W8D3 - How Internet works

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Elements of a URL

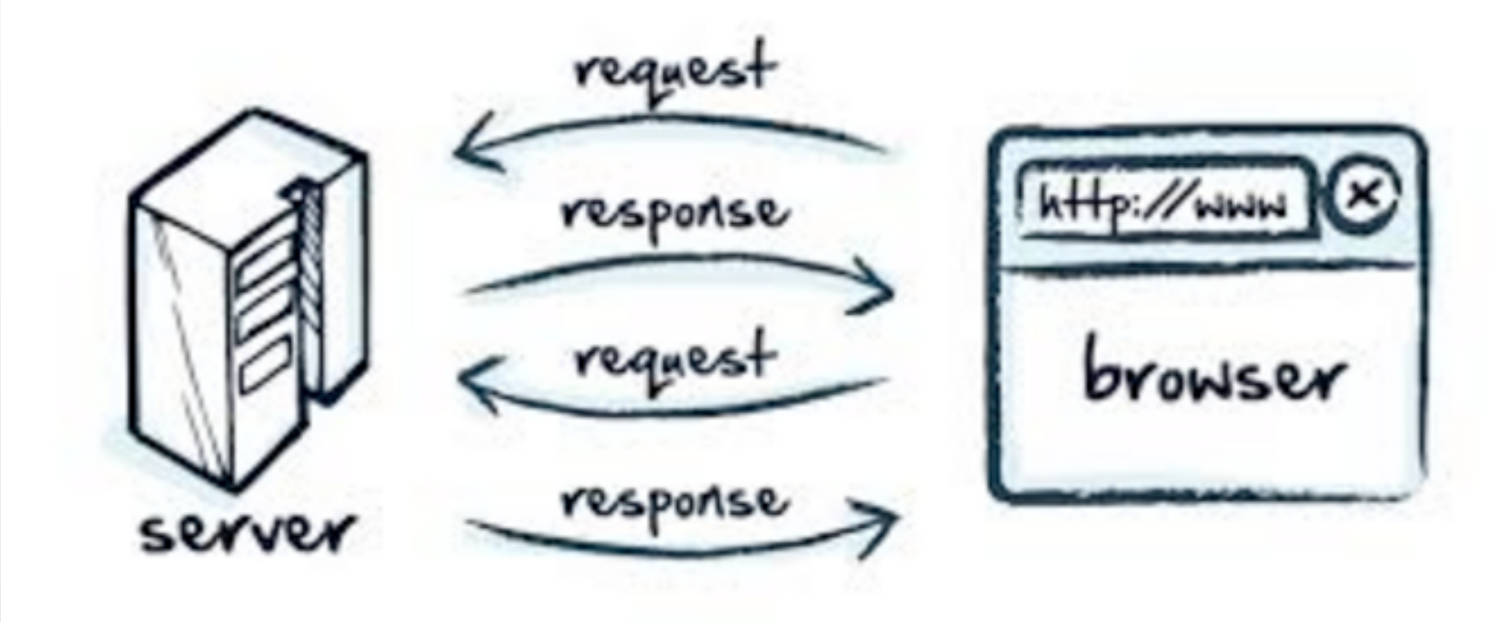
Elements of a URL

```
1       http://www.example.org/hello/world/foo.html?foo=bar&baz=bat#footer
2       \___/  \_____________/ \___________________/ \_____________/ \____/
3    protocol  host/domain name        path          querystring     hash/fragment
```

