

Health libraries innovation and the Gratisnet network

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Introduction

Gratisnet is a network of special libraries in Australia that commit to document exchange at no charge to each other, and without certainty of balance in supply. Over 250 special libraries in health and allied fields are members of the network, many of which are too small to participate in the national Inter-library loan (ILL) network. Careful distribution of workloads helps to facilitate participation among large and small libraries. This co-operative model has subsequently been adopted by law, emergency services, transport and government library networks in Australia and New Zealand. This paper looks at the current state of play in Gratisnet and the co-operative factors that distinguish Gratisnet from the national ILL service.

Origins of GratisNet

In December 1982, ten hospital librarians from New South Wales met at the University of NSW. They developed a scheme for co-operation in inter-library loan lending on a fee-free basis. By the end of January 1983, membership had grown to 28 libraries (Keast, 1985). The name GRATIS was adopted in March 1983. For a period of 17 years a microfiche-based union list was maintained in conjunction with the Co-op bookshop and the membership grew to over 100 libraries (Hook, 1992).

In 1998 a partnership with Prosentient systems (an open source library software service provider) and the Co-op bookshop led to the development of a web-based union list as a successor to a centralised union catalogue. This marked a significant transition to self-management of the union catalogue in a web-based environment, and provided greater statistical input to the ranking process to evenly share the workload. When the Co-op bookshop closed its subscription division, Prosentient Systems continued both hosting and software development of the system, and extended the functions for ranking and resource distribution in the system. Prosentient Systems has continued its commitment to progressive enhancement of the system, with a portion of the annual fee reserved for service enhancement each year. With the growing national character of the network, Western Australia (which had a long-standing formal network) made GratisNet truly national when WAGRATIS joined in 2001.

The web-based GratisNet service remains the largest interlibrary loans network outside the national document delivery system (ALIA, 2018).

Features of GratisNet

The development of GratisNet is an example of inter-library cooperation at its most effective. The network exemplifies the achievement of health libraries working in a voluntary context and often in 1-person libraries to provide a mutual resource at national scale. GRATIS has gained amongst its members many small libraries who do not participate in national schemes such as Libraries Australia. They are often one-person libraries (Dartnell, 1998) and operating with a service that achieves well beyond their financial means.

By marshalling the resources of many health libraries whose holdings are otherwise not represented at all in the national union list, GratisNet has built a collection of impressive size and strength which is a major resource for Australian health libraries. Special libraries are also nimble suppliers of documents. A five-year analysis in 2002 estimated that GratisNet suppliers were, on average, at least two days quicker than all other sources (Due, 2002). While electronic means of delivery has narrowed this gap in recent times, GratisNet is probably still a good deal quicker in actual supply.

Before GratisNet many health libraries worked in relative isolation. Joining GratisNet gave them a much larger network of colleagues who could be approached about topics far removed from inter-library loans. The GratisNet list-serve of modern times sorts ILL queries, distributes duplicates lists, and carries many problems for general comment. The mutual support and problem-solving functions of specials networks are extremely valuable, especially in one-person and rural or isolated libraries.

GratisNet now has over 250 small research libraries in a network to provide distributed intelligent-agent inter-library loan services optimized for lowest-cost provision of health journals that are otherwise expensively or poorly supported in traditional inter-library loan services. They achieve this at an annual cost per library of \$195 per annum. This annual fee funds the operation of a focused inter-library network that shares print and electronic holdings. This model has been taken up by four other library networks, creating an integrated resource database comprising over 500 libraries. The low service cost (per library) emphasises the potentially low cost and accessibility of distributed networks to small institutions. The networks are also important in illustrating approaches to resource balancing in such a fee-free transaction environment.

Economics of Demand Balancing in a fee-free network

Collaborating, resource sharing networks in a fee-free environment pose risks that are common to voluntary and collaborating communities. There is the "free-loader" phenomenon, or those who take the benefit of membership of a collaborating community but provide no or little contribution of resources.

