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FINAL REPORT

Consultancy Report to the Australian Competition and Consumer Commission

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Subscriber Management and Conditional Access Systems

by

Market Ridge Pty Ltd

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Version 1.0 - Final

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1 Executive Summary

The Australian Competition and Consumer Commission (ACCC) has requested independent technical advice in connection with the Analogue Subscription Television Broadcast carriage Service disputes between C7, Telstra and Foxtel.

Advice has been sought on the technical feasibility and relative merits of the various means by which C7 could be provided with access to subscriber management system (SMS), conditional access system (CAS) and other related databases, systems or ancillary services needed for C7 to provide pay TV services on the Telstra broadband cable.

The terms of reference presented three options for consideration, these are:

- Option 1 – C7 develops its own SMS to interact with Telstra's conditional access system, Telstra's (or Foxtel's) SMS and related databases, systems and services.
- Option 2 – C7 uses Telstra's SMS.
- Option 3 – Any other technically feasible option.

While the paper has provided feedback on the technical merits and difficulties associated with each of the options, it has not been intended to propose a final solution.

In developing an approach to meet the requirements of this assignment within a 8-week timeframe, the independent expertise together with the existing submissions at the ACCC were utilised to develop a suite of questions tailored for each of the individual parties (Telstra, Foxtel and C7).

For the first phase, (up until the release of the draft interim report) interviews with each of the parties were conducted and a secondary interview (on completion of a gap-analysis) was conducted to gather further information. The details on the information sought and on the information received is held in a simple repository (MS/Access database) at the ACCC. The concept being to make the process transparent, that is, the findings should be able to be traced back to either the submissions or the information capture from the interviews where possible.

For the extended phase (from release of interim report until release of final report), one further set of interviews were conducted with each party to specifically:

- *Assess the C7 short-term Pay TV model*
- *Further investigate the estimate on the length of time to implement Option 1 and*
- *Finalise the interim report.*

To assist with the assessment of the options, information on the current infrastructure was captured, in particular on the SMS, CAG, databases, operating systems and services that support the infrastructure. These items make up a component of the overall infrastructure and it was noted during the interviews that components outside the scope of this consultancy, such as head end status, might have an influence on achieving an end-to-end final solution.

In discussing the options, it was assessed that Option 1 where C7 develops its own SMS (it is feasible that the SMS can be outsourced to a second party, for example Telstra or any other appropriate systems integrator) to interface into the existing infrastructure was the most attractive. This option is technically feasible and at a broad level would require the implementation of:

- the C7 SMS,
- a smart card database
- an interface from the smart card database to the C7 SMS
- an interface from the smart card database and the existing Telstra SMS that services Foxtel
- an interface from the C7 SMS and the CAG.

The interface to the CAG will require a component of work to be performed on the CAG as the C7 SMS will be addressing the same smart card as the existing SMS.

This option is attractive in comparison to the other options as it offers the greatest level of independence to each of the parties.

In terms of estimating a length of time to implement Option 1, it is clear that collaborative meetings are required to finalise C7 business requirements.

Option 2 was considered from two perspectives, the first (known as Option 2A) is where a separate database instance is implemented within the existing single SMS. There are currently two existing database instances servicing Foxtel and Bigpond.

Option 2A would also require the smart card database and interfaces as described in Option 1. There would also be module of work to ensure functionality that coordinates the entitlements from multiple service providers exists. That is, within Option 1, the CAG has been identified as requiring work to provide functionality with multiple service providers. However, in Option 2A, it may not be the CAG that requires the work, but it will be required somewhere within the infrastructure.

While this option is confirmed as technically feasible, it would present major operational difficulties including:

- cross impacts between service providers in terms of planned or unplanned outages;
- difficulty in scheduling development, training and deployment of enhancement work for one provider without impacting others;
- system changes would need to be negotiated across all parties; and
- cost splitting across service providers would be very difficult which could result in ongoing disputes.

Option 2B is a modification of the Foxtel database running on the single current SMS which would allow C7 and Foxtel to independently manage their own subscribers. This model does not require the smart card database, however, the advice is that this model is both technically and operationally infeasible. The reasons for this advice include all the points made with Option 2A together with:

- security and isolation of data – it would be difficult to partition Foxtel and C7 data to ensure Foxtel did not access C7 data and vice versa;
- mismatched business requirements – the current SMS has been customised to meet the business requirements of Foxtel. It is thought very unlikely that C7's business requirements would match Foxtel's business requirements both currently and for the future;
- maintainability –new business initiatives are likely to involve software changes to the system. Varied use of the system will increase the amount of software change, resulting in higher costs and lower system reliability; and
- operational independence – Outages from one provider will affect the other provider. Planned outages between two providers are impractical.

During the interviews with and subsequent submissions from the parties, three Option 3 models were considered. The first was known as the "Olympic model". This was considered to be a possible solution from the quick ramp-up experienced during the Olympics 2000. This, however, was assessed and it showed C7 was performing a content provision role. Foxtel was providing the complete Pay-TV management role. There was no major change technically to the SMS and CAG at Telstra to accommodate the Olympic model as it was Foxtel requesting an additional "package" to its offerings.

The second Option 3 model was a manual model that was flagged as a possible "quick and uncomplicated" solution proposed by Foxtel. In a very basic form, the concept was for C7 to provide a text file of customer details to Telstra who would execute SQL scripts to confirm the validity of the customer being an active Foxtel customer and on verification, execute another SQL script to the CAG to activate the customer.

Telstra confirmed that this model was technically infeasible and C7 confirmed that it would be an inappropriate model due to an unacceptable customer delay in receiving the service.

The third model which was assessed was the C7 short-term Pay TV model and there are a number of technical tasks including the modification of reports and assessment by the vendor with the parties on the new model, which are liable to move this model beyond a "short-term" model.
However, the major issue why this model is deemed impractical is the operational constraints that are the same as those with Options 2A and 2B.

The results from assessing each of the options, highlight that, technically, there is no "quick and uncomplicated" option that can be implemented in a short period of time, that is, before the expiry of the interim determination date.

In moving forward, the following recommendations are made:

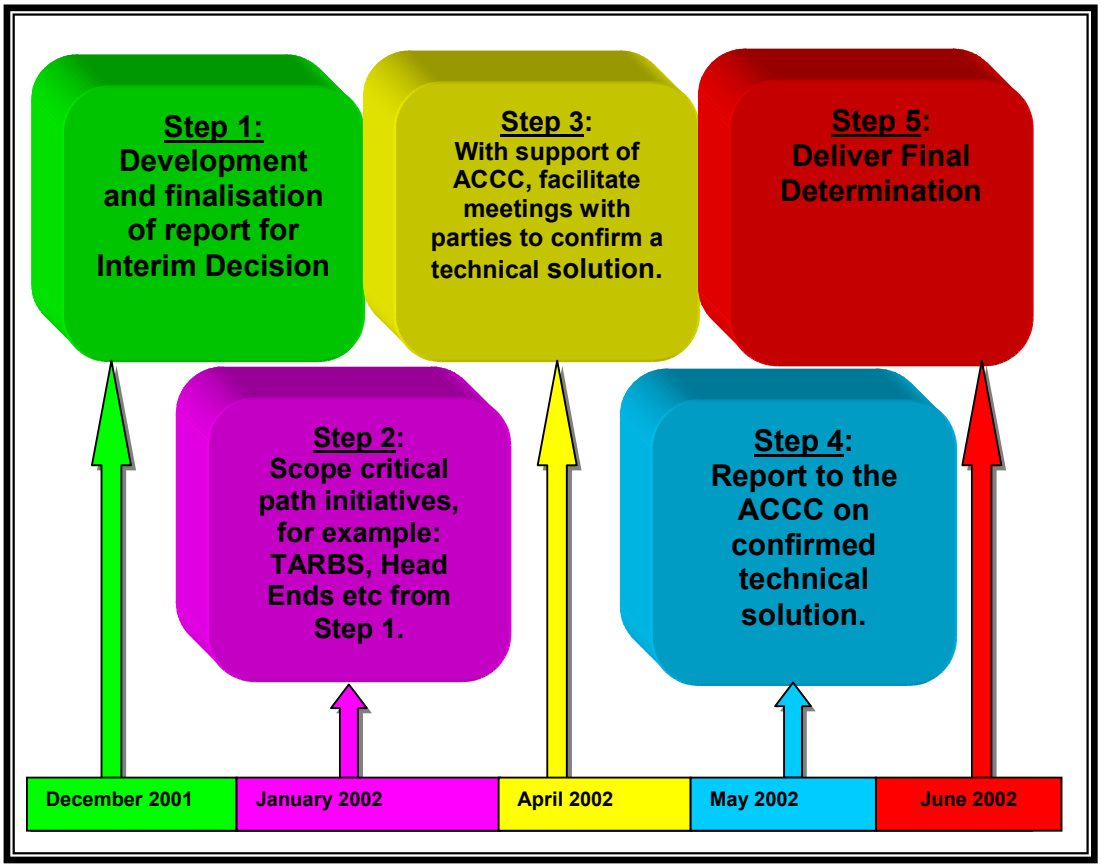
- Initiation of collaborative meetings between the parties to follow a structured process in achieving a final accepted solution with facilitation by the ACCC. Throughout the submissions and the interviews, as shown by the information captured within this paper, the issue of finalising business requirements has been flagged many times by the individual parties. This appeared to be an inhibitor in moving the C7 initiative forward.
- Confirmation on the status of significant issues that were raised during the interview process that are outside the scope of this consultancy which may affect the delivery of an end-to-end solution.

  These include:

  - Headends
    Both "to the head end" and "through the head end" equipment requirements need to be confirmed. The 'to the head end" component may have lead times from 12-16 weeks and the "through the head end" may have lead times of up to 24 weeks for the ordering of equipment.
  - Progress with TARBS
    During the interviews, reference was made to the progress that has been made with the TARBS working committee and that TARBS are commencing the defining and documenting of high-level business scenarios. With TARBS potentially being further advanced in the process, it is worthwhile confirming this progress and identifying what, if any, might be "lessons learnt" that C7 can adopt.

It is recommended that a small project be undertaken to determine the status on both of these issues.

Finally, a 5-step approach for the ACCC and parties to consider in moving forward to a final determination with very tentative end-dates (these would have to be confirmed) is tabled below.


Step 1: Development and finalisation of report for Interim Decision
Step 3: With support of ACCC, facilitate meetings with parties to confirm a technical solution.
Step 5: Deliver Final Determination
Step 2: Scope critical path initiatives, for example: TARBS, Head Ends etc from Step 1.
Step 4: Report to the ACCC on confirmed technical solution.
December 2001
January 2002
April 2002
May 2002
June 2002

2 Introduction

2.1 Background

The Australian Competition and Consumer Commission (ACCC) has requested independent technical advice in connection with the arbitration by the ACCC of the access disputes between C7 Pty Ltd (Access Seeker) and Telstra Multimedia Pty Limited (Access Provider), Foxtel Management Pty Ltd and Foxtel Cable Television Pty Ltd (Access Provider), and Foxtel Partnership (Telstra Media Pty Ltd, Sky Cable Pty Ltd and Foxtel Management Pty Ltd as their agent) (Access Provider).

Advice is sought on the technical feasibility and relative merits of the various means by which C7 could be provided with access to subscriber management system (SMS), conditional access system (CAS) and other related databases, systems or ancillary services needed for C7 to provide pay TV services on the Telstra broadband cable.

2.2 Terms of Reference

There are three (3) options that the ACCC specifically seeks advice upon which are described as follows:

2.2.1 Option 1 - C7 develops its own SMS to interact with Telstra's conditional access system, Telstra's (or Foxtel's) SMS and related databases, systems and services;

Advice is sought on the technical merits and difficulties of this option noting that C7 claim that "it is now clear that it is not easy for a new SMS to interact with Telstra's conditional access service".[1]

This option should be assessed having regard to the issues raised in the parties' submissions on this option [2] and should include, but not necessarily be limited to, a consideration of:

a) the technical issues associated with establishing the interface between a separate SMS and Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases, systems and services and how these might be resolved;

b) the length of time required to establish a separate SMS and the necessary interface with Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases, systems and services; and

c) the costs, efficiency, technical reliability and ongoing operational effectiveness of this option.

2.2.1.1 Specific questions raised in or by submissions for Option 1

- *What information is required in order for C7 to meet the "business requirements specifications" which Telstra claims has largely inhibited the development of a separate SMS and the development of a SMS/CAG interface?*

- *What, if any, are the technical reasons why the proposal that Telstra develop a separate SMS on behalf of C7 has not progressed?*

- *What is the extent of the modifications needed to Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases and systems to allow a separate SMS to interact with them?*

[1] C7 fax to ACCC of 25.07.01
[2] C7 submissions of 21.08.01 & 31.08.01; Telstra submission of 29.08.01; Foxtel submission of 29.08.01

- *Would the modifications to Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases and systems be made in a reasonable time period and could these modifications guarantee C7 and Telstra an acceptable level of performance?*

- *Are there international precedents for more than one SMS to interact with a CAS?*

Option 1 should be considered in terms of its suitability as a short term temporary solution for the purposes of giving effect to the interim determination. Additionally, the Commission seeks advice as to whether this option provides a longer term solution to the provision of SMS services for the purposes of a final determination.

2.2.2 Option 2 - C7 uses Telstra's SMS

The technical merits of this option should be assessed having regard to the issues raised in the parties' submissions and should include, but not necessarily be limited to, a consideration of:

a) the technical issues involved in Telstra using its (or Foxtel's) SMS to provide SMS services to C7 (including the potential for Telstra to provide SMS services to C7 as if C7 channels were an optional "tier" on Foxtel programming, including the need for any technical enhancements, difficulties or impediments which may exist;

b) the length of time required to establish such an arrangement;

c) the overall cost involved; and

d) the efficiency, technical reliability and ongoing operational effectiveness of this option.

2.2.2.1 Specific questions raised in or by submissions

- *Given the technical capabilities of Telstra's current SMS, or the potential capabilities of an upgraded Telstra SMS, could C7 be supplied with SMS services in a similar way that SMS services are currently provided by Telstra to Foxtel?*

  If so, what is the extent of any difficulties involved in Telstra using its (or Foxtel's) SMS to provide SMS services to C7 and how might these be overcome?

  Difficulties may include, the protection of confidential customer information; and the involvement of third parties (eg Convergys).

Option 2 should be considered in terms of its suitability as a short term temporary solution for the purposes of giving effect to the interim determination. Additionally, the Commission seeks advice as to whether this option provides a longer term solution to the provision of SMS services for the purposes of a final determination.

2.2.3 Option 3 – Any other technically feasible option

Other Issues

Are there technical advantages in Telstra and/or Foxtel providing both SMS *and* call centre services?

> *While the Commission has indicated that it may not be a legal requirement for Telstra to provide call centre services to C7, the Commission is interested to know if this approach may have significant technical advantages over other options. Technical advantages may be such as to render a fully integrated SMS/call centre service "necessary" for C7 to gain reasonable access to the declared service[3].*

SMS solutions for the interim and the final determinations

Should there be a different SMS solution for interim access, as distinct from that which might apply in a final determination? Alternatively, should the same SMS solution be applied for both interim and final determination purposes?

> *The interim determination provides for access to 2 channels for C7 which is the same number provided to C7 during the broadcast of the 2000 Olympics. Would it be appropriate to apply the SMS and other arrangements determined at that time for interim access[4] but apply a different arrangement for the final determination where C7 have requested access of up to 8 channels[5]?*

[3] See Freehills 21.08.01 para 72.
[4] It should be noted that C7 is seeking a variation to the current interim determination to the extent of seeking access to an additional 4 channels. This request is currently being considered by the Commission.
[5] The channels that C7 may have access to at that time will depend on the decisions taken by the Commission in relation to capacity of the cable and reasonably anticipated requirements and the requests of other access seekers.

Advice is also sought on:

a) the extent to which any of the options which have been identified will require access to information belonging to Foxtel and the nature of the information to which access will need to be given; and

b) precisely which systems C7 would need access to in order to implement a particular option.

2.3 Deliverable

While this paper highlights the technical merits and difficulties associated with each of the three options, it is not intended to propose a final technical solution.

During the research undertaken with the parties during the development of the paper, it became apparent that "collaborative" meetings would be one of the subsequent steps of this exercise, using this paper as an input to the meetings.

This paper is viewed as a foundation in determining the technical solution to be implemented.

Other tasks that can be instigated immediately include:

- A review of the progress made so far between TARBS, Telstra & Foxtel to determine what experience/advice can be used for C7.

- A short review on the head end equipment requirements and availability covering both "to the head end" and "through the head end". Both of these components are critical to implementing an end-to-end solution.

There are other recommended steps to consider that are described later within the paper, on how the parties can progress matters to achieve an agreed final technical solution.

3 The Approach

3.1 Introduction

In undertaking the development of this paper and providing advice on the technical merits and difficulties of each option, there was a vision, where possible, to make the process transparent. That is, the results tabled within this document are traceable through information obtained from either the submissions to the ACCC or collected from interviews held with each of the parties (Telstra, Foxtel and C7).

3.2 Categories

In developing materials for the interview, the author utilised submissions to the ACCC (in relation to this assignment) and personal experience. .

Specific questions have been developed for each of the parties, and these were divided into three categories: “Option 1”, “Option 2” and “Core”.

