C.o.T. Cases Australia

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12 January, 1998

Our Ref: 3605.doc

Attention: Sue Laver
Telstra
By facsimile: 9632 0965.
Total pages (including this page) : 48.

Dear Ms Laver,

Re: C.o.T. Submission to the Chair of the Working Party.

Enclosed is a copy of C.o.T. submission sent to the Chairman of the Working Party.

Yours sincerely,

Graham Schorer
C.o.T. representative to the Working Party.

Benjamin
Armstrong
Kearney
Levy
Mounsher
Fitness
L. Brown / M. Lean

Holding Redlich - David Andrews
Freehills - Peter Butler / C. Thompson
L. Chisholm
Deloittes / Dr. Hopkins

File.....SENATE ESTIMATES CORRESPONDENCE...

C.o.T. Cases Australia

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12 January, 1998

Our Ref: 3598.doc

Attention: Mr John Wynack
Chair, Working Party
Senate ERCA Legislation Committee
By facsimile: (08) 249 7829.
Total pages (including this page) : 47.

FAXED 12/01/98

Dear Mr Wynack,

Re: Outcome of 16 December 1997 Working Party meeting.

Telstra's refusal to comply with the Working Party requests.

Both Ann Garms and myself have received, read and discussed the contents of the Transcript of the 16 December 1997 Working Party meeting. Our discussions have included Telstra's failure to positively apply themselves to the Working Party's Amended Terms of Reference (AToR) during the ten weeks the Working Party has been meeting.

We are both in agreement Telstra has, during the life of the Working Party, deliberately applied tactics to limit, delay or prevent discovery of information and documentation.

The information and documentation Telstra has refused to discover is the same information and documentation Telstra must discover to comply with the Senate Committee's AToR.

Mr Armstrong's failure to disclose his known non-availability to the Working Party was outrageous.

Telstra has engaged in conduct that has demonstrated its contempt for the existence and objectives of the Working Party. There are many individual people relying upon the Working Party meeting its obligations to the Senate Committee. The next instance of like Telstra conduct will require the Working Party to consider the need to request for the Senate Committee's intervention.

To avoid future misunderstanding or confusion, the C.o.T. Working Party representatives are clarifying with the Chairman the C.o.T. requirement for Telstra to immediately comply with Part 2, Point 3 of the AToR still exists.

With reason, the C.o.T. representatives assert it is essential that Telstra immediately comply with Part 2, Point 3 of the AToR, as it is the only starting point that will enable the Working Party to make progress.

The Chairman of the Working Party is formally requested by both C.o.T. representatives to again request Telstra immediately comply with Part 2, Point 3 of the AToR.

The Chairman's attention is drawn to the fact Telstra need to include in its written advice, to comply with the Committee's requirement under Part 2, Point 3 of the AToR, the following:-

- All of the changes made to the network or networks serving each Party that incurred during the total period of each Party's dispute, plus identify dates of all changes.

- Within each Party's customer catchment area i.e. *the geographical location in which the majority of each Party's customers reside,* list all those exchanges which had circuits directly linked to the exchanges nominated by each Party responding to the AToR.

- From within each Party's catchment area, list all:-

  a) IDN entry and exit routes used by the PSTN network to transmit incoming calls to each Party's business telephone service.

  b) IEN entry and exit routes used by the PSTN network to transmit incoming calls to each Party's business telephone service.

  c) exit routes from the PSTN network into the ISDN network serving each Party's ISDN business telephone service.

  d) types of exchanges involved in transmitting incoming calls to each Party's business.

  e) major upgrades of those exchanges involved in transmitting incoming calls to each Party's business telephone service.

C.o.T. believe it is imperative for Telstra to be required to distribute this written advice to the Working Party representatives before the next Working Party meeting to enable C.o.T. representatives sufficient time to:-

- become fully conversant with the information contained within Telstra's written advice;
- converse with those people they represent about Telstra's written advice;
- prepare a list of subject matters to be included in the next Working Party meeting;
- prepare a list of questions to be answered by Telstra in the next meeting;
- prepare a list of matters and questions to be discussed with and put to the Working Party's Independent Technical Telecommunications Consultant;
- determine if there are matters that require the Senate Committee's clarification or intervention.

The attached Appendix, by use of one example, sets out the reasons the C.o.T. representatives, reject Telstra's assertions the network diagrams partly comply with Part 2, Point 3 of the AToR. C.o.T. state the diagrams supplied to the Working Party do not, even in part, comply with the AToR.

Included in the attached Appendix are specific questions that need to be put to Telstra's Technical representative and the independent Technical Consultant to the Working Party.

Yours sincerely,

ANN GARMS & GRAHAM SCHORER
The C.o.T. Working Party Representatives.

APPENDIX.

Telstra and CoT/CoT Related Cases Working Party's Amended Terms of Reference (AToR) states, under Part 2, Point 3, *"Telstra must provide written advice, in respect of each Party, identifying the network or networks which were used by Telstra to service the business telephone service of that Party."*

During the Working Party meetings, Telstra provided the Working Party with network diagrams relating to each Party, which they assert complies with Part 2, Point 3 of the AToR.

The C.o.T. representatives to the Working Party have rejected Telstra's assertion on the basis it does not comply.

The example chosen to prove Telstra's network diagrams are defective and only partly identify the network or networks servicing each Party is the network information and diagrams related to Golden Messenger-G Schorer.

