# Overview

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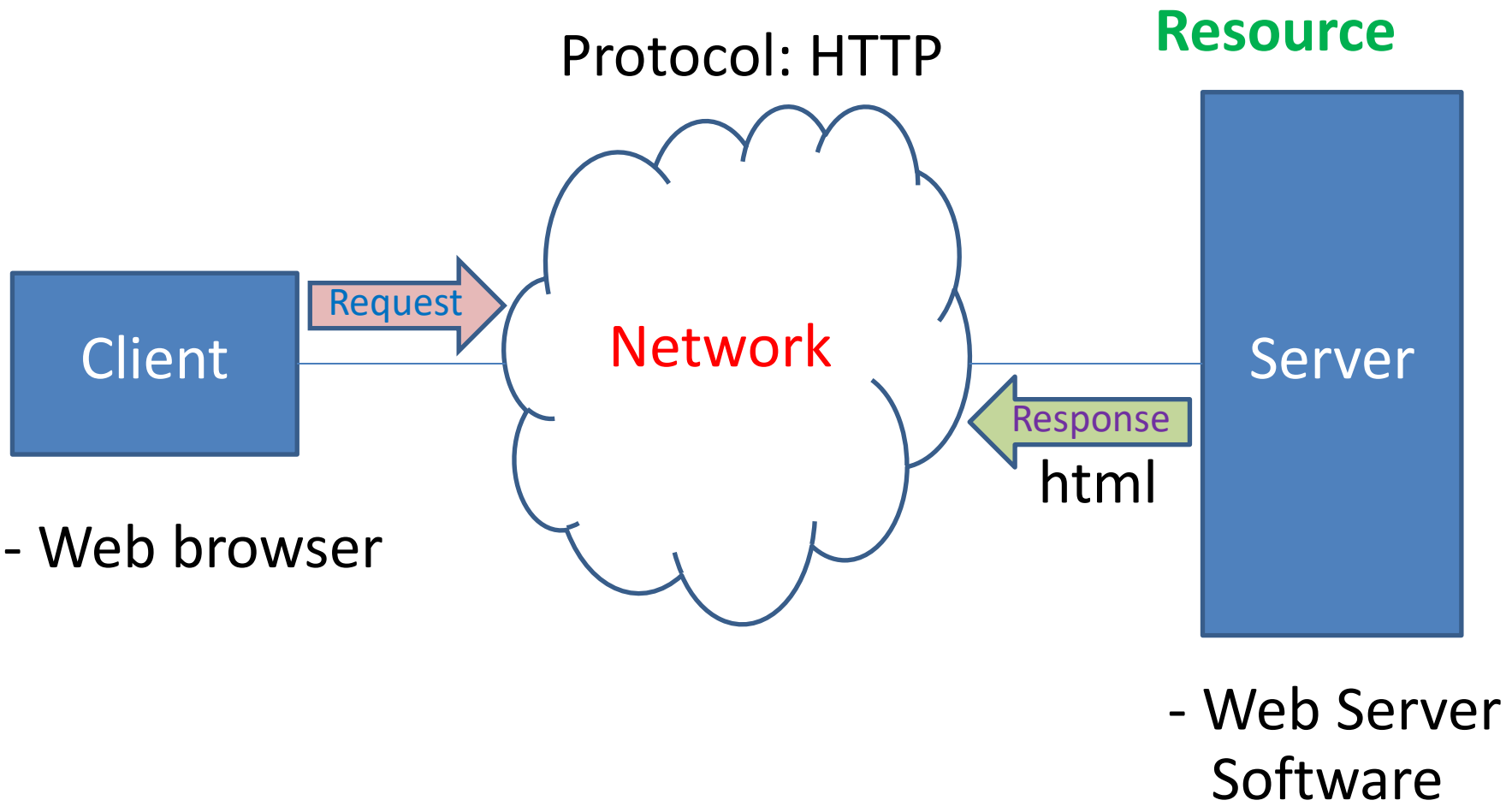
เข้าเช็คชื่อในระบบ **goedu** ด้วยนะครับ

# Web Concept


Protocol: HTTP
Resource
Client
Request
Network
Server
Response
html
- Web browser
- Web Server Software

# Hypertext Transfer Protocol

- Request – Reply protocol (RR)
- HTTP Resources are identify by URI (or URL)
- 2 types of message
  - Request message

  - Response message

# Example of HTTP Exchange

- Request message:

```
GET /index.html HTTP/1.1
Host: www.example.com
[Blank Line]
```

Request line

header line

- Response message:

```
HTTP/1.1 200 OK
Date: Fri, 31 Dec 1999 23:59:59 GMT
Content-Type: text/html
Content-Length: 1354
[Blank Line]
<html>
…
```

Status line

Header lines

Body

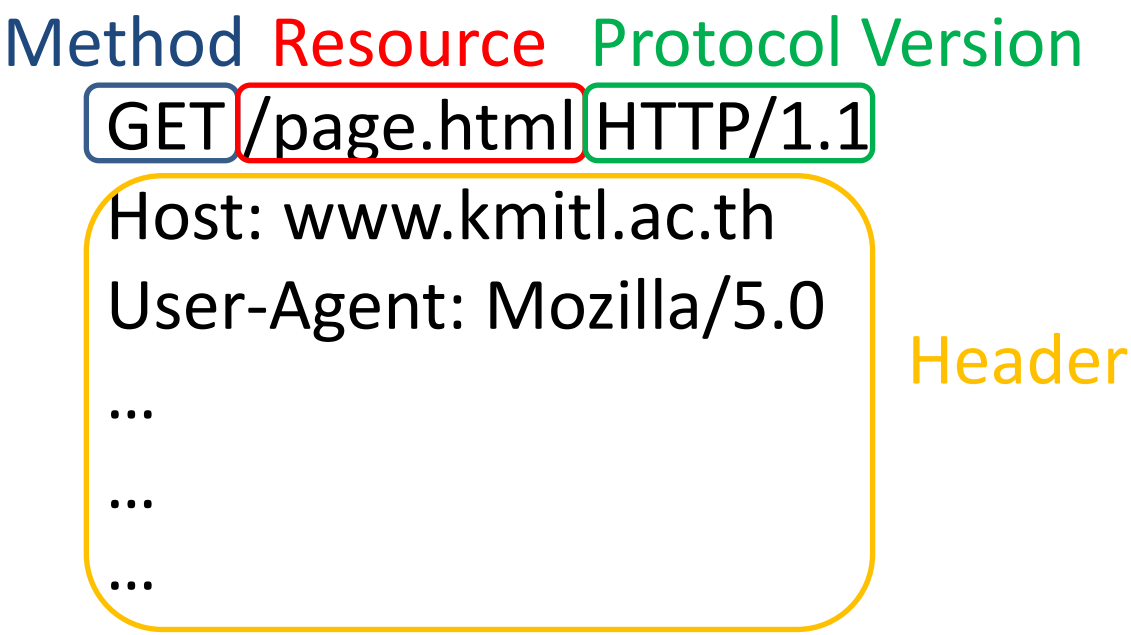
# HTTP Protocol

- 2 common methods
  - Get
  - Post

# HTTP GET Method

URL: http://www.kmitl.ac.th/page.html

- Requesting resource



# HTTP GET Method

URL:

Query string

http://www.kmitl.ac.th/q.php?id=123&name=John

Method Resource Protocol Version

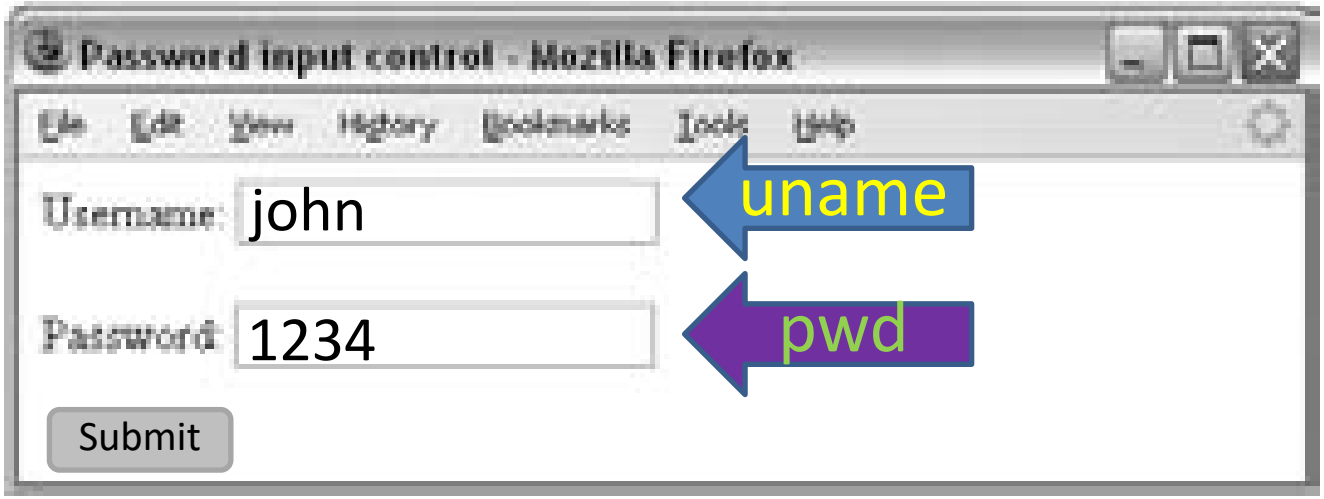
GET /q.php?id=123&name=John HTTP/1.1

Host: www.kmitl.ac.th
User-Agent: Mozilla/5.0
…
…
…

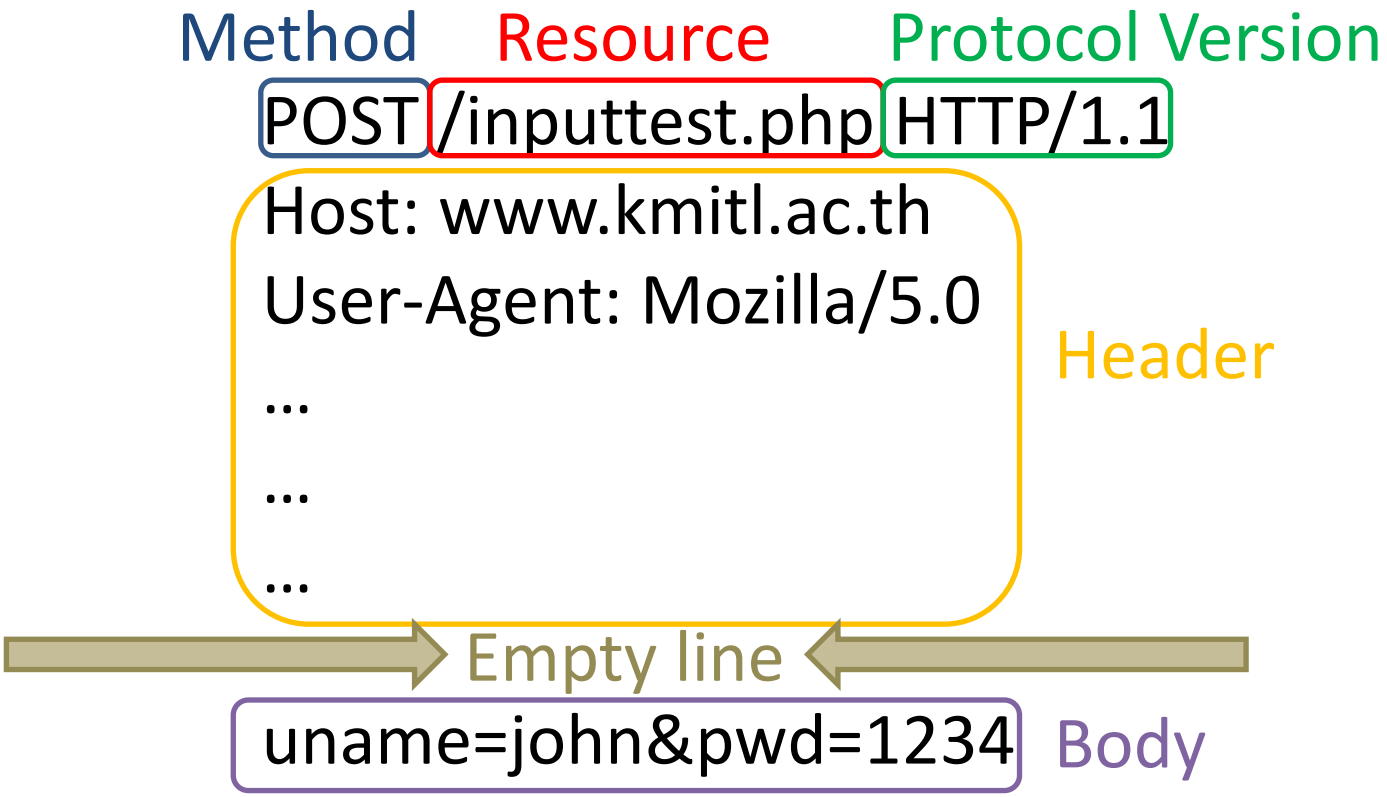
Header

# HTTP POST Method

< form action=”http://www.kmitl.ac.th/inputtest.php” **method=”post”** >
Username: < input type=”text” **name=”uname”** value=”” size=”20” maxlength=”20” >
< br >
Password: < input type=”password” **name=”pwd”** value=”” size=”20” maxlength=”20” >
< input type=”submit” value=”Submit” >
< /form >



# HTTP POST Method



# Get VS Post

| | Get | Post |
|---|---|---|
| Data length to be sent | ~4000 | unlimited |
| Can send a chunk of data | No | Yes |
| Location of data in message | URL | Body |
| Can access CGI without using Form | Yes | No |
| Can retrieve file or other resource | Yes | No |

# How does it work?

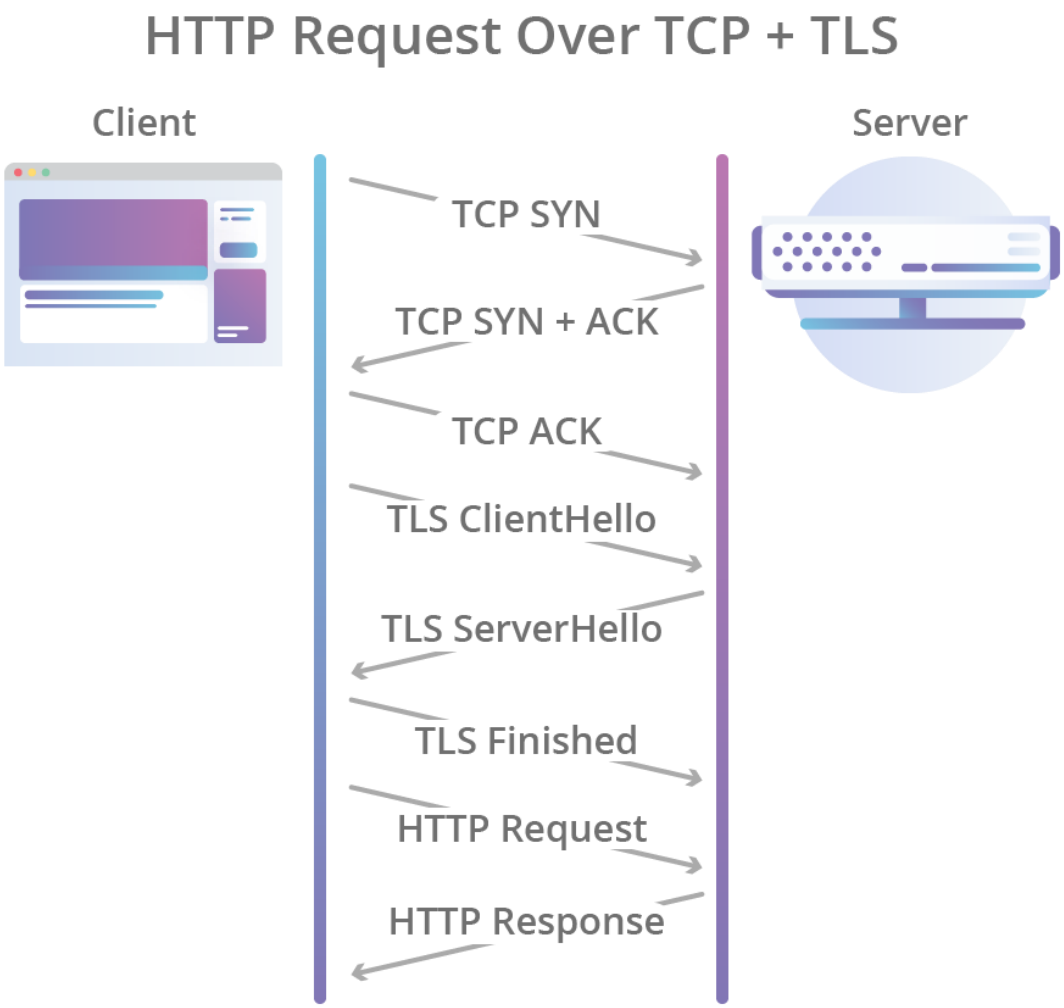
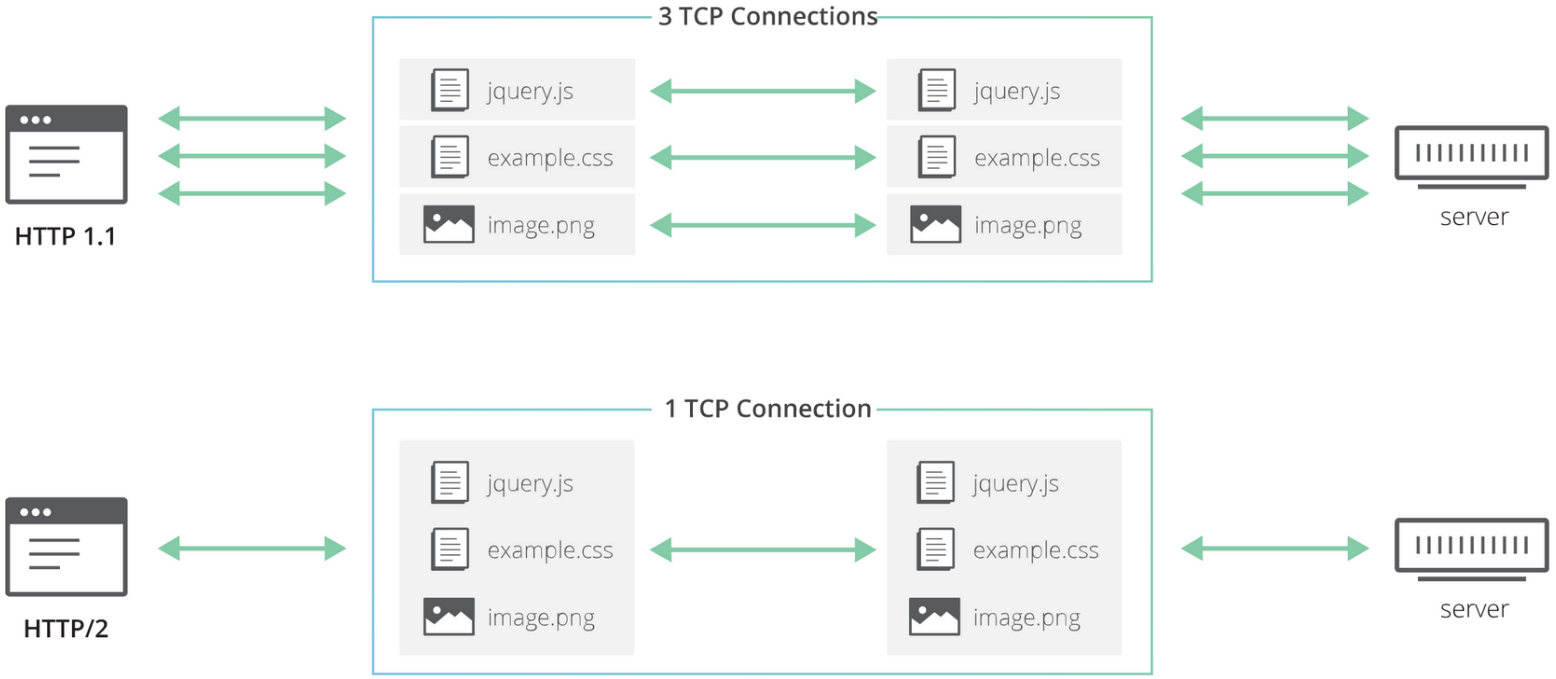



Image source: Cloudflare

# How does it work?

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# How does it work?

