



The diagram features a central blue oval with the text "Microservice Networking In Anger" in red. The text is framed by two horizontal red lines. Surrounding the oval are 16 smaller white circles, each containing a red icon. On the left side, there are 8 circles: 5 with an angry face icon and 3 with a person icon. On the right side, there are 8 circles: 5 with an angry face icon and 3 with a person icon. Each small circle is connected to the central oval by a thin blue line.

Microservice Networking In Anger

Bob

——Paulin——

@bobpaulin

Independent Consultant

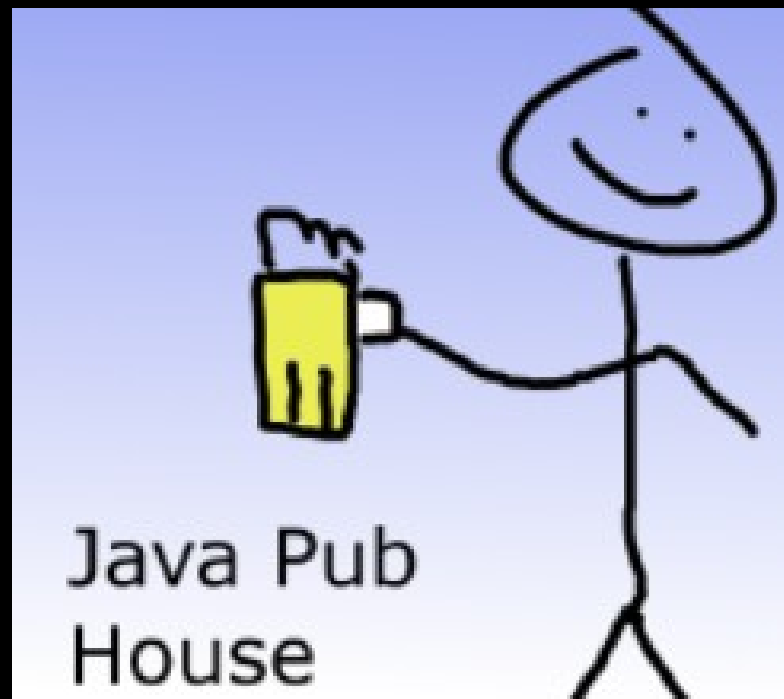
ASF Member

Java Champion

Chicago JUG CFO

HEAP OFF

@offheap



@javapubhouse

Things are about to get
—Strange—

Chapters

The TCP and the UDP

The Network Flayer

1..2..3 Timeout!

The Websocket and the Proxy

The (presentation) Body

TLS, Node, and the JVM

The Disappearance of Docker Multicast

Preface

Why so
—Angry??—

Networking —The Upside Down—

Network \approx
——Module boundaries——

UNIX Rule of Modularity

Developers should build a program out of simple parts connected by well defined interfaces, so problems are local, and parts of the program can be replaced in future versions to support new features. This rule aims to save time on debugging code that is complex, long, and unreadable.

- Eric Raymond

Microservices

UNIX Rule of Modularity

Developers should build a ~~program~~ **system** out of simple parts connected by well defined ~~the~~ **network** interfaces, so problems are local, and parts of the program can be replaced in future versions to support new features. This rule aims to save time on debugging code that is complex, long, and unreadable.

- ~~Eric Raymond~~

Chapter 1

——The TCP and the UDP——

UDP

— Fire and Forget —

TCP

————Guaranteed Delivery————

————OR————

————Guaranteed Error :)————

Chapter 2 ——The Network Flayer——



Wreck Havoc on your network

```
sudo tc qdisc add dev lo root netem  
loss 10.0%
```