There are a number of facts that the reader needs to take into consideration about Golden's client base and the known changes within the Telstra network before addressing the C.o.T. comments about Telstra's network diagram and the reasons for C.o.T. rejection of Telstra's diagrams.

Point 1.

In early 1985, prior to the commencement of Golden's telephone service difficulties, problems and faults:-

a. Golden's clients, who regularly used the company's services, were geographically located in the Greater Melbourne Metropolitan area.

   The geographical boundaries of the Golden client catchment area are defined by the suburbs of Altona, Sunshine, Deer Park, St Albans, Tullamarine, Campbellfield, Thomastown, Greensborough, Lilydale, Kilsyth, Ferntree Gully, Rowville, Doveton and Frankston.

   All of Golden's regular clients were located within Telstra's Melbourne (03) Metropolitan network.

b. All of Golden's client job booking telephone lines were connected to Telstra's North Melbourne ARF analogue exchange.

Point 2.

Telstra documents state:-

In 1984, Telstra converted its Fortitude Valley ARF exchange into an ARE-11 exchange.

In May 1985, Telstra converted its North Melbourne ARF exchange into an ARE-11 exchange.

In mid-1985, Golden's customers started to experience serious telephone service difficulties, problems and faults in making telephone contact with Golden.

Point 3.

Telstra documents state:-

In the early 1980's, Telstra began introducing the Integrated Digital Network (IDN).

In 1987, the IDN network comprised of approximately 15% of Telstra's network.

In 1987, Telstra introduced new routing rules to change the way traffic travelled through the network.

Pursuant to the new rules:

a. traffic destined for the IDN was to be routed as early as possible into the IDN to keep the traffic in the digital network for as long as possible; and

b. traffic originating in the IDN remained in the IDN as long as possible.

The reasons for the new routing rules were that Telstra considered keeping traffic in the IDN longer would:

a. improve the quality of speech transmission;

b. relieve the load on the analogue network (which was going to be phased out); and

c. facilitate the eventual removal of the analogue network.

In order for the analogue network to meet these new rules, different 'IDN Entry' and/or 'IDN Exit' routes were established. Only one IDN Exit route was provided for any analogue exchange.

The IDN Exit route from Footscray AXE exchange ("FSRX") to North Melbourne analogue exchange ("NMEL") was established in 1988. Prior to this route being commissioned, digital traffic travelled to NMEL via the Exhibition and Windsor digital tandems.

When IDN routes were commissioned, there was congestion within these routes, most of which was in the IDN exit routes. The IDN entry routes, as far as congestion was concerned, were generally not as big a problem as the exit routes.

A lot of network congestion during this period of time was primary caused by a lack of junctions in the IDN exit routes coupled with what was a rapid modernisation and conversion to digitisation of the network.

The reason IDN exit route congestion was not remedied when first noticed was because Telstra, in those days, purchased this equipment in annual orders, which has to be finalised within six months of delivery of equipment. The equipment would then be installed and commissioned in the following twelve months. Consequently there was up to an eighteen months delay between ordering of equipment and its final commissioning.

Because of Telstra's equipment ordering installation and commissioning procedures, it was not possible for Telstra to remedy congestion in a short time frame.

In late 1992, Telstra applied these "new" rules relating to IDN entry and exit routes to the Fortitude Valley analogue exchanges.

Point 4.

Telstra documents state:-

In 1983, Telstra began replacing analogue exchanges with digital AXE exchanges.

Digital AXE exchanges have a CL software blocks placed in front of their central processors. If these software blocks are underdimensioned, congestion will occur within the network and the exchange. This is evident by the network presenting symptoms to the caller and called party which can cause various types of customer complainte.

When CL software blocks are underdimensioned, symptom, if a CL record is not available, a telephone call through an AXE telephone exchange to an analogue destination affects other than congestion may also be evident.

In late 1988, the Melbourne division of National Network Investigations, in response to Golden's continuous complaints, discovered Telstra personnel responsible for network and exchange performance, were not aware of:-

- existence of CL software blocks placed in front of digital AXE exchange central processors.
- what the functions of CL software blocks did.
- the need to measure if CL software blocks were underdimensioned.
- how to measure if CL software blocks were underdimensioned.
- their need to monitor performance of the CL software to maintain network performance.
- how to measure network performance to detect underdimensioning within CL software.

Point 5.

Telstra documents state:-

There was a systemic problem within Telstra's network that prevented Parties connected to analogue exchanges from receiving incoming calls when:-

- the A Party, call originator, was using a certain types of Commander telephones (key telephone systems), and was connected to AXE exchange, and was ringing B Party, intended call receiver, who was connected to an analogue exchange.
- the A Party, call originator, was using a certain types of Commander (key telephone systems), and the call used a route that encompassed an AXE exchange, and was ringing B Party, intended call receiver, who was connected to an analogue exchange.

Point 6.

Telstra had not provided documents to Bova, Honner and Plowman identifying the information contained in Points 2 to 5 of this Appendix.

Point 7.

Telstra personnel have stated to Ann Garms and/or Graham Schorer the following:-

The C.o.T. saga taught Telstra many things about how its management of the network was causing telephone service difficulty, problems and faults to the Parties intended to receive a telephone call.

The most important thing Telstra learnt was:-

Its management of the network was causing unnecessary congestion as a result of lack of consultation between the parties responsible for changing how traffic flows through the network.

Telstra had many cells of people responsible for monitoring performance of network routes. When each cell introduced changes as a result of performance measurements, where changes included reconfiguration of routes, redimensioning of routes, these cells of people were not communicating with one another about intending changes to be made to the network, or recent changes made to the network.

