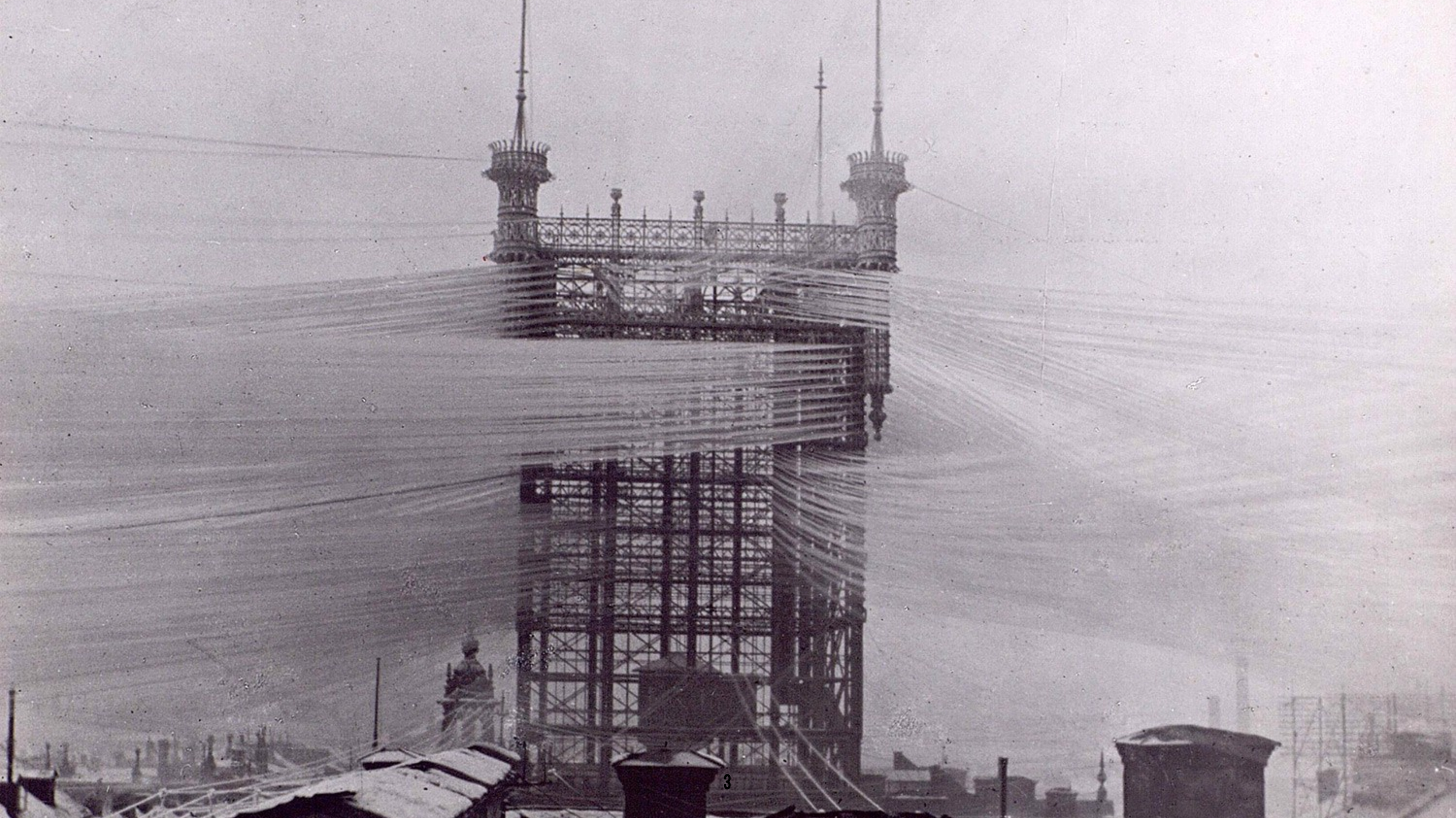
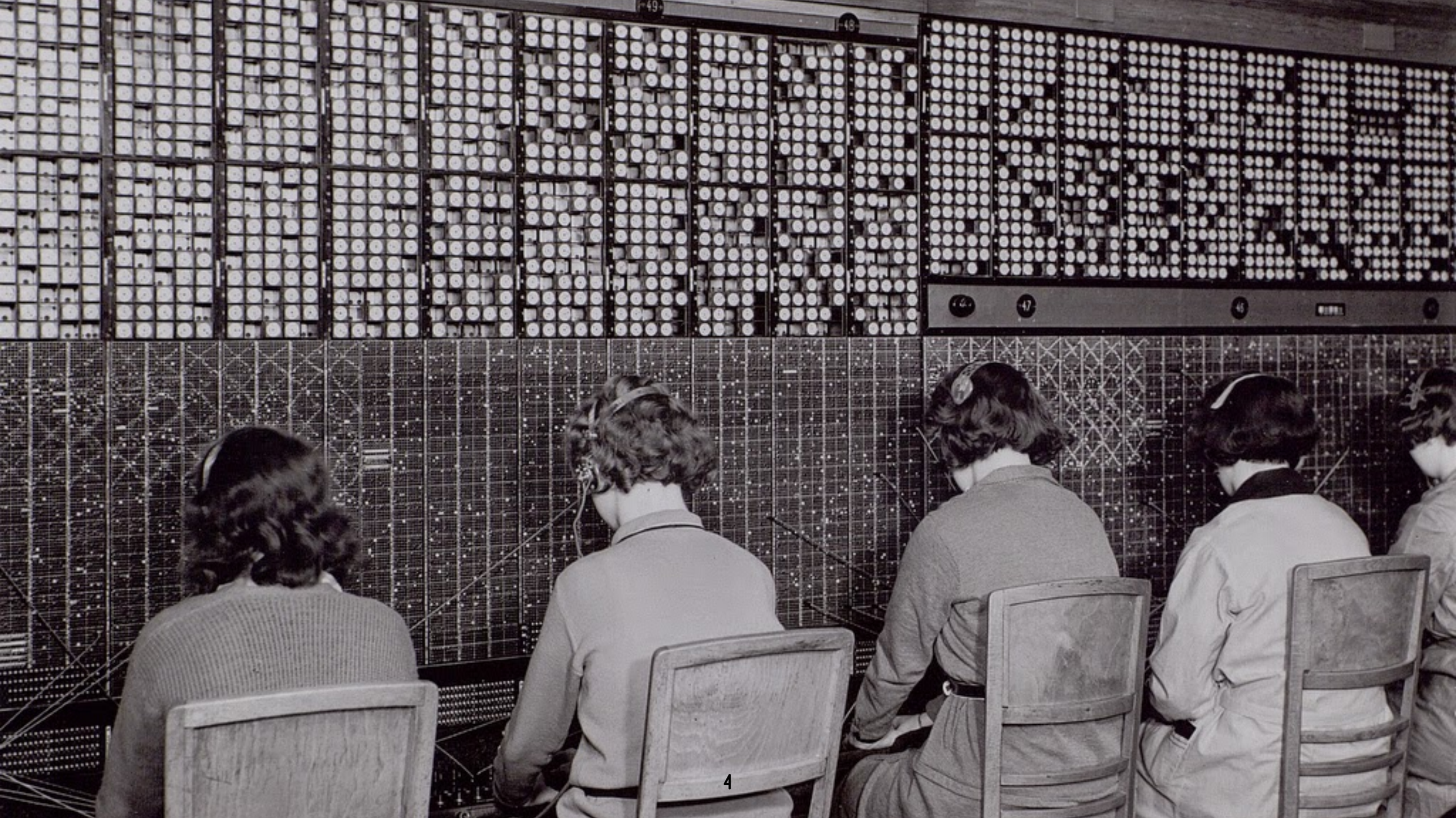
