





quickmeme.com



We have to go back.

1889



1900



1921



1964



1969



1983



1996



2005





What is **TELETYPE®?**

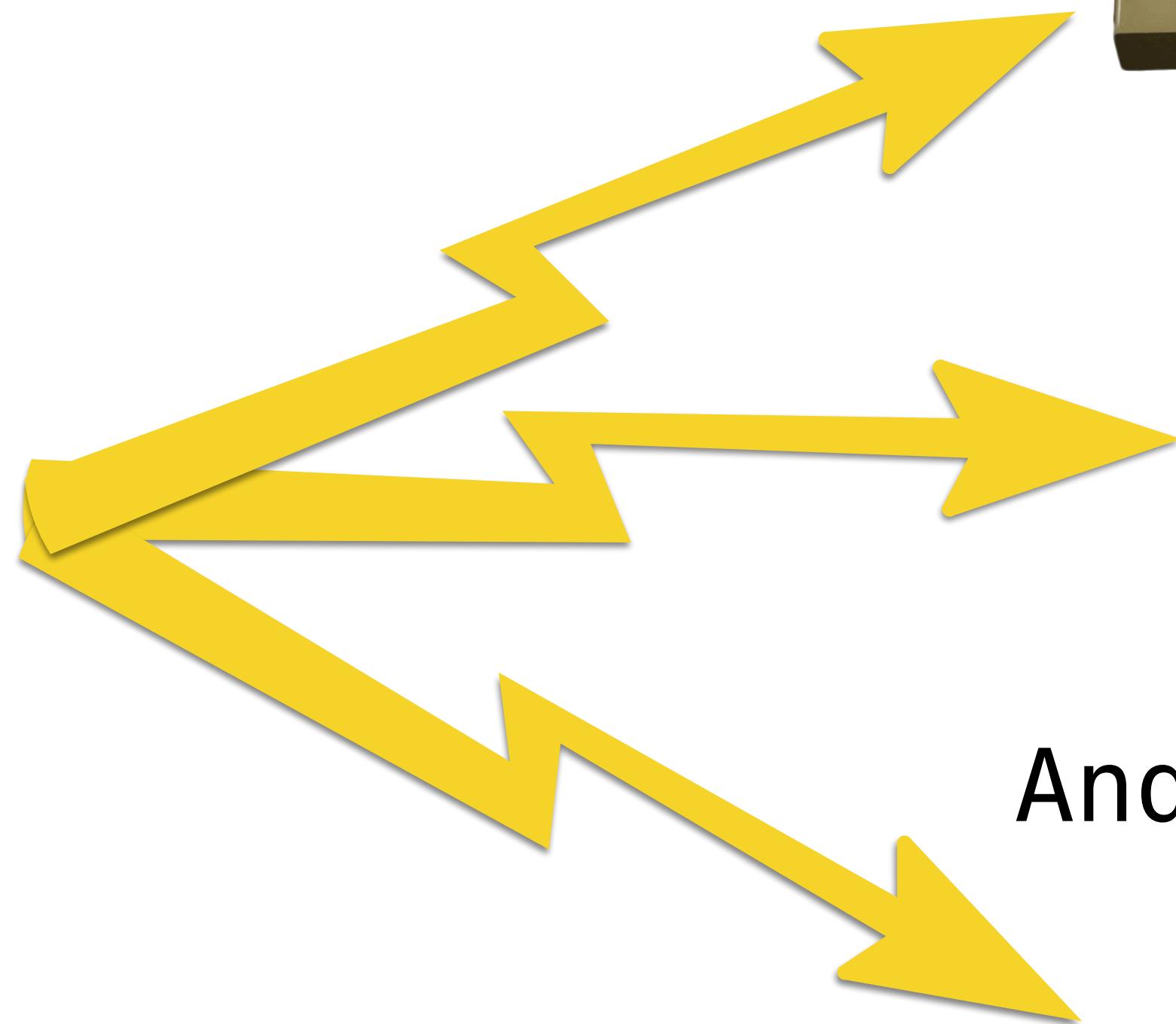