Chapter 3

——1..2..3 Timeout!——

OMG Errors

—Make them go away!—

OMG I'm out of threads
—How did this happen!—

Fail Fast —And Retry—

Types of Timeouts

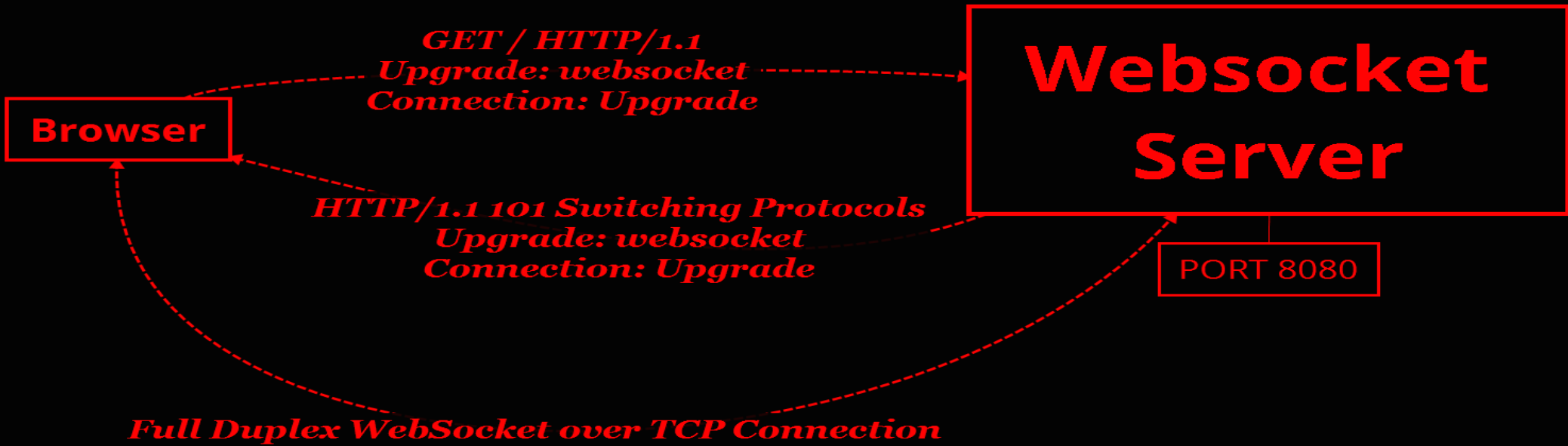
—Connection—

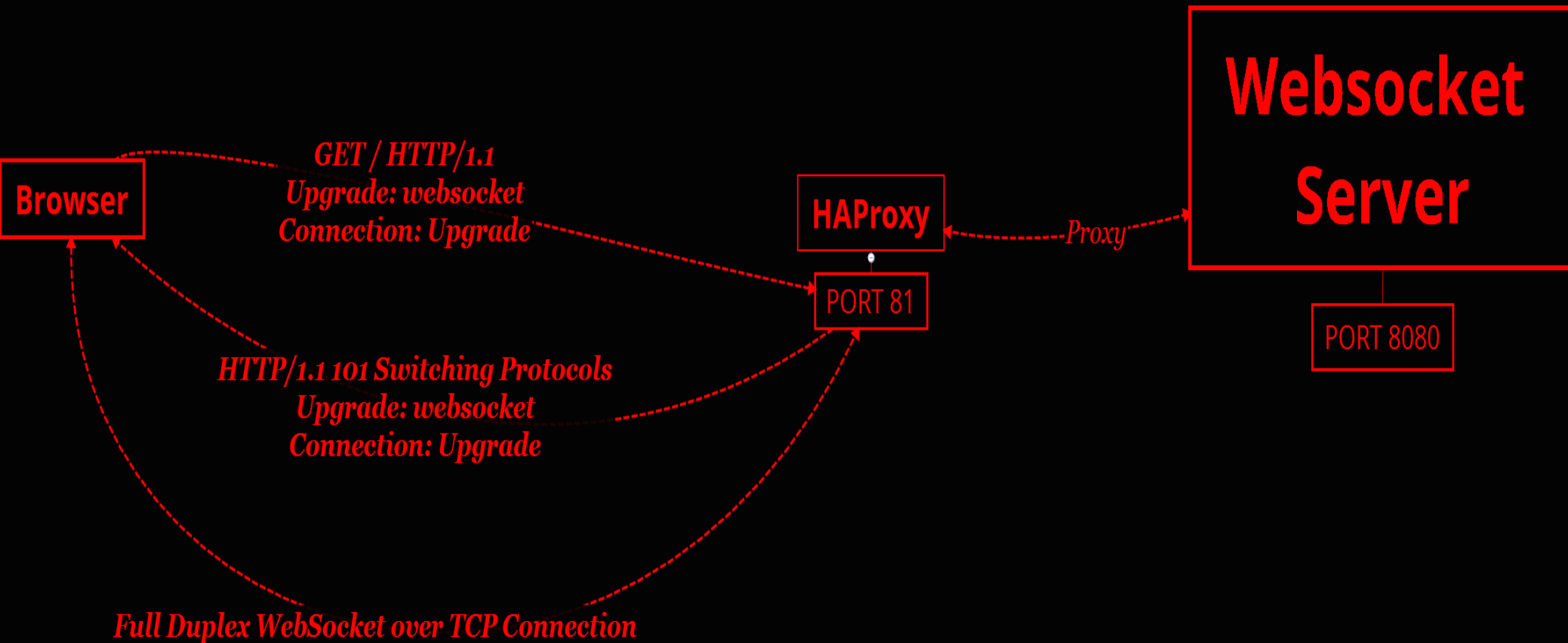
—Read—

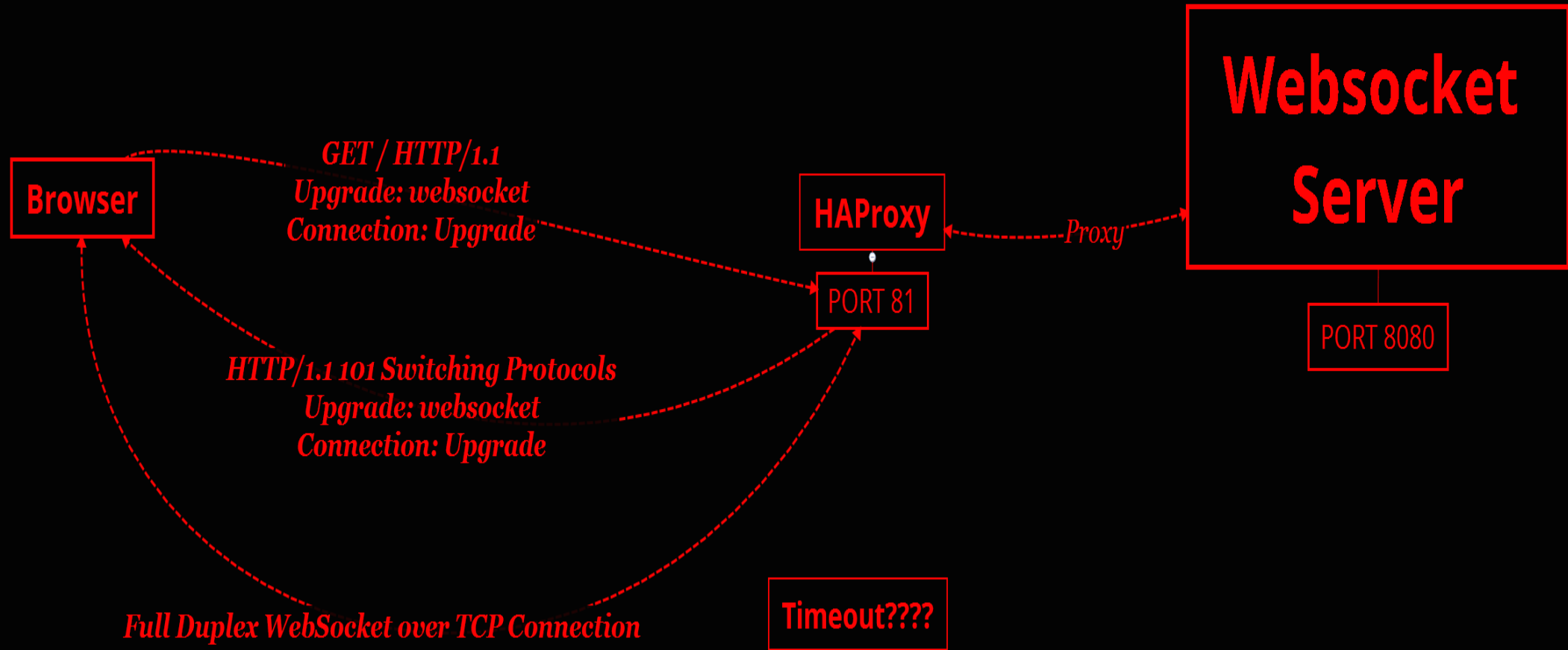
—Execution—

Chapter 4

