

I N T E R O F F I C E M E M O R A N D U M

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Regional Management in the AARNet
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As I won't be able to be present at the meeting on 24 January, 1990 at Canberra when the decisions on AARNet management structure recommendations are finalised, I thought I should spend some time putting forward the arguments for more regional management as I understand them.

I summarise the arguments in 4 groups as follows:

- a) expectations and credibility
- b) commitment and sense of ownership of participants
- c) resources and timeliness, and
- d) flexibility and responsiveness to local conditions.

To summarise the arguments even more briefly, I and others believe that it will not be impossible to build a network with the currently planned centralist approach. But the result will be less effective, less useful, less used, and will generate more ill-will than the regional model. The comparisons are the success of the US Internet, and the thinly disguised contempt in which the UK's JNT is held by many users.

At the end I have a proposal for a move towards more regional management in 1991, starting with immediate devolution of regional management in Queensland for a trial period.

1) Expectations and credibility

Right from the start of the current AARNet models, at the 1988 Networkshop in Sydney, the regional model was seen as the only practical solution. Time and again in progress reports, Geoff re-stated and re-inforced this idea, which was accepted by the

Steering Committee and by the AV-CC. I have quotes later from the progress report which Geoff published as recently as September, 1989, re-stating this commitment (see attachment A).

It therefore came as a major shock to most people when Geoff and Robin had to stand up at the Adelaide Networkshop, and propose the current model. I saw absolutely no sign of support for the idea at the Networkshop. (see attachments B to E). I sympathise with Geoff and Robin in having to propose something with which they may well not have been happy; the result, however, came across to most people there as rigidity and inflexibility. This seriously damaged their credibility at a quite crucial time. The qualities of rigidity and inflexibility are the classic fears that people have of centralised bureaucracies, and it is a serious problem that these qualities were manifest at the moment of announcement.

It is going to be difficult for the centralised model to recover from this disastrous start. Geoff's credibility, in particular, is absolutely crucial to the success of the network, particularly in the centralised model.

2) Commitment and sense of ownership of participants

Graham Rees argues well for the sense of commitment that a sense of ownership brings (see attachment B). The centralist model brings a feeling of alienation, and the expectation that "they" will solve all the problems. The regional model brings the realisation that we have to solve them. This was very apparent at the Networkshop; Hans Ericsson tried hard to persuade us that "they" could not do everything, but it was clear that most people saw problems without regional management to give focus to the co-operative effort that is required.

The result of these expectations are that either the central resource needs to be built up to meet them, or they are not met, and quality and use do not grow as expected.

In the regional case, on the other hand, many such supporting structures will grow naturally out of increasing co-operation, and will tend to re-inforce that co-operation.

3) Resources and timeliness

There are many issues that can be devolved to an effective regional structure. Without this structure, as mentioned above, these issues must be carried out centrally, or omitted. There is an increasing list of things that people think are very important that are not being done because there are insufficient central resources available.

I believe this network requires at least 3 times the budgetted effort to make it work. If this effort is central, it will cost directly on the budget, and I don't believe we will get it until we can demonstrate that the network is a disaster without it (management by crisis). The other way to get this effort is through volunteer effort. There are relatively few who are willing to put expensive resources into a long term, national project, while co-operative regional projects are rapidly growing in importance, and it's much easier to persuade people to put time or even local money into things that benefit their region.

A side effect of lack of resources is the problem of timeliness. It's just going to take much longer to do if the central staff have to deal with all 40-plus members, rather than a small number of regional networks.

4) Flexibility and responsiveness to local conditions

The big disaster of a centralised management structure is its inflexibility and lack of responsiveness. The differences between the regions are vast and very important. Contrast Queensland with its pre-existing network and management structures, Tasmania with its single member, Victoria with its confusion, South Australia with its contiguity advantages, etc.

Regions have needs that will mean local alterations to national priorities. In Queensland again, the Technology Quadrangle concept probably places much more emphasis on high speed local communication. I think in South Australia, we would like to connect Flinders at 2 Mbps rather sooner than the national priorities might indicate.

Regions may also need extra protocols. Again, Queensland could well benefit from using the X.25 capabilities of the cisco routers to implement QTInet over AARNet. And in South Australia there are arguments for running XNS over the regional network (to allow a remote 3Com network belonging to SAIT but situated at Flinders to use SAIT resources). Queensland again may well wish to charge for network traffic in a way quite different from the models proposed nationally. Many of these requirements mean that regional management of AARNet nodes is required; national integrity is assured by national management of either the regional hub node, or preferably by national management of the regional interface.