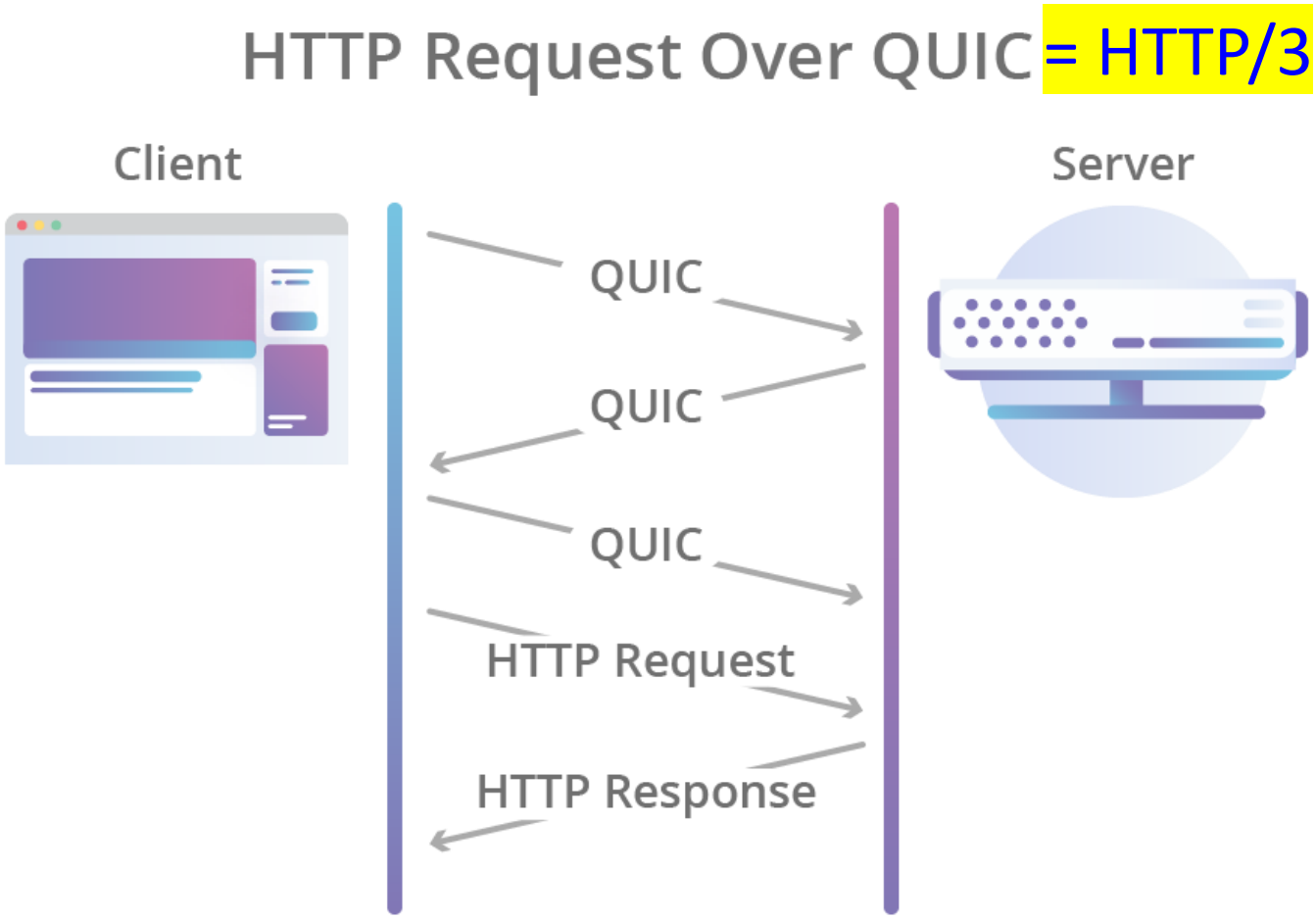



Image source: Cloudflare

# Introducing HTML and xHTML

- HTML standard is overseen by W3C
- HTML 4.01 released Dec. 1999
  - Added stricter rules to HTML 4.01 in Jan. 2000 creating what is known as xHTML
  - xHTML = Extensible Hypertext Markup Language

# HTML5

- HTML5 released as a living-standard by WHATWG in 2012 and is continuously updated
  - WHATWG = Web Hypertext Application Technology Working Group
    - Formed 2004
    - Major web browser vendors are member of WHATWG
    - W3C supported WHATWG in 2006
  - Living-standard = new feature can be added but old features cannot be removed

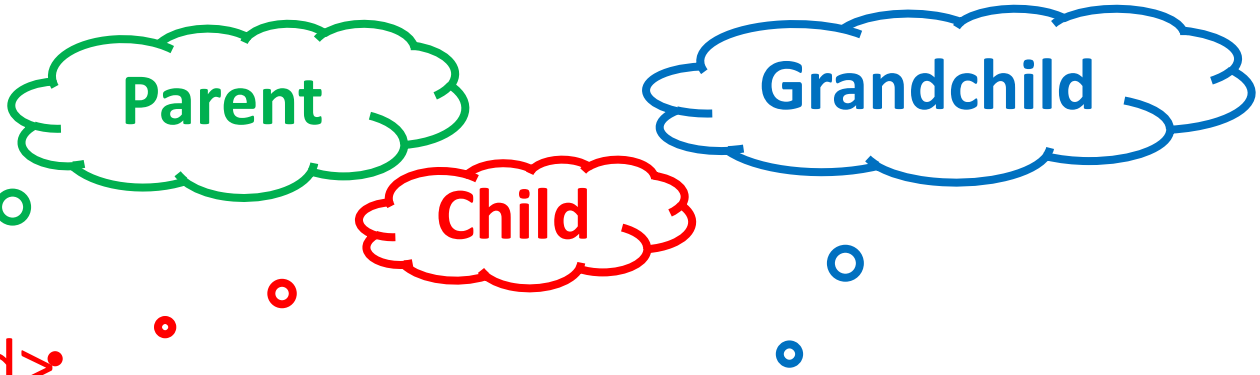
# HTML5

- W3C developed a definitive HTML5
  - W3C and WHATWG decided on separation in 2012
  - W3C HTML5 released 2014
  - W3C HTML5.1 2nd edition released 2017
  - W3C HTML5.2 released 2017

