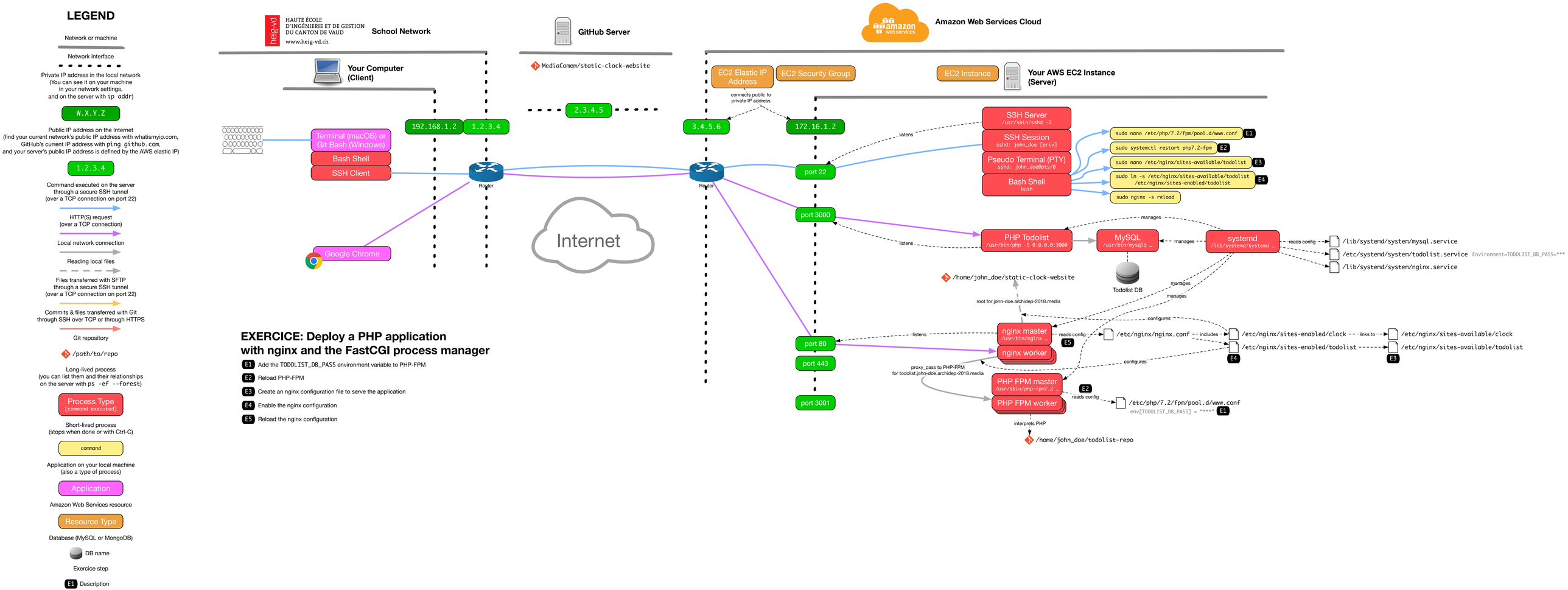
LEGEND
Network or machine
Network interface
Private IP address in the local network
(You can see it on your machine
in your network settings,
and on the server with ip addr)
W.X.Y.Z
Public IP address on the Internet
(find your current network's public IP address with whatismyip.com,
GitHub's current IP address with ping github.com,
and your server's public IP address is defined by the AWS elastic IP)
1.2.3.4
Command executed on the server
through a secure SSH tunnel
(over a TCP connection on port 22)
HTTP(S) request
(over a TCP connection)
Local network connection
Reading local files
Files transferred with SFTP
through a secure SSH tunnel
(over a TCP connection on port 22)
Commits & files transferred with Git
through SSH over TCP or through HTTPS
Git repository
/path/to/repo
Long-lived process
(you can list them and their relationships
on the server with ps -ef --forest)
Process Type
[command executed]
Short-lived process
(stops when done or with Ctrl-C)
command
Application on your local machine
(also a type of process)
Application
Amazon Web Services resource
Resource Type
Database (MySQL or MongoDB)
DB name
Exercice step
E1 Description
HAUTE ÉCOLE
D'INGÉNIERIE ET DE GESTION
DU CANTON DE VAUD
www.heig-vd.ch
School Network
GitHub Server
MediaComem/static-clock-website
Amazon Web Services Cloud
Your Computer
(Client)
Terminal (macOS) or
Git Bash (Windows)
Bash Shell
SSH Client
Google Chrome
192.168.1.2
1.2.3.4
Router
2.3.4.5
Internet
Router
3.4.5.6
EC2 Elastic IP
Address
EC2 Security Group
connects public to
private IP address
172.16.1.2
EC2 Instance
Your AWS EC2 Instance
(Server)
port 22
port 3000
port 80
port 443
port 3001
listens
SSH Server
/usr/sbin/sshd -D
SSH Session
sshd: john_doe [priv]
Pseudo Terminal (PTY)
sshd: john_doe@pts/0
Bash Shell
bash
sudo nano /etc/php/7.2/fpm/pool.d/www.conf
E1
sudo systemctl restart php7.2-fpm
E2
sudo nano /etc/nginx/sites-available/todolist
E3
sudo ln -s /etc/nginx/sites-available/todolist
/etc/nginx/sites-enabled/todolist
E4
sudo nginx -s reload
manages
listens
PHP Todolist
/usr/bin/php -S 0.0.0.0:3000
MySQL
/usr/bin/mysqld …
manages
systemd
/lib/systemd/systemd …
reads config
/lib/systemd/system/mysql.service
/etc/systemd/system/todolist.service
Environment=TODOLIST_DB_PASS=***
/lib/systemd/system/nginx.service
Todolist DB
manages
/home/john_doe/static-clock-website
root for john-doe.archidep-2018.media
manages
configures
listens
nginx master
/usr/bin/nginx …
reads config
E5
nginx worker
/etc/nginx/nginx.conf
includes
/etc/nginx/sites-enabled/clock
links to
/etc/nginx/sites-available/clock
/etc/nginx/sites-enabled/todolist
/etc/nginx/sites-available/todolist
E4
E3
configures
proxy_pass to PHP-FPM
for todolist.john-doe.archidep-2018.media
PHP FPM master
/usr/sbin/php-fpm7.2 …
E2
PHP FPM worker
reads config
/etc/php/7.2/fpm/pool.d/www.conf
env[TODOLIST_DB_PASS] = "****"
E1
interprets PHP
/home/john_doe/todolist-repo
EXERCICE: Deploy a PHP application
with nginx and the FastCGI process manager
E1 Add the TODOLIST_DB_PASS environment variable to PHP-FPM
E2 Reload PHP-FPM
E3 Create an nginx configuration file to serve the application
E4 Enable the nginx configuration
E5 Reload the nginx configuration