teleprinter / teletype / tty

And here



Type over here

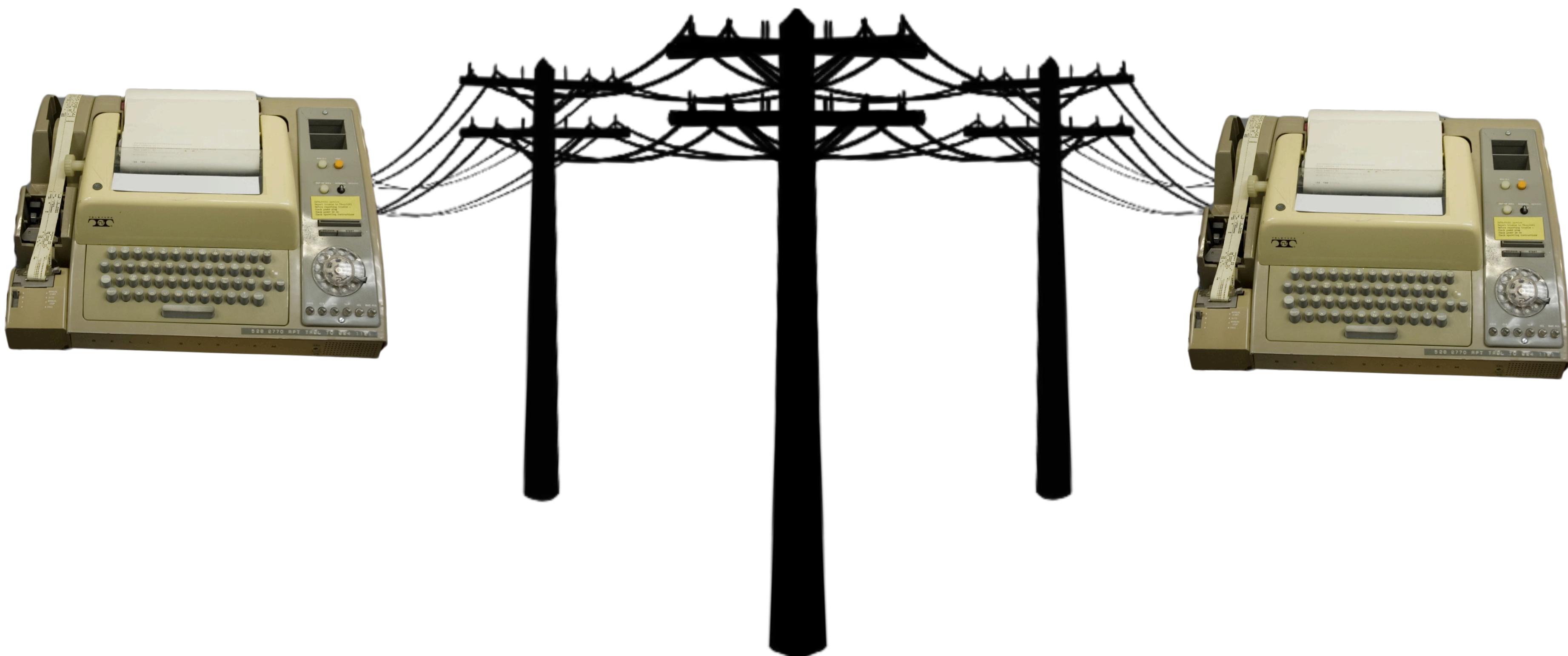


And it prints out here



And here

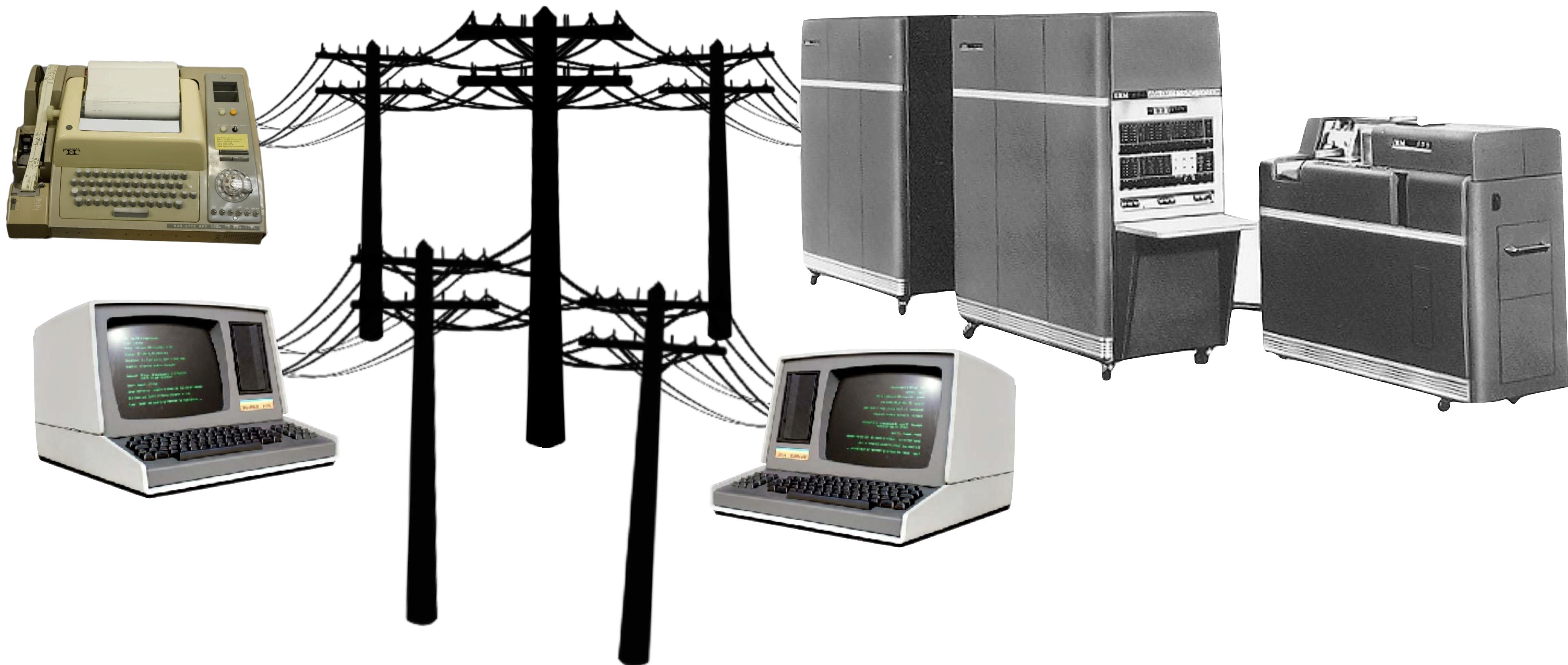
Telex Network