The Core questions are considered “common” to all of the options (1 and 2).
For example, “What is the version number of the current SMS?”
Whereas Option 1 and Option 2 questions were developed specifically around each these categories.

As the interviews progressed, two possible “Option 3” models were discussed. (These were referred to as the Olympic model and a Manual model). Subsequent submissions on release of the draft interim report, provided an extension of time to investigate a third Option 3 model. This is known as the C7 short-term Pay TV model. Further discussion on this option can be found within Section 5.

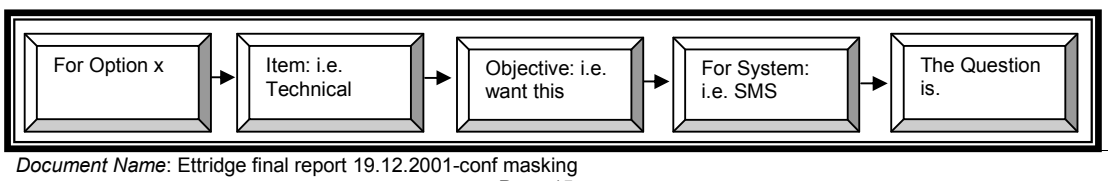
3.3 Questions

To assist in scoping the questions, four separate items were created based on input from the terms of reference.

These items were:

- Technical;
- Implementation;
- Costs; and
- Reliability

For each Option or Core category, an Item would be applied which lead to creating an Objective, which resulted in questions for each component, for example (SMS, CAG, Database, Operating System and Services).
How this was ‘linked’ is shown below:



An example of a typical interview document is shown below:

Option: Core

Item: Technical

Objective: To hold a list of hardware products currently used in the Telstra (Southbank) SMS and CAS environment.

Questions:

#	Question:	Response:		
		Who	Detail	Total Time
1	**For existing SMS, can you please provide the following information:**			
1.1	**Brand and model of Servers?**		Production online does consist of [redacted] Compaq [redacted] Servers, Batch node is a Compaq [redacted] Server.	

A further summary of what each item captured is detailed in the following points:

a) **Technical** - The objectives were to capture information on the following:
- The inventory - software, hardware and interfaces
- Current capacity – average usage and peak usage transactions
- Limitations of current system
- Capacity planning
- Incompatibility of the particular options

b) **Implementation** - This covered items including constraints through readiness or resources and infrastructure, time-frames with the implementation of the proposed Options.

c) **Cost** - Queries on costs for development, deployment and maintenance specific to each of the options.

d) **Reliability** - The intention was to capture information on how each of the proposed options may impact reliability (through operations / customer service) and existing Service Level Agreements (SLA).

3.4 Interviews

On developing the questions, initial interviews were conducted with each of the parties. The responses were captured, reviewed and finalised in consultation with a party representative and the information was transferred into a simple repository (Access Database).

A gap-analysis document was then created through completion of the following tasks:

a) A review was undertaken on the responses from the initial interview, with a purpose to identify any unanswered questions or outstanding information that required follow-up.

b) Identifying questions or information pertinent to the party that was raised by other parties from the first interviews.

c) Compiling any answers obtained from questions raised by the party to other parties.

d) Making provision for any additional information that the party being interviewed wished to provide within the follow-up (or second) interview.

A second interview was conducted. As in the initial interview process, responses were captured, reviewed and finalised with assistance from appointed party representatives, before being entered into the repository.

The schedule of interviews conducted and those that attended is listed in **Appendix A**.

The information captured through the interview process, together with the submissions, formed the basis of the draft paper that has been forwarded to the ACCC for a release to the parties.

The parties will be able to provide feedback through submissions to the ACCC that can be assessed and utilised for the final report. The diagrammatic view of the approach is attached at **Appendix B**.

3.5 Post "Interim Report" Investigation

The draft interim paper on being released by the ACCC to the parties (namely Telstra, Foxtel and C7) resulted in submissions from each of the parties. On evaluating the submissions, the ACCC advised an extension of the current consultancy would be undertaken specifically to:

a. Examine the option for interim access, as outlined in C7's submission of 19 November 2001[6]. (This is now referred to as "C7 short-term Pay TV model").
b. Investigate further, the likely timeframe for the implementation of Option 1, and
c. Seek further information on outstanding points from the submissions where appropriate to finalise the paper.

To meet this request, a further round of individual consultations were conducted with each of the parties and the information captured has been analysed and documented within this final paper.

[6] Freehills document 19.11.01

4 The Existing Infrastructure

4.1 Overview

In developing an understanding of the technical challenges that need to be considered in implementing any "option", it is appropriate to confirm the existing infrastructure (at a broad level) and how the particular components (SMS, CAG, Database, Operating System and Services) fit within this infrastructure.

DIAGRAM 1 – Whole Service

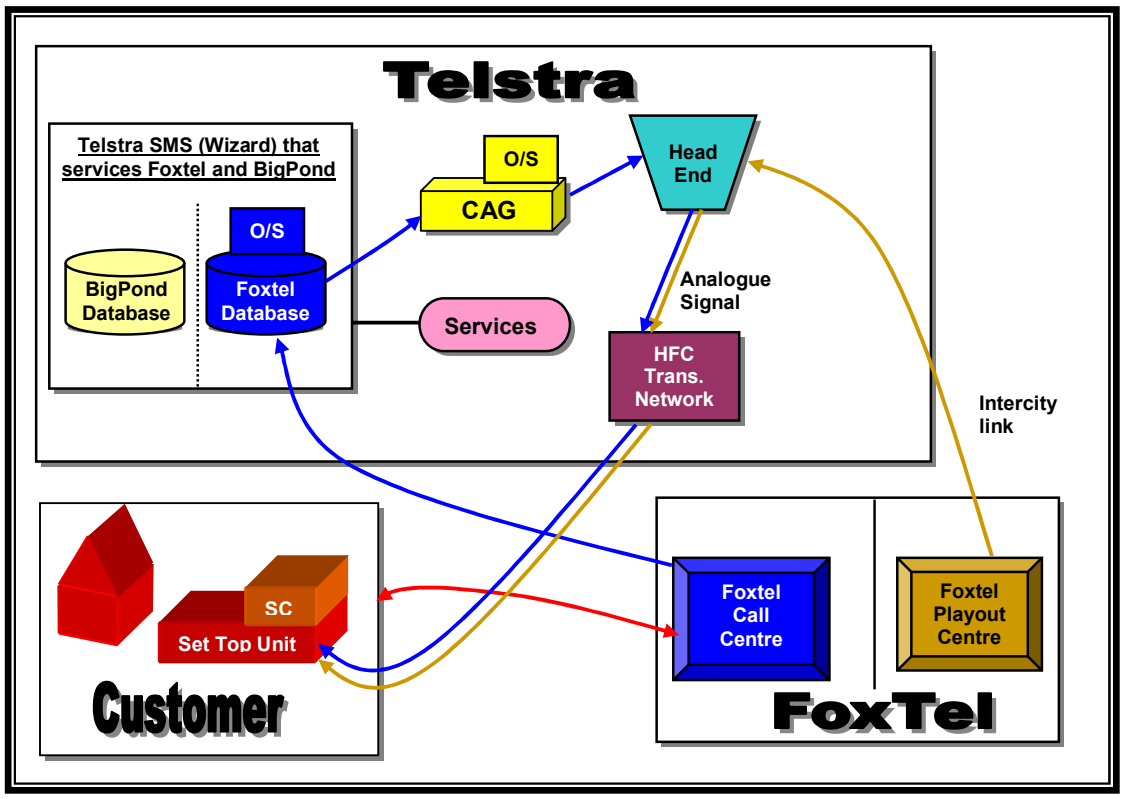
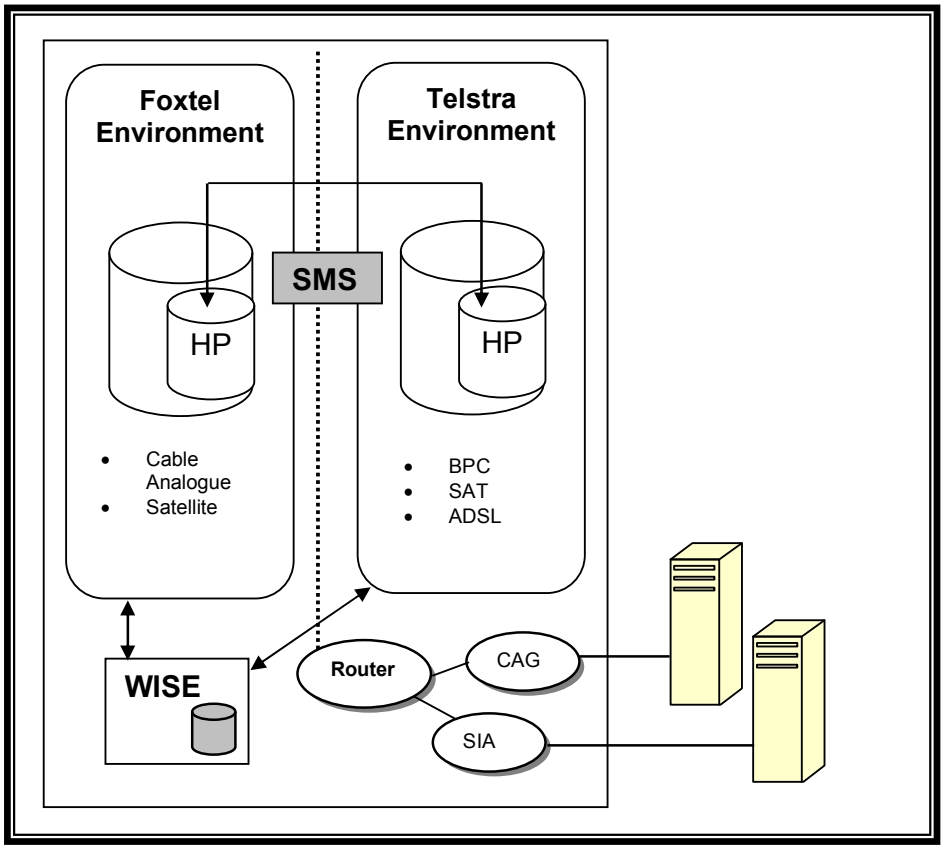


DIAGRAM 2 – SMS & CAG[7]



4.2 The Subscriber Management System (SMS)

As described within the document titled "Proposal for End to End Customer Management Process" created by Telstra, the Telstra SMS is:

> "*the Subscriber Management System that utilises version 3.5 of an application called Wizard. Wizard is a package system selected to provide total operational system support for Cable (Pay) TV. Since implementation in 1995 W3.5 has been enhanced to enable the extension of cable functionality to provide for Telstra BigPond Advance (Cable/ADSL) and FOXTEL's cable service. It provides service activation of cable services, billing to customers, accounts receivable, customer service and management, marketing & sales reporting. Wizard resides on a production cluster of servers with dumb terminals for users on a 24*7 basis.*"[8]

[7] Taken from Telstra's 'Proposed for End-toEnd Customer Managment Process' Document Section 5 – Page 9
[8] Paper released 27.07.01

4.2.1 SMS Inventory

Technical information captured on the existing SMS is as follows:

Software

Description	Information Captured
Product Name of application	Wizard (vendor – Convergys)
Version number	3.5
Release number	3.5
Components	Main Components: • Customer Service • Home Passed • Inventory Tracking • Marketing and Sales • Manager's Monitor • Billing and Statements • Collection • Addressability (Provisioning) • Pay Per View • Basic Reporting • Codes and Parameters • Dispatching (Wise)

Hardware

Description	Information Captured
Brand and model of servers	Production online nodes consist of [redacted] Compaq [redacted] Servers, Batch node is a Compaq [redacted] Server
HDD Storage (gig) and capacity for more	Approximately [redacted] Gbyte of storage in Production. Storage can be increased to suit business requirements.
Network Connection (100, 10 mbits)	Internal network [redacted] Mbit/s full duplex. Each [redacted] has [redacted] x 10 Mbit/s half duplex. [redacted] has [redacted] x 10 Mbit/s full duplex.
Quantity of CPU's and capacity for more	[redacted] CPU's in production. CPU's can be increased or upgraded to meet business requirements. (Note that CPU performance is not the sole determinant of system performance.)
RAM Size and capacity to increase	[redacted] Gbyte of RAM in production. RAM can be increased to meet business requirements

Other pertinent information captured through the interview process regarding the current SMS includes:

- The SMS and databases therein are owned by Telstra Multimedia Pty Ltd – a wholly owned subsidiary of Telstra. (This point is made to resolve any confusion in regarding the SMS as Telstra's or Foxtel's. The SMS is Telstra's and it currently services Foxtel).
- There are currently no specific plans for a product or version upgrade of the SMS.

- The operating system is Compaq Open [redacted] version [redacted] In terms of the Wizard platform, currently the benefits of performing a minor operating system release upgrade is being assessed and will depend on the business requirements. It should also be noted that "patches" are an on-going task for the operating system.

4.3 The Conditional Access Gateway (CAG)

From the same paper as used to describe the SMS, the CAG is:

> *"…security technology used to control access to broadcast information, including video and audio, interactive services etc. Access is restricted to authorised subscribers through the transmission of encrypted signals and the programmable regulation of their decryption by a system such as the use of smart cards. Currently analogue CAG is used for Foxtel's cable only."*[9]

4.3.1 CAG Inventory

Technical information captured on the existing CAG is as follows:

Software

Description	Information Captured
Product name of Software used on CAS	[redacted]
Version number	[redacted]
Release number	Not applicable - does not have one.
Components	N/A
Other (pertinent) Information captured	• A maximum of [redacted] transmission paths • Maximum of [redacted] services • Queued transactions replayed at the rate of at least [redacted] per hour. • Currently estimated at [redacted] to [redacted] per hour • Design target of maximum of [redacted] active smart cards, currently 652000 (some FOXTEL subscribers have multiple smart cards).

[9] Paper released 27.07.01

Hardware

Description	Information Captured
Brand and model of servers	**Master head end CAG** **Hewlett Packard - [redacted] Series** **Regional head end CAG** Hewlett Packard – [redacted] Series [redacted]
HDD Storage (gig) and capacity for more	**Master head end CAG** **Total system [redacted] Gbyte** **Database [redacted] Gbyte** **Disk subsystem is not upgradeable.** **Regional head end CAG** [redacted] Gbyte, no additional capacity available
Network Connection (100, 10 mbits)	[redacted] Mbit/s
Quantity of CPU's and capacity for more	**Master H/E [redacted] CPU, nil capacity** Regional H/E [redacted] CPU, nil capacity
RAM Size and capacity to increase	**Master H/E [redacted] Mbytes, Can increase to [redacted] Mbytes** **Regional H/E, [redacted] Mbytes can increase to [redacted] Mbytes**

4.4 Other components – Database, Operating System and Services

4.4.1 Database Inventory

Technical information captured on the existing **Database** is as follows:

Software

Description	Information Captured
Product Name of Database	• SMS [redacted] • CAG
Version number	• [redacted] •
Release number	• [redacted] •
Quantity in use	[redacted]

Hardware

Description	Information Captured
Brand and model of servers	The production databases reside on the SMS or CAG platform as appropriate. This information is captured under SMS or CAG sections.
HDD Storage (gig) and capacity for more	See above
Network Connection (100, 10 mbits)	See above
Quantity of CPU's and capacity for more	See above
RAM Size and capacity to increase	See above

4.4.2 Operating System Inventory

Technical information captured on the existing Operating System is as follows:

Software

Description	Information Captured
Product Name of Operating System	**Wizard** [redacted] **CAG** [redacted]
Version number	See above.
Release number	**CAG** [redacted]
Other (pertinent) Information captured	Patches are on-going task for operating system, therefore release / version numbers may change.