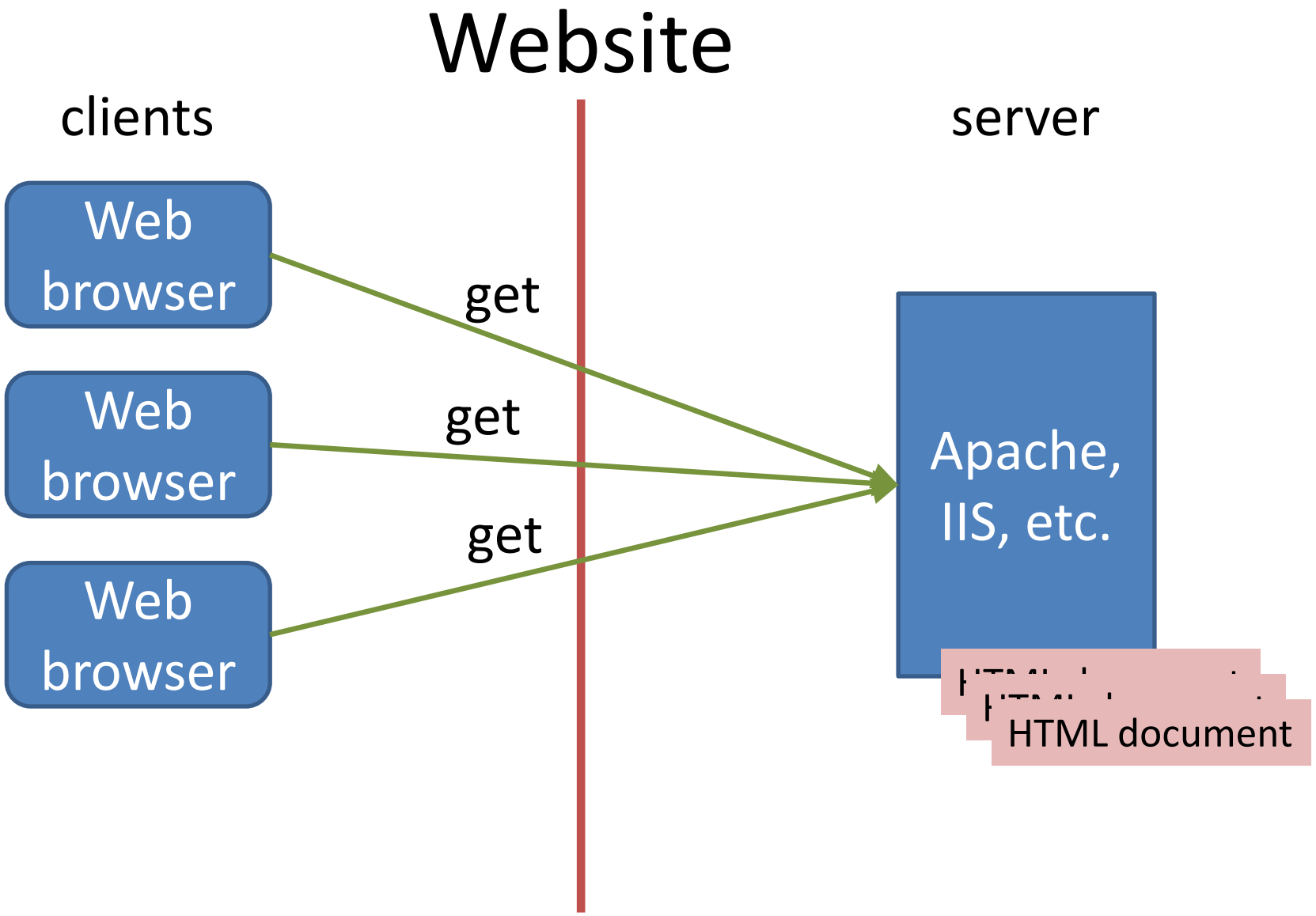
# Hypertext Markup Language

- Tags, Elements and Attributes
  - Tags = tokens enclosed by angle brackets - < >
  - Elements define the structure of document and lay the foundation for its presentation and manipulation, contained within one or two tags
  - Attributes = Tag modifiers compose of 2 parts: name and value
- Mostly case insensitive and not necessary to quote the value part of the attributes

- HTML example




```
<html>
    <head>
        <title>Page's title</title>
    </head>
    <body>
        <h1>headline 1</h1>
        <p>Paragraph of text</p>
    </body>
</html>
```


Website
clients
server
Web browser
Web browser
Web browser
get
get
get
Apache, IIS, etc.
HTML document

# Other Web Technologies

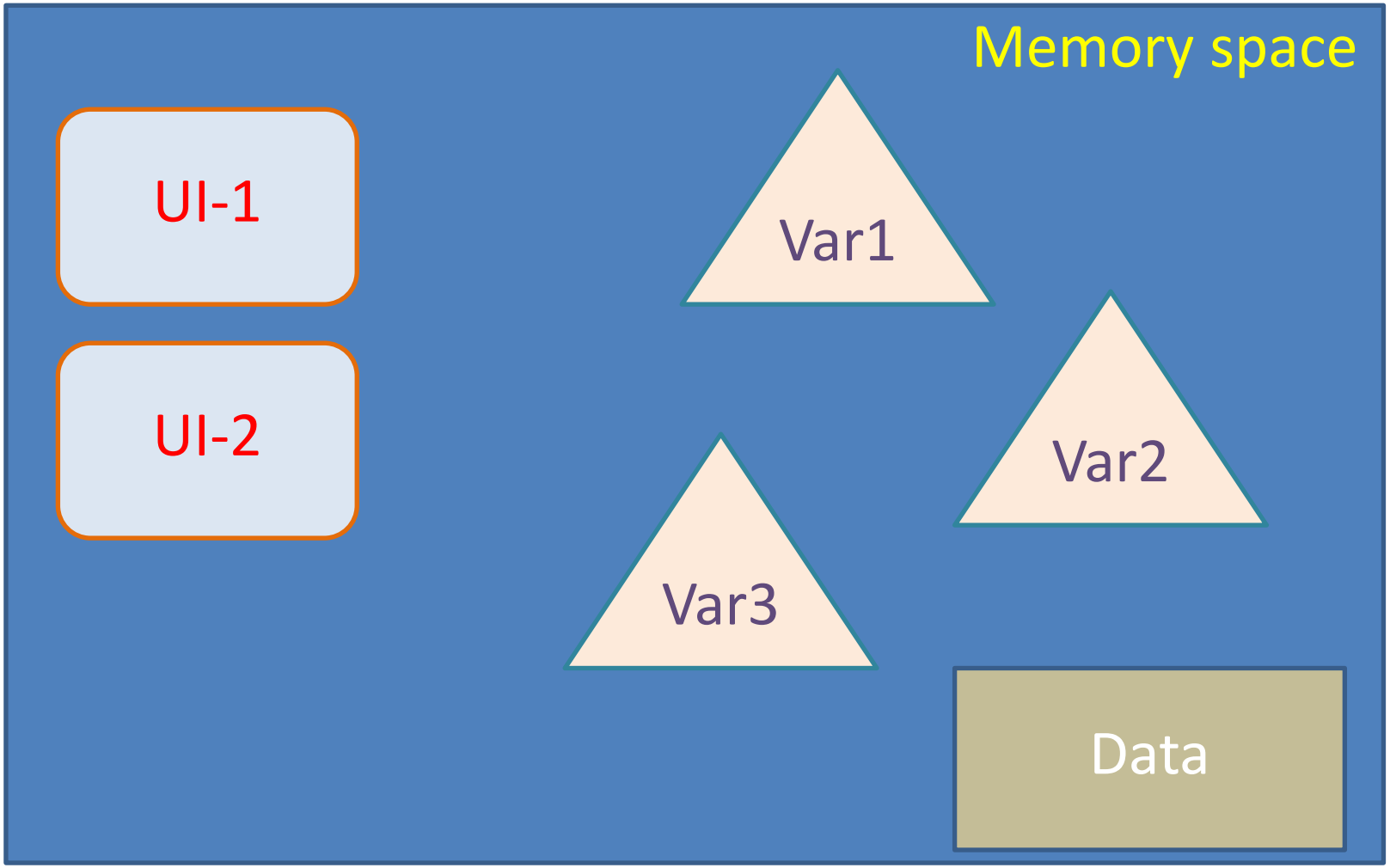
- CSS
  - Cascading Style Sheets
  - Controls visual aspects of web pages
  - Uses in conjunction with DOM
- DOM
  - Document Object Model
  - Defines the structure of html document
- ECMAScript
  - Client-side scripts
  - JavaScript is a dialect of the ECMAScript standard

# Improving the Web Experience

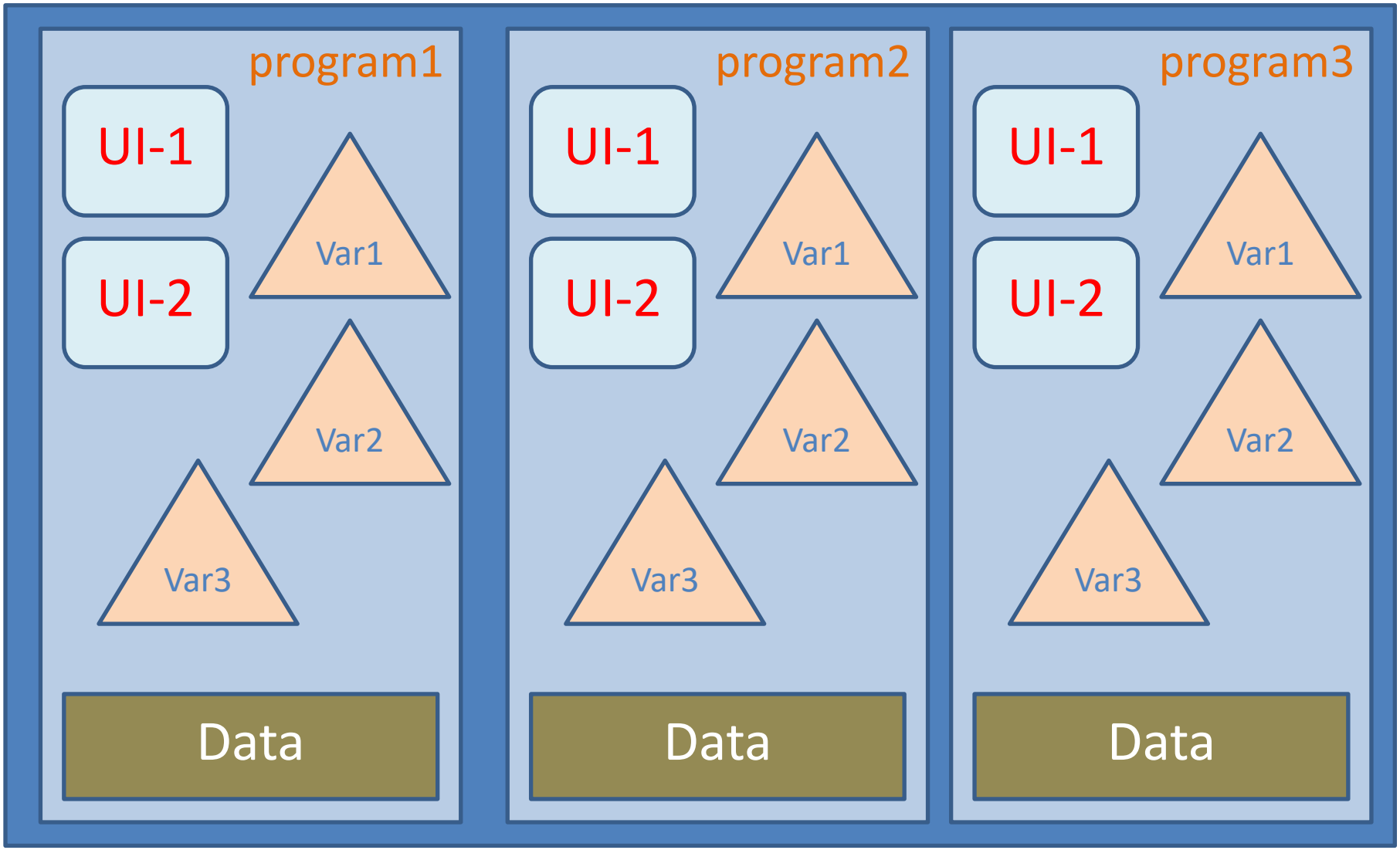
- Interaction
  - Client-side scripting
- Refreshing an entire page is not efficient
  - AJAX