As a result of C.o.T. escalating complaints, Telstra initiated a major investigation. This investigation uncovered the work practices that was introducing congestion into the network.

Before the Telstra investigation, originally in Melbourne, there was over 30 cells of people performing such tasks. As a result of the Telstra investigation, Telstra reduced the number of cells to 5, plus introduced procedures that no changes could be made to the network until all 5 cells were consulted and agreement was reached on the proposed changes.

This work practice problem was nationwide, it did not just apply to Melbourne.

Point 8.

Reasons Telstra's network diagrams related to Golden Messenger-G Schorer are rejected by the C.o.T. representatives on the Working Party is that they do not identify:-

1. All of the network or networks that were used by Telstra to service the business telephone service of Golden during the total period of Golden's dispute with Telstra (which is from 1985 to 31 December 1996).

2. All changes within the network or networks that were used by Telstra to service the business telephone service of Golden during the total period of Golden's dispute with Telstra (which is from 1985 to 31 December 1996).

3. All of the exchanges within Golden's customer catchment area which had circuits linking directly into the North Melbourne (03) 329 ARF and ARE-11 analogue exchanges.

4. The number of circuits between all of the exchanges within Golden's customer catchment area which had circuits linking directly into the North Melbourne (03) 329 ARF and ARE-11 analogue exchanges.

5. All of the major upgrades to existing exchanges within Golden's customer catchment area which were used by Telstra to service Golden's business telephone, including the period of the upgrades.

6. All of the replacement of analogue exchanges to AXE and/or digital exchanges within Golden's customer catchment area which were used by Telstra to service Golden's business telephone, including the period of the upgrades.

7. All the IEN networks within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

8. All of the IEN network entry and exit routes within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

9. All of the changes made to the IEN network within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

10. All of the IDN networks within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

11. All of the IDN network entry and exit routes within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

12. All of the changes made to the IDN network within Golden's customer catchment area which were used by Telstra to service Golden's business telephone.

13. All of the exit routes from Telstra PSTN network within Golden's customer catchment area which were used by Telstra to service Golden's ISDN business telephone.

SPECIFIC COMMENTS ABOUT EACH NETWORK DIAGRAM. (Copies enclosed.)

Point 9.

Re: Network Configuration at 1985 - (Telstra's Appendix 1, Figure 1).

This diagram does not identify:-

a) at what period in 1985 this network diagram relates to.

b) the number and type of changes that took place between 1985 and 1992, that occurred within Golden's customer catchment area, within the network or networks that were used by Telstra to service Golden's business in North Melbourne.

c) the network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARF analogue exchange.

d) the type of exchanges within the type of network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARF analogue exchange.

e) the network information identified in Points 3, 4, 7 & 8 of this Appendix.

f) the network configuration when the North Melbourne (03) 329 exchange was an ARF analogue exchange in early 1985.

g) the number of direct circuits from Blackburn ARE to North Melbourne ARE-11.

h) the number of circuits in the second and third choice routes from Blackburn to North Melbourne.

Point 10.

Re: Network Configuration at 1992 - (Telstra's Appendix 1, Figure 2).

This diagram does not identify:-

a) at what period in 1992 this network diagram relates to.

b) the number and type of changes that took place between 1985 and 1992, that occurred within Golden's customer catchment area, within the network or networks that were used by Telstra to service Golden's business in North Melbourne.

c) the network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne.

d) the type of exchanges within the type of network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne.

e) the network information identified in Points 3, 4, 7 & 8 of this Appendix.

f) the number of direct circuits from Blackburn ARE to North Melbourne ARE-11.

g) the number of circuits in the second and third choice routes from Blackburn to North Melbourne.

h) the IEN and/or IDN networks, including the location of their entry and exit routes used by Telstra to service Golden's business in North Melbourne.

Point 11.

Re: Network Configuration at 1993 - (Telstra's Appendix 1, Figure 3).

This diagram does not identify:-

a) at what period in 1993 this network diagram relates to.

b) the number and type of changes that took place between 1992 and 1993, that occurred within Golden's customer catchment area, within the network or networks that were used by Telstra to service Golden's business in North Melbourne.

c) the network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARE analogue exchange.

d) the type of exchanges within the type of network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARE analogue exchange.

e) the network information identified in Points 3, 4, 7 & 8 of this Appendix.

f) the network configuration from Blackburn to North Melbourne when the North Melbourne (03) 329 exchange was an ARE analogue exchange.

g) the number of direct circuits from Blackburn ARE to North Melbourne ARE-11.

h) the number of circuits in the second and third choice routes from Blackburn to North Melbourne.

i) the IEN or IDN networks used by Telstra to service Golden's business in North Melbourne.

Point 12.

Re: Network Configuration at 1996 - (Telstra's Appendix 1, Figure 4).

This diagram does not identify:-

a) at what period in 1996 this network diagram relates to.

b) the number and type of changes that took place between 1993 and 1996, that occurred within Golden's customer catchment area, within the network or networks that were used by Telstra to service Golden's business in North Melbourne.

c) the network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARE analogue exchange.

d) the type of exchanges within the type of network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's business in North Melbourne when the North Melbourne exchange was an ARE analogue exchange.

e) the network information identified in Points 3, 4, 7 & 8 of this Appendix.

f) the network configuration from Blackburn to North Melbourne when the North Melbourne (03) 329 exchange was an ARE analogue exchange.

g) the number of direct circuits from Blackburn ARE to North Melbourne ARE-11.

h) the number of circuits in the second and third choice routes from Blackburn to North Melbourne.

i) the IEN or IDN networks used by Telstra to service Golden's business in North Melbourne.