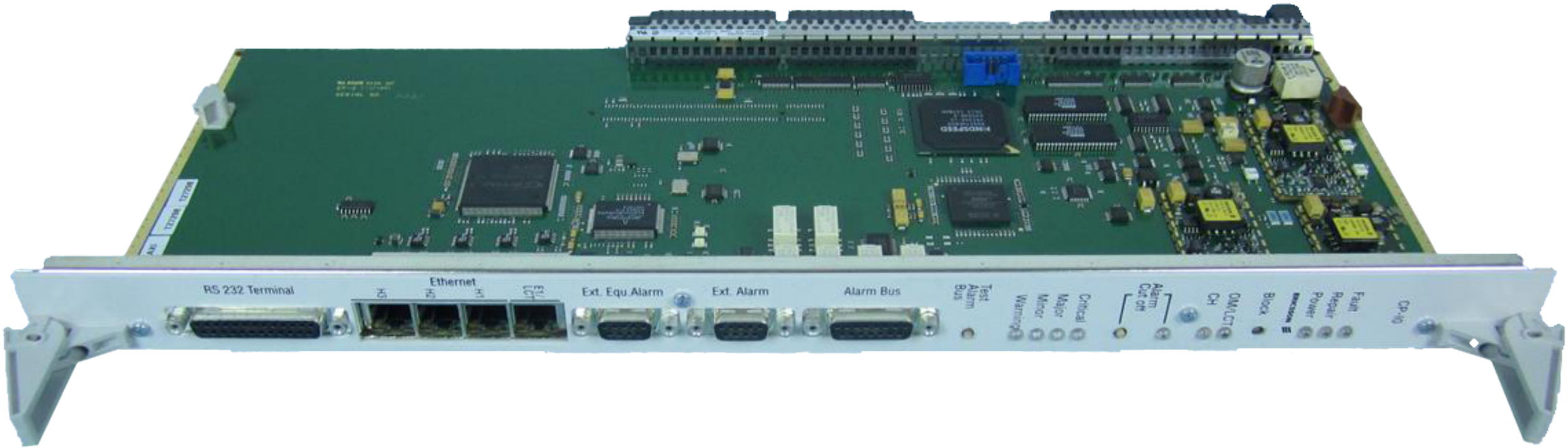
ERLANG.