# Web Dev

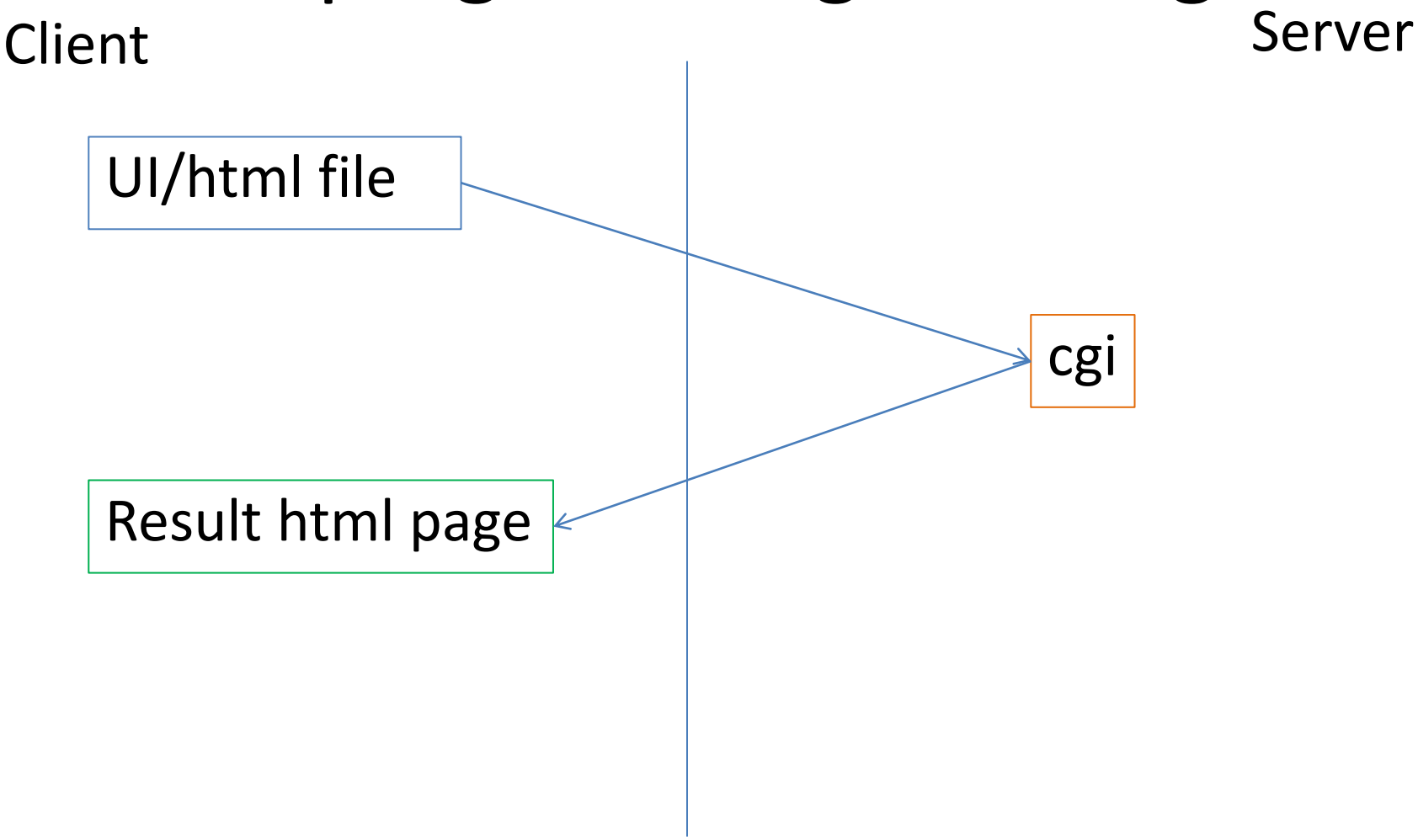
# Common Program



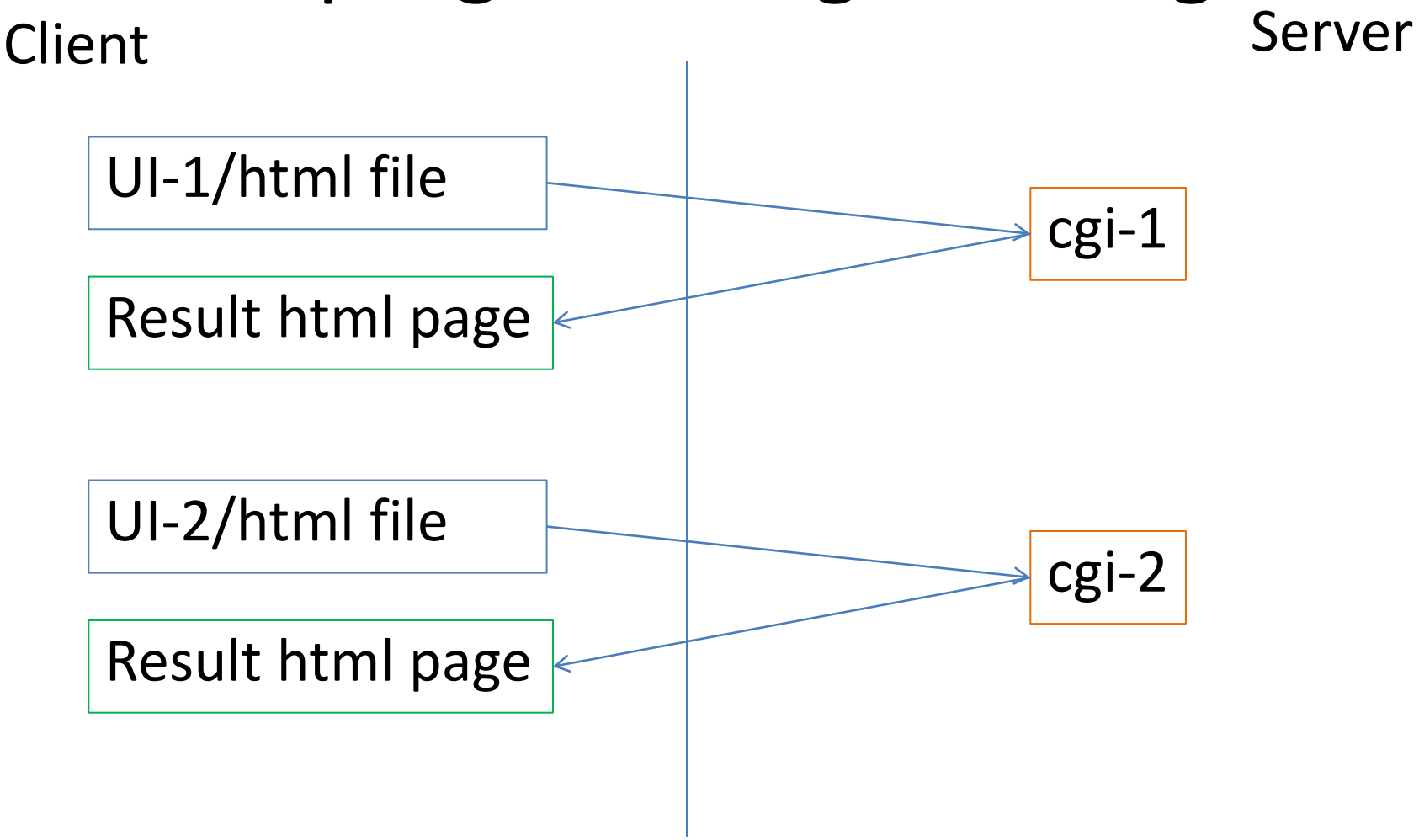
# Common Program



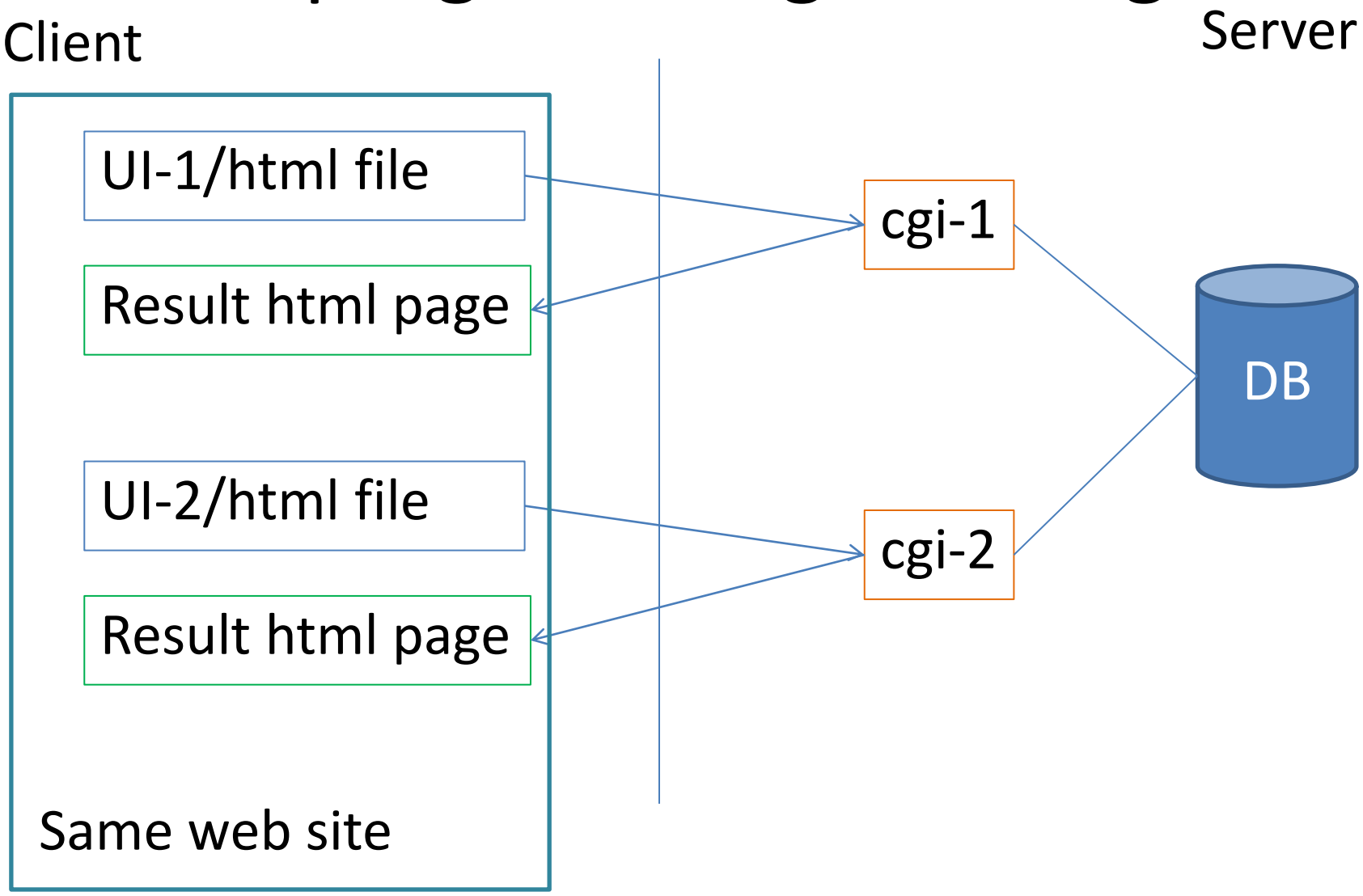
# Web programming challenge



# Web programming challenge



# Web programming challenge

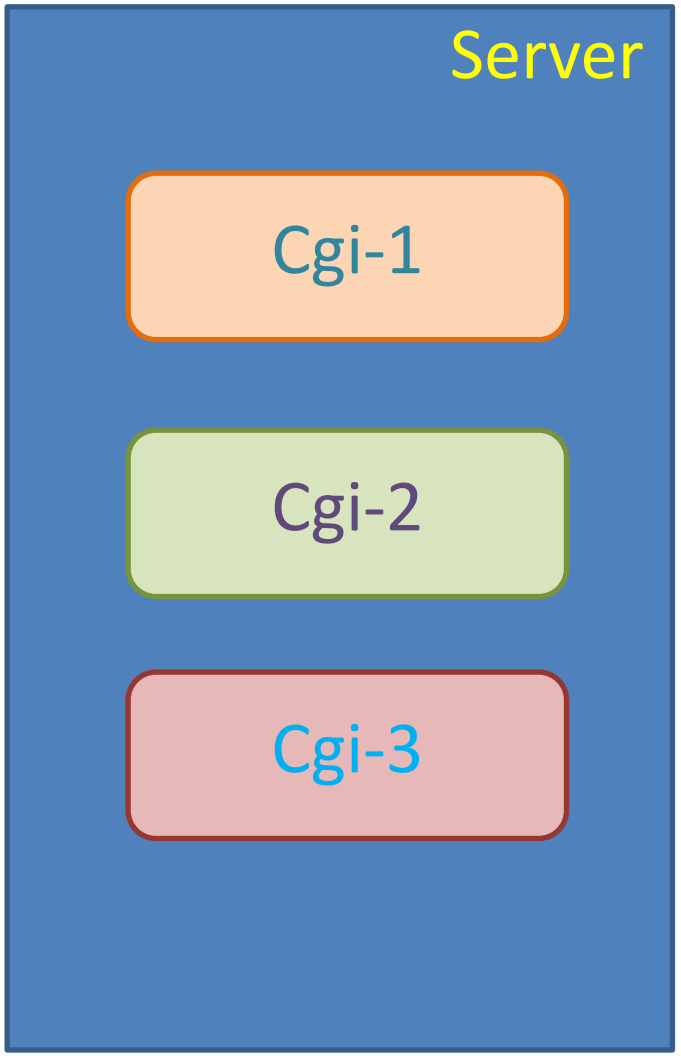


# Difficulties

Service existence

Service info.
-Parameters
-Address
-Return type
-Etc.

Data format



# Example of data sending with GET

www.sample.com/chk.cgi**?**fn=John**&**ln=Doe

