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SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

INFORMATICS DIVISION

SOFTWARE ENGINEERING GROUP NOTE 106

Minutes of SIG-SE Meeting 28 February 1986
(Draft 1)

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1. CHAIRMAN'S INTRODUCTION

Apologies had been received from Mr Stoddard and Dr Montgomery. Miss Downes did not attend. The Chairman brought the SIGs attention to the recent announcement of the After Alvey committee which will be chaired by Sir Austin Bide. The announcement for the full committee membership is expected shortly. The timescale for report was October 1986. Thus SIG-SE has a fairly urgent requirement to provide advice on infrastructure for the Infrastructure Steering Group to feed into the After Alvey proceedings.

2. GEC SERIES 63

The Chairman welcomed Dr Ken Hartley of RAL to the meeting. Dr Hartley is Head of the RAL Infrastructure Group serving the Alvey Directorate and is currently helping Keith Bartlett, the new Director of Communications. Dr Hartley presented three papers showing how the present state of the GEC Infrastructure machines had developed from the original Memorandum of Understanding. The GEC exercise was motivated by the Alvey IKBS Programme's desire to provide significant new computing power for its forthcoming IKBS projects. Multi user minis were chosen because the currently available single user systems were not powerful enough for IKBS research. The Alvey Software Engineering programme was already based heavily on single user systems with multi user minis acting as back-up. Software Engineering collaborated with IKBS to ensure commonality of infrastructure between their two closely related communities. Of the ten GEC Series 63 machines purchased seven went to IKBS and three went to Software Engineering. All Software Engineering sites either had or were provided with a VAX 750 system from which software could be moved to the Series 63.

In practice 2 out of the 3 Software Engineering sites have hardly used their Series 63s. This lack of use has been due to a combination of inadequate software provision and hardware unreliability. Both are symptoms of the fact that the Series 63 was pressed into service well before it was actually ready for service.

The Infrastructure Steering Group has asked what should happen between now and the end of the Alvey Programme to the GEC Series 63 machines. Should they be:

1. thrown away
2. play a changed role as single user system support vehicles
3. have all software development frozen
4. have a new revised programme of software development.

SIG-SE discussed each of these four options in turn.

1. The feeling was that a considerable amount of capital investment and manpower had been invested in the GEC Series 63. It was now beginning to do useful work on certain projects particularly IKBS. So it did not seem sensible to throw them away just as they were beginning to get up to a reasonable level of development.

2. For Software Engineering it was reasonable that the GEC machine could be used as single user systems support vehicles if certain pieces of development were undertaken. These included the provision of the TCP/IP protocol and the SUN NFS filing system. However the feeling was that GEC should undertake to provide these developments especially as they now had an OEM agreement to sell SUNs.

3. It did not seem sensible to freeze absolutely all development on the GEC 63s, as to continue their useful life between now and the end of the Alvey Programme would require routine upgrades to hardware and basic software.

4. The Special Interest Group did not see that it would sensible to embark on a new programme of software development for the GEC 63 until there was clear indications that this would be worthwhile. In particular the academic community would be more motivated to move software to GEC 63 if it could see that UK industry was beginning to take up the 63. There is no evidence of this take up yet.

It was concluded that the GEC Series 63s could be kept as infrastructure machines until the end of the Alvey Programme in approximately March 1989. Limited software and hardware maintenance should be carried out to keep them up to date. Some limited software development should be undertaken to enable them to support single user systems in particular the development of the TCP/IP protocol, the NFS filing system, the native disk IO improvements, and improvements to the ACDC equipment. However the consensus was this exercise had not yet been a great success and that research had either been delayed by the imposition of the GEC 63 or that the GEC 63 had just not been used and the research had been done other machines such as the VAX.

When considering what lessons had been learnt from the GEC 63 exercise which could be fed into the After Alvey discussion the SIG made the following comments. It was felt strongly that the provision of infrastructure for research should be de-coupled from the support for UK industry. Research work should not be used to bootstrap emerging products. However in order to avoid stagnation it was suggested that in future some figure like 10% of the infrastructure budget should be used to develop future infrastructure so that new things could be incorporated into the infrastructure in a planned and smooth way. It was felt that inadequate attention had been paid to the networking requirements of infrastructure at the start of the programme. Had this been sorted out for the GEC 63 then any other problems could have been overcome. It was also felt that the Memorandum of Understanding had not adequately addressed the IPR issues.

3. ELECTRONIC MAIL

The Alvey electronic mail system had developed out of the original SRCNet and JANET initiatives to make the coloured book protocols available over the private academic network. Alvey had installed a mail server at the NPL to serve the industrial community to complement

existing academic mail server at RAL. By and large most university sites have implementations of the colour book protocols available on their local machines and so do not need to use the servers. JANET and PSS are gatewayed together to enable messages to move between the academic and the industrial sectors of the Alvey Programme.

The feeling of the SIG was that electronic mail was vital to the success of a collaborative research programme. It is well used and well liked. It is used extensively by the academic community. Whilst industrial companies use electronic mail quite widely within their own company the tradition of electronic mail communications between companies had not yet been established thoroughly enough.

Electronic mail was reckoned to be a vital infrastructure component and was in general performing much better than say the GEC exercise. There were some detailed points worth noting. Most people felt that remote mail boxes were a poor substitute for a local implementation of mail software. Most people felt that the acknowledgement of receipts of mail messages was inadequate. The uncertainty as to whether the recipient had actually received the message was a cause of some concern and inefficient use of peoples time and the network. Criticism was made that users had to understand too much about the implementation details of the network which was largely due to addresses essentially being based on physical routing. There was a need to get to a more logical name system. Effort could be put in between now and the end the Alvey Programme particularly to improve the supply and support of directory services and naming. There was some criticism of the linkages between JANET and PSS and between the Alvey network and other international networks.

Electronic Mail and some of its developments such as Bulletin boards and conferences are seen as vital for both the present Alvey Programme and any programme that comes after it. Whilst some improvements to the current Alvey mail system can be identified the SIG felt that investment should begin now in building the communications infrastructure for After Alvey programme as this would take time to organise and develop but was probably the corner stone for the whole exercise. Such an initiative for After Alvey should take into account the various European initiatives to build and plan European communications infrastructure.

4. OTHER TOPICS FOR DISCUSSION

1. Local Area Networks: hardware and software (Mr Cleland to produce a paper).
2. Single User System workstation review and discussion of the single user versus BLIT terminal to VAX solution.
3. File and Database Servers (Dr Hitchcock to produce paper).
4. New servers such as parallel architectures.

5. ML on current infrastructure.
6. Infrastructure.
7. What common software tools were required for software engineering research.
8. Document production.
9. European infrastructure policy.

The Special Interest Group will try to bring all of its discussions together into a paper which could be submitted to the Infrastructure Steering Group as its view of infrastructure developments between now and the end of the Alvey Programme and lessons learnt for the After Alvey committee.

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