









- ✓ Incoming buffer is fed by the incoming circuit on the "wire" bit rate, outgoing buffer needs to feed the outgoing connection on "wire" bit rate - so, the former needs to be read out on the same speed and in a cycle, the latter needs to be written to on the same speed and in a cycle.
- The number of time slots in a frame = nrof read operations = nrof write ~ operations per frame in the switch memory -> speed of the switch memory is a critical parameter: available speed needs to be made full use of but the same speed determines switch capacity without parallelism.
- It is a good idea of doing Serial-to-parallel and P/S -conversions in the V frame buffers - otherwise switch memory speed requirement is multiplied by 8.
- Control memory speed requirement is somewhat above half of the switch memory requirement to allow changing contents i.e. making new thruconnections.

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Technology 1 - Problems in multi-stage fabrics

- ✓ Path search is required.
- ✓ If fast connection establishment is required, also fast control system is a must
- ✓ If control (including path search) is not fast enough, the maximally usable capacity of the fabric is less than theoretic capacity.
- ✓ Multicast is not self evident in fact is complicated matters significantly.
- ✓ Multi-slot connections may cause additional problems, if path delay is not constant. Also blocking probability may rise.

An alternative approach is to take the technological limitations as the starting point

- ✓ Let us not try to optimize a single parameter (nrof crosspoints), but let us look at all limitations at the same time.
- ✓ How fast are the available components compared to the wire speeds and slot speeds.
- ✓ What is max practical component fan-out.
- ✓ How tightly components can be packaged without heat problems due to power consumption.
- ✓ How long internal buses are needed in the fabric. Long buses decrease the internal speed in the fabric and also make diagnostics difficult.
- ✓ IPR Policy: whether the company wants to use special components or not.

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