URI

Data

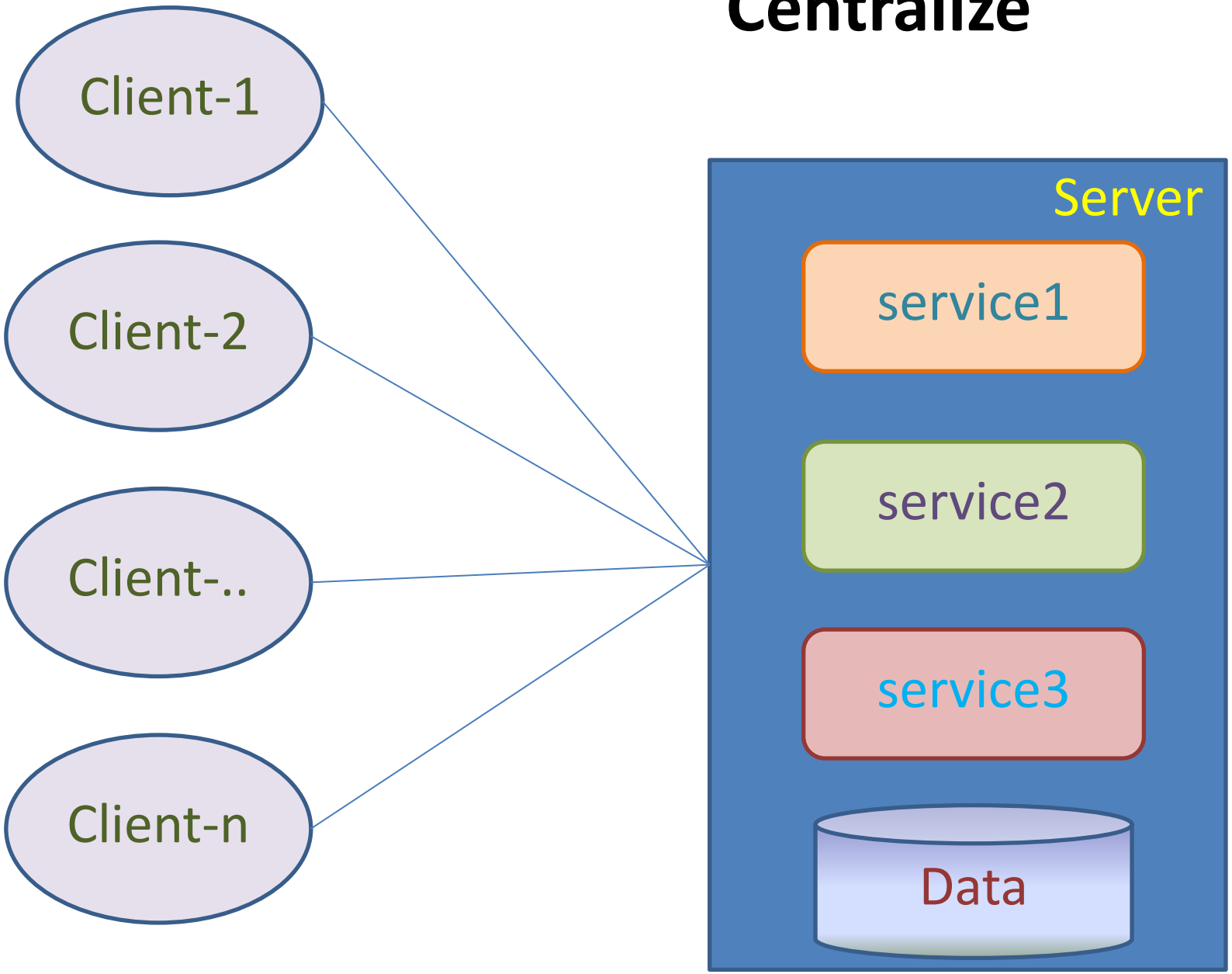
# Evolution of WWW

- From User Point of View
  - Web 1.0 (1991 – 2003)
    - Static in term that user can not change any data
    - Example: www.kmitl.ac.th
  - Web 2.0 (2003 – present)
    - Users can do more than just retrieve information
    - Provide user with UIs, software, storage
    - User customizable
    - Examples: www.facebook.com, www.wikipedia.org

