ICA0002: IT Infrastructure Services

Web Servers

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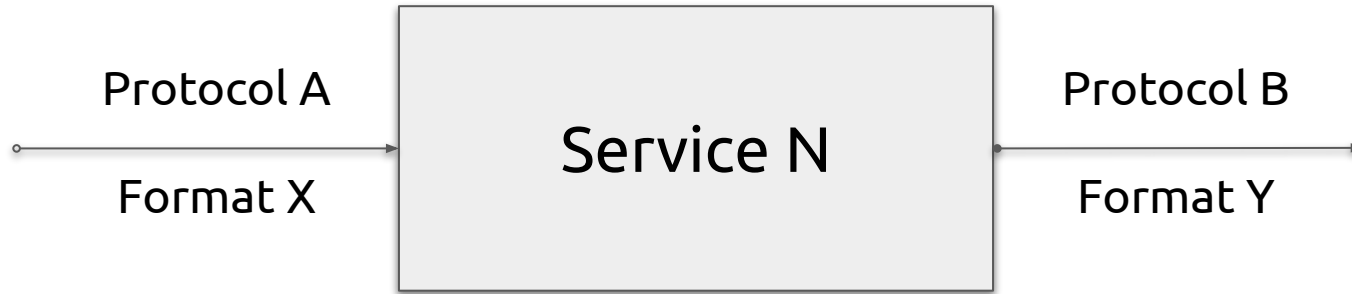Juri Hudolejev
2022