Getting a little crowded

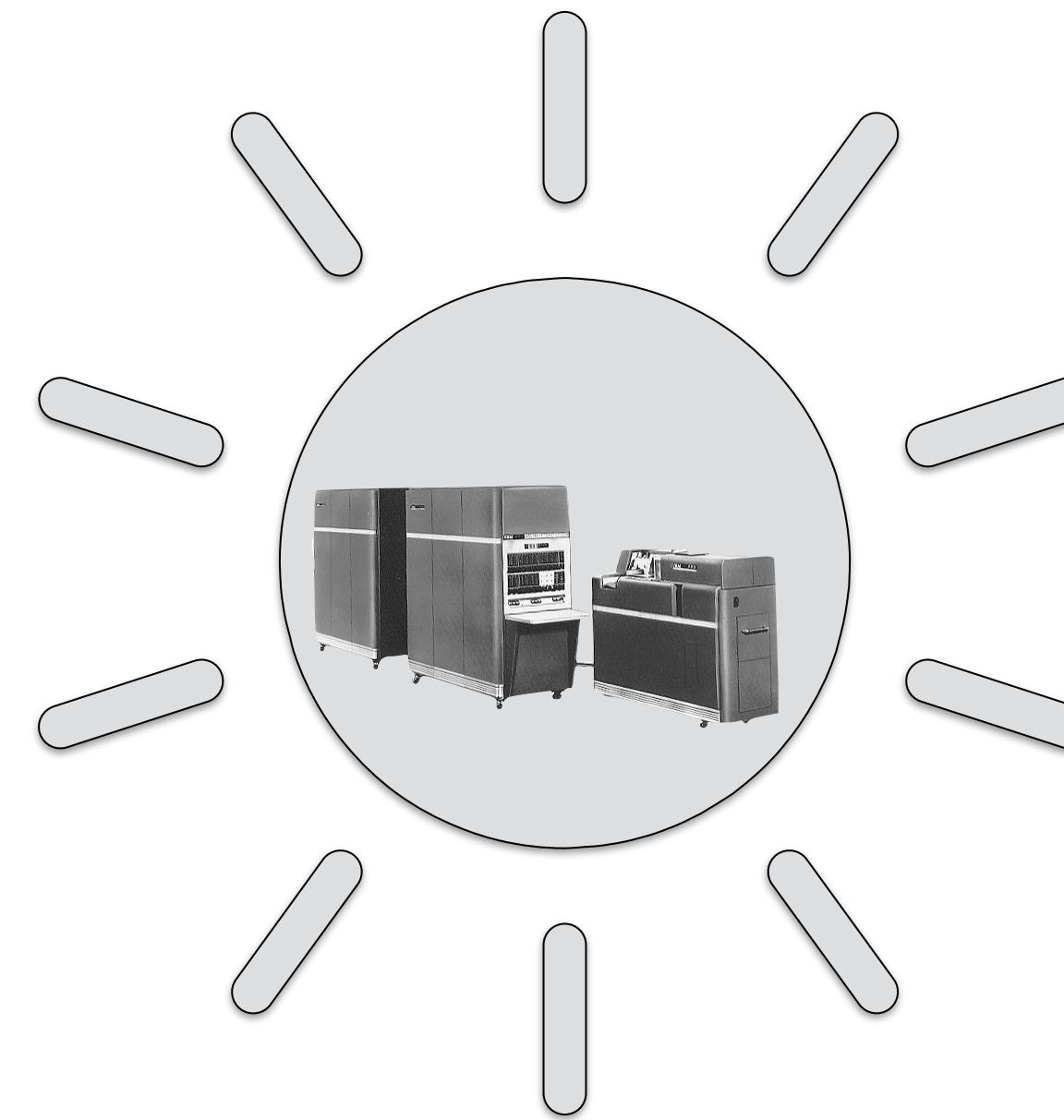


1 megahertz cpu
= 1,000,000 cycles per second



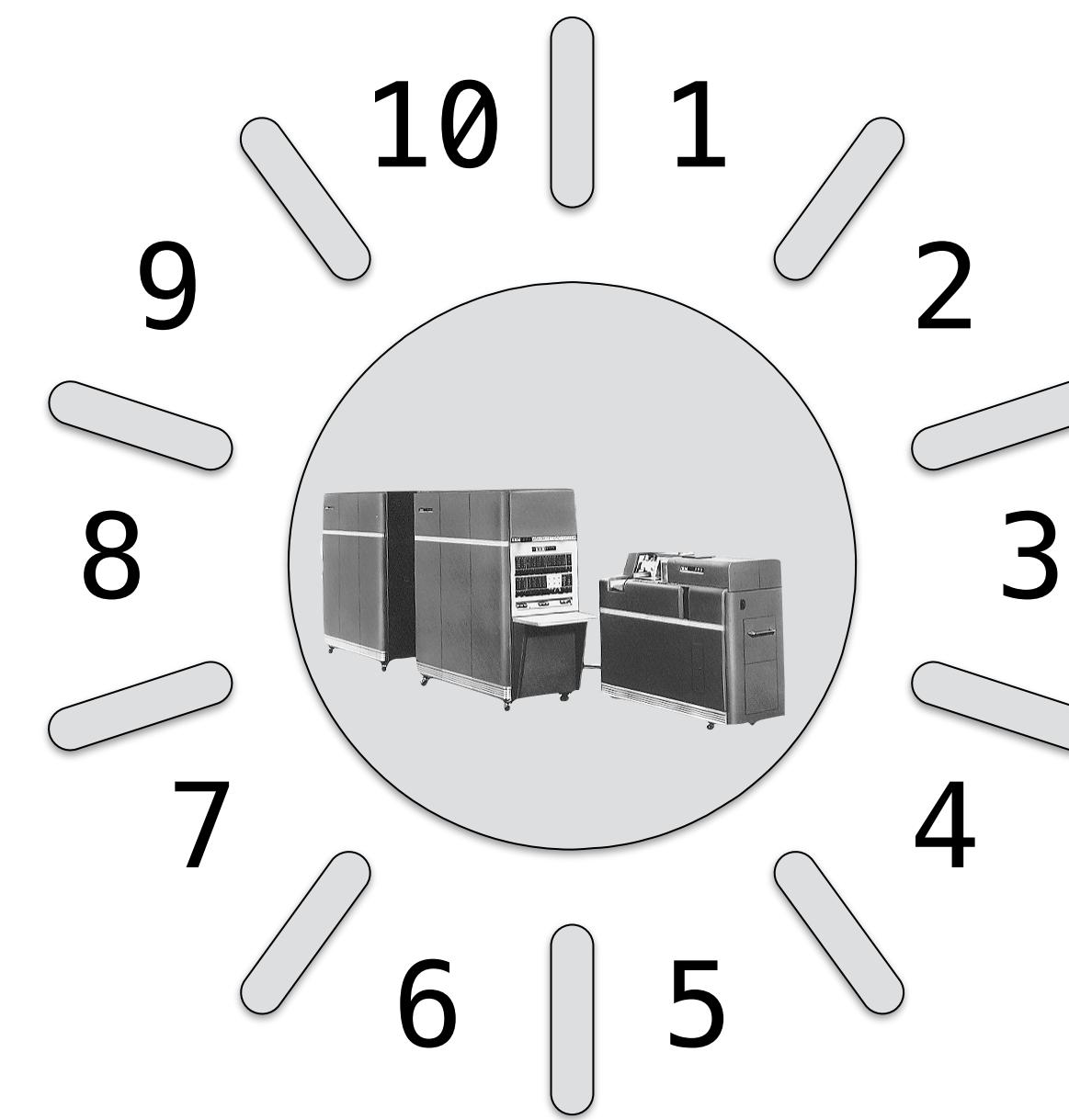
1 megahertz cpu