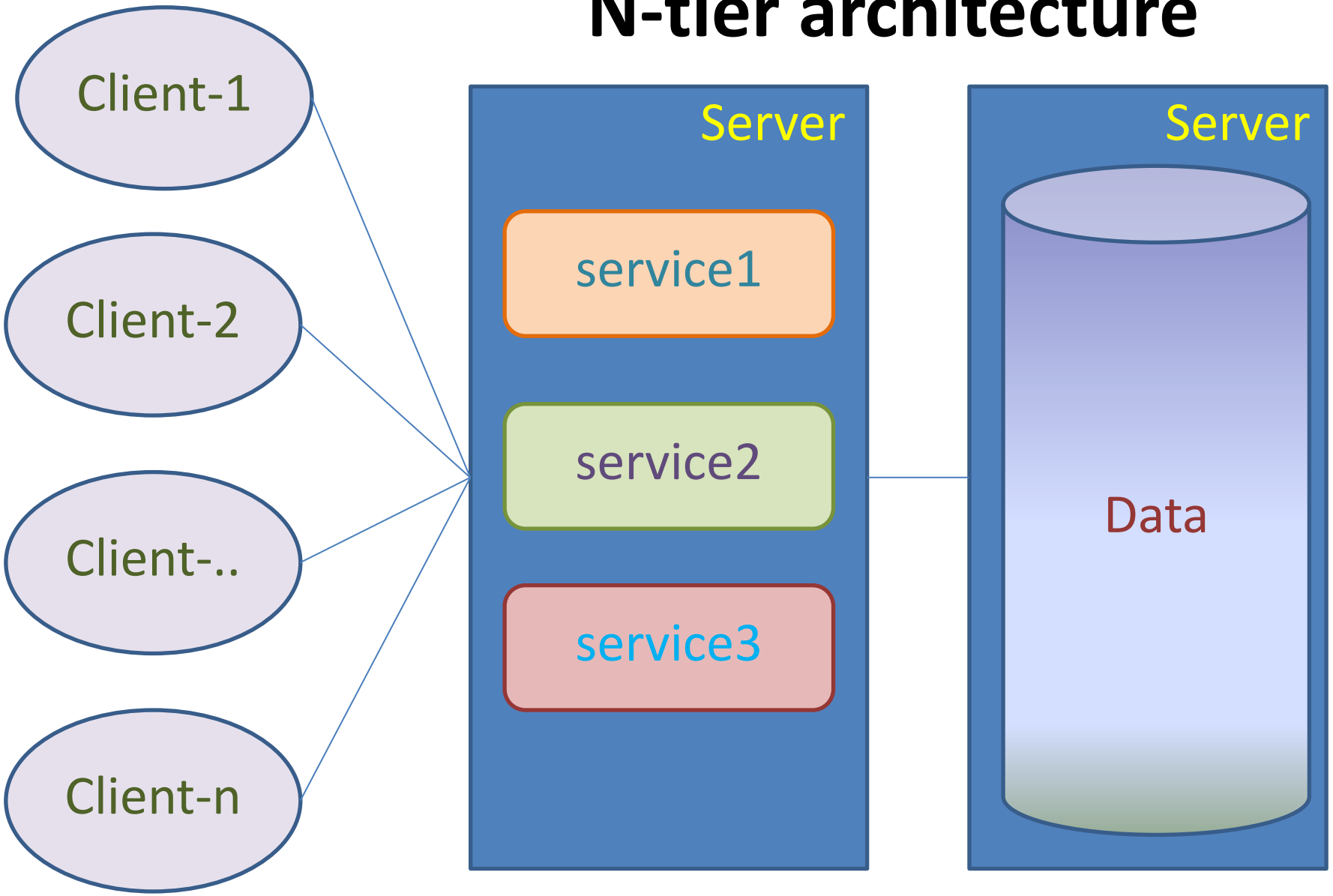
# Evolution of WWW (cont.)

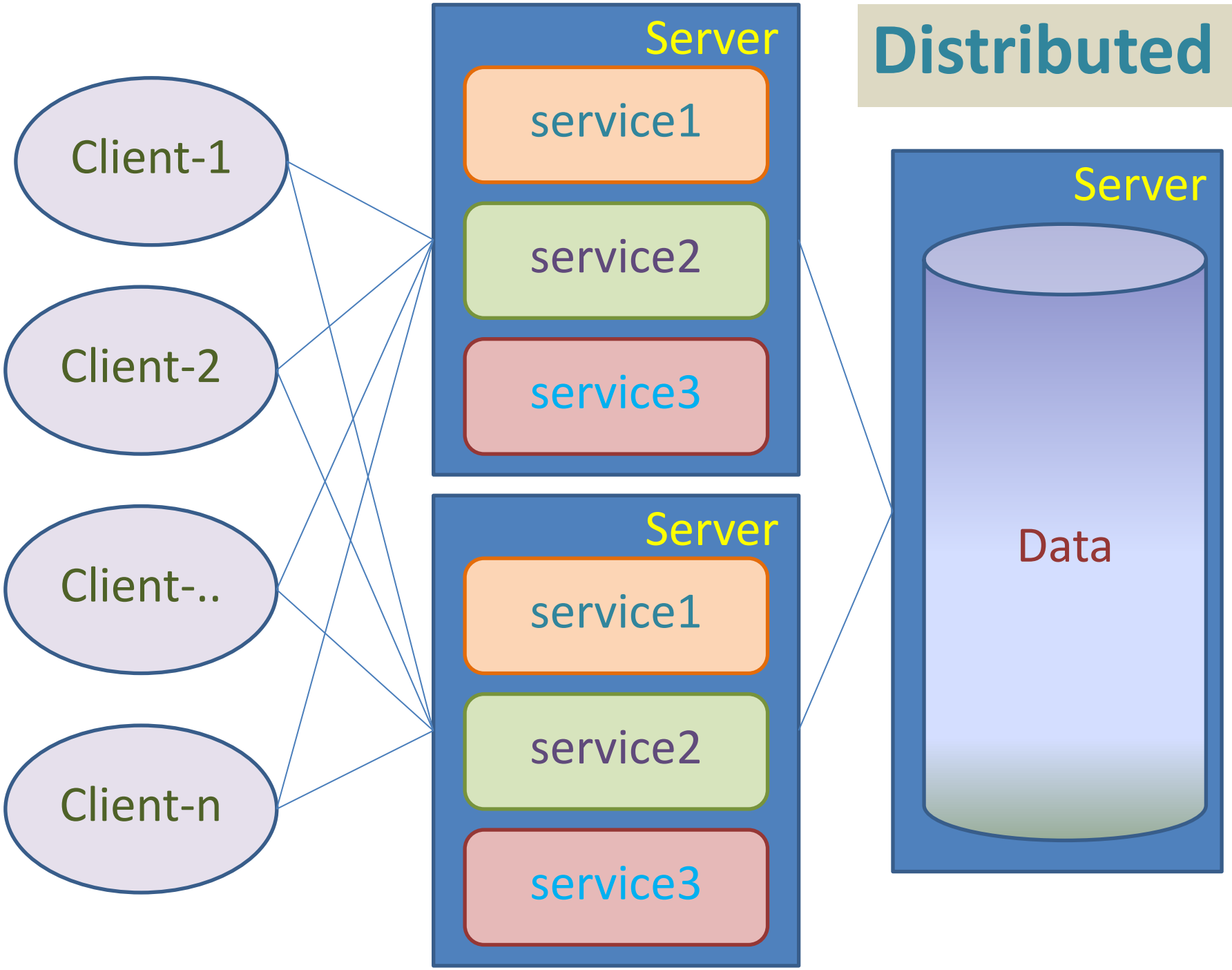
- From developer aspect
  - Client side
    - HTML
    - Web Scripting languages: JavaScript, VBScript
    - DHTML
    - AJAX
  - Server side
    - CGI -> Perl, C, C++, Pascal, Unix shell script, Python, TCL/TK, etc.
    - Server Side Include (SSI) -> .shtm or .shtml or .stm
    - Interpreter as a part of web server software -> PHP
    - Web Service, Web API, etc.

