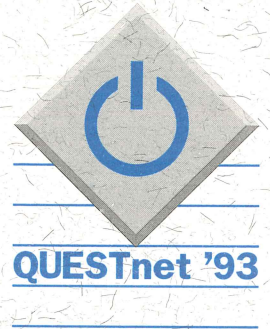


1993 Winter Networkshop



Program 14-16 July 1993

"Network Development and Security"

***Organised by the QUESTnet Management Committee
Queensland Education, Science and Technology Network***

Major Sponsors

Dept of Business, Industry and Regional Development, Qld State Government
Queensland Education, Science and Technology Management Committee
Digital Equipment Corporation
Apple Computers Australia

**University of Central Queensland
Rockhampton**

QUESTnet Conference attendees,

Thank you for attending QUESTnet '93.

This conference has been organised on behalf of the QUESTnet Management Committee by the Information Technology Division of the University of Central Queensland with significant support from the Department of Business, Industry and Regional Development..

The conference has the title of "Workshop" to imply that it is not meant to be solely a Lecture presentation and that conference attendees will exchange ideas, problems, solutions and better ways of solving networking problems and to also be aware of whom in the QUESTnet region have expertise in particular areas.

The Conference will revolve around the SSC complex with the sessions being held in the main lecture theatre, SSC2.1. Stream 2 sessions will be held in the SSC1.15 lecture theatre.

Morning and Afternoon Teas will be served in the courtyard area.

Lunch's will be served at the Residential College, a leasurely 5 minute walk from the lecture theatre

Temporay membership has been arranged with the Student Union Club. Please sign the Club Membership list at the registration desk if you wish to use these facilities during the conference. The Club is usually opened until 11.00pm or later.

We trust you will enjoy this conference.

On behalf of the QUESTnet Management Committee

*Ian Jenkins (Convener)
Merv Connell
Glenda Twiner
Liz Underwood*

QUESTnet '93

Tuesday 13th July

4.00 pm. - 7.00 pm Registration in the Foyer of SSC2.1 Lecture Theatre

7.00 pm. Cocktail Party combined with the Central Qld. ACS chapter in the Student Union Club.

Wednesday 14th July

8.00 am Registration in the Foyer of SSC2.1 Lecture Theatre

Network Access

8.50 am Welcoming Address, Professor Geoff Wilson

9.10 am Keynote speaker Dr. Brian Cook

Improving Quality in the Delivery of Information Services requires the Integration of
Computer, Educational Technology and Library Services.

9.50 am AARNet - The Changing Patterns of Communications
Mark Turner, AARNet

10.30 am Morning Tea

11.00 am QUESTnet and its affiliates
Alan Coulter. Prentice Centre University of Qld.

11.30 am The Role of Public Networks in the provision of Personal Communication Services
Les Williamson Ericsson

12.15 pm Lunch

Stream 1. (SSC2.1)

1.30 pm Networked Peripherals using an InfoServer
Mike Dransfield, DEC

2.00 pm Encounters with a CDROM Network!
Micheal Murphy, Griffith Uni.

3.15 pm Afternoon Tea

3.45 pm The economics of networked information retrieval tools
Tony Barry, Aust. National University

Stream 2 (SSC1.15)

1.30 pm Network Management in a Multi-protocol WAN
Mike Bell, DEC

2.30 pm Integrated Voice and Data Networks a Case Study
John Voss University of Central Qld.

3.15 pm Afternoon Tea

3.45 pm Integrated Digital Networks
Kurt Hansen, Ericsson

Thursday 15th July

Security

8.50 am Keynote speaker Prof Bill Caelli
Beyond OSI to a Distributed Systems Security Architecture

9.30 am Security and DCE
Selwyn Russell Secure Network Labs, Info Security Research Centre QUT

10.00 am Build it high
 Alan Agnew, Qld. University of Technology

10.30 am Morning Tea

Stream 1 (SSC2.1)

11.00 am Authentication Techniques

 Peter Nikitser - SERT

11.30 am Profile of Attacks - How to improve your Security

 Rob McMillan - SERT

Stream 2 (SSC1.15)

11.00 am The AARN X.400 gateway.

 George Michaelson University of Qld

11.45 am Network Management Tutorial

 CISCO, Peter Elford

12.30 pm Lunch

1.45 pm The Australian SERT

 Rob McMillan, SERT

2.45 pm Afternoon tea

3.15 pm Security BOF Panel presentation / question / answer

 Peter Elford,

 Peter Nikitser

 Rob McMillan

 Selwyn Russell

7.00 pm Conference Dinner

 Duthies Leichhardt

 Bolsover Street.

Friday 16h July

Networking into the future

8.50 am Keynote speaker Mike Zastrocky , Vice-President of CAUSE USA
 Higher Education and Information Technology in the Twenty-First Century:

 A New Highway to the Future?

9.30 am Developments in High-Performance Computing and Communications in Queensland

 Prof. Paul Pritchard Griffith Uni.

10.15 am An Overview of OSF's Distributed Computing Environment

 John Court, NaC Australia

11.00 am Morning Tea

11.20 am Hand-held and PC based Telephony

 Richard Owens, Apple

12.20 pm Lunch

1.30 pm ATM - The Emerging High Speed Technology

 Dave Jacobsen, ComTech

2.15 pm Emerging Technologies in Internetworking

 Peter Elford, CISCO

3.00 pm Wrap up and Close

Welcoming address

Wednesday 14th July

8.50 am - 9.10 am

Professor Geoff Wilson

Vice-Chancellor

University of Central Queensland

Profile

Professor Geoff Wilson is the Vice-Chancellor of the University of Central Queensland. His research interests have been in the areas of low temperature and solid state physics and he has published extensively in these. He was a member of the ARGC and a foundation member of the ARC and the first chair of the Research Grants Committee. Following the 1988 White Paper on Higher Education, he chaired the enquiry into the Postgraduate Awards Scheme, resulting in a major enhancement of the Scheme and the introduction of the present APRA Scheme

Keynote address

Wednesday 14th July

9.10 am - 9.50 am

**Improving Quality in the Delivery of Information Services
requires the Integration of Computer, Educational Technology
and Library Services.**

Dr. Brian Cook

Pro-Vice-Chancellor (Information Services)

Griffith University

This paper will examine the following aspects associated with improving the quality and delivery of information services:

- background on quality and the delivery of information services;
- what is happening in the information industry that supports an integrated approach to the delivery of information;
- support for an integrated approach to the delivery of information services;
- planning within an integrated approach with reference to some examples; and
- overview of the benefits to be derived from an integrated approach in this area.

Profile

Qualifications: T. Cert. (Newcastle); B.A. (UNE); M.Ed (Syd); M.A. (Macq);
Grad. Dip. Lib (Riverina); PhD (Oregon) FAIM; ALIA; MACE.

Positions Held:

1992 Pro-Vice-Chancellor (Information Services), Griffith University
1990 Director, Division of Information Services, Griffith University
1987-90 Assistant Director, Services, Brisbane College of Ad