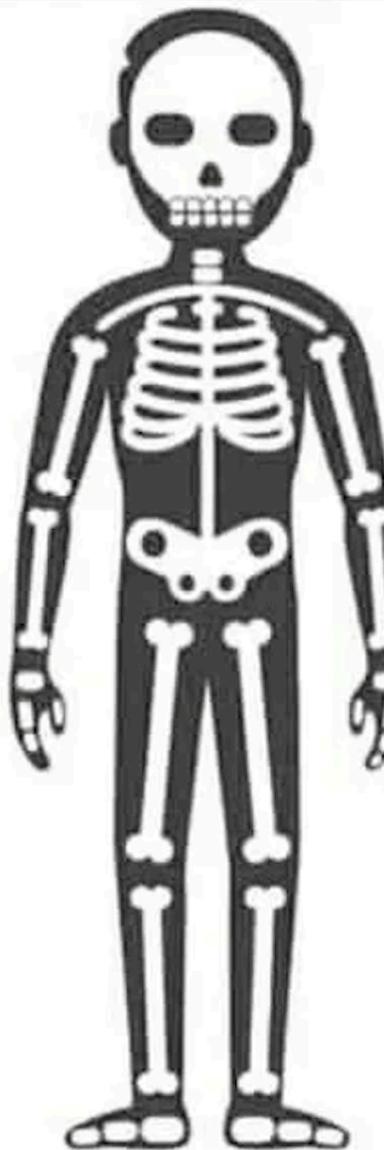
Database



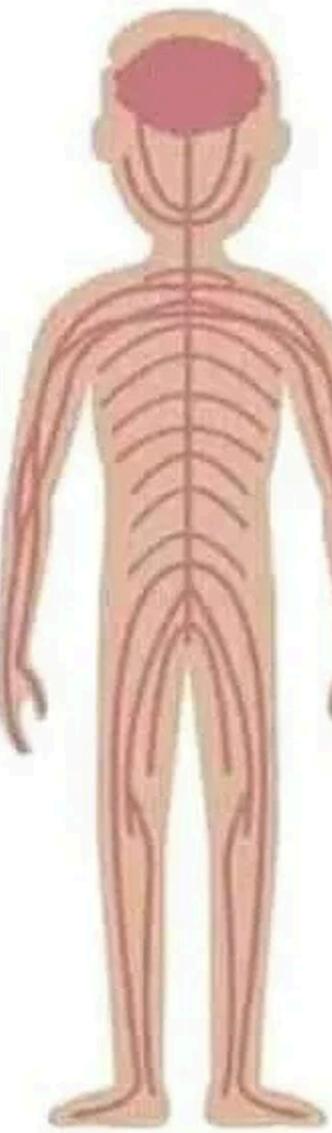
Or



HTML



JS



CSS



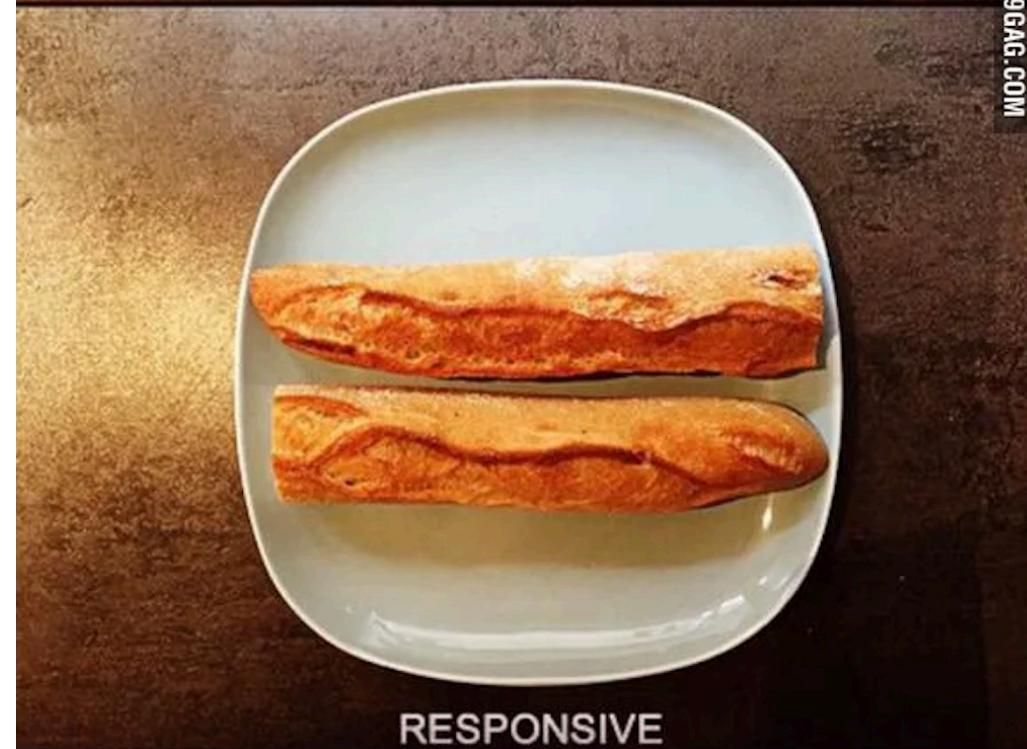


HTML

CSS



NON RESPONSIVE



RESPONSIVE

VIA 9GAG.COM

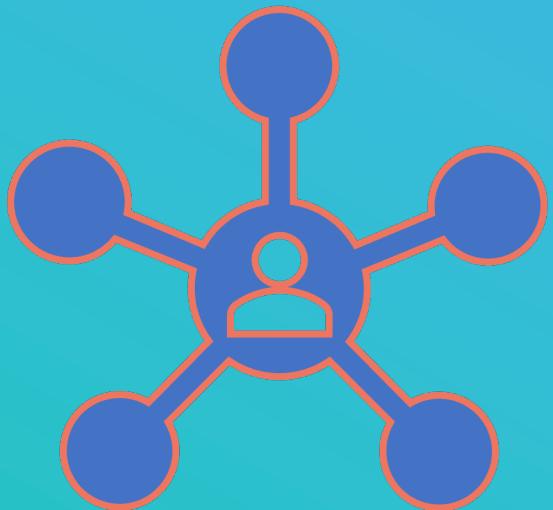
INTERNET ORIGIN

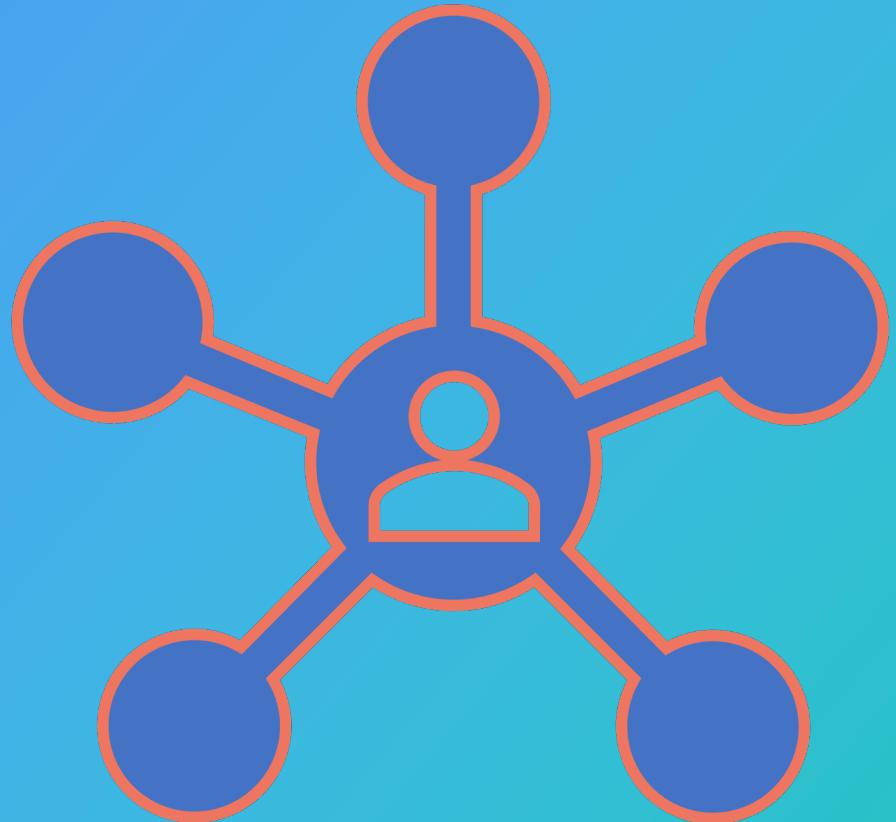
1960s, the U.S. Department of Defence (DoD)
Use simple text-based communications through
Email

- + First node of this network was established at
UCLA in 1969

Purpose of DoD:

- communications
- program sharing
- remote computer access for researchers working on defence-related contracts
- DoD's Advanced Research Projects Agency (ARPA) network (connect labs & universities)





Internet

A global network connecting millions of computers.