= 1,000,000 cycles per second



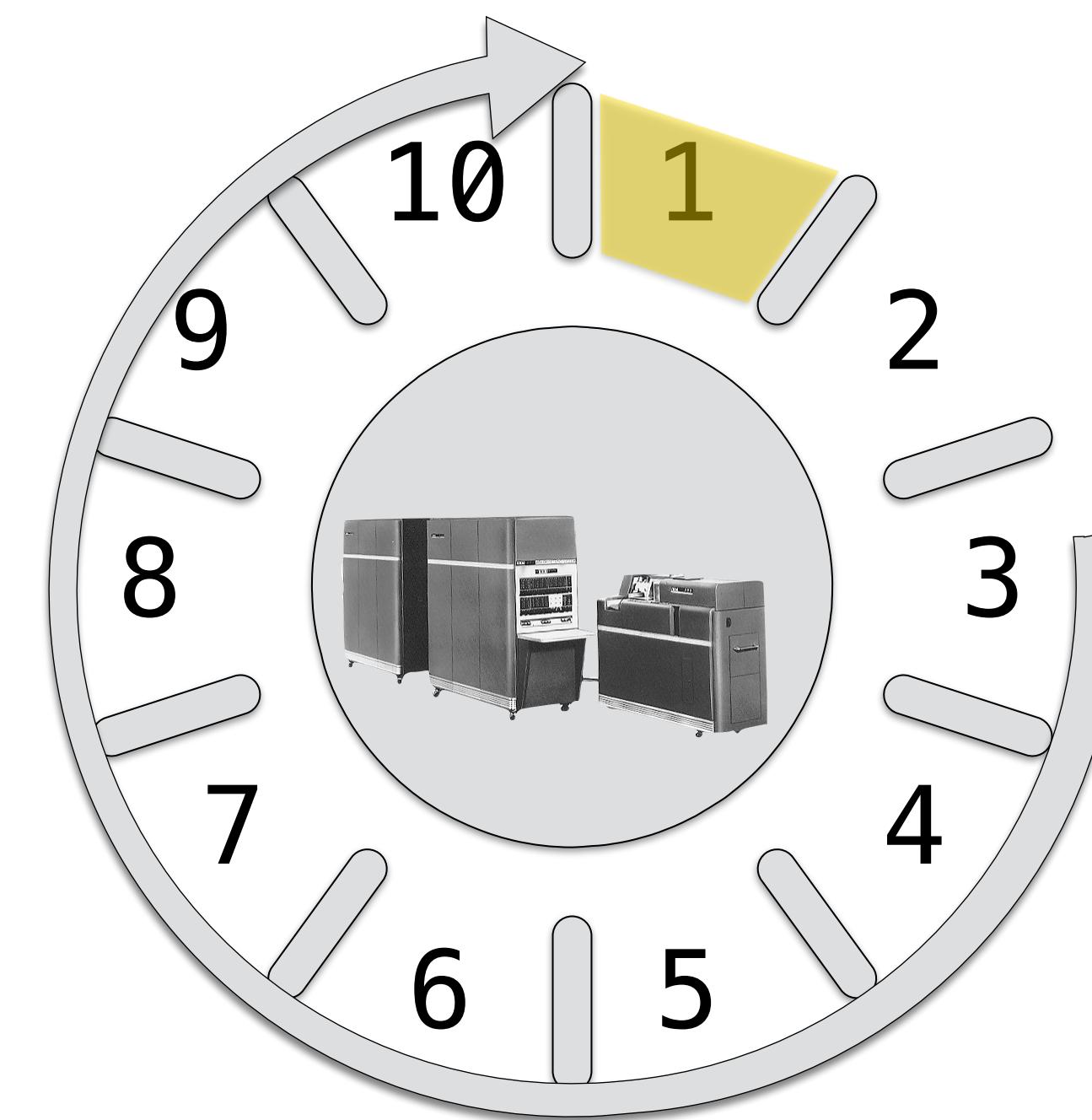
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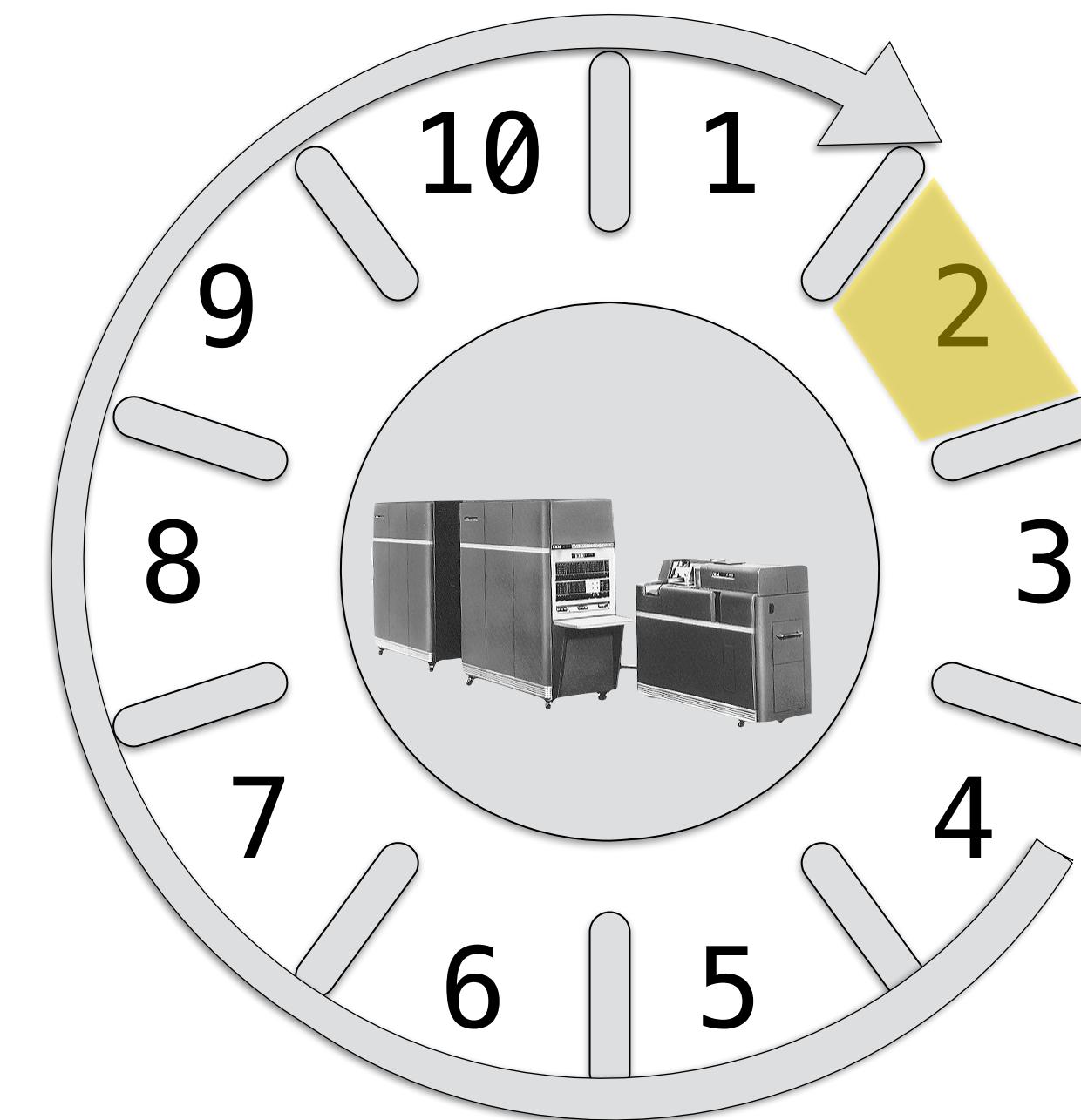
1 megahertz cpu