Hardware

Description	Information Captured
Brand and model of servers	The Operating Systems reside on the SMS or CAG platform as appropriate. This information is captured under SMS or CAG sections.
HDD Storage (gig) and capacity for more	See above
Network Connection (100, 10 mbits)	See above
Quantity of CPU's and capacity for more	See above
RAM Size and capacity to increase	See above

4.4.3 Services Inventory

Technical information captured on the existing **Services** is as follows:

Services

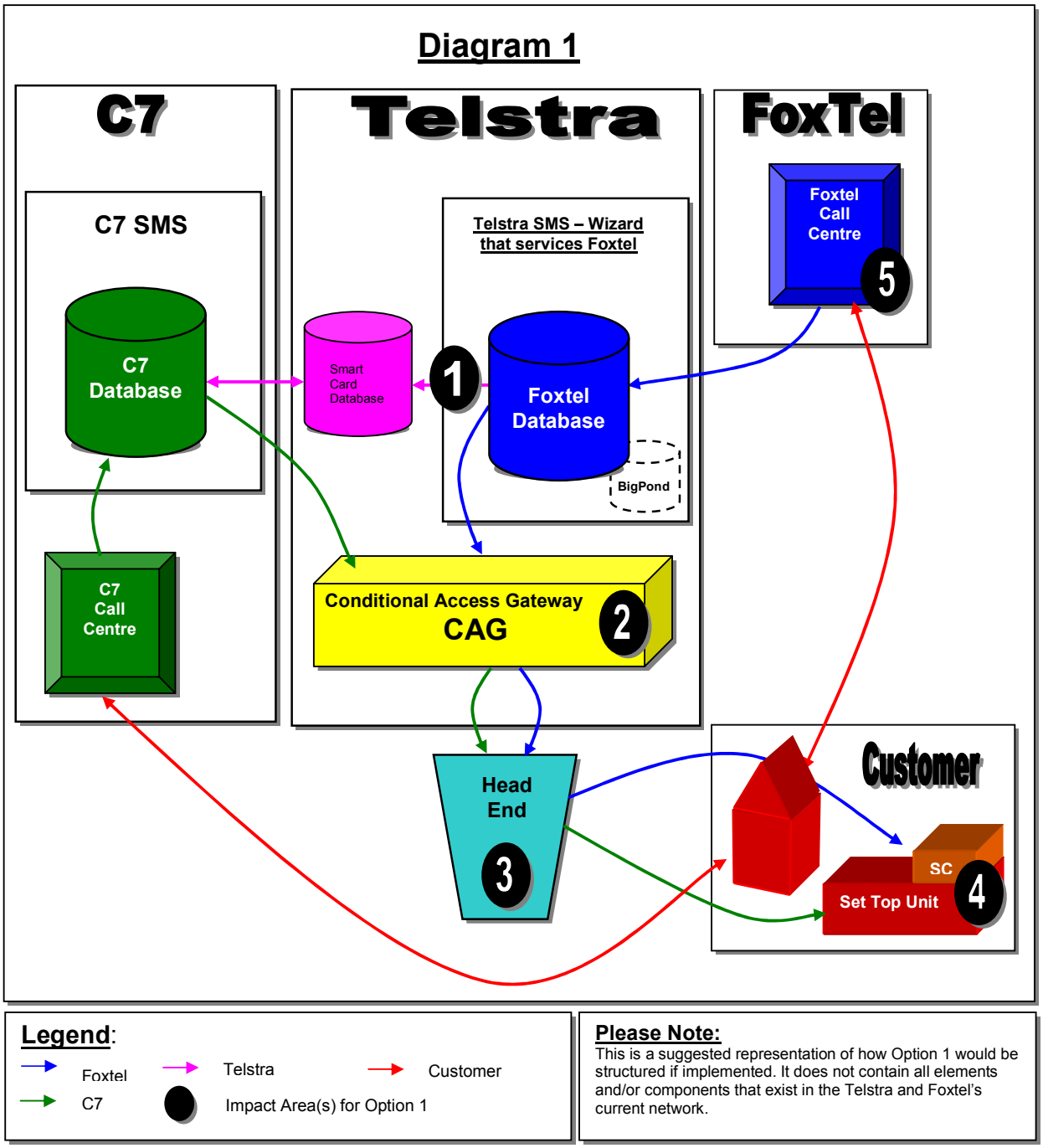
Description	Information Captured
Reporting tool utilised	Basic operational reporting is provided from Wizard and system tools.
Security used (i.e. for Firewalls etc)	Security implementation is based on Telstra's Corporate Security Policies. In some cases exceptions to policy have been granted for historical reasons but all new access and developments must comply with Policy. Firewalls are used to control access to the systems both from the Telstra corporate data network and from other sites (eg Foxtel). At a system level all users have individual login accounts with constraints on what operations they can perform.
Backup and migration strategies used	Incremental backups are performed each night. Full systems backups are performed weekly. Data is stored offsite, daily and weekly tapes are cycled, monthly backups are stored offsite permanently. Currently historical data is retained in the system and not migrated elsewhere.
Disaster Recovery Plan	A Pay TV contingency plan exists. This is not a full disaster redundancy plan.
Other services provided	A conventional suite of IT operations management including problem management, change management, performance management, capacity management, escalation processes, helpdesk services, 24 x 7 operations and support, etc.

Physical Services

Description	Information Captured
The existing Property management services (i.e. Air-conditioning, UPS, Floor Space etc	Property management services are outsourced by Telstra to Kilpatrick Green. Outsourcing arrangement covers air-conditioning, UPS, generator, etc.

5 Discussion on the options

5.1 Option 1 - C7 develops its own SMS to interact with Telstra's conditional access system, Telstra's (or Foxtel's) SMS and related databases, systems and services.



5.1.1 Overview - Option 1

In discussing each of the options a high level diagram is used to describe in a broad sense the concept that is being proposed. Diagram 1 refers to Option 1.

In understanding this option, C7 would provide the call centre services and their own SMS (either of these components can be outsourced by C7 if desired, for example to Telstra or any suitable systems integrator).

Within the Telstra infrastructure, a new smart card database holding relevant details will allow C7 to confirm a potential customer is an active Foxtel subscriber and allow the C7 SMS to instruct the CAG.

5.1.2 Option 1 Response's

5.1.2.1 Technical issues associated with establishing the interface between a separate SMS and Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases, systems and services and how these might be resolved;

The major technical constraint identified at this point (assuming C7 had an existing separate SMS), would be the work to be performed on the CAG. This work is required to allow multi-SMS's to address the same smart card. There is currently no capability for the CAG to synchronise between multiple SMS's.

In terms of identifying the specifications that need to be met before interfacing of an SMS can be deemed successful, the advice from the Telstra interviews is:

> *"SMS to ACC interface specification is a restricted document (proprietary to NDS)."*

Other points of note from the interviews include the CAG having 3 ports and the ability to support up to 3 SMS's. Again from the Telstra interviews:

> "*If there are more than 3 access seekers, then they cannot be serviced, i.e. No more capacity to add more. Other things to consider would be infrastructure, i.e. Connectivity and networking and how to bring the interface signal in (from SMS) etc."*

The second technical issue to consider with Option 1 is the creation, implementation and support of the "smart card" database.
Within Option 1 there are two interfaces from the smart card database, the first is to the Telstra SMS that services Foxtel and the second is the C7 SMS.

Data from the Telstra SMS that services Foxtel would populate the smart card database with the relevant information to allow the C7 SMS to instruct the CAG. Foxtel's comment in relation to the possible impact of implementing such a database that required extracts to be performed on the Telstra SMS that services Foxtel was:

> "*Need to know how often extract is performed i.e. daily, hourly etc. Also dependent on how the data is transferred.*
> *A technical specification would need to be determined before solution could be provided.*
> *E.g. Question whether to do full upload each time versus initial load and journaling.*
> *If a journal operation, then would suggest little impact.*
> *Concerns with regard to FOXTEL confidential Customer information being 'available' to C7.*
> *This would need to be dealt with at a business level*."

From the interviews with C7, the concerns in terms of technical difficulties with Option 1 include:

> "*Seven's lack of expertise in SMS/CA technology, the novel technical arrangements required, Telstra's lack of experience in multiple SMS's operating to a single smart card, no precedent in the world (as far as we are aware) of NDS's CA operating with multiple SMS's*".

This last point is now confirmed to relate to multi-SMS's using the same smart card.

Telstra provides the following observation in relation to Option 1:

> "*Option 1 is broadly consistent with the technical approach currently being discussed with TARBS. In area **1** there would need to be a new interface between the Telstra SMS and the smart card database. Both the interface and the smart card database would need to be developed. We would expect this to be feasible.*
>
> *There would also need to be an interface specified and developed between the smart card database and the C7 SMS. This also should be feasible.*
>
> *To progress from this high level concept to the next stage we would suggest an approach based on identifying some key business scenarios such as those listed below. Each of these would then be mapped in some detail in the form of use cases to determine the appropriateness of the technical approach, identify any gaps in the solution and document business requirements in more detail. Possible business scenarios might be:*
>
> - *Authenticate Subscriber*
> - *Process Subscriber Entitlements*
> - *Process Subscriber Disconnections*
> - *Manage Authentication Requests*
> - *Manage Service Assurance*
> - *Manage Service Outages*
>
> *This would then form the basis for a more detailed technical proposal."*

5.1.2.2 Length of time required to establish a separate SMS and the necessary interface with Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases, systems and services.

C7 provided a "high-level" plan of tasks associated with the "implementation by Seven of its own SMS". These tasks are described as:

1. *Investigation and specification by Telstra: 7 SMS and Telstra CA interface*
2. *Specification: 7 SMS and Telstra Smart card record database interface*
3. *7 SMS Specification*
4. *7 Seeks and selects SMS; contract negotiation*
5. *7 Implements SMS; Operations establishment*
6. *Implement 7/Telstra interfaces*
7. *Commission integrated network and systems.*

C7's estimate in terms of time for these tasks is that it would be greater than 12 months to complete.
Telstra's fax to C7 dated 27 July 2001, in response to the query on lead times for provision by Telstra of an outsourced SMS to Seven stated

"*As discussed at the 25 July 2001 meeting, this requires completion of the C7 business requirements specification by C7 followed by an assessment by Telstra. Suitable terms and conditions will need to be agreed and arrangements made with 3rd party suppliers."*[10]

Similarly, during the interviews, in response to a timing question for the set-up and readiness of hardware in a development, training and production environment, the following was captured:

"*We are unable to speculate on this without knowing what type of hardware or networking is required, what level of support is involved, floor space and other environmental requirements etc."*

This together with the response on when modifications to the CAG could be met, which is:

"*It is impossible to speculate on timing of delivery without detailed technical requirements*"

demonstrate the need to work through a structured process to achieve the technical requirements. (A suggested process is described at question 5.1.3.1).

[10] Fax to C7 27.07.01

Further investigation on Length-of-Time estimates for Option 1:

Based on the above information and submissions received subsequent to the interim paper from both Telstra and Foxtel as follows:

> Telstra
> *"…Telstra does not accept that the implementation of Option 1 will take more than 12 months, as suggested by C7, particularly as it took Telstra only five months to establish its SMS and CAG in 1995, when it had no experience in establishing such systems."*[11]

And

> Foxtel
> *"Foxtel also does not understand C7's basis for estimating that in terms of time the tasks would take greater than twelve months to complete."*[12]

The ACCC sought further information on likely timeframe for implementing Option 1. C7, during its interview provided the following expanded information on why they believe Option 1 will take longer than 12 months:

> *"Telstra has stated that it cannot guarantee timing for the development of the SMS/CAG interface because of the uncertainties with this new development*[13]*".*
> *"Telstra has also stated that development may have to be suspended or delayed if this development adversely affects Telstra's operations*[14]*".*
> *This indicates that Telstra foreshadowed that the novel nature of the development could cause as yet unknown, operational problems.*
>
> *The above strongly highlights the novel nature of the development and the uncertainties. A multiple SMS/ Single Smartcard system using NDS's analogue CA has never been implemented anywhere in the world and therefore it is not unreasonable to build the uncertainy arising from this into our estimate of SMS implementation. Added to the above uncertainties is C7's lack of SMS expertise. This would further add to implementation timing even if C7 were to hire SMS expertise.*
>
> *The fact remains that C7 has overall management responsibility for the implementation and will need time to build up its own SMS knowledge to effectively manage the implementation in all its phases and to integrate the SMS operation with its Pay TV operation and Telstra's operations.*
>
> *We should not underestimate the time it will take to integrate the entire set of systems, ie SMS, CA, Smartcard database, customer database, customer sales processes, Call Centre, operations processes, customer billing, customer care. This is a major task in any situation, but it is much more difficult in this situation because of the novel nature of the architecture which has never been implemented anywhere.*
>
> *We have factored into our timing estimate a realistic time to achieve this complex integration having regard for C7 not wishing to launch a Pay TV product without full certainty of technical and operational robustness because of the potential negative marketing effects a deficient product would have.*
>
> *Our estimate of timing took into account all of the above uncertainties to produce a realistic timeline, with the addition of upfront activities related to selection of a SMS supplier. Our estimate represents a complete end to end set of implementation processes from specification through to launch.*
>
> *Any comparison of our estimate with Telstra's estimate needs to take into account that C7 would be starting from a zero base, ie it will need to specify a SMS and select a supplier, which Telstra does not need to do. In addition, C7 would need to integrate its operation with Telstra's operation, which Telstra does not need to do. Furthermore, C7 would not be able to act alone and drive the project independently as Telstra would do as C7 will have to reach interfacing, interworking and operational agreements with Telstra adding to project complexity."*

[11] Telstra submission 28.11.01
[12] Foxtel submission 21.11.01
[13] Telstra letters to C7 31.05.01, 14.07.01
[14] Telstra letter to C7 31.05.01

In response to the query as to what length of time they would estimate for the implementation of Option 1, Foxtel and Telstra provided the following information:

Foxtel
"Refer to Telstra's comments in their submission 28 November 2001.

The major difference between C7 now and Foxtel (in 1995) was that Foxtel had a clear set of business requirements defined and skilled business expertise to undertake the development/deployment of their PayTV operation.

Both FOXTEL/Telstra engaged skilled technical contractors during the implementation process to provide the necessary assistance.

In FOXTEL's opinion based on experience since 1995, 12 months to implement option 1 is a very conservative estimate, if C7 have the necessary business expertise and business requirements.

FOXTEL has difficulty with C7's claim that option 1 will take longer than 12 months when C7 has no expertise or experience in this area. FOXTEL suggests that more communication with groups such as Convergys and NDS to confirm perspective on timing."

Telstra
"We are not yet in a position to provide this. We are currently obtaining estimates from our vendors as part of the ongoing cooperation with TARBS. Telstra will make these estimates available to the ACCC when they are provided to TARBS.

Telstra wishes to know if C7 have independent evidence of their claim that it would take them more than 12 months to establish an SMS or indeed if they have taken any formal steps to investigate the feasibility or timing for one of the numerous SMS providers to deliver an SMS to them.

Informal advice from our current SMS vendor is that they would be able to establish an SMS for C7 in much less than 12 months. However we do not believe C7 has written to this vendor seeking a specific proposal to do so."

Assessment of responses

In terms of providing an accurate estimate of time for implementing Option 1, the parties have provided information, which certainly helps to move towards generating the estimate. However it is quite clear that without a collaborative exercise being undertaken to actually define what the end solution will be, any estimate made is based on assumption.

Telstra and Foxtel have indicated that in 1995 it took only five months to establish the existing SMS and CAG. However as C7 have correctly pointed out, Option 1 is a different set of circumstances to implement to those back in 1995. For example, the CAG needing modification to be able to handle multiple SMS's addressing the single smart-card.

While it is acknowledged that the circumstances are different to those back in 1995, this does not necessarily mean the estimates of time should be shorter or greater than the 5 months it took Telstra and Foxtel to establish the existing SMS and CAG.

The outstanding task, which can be used objectively to obtain a clear estimate, is having a finalised set of business requirements defined, as quoted by Foxtel.

> *"Foxtel had a clear set of business requirements defined and skilled business expertise to undertake the development/deployment of their Pay TV operation."*

Telstra queried whether C7 had sought any advice from SMS providers to obtain an independent view on what the timing may be to establish an SMS. Foxtel also suggested that communication be made with Convergys and NDS to obtain a perspective on the timing from experienced vendors.

The comment from Telstra that estimates are being collated from vendors to provide to TARBS and the offer to have these estimates when they become available to the ACCC is very attractive. This however, will not be enough to reach a clear estimate for the C7 length of time for Option 1 as the business requirements may be different.

In summary, to obtain an accurate estimate of time for Option 1, further work in a collaborative setting between the parties is required, with a view to finalising defined business requirements to the satisfaction of all parties.

5.1.2.3 Costs, efficiency, technical reliability and ongoing operational effectiveness of this option

While it has been possible to suggest some of the possible technical issues to consider with Option 1 without a completed set of business requirements, no progress has been made in reference to costs.

An historical cost to consider was a fax sent to C7 from Telstra dated 31 May 2001, highlighting a $95,700 cost for work to be performed on the CAG. However, this was qualified as an estimate – not a firm or fixed quote. Information on costs captured during the interviews with Telstra included:

> "*It is impossible to speculate on costs for an unspecified technical solution."*
>
> *"To make any comments on cost we would need additional information on C7 business requirements, performance requirements, data volumes, support levels etc. There are orders of magnitude of cost differences possible depending on answers to these."*

In terms of reliability and ongoing operational effectiveness, this option is the most attractive. C7 will have its own SMS and be in a position to modify the product dependant on C7's business requirements. Dependencies on other groups (such as Foxtel and BigPond) are minimised and this is of great benefit to all parties.

5.1.2.4 Other information

During the interview process, relevant items outside the scope of this consultancy were raised and it would be remiss not to bring these to the attention of the ACCC. These items are likely to have an impact on the "End-to-End" process of achieving a workable solution for C7.

They include the following:

- **Head Ends** - Throughout the submissions and during the interviews the reference is made to two pertinent issues on the head ends.
  The first is known as "*to the head ends*" and deals with getting the signal from the play-out centre to the head end. It appears that there is a component of work for C7 to commit to in ensuring the correct infrastructure is in place to enable the signal to get to the head end. It is suspected that this work could take from 12-16 weeks.
  As advised by Foxtel:

  > *"…the 12 – 16 weeks that it is estimated it will take for the infrastructure to be put in place for delivery of the analogue video services to the Headends to be provided once ordered is an industry standard. It would also take Optus or Telstra this long to obtain that equipment."*[15]

  The second issue is known as "*through the head ends*". This relates to the outstanding head end equipment that needs to be purchased to enable the

[15] Taken from the intial response faxed 21/11/2001 from Allens Arthur Robinsons Page 2 – Pioint 2.6 (Paragraph 1)

signal to be processed (from digital to analogue) and scrambled amongst other processes.

There has been references made within the submissions on the equipment requiring purchase, its cost and the timing for installation. Below is a table taken from a letter to Freehills dated 29 March 2001. Confirmation on its current validity is recommended.