5) Steering Committee position

I have not yet seen the minutes of the 14 December, 1989 Steering Committee meeting. A lot will depend on the precise wording of those minutes. I think it was a very difficult meeting to minute, with few precisely worded points of resolution (and no formal resolutions).

My memory is that the Steering Committee recommended a position somewhat between the original regional model (supported here) and the wholly national model in the Secretariat's Management Paper. This would be to start with a centralised model given the argument that essentially no strong regional management existed. (The argument is valid almost everywhere, except in Queensland.) There would then be a move towards more regional management as the groups developed and became capable of taking over responsibilities.

I suggest that we should develop along these lines, but that Queensland's existing strong regional management should be recognised, and regional management should be devolved in Queensland immediately, for a trial period of one year. The results of this experiment will help the AARNet Board determine the future of regional versus centralised management.

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Attachment A

Quoted from "A Progress Report on the AARN", posted to NEWS by Geoff Huston, dated September, 1989.

[...]

4. AARN Bodies

There are a number of committees and structures which have been set up to perform much of the planning activity to date. There are:

(i) The AARN Steering Committee, chaired by Professor K. McKinnon, Vice-Chancellor, The University of Wollongong. The committee comprises representatives of higher educational institutions and CSIRO. The brief of this committee is to provide overall direction and policy determination during this establishment phase of the project.

(ii) The AARN Technical Working Party, chaired by Dr R. Erskine, Director, Computing Services, The Australian National University. This committee includes network managers from higher educational institutions and a CSIRO representative. The brief of this committee is to provide advice on the appropriate technologies to use within the design of the network.

(iii) Regional Network Groups within each State. These groups include network managers drawn from all higher educational institutions and CSIRO divisions within the State. These groups are to provide specific definition of the design of Regional networks, and also to provide the framework for the subsequent operational and management infrastructure of the Regional network.

[...]

8. AARN Implementation Program

The objective of the network implementation program is to rapidly establish a high performance national computer network which provides a set of common communications services to scholars and researchers throughout the nation.

This high performance network will comprise a common backbone network and eight State Regional networks. The backbone network is designed to carry data traffic between each Regional network and also provide the interface between Australia and peer international networks. The eight Regional Networks are configured with interfaces from each State Capital city (Brisbane, Sydney, Canberra, Melbourne, Adelaide, Perth, Hobart, Darwin) into the backbone network.

[...]

As well as physical network design, the major aspect of the network implementation program is the required network management structure. The proposed AARN management structure uses a similar division into National and Regional areas of responsibility to that of the physical network structure. The following paragraphs provide more details of this proposed structure.

The recommendations being made to the AVCC, ACDP and CSIRO are that the network should be jointly owned by these three bodies, and that these bodies are to be the ultimate point of network policy determination and resolution and management responsibility.

To carry out the operational management responsibility on behalf of these bodies the following proposals have been made:

(i) The operational responsibility of the National Backbone Network

is the maintenance of interconnection facilities between each Regional network as a National network service, and also interconnection of this national network with peer academic and research networks overseas. This area also covers the maintenance of the operation of network monitoring equipment and application gateways.

(ii) The operational responsibility of each of the the Regional networks is to maintain the necessary links to interconnect every member site within the region and also the links to the interface between the National and Regional network.

Each Regional Network configuration includes the provision of a Regional Network Centre, sited in each State capital. This centre houses the equipment which interfaces the Regional Network into the National Backbone, and also provides the termination equipment for the links from the centre to each member site. Each Regional Centre is to be hosted by a higher educational institution within each State Capital.

Within each region the network infrastructure will vary with each State, while still adhering to the basic approach taken for the implementation of the Backbone network. This approach nominates the formation of Regional Network management bodies whose brief is to provide this infrastructural support within each region and also to fill the operational management role for the resultant Regional Network.

A comparable national structure is required to manage the National Backbone network. This management structure is proposed to include a National Management Committee as the overall policy determination body. Reporting to this committee is a Network Management group, which will includes a number of full time staff positions to provide executive functions, technical management, network operations and engineering support and network information services. It is intended to establish this body under the aegis of the AVCC, although its responsibilities will be to the funding partners through the AARN Management Committee.

