Planning for Health Provider Organisations’ Broadband Connectivity

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Abstract. This study investigated the healthcare-specific telecommunications principles, guidelines and standards that support health services provider organizations in planning to meet their broadband connectivity requirements, using a review of the literature and a survey of chief information officers. Our findings point to the need for a more generalisable, integrated evidence base specific to the requirements of health service provider organizations.

Keywords. Broadband internet, quality of health care, IT governance

Introduction

Widening availability of high capacity broadband internet offers acknowledged opportunities for health services provision [1]. The construction of a National Broadband Network in Australia over the past 5 years has opened up new connectivity options for Australian health service provider organisations [2]. If broadband-enabled healthcare is to meet the same levels of quality assurance and audit as other aspects of health service provision, we would expect planning for this new connectivity to be informed by a strong knowledge base about healthcare’s particular needs with regard to telecommunications network design and data traffic management.

1. Methods

This study investigated the healthcare-specific telecommunications principles, guidelines and standards that support provider organisations in planning to meet their broadband connectivity requirements, using two methods: a review of the international scientific literature during the past decade and an online survey of people in senior IT management roles in health service provider organizations, in one Australian State.

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2. Results

There is scant scientific literature, mostly small-scale experimental (laboratory) descriptions of specific network structures or pilot studies assessing tools for single applications; further details appear in [3]. Survey responses from chief information officers in 19 organisations (employing over 50 000 health sector workers and representing almost 20% of the target population) revealed that fourteen organisations expected to upgrade connectivity in the coming decade. Reasons included sustaining current levels of connectivity, adopting new technologies (such as cloud computing), and expanding capacity to support new applications related to patient care (such as increased home-based health services) and related to business processes (such as new funding models for health services). Table 1 illustrates the range of applications.

3. Discussion

Generalisable practice-based evidence needs to be synthesised so as to enable informed systematic decision making about connectivity priorities, investments and risk management. There is a need for a detailed matrix, describing the many modalities of connectivity and their relative expected performance parameters, which would:

- allow matching classes of healthcare data traffic to appropriate connectivity service levels
- illustrate how provision can be made for urgent real-time traffic to have guaranteed-delivery status
- indicate opportunities for organisations to share connectivity service arrangements.

Therefore our research is continuing with in-depth interviews of chief information officers to discuss the tools and methods they use to manage knowledge about the business case for increasing broadband connectivity and to benchmark its performance.

Table 1. Types of applications where connectivity is critical to health provider organisations

<table>
<thead>
<tr>
<th>Patient care oriented</th>
<th>Business process oriented</th>
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<tbody>
<tr>
<td>Specific patient management system (e.g. aged care, emergency department, acute care)</td>
<td>Email and VOIP telephony</td>
</tr>
<tr>
<td>Integrated patient management system (local or proprietary)</td>
<td>HR and finance</td>
</tr>
<tr>
<td>Telehealth service</td>
<td>Workstations and web browsing</td>
</tr>
<tr>
<td>PACS</td>
<td>Inventory and supply chain</td>
</tr>
<tr>
<td>Laboratory information management system</td>
<td>Public health reporting</td>
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</tbody>
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References