Point 13.

Re: Network Configuration at 1998 - (Telstra's Appendix 1, Figure 5).

This diagram does not identify:-

a) at what period in 1998 this network diagram relates to.

b) the number and type of changes that took place between 1992 and 1998, that occurred within Golden's customer catchment area, within the network or networks that were used by Telstra to service Golden's ISDN business telephone in North Melbourne.

c) the network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's ISDN business telephone.

d) the type of exchanges within the type of network or networks configuration within Golden's customer catchment area which was used by Telstra to service Golden's ISDN business telephone.

e) the network information identified in Points 3, 4, 7 & 8 of this Appendix.

f) the number of direct circuits from Blackburn ARE to North Melbourne ARE-11.

g) the number of circuits in the second and third choice routes from Blackburn to North Melbourne.

h) the IEN or IDN networks used by Telstra to service Golden's ISDN business telephone.

QUESTIONS TO BE PUT TO TELSTRA'S TECHNICAL REPRESENTATIVE AND THE INDEPENDENT TECHNICAL CONSULTANT APPOINTED TO THE WORKING PARTY:

As Telstra had a duty of care to review the procedures, functions, monitoring results and analytical results, including making inquiries of the departments responsible for network performance, all of which are identified within the C.o.T. provided Extracts from Telstra's Network Products, Network Operations Directory, when responding to the nature, type and frequency of complaints lodged with it about telephone service difficulty, problems and faults by C.o.T. and C.o.T. Related Cases,

one of the questions put to both Technical persons on the Working Party is:-

Which of the procedures, functions, monitoring results, analytical results, departments identified in the C.o.T. provided Extracts from Telstra's Directory are not applicable in relationship to identify:-

- reasonable causal link within Telstra's network to the telephone service difficulty, problems and faults experienced by C.o.T. and C.o.T. Related Cases?
- the extent of the causal link to call losses experienced by C.o.T. and C.o.T. Related Cases?
- the consequential losses experienced by C.o.T. and C.o.T. Related Cases as a result of Telstra misinforming the customers of C.o.T. as to the reasons why they were unable to make successful telephone contact?
- the consequential losses experienced by C.o.T. and C.o.T. Related Cases as a result of Telstra misinforming C.o.T. as to the reasons why their customers were unable to make successful telephone contact?

The C.o.T. provided Extracts number 168 separate categories contained within 9 pages, copy enclosed.

The **second question** to both the Technical personnel is:-

a) How will they identify that the Telstra personnel responsible for network and exchange performance did not monitor and test for underdimensioning within the CL software blocks placed in front of digital exchanges' central processors?

b) The extent of the CL software problem and its resultant effect on C.o.T. and C.o.T. Related Cases' inability to receive incoming telephone calls?

c) The total period of time the CL software problem impacted upon C.o.T. and C.o.T. Related Cases' inability to receive incoming telephone calls?

The **third question** to both the Technical personnel is:-

a) How will they identify the existence and the extent of systemic problem within Telstra's network that prevented Parties connected to analogue exchanges from receiving incoming calls when:-

   - the A Party, call originator, was using a certain types of Commander telephones (key telephone systems), and was connected to AXE exchange, and was ringing B Party, intended call receiver, who was connected to an analogue exchange.
   - the A Party, call originator, was using a certain types of Commander (key telephone systems), and the call used a route that encompassed an AXE exchange, and was ringing B Party, intended call receiver, who was connected to an analogue exchange.

b) The resultant impact upon the C.o.T. and C.o.T. Related Cases' inability to receive incoming telephone calls?

The fourth question to both the Technical personnel is:-

How will they go about proving or disproving the C.o.T. assertion, placed in writing, that parts of the November 1993 Bell Canada International Report is fabricated or falsified?

Enclosed are the 168 listings extracted from Telstra's Directory of Network Products and Network Operations, plus C.o.T.'s written explanation, which alleges to prove that parts of the November 1993 Bell Canada International Report is fabricated or falsified?

Extracts from Telstra's Directory of Network Products, Network Operations, implemented December 1994,

A to K, 20 October 1994,
L to Z, 16 November 1994,

identifying Telstra Departments, procedures, functions, monitoring and testing programs, plus analytical programs used to maintain, rectify and improve network performance.

	CODE	DESCRIPTION
1	AAT [1]	Arbitrated Access Timer (LDDI)
2	ABD	Average Business Day - traffic measurement
3	ABH	Average Busy Hour
4	ABL	Auto blocked
5	ABMA	Marker Relay Set
6	ABR	Answer Bid Ratio - ratio of answered bids to all call bids offered - may b measured at various points in the network - see also ASR
7	AC [1]	Access Cluster (FASTPAC)
8	ACCADS	Alarm Collection Control and Display System - collects data from transmissio switching & radio equipment for transmission to central sites and to AMS
9	ACCS [2]	Access module digital Used to establish a connection from maintenance equipment to subscriber lines.
10	ACM [2]	Answered Call Monitor The Answered Call Monitor is a personal computer based test system f monitoring calls either: • Generated by the tester itself • Generated by other call generating devices or • Generated by a customer
11	ADC [2]	Analogue to Digital Converter
12	ADR	Automatic Disturbance Recorder - a device or aid to continuously monitor t exchange's common control devices using RKRs which pass on faul experienced in the setting up or the switching progression of a call (for ARF ARM) - see also ADX
13	ADRAN	Automatic Disturbance Record Analysis
14	ADRUP	Program for sorting ADR data
15	ADTD	All Day Traffic Distribution
16	ADX	Automatic Disturbance Exchange - transfers ADR call failure messages t SPINE - currently also used to transfer ARE.NCS data (to be transferred v SUPERSORTER when message format changes in June 1992)
17	AFHG	Alarm & Fault Handling Group