New Equipment Required to carry 2 analogue channels for C7	Cost of Equipment (2 analogue channels all head ends)	Timing for Installation (weeks from firm order date)	Ongoing Maintenance Costs
G703 Expansion Kit (if signals delivered to head ends by G703)	$[redacted]	24 weeks	to be determined
Gateway Rack	$[redacted]	24 weeks	to be determined
Decoder Rack	$[redacted]	24 weeks	to be determined
A/V Distribution & Patch Rack	$[redacted]	24 weeks	to be determined
Modulators	$[redacted]	24 weeks	to be determined
Scramblers	$[redacted]	24 weeks	to be determined
Cabling & site management	$[redacted]	N/A	N/A

Ref: [16]

The ordering of this equipment is an outstanding issue with queries on what "spare" equipment exists and what capability there might be to use the spare equipment if it does exist.
The status on the head end equipment needs to be finalised as it appears there is a 24 week timing to be considered.

- **Progress with TARBS** - During the interviews, reference was made to the progress that has been made with the TARBS working committee and how it is in advance of the progress with C7. As noted from Telstra:

> "*Option 1 is broadly consistent with the technical approach currently being discussed with TARBS*".

TARBS are also commencing the defining and documenting of high-level business scenarios. With TARBS potentially being further advanced in the process, it is worthwhile confirming this progress and identifying what, if any, are "lessons learnt" that C7 can benefit from.

[16] Telstra letter to Freehills dated 29.03.01

5.1.3 Specific questions raised in or by submissions

5.1.3.1 What information is required in order for C7 to meet the "business requirements specifications" which Telstra claims has largely inhibited the development of a separate SMS and the development of a SMS/CAG interface?

In addressing this question, it is worth highlighting that a production environment such as the "24x7" Pay-TV operation managed by Telstra requires a standard of discipline in terms of change management to be followed to ensure existing and future services are not placed at risk.

In considering the implementation of change to the existing service, through the development of a separate SMS and the development of a SMS/CAG interface or other possible developments that may be considered (for example, an interface between SMS and a smart card database), the process (taken from the Telstra interviews) to achieve this implementation is broadly described as follows:

- *Agree on high level business requirements from C7*
- *Agree in principle technical approach to the solution. (This step is well advanced in the case of TARBS.)*
- *Define & document high level business & operational scenarios to determine the business viability of the solution for all parties and determine any major gaps in the solution that need to be addressed. (This step is now commencing with TARBS.)*
- *Produce a more detailed technical proposal with indicative timing and costs and formally assess technical and commercial feasibility. (A decision point to proceed occurs here.)*
- *Produce a detailed solution architecture, committed costs / business case and project plan.*
- *Implement the solution (build, test, deploy, train, operational set-up etc.)*
- *Operate the solution (maintain, bill, assure etc.)*

The first step in this approach is to agree on the high level business requirements from C7.

During the interviews, it was noted that C7 are prepared to provide business metrics such as subscriber quantities (both initial take-up and growth on an ongoing basis), churn expectations and the types of service offering. (For example pay-per-view versus one only 2-channel package) on a confidential basis to Telstra for dimensioning purposes.

Telstra's response from the interviews on this point was:

> *In order for us to assess the impact of change to existing systems Telstra needs to understand the customers business requirements, objectives and expectations. Working with each customer to understand their business is an important factor to enable us to supply stable, well configured systems and minimises any delays or outages associated with under configured systems.*
> *Information provided by customers is treated with confidence and used only for the purpose of providing services*

Submissions made to the ACCC highlight a "gap" in the proposed requirements put forward by C7 and those expected by Telstra and Foxtel[17]. It was noticeable during the interviews that the business requirements from C7 and for the process to move forward, this issue needs to be finalised. It is one of the recommendations of this report that the parties agree to have collaborative meetings to progress this and other issues.

5.1.3.2 What, if any, are the technical reasons why the proposal that Telstra develop a separate SMS on behalf of C7 has not progressed?

As described within the previous question, there is a defined process for achieving an initiative such as the development of a separate SMS. It highlights the need for the parties to confirm the business requirements as input into the proposed technical approach to the solution.

A general observation can be made that given a model where the C7 SMS would address the same smart card as the Telstra SMS that services Foxtel, then there is a component of technical work to be undertaken on the CAG. It is also reasonable to state that relevant smart card details, which will allow the C7 SMS to instruct the CAG on particular subscribers, will need to be made available in some form. (In option 1, these details are held within the smart card database).

[17] C7 submission - Business requirements Draft Document; Foxtel submission of 02.07.01; Fax from Tesltra 27.07.01

Developing a separate SMS with possible interfaces into the existing infrastructure is likely to be a significant exercise. The process to be undertaken in the creation of a new interface was described as:

> *"The process for commercial engagement of new development is dependent on whether the development is internally or externally sponsored and the magnitude of the development. The development and implementation processes are broadly as per conventional software development lifecycle (SDLC). Creation of a new interface would normally be treated as a major development project. Typical activities would include:*
>
> - *Business functionality request or Change Request (depending on size of project)*
> - *Feasibility studies*
> - *High Level Design*
> - *Quote*
> - *Impact assessment*
> - *Parties are agreed on technical solution, time to deliver, cost*
> - *Funding approved*
> - *Technical design*
> - *Construction*
> - *Testing (Unit, Integration, Stress & Volume, Acceptance)*
> - *Implementation (deployment)*
> - *Sign off".*

It is fairly straightforward to acknowledge with a model such as Option 1 that technical work would be required on the CAG and on relevant smart card detail management. However, there is a component of work to be performed on a collaborative basis (between the three parties) to achieve an agreed technical approach to the solution that would lead into identifying a more detailed technical proposal as referred to previously.

5.1.3.3 What is the extent of the modifications needed to Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases and systems to allow a separate SMS to interact with them?

With Option 1, changes to the existing infrastructure at a broad level include:

- The introduction of a smart card database;
- an interface between the existing Telstra SMS and the smart card database;
- an interface between the new C7 SMS and the smart card database; and
- an interface between the new C7 SMS and the CAG.

It has been highlighted throughout both the submissions and the interviews that Telstra will require further information on the business requirements from C7 to move forward in determining a technical solution, which would include an understanding on the extent of the relevant modifications that are needed.
C7 has responded to these requests by advising that they need to understand the process for providing these business requirements. This has been referred to previously and a broad process as described by Telstra has also been highlighted at question 5.1.3.1.

The extent of the modifications on the smart card database and its relevant interfaces would be expanded during the process referred to above, however, a number of points were captured during the interview on these components.

They are:

Question	Response
To Telstra – Please provide details on the database: 'Lag time' for readiness of dedicated resources to work on the new and existing database?	We assume the new database referred to is the so-called smart card database shown in options 1 and 2(a). The availability of resources to work on a new database would depend on the exact nature of the work to be undertaken (technical complexity, scope etc.), the nature and number of skills required. While individual database programming resources may be available with approximately 1 month lead time, other specialists and equipment would be required to implement a new database. Where integration is required into the Telstra SMS (Wizard 3.5) it would typically be necessary to engage Convergys which may involve bringing additional skilled personnel from Israel. In any case development resources would not be engaged before detailed business and technical requirements are agreed and documented.
To Telstra – Will there be a requirement to load data? (into a new database)?	We assume the new database referred to is the so-called smart card database shown in options 1 and 2(a). Conceptually it would appear that some data would need to be loaded into this from the existing Telstra databases. In option 2(a) we assume that data would not need to be loaded into the C7 database by Telstra as it would be the responsibility of C7 to populate this data. However without additional analysis it is difficult to say absolutely that data will not need to be loaded.
To Telstra – If so, what is the anticipated amount of records and time frame to complete this validation?	Definition of requirements is needed to answer this. However for the smart card database in options 1 and 2(a) the data volume would probably be proportional to the number of active FOXTEL cable subscribers.

These responses show the need for business and technical requirements to be agreed by the parties and documented.

In terms of the C7 and CAG interface, an indicative estimate of work to be performed on the CAG was provided to C7 in a letter dated 31 May 2001 from Telstra. This estimated approximately 90 days at a cost of $95,700 and was qualified as being

> *"merely an estimate of work required and costs – it is not a firm or fixed quote. As C7's business requirements have not yet been adequately defined, it is not possible to provide a firm quote"*.[18]

This has resulted in C7 through its submission of 12 June 2001, raising the concern of uncertainty

> "*While Telstra has repeatedly indicated that it is prepared to modify its CAG, it is not providing any certainty as to price, timing or any warranty that the modifications will in fact work*".[19]

Information captured through the interview process confirmed the CAG work covered development, testing and integration by NDS, however, this was based on a certain set of parameters

> *"the 90 day figure was for a particular scope of work in a given set of circumstances (eg. Resource availability etc.) that may no longer apply".*

It is evident that the introduction of a separate SMS interfacing with the existing CAG, and using the same smart card as the existing SMS, will necessitate a component of work to be performed as there is no ability to synchronise between the multi-SMS's.

[18] Telstra letter dated 31.03.01
[19] C7 letter dated 12.06.01

In requesting information on the additional software and hardware requirements for the existing CAG in a multi-SMS environment, the following responses were captured:

Question	Response
To Telstra – 1. What are the additional software requirements for the existing CAS for a multiple SMS environment?	We do not have sufficient detail on the proposed solution to specify this in detail. However Telstra, FOXTEL and TARBS have continued to make significant progress in the Technical Working Group on an approach similar to option 1. We anticipate continuing the process with TARBS to obtain sufficient technical detail to address these questions. In theory up to 3 ports are available on the CAG but technical constraints apply and some additional development may be required to correctly operate independent SMS connections. In particular, development would be required if a single smart card is to be "shared" by multiple providers. (**see note below)
To Telstra – 1.1 When could this be met?	It is impossible to speculate on timing of delivery without detailed technical requirements.
To Telstra – 2. What are the additional hardware requirements for the existing CAS for a multiple SMS environment?	It is impossible to speculate on hardware requirements without detailed technical requirements (nature of interface, transaction volumes etc.).
To Telstra – 2.1 When could this be met?	See 1.1 above.

** In confirming number of ports available on CAG, Telstra advised in submission

> *"…this therefore leaves two CAG ports (additional to the one used for the Foxtel cable services) available for use by other access seekers".*[20]

5.1.3.4 Would the modifications to Telstra's CAS, Telstra's (or Foxtel's) SMS and related databases and systems be made in a reasonable time period and could these modifications guarantee C7 and Telstra an acceptable level of performance?

This is a subjective question that again will need to be discussed in a collaborative manner to determine what is meant by "a reasonable time period" and "an acceptable level of performance".

As discussed in the previous question, there is still uncertainty as to what the modifications will be, which therefore implies that it is not possible to measure their deployment in terms of timing.
On the point of acceptable level of performance, Service Level Agreements (SLA)'s are implemented and measured to ensure each is aware of expectations in relation to performance.

[20] Telstra submission 30.11.01

Telstra has both hardware, software and support SLA's in managing the Pay-TV infrastructure.

5.1.3.5 Are there international precedents for more than one SMS to interact with a CAS?

There are instances of multi-SMS's operating with the one CAG.

As advised by Foxtel:

> *"In the digital format there are precedence's with multiple SMS's to CAG. Australis and Austar as a franchisee of Australis were 2 provider who used the one CA system".*

In relation to this assignment, the advice on the analogue CAG is that multiple SMS's are able to be supported provided each SMS is addressing its own smart card. The concept of multiple SMS's sharing a smart card is where the technical constraint exists. There is no precedent for multiple SMS's interacting with NDS's analogue CAG synchronising to a single smartcard.

As captured within the Telstra interviews:

> *"The CAG will address 3 ports currently, there is no synchronisation between them. The current capability will allow for SMS's addressing its own specific smart card. However, should the multiple SMS's intend to address the same smart card, then work is required to be performed".*

5.2 Option 2 - C7 uses Telstra's SMS

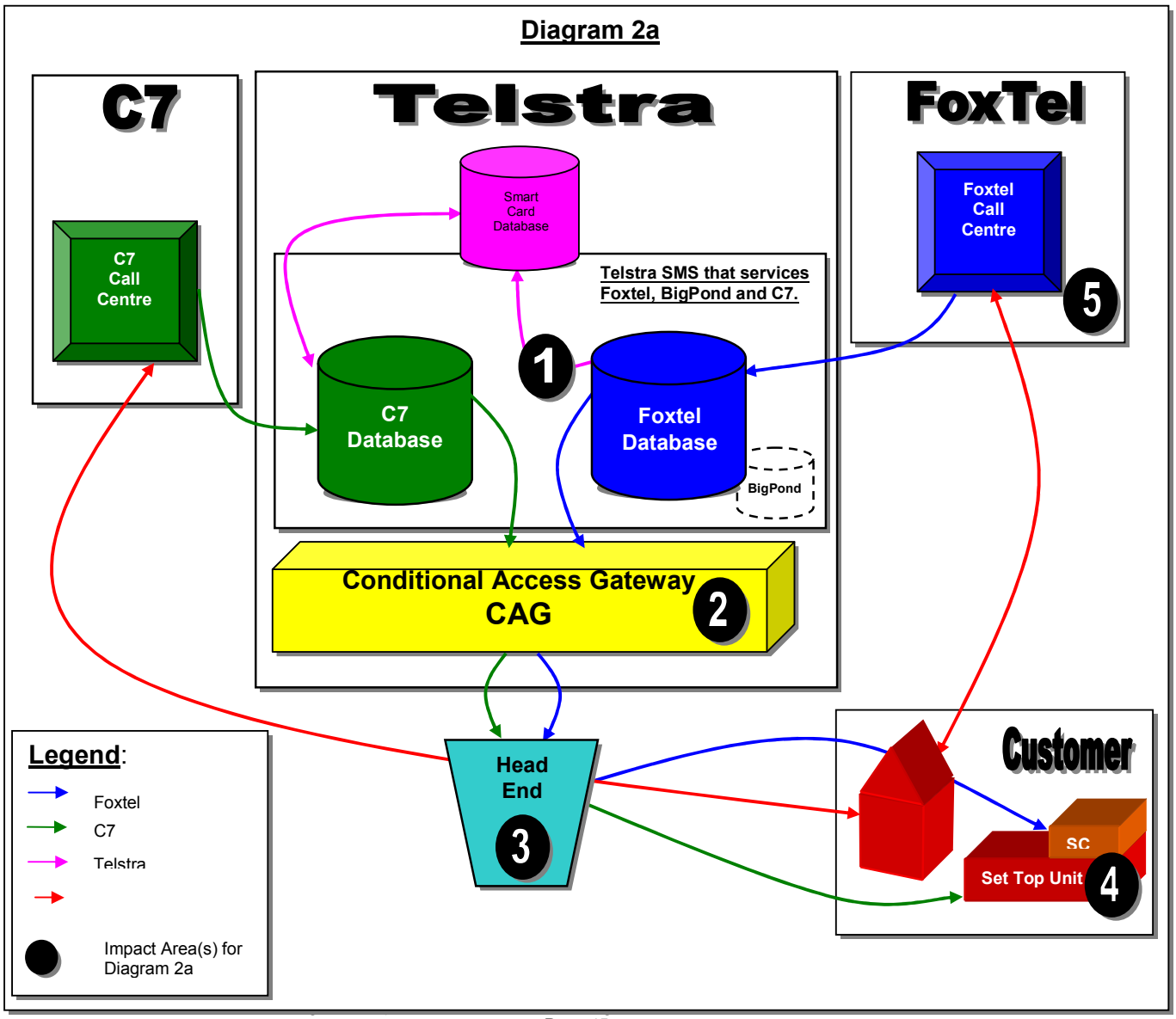
5.2.1 Overview – Option 2

In creating models for Option 2, it was viewed that there were two possible "sub-options" to consider.

Option 2A is where the current single SMS application is used with 3 separate database instances. 2 already exist for Foxtel and BigPond, the third would be implemented for C7.