Low-level protocol named Transmission Control Protocol/Internet Protocol (TCP/IP)

TCP builds a base system upon which application-level protocols like HTTP, FTP, IMAP and many others

INTERNET PROTOCOL (IP) ADDRESS

- IP Address of a machine connected to the Internet is a unique 32-bit number.
- IP addresses usually are written (and thought of) as four 8-bit numbers, separated by periods.
- IP addresses are expressed as a set of four numbers. i.e., 192.158.1.38
- Each number in the set can range from 0 to 255.
- Full IP addressing range goes from 0.0.0.0 to 255.255.255.255.

Internet Protocol Address

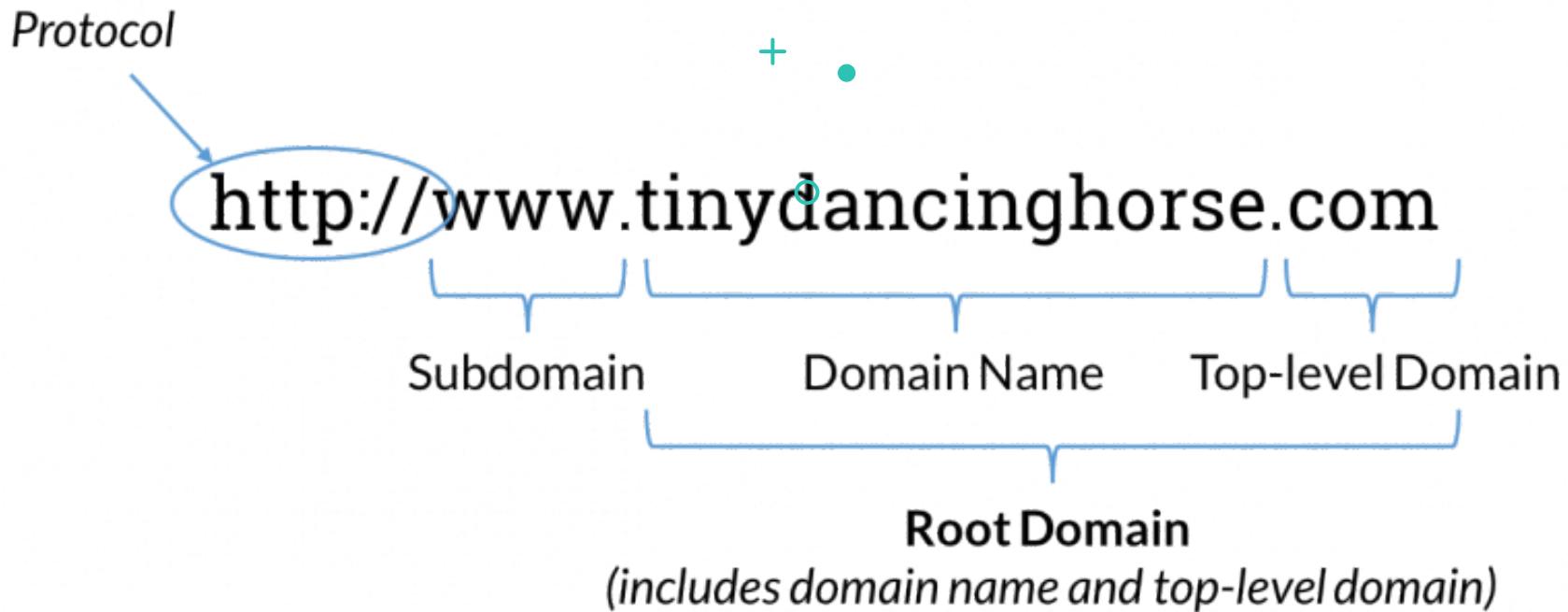
- IP addresses are not random.
- Mathematically produced and allocated by the Internet Assigned Numbers Authority (IANA), a division of the Internet Corporation for Assigned Names and Numbers (ICANN).
- ICANN to help maintain the security of the internet and allow it to be usable by all.
- Anyone registers a domain pays a small fee to ICANN.