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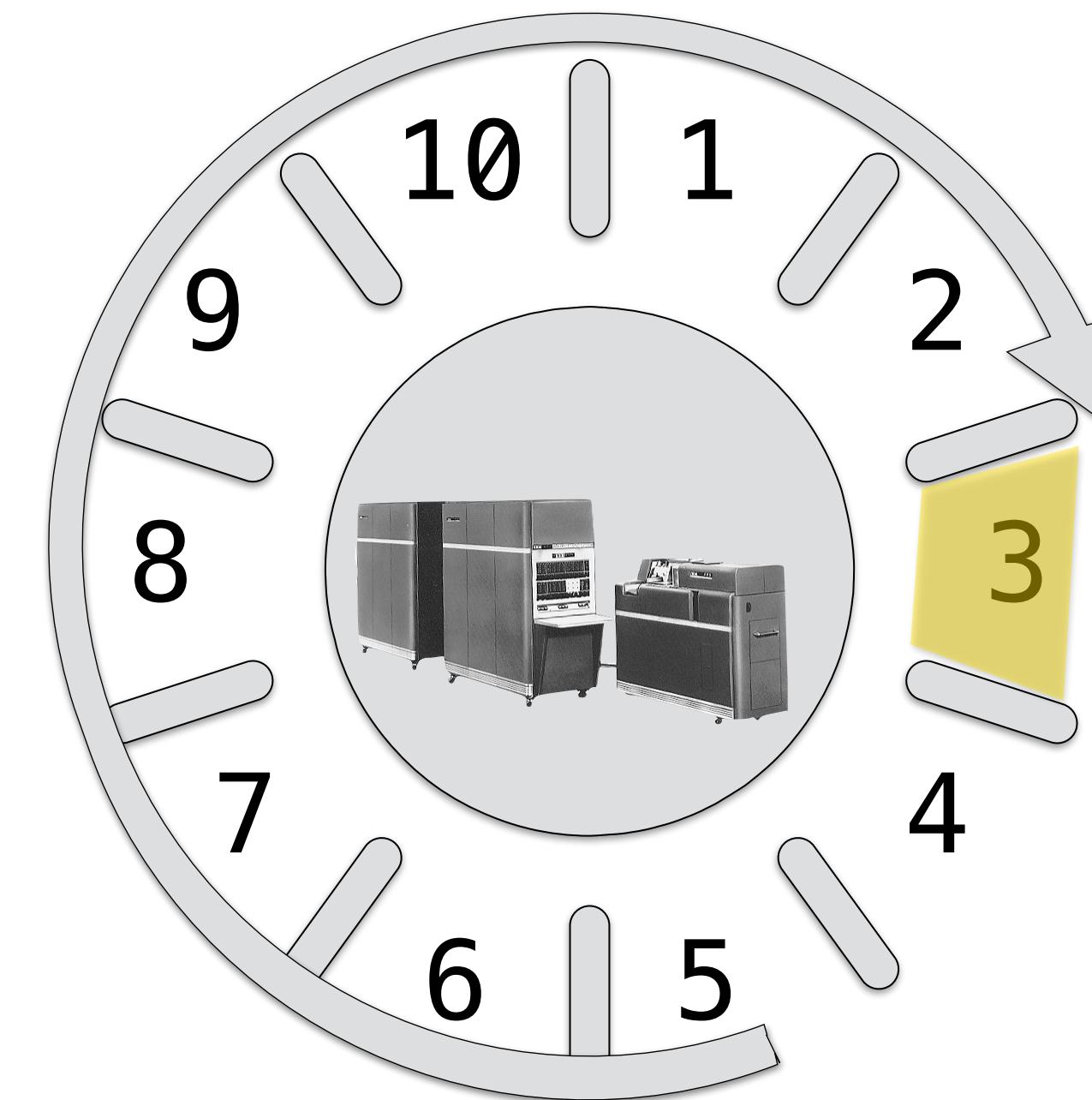
1 megahertz cpu