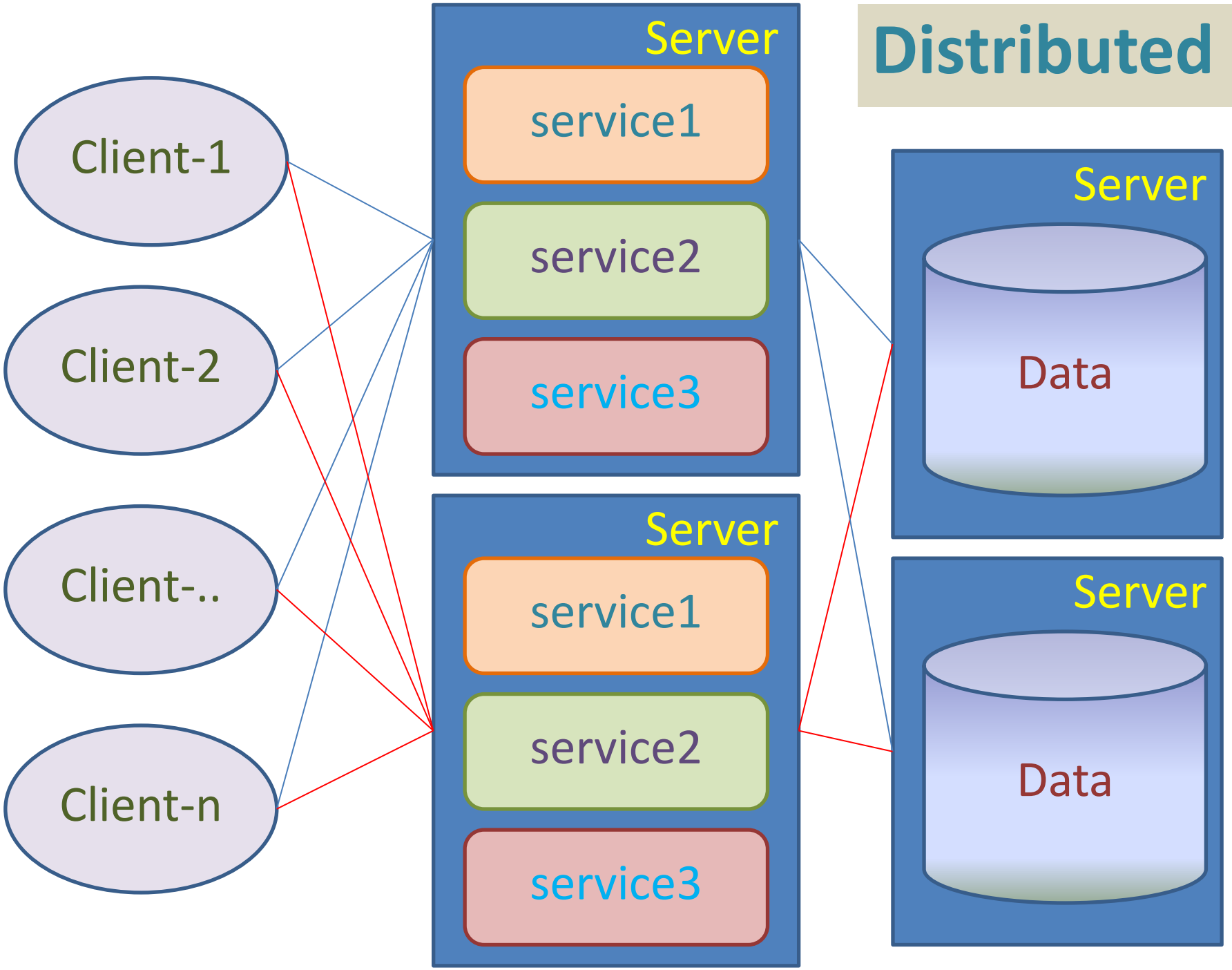
# Centralize

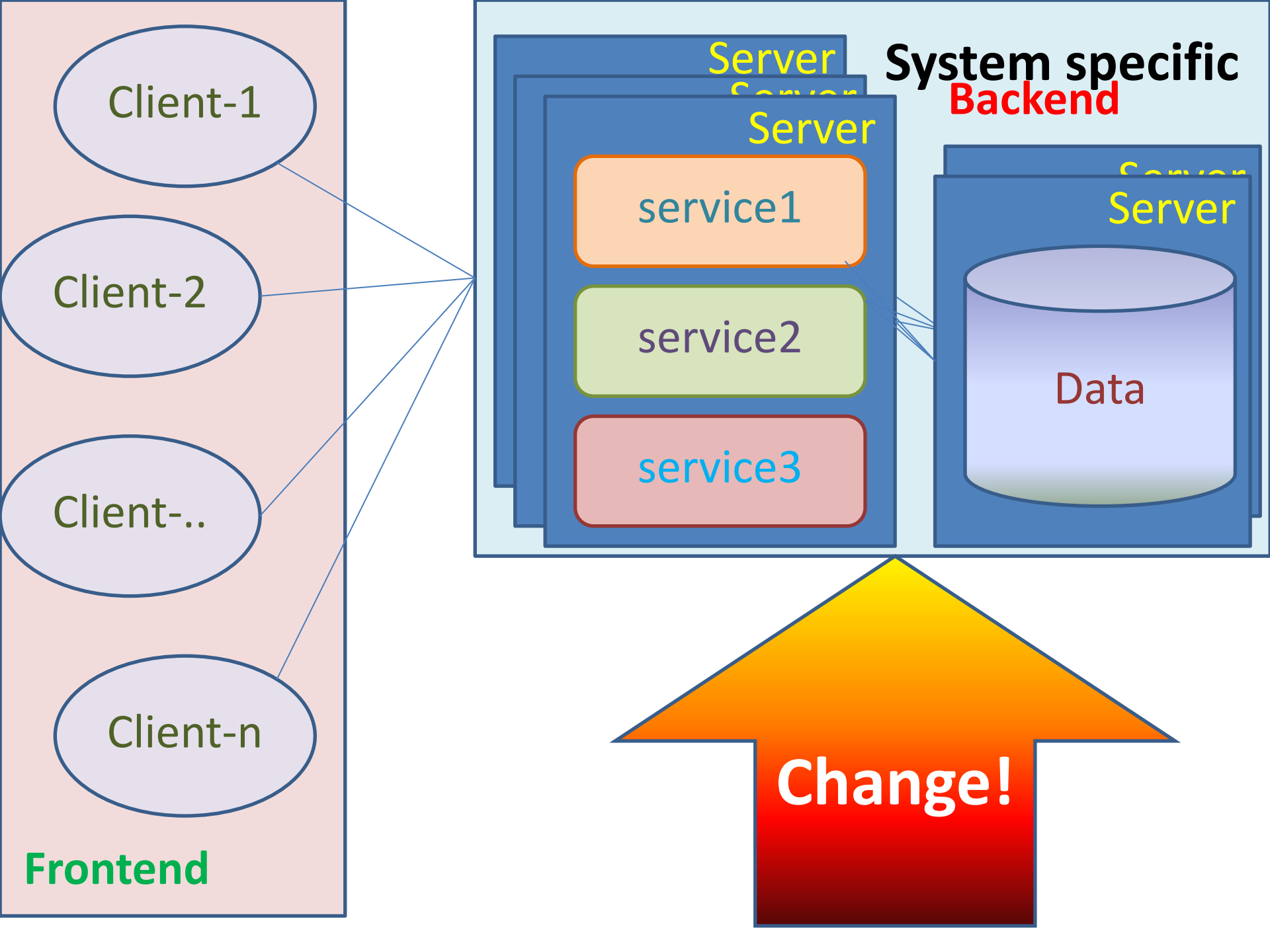

Client-1
Client-2
Client-..
Client-n
Server
service1
service2
service3
Data

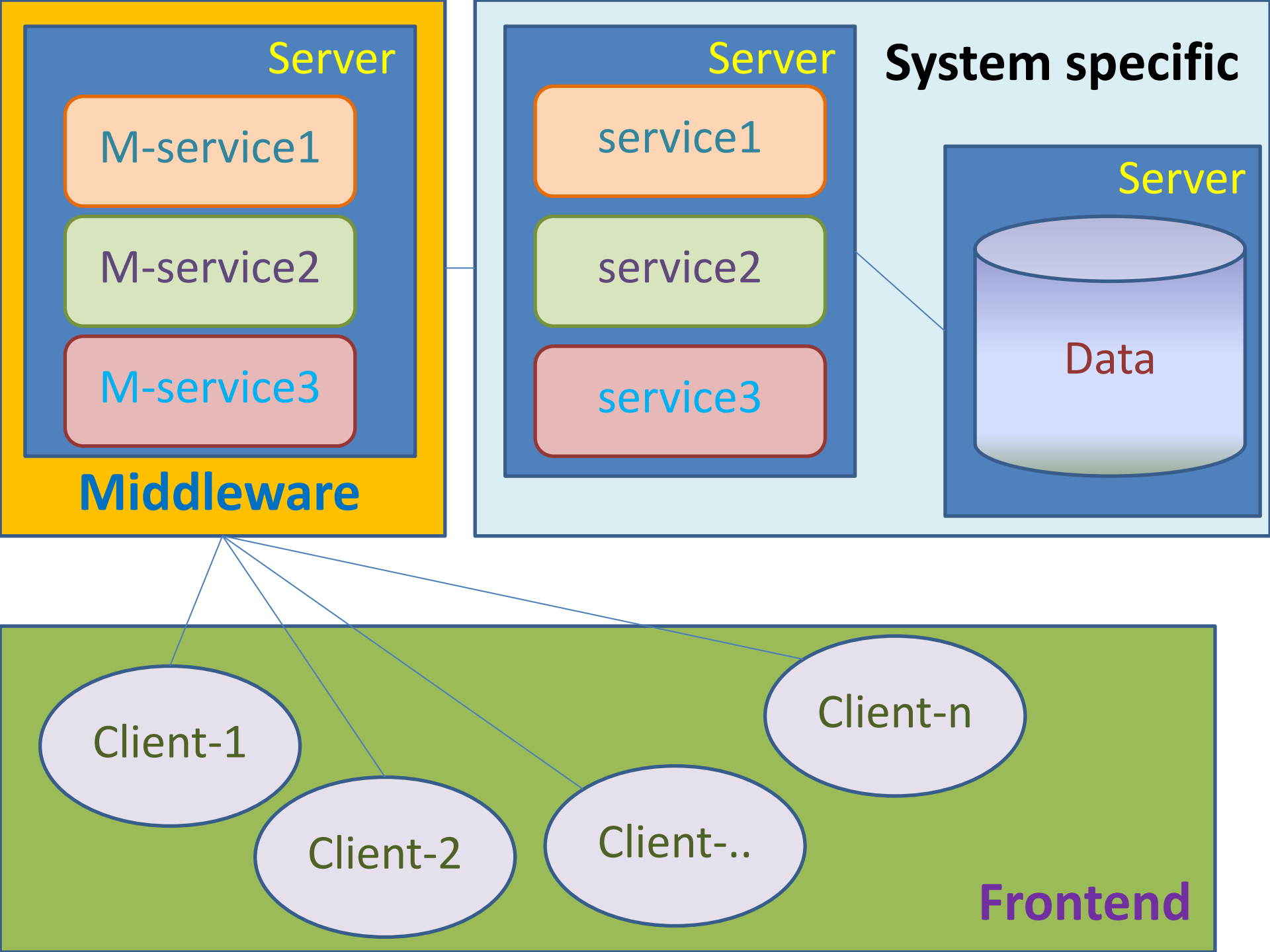
# N-tier architecture




Distributed
Client-1
Client-2
Client-..
Client-n
Server
service1
service2
service3
Server
service1
service2
service3
Server
Data


Distributed
Client-1
Client-2
Client-..
Client-n
Server
service1
service2
service3
Server
service1
service2
service3
Server
Data
Server
Data


Client-1
Client-2
Client-..
Client-n
Frontend
Server
Server
System specific
Backend
service1
service2
service3
Server
Data
Change!


Server
M-service1
M-service2
M-service3
Middleware
Server
service1
service2
service3
System specific
Server
Data
Client-1
Client-2
Client-..
Client-n
Frontend