Attachment B

Quote from email message from Graham Rees, UQ, 10 January, 1990

The Case for Regional Management

[...]

Strong regional management is paramount to the long term success of AARNet. This paper explains why.

[...]

The main arguments for strong regional management are:

1. It will encourage participation.

It is of the utmost importance that the network is 'used' by the whole academic and research community to ensure its success. The present networks are mainly used by a few computer/network literate groups. It will require an enormous promotional and educational effort to achieve a much higher penetration. The way to achieve this is through cooperative efforts on a regional basis. It certainly won't be achieved by the few staff proposed for the Central Management Group trying to coordinate such an effort Australia wide. It also won't be achieved by many individual institutions - simply because most don't have the resources. It will be achieved by a cooperative effort within the regions. The very idea of the regions is that there is common interest which promotes a strong sense of belonging and cooperation. This is certainly true within Queensland as illustrated by the QTInet developments, which were initiated long before the activities summarised in the AVCC document. The development funding proposed by the Queensland region (and subsequently approved by the AVCC) was included partly for this type of activity.

2. It will encourage cooperation between institutions within the regions.

There has been an emphasis recently on encouraging joint projects between institutions and between institutions and commercial partners. Strong regional management and cooperation will engender such ventures. The Technology Quadrangle in South East Queensland is an initiative of four Universities to focus their combined research expertise to attract joint funding and provide technology transfer to government and industry. Such cooperation is attractive to potential commercial partners, which has resulted in a number of commercial organisations moving to Queensland. The regions reflect the hierarchy of many of the potential partners and Government bodies with which the institutions have business dealings. State Governments are more likely to provide funding and support for activities which benefit the whole State.

3. Improved AARNet management.

The regional groups chosen allow a much easier and better coordinated structure from institution to region to national body. Certainly within the Queensland region, most people involved in the computer/network area know one another personally. Meetings are easily arranged. Discussion and decisions are made in a (lively) but cooperative spirit. This regional cooperation has resulted in benefits to all institutions in the region and the AVCC should laud and encourage such activity by recognising the importance of regions.

Each institution (or member) will have better representation at the national level through the regional management group than in the present AVCC proposed management structure.

4. Special Regional Considerations.

Central control of a network, which provides services to members spread over an area the size of Australia, will tend to 'normalise' the network. The regions do have differing research interests and requirements which may require, from time to time, special network configurations or services. The regions must have the ability to provide facilities which are in their own interest. Of course such facilities could be provided separately, but this is not within the spirit of the cooperative AARNet venture.

[...]

Attachment C

Quoted from email message from Terry Fanning, Adelaide 11 Dec 1989

[...]

From my point of view the proposal, as I understand it, that AARN should have jurisdiction up to the nodes in individual organisations is not on. Their original proposal to fund and manage up to the regional hubs was sensible but that's where it should end. What the regions do on their side of the hub is their business and if they screw it up that is their problem.

[...]

I think we need to stop immediately, what appears to be an implicit acceptance by AARN management, that they know all the answers, that as long as we follow their advice we will be ok and that infallibility resides in Canberra as well as the Vatican.

Attachment D

Quoted from Brian Glaetzer, Roseworthy in email message dated 11 Dec, 1989

> So, how strongly do we wish the organisation to reflect the original
> regional plans, and how soon?

I would opt for strongly regional as soon as possible.

I understand that AARN will have a regional guy under contract to manage the regional hub. I suggest that this person be responsible for the interface between our region and the national hub, and between our region and the members of our region. Obviously, these regional hub managers should liaise at the national level to exchange views and set standards just as the local managers should liaise with their regional hub manager. National level directives to the regional hub managers should take priority over local level directives from regional steering committee.

I see problems and standards being resolved at a local, then regional, then national level so that no one individual or group of individuals carries the whole burden of the AARN.

Although I do not think that management from the national level is appropriate, I think that they should be able to comment on any proposed changes so that they maintain an overview of the situation.

Brian

Attachment E

Quote from John Lockwood, SACAE in email message dated 9 January, 1990

I suggest that intially '2' (ie mixed services) in the first 12months with a move towards '3'. I do not think that the use of the word 'owned' is important - management is crucial. I would prefer that Canberra (ie ARNet support) concentrate on planning and strategic issues and as implementation occurs the management of that which is in place be left to the regions.