18	ANF	Analysis of Network Failure (functions previously performed by NPAC) monitors & analyses network signalling & call failure data, meteri irregularities, and customer complaint information, to produce network fa patterns and assist maintenance activities to ensure speedy recovery o service - see also NMCSS
19	AOMLOG	Software package that runs on a PC - accesses an AOM to initiate traff observations (AXE TROB) & download the results - call data is then output to serial port (or to a floppy disk) - also produces a modified output form suitable for input to CDAS and SPINE - observes one exchange at a time on round robin basis - requires access to a dedicated virtual circuit to the remo exchange for the entire duration of the traffic observations on that exchange written in the C programming language
20	ARF.ASA.SD	ARF ASA program block that produces Summary Data records based up ARF originating traffic - formulated by maintaining counters for different fa types & call classifications (Local, STD, IDD) - obtained in QLD (& partially i WA) via MCU (at 12.00pm, 6.00pm & 10.00pm each day) and via Datage (immediately following a record poll) - record length = 179 bytes
21	ARF.DCA.CD	ARF DCA program block that produces Call Data records based upon 10% all traffic originating from ARF exchanges - produced by passively monitoring analysing the relays of the KS & AN-KS registers with an intelligent extern device - sampling is implemented by reporting every 10th call analysed obtained from the Intelilink NPR facilities - record length = 12 bytes - n monitored by VIC
22	ARFMCT.CMD	A command file used to check an AXE route to an ARE-11 terminal for cal marked as MCT
23	ARFSTATS	Software program that produces performance reports from statistical met data collected by Logger
24	ASR	Answer Seizure Ratio - ratio of calls answered to all calls which sei equipment at a particular point in the network - may be measured at vario points in the network - see also ABR - (note: call seizures < or = call bids)
25	ATLAS	Automatic Transmission Link Alarm System
26	AVALANCHE TRAFFIC	Unnatural traffic demand level
27	AXE.DRPC.CD	AXE DRPC program block that produces Call Data records based upon 10% all AXE originating traffic - call records are transported via the DCN (X.25) t TRAXE
28	AXE.SEQS.SD	AXE SEQS program block that produces Summary Data records based up AXE originating traffic that meets predefined filtering specifications - see al TRAFLOAD
29	AXE.TROB.CD	AXE TROB program block that produces Call Data records based upon AX originating traffic - the analysis algorithm must be configured to select cal based upon an operator defined selection criteria - when the exchan processor has spare time, calls are analysed (as they are initiated) & t TROB data transferred to the destination device (ie file, comms port etc) record length = 76 bytes (91 bytes for CDAS/SPINE format) - see al AOMLOG
30	BALFOR	BALancing and FORecasting of Traffic - an automated traffic planning aid - s also TDAS
31	BDD	Busy During Dialling - refers to a condition of automatic switching wher through plant congestion, the number called cannot be reached.

32	BFRB	Business Fault Reporting Bureau(x) - now Telecom Customer Service Centre
33	BHCA	Busy Hour Call Attempts
34	BHD	Busy Hour Discharge
35	BNU	Busy Not In Use
36	Busy Hour	The hour of the day when the average traffic of an exchange is highest. I Telecom Australia practice, it is defined as the two busiest consecutive h hours commencing at the hour or the half hour. NETWORK - The hour during which the total traffic flow through the netwo under consideration is highest. ROUTE - The hour during which the total traffic flow on a route in question greatest. TIME CONSISTENT - The hour, commencing at the same time each day, f which the total traffic volume of the observed group of circuits is greatest ov the days of observation (usually Monday to Friday)
37	BWN	Busy when not
38	CALL	CONGESTION LOSS - the ratio of the number of first call attempts which we unsuccessful (owing to the unavailability of suitable connection paths) to t total number of first call attempts during the same period of tim DURATION - average call duration = total number of minutes of conversati recorded divided by the recorded number of effective call HOLDING TIME - average holding time = the sum of the durations of all c attempts made by users during the mean busy hour, divided by the tot number of call attempts = the average length of time for which the equipment in use for call attempts. PHASES: • Call Establishment - connection is established between the servic involved in the call • Information Transfer - communication (voice, data etc) occurs between t involved services • Call Disengagement - all connections are released • Billing - the charge for the call is calculated
39	CANES	Customer Access Network Evaluation System - C&C system - provides complete fault registration, recording, diagnosis & analysis environment aim at improving responsiveness to reported faults - uses AI technology - interfac with SULTAN and CPR. See also APPMAN, CIM, DA DRAW, EXPRES.
40	CCAS	Call Charge Analysis System - monitors charging of selected services i analogue exchanges - CCAS data to be compared against CQM data - dai exception data to be incorporated into GAPS - interfaces to exchange lines v G.N. Eiml SMART 10's [in country areas] and via TBAX (in metro areas) t collect & report billing data for selected lines - when CCR calls are set up i ARE-11 the SR is set in the non- metering mode (relay S3 operated) whi open circuits the meter wire ("r" wire) - this means that CCAS type syste can not detect the answer signal & hence can not determine if the call w effective or what the chargeable time is on an effective call - the CCAS recor are still of considerable use ie to allow comparison of CCR & CCAS records a-party number, b-party number, date, call clearance time & CCR chargeab time < CCAS call duration - the possibility of changing the ARE-11 SR setti back to the charging mode (data change) so that CCAS systems can dete answer signals needs to be investigated