Copy

Explain this code

How internet works



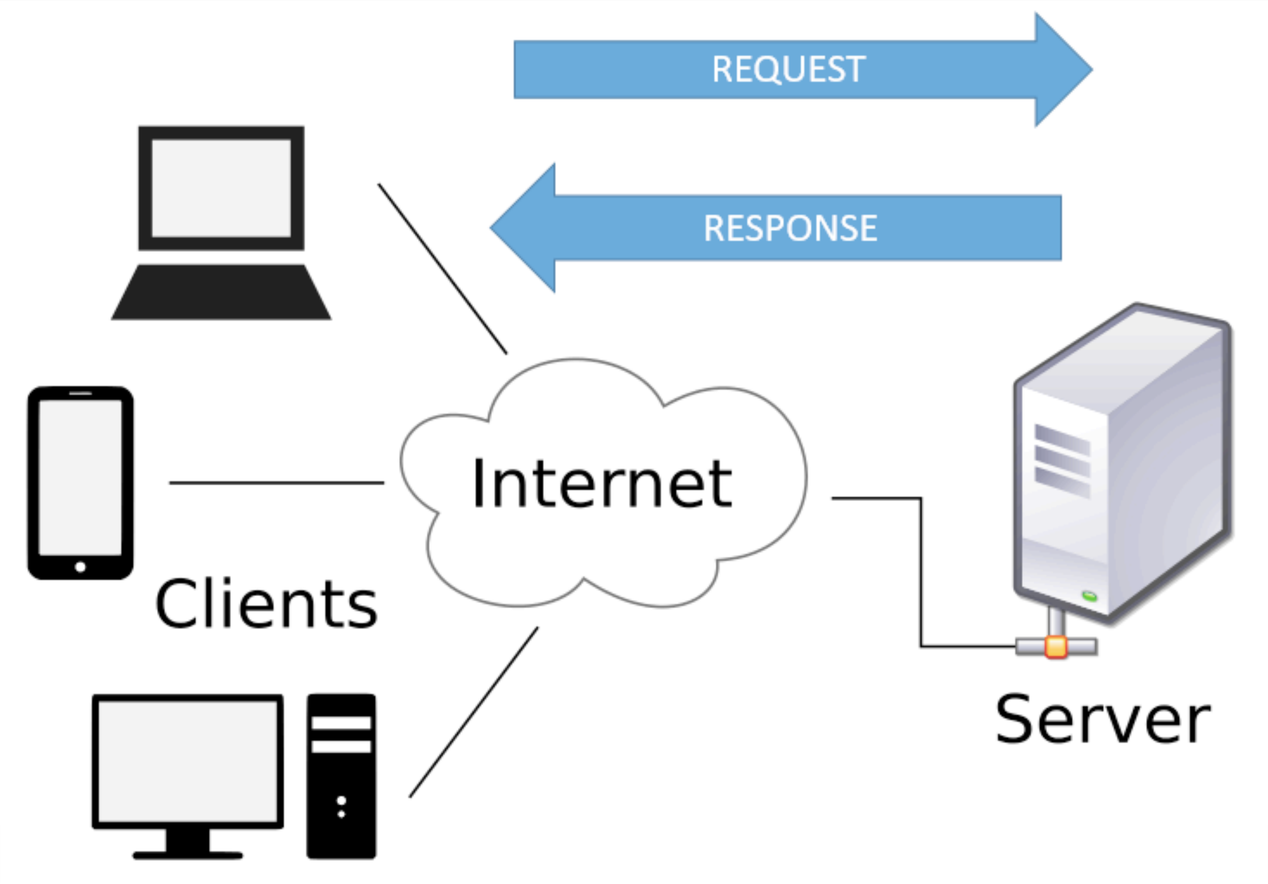
HTTP

Hyper Text Transfer Protocol.

