Grade 12 A/L ICT · Lesson 6

6.9 DNS, HTTP and the Client–Server Model

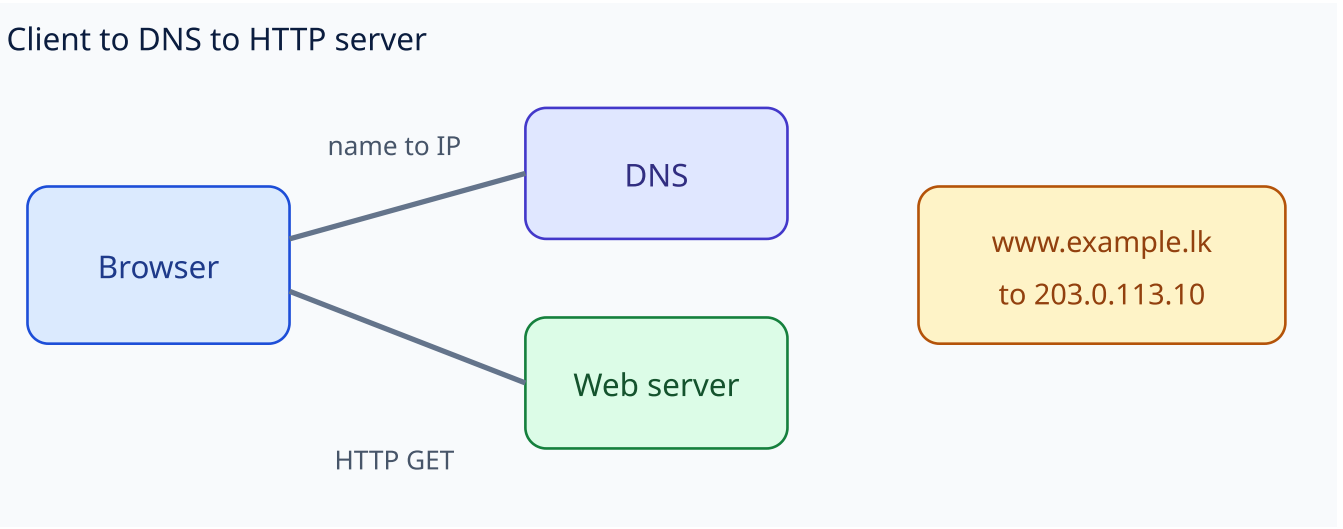
Syllabus 6.9. People prefer names to numbers. **DNS** maps **hierarchical** names to IPs. **HTTP** uses a **client–server** model (e.g. a simple **GET** request and response).

1. Why DNS?

IPs are hard to remember. **DNS** gives human-friendly **hierarchical** names; each **domain** manages names under it; **TLDs** like .lk, .com sit near the top.

2. HTTP and client–server

A **client** (browser) sends an HTTP **GET** for a resource; a **server** responds with status and content. DNS and HTTP both illustrate client–server.



Client uses DNS then HTTP GET

💡 Example: resolve www.school.lk then GET /index.html.

🧱 **Worked example: Browser: DNS resolves name → TCP connect → HTTP GET /index.html → 200 OK + body.**
Client requests; server responds (client–server).

🚀 **Beyond the syllabus (2026 update)** *Not required for the exam – read for interest.* DoH/DoT encrypt DNS; HTTP/3 uses QUIC – interest only.

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Key Words

DNS – Maps names to IP addresses.	**Domain** – Managed name subtree.
TLD – Top-level domain (.lk, .com).	**Hierarchical name** – Name split by dots into levels.
HTTP – Web application protocol.	**GET request** – Ask server for a resource.
Client – Requests a service.	**Server** – Provides a service.
Resolver – Client-side DNS lookup helper.	**URL** – Web resource locator.
Response – Server reply (status + body).	**Host name** – Name of a machine in DNS.

Sample Q&A

1. Why DNS?

> **Answer:** Human-friendly names instead of raw IPs.

2. Hierarchical DNS means?

> **Answer:** Names managed in a tree of domains.

3. What is a TLD?

> **Answer:** Top-level domain such as .lk or .com.

4. HTTP GET does what?

> **Answer:** Requests a resource from a server.

5. Client–server?

> **Answer:** Client requests; server responds.