41	CCS7	Common Channel Signalling System Number Seven (CCS#7, CCS No. 7 et A signalling protocol between network exchanges carried separately to t calling path. It provides a variety of services such as call control, c establishment and network management. - consists of 4 parts: MTP, SCCP, UP & AP
42	CCSN	Common Channel Signalling (CCS) Network
43	CCSNM	Common Channel Signalling Network Management - see also NEMACCS a NMCSS
44	CENTOC	Centralised Traffic Occupancy - computerised traffic recording & monitoring f analogue exchanges - uses RTMs
45	CFL	Call Failure - CCS7 signal returned by OTC exchanges for failed IDD calls see also ACM
46	CFR	Customer Fault Report
47	CFRB	Corporate Fault Reporting Bureau(x) - replaced by Telecom Customer Servi Centre.
48	CFS	Central File System
49	CLDR	Calling Line Dependant Routing
50	CONGEST	Prioritises route selection - basis for TNE relief work - VIC system for use TNE & NSQ (not a NSQ function - should be NTIS)
51	Congestion	LOSS - the percentage of calls which fail to establish connection due t insufficient available capacity EXTERNAL - occurring outside the originating exchange in the IEN INTERNAL - occurring inside the originating exchange in the IEN
52	COOS	Circuits Out Of Service - figures represent those circuits which were out service for a whole week of the most recent four week period processed for t calculation of congestion in the NARS system - both analogue & digital rout are included - digital blocked circuits are extracted directly from the AX exchanges - analogue blocked and busy circuits and digital busy circuits a calculated from traffic measurements extracted by CENTOC and TRAXE
53	COOS	Circuits Out of Service
54	CORAL	Consumer Operations Reporting Assistance and Logging system - a syste that interfaces with LEOPARD to provide Consultants with modified LEOPAR input & enquiry screens
55	COS [3]	Cutoff Speaking
56	CRIS	Code Routing Information System - automatically downloads routing data fro the AXE exchanges - used to provide an accurate Network model
57	DETRAM	Detailed Traffic Measurements sub-system of TDAS - minicomputer using da from TDE (VIC & NSW) [or Alston (Qld, Vic & NSW) or ELMI Smart 10 (WA SA)].
58	DNF	Difficult Network Fault
59	DTR	Daily Traffic Recording - a computerised system for monitoring telepho traffic information. CENTOC is Phase One of this system, and TADMAR is further development. - see also TDAS.
60	EB	Emergency Bulletin
61	EEPLAN	Exchange Equipment Plan

62	EMG	Exchange Maintenance Group
63	EMS	Exchange Monitoring System
64	EPMS	Exchange Performance Measurement System - reports on exchan performance parameters including subsystem disturbances, errors, restarts outages
65	ESFA	Electronic Switching Fault Analyser
66	FAME	Fault And Maintenance Environment (originally called SOLAR - see SOLAR).
67	Fault Reporting Bureau	Part of Telecom Australia which is responsible for receiving calls concerni faults, and then taking appropriate action to rectify the faults.
68	FDC [1]	Fault Dispatch Centre
69	FIO [2]	Fault Information Officer - NMC role - provides timely information abo unscheduled network failures & acts as a contact point for progress reports these failures - also places details on a bulletin board enabling clients, users managers to get up to date progress
70	FPI	Fault Pattern Index - no of fault patterns per 10,000 exchange lines - see FRS
71	FRAN	Fault Reporting Analysis
72	FRB	Fault Reporting Bureau
73	FTRM	Fault Trace and Repair Manual
74	GoS	Grade of Service (Teletraffic Engineering)
75	HTR	Hard To Reach - subscriber dialled codes which are statistically computed t have a low completion rate - determined by monitoring all calls through a exchange and using the equation: % failure = number of electromechanical failed calls to the code / total no of c attempts to the code - if % exceeds a standard threshold, then the code is sa to be Hard to Reach - may be chocked at or close to the originating end by t NMC to reduce congestion throughout the network
76	I-NMCSS	Integrated NMCSS
77	ICM	Individual Circuit Monitor - a device that, when attached to individual incomi or outgoing exchange circuits, provides data on traffic handling, and exchan performance (only for ARF & 10C)
78	IDN	Integrated Digital Network (predecessor ISDN) - a network in whi connections established by digital switching are used for the transmission digital signals - comprised of AXE, DMS and S12 exchanges. A telecommunication network in which both switching and transmission metho are digital. The IDN supports analogue telephony sciences.
79	IEN	Inter Exchange Network
80	LIES	LEOPARD Interfacing Exchange Service - used to receive faults in Custom Operations Groups from retail Business Units.
81	LOGGER	Electronic Statistical Metering Device for ARF Exchanges
82	MAPS	Maintenance Analysis& Performance Statistics - C&C DSE Application provides statistical information on faults (TRs & TAs) sourced from LEOPARD also being used by C&G
83	MIS	Management Information System - see also EIS
84	NAB	National AXE Bulletin