FAULT-TOLERANT. CONCURRENT PROGRAMMING.

A BRIEF HISTORY OF ERLANG






RS 232 Terminal
Ethernet
Ext. Equ.Alarm
Ext. Alarm
Alarm Bus
Test Alarm Bus
Warning
Minor
Major
Critical
Alarm Cut off
CH
Block
Power
Repair
Fault

PHONE SWITCHES MUST BE ...

HIGHLY CONCURRENT

FAULT-TOLERANT

DISTRIBUTED

(FAST!)

... AND SO IS ERLANG!

ERLANG AS A WHOLE:

- UNIQUE PROCESS MODEL (ACTORS!)
- BUILT-IN FAULT-TOLERANCE & ERROR HANDLING
- DISTRIBUTED PROCESSES
- THREE PARTS!

PART 1: ERLANG, THE LANGUAGE

- FUNCTIONAL
- PROLOG-INSPIRED SYNTAX
- EVERYTHING IS IMMUTABLE
- EXTREME **PATTERN-MATCHING**

HELLO JOE

```
hello_joe.
```

HELLO JOE

```
-module(hello1).
-export([hello_joe/0]).

hello_joe() ->
    hello_joe.
```

HELLO JOE

```
-module(hello1).
-export([hello_joe/0]).

hello_joe() ->
    hello_joe.

% 1> c(hello1).
% {ok,hello1}
% 2> hello1:hello_joe().
% hello_joe
```

HELLO JOE

```
-module(hello2).
-export([hello/1]).

hello(Name) ->
    io:format("Hello ~s!~n", [Name]).

% 3> c(hello2).
% {ok,hello2}
% 4> hello2:hello("Joe").
% Hello Joe!
% ok
```

HELLO ~~WORLD~~ JOE IS BORING!
LETS DO IT WITH PROCESSES.

HELLO SERVER

```
-module(hello_server).
-export([start_server/0]).

start_server() ->
    spawn(fun() -> server() end).

server() ->
    receive
        {greet, Name} ->
            io:format("Hello ~s!~n", [Name]),
            server()
    end.
```

SOME ISSUES WITH THAT ...