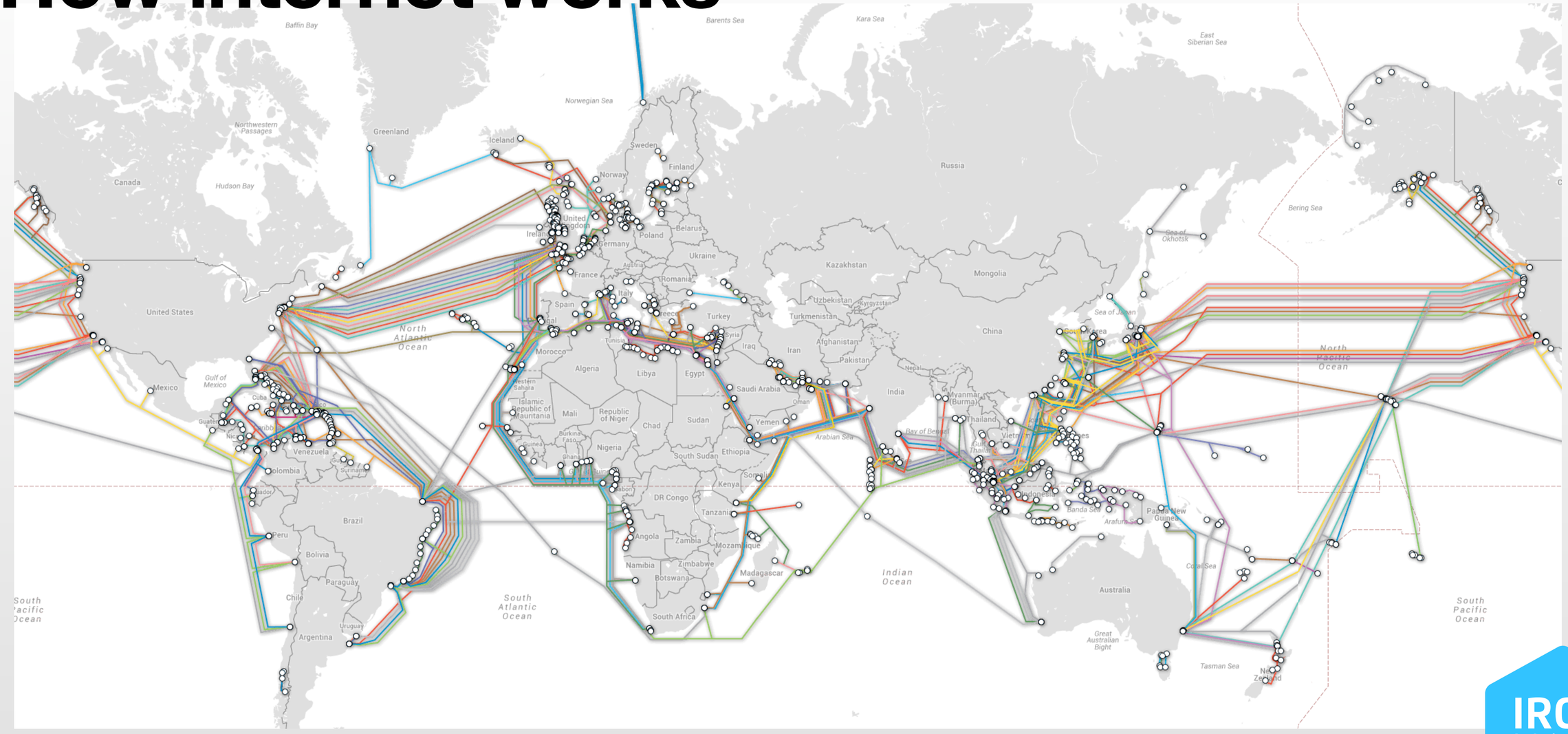
A protocol is a set of rules between clients and servers.

This protocol requests the ‘HTML’ document from the server and serves it to the browser. **HTTP is how computers on the Internet communicate.**

How internet works



How internet works



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HTTP

URLs reveal the identity of the particular host with which we want to communicate.

GET Fetch a resource

POST Create a new resource. Carry a payload

PUT Update an existing resource

DELETE Delete an existing resource.

HTTP Responses

2XX - Success

3XX - Redirect, temporary or permanent.

4XX - Client error. Request denied from the server for some reason.