85	NAC [2]	The Network Administration Centre (NAC) has been assigned the over responsibility for the availability and performance for transmission netwo bearers and switching plant in the network. The purpose of this function is to ensure that Telecom's network (Transmissi and switching) is maintained in accordance with Telecom's Practices a Procedures and performs to CCITT/CCIR and Telecom's performance a availability specifications by authorising all maintenance and installati activities that could put the network at risk.
86	NARS	Network Analysis Reporting System - uses TSAR data to give excepti reports of congestion on final choice route links - uses average carried traff data stored in TSAR & traffic tables to report on routes in congestion
87	NCC	Network Control Centre
88	NCFR	Network Call Failure Rates - uses DCA data
89	NCFS	Network Call Failure Supervision - superseded by NCS
90	NCFS	Network Call Failure Supervision (ARE-11)
91	NCS	Network Call Supervision - see also ARE.NCS.CD and ARE.NCS.SD
92	NEAT System	Network Evaluation and Test System. A test call system consisting of remo transponders, each connected at the network exchange MDF point as a norm customer, and a central management and control unit. The system c conduct a schedule of test calls between transponders to measure call set-u and hold performance, together with transmission, noise, post dialling dela and other tests.
93	NEMACCS	Network Management of CCS Surveillance System - see also CCSNM a NMCSS - receives data relating to the CCS network from AXE exchanges v the AOM - data consists of blocked route, signalling relationship unavailabl faulty signalling link, faulty digital path & supervision alarms - expected to b able to transmit commands directly to AXE exchanges via AOM in futu software releases - presently commands to interrogate, control & configure t CCS network are issued via the NEXIS interface with the AOM or via separa NOC terminals connected to the AOM - has dedicated links to NorTel DM CLDR and S12 exchanges to allow the transmission of CCS data in NEMACCS.
94	NEPR	NEtwork Performance Reporting - information from AXE exchanges about cal which fail due to fault or congestion in the network - call failure data for bo MFC & CCS7 controlled calls are included for all types & classes of call - se via the Supersorter - see also NPR
95	NMC	Network Management Centre - The NMC is part of the Network Manageme Unit. It is responsible for monitoring traffic levels and blockages and taki action to limit or redirect traffic as necessary. The NMC maximises the performance of the network in "real-time" b computer assisted monitoring & control of the network in response to netwo stress conditions (overloads & failures) - also perform a vital role in aiding t recovery of the network from major outages
96	NMCSS	NMC Support System - $50M system to be developed over 5 years (1991/ 1995/6) with 6 applications : TFM, NTM, CCSNM, ANF, AHA & DCN - to b integrated into I-NMCSS
97	NMU [2]	Network Monitoring Unit - used to measure response times (etc.)
98	NNI [2]	National Network Investigations
99	NNMC FIO	National Network Management Centre - Fault Information Officer

100	NNO	National Network Operations - now Network Performance
101	NNSQ	National Network Service Quality - see NSQ
102	NOC [2]	Network Operations Centre
103	NOM	Network Operations Manager
104	NOS [1]	Network Operating System
105	NOU	Network Operations Unit
106	NOU Library	Library of all NOU documents available for electronic access throu Hypabook.
107	NP [1]	Network Performance
108	NP&D	Network Planning and Development Group
109	NPA [1]	Network Performance Analysis - data for NMC functions
110	NPAC	Network Performance Analysis Centre
111	NPAS	Network Performance Administration System - superseded by NSQSS
112	NPR	Network Performance Reporting - ARF data for NSQ functions - see al NEPR
113	NSQ	Network Service Quality - provides proactive delivery of innovative informati required nationally to continuously improve quality of switched network servi - primary business focus is the management of Network Service Performance renamed NNSQ.
114	NSQSS	Network Service Quality Support System
115	NSS	National Switching Support
116	NTG [2]	Network & Technology Group (Telstra)
117	NTIS	Network and Traffic Information Services - operates systems for the collecti & processing of network utilisation information from the various switchi technologies available
118	NTM [1]	Network Traffic Management - monitors the performance of the flow of netwo traffic in real-time and takes action to control traffic flow, when necessary, t ensure the maximum utilisation of network capacity in all situations - see al NMCSS
119	NUM	Network Utilisation Monitor - provides detailed information on STD, loc effective & ineffective calls by sampling - the effective STD component is bei replaced by NUMIS
120	NUMIS	Network Usage Marketing Information System - provides summary reports o call usage from exchange to Division aggregates to support macro lev management of call usage strategies - delivers individual customer reports t other customer reporting systems such as SAMIS and BROCK - provid subsets of call records to other systems and ad hoc analytical studies a required - obtains CCR data from CABS and stores it for 10-24 days (on-lin 12 months (off-line)
121	OMG	Operations Maintenance Group - exchange organisation under CEMO
122	OPAS [1]	Operations Performance Analysis System
123	OSC	Operations Support Centre - maintenance centre responsible for sever OMGs - see also CEMO & MEMO
124	OSC-A	Analogue Operations Switching Centre
125	PAS	Performance Analysis Subsystem (component of NPAS)