—The WebSocket and the Proxy—







Browser

Timeout

HAProxy

PORT 81

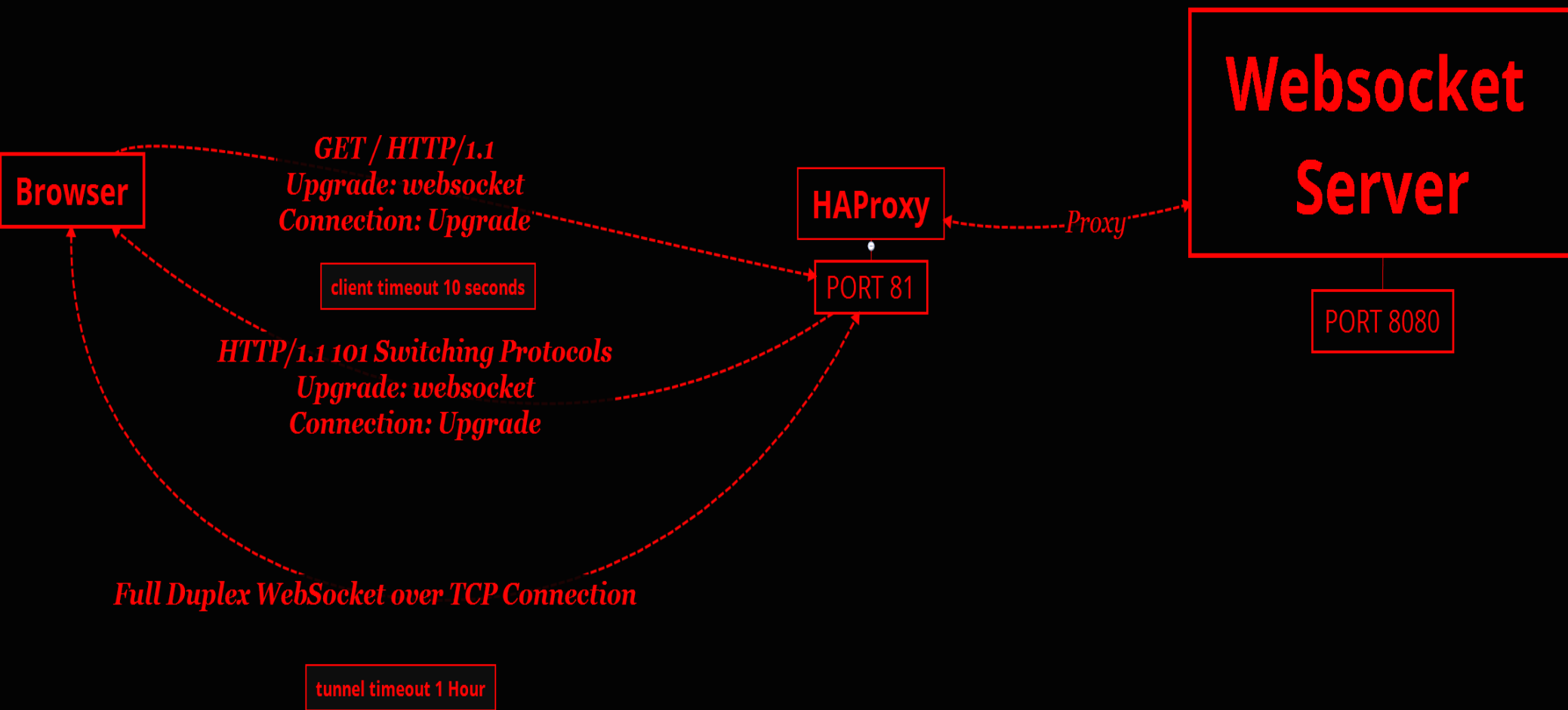
**Websocket
Server**

PORT 8080

Proxy

```
graph LR; Browser[Browser]; Timeout[Timeout]; HAProxy[HAProxy]; WS[Websocket Server]; P81[PORT 81]; P8080[PORT 8080]; HAProxy -- Proxy --> WS; HAProxy --- P81; WS --- P8080;
```