= 1,000,000 cycles per second



1 megahertz cpu

= 1,000,000 cycles per second



2.2 gigahertz cpu

= 2,200,000,000 cycles per second
(* 4 cores)



2.2 gigahertz cpu

= 2,200,000,000 cycles per second
(* 4 cores)





Activity Monitor (All Processes)

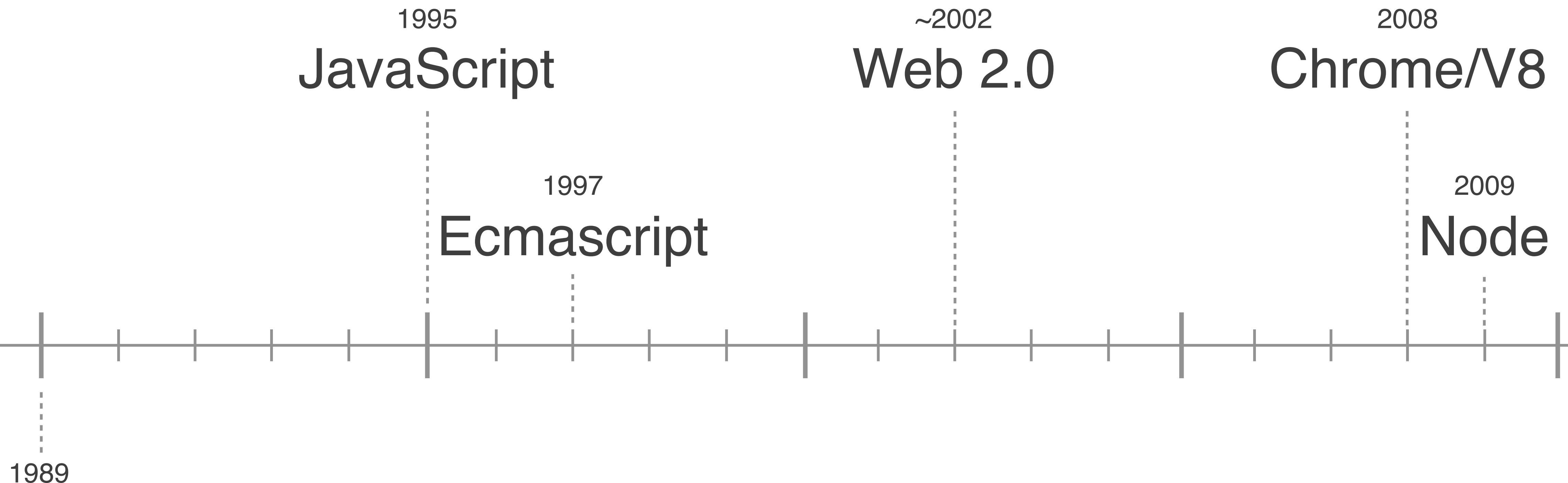
Process Name	% CPU	CPU Time	Threads	Idle Wake Ups	PID	User
Slack Helper	23.6	40:39.48	23	224	2073	collin
kernel_task	22.1	48:01.60	130	917	0	root
WindowServer	15.2	52:18.16	6	86	156	_windowserver
Slack	9.7	21:56.29	38	172	2052	collin
Slack Helper	7.0	13:32.68	5	1	2057	collin
Live	5.3	21:54.73	18	158	405	collin
Activity Monitor	4.7	2:43.65	9	3	409	collin
coreaudiod	2.8	15:32.61	8	292	182	_coreaudiod
Adobe CEF Helper	2.2	9:59.57	16	7	1340	collin
Backup and Sync from Google	2.1	10:07.99	46	21	1270	collin
eqMac2	1.9	8:33.92	7	17	3176	collin
Photoshop CC	1.9	2:22.15	64	103	11963	collin
hidd	1.5	8:48.30	6	6	111	_hidd
CEPHtmlEngine Helper	1.4	7:10.12	4	113	1200	collin
Creative Cloud	1.0	4:24.65	28	23	1250	collin

Activity Monitor (All Processes)

Process Name	% CPU	CPU Time	Threads	Idle Wake Ups	PID	User
Google Chrome Helper	0.5	5:03.05	18	1	2605	collin
Google Chrome Helper	0.4	1:26.57	19	2	2604	collin
Google Chrome	0.4	19:45.34	40	6	395	collin
Google Chrome Helper	0.2	9:58.89	12	61	440	collin
Google Chrome Helper	0.1	2.17	18	2	16934	collin
Google Chrome Helper	0.1	49.60	20	2	2608	collin
Google Chrome Helper	0.1	19.59	17	2	12420	collin
Google Chrome Helper	0.0	6.59	18	2	14533	collin
Google Chrome Helper	0.0	15.56	18	2	11961	collin
Google Chrome Helper	0.0	3:30.79	18	1	11659	collin
Google Chrome Helper	0.0	8.18	18	1	13110	collin
Google Chrome Helper	0.0	21.11	17	1	11420	collin
Google Chrome Helper	0.0	12.63	18	0	16938	collin
Google Chrome Helper	0.0	35.62	17	0	479	collin
Google Chrome Helper	0.0	36.18	17	1	17161	collin



TIMELINE



**Invention of World
Wide Web**

What is node?

A JavaScript runtime environment

That doesn't help

...a tool

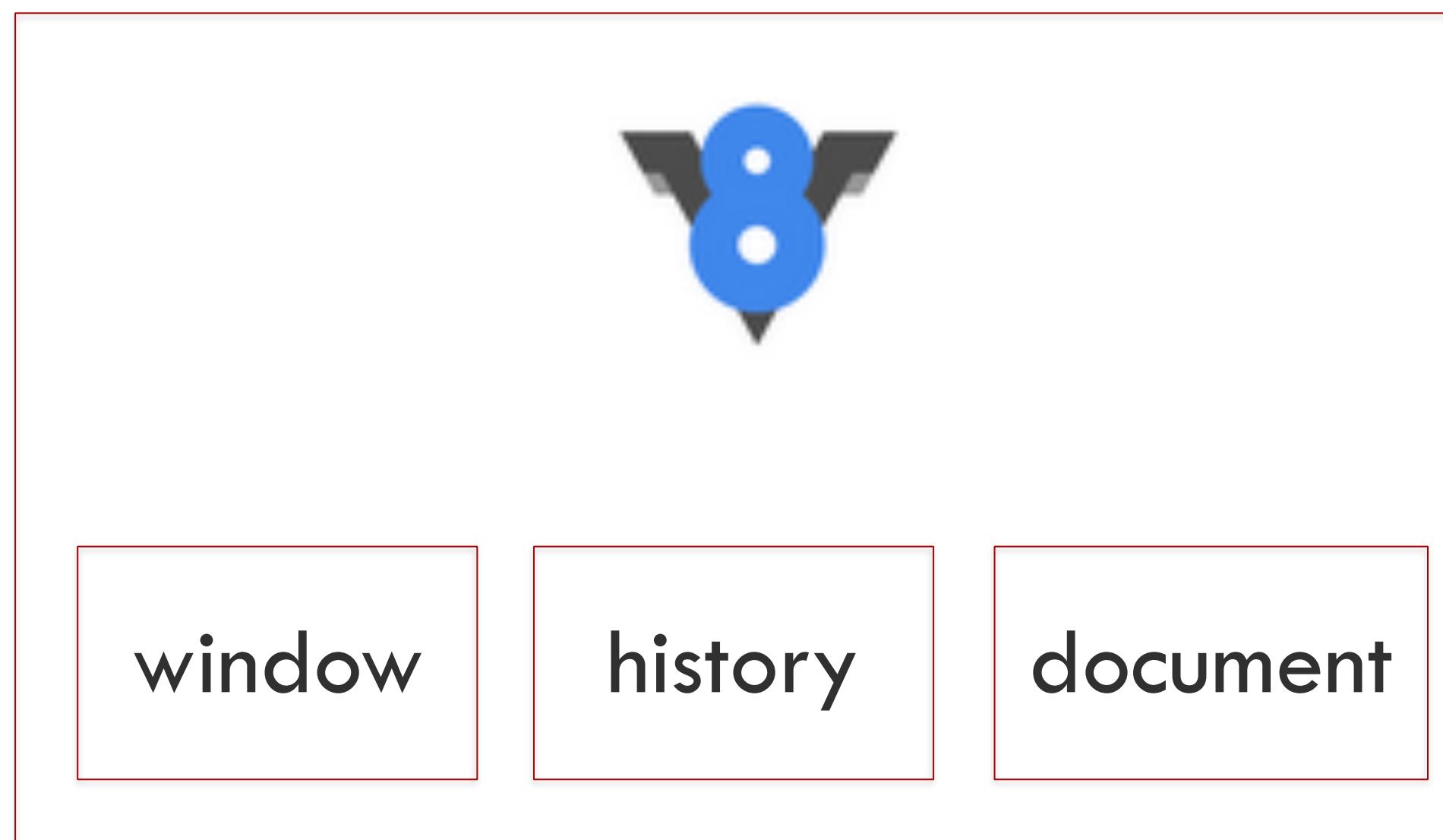
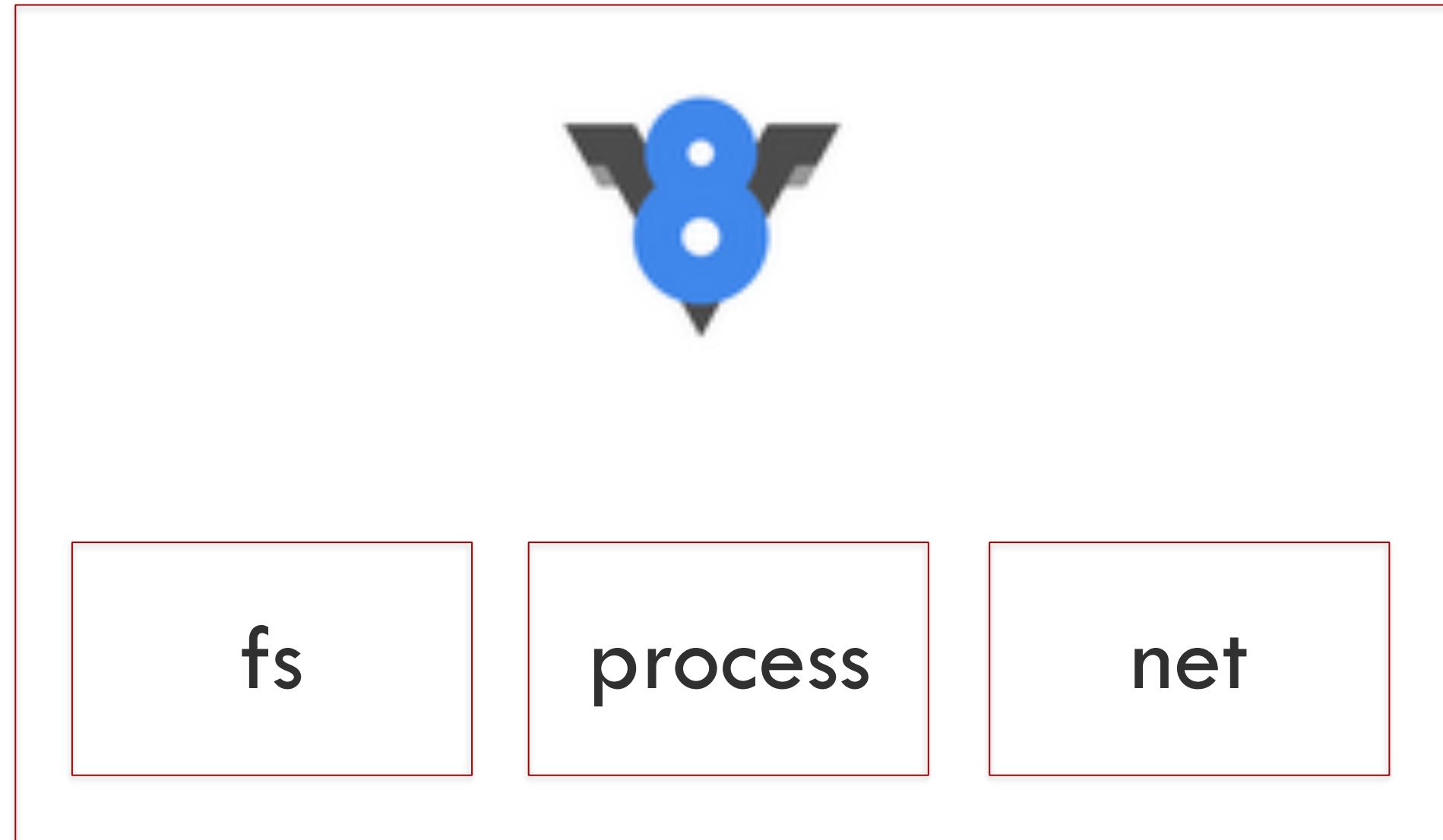
What does it do?

It executes JavaScript on an operating system, instead of in a web browser

files (e.g. app.js)



<script></script>s





WHY CARE?

If you want to create a server and know JavaScript



WHY CREATE A SERVER?

If you want to create a custom website or webapp



SERVER

- A program running on a computer connected to the internet
- Serves content requested by remote clients

if programming were cooking...

Program vs. Process

- "recipe"
- **Program is data**
 - machine code (pre-compiled)
 - bytecode (re-compiled by a VM)
 - text file (can be interpreted)
 - **Inert — not doing anything**
 - **Ready to be run as a process**
 - **Process is execution "cooking"**
 - memory allocated
 - CPU performing steps
 - **"Live"**
 - **Produces results**
 - **Interactive**
 - **Can be started/stopped**
 - **Multiple processes from one program...**



COOKING METAPHOR

	(term)	(metaphor)
<code>log('hi');</code>	program	recipe
JavaScript	programming language	recipe language
V8	engine/VM/interpreter	chef
Node	runtime environment	kitchen
Sierra	operating system	building (restaurant?)

modules and the node environment

GLOBAL VARIABLES

- Every module in Node has access to the same set of global variables

process

global

console

setTimeout/clearTimeout

setInterval/clearInterval

“MODULE” VARIABLES

- Every module in Node has its OWN set of “module” variables that are available in the default scope

`__dirname`

`__filename`

`module`

`require`

“GLOBAL” (MODULE) VARIABLES

- Every module in Node has its own set of “module” variables that are available in the default scope

`__dirname`

`__filename`

`module`

`require`



module

- **Object**
- **Represents the module itself**
- **Most importantly, has a property called exports**



module.exports

- Initially an empty object
- Assign it the data you want to expose
- A require of this file will return its module.exports

Demo



require

- Finds a **file**
- Executes **it** no path
- Imports that file's **exports**

path

follows that path

tries
./node_modules
../node_modules
../../node_modules
(...etc)



NPM

- **node package manager**
- **Command line tool**
- **Can find libraries of code online**
- **Downloads them locally (into node_modules directory)**
- **Keeps list of project dependencies in package.json**



package.json

Describes your project, e.g. its dependencies...

- **Collaboration within your team**
- **Sharing within the node community**



SUMMARY

- Node allows for server-side JavaScript
- require pulls in what module.exports puts out