126	PCCI	Probability of Call Cut-off / Interruption - the probability that an establish connection is interrupted or cut-off - may be influenced by: the inter-exchan signalling network (or networks) connecting the originating and terminati exchanges; the quality of the inter-exchange transmission path; the quality the customer's line at the originating or terminating end; the performance customer equipment
127	PCFS	Probability of Connection Setup Failure - the probability that any valid bid f service will result in one of the following conditions: dial tone returned aft dialling completed; no ring and no answer; all circuits busy signal o announcement; connection to the wrong number (mis-routing); doub connection etc - ie main causes are call congestion, signalling failure a wrong numbers- may be influenced by: background traffic levels in t network, primarily the originating and terminating exchanges; the inte exchange signalling network (or networks) connecting the originating a terminating exchanges
128	PDD [2]	Post Dialling Delay - the time interval between the end of user or termin equipment dialling and the reception of an appropriate network response - m be influenced by the inter-exchange signalling network (or network connecting the originating and terminating exchanges
129	PDPS	Performance Data Processing Subsystem (component of NPAS)
130	PDR	Performance Development Review.
131	PRS	Performance Reporting Subsystem (component of NPAS)
132	PSAS	Post Survey Analysis System - used to analyse TELCATS data - allows ad-ho reporting based upon a set of user definable filters (ie district time periods etc to give summaries relating a surveyed list of reasons to say an exchange - resident on TACONET VI3 & contains survey information from all states - see also TELCATS.
133	PSN	Packet Switch Network
134	RADMS	Remote Access Digital Monitoring System - provides enhanced monitori facilities & is used for tracing difficult faults - provides monitoring facilities f only one link at a time - see also DPMS
135	RASS_STATS	A statistical database containing RASS reference information eg exchange Districts, regions, Special service products, orders (sales, connections installation performance), faults, services in operation
136	REA	REA (REgister Area) PAGE SORTER - contains exchange disturbance data see SUPERSORTER
137	ROMANS	Route Occupancy Management and Analysis System - looks at hi occupancy routes & forecasts runouts - developed by TNE Metro Vic - simil system developed by Country is called COUNTRYMEN (pun intended)
138	Routing Chain	a possible sequence of routes that a call can take in reaching its destination.
139	Routing String	a unique sequence of route overflow choices that a call can take for t particular dialled code
140	RUBAS	Traffic figure (named after George Rubas) based on the 50 highest half ho average traffic figures over a 7 day period.
141	SAGA	Name given to Ongoing customer fault process owned by Consumer.
142	SAGA cell	Group designed to control SAGA process - Usually resides in an FRB
143	SAGA Co-ordinator	Owner of SAGA process - Usually resides in an FRB

144	SCC [2]	Switching Control Centre (Generic term)
145	SDLG	**Software & Data Loading Group**
146	SEQS	Service Quality Statistics (AXE) - transported to CDLS via AOM usi TRAFLOAD - see also AXE.SEQS.SD
147	SFA	Switching Fault Analyser
148	SFA-E	Switching Fault Analyser Electronic
149	SOLAR	Son of LEOPARD And RASS - renamed FAME
150	SPAN [1]	Service Provision Advice Network
151	SPI	Switching Performance Indicator
152	SPINE	System for Pattern Identification & Network Evaluation - NMC system f analysis of network failure - analyses LEOPARD TA data and automatic failu messages from 10C, AXE, ARE, ARF & ARM - runs under UNIX on 486 PC
153	SPM	Service Performance Monitor
154	SPOOLER	Device for allowing the collection of ADR data from many exchanges on t one ADRAN data base.
155	STU-L	ARE signalling transfer unit - used to obtain ARE.NCS.CD data
156	SULTAN	Subscriber Line Test Access Network - provides test information vital f diagnosis of customer fault reports and network performance monitoring - us with LEOPARD and CANES - C&C system
157	Supersorter	Data transport mechanism for AXE call failure messages (from NEPR) ARE.NCS into SPINE - also proposed for ARF.DCA data by NSW Country (w only handle failed call data & summary data; not successful calls) - see al ADX and TCX - see also REA & STU-L
158	Switching Loss	The proportion of calls in a network, or a part of it, which are unsuccessful d to malfunction of the switching equipment or signalling equipment timeout
159	TA [2]	Technical Assistance / Trouble Advice - (report or referral) - a report of faul which are not specific to a particular customer, that is, the difficulty is in t switching network, not in the customer equipment or cabling - netwo problems reported by customers to 1100 - recorded in LEOPARD automatically transferred to GAPS on a nightly basis (located on NH5 & V TACONET mainframes)
160	TAP [4]	Transmission Analysis Program
161	TBAX	Telephone Billing Analysis compleX - CCAS equipment used in Metro areas to be replaced with ELMI equipment - approx 400 terminals installed national - not able to detect ARE/ARF "r" wire (meter wire) answer signals ie even if t ARE-11 SR setting is changed to the metering mode for CCR calls - not to connected to AXE exchanges
162	Technical Publication	A technical publication is one that refers to procedures, work instructions process testing documents and standards.
163	Technology Cell Leader	This is the person responsible for a particular technology of equipment in designated area. For example this could be an AXE or Transmission C Leader in an Exchange Maintenance Group within a Metropolitan Region.

164	TELCATS	Telecom Customer Attitude to Service - records details of Custom Satisfaction Surveys - produced by REARK - compiled every 3 months - t reports summarise 7 metro & 7 country regions and 4 natinal divisions (TN TRNS, Country, CCD) - 76% of complaints relate to poor transmission quali (of switching & congestion loss) -ad-hoe reporting on TELCATS data will b allowed by PAS.
165	TMNRC	Telecommunications Management Network Response Centre
166	TNE	Telecom Network Engineering (SRU)
167	TNS	Transit Network Switch
168	TRAXE	Traffic Recording for AXE - data acquisition system - uses Data Gener minicomputers located in each State - see also TDAS - apart from traff analysis, is also a data transport/gateway for the existing NMC syste (NMCSS in future) and for NSQSS.