Yet another timeout setting
—timeout tunnel 3600s—



Chapter 5

—The (presentation) Body—

JSON

——Browser Friendly——

——Simple Manipulation——

Java Serialization

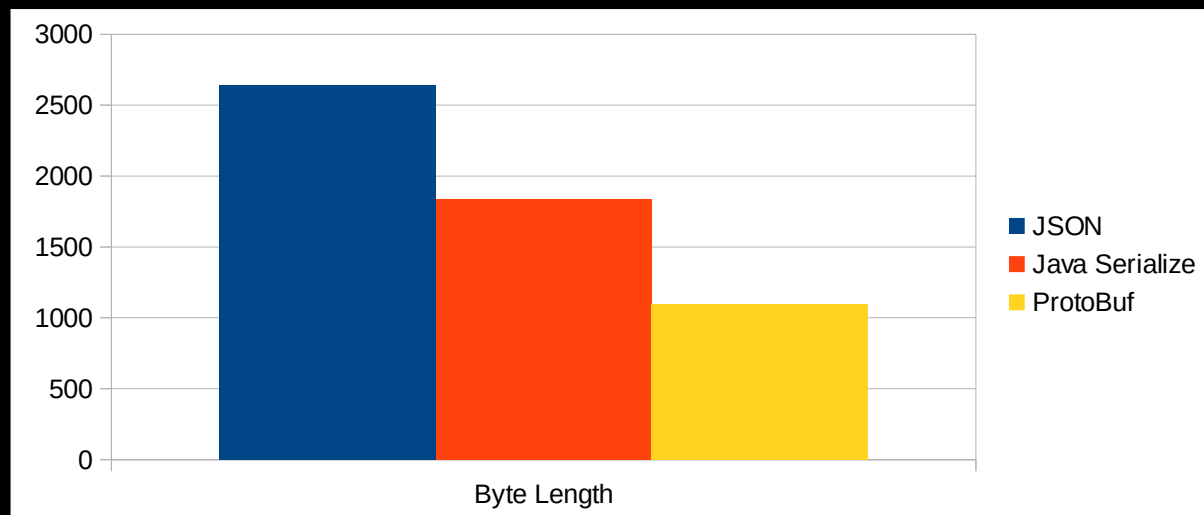
——No Libs needed——

——Metadata included——

ProtoBuf

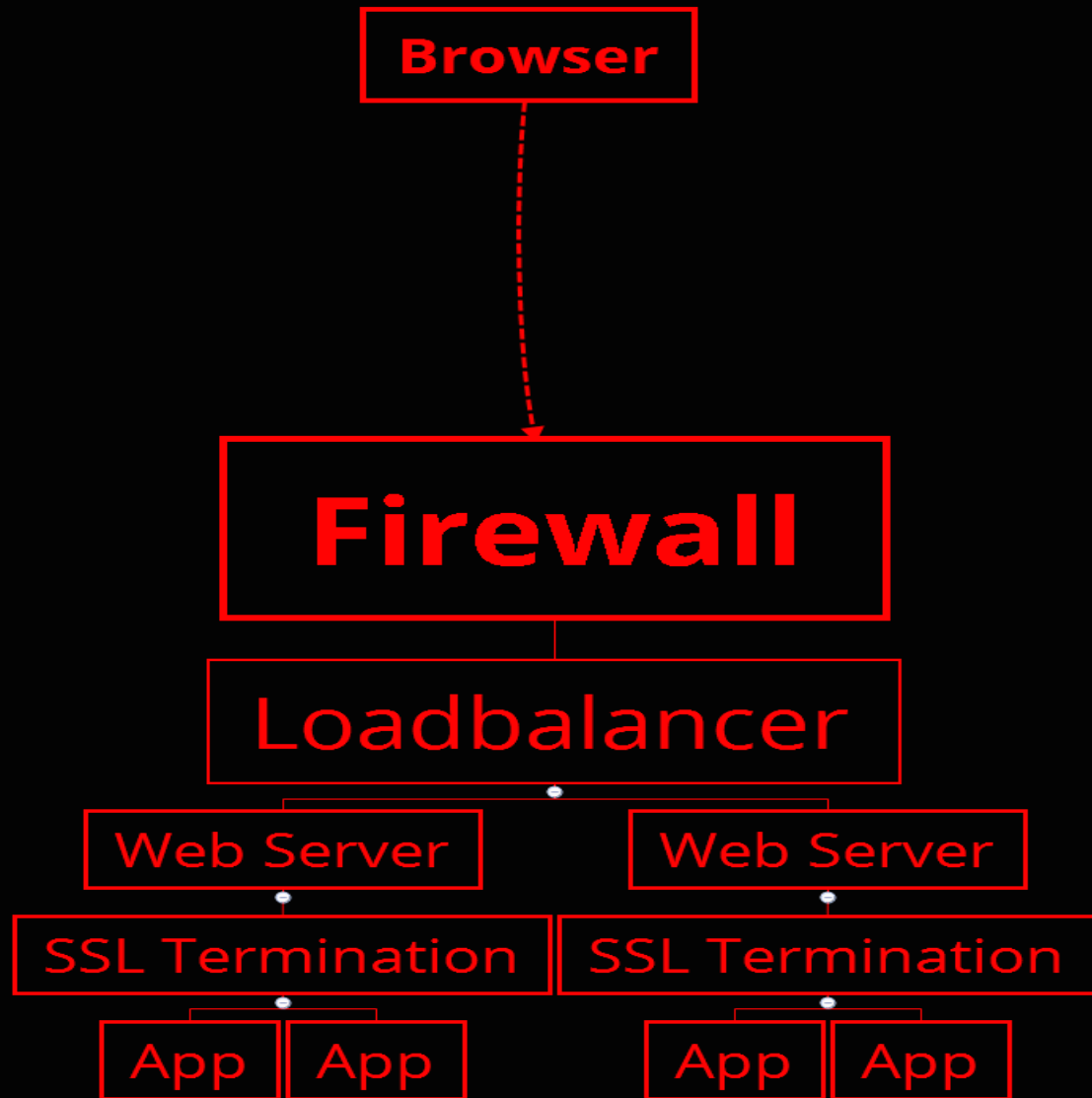
——Compact Binary Format——