However, imbalanced resource distribution, if unmanaged, can also create imperfect resource management through inequitable distribution of demand resulting in a reluctance to supply (a form of compliance failure), and through inequitable distribution of demand resulting in a delay in supply (a queuing problem). A longer-term issue in the management of distributed resource collections is the potential for degradation of individual resource collections through reliance on networked collections (a collection building problem).

Prosentient Systems has leveraged an open-source change management approach to building a solution model for the collaboration problem. Where balance is not achieved through fee-based supply, the supply versus demand equation must be mediated by other, behavioural elements. Examples of charge-free economics include: motivational ladder-based (for example bulletin boards that give increasing capability based on activity/involvement in community), recognition-based – through community status or power/control over the inner elements of the service (for example joining the inner-core managing open-source projects).

The GratisNet library communities collaborate to achieve a cooperative benefit – all community members gain access to a larger resource by sharing their own resources and thus accessing a wider network of resources. The challenge is to achieve equilibrium in supply and demand that remains equitable to the members of the community despite unequal distribution of resources. Game theory describes a number of behavioural models that can describe fee-free collaboration in such an environment. The GratisNet communities represent an example of large-scale collaboration where a relative equilibrium in supply and demand is achieved through computer-aided ranking of resources through the funding of a centrally managed intelligent agent for facilitation of resource distribution. Participating libraries commit to supplying ILL requests at no charge and with no specific reciprocity, on the basis that they can be confident that an increase in demand on their library will be balanced progressively with a lower ranking in search results.

While the GratisNet approach illustrates the benefits that arise from effective collaboration among small libraries as they face the challenge of cost-efficient resource sharing, the behavioural elements of fee-free resource sharing must be addressed to establish a stable economic model in a fee-free environment.

One model would be to look for a “knock-for-knock” equitable balancing over time. While attractive in principle, this approach would fall foul of the Australian Goods and Services taxation rules. A services tax deems this as a taxable supply and so would apply a tax even to a freely supplied item, at its deemed value. The network could only remain fee free in a taxation sense if the supply is provided without certainty of return in exchange.

The model chosen in the GratisNet networks is a variant of a "relative egalitarianism" viewed not at the individual transaction level but at the cumulative level of transactions over time. Each individual transaction represents a win/lose in the sense that a resource request represents effort on the part of one library to the benefit of another with no immediate return. Egalitarianism would indicate the selection over time of the approach that gives the highest combined utility to participating libraries. However, with unequal resource distribution, relative egalitarianism models the utility that each participant will derive relative to the overall utility aiming to achieve the utility benefit for each participation that has the lowest level of frustration (Moulin, 1988).

The ranking algorithm in the system offers a ranked list of potential suppliers based on

- a) An overall distance algorithm (at the state level)
- b) A dynamic ranked list of suggested libraries based on a weighting of their effort from which the requesting library can choose a supplying library, pushing the more lightly called-on libraries to the top of the selection.

In any given resource search the library is free to select whichever library best suits their requirement, but the library is encouraged to select from the "top" ranked library. Over time this helps avoid over-burdening libraries.

The current picture

The move to electronic consortia subscriptions has changed the scene a great deal in the health library sector. In 2003 there were no electronic subscriptions represented on the system. By 2011 there were:

- 37526 titles held in print form
- 290301 electronic titles held by libraries (of which 43% were consortia holdings)

By 2021 there were:

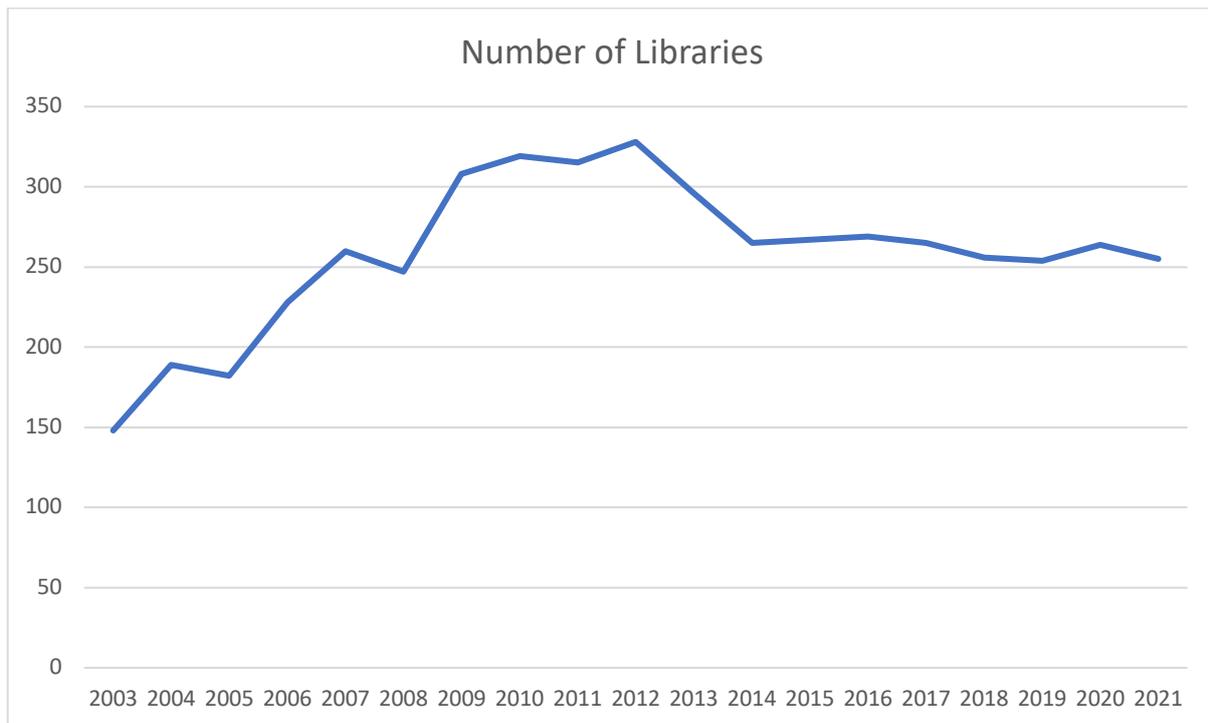
- 18261 titles held in print form
- 494633 electronic titles held by libraries (of which 64% are consortia holdings)

The trend to electronic, and to consortia-style holdings is clear. This has had the merit of increasing the breadth of journals held (growing from 55563 journal titles to 87926 journal titles in 10 years). The downside is a reduction in the diversity of the national health union list. The trend to consortia subscriptions also risks decline in visibility of smaller Australian health publications.

The number of libraries in GratisNet peaked in 2012. The following two years saw a significant drop in the membership, represented by a period of library closures, particularly in the government sector, and library funding cutbacks.

The transition to the National Disability Insurance Scheme in Australia saw attrition in some of the specialist health sector libraries. Funding moved from cyclical funding provided to institutions to funding directed at individuals. This removed a source of stable funding for the disability sector associations which saw the closure of at least 10 libraries in this category.

The membership has stabilised at 250 libraries in 2021.



The change in the collection profile and the trend to uniformity in many collection profiles has seen growing pressure on some libraries that maintain diverse collection footprints. Additional changes were made to highlight libraries that had already received (based on a threshold measure) a number of requests within the current time window.

Conclusion

The rapid growth of the GratisNet network in Australia suggested that the principles underlying its development were as valuable as the initial union list. GratisNet represents the best aspects of libraries' collaboration in the context of high-quality delivery in an often poorly funded environment (White, 2006). The network extends the collection reach of each member library through a thriving national network where collective power is harnessed in a collaborative manner. Many libraries who lacked the staff time and resources to use major national systems found in GratisNet a mutually beneficial and collegial system with practical economic benefits warranting the time and effort of their staff.

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