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During a visit to MCC I talked to Zvi Weiss. Weiss used to work for IBM in Israel and has been at MCC for three years in the software technology program under Les Belady. Effort on the software technology program is split roughly between 20% on psychological and field studies of software design, 60% on the Leonardo project which is concentrating on developing an environment to support the front end of the life cycle ie the requirements, specification and design aspects. The remaining 20% is put into the DELI Project.

DELI is a programming platform to support the software technology program's research prototypes. It is intended as a research aid for the in house work at MCC and as a delivery vehicle for the share holders. The idea is that DELI will be portable and will be mounted on various machines in use by the share holders so that technology can be transferred in an active form ie source code from MCC to the share holders using DELI as the portability technology.

MCC has decided to make DELI a Common Lisp programming environment using Common Lisp extended to include light weight processes. The design of DELI has been constrained by the share holders because of the share holders demands for short term deliverables, for the need for portability and for a technology transfer vehicle. MCC has committed to producing DELI in fairly short order and also will commit to 6 month support at the share holder site for any component delivered on top of DELI eg suppose a browser is written to run on DELI and delivered to the share holder then MCC will maintain the browser for 6 months after delivery.

DELI contains a component called the WSII, the Window Systems Independent Interface. This is intended to run on top of things like News and X windows and be independent of both of them being at a higher level, using its own coordinate model and its own event handling. Weiss was aware of the European work on window managers and had a copy of the Rutherford produced book of the Coseners workshop on Window managers. I put Weiss in touch with Tony Williams.

Weiss believes in object orientated programming and they are looking to move DELI towards CLOS as a standard. To this end Rob Whiting at MCC is working with Greggor Kiczales at Xerox PARC. Weiss would like to see persistent objects available in a DELI but they have no active work in this field. They are looking around to see if they can pick something up from other places. There is apparently another MCC project on persistency in the Database program, but this is not targeted at CLOS.

DELI contains an EMACS server which has been build by Frank Halaz. This is a version of GNU-MACS which Richard Stoneman had especially extended for MCC use. The EMACS server is a multi processing version of EMACS which operates with multiple clients on the one server. The EMACS server enables cut and paste operations between different windows which may be on different machines and so gives a mechanism for a Colab type basis. Frank Halaz who was instrumental in building the Xerox PARC Notecard system is building a hypertext system for DELI.

The MCC are hoping to produce the first version of DELI for release to share holders in JULY 88. This version will contain the window system independent interface running on top of both News and X, will contain the

multi processing EMACS server and the ISI grapher server and an object orientated interface to the above tools. In later versions MCC are hoping to add the C and the C++ programming languages to make DELI a multi language system.

As well as the software technology program I met some people from the advanced computer architecture programs ACA. This is now run by Gene Lowenthal. This is the side of MCC activities which was significantly reorganized when various share holders came and went. Things like architecture, databases, and AI which were separate programs previous to the reorganization have now been brought together under Lowenthal who used to run the database programs. Lowenthal and I discussed some of the problems that face MCC.

The complex arrangements whereby each share holder buys into specific projects rather than whole MCC work has caused them some operational problems. The ACA program has been reorganized so that share holders buy into a kernel program of work which is shared and then buy into specific satellite projects which are bigger things which are attempting to get round the silly situation we saw during our 1985 visit where one project was not allowed to talk to another project because it was funded by different share holders. However this feature still remains a problem in general.

The idea of facilitating technology transfer by seconding employees of the share holders to MCC does not seem to be a success. At MCC, the impression I got was that share holders were not willing to second capable members of staff; only small numbers of poor quality staff had been offered to MCC by the share holders and so this aspect of the initial strategy of MCC has been a failure so far.

Also since our 1985 visit, MCC seems to have gone through a slight change of attitude in so far as they feel much more like an independent contract research organization now rather than an extension of their share holders activities. They seem to see much more of a customer contractor relationship with their share holders than was originally envisioned I suspect. To this end they are now thinking of applying for US Government research contracts to supplement their income streams.

The founder of MCC, Admiral Bobby Inman, has left to set up a venture capital outfit. The change of direction of MCC seems to have occurred at around the same time that Inman left. One had the feeling that the idea of straight forward sharing of research between the share holders has not been a great success partly because of the complexed funding and intellectual property rights mechanisms which had been set up, partly because of the difficulty of attracting good staff to Austin, Texas which is not as attractive as for instance Silicon Valley and partly because the share holders had not put enough effort into establishing technology transfer mechanisms with MCC. For instance the failure of the secondment program.

Perhaps in summary, one can say that the honeymoon period for MCC has come to a close and they are yet to establish a longer term working relationship with their share holders and determine quite what sort of an organization they are and what is their long term mission in life.