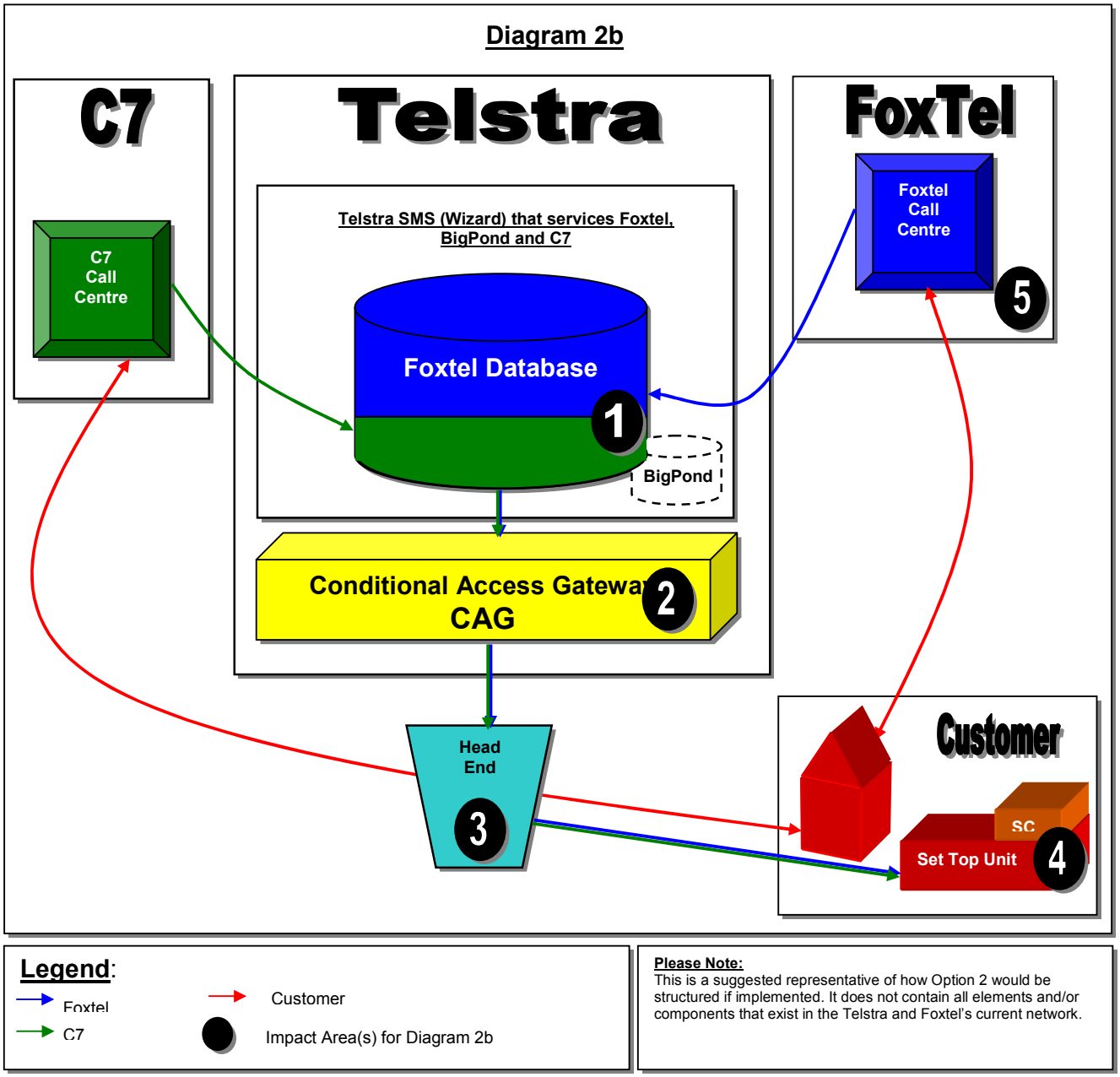
This option would have two databases (Foxtel and C7) that would pass data to the CAG via management from the SMS. There is a smart card database created, implemented and maintained as with Option 1.

Diagram 2a



Option 2B uses the current single SMS application with a modification of the existing Foxtel database to allow independent management of their respective subscribers by Foxtel and C7. There is no Smart Card database in this option.

Diagram 2b



5.2.2 Option 2 Responses

5.2.2.1 The technical issues involved in Telstra using its (or Foxtel's) SMS to provide SMS services to C7 (including the potential for Telstra to provide SMS services to C7 as if C7 channels were an optional "tier" on Foxtel programming, including the need for any technical enhancements, difficulties or impediments which may exist.

Option 2A appears to be technically feasible, however, it presents significant operational issues to Telstra and Foxtel. Technically, there would still be a requirement for functionality that allows for multiple service providers. Whether this is a function of the CAG or elsewhere within the infrastructure, it would still need to be developed. Foxtel's interpretation is:

> *"Please note this configuration will not make the interface to the CAG any easier. My understanding is that a separate interface to the CAG is still required, therefore not reducing the implementation period."*

Telstra advised that:

> *"If both databases are sent through the same addressability module with the same SMS id then they would be regarded by the CAG as the same SMS. However, there still needs to be functionality that coordinates the entitlement from Multiple Service Providers. If this is not part of the CAG then we believe it would need to be developed elsewhere."*

Another possible issue for consideration with Option 2A is that relating to the support by the vendor of the SMS application based on the number of subscribers, as advised by Telstra:

> *"the [redacted] subscriber limitation in the Convergys licence relates to the warranty provided by Convergys. That is, Convergys does not warrant that the WIZARD software will perform to specification if the subscriber database exceeds [redacted] subscribers (this includes active and inactive subscribers). There are currently about 940,000 active and inactive subscribers in the database.*
>
> *Although this is a legal, rather than a technical, issue, I would also note that the WIZARD licence agreement limits the use of the software to Telstra and FOXTEL subscribers only. We will need to let the lawyers work out what happens if the WIZARD licence has to be extended to C7 subscribers, or if the licence warranty has to be extended beyond [redacted] subscribers due to the addition of C7's subscribers."*

Similar technical considerations to those in Option 1 in relation to the smart card database and its interfaces are made with this Option. (See Option 1 for more detail).

Option 2B is considered technically and operationally infeasible and advice from both Telstra and Foxtel is as follows:

Telstra

"We believe this option is technically and operationally infeasible. For example we do not use this approach for BigPond customers which use a separate database to FOXTEL because of these technical and operational issues. The issues include all of the major issues with option 2A and:

- ***Security and isolation of data** – it would be very difficult to partition FOXTEL and C7 data to ensure FOXTEL did not access C7 data and vice versa. Also under the BCA Telstra has specific rights to access customer data of FOXTEL subscribers. It would be technically complex to ensure these rights were only enjoyed with respect to the FOXTEL and C7 data. This could potentially require substantial development and investment in a system which is approaching obsolescence and for which skilled resources are becoming more difficult to obtain.*
- ***Mismatched business requirements** – The current SMS has evolved substantially over time to match the changing business requirements of FOXTEL. It is very unlikely that these will closely match C7's business requirements and that the future business requirements of FOXTEL and C7 will remain synchronised. It would be impractical to keep diverse and changing business requirements aligned without severe impediment to FOXTEL's business.*
- ***Maintainability** – New business initiatives typically involve software changes to the system. Diverse usage of the system would compound the amount of software change resulting in higher maintenance costs and lower system reliability.*
- ***Operational independence** – There would be no way to prevent an outage (planned or unplanned) caused by one company (FOXTEL or C7) from also impacting the other as both would loose services simultaneously. Coordination of planned outages between the two is impractical. We do not even attempt this across Telstra (BigPond) and FOXTEL."*

Foxtel

"This has the most impact from Foxtel's data security, business processes and implementation perspective. Assistance would need to be provided throughout this process. Consulting with C7 would be required.
C7 will still need to establish their Business requirements for this and other options. It is not likely that they (C7) will want the same degree of complexity of functionality as Foxtel..

This would appear to take longer to implement than the other solutions. More risk (schedule) to Foxtel.

There are impacts in the development and future production.

It is suggested this would be a 2 part exercise:

1) *Getting the SMS modification exactly to business + technical specifications – which is likely to be time and resource consuming and once implemented. FOXTEL's is of the view that substantial modifications to the current SMS will be required.*

2) *Modifying the system as required would affect the other party and require approvals. This is likely to present issues especially if both businesses have different operation al models.*

3) *If both C7 and FOXTEL do have completely different operating models then it may be impossible to modify the existing SMS to share functionality as the changes required by both parties may be in direct conflict with the current mode of operation."*

Option 2B is considered completely infeasible.

5.2.2.2 The length of time required to establish such an arrangement and the overall cost involved.

Other than Option 2A being very complex operationally, the length of time to implement and cost such a solution could only be considered once final technical requirements are confirmed. As discussed in Option 1 in terms of timing:

"It is impossible to speculate on timing of delivery without detailed technical requirements",

and on cost:

"It is impossible to speculate on costs for an unspecified technical solution."
"To make any comments on cost we would need additional information on C7 business requirements, performance requirements, data volumes, support levels etc. There are orders of magnitude of cost differences possible depending on answers to these."

Option 2B timing and cost would be pointless as it is considered completely infeasible.

5.2.2.3 The efficiency, technical reliability and ongoing operational effectiveness of this option.

Option 2A, as described is possible technically, however, it does present a set of operational issues that would apply in some form to Foxtel, C7, BigPond and the Media Solutions group of Telstra. Foxtel's feedback on this model is:

> *"…adds another level of compromise to the current FOXTEL operation as I understand that this option requires the utilisation of the existing application. C7 will have to accept the current business operation that FOXTEL has developed into the Wizard application. If the current FOXTEL operation does not suit C7 then it would be unacceptable to require FOXTEL to modify its business operation to facilitate C7.*
>
> *FOXTEL has invested a substantial amount of time, money and intellectual property in developing Wizard in the sales, acquisition and marketing areas of functionality, again it would be unacceptable if FOXTEL is required to provide this commercial expertise.*
>
> *FOXTEL commercial and confidential data security is also required under this option.*
>
> *Some of the issues raised in this scenario are identical to those discussed with option 2B."*

Telstra's feedback on the operational constraints are:

> *"As noted above the smart card database component should be feasible.*
>
> *The use of a single SMS with multiple (service provider specific) databases may be technically feasible. However it is our view that this option would present overwhelming operational problems such as:*
>
> - *cross impacts between service providers in the event of a planned or unplanned system outage;*
> - *difficulty in scheduling development, training and deployment of enhancement work for one provider without impacting others (this is already a serious issue with just BigPond and FOXTEL sharing the use of a single SMS);*
> - *system changes (enhancements) to meet the requirements of any one of the service providers would need to be negotiated across all parties which would be practically infeasible – leading to the possibility of ongoing disputes and potential hindrance to the business needs of one or more parties;*
> - *cost splitting across the service providers (particularly for growth and expansion) would be a very difficult resulting in the possibility of ongoing disputes;*
>
> *each service provider would need to agree to an identical level of system availability with consequent constraint on their ability to offset cost and reliability."*

Option 2B as already stated is completely infeasible.

5.2.3 Specific questions raised in or by submissions

5.2.3.1 Given the technical capabilities of Telstra's current SMS, or the potential capabilities of an upgraded Telstra SMS, could C7 be supplied with SMS services in a similar way that SMS services are currently provided by Telstra to Foxtel?

If so, what is the extent of any difficulties involved in Telstra using its (or Foxtel's) SMS to provide SMS services to C7 and how might these be overcome?

Difficulties may include:

- *the protection of confidential customer information; and*
- *the involvement of third parties (eg Convergys).*

In considering Option 2A, from a technical perspective, it is feasible to implement both a smart card database and a third database to operate within the existing single SMS. (Foxtel and BigPond are the existing databases).

In response to this proposed model, Telstra advised that the impact from an operations perspective would be highly significant, as described below:

> *"The use of a single SMS with multiple (service provider specific) databases may be technically feasible. However, it is our view that this option would present overwhelming operation problems such as:*
>
> - *cross impacts between service providers in the event of a planed or unplanned system outage;*
> - *difficulty in scheduling development, training and deployment of enhancement work for one provider without impacting others (this already a serious issue with just BigPond and FOXTEL sharing the use of a single SMS);*
> - *system changes (enhancements) to meet the requirements of any one of the service providers would need to be negotiated across all parties which would be practically infeasible – leading to the possibility of ongoing disputes and potential hindrance to the business needs of one or more parties;*
> - *cost splitting across the service providers (particularly for growth and expansion) would be a very difficult resulting in the possibility of ongoing disputes;*
> - *each service provider would need to agree to an identical level of system availability with consequent constraint on their ability to offset cost and reliability."*

Feedback from Telstra on Option 2B is as follows:

> *"We believe this option is technically and operationally infeasible. For example we do not use this approach for BigPond customers which use a separate database to FOXTEL because of these technical and operational issues. The issues include all of the major issues with option 2A and:*
>
> - ***Security and isolation of data*** *– it would be very difficult to partition FOXTEL and C7 data to ensure FOXTEL did not access C7 data and vice versa. Also under the BCA Telstra has specific rights to access customer data of FOXTEL subscribers. It would be technically complex to ensure these rights were only enjoyed with respect to the FOXTEL and C7 data. This could potentially require substantial development and investment in a system which is approaching obsolescence and for which skilled resources are becoming more difficult to obtain.*
>
> - ***Mismatched business requirements*** *– The current SMS has evolved substantially over time to match the changing business requirements of FOXTEL. It is very unlikely that these will closely match C7's business requirements and that the future business requirements of FOXTEL and C7 will remain synchronised. It would be impractical to keep diverse and changing business requirements aligned without severe impediment to FOXTEL's business.*
>
> - ***Maintainability*** *– New business initiatives typically involve software changes to the system. Diverse usage of the system would compound the amount of software change resulting in higher maintenance costs and lower system reliability.*
>
> - ***Operational independence*** *– There would be no way to prevent an outage (planned or unplanned) caused by one company (FOXTEL or C7) from also impacting the other as both would loose services simultaneously. Coordination of planned outages between the two is impractical. We do not even attempt this across Telstra (BigPond) and FOXTEL."*

In summary, Option 2A may be technically feasible, however, it presents huge challenges in an operational sense and Option 2B is both technically infeasible and operationally more difficult that Option 2A

5.2.3.2 Option 2 should be considered in terms of its suitability as a short term temporary solution for the purposes of giving effect to the interim determination.

Additionally, the Commission seeks advice as to whether this option provides a longer term solution to the provision of SMS services for the purposes of a final determination.

From the input captured during the interviews, it is apparent that Option 2A is not going to be a "quick and uncomplicated" solution to consider.

Realistically, no option has yet been identified to be deemed suitable in meeting a short term temporary solution. (Short term is considered equal to or less than 3 months).

In terms of a longer term solution, the information provided above highlights how difficult it would be for all parties concerned in relation to the operational constraints. The existing SMS is one that is ageing and highly customised to Foxtel's business requirements. The number of skilled resources available for this technology is diminishing and in considering a longer-term solution, this would be another consideration as to why this should not be viewed as a suitable option.

5.3 Option 3 – Any other technically feasible option

As the interviews progressed, two other models were put up for discussion, these are known as the Olympic model and the manual model. Even though the manual model is deemed to be technically infeasible, it is still reported here to be used for reference should it be raised as a possibility in future discussions.

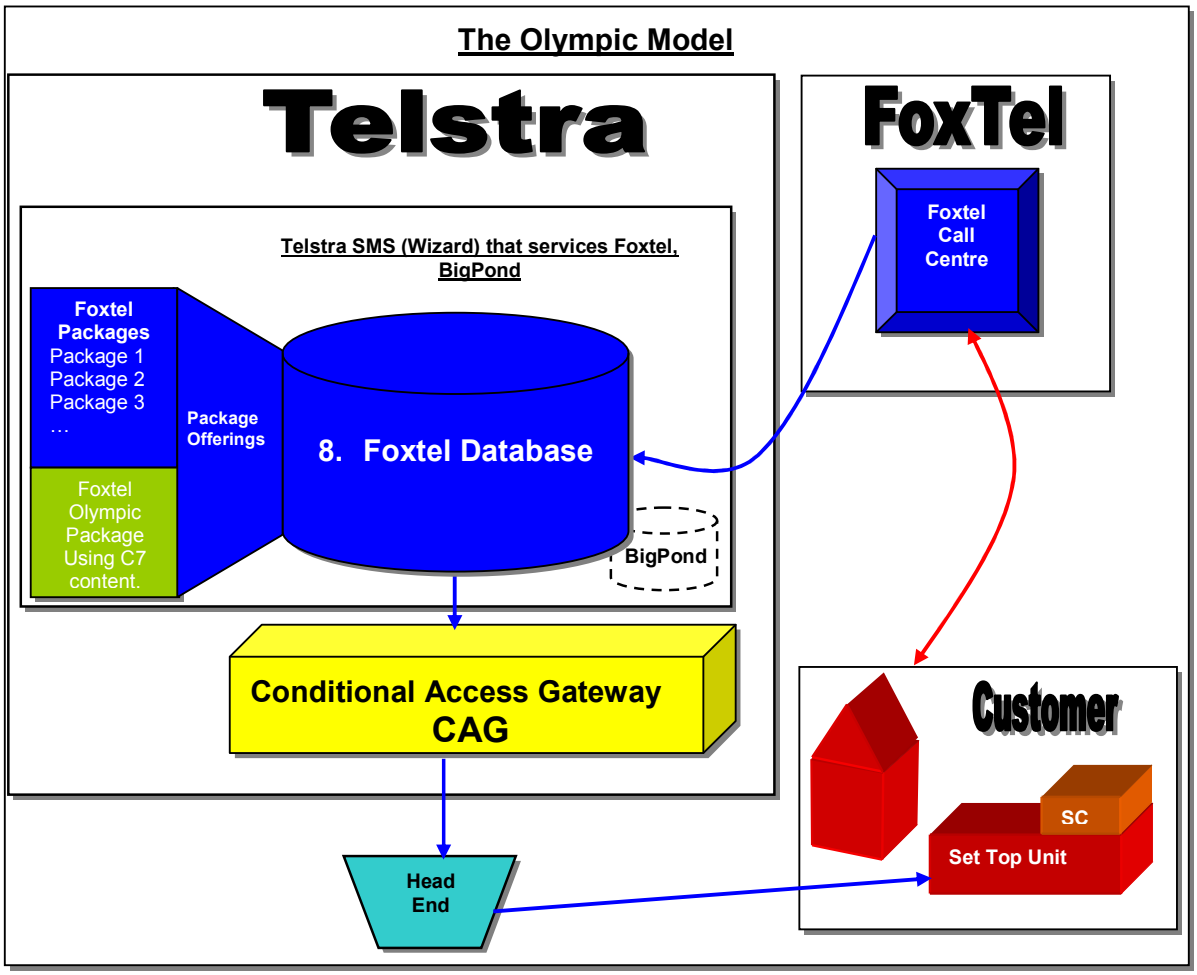
Feedback received from C7 in its submission after the draft interim report highlighted a new model to consider, known as the "C7 short-term Pay TV model". Separate interviews were again used to capture information on this model.