6. DNS and HTTP both use?

> **Answer:** Client–server pattern.

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MCQ

1. DNS maps

A. cables to colours
B. fonts to sizes
C. names to IP addresses
D. inks to printers only
E. chairs to heights

2. A TLD is

A. a top-level domain
B. a bus cable
C. a parity bit
D. a hub flood
E. a modem tone

3. HTTP GET is sent by

A. only the hub
B. only the PSTN
C. the client (e.g. browser)
D. only the fiber
E. only the GPU

4. In client–server

A. cables request lunch
B. client requests and server replies
C. switches invent DNS
D. both stay silent
E. modems paint frames

5. Domains manage

A. only mouse DPI
B. only chair colour
C. only copper atoms
D. only GUI themes
E. names under their part of the tree

6. IPs are hard to remember so we use

A. only parity
B. only baud
C. DNS names
D. random voltages only
E. only MAC paint

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7. A simple web fetch needs

A. only a ruler
B. only a hammer
C. only a kettle
D. name resolution then HTTP
E. only a stapler

8. Hierarchical means

A. one letter total
B. circular only
C. flat forever
D. random soup
E. organised in levels

9. Which term means: “Maps names to IP addresses”?

A. Server
B. TLD
C. GET request
D. DNS
E. Response

10. Which term means: “Managed name subtree”?

A. Resolver
B. Domain
C. Hierarchical name
D. Host name
E. Client

11. Which term means: “Top-level domain (.lk, .com)”?

A. TLD
B. URL
C. DNS
D. Server
E. HTTP

12. Which term means: “Name split by dots into levels”?

A. Domain
B. GET request
C. Resolver
D. Hierarchical name
E. Response

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13. Which term means: “Web application protocol”?

A. URL
B. Host name
C. HTTP
D. Client
E. TLD

14. Which term means: “Ask server for a resource”?

A. Hierarchical name
B. GET request
C. Server
D. DNS
E. Response

15. Which term means: “Requests a service”?

A. Client
B. Resolver
C. Host name
D. HTTP
E. Domain

16. Which term means: “Provides a service”?

A. Server
B. URL
C. GET request
D. DNS
E. TLD

17. Which term means: “Client-side DNS lookup helper”?

A. Domain
B. Resolver
C. Response
D. Client
E. Hierarchical name

18. Which term means: “Web resource locator”?

A. Server
B. TLD
C. HTTP
D. URL
E. Host name

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19. Which term means: “Server reply (status + body)”?

A. DNS
B. GET request
C. Hierarchical name
D. Resolver
E. Response

20. Which term means: “Name of a machine in DNS”?

A. HTTP
B. URL
C. Domain
D. Client
E. Host name

Structured Questions

1. Need for DNS. *(2 marks)*

> Memorable names mapped to IPs.

2. Hierarchical + TLD idea. *(2 marks)*

> Tree of domains; .lk/.com at top.

3. Describe HTTP GET + response. *(2 marks)*

> Client asks for URL; server returns status/body.

4. Client–server with DNS and HTTP. *(2 marks)*

> Both use requesting clients and answering servers.

5. Why not hard-code IPs in bookmarks only? *(2 marks)*

> IPs change; names stay stable via DNS.

Summary

- DNS maps names to IPs.
- Hierarchical domains and TLDs.
- HTTP GET is client→server.
- Client–server model.
- DNS + HTTP work together for the web.

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MCQ answer key – 6.9

1. **C** – Name→IP.
2. **A** – Top domain.
3. **C** – Client.
4. **B** – Request/reply.
5. **E** – Subtree names.
6. **C** – Names.
7. **D** – DNS then HTTP.
8. **E** – Levels.
9. **D** – DNS – Maps names to IP addresses.
10. **B** – Domain – Managed name subtree.
11. **A** – TLD – Top-level domain (.lk, .com).
12. **D** – Hierarchical name – Name split by dots into levels.
13. **C** – HTTP – Web application protocol.
14. **B** – GET request – Ask server for a resource.
15. **A** – Client – Requests a service.
16. **A** – Server – Provides a service.
17. **B** – Resolver – Client-side DNS lookup helper.
18. **D** – URL – Web resource locator.
19. **E** – Response – Server reply (status + body).
20. **E** – Host name – Name of a machine in DNS.

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