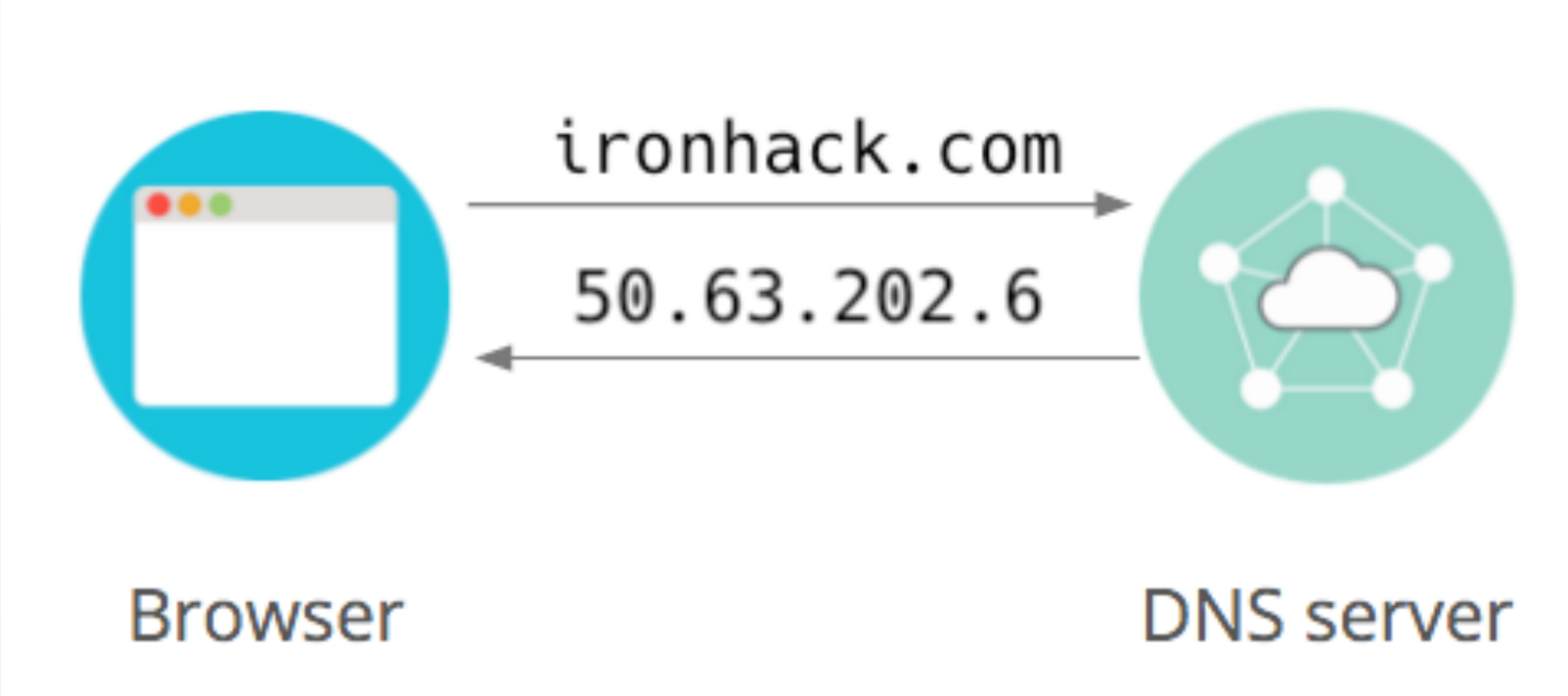
5XX - Server error. Request cannot be processed for some problem on the server side.

DNS

DNS: **Domain Name Servers**

DNS translate human-readable domain names (like **google.com**) into machine-readable IP addresses (like **172.217.0.0**).

Domains and IP Records



Bonus: Domain Records

DNS Record	Description
A	Maps domain names to IPv4 addresses
AAAA	Maps domain names to IPv6 addresses
CNAME	Redirects a domain to a different domain
PTR	Resolves IPv4 or IPv6 addresses to domain names
NS	Provides a list of the authoritative name servers responsible for the domain
MX	Provides the domain names of mail servers that receive emails on behalf of a domain
SOA	Provides important details about a DNS zone; required for every DNS zone
TXT	Provides any type of descriptive information in text format

Bonus: Other Records

1. **MX Records Point to Mail Server Hostnames**
   - Example:

```dns
example.com.  MX  10 mail.example.com.
```

     - `mail.example.com` is the **hostname** of the email server.
     - The MX record tells senders: *"Emails for `@example.com` should go to `mail.example.com`."*
2. **The Hostname Must Resolve to an IP**
   - The mail server's hostname (`mail.example.com`) needs its own `A` or `AAAA` record:

```dns
mail.example.com.  A  192.0.2.1
```

   - Without this, email delivery fails (DNS can't find the server's IP).
3. **Priority Matters**
   - MX records include a **priority number** (e.g., `10`, `20`). Lower = higher priority.
   - Example with backup servers:

```dns
example.com.  MX  10 mail1.example.com.
example.com.  MX  20 mail2.example.com.
```

“As a full-stack developer, your work can include building websites from scratch, setting up domains, configuring emails—code, servers, DNS”