5.3.1 "Olympic Model"

The Olympic model is so named because it refers to the service that was operated during the 2-week period of the 2000 Olympics. This service was investigated as it appeared to take a short period of time to implement the offering and the possibility of using this for the short-term solution (the interim determination) was to be evaluated.

The diagram (on page 52) describes how the infrastructure was set-up and explains why this could be implemented in a short period of time. Essentially, C7 acted in a "content provision" role, not a Pay-TV provider role. That is, there was no "one-to-one" relationship between the customer and C7.

Olympic Model Diagram



Information obtained during the interviews illustrate that Foxtel performed all the functions associated with the Olympic offering with the exception of content provision. Below is the response captured:

> *"Foxtel had been planning to take the Olympic channels and to launch additional channels for some time. Equipment was purchased at FOXTEL commercial risk and put in place on a chance that Foxtel would secure the Olympic broadcast. Not just head-end but internal too. This involved equipment at the playout centre and provisioning fibre optic video circuits, which have a lead-time of 12 to 16 weeks.*
>
> *Channels were also implemented as part of the Foxtel business plan (i.e. within the 50 channel band). This equipment was ordered on the assumption that irrespective of whether Foxtel transmitted the Olympics channels it would eventually be used for further channel expansion.*
>
> *These channels were added as part of the existing FOXTEL service, therefore requiring no technical change to either the SMS or CAS.*
>
> *The difference with Foxtel doing it rather than C7, Foxtel dealt with this process as a single business, whereas C7 would have added additional technical difficulties in order to support the two separate commercial entities.*
>
> *Customers of C7 in the Olympic's did receive a bill from Foxtel and therefore the 'contract' was with the Customer direct. C7 contracted with FOXTEL to provide Olympic channel content and those channels were delivered as part of the FOXTEL service. There was no one-to-one relationship between C7 and FOXTEL Customers during this Olympic period. The customer had not contractual relationship with C7."*

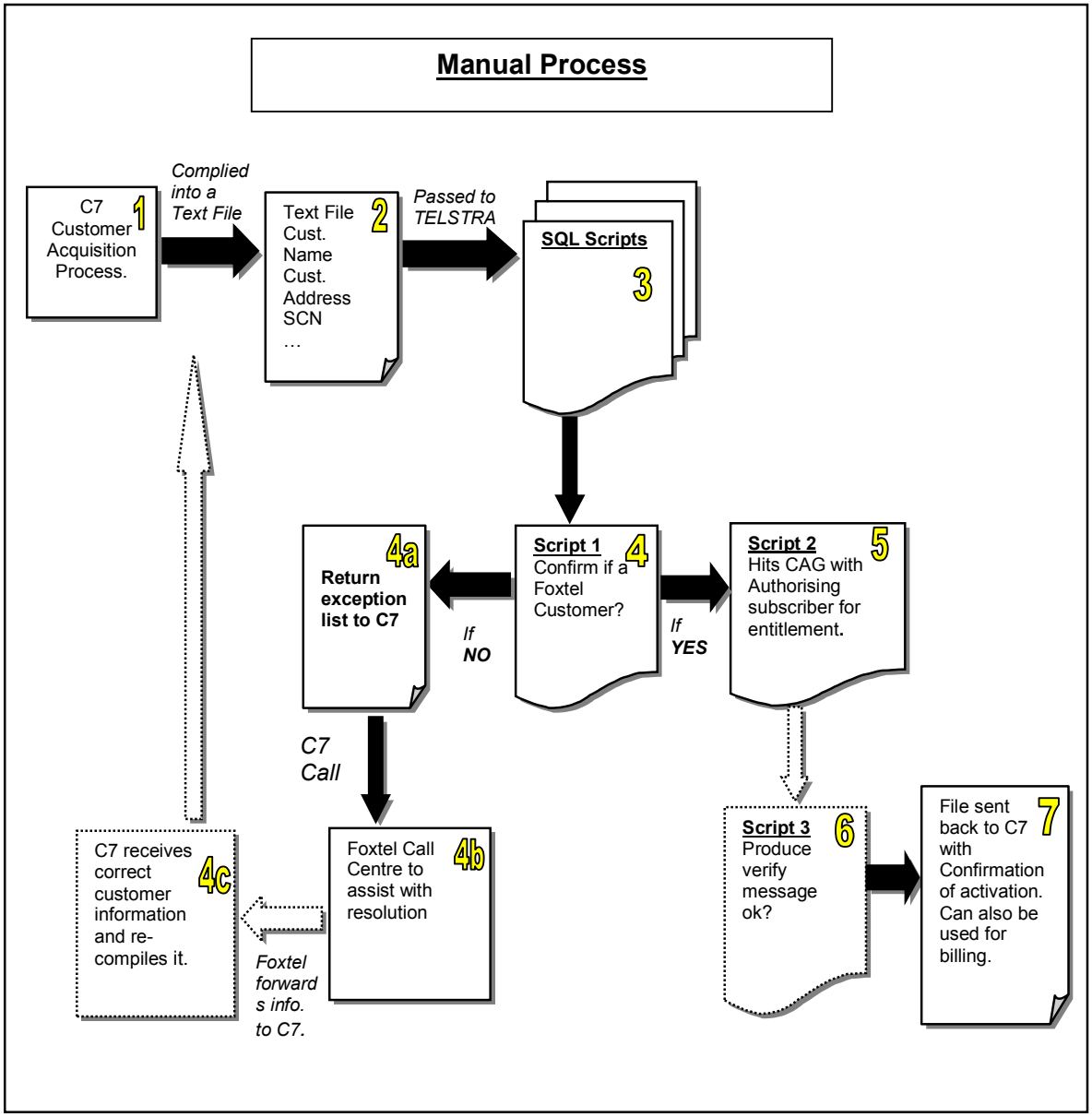
On review of the information above, Foxtel have now qualified their response as:

> *"Whilst there was technically a "contract" between C7 and the customer (effected by Foxtel sending out to the customer terms and conditions between the customer and C7 in relation to the Olympics channels), this was purely due to the licensing restrictions imposed on C7 by the licensor of the Olympic rights. All enquiries relation to taking up the service or complaints of other enquiries relating to the service were directed to the Foxtel call centre and customers were billed directly by Foxtel. Foxtel therefore had the one-to-one contact with customers and undertook the subscriber management role at all times so that there was no need for C7 to have any access to Foxtel subscriber information and therefore no issue relating to confidentiality. Foxtel also conducted the marketing and sale of the C7 channels as if they were Foxtel's own channels."*[21]

[21] Taken from the intial response faxed 21/11/2001 from Allens Arthur Robinsons Page 4 – Point 4.2

5.3.2 "Manual Model"

The manual model was tabled as a possible conceptual model with the emphasis on getting a very quick short-term solution implemented. It should be noted that all interfaces were qualified to be either a manual input or batch. The possible model, as proposed by Foxtel, is as follows:



"C7 provides customer name & address and possibly smart card (from back of magazine). These details would be forwarded to Telstra via a text file.

A set of SQL scripts would then be utilised for verification (Active Foxtel subscriber), activation or deactivation. Telstra would best manage these scripts.

On verification process, if no-match then entry is placed onto exception report for coordination by C7 with Foxtel Service call centre.

On match, script2 will activate and a "log" will be forwarded to C7 for confirmation and billing purposes.

This process is only conceptual and a short-term solution for the interim decision"

In discussing this model with both Telstra and C7, the following response was tabled by Telstra:

" Although described with text files, this option represents a multi SMS interface to the CAG. It would not be possible to implement a multi SMS environment between a real time SMS and a offline/batch SMS as would not be possible to perform subscriber synchronisation functions with an offline SMS.

Facts about the batch load

---

* *A batch load process exists.*
* *It is used on-site at Telstra as a test tool.*
* *The batch load process uses one of the 3 available (SMS) ports on the CAG.*
* *Batch file format must be compliant with the SMS to ACC interface specification.*
* *Output from the batch load process are compliant with the SMS to ACC interface specification.*
* *Output from the batch load process only occurs when the program is running.*
* *SQL loading of the database is not supported.*
* *It is not be possible to reconcile and synchronise the CAG database between a real time and offline SMS using a batch load.*
* *Delivery of the batch file will be restricted by security policy.*

The batch loader is never used in production because of problems synchronising date/time and sequence numbers of the messages. This problem in isolation would prevent transaction being loaded from the access seeker. When utilised in the test environment errors caused by the
batch load process have been noted to cause the CAG translator to fail, requiring a restart of the CAG. In practice this dictates that the batch load is run when there are no transaction from an on-line SMS. In a production environment this is possible but requires the Foxtel and any other SMS interface to be taken offline."
These are the points that provide why the option is infeasible, the C7 response to a manual option with the manual or batch interface is
"C7 do not want a manual process…C7 are seeking a fair and comparable system that Foxtel currently experience."

In summary, while the Olympic model has been shown to work previously, it was for a particular set of circumstances and C7 were acting in the role of content provision. The manual model that was proposed as a possible short-term solution

for the interim decision is now considered by Telstra to be technically infeasible. Hence both models under this section are deemed inappropriate.

5.3.3 The "C7 Short-term Pay TV Model"

The submission received from C7, in response to the draft interim paper provided material on a possible model for interim access.
Now titled as the C7 Short-term Pay TV model, it is described by C7 as follows:

> *"In essence, the short-term solution proposed by C7 is as follows:*
> *(a) C7 has the direct contact and contract with the customer wishing to subscribe;*
> *(b) C7 does the billing, marketing and produces its own program guide;*
> *(c) Telstra establishes and operates a call centre, paid for by C7, which is dedicated to C7;*
> *(d) The Telstra operators at the call centre dedicated to C7 would use the same screens and software that the Foxtel call centre currently uses (without any need for modification);*
> *(e) The Telstra operators would be under orders imposed by the commission not to pass confidential details about Foxtel's customers to C7 (and vice versa);*
> (f) *From the point of view of the CAG and SMS, the C7 channels would be carried as an option tier".*[22]

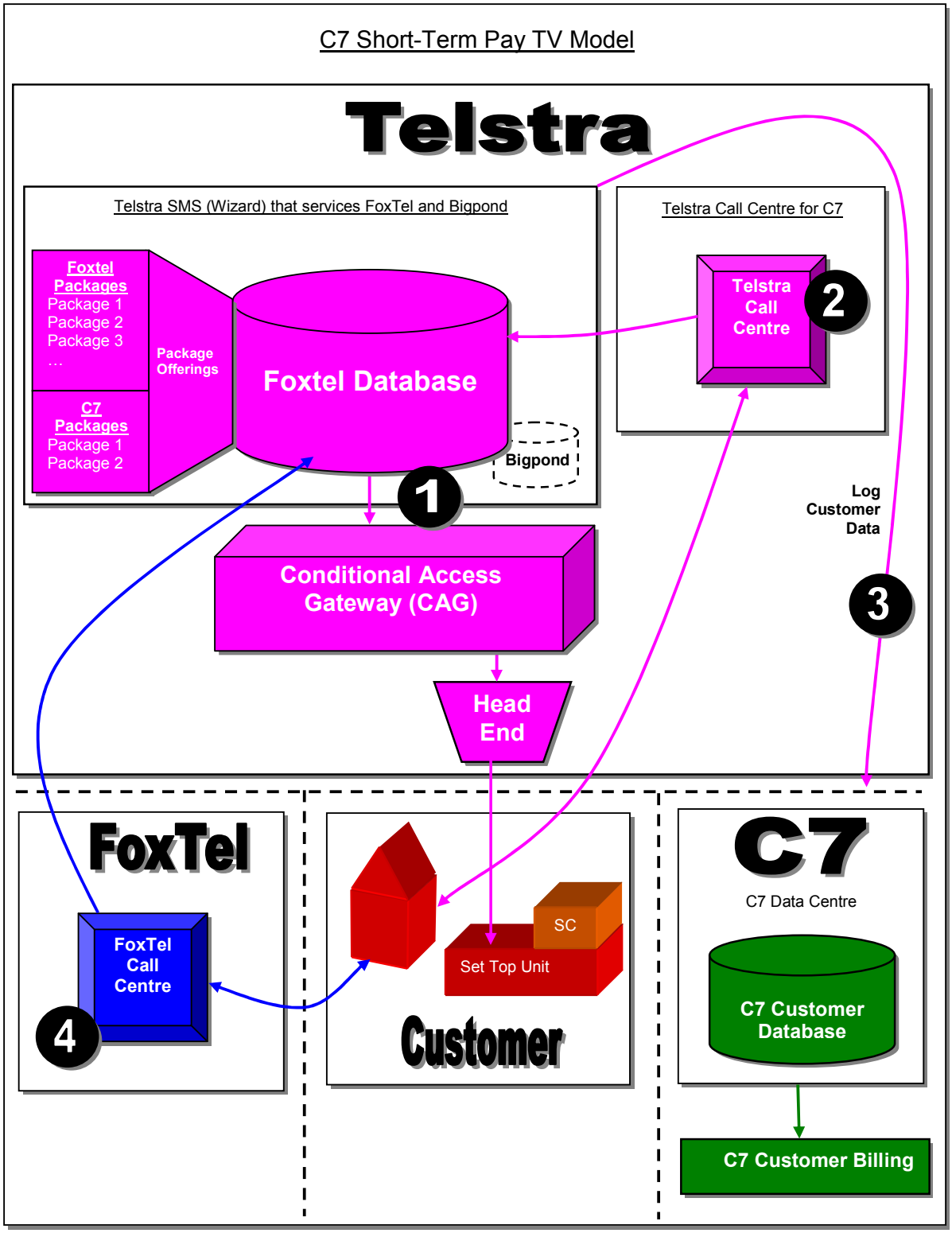
The following diagram (on page 57 – C7 Short-Term PayTV Model) captures the model at a conceptual level.

In examining the model, a generic response on the overall concept was sought from the parties and then four (4) specific areas were assessed for impact, which include:

1. The SMS and CAG;
2. The Telstra call centre;
3. The extract from the Telstra SMS to C7; and
4. The Foxtel Call Centre.

[22] C7 Submission 19.11.01

C7 Short-Term Pay TV Model



5.3.3.1 Overall Concept

In assessing the model generally, there are still significant operational issues consistent with those found within Options 2A and 2B. As highlighted by Telstra:

> *"The proposal does not in any way address the underlying operational barriers that were present in the original options 2(a) and 2(b) and which the Interim Report concluded rendered those options untenable.*
> *These issues are directly relevant to the technical viability of the proposed solution. Telstra has commented on these at length and the Interim Report endorsed these comments. Specifically they include:*
>
> - *cross impacts between service providers in the event of a planned or unplanned system outage;*
> - *difficulty in scheduling development, testing, training and deployment of enhancement work for one provider without impacting others (this is already a serious issue with just BigPond and FOXTEL sharing the use of a single SMS);*
> - *system changes (enhancements) to meet the requirements of any one of the service providers would need to be negotiated across all parties which would be practically infeasible – leading to the possibility of ongoing disputes and potential hindrance to the business needs of one or more service providers;*
> - *cost splitting across the service providers (particularly for growth and expansion) would be very difficult resulting in the possibility of ongoing disputes;*
> - *each service provider would need to agree to an identical level of system availability with consequent constraint on their ability to offset cost and reliability."*

Foxtel also highlighted concerns in relation to operational effectiveness of the proposed solution:

> *"FOXTEL objects to FOXTEL's customer information being accessed by any 2nd or 3rd party to support C7's business processes. FOXTEL is also of the view that it is not acceptable for Telstra to manage a call centre for C7 due to potential conflict issues.*
>
> *Audit of source data – this is likely to happen when a dispute between C7 and a third party / Telstra occurs on the quality or accuracy of information being received. Foxtel would find this unacceptable if this were the case. C7 will have to accept that they would have no right to the source data for audit purposes.*
>
> *C7 would need to be a 'passive passenger' of the system. Any decisions to change the functionality of the SMS or planned outages by Foxtel would need to be automatically accepted by C7."*

Other general points on the model made by Foxtel and Telstra included:

1. Intellectual property (I.P) concerns

> Foxtel
> "*FOXTEL is concerned that this model will allow C7, as a competitor to benefit from the experience and Intellectual Capital FOXTEL has invested in the Wizard system over the last 6 years."*

Telstra
"FOXTEL business initiatives often require changes to Wizard functionality. If C7 use the same system they would need to be aware of these changes before they are implemented. This would give C7 pre-emptive visibility of FOXTEL business initiatives and impair FOXTEL's competitiveness."

2. Capacity of the existing system

Telstra
"There are also considerations in regard to the capacity of Telstra's SMS. The performance of the SMS is very sensitive to factors such as the number of front of house staff, number of customers and amount of batch processing. The system is currently operating close to the boundaries of acceptable performance. The C7 proposal represents a risk to the operation of the system that would need to be addressed with additional processing and storage capacity."