Internet Protocol Address

- Organizations are assigned blocks of IPs, which they in turn assign to their machines that need Internet access.
- A small organization may be assigned 256 IP addresses, such as 191.57.126.0 to 191.57.126.255
- Very large organizations, such as the Department of Defence, may be assigned 16 million IP addresses, which include IP addresses with one particular first 8-bit number, such as 12.0.0.0 to 12.255.255.255
- You can visit a website using ip address also; like <http://209.87.113.93>

IPV4 VS IPV6

- IPv4 uses a 32-bit address
 - 4.29 billion
- IPv6 uses a 128-bit address
 - 340,282,366,920,938,463,463,374,607,431,768,211,456



Root Domain Name

- Iba-suk.edu.pk
- Facebook.com
- Google.com

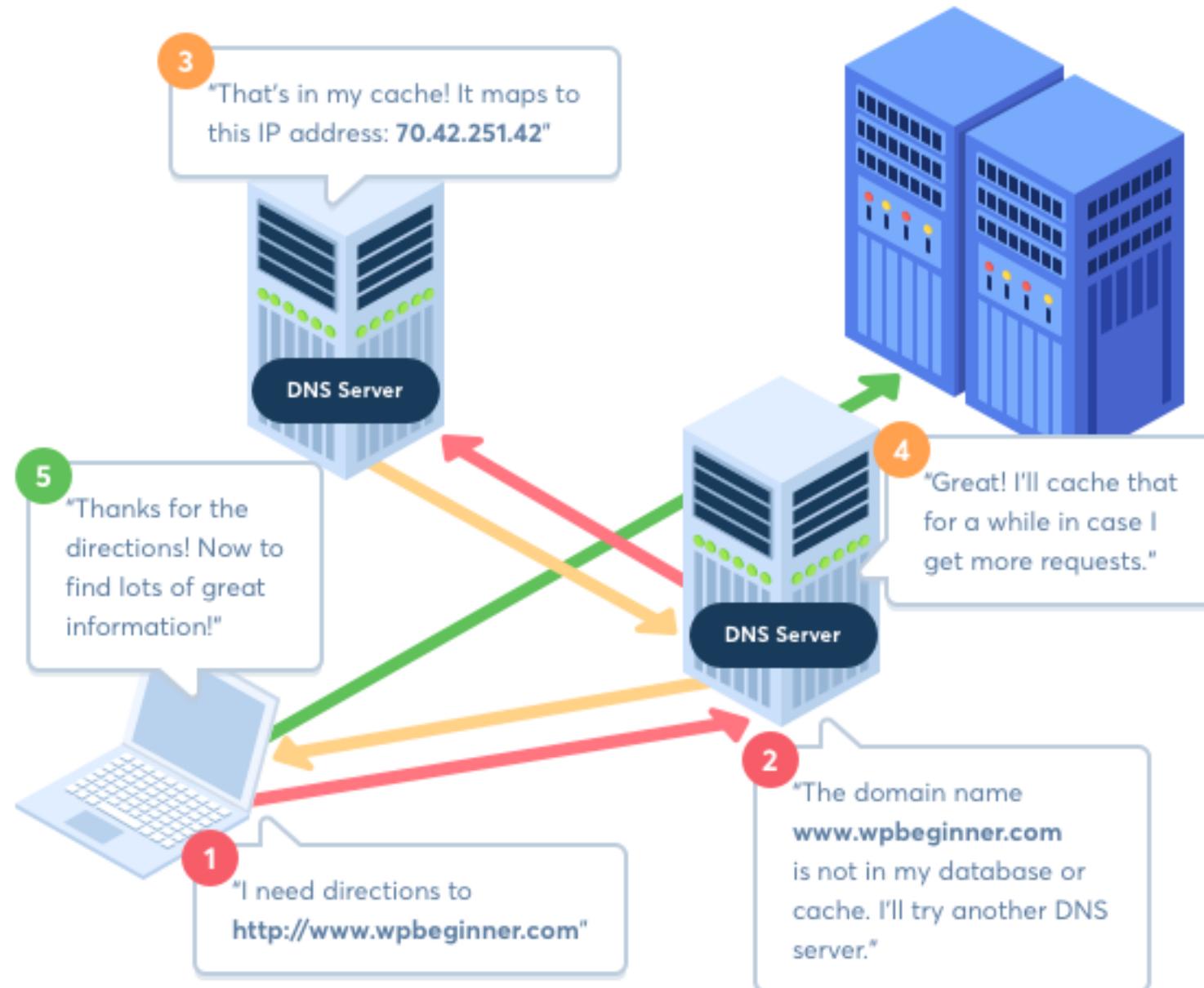
Sub Domain

- pscs.iba-suk.edu.pk (pscgs is subdomain)
- Blog.example.com

Top-level Domain

- .net
- .org
- .edu

How Domain Name Works



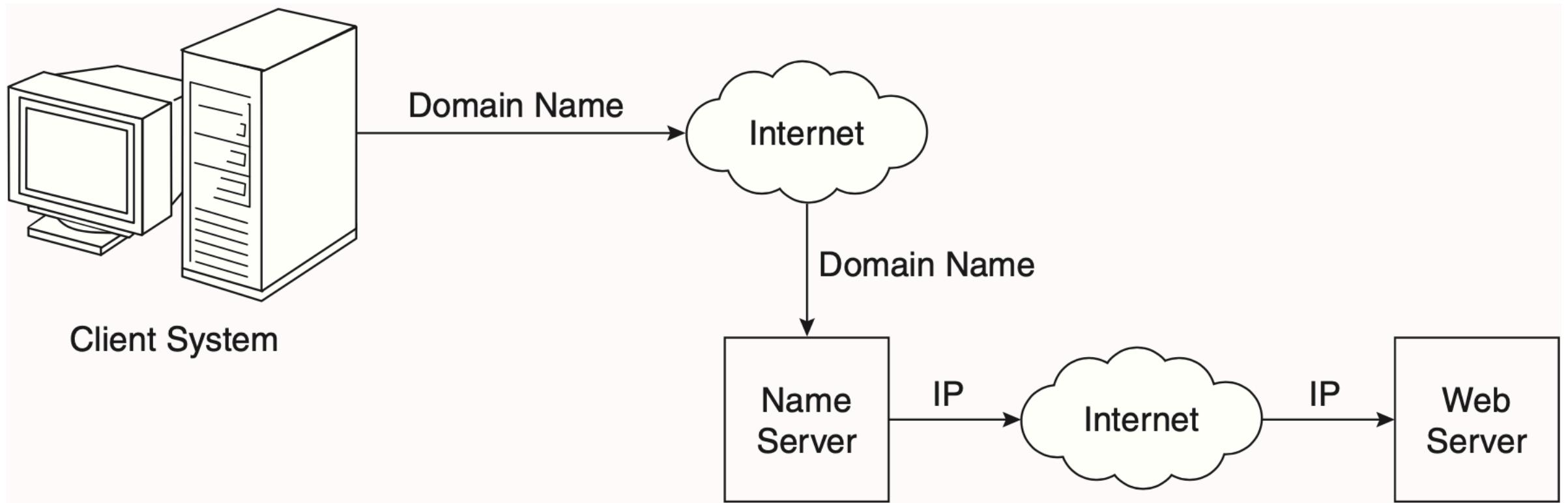


Figure 1.1 Domain name conversion

Web vs Internet



The Internet is a collection of computers and other devices connected by equipment that allows them to communicate with each other.



The Web is a collection of software and protocols that has been installed on most, if not all, of the computers on the Internet.
It is the collection of information which is accessed via the **Internet**

WWW

An information sharing model that is built on top of the Internet, utilizes HTTP protocol and browsers (such as Internet Explorer) to access Web pages formatted in HTML that are linked via hyperlinks and the Web is only a subset of the Internet (other uses of the Internet include email (via SMTP), Usenet, instant messaging and file transfer (via FTP))

URL (UNIFORM RESOURCE LOCATOR)

The address of documents and other content on the Web. It is consisting of protocol, domain and the file. Protocol can be either HTTP, FTP, Telnet, News etc., domain name is the DNS name of the server and file can be Static HTML, DOC, Jpeg, etc., .

In other words URLs are strings that uniquely identify resources on internet.



Web Application

- +
-
-

A website is a collection of static files(webpages) such as HTML pages, images, graphics etc.

A **Web application** is a web site with dynamic functionality on the server. **Google, Facebook, Twitter**

Hypertext

Hypertext systems allow for non-sequential, or non-linear, reading.

- link with a term that represents aspects of the content of a document
- connect two related documents
- relate a term to a fragment containing its definition and use
- link two related terms

Anchors & Links

- A hypertext document contains links referring to other parts of the document, or even to whole other documents.