- WHAT ABOUT UNUSED MESSAGES?
  - WHAT IF THE SERVER CRASHES?

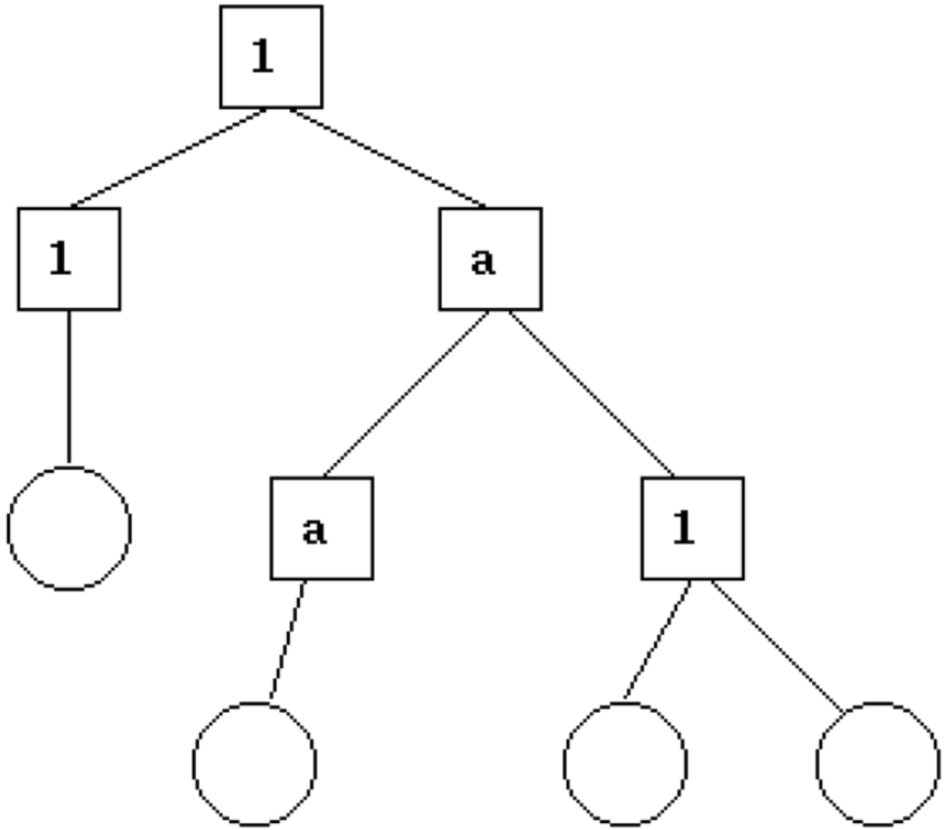
PART 2: OPEN TELECOM PLATFORM

IT'S CALLED ERLANG/OTP FOR A REASON.

OTP: AN APPLICATION FRAMEWORK

- SUPERVISION - KEEP PROCESSES ALIVE!
- OTP BEHAVIOURS - COMMON PROCESS PATTERNS
- EXTENSIVE STANDARD LIBRARY
- ERROR HANDLING, DEBUGGERS, TESTING, ...
- LOTS MORE!

SUPERVISION



OTP BEHAVIOURS

- gen_server
- gen_statem
- gen_event
- supervisor

gen_server

PART 3: BEAM

BOGDAN/BJØRN ERLANG ABSTRACT MACHINE

A VM FOR ERLANG

- MANY WERE WRITTEN, BEAM SURVIVED
- CONCURRENT GARBAGE-COLLECTION
- LOWER-LEVEL BYTECODE THAN JVM
- VERY OPEN TO NEW LANGUAGES (ELIXIR, LFE, JOXA, ...)

WHAT NEXT?

- OLE'S TALK, OBVIOUSLY!
- LEARN YOU SOME ERLANG!
  WWW.LEARNYOUSOMEERLANG.COM
- WATCH OUT FOR THE OSLO BEAM MEETUP GROUP