Foxtel
"Telstra (for C7) will need to create a number of reports / interfaces – it is unknown how the additional batch jobs will impact on the SMS system. The operational process will have to be mapped out (acquisition, connect, disconnect, PPV) before the impact on FOXTEL can be determined. Further analysis would be required on this.
Any technical solution that is put into place needs to consider impacts to Foxtel business."

3. Data Integrity

Telstra
"The Wizard software used in the Telstra SMS does not support separation of service providers. While we have received verbal advice from the ACCC that C7 do not expect Telstra's SMS to ensure that FOXTEL cannot access C7 customer data, there remains a risk to the integrity of data about FOXTEL customers and C7 customers as a result of the ability of FOXTEL or Telstra call centre staff (the latter acting for C7) to update the other's data."

4. Post solution work to be performed

Foxtel
"A move away from this solution (after the interim decision is used) would mean substantial work to 'undo' the C7 requirements on Foxtel's part.

5. Vendor approval for implementation of such a model

Convergys
"Need to analyse the option so a guarantee that this would work can be given. A collaboration would be needed with all parties."
Telstra
"A formal request would be required to Convergys to assess availability of resources".

6. Overall Risk

Telstra
Collectively, these represent an onerous and unnecessary burden on Telstra, a clear and significant risk to the reliable operation of important Telstra systems and an impediment to system enhancement necessary to allow FOXTEL to develop its business.

Each of the points that have been made here are legitimate concerns in considering the implementation of the short-term model. In particular the operational issues are too overwhelming for this model to be considered a viable option. The following four sections discuss the specific areas that were assessed with the parties and provide further reasons why this particular model is not feasible.

5.3.3.2 Impact Area 1 - SMS & CAG

In relation to the SMS, there were three possible impacts identified at the C7 interview that would need to be considered, these were:

1. The assessment and modification (where necessary) of existing reports to include and exclude C7 customers as appropriate;
2. The creation of an additional tier within the SMS to facilitate the C7 packages; and
3. Appropriate changes to the SMS application to ensure Foxtel customer bills are consistent (that is, they do not include C7 entries).

On reviewing these points with both Foxtel and Telstra, including the request for any other pertinent changes required and estimates of time, the following advice was received:

> Foxtel
> *"Currently without modification to Wizard, this model would see C7 information appearing on the Foxtel bill and C7 information would flow through all Foxtel KPI and management reports. FOXTEL does not wish to bill subscribers for the C7 service nor have this information appear on the FOXTEL bill.*
>
> *The SMS will require removal of C7 information and modification once C7 ceases to use the FOXTEL SMS."*

Foxtel also confirmed that Telstra would be able to provide estimates on time, once the model had tighter definition.

> *"This was an estimate based on early assumptions of the C7 submission. A full investigation will need be conducted by Telstra when the model has been more tightly defined.*
>
> *This estimate did not take into consideration the Call Centre operations, interfaces etc required outside of the SMS re-configuration."*

This was in response to the 2½ months that Foxtel suggested would be required to make the SMS modifications in the submission dated 4 December 2001.[23]

[23] Foxtel submission 04.12.01b

Telstra advised it was not in a position to be able to provide timing estimates due to the proposal not having enough detail. Telstra did however, provide confirmation on the three changes required as follows:

> *"Telstra is not in a position to give estimates for this as we have scant detail on the proposed solution beyond a high level concept. However we can make the following general comments in regard to the items listed in the question.*
>
> *a) We expect there would be some modification required to existing FOXTEL reports. Some of these come directly from Wizard and some from an external reporting system (Powerhouse). For example, we are advised by the SMS vendor (Convergys) that Wizard itself provides about 150 reports. Our system operators (EDS) advise that around 750 reports are run each day. All would need evaluation to determine impacts. The impacted reports would then need to be redeveloped. We are not in a position to estimate the time to do this without substantial additional work to undertake analysis. However we believe the size of the task may be comparable to a similar exercise undertaken in preparation for Y2K which took some months.*
>
> *b) Some configuration work would be required to introduce another tier, however this is unlikely to be on the critical path for implementation.*
>
> *c) Some SMS reconfiguration and possibly development would be required to prevent FOXTEL billing C7 customers for the C7 "tier" as all tiers are currently billed by FOXTEL."*

Other modifications that would be required include changes to data extracts from the SMS to the Foxtel data warehouse and re-configuration work on the CAG.

> *"There would also be modifications required to the daily data extracts from Wizard to the FOXTEL data warehouse.*
>
> *In regard to the CAG, some re-configuration would be required to implement the new tier. This would also be the case for the head-ends. We would not expect this to be on the critical path for implementation."*

One final point raised on the SMS relates to the "[redacted] subscriber limitation". Telstra confirmed that this was a capacity issue that would have to be considered as follows:

> *"The [redacted] subscriber limitation in the Convergys licence relates to the warranty provided by Convergys. That is, Convergys does not warrant that the WIZARD software will perform to specification if the subscriber database exceeds [redacted] subscribers (this includes active and inactive subscribers). There are currently about 940,000 active and inactive subscribers in the database.*
>
> *The WIZARD licence agreement limits the use of the software to Telstra and FOXTEL subscribers only.*
>
> *It is important to understand that there are other capacity issues to be considered beyond this one. Issues such as disk and memory capacity and processor performance also need to be considered.*"

5.3.3.3 Impact 2 -Telstra Call Centre

As described in the submission of 19 November 2001 by C7, the call centre function being performed by Telstra would potentially satisfy the confidentiality of customer data issue.

> *"Foxtel's concerns regarding the protection of its confidential customer data under this model could be allayed by C7 outsourcing the call centre and database access functions to another entity.*
> *The most logical person to perform these functions would be Telstra (which already provides call centre and similar services on a commercial basis to many organisations). Telstra could manage a C7 call centre and the call centre operatives would have access to the computer screens. C7 would never have access to the data or data entry screens. Only Telstra would have this access. This would ensure that C7 could not access Foxtel subscriber data."*[24]

As discussed with C7 during the interview process, there is a preference to use Telstra to provide the call centre service with a view to ensuring that no conflict of interest exists.

> *"C7 are flexible on who provides the Call Centre service, but a preference would be to utilise Telstra. C7 want to show that there is no conflict of interests with data security for Foxtel and having an independent third party conducting this service would show this.*
>
> *C7 would arrange for training material for CSRs on C7 and specific product offerings as part of setting up this operation."*

Foxtel through its response at the interview, clearly disagreed with the confidentiality of customer data issue being satisfied by a third party such as Telstra performing the call centre functionality.

> *"There is a question as to any party other than Foxtel seeing Foxtel data through the third party call centre – this would not be acceptable*
> *This model is still considered a security risk, as operators will effectively be C7 employees and there are no technical impediments to them seeing recording data confidential to FOXTEL – for example, these operators will be able to see which FOXTEL subscribers are taking the AFL tier.*
>
> *Also privacy legislation issues around private information being exposed to this third party eg credit card details need to be considered.*
>
> *If this model is setup, the C7 operator would input data and authorise customers on an existing FOXTEL customer account. This would then mean C7 customer information would be exposed to Foxtel and C7 customers would exist in the Foxtel database.*
>
> *FOXTEL objects to FOXTEL's customer information being accessed by any 2nd or 3rd party to support C7's business processes. FOXTEL is also of the view that it is not acceptable for Telstra to manage a call centre for C7 due to potential conflict issues."*

[24] Point 34, page 8 C7 Submission 19.11.01

Foxtel also advised that impact to performance could be a possibility, however more information on the detail of the model is still required.

> *"Possibly some impacts on the performance of the Foxtel system. Until this model has been assessed in more detail the level impact to the FOXTEL day to day operations are unknown.*
>
> *As stated earlier the preliminary analysis has shown that FOXTEL customer accounts, billing and reporting systems will be impacted."*

Telstra described the overall call centre component of the model "impractical" and provided a number of reasons to confirm this assessment, they are:

> *"It is assumed that the Telstra call centre staff do not access any C7 systems and that they only use Wizard.*
>
> *From the comment in question 6 stating that the call centre would have 'similar functionality to the existing Foxtel Call Centre' we assume this to mean that the centre will handle inbound and outbound sales, service, collections, billing enquiries etc. and operate 7x24. It is unclear what '10 seats' means although we assume it to mean a peak of 10 call centre staff handling calls at one time. Does this include any management staff?*
>
> *The Telstra / C7 call centre staff would require the same training as FOXTEL entertainment consultants (3-6 weeks depending on role).*
>
> *In addition, an extra unit of training would be required because of the inability of Wizard to support separation of customer bases in the one database. The Telstra / C7 call staff would need to 'self-limit' their activities on the system to avoid impact on FOXTEL.*
>
> *Also additional training of FOXTEL call staff may be required for the same reason to avoid any system actions that would inadvertently impact a C7 customer. We believe FOXTEL have over 500 call centre staff (with up to about 300 on duty at peak times).*
>
> *Telstra does not understand how the figure of 10 seats for C7 was arrived at. We are advised by Convergys that from their knowledge of the industry a ratio of 1 call centre person to 3000 customers is typical with a lower ratio in early, high growth phases. (This is broadly consistent with FOXTEL numbers.) Hence Telstra does not believe 10 seats to be at all practical unless C7 have very low expectations of customer take-up – particularly if this number of staff must handle sales, service, billing enquiries, collections etc on a 7x24 basis.*
>
> *Given that Telstra call centre staff do not access C7 systems and customer billing is to be undertaken by C7 systems, the call centre staff will be unable to resolve many billing enquiries. Even if there is a separate C7 call centre for billing matters, C7 will still be unable to completely resolve many billing enquiries as it may also be necessary to access Wizard because this is where the service is activated and assured. The proposed model is impractical."*

In terms of a time frame to implement a proposed call centre on behalf of C7, Telstra advised:

> *"We do not believe it is meaningful to comment on the timing when Telstra has not been given sufficient information by C7 as to the required roles or resourcing of the call centre. This is a matter for commercial discussion by C7 and Telstra."*

5.3.3.4 The extract from the Telstra SMS to C7

In response to C7 on what some of the parameters required to obtain data from Telstra to the C7 database, C7 advised:

> *"In the short term, C7 are prepared to be flexible. C7 believe the data will be passed from Telstra to a nominated C7 location via a batch task e.g. to an electronic email address. When the status of a customer changed (ie change of address, disconnection etc) this information will need to be sent to the C7 Data Centre for the appropriate changes / actions to be taken in the customer data base. C7 would only want C7 customer data from Telstra."*

Foxtel's response, in terms of impact on such an extract being performed was as follows:

> *"Unacceptable that C7 should have access to Foxtel data (even though a third party such as Telstra).*
>
> *An analysis would need to be conducted to evaluate the required modifications to FOXTEL SMS:*
> *Will take approximately a month for C7 to specify the reports needed from the SMS. C7 and Telstra would then need to go into development.*
> *These specifications would need to be determined before further comment can be given.*
>
> *Billing and Reporting modifications to FOXTEL's existing systems will require evaluation. The time for this task was initially estimated at 2 ½ months based on assumptions of C7's operation and previous experience."*

Telstra advised that it was not possible to provide an estimate in relation to timing or complexity due to a lack of detailed information, together with a billing constraint identified within the current SMS. The response from Telstra on the impact of the extract is:

> *"We now understand label (3) to indicate a batch data transfer from the Telstra systems at Southbank to the C7 systems. The batch extract for this would need to be developed.*
>
> *We are unable to speculate on the timing and complexity of this batch interface as we have no information on what data is to be sent, how much data is involved, how often it is sent, how quickly it must arrive, how errors/retries etc are to be handled or what data security is required.*
>
> *There is also a serious technical problem with the proposed approach to billing beyond the customer support and process problems referred to previously. When a customer purchases the C7 service, we assume this will be done via a call to the proposed Telstra call centre. As part of the sign-up process the customer would need to provide payment information. Given that the Telstra call centre has no access to the C7 billing system and no other form of communication is evident in the model, it is unclear how this payment information is to be passed to the C7 systems to effect billing. We assume the expectation is that the extract from Wizard will contain this information. However given that C7 customers must also be FOXTEL customers, a payment mechanism will already be registered in Wizard for the customer's FOXTEL service. Wizard does not have provision for two payment mechanisms for different tiers. Consequences of this include:*
>
> - C7 and its customer need to use exactly the same payment method (credit card, direct debit, statement) and payment instrument (eg. AMEX, MasterCard, specific bank account etc.) as FOXTEL.
> - The extract process now involves transmission of confidential FOXTEL payment information to C7.
>
> *This approach would inhibit current plans to develop new methods of payment that would not be available to C7, representing a serious impediment to Telstra and FOXTEL's business."*

Telstra's response to the concept of using e-mail for the delivery of the batch extract suggests that there are strong concerns in using such an approach.
The response is:

> *"Email is generally not a suitable mechanism for system to system communication. However whether it would work reliably or not is dependent on how much data is involved, how often it is sent, how quickly it must arrive, what error handling is required, security requirements etc. We have not been provided with any of this information. It is generally not possible to reliably transmit large volumes of data via email in a timely and predictable way. In addition, if the email travels via the Internet there would be issues associated with the security of FOXTEL and C7 customer data (presumably including billing and credit information).*
>
> *Further, push transfers of data from Wizard to an external system can be expected to result in lower reliability and higher support costs for Telstra due to transfer failures resulting from problems at the receiving end that are beyond the operational control of Telstra."*

5.3.3.5 The Foxtel Call Centre

The interview with C7 confirmed C7 understood there would operational issues for the Foxtel call centre to consider should the model be implemented.

Telstra's comment advised that:

> *"As mentioned above, there may be a requirement for additional training of FOXTEL call centre staff. FOXTEL would be best placed to advise on other impacts."*

Foxtel agreed that their call centre would be impacted, however it was difficult for them to assess as they believe a greater study on the model, both technically and operationally is required. As stated by Foxtel:

> *"Foxtel call centre likely to be impacted through additional operational process for example, if C7 information appears on the FOXTEL bill.*
>
> *Again full analysis of this new model is required to investigate both the technical and operational impacts on the existing FOXTEL business."*

5.3.3.6 Assessment of model

While the model at first may appear as a "quick and uncomplicated" solution to implement, the points raised by the parties have highlighted that this is not the case. In particular, the operational constraints that would be presented should a model such as this be considered (as with Options 2A and 2B) would be too significant to allow this model to be deemed practical.

Foxtel have objected to the model on a number of operational issues including security and integrity of their data. Foxtel objects to Foxtel data being accessed by any 2nd party to support C7's business processes.

Intellectual Property (IP) from a present and future perspective has been flagged as a concern from both Foxtel and Telstra. Should this model be implemented, C7 would be able to benefit from the 6 years of investment Foxtel has made in the current SMS. New Foxtel initiatives would be highlighted to C7 before they were implemented which would reduce Foxtel's competitiveness.

Both Telstra and Foxtel have advised that greater detail on the proposed C7 model would need to be obtained to be able to provide estimates on impact in terms of time. This has been a recurring theme throughout this exercise and it is strongly recommended that any subsequent exercise that is undertaken, start by having a structured process to obtain tightly defined business requirements.

Technical components of work to also consider include the modification of "channels" used by Foxtel to utilise data from the SMS. These channels include the screens (used by CSR's) at the call centre, reports used to manage the Foxtel business and data extracts to Foxtel's data warehouse.

Each of these areas has a technical consideration in the implementation of the model being discussed. In terms of the screens, Foxtel will see and have the capability to read and update C7 data as will the Telstra call centre to Foxtel data. This presents a "data integrity" risk under this proposed model.

The reports and data warehouse extracts would normally need to be modified for two reasons. The first is that C7 would not want their data made available to Foxtel. (C7 maybe prepared to relax this requirement and allow Foxtel to see their data if it would assist the speed in deploying this model). The second reason is that Foxtel uses these channels to assist in the management of their business through Key Performance Indicator (KPI) and other management reports. These reports without modification would contain C7 data and potentially provide an inaccurate measure for Foxtel to base its decisions.

Technical work would also need to be conducted on the SMS to introduce another tier as well as work being required to ensure the Foxtel bill does not have a C7 entry. The CAG would also require a component of re-configuration that is not expected to be on the critical path to implementation.

The capacity of the SMS is also a consideration and, as described earlier, the system is currently operating close to the boundaries of acceptable performance. The C7 proposal would need to be considered from additional processing and storage capacity requirements.

Foxtel also advised that a substantial amount of work to "undo" the C7 requirements on transition/decommission of this model would be needed.

Other technical considerations include the "[redacted] -subscriber license" limitation and how the current license agreement limits the use of the software to Telstra and Foxtel subscribers only. These are valid points that will take a component of time to resolve with the vendor. As described previously, collaboration would be needed with all parties. This would require a formal request to the vendor to assess the availability of resources.

Apart from Foxtel objecting to any 2nd party performing a call centre service on behalf of C7 and accessing Foxtel's data, Telstra have suggested that the specification of 10-seat call centre performing similar functionality to Foxtel is impractical. As discussed above at section 3.3, the Foxtel call centre performs a number of functions and the industry standard for call centre personnel to subscribers is 1 to 3000. Based on a 10-seat call centre, the industry standard would suggest 30000 subscribers could be catered for. This does not appear practical (unless C7 expect low customer take-up) and again reiterates the need for the parties to collaborate to determine a tightly defined set of business requirements.

In terms of the data extract, C7 have indicated a willingness to be flexible to implement such a mechanism. Foxtel have indicated that it would unacceptable for Foxtel data to be made available to C7 (even through a third party such as Telstra). Telstra have advised that development of a batch extract would need to have tighter detail than what has been proposed. Again this can be achieved by collaboration and a willingness to obtain the defined business requirements.

Finally, the Foxtel call centre will be impacted should such a model be implemented and processes will have to be introduced to ensure their staff is aware of the C7 package (as a minimum). Foxtel advise that a complete impact analysis could not be provided until a greater study from both a technical and operational perspective is completed.

In summary, the technical components described will take a component of time. Both Telstra and Foxtel have indicated that tighter business requirements are needed for any model to be assessed and, as stated previously, it is strongly recommended that any further assessments be undertaken by initially having collaborative meetings to finalise these business requirements.

There are technical tasks such as the modification of reports and assessment by the vendor with the parties on the new model, which are liable to move this model beyond a "short-term" model (could possibly be greater than 4 months). However, the major issue that this model is deemed impractical is the operational constraints that are the same as those with Options 2A and 2B.

5.4 Other Issues

5.4.1 Are there technical advantages in Telstra and/or Foxtel providing both SMS and call centre services?

> *While the Commission has indicated that it may not be a legal requirement for Telstra to provide call centre services to C7, the Commission is interested to know if this approach may have significant technical advantages over other options. Technical advantages may be such as to render a fully integrated SMS/call centre service "necessary" for C7 to gain reasonable access to the declared service*[25].

As described throughout the paper, the agreed definition of C7 business requirements in consultation with the parties would complete the first step in a structured process towards achieving, amongst other deliverables, a technical solution. It is this agreed solution that would have considered the merits of an integrated service that includes the technical advantages of SMS/Call centre integration.

C7 call centre functionality can be outsourced or managed internally, while it may appear there are technical advantages in having an integrated SMS and call centre service, the cost in terms of time and resource to both deploy and support this infrastructure may render this alternative as marginal in its return. For Telstra to provide specific information on items such as call centre to SMS interface requirements, the response dated 27 July 2001 states

> *"…the call centre interface would require network design once sufficient information regarding C7's Call Centre requirements is provided to Telstra by C7."*[26]

To answer this question effectively, the C7 call centre requirements would have the greatest influence as to whether C7 wished to outsource this functionality to Telstra, Foxtel or any other party.

Examples of these requirements could include; the number of call centre representatives C7 intends to use in both initial take-up and on-going and is it worth implementing state of the art technology, at what cost for what return. What is acceptable to C7?

[25] See Freehills 21.08.01 para 72.
[26] Fax from Telstra to C7 27.07.01

5.4.2 SMS solutions for the interim and the final determinations

Should there be a different SMS solution for interim access, as distinct from that which might apply in a final determination? Alternatively, should the same SMS solution be applied for both interim and final determination purposes?

> *The interim determination provides for access to 2 channels for C7 which is the same number provided to C7 during the broadcast of the 2000 Olympics. Would it be appropriate to apply the SMS and other arrangements determined at that time for interim access[27] but apply a different arrangement for the final determination where C7 have requested access of up to 8 channels[28]?*

In terms of implementing a solution before the expiry of the existing interim determination date (5 April 2002), it appears there is no solution that can be considered. Therefore, in working together collaboratively, the parties can focus their energies on identifying the appropriate solution for the final determination.

Option 1 at this point in time appears to be technically feasible and offers relief from the operational constraints that apply to the other options for the final determination.

In undertaking Option 1, C7 could assess the merits of internally managing or outsourcing the end to end process of selecting, deploying and supporting the C7 SMS. For example, C7 may wish to negotiate with Telstra on providing the SMS services on a separate infrastructure.

One of the obvious benefits of considering this approach would be to leverage from Telstra's existing experience and relationships developed through offering the Pay-TV support for a number of years. As tabled within the Telstra document "Proposal for end to end customer management process" dated 27 July 2001,

> *"Telstra's IT Media Solution centre at Southbank has the capacity to satisfy this requirement. It has established relationships with the appropriate software vendors (Convergys for the SMS, NDS for the CAG, EDS for Operations, BDT for Reporting, DBA for database management)."*[29]

[27] It should be noted that C7 is seeking a variation to the current interim determination to the extent of seeking access to an additional 4 channels. This request is currently being considered by the Commission.
[28] The channels that C7 may have access to at that time will depend on the decisions taken by the Commission in relation to capacity of the cable and reasonably anticipated requirements and the requests of other access seekers.
[29] Telstra paper dated 27.07.01

5.4.3 Additional Advice

Advice is also sought on:

a) *the extent to which any of the options which have been identified will require access to information belonging to Foxtel and the nature of the information to which access will need to be given; and*

b) *precisely which systems C7 would need access to in order to implement a particular option.*

Part B of this query has been answered with each of the specific options.

In terms of Part A, Foxtel provided a definition of Foxtel data as follows:

> *"Any Foxtel data active, and including historical data that contains customer and ex-customer information. Customer Name, Address, Phone number etc. This includes any current or historical transactional data associated with a FOXTEL customer. This data also includes data for customers that is not currently active."*

Foxtel highlighted that whatever solution is implemented, it is the security of data and the preservation of current service levels that are the most important considerations. As captured:

> *"Concerns with regard to FOXTEL confidential Customer information being 'available' to C7. This would need to be dealt with at a business level."*
>
> *"Foxtel believe that C7 would need to go through a process of 'attracting' customers (i.e. Marketing, Calls etc) to obtain the necessary information before C7 can access the Smart Card database information. That is, no 'trawling' of the Smart Card or other databases that contain FOXTEL information is permitted.*
>
> *FOXTEL believes that a proactive approach is required to prevent inappropriate access to FOXTEL or Telstra confidential information via access to databases. A monitoring system could be implemented. This would be a reactive process, placing Telstra in a position of having to make a decision on what constituted a breach of the obligation or inappropriate use after a potential incident had occurred. It is FOXTEL's view that a system that prevents inappropriate use must be implemented."*
>
> *"Security of data between Foxtel SMS and C7 SMS. How this would be secured. This holds the greatest issue. Also to preserve the current performance of the systems."*

Within option 1, relevant smart card data will be required as described previously within this paper. This is proposed to be held in a separate database. It is expected that this data will also hold the appropriate advice on whether a potential C7 customer is an active Foxtel subscriber and any other relevant data deemed necessary to allow the solution to work. This can be confirmed through the proposed collaborative meetings in follow-up steps to this exercise.

6 Recommendations on moving forward

During the previous 8 weeks, the three parties Telstra, Foxtel and C7 have separately provided (through interviews) feedback on technical and operational issues in relation to the models that have been proposed.

The results of which have shown there is no “quick and uncomplicated” solution that can be implemented and used by C7 to take its offering to the market for the short term. i.e. before the expiry of the interim determination.

These meetings, as stated were held with the individual parties and in moving forward it is recommended that a structured set of collaborative meetings between the parties are held with facilitation by the ACCC. Throughout the submissions and the interviews; the issue of finalising business requirements has been flagged many times by the individual parties. The collaborative meetings can address these concerns

Of the options discussed, Option 1 is the most attractive, in terms of technical and operational feasibility. In particular the separate SMS provides for greater independence from other parties such as Foxtel and BigPond.

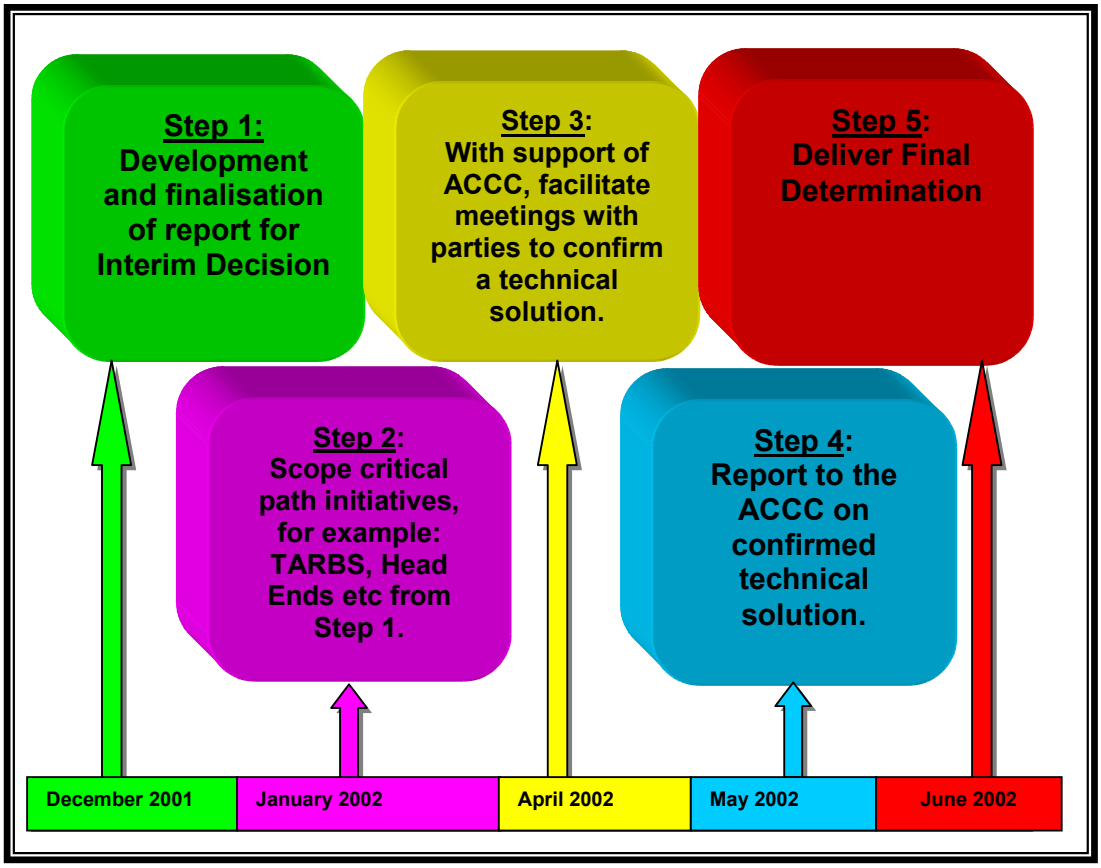
Significant issues that are outside the scope of this consultancy but could quite feasibly affect the delivery of an end-to-end solution include requirements in relation to the head end equipment. That is, “to the head end” and “through the head end” issues. It is recommended a small project be undertaken to determine what is required given the difference of perceptions with the parties.

Another recommendation is to review the progress with TARBS to identify what can be utilised for the C7 arbitration.

Finally, I suggest scoping a “structured approach” to collaborative meetings in consultation with the parties to ensure that “ground-rules” are set and agreed for the execution of the meetings.

Below is a 5-step approach for the ACCC and parties to consider in moving forward to a final determination with very tentative end-dates for consideration.

Milestones in moving forward to a Final determination:



7 Summary

The purpose of this consultancy has been to provide independent technical advice in relation to the Analogue Subscription Television Broadcast Carriage Service disputes.
This paper represents the advice on the technical merits and difficulties of the three options that are:

- *Option 1 – C7 develops its own SMS to interact with Telstra's conditional access system, Telstra's (or Foxtel's) SMS and related databases, systems and services.*
- *Option 2 – C7 uses Telstra's SMS*
- *Option 3 – Any other technically feasible option*

The approach adopted was to use the independent expertise together with the existing submissions to develop a suite of questions tailored for each of the individual parties (Telstra, Foxtel and C7).

For the first phase, (up until the release of the draft interim report), interviews with each of the parties were conducted and a secondary interview (on completion of a gap-analysis) was conducted to gather further information. The concept being to make the process as transparent as possible, that is, the findings should be able to be traced back to either the submissions or the information capture from the interviews where possible.

For the extended phase (from release of interim report until release of final report), one further set of interviews were conducted with each party to specifically:

- *Assess the C7 short-term Pay TV model*
- *Further investigate the estimate on the length of time to implement Option 1 and*
- *Finalise the interim report.*

The results found that there was no "quick and uncomplicated" solution that could be considered to be deployed before the expiry of the interim determination.

Option 1, which is where C7 has its own SMS, is technically feasible and is the most attractive in terms of operational issues, in particular it provides the greatest degree of party independence.

In obtaining an accurate estimate of time for Option 1, further work in collaborative meetings between the parties are required, with a view to finalising defined business requirements to the satisfaction of all parties.

Option 2 was considered from 2 perspectives, the first as a separate database instance for C7 within the existing single SMS. (This would equate to three instances with Foxtel and Bigpond). This option though technically feasible presented enormous operational difficulties.
The second perspective, a modification of the existing Foxtel database running on the single current SMS would see C7 and Foxtel independently manage their own subscribers. This proved to be both technically and operationally infeasible.

Option 3 highlighted three models, the first known as the "Olympic model". This was considered to be a possible solution from the quick ramp-up experienced during the Olympics 2000. This however, was assessed and it showed C7 was performing a content provision role. Foxtel was proving the complete Pay-TV management role.

The second Option 3 model was a manual model that was flagged as a possible "quick and uncomplicated" solution proposed by Foxtel. Telstra confirmed that this model was technically infeasible and C7 confirmed that it would be an inappropriate model due to an unacceptable customer delay in receiving the service. This model has been discarded.

The third model which was assessed was the C7 short-term Pay TV model and there are a number of technical tasks including the modification of reports and assessment by the vendor with the parties on the new model, which are liable to move this model beyond a "short-term" model.
However, the major issue why this model is deemed impractical is the operational constraints that are the same as those with Options 2A and 2B.

Finally, an approach on how to move forward has been tabled, with tasks relating to head end equipment issues to be confirmed. (both "to the head end" and "through the head end"), determining progress of the TARBS initiative and how the experience may be applied for the C7 project and also scoping and execution of collaborative meetings to progress forward to a final solution.

END OF REPORT

8. Appendices

Appendix A – Interview Schedule

Party	Attendee's	Date	Location	Session
C7	Charles Dougall (C7) Tony Palmer (C7) Mark Ettridge (ACCC) Mark Richmund (ACCC)	11 Oct 2001	ACCC - Melbourne	1
		23 Oct 2001	ACCC - Melbourne	2
		26 Oct 2001	ACCC - Melbourne	3
		03 Dec 2001	ACCC – Melbourne (Tele-conf to Sydney)	5*
	Charles Dougall (C7) Mark Ettridge (ACCC) Mark Richmund (ACCC)	30 Nov 2001	Tele-conference	4* (Initial Meeting)
Foxtel	Peter Smart (Foxtel) Lynette Ireland (Foxtel) Adam Herron (Foxtel) Jeffrey Smith (Foxtel) Mark Ettridge (ACCC) Mark Richmund (ACCC)	16 Oct 2001	Pyrmont - Sydney	1
		24 Oct 2001	Tele-conference Melbourne to Sydney	2
	Peter Smart (Foxtel) Adam Herron (Foxtel) Jeffrey Smith (Foxtel) Mark Ettridge (ACCC) Mark Richmund (ACCC)	10 Dec 2001	Tele-conference Melbourne to Sydney	3*

* Additional meetings held due to extension of the original Draft Report scope.

Party	Attendee's	Date	Location	Session
Telstra	[redacted] (Telstra) [redacted] (Telstra) [redacted] (EDS) [redacted] (NDS) [redacted] (Convergys) Mark Ettridge (ACCC) Mark Richmund (ACCC)	19 Oct 2001	ACCC - Melbourne	1 (Preliminary Meeting)
	[redacted] (Telstra) [redacted] (Telstra) [redacted] (Telstra) [redacted] (EDS) [redacted] (NDS) [redacted] (Convergys) Mark Ettridge (ACCC) Mark Richmund (ACCC)	22 Oct 2001	ACCC - Melbourne	2
	[redacted] (Telstra) [redacted] (Telstra) [redacted] (EDS) [redacted] (NDS) Mark Ettridge (ACCC) Mark Richmund (ACCC)	25 Oct 2001	ACCC - Melbourne	3
	[redacted] (Telstra) [redacted] (Telstra) [redacted] (Telstra) [redacted] (EDS) [redacted] (Convergys) Mark Ettridge (ACCC) Mark Richmund (ACCC)	12 Dec 2001	ACCC – Melbourne (Tele-conf to Sydney)	4*

* Additional meetings held due to extension of the original Draft Report scope.

Interview Question Approach

Step 1
Defined scope for Option 1 and 2

Step 2
Defined an Objective for each of Option by Item:
Technical
Implementation
Cost
Reliability

Step 3
For objective, create questions.

Step 4
Compile Interview Document 1.

Step 5
Send Interview Document 1 to Party.

Step 6
Conduct First Interview.

Step 7
Capture responses into document.

Step 8
Captured responses QA'ed by Party.

Step 9
Document for interview 1 finalised.

Step 10
Conduct GAP Analysis on Interview document 1:
Identify outstanding responses.
Compile Q's from other parties.
Produce answered to Q's
Capture of Final information from 2nd interview

Step 11
Repeat steps 5 – 9 for follow-up interview.

Input — **Independent Expertise**

Submissions — **Input**

Step 12 Draft Document to ACCC

Input

Repository

Output

Step 13
Reviewed by ACCC and Release to Parties

Step 14
Obtain Feedback from parties

Step 15 Incorporate appropriate changes and release Final Paper