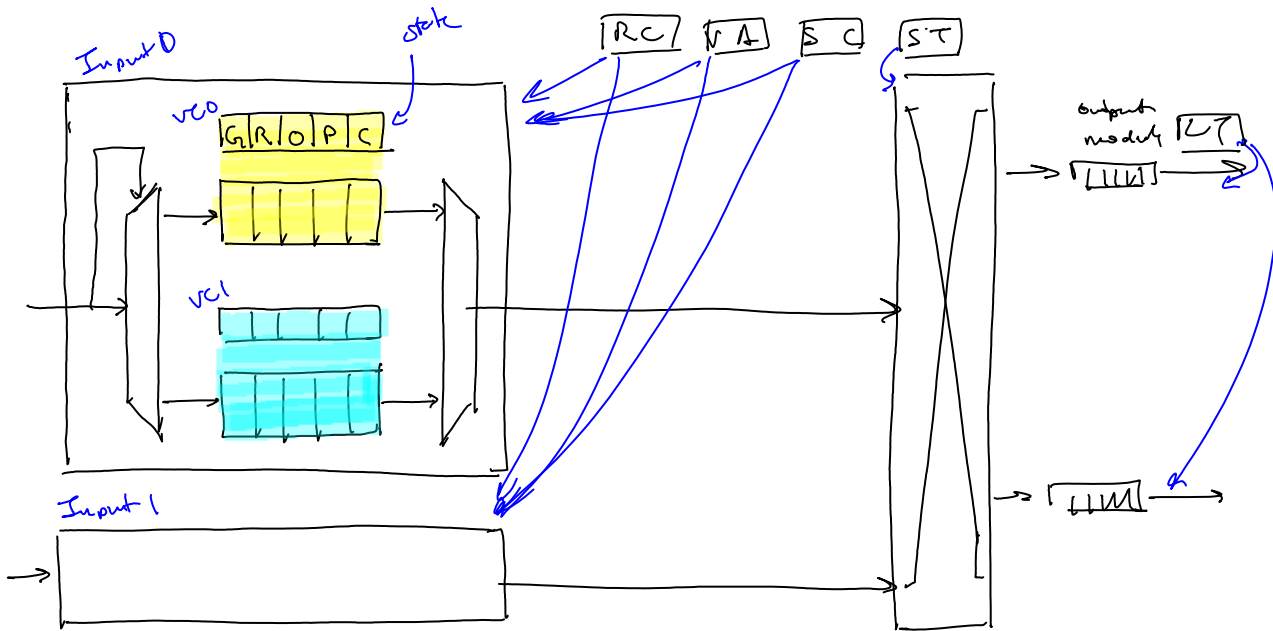


Router uArchitecture

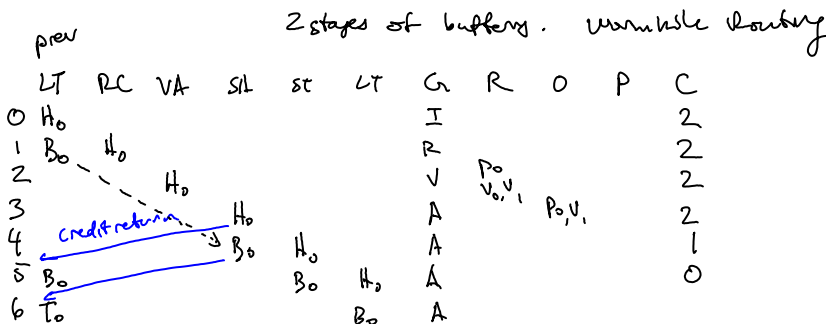
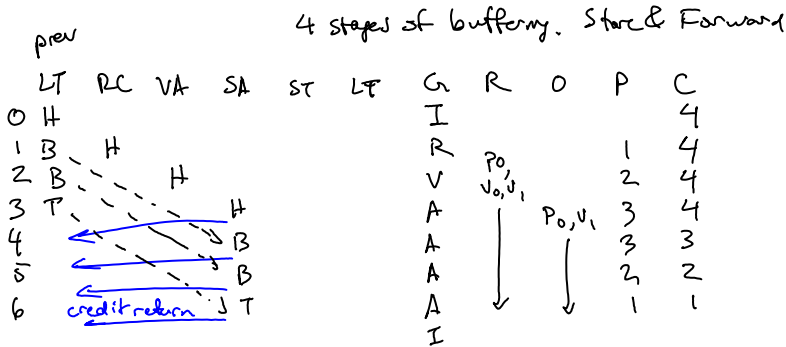
Tuesday, March 09, 2010
10:16

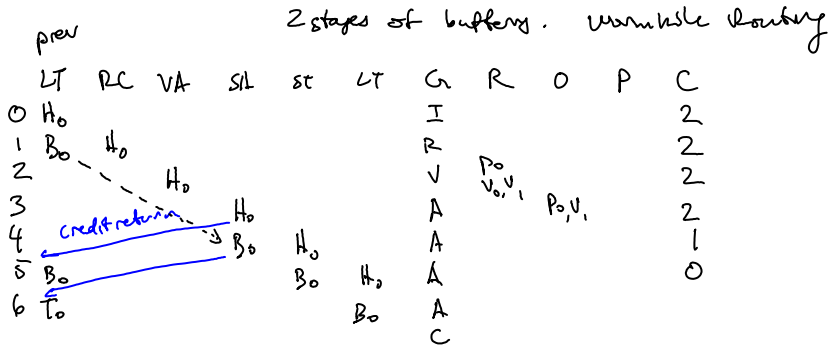
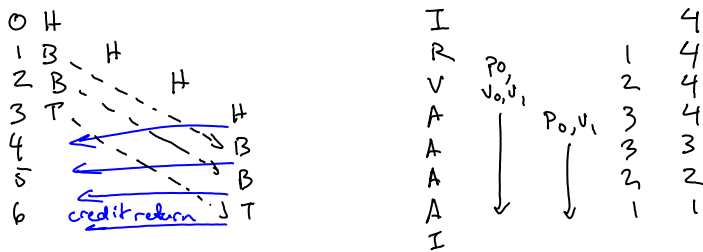


G = global state \Rightarrow I = Idle
 R = Routing
 V = Waiting for VC allocation
 A = Active
 C = Stalled. Not enough credits.

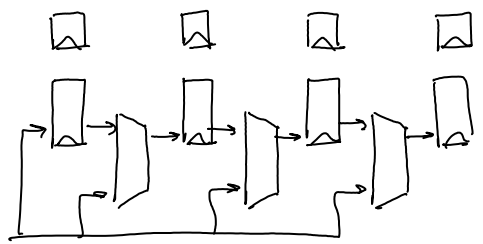
R = physical output port
 O = VC allocator for packet
 P = Buffer pointer stack
 C = Credit Count

We can't route on a first level
 as they have no sequencing or routing
 information. Must route packets!



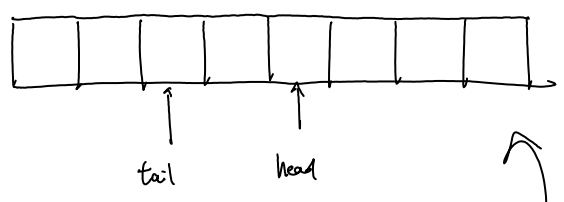


Implementation



Horrible!
Moving Data All the Time!

Bounded Queue



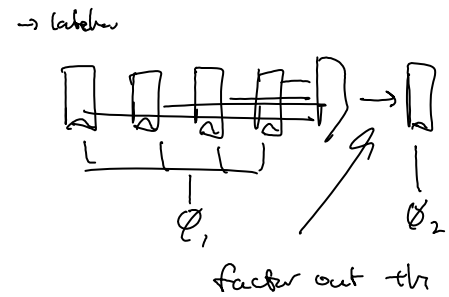
how do you tell if it's empty?
→ counter
→ point to the same thing

For the Express Virtual Channels (EVC) paper, they did this for the static EVC case.

how do you build it?
→ flip flops



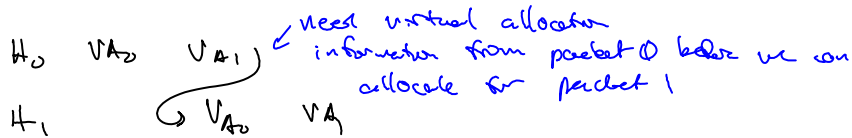
For the dynamic case, they used a Linked List on top of a RAM.



slave label

What about pipelining?

PC \rightarrow VA \rightarrow SA \rightarrow ST \rightarrow CT



Have to allocate switchboard/crossbar, because there are a ton of wires \Rightarrow queueing of buffers, possibly.