Basic terms

WWW: World Wide Web, the Web

URL: Uniform Resource Locator
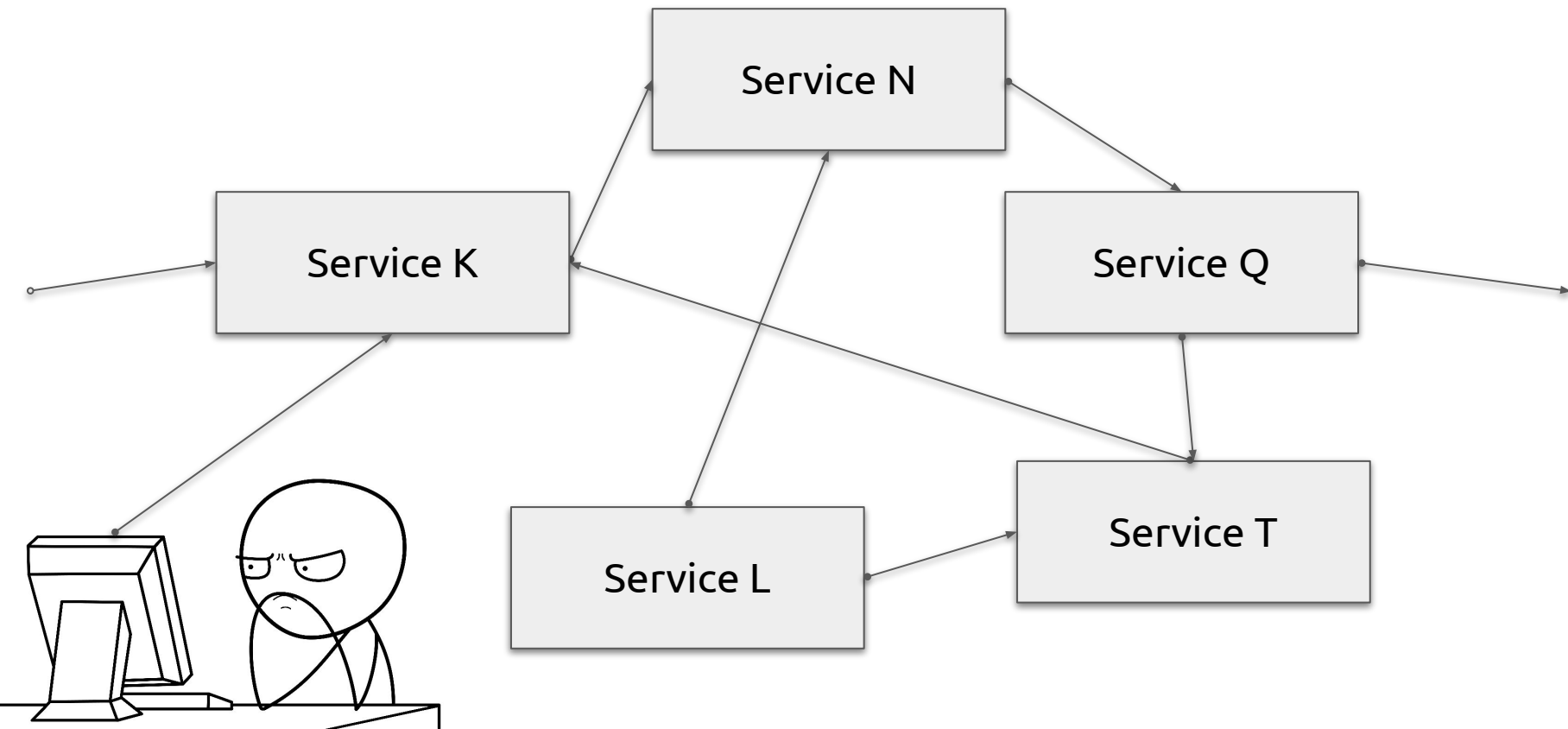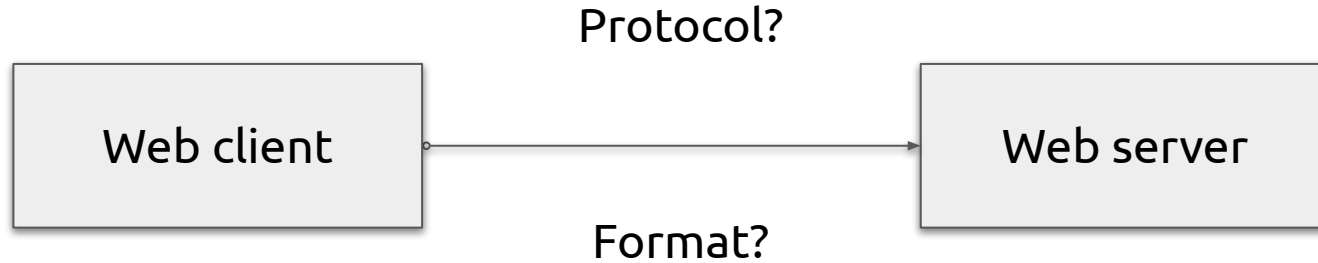
Web server

Web client (web browser, user agent)

(very) Generic IT service

Service communication

Web client and Web server

Protocol?

Web client → Web server

Format?

Web client and Web server

HTTP

Web client

HTML

Web server

Web client and Web server

FTP, Gopher, HTTP/0.9, HTTP/1.0, HTTP/1.1,

HTTP/2, HTTP/3, HTTPS, SPDY,

WebSocket, …

| Web client | ⟶ | Web server |

CSS, HTML, JavaScript,

JSON, PDF, XML, Zip,

videos, cat pictures, …

Demo time!

Behind the Web server

HTTP etc.

HTML etc.

Web server

Protocol?

Format?

Behind the Web server

Static documents:

- web server sends files from local filesystem as is

Dynamic documents:

- web server calls other programs to generate the resource on the fly (dynamically) and sends that generated resource to the client
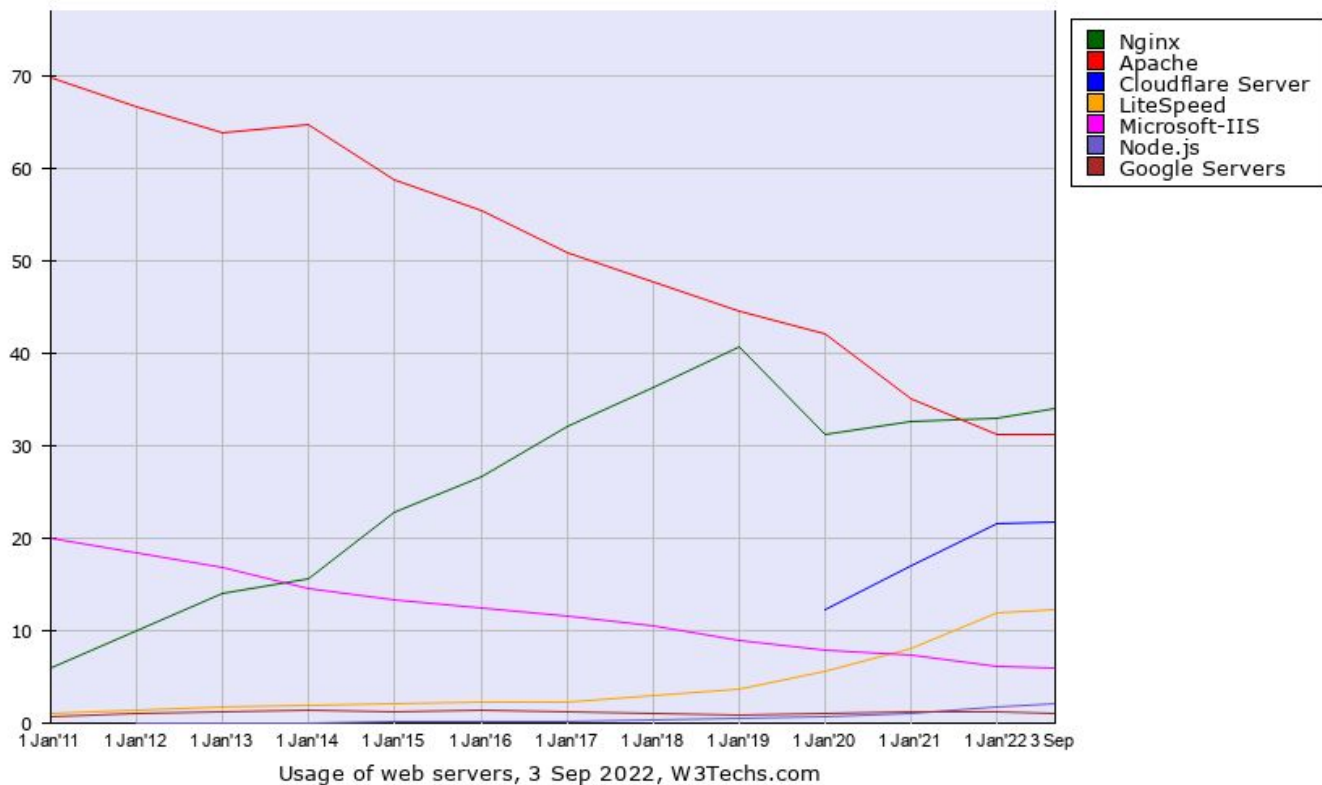
Proxy mode:

- web server forwards request to other services

Other topics

Not discussed in detail in this course -- but some are covered in labs as needed:

- HTTPS, SSL/TLS
- WebSockets, HTTP/2, HTTP/3
- CGI, WSGI
- Caching
- Proxying
- High availability

Web server market share

Usage of web servers, 3 Sep 2022, W3Techs.com

Apache HTTPd

The oldest of the existing mainstream web servers, and still widely used

Free and open-source, maintained by Apache Software Foundation

First release in 1995, current stable version: 2.4

Modules for TLS, server-side scripts, authentication, proxying, etc.

- List of modules: https://en.wikipedia.org/wiki/List_of_Apache_modules

Web site: https://httpd.apache.org

Nginx

Rather 'new' web server: first public release in 2004, current stable version: 1.22

- Nginx: free and open-source (BSD license)
- Nginx Plus: proprietary

The most widely used web server today, closely followed by Apache HTTPd

Web server, HTTP proxy, load balancer

- List of modules: https://www.nginx.com/nginx-wiki/build/dirhtml/modules

Web site: https://nginx.org

Questions?