

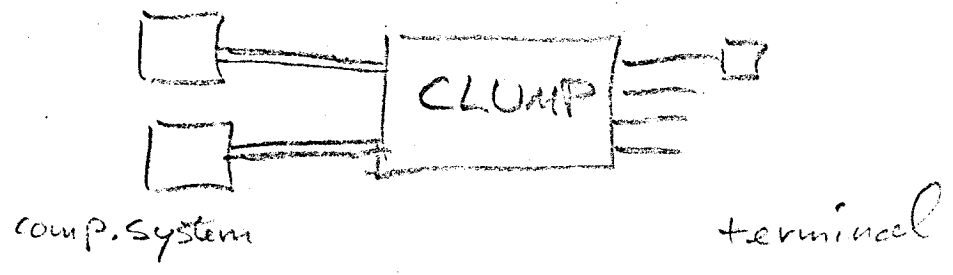
12/11/69



# Random thoughts about a "Centrally located Universal Message Processor" (CLUMP)

① Needless to say, the name is not proposed seriously. But we could do worse (e.g. "Terminal Handling Internal Network Group")

② Gross picture:



Each element can be thought about...

③ For instance, where do we put it? If really high-speed communication between CLUMP & a computer is wanted cheaply, it may need to be <50 feet from all computers. And that's probably impossible.

- ④ Lines from CLUMP to terminals:  
phone lines, video pair, co-ax,  
microwave, or what? Serial  
or parallel?
- ⑤ One reason to favor store & forward  
is that then code conversion,  
escape processing, etc, can go on  
there in a uniform fashion.
- ⑥ We should probably go ASCII as  
much as possible.
- ⑦ Of course, buffering in CLUMP  
has economic advantages but  
raises issues of synchrony between  
time-sharing system and messages.
- ⑧ I bet we'd find it simplified  
design immensely if control  
signals and data went on  
different wires between computers  
& CLUMP.

⑨

What if it goes down?

Well, it just can't, that's all.

So a) Runs on flashlight batteries

b) 2-3 of everything -  
CPU's, core boxes, ...  
and they all vote.

c) Off-the-shelf components  
wherever possible; modular.

⑩

How about its "gag rate"? Must  
have no limit on size; may need  
multiprocessor organization.

⑪

Data on the TBS-CLUMP lines  
could be "squeezed" in a lot of  
cute ways if speed works out.

⑫

No moving parts! Bulk core maybe.

⑬

CLUMP could say "System X is down"  
or whatever. Tempting to let users  
edit a little but probably a bad  
idea in view of ⑫.

(14)

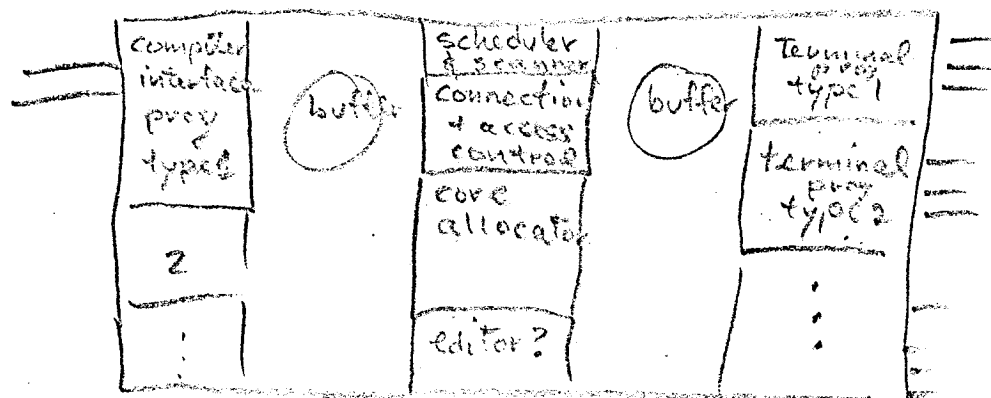
This could replace TONI etc for terminal RTE if we did allow editing.

(15)

Graphics?

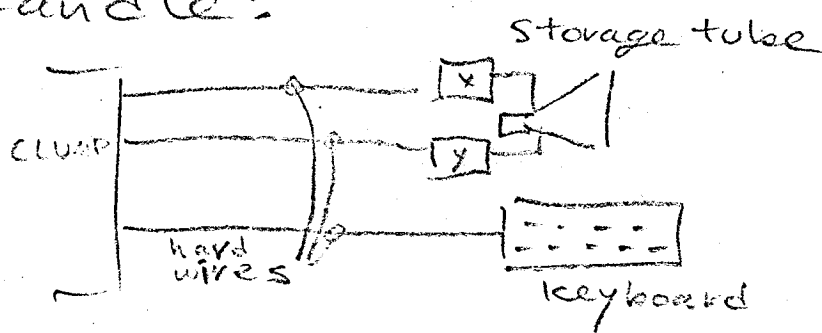
(16)

Possible internals:



(17)

One kind of device we could handle:



character generation done in central machine, maybe in software.  
"Infinite" speed. Cheap.

(18)

CLUMP could know things like  
"prot. x, who lives at the other end  
of line # 81, always logs into  
Multics." Access control &  
security, traces, etc.

(19)

CLUMP could have a sort of "who"  
of all the systems going —  
could be able to log itself in  
on various systems and  
test 'em out, even. From here  
a short step to "mail"  
and tying into accounting.  
(Have I just invented Multics, or  
have I just invented the ARPA net?)

(20)

What are we trying to optimize?

- cost — as compared to what
  - cost / performance
  - new abilities
  - only old abilities but cheaper
  - bits per second
  - simplicity of system
  - simplicity of things hooked on outside
- OR all of these?