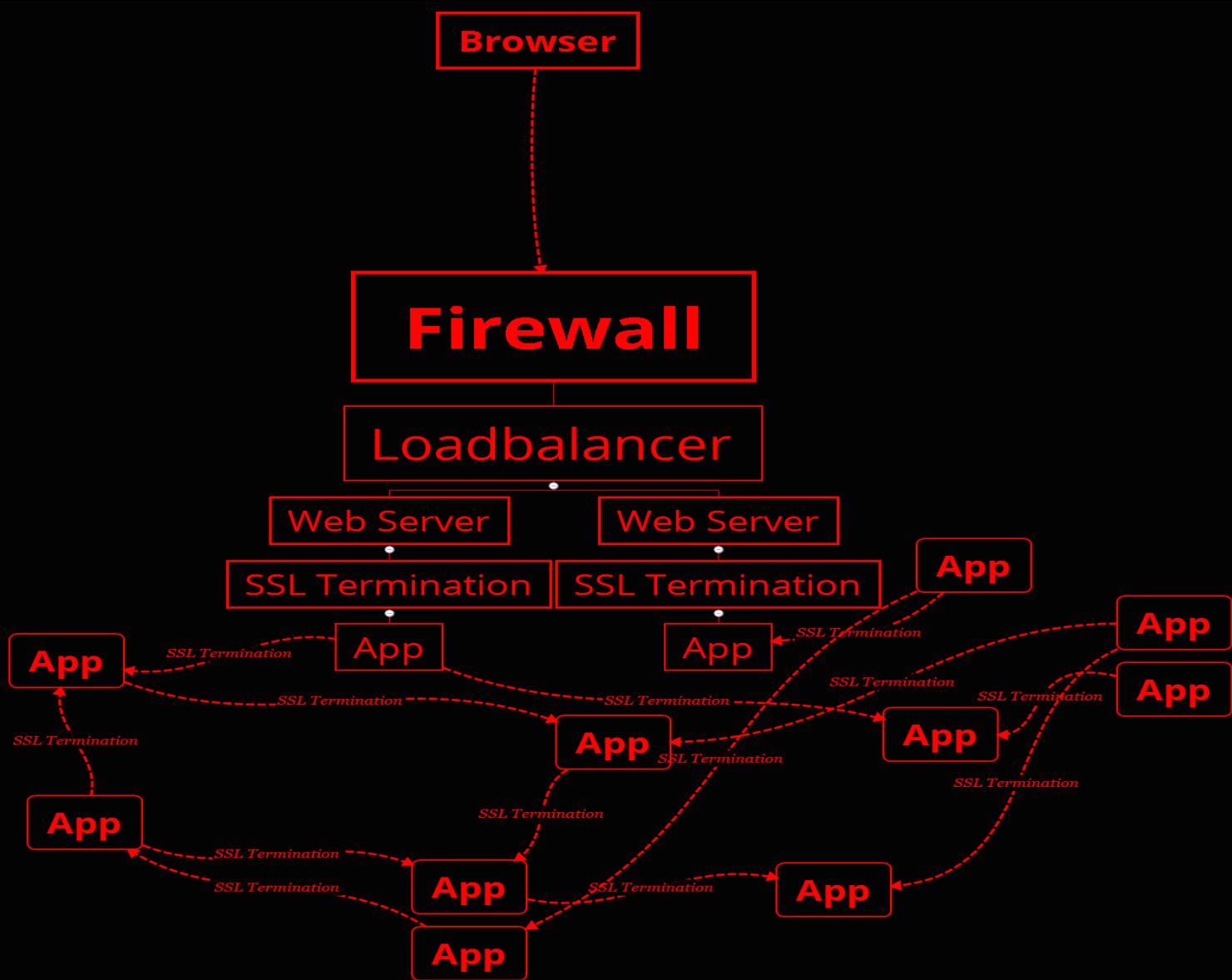
——Code Gen Required——



Chapter 6

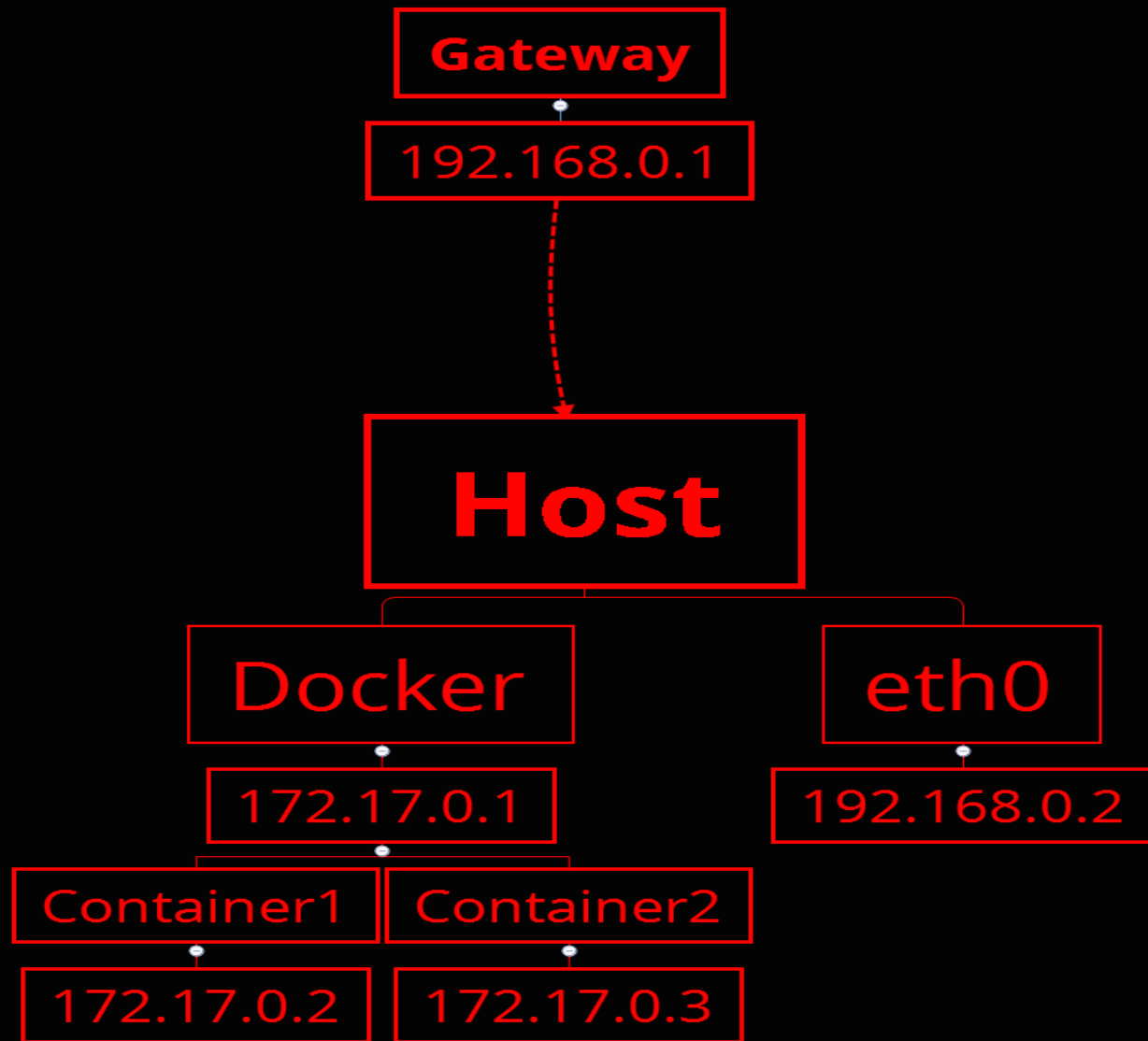
——TLS, Node, and the JVM——

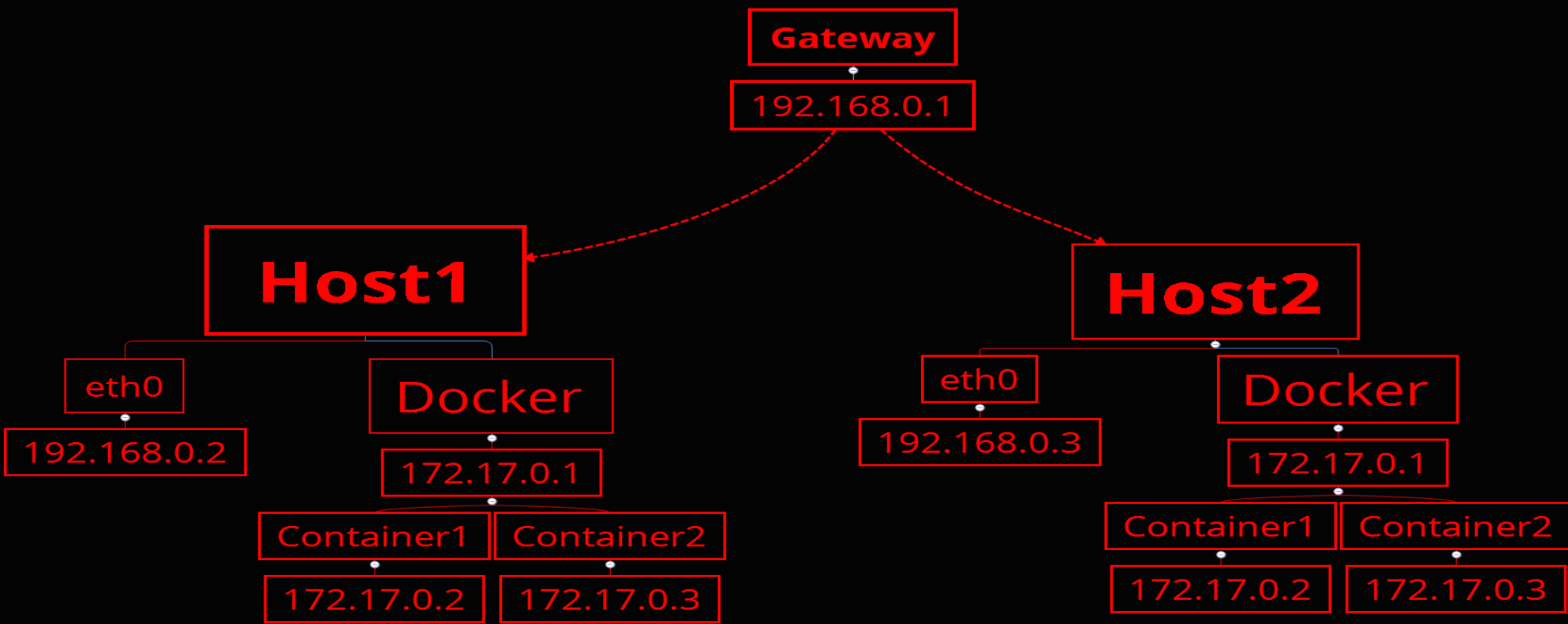


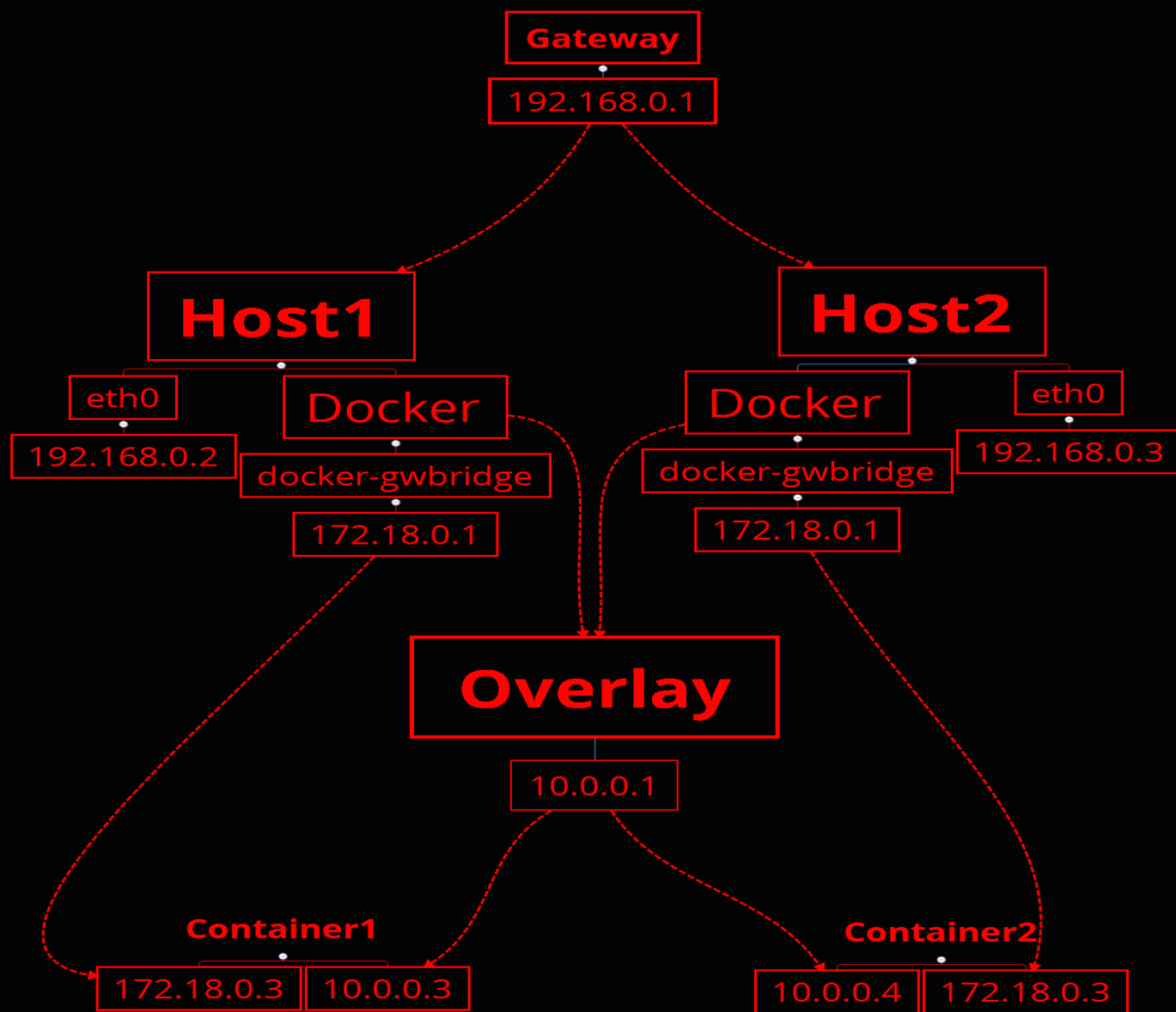


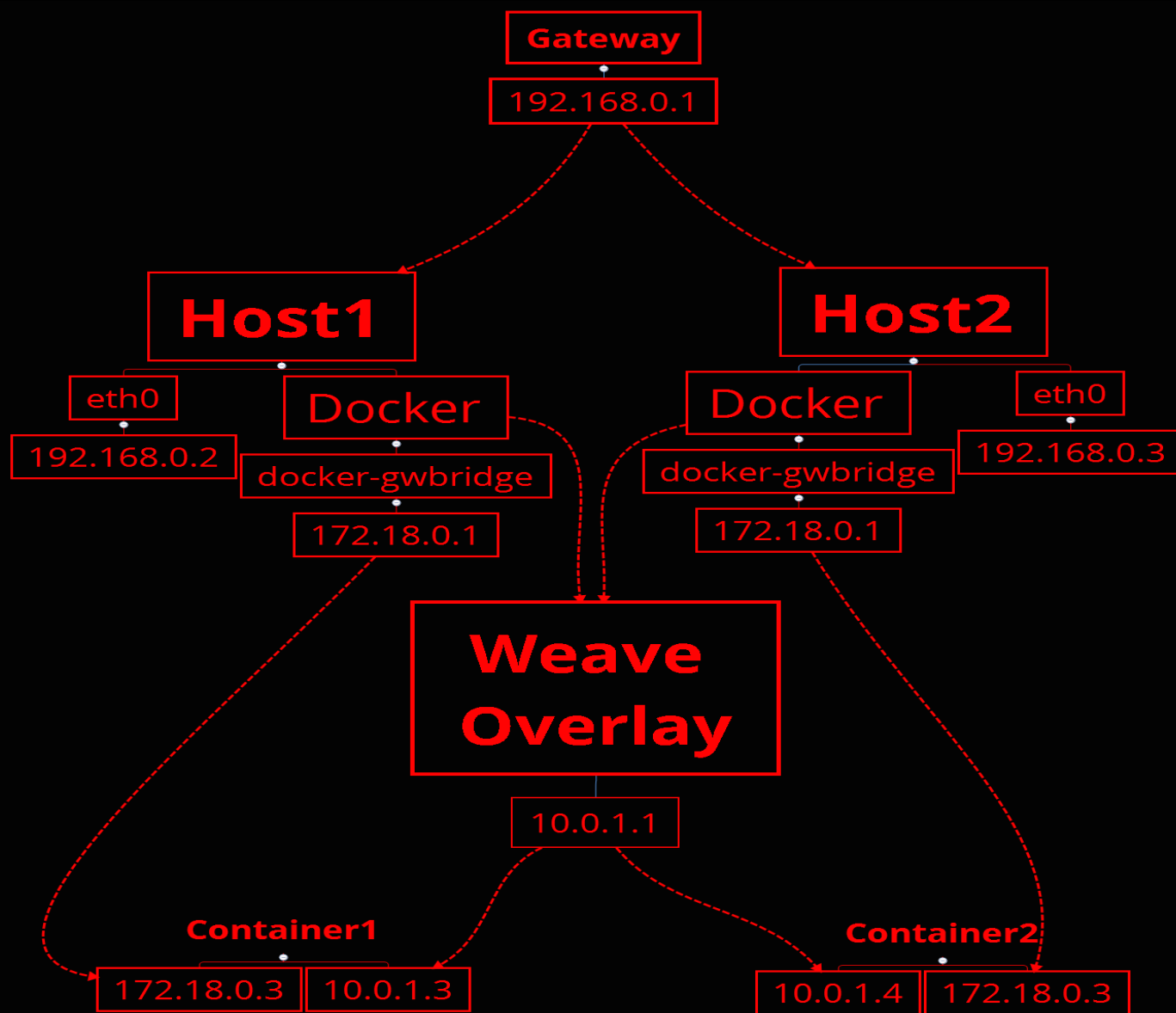
Chapter 7

— The Disappearance of Docker
Multicast-









FIN

Bob Paulin

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<https://github.com/bobpaulin/networking-anger>

Stranger Things/Netflix