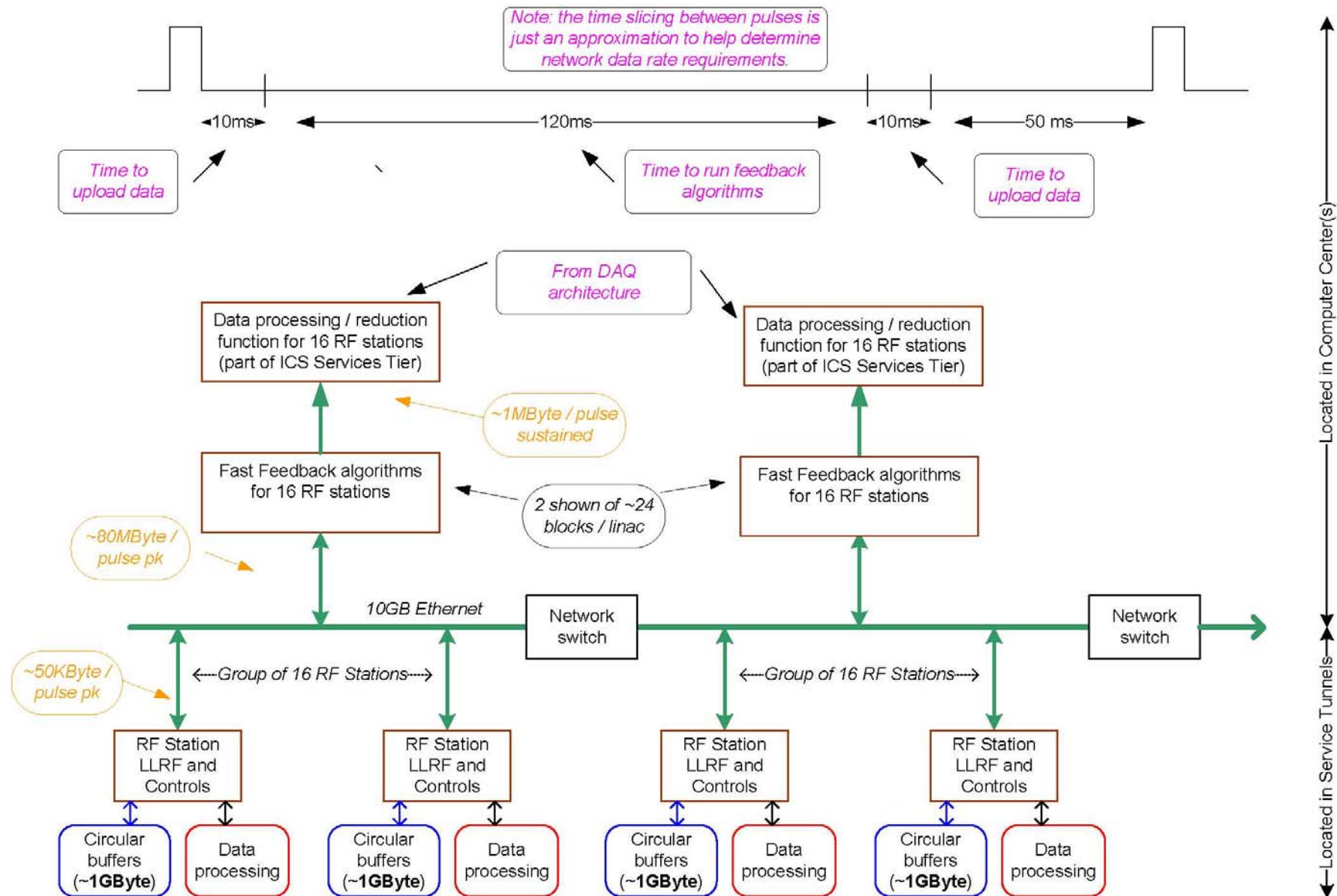


ILC Controls WBS Costing for Computing

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Costing Model Functional Diagram of Linac LLRF Fast Feedback Control Loop (contribution from one linac only)



MEV 6/1/06

Notes from 5Hz Feedback

- Each RF station transfer 50Kb of data
 - Wave forms
 - RF Every pulse has 4 waveforms
 - each waveform has 3000 points (ie longwords)
 - Few Scalars
 - PS and RF
 - Data transfer must be guaranteed to occur in 10ms time slices. Rates during this slice are:
 - Single RF station: 5Mb/sec
 - Sector: 80Mb/sec
 - Single linac 2Gb/sec
- Single commodity computer/sector will be sufficient to process feedback algorithms
- Algorithm nodes will transfer data to the DAQ for archiving/monitoring

Central Computing

- for 1 Linac
 - 24 nodes for data archiving (1 per sector)
 - 24 nodes for fast feedback algorithms (1 per sector)
 - 50 nodes for monitoring/diagnostics (2 per sector)
- Additional sectors
 - 4 sectors/damping ring (ie, x3)
 - 4 sectors/source (ie, x2)
- Other Networking
 - General purpose (wireless in tunnel would be nice)
 - Streaming video
 - Timing
 - MPS (we don't cost)
- For complex
 - 50-100 nodes for central processing (some for "outside" controls network)
 - 512-1024 node linux farm for simulation
 - Data archiving (tape) for 0.5 Pb/year with a1PB disk cache.
 - Database
- Support Staff
 - 2 System Administrators
 - 2 Database Administrators
 - 1 Network Engineer
 - 1 Computer Security expert
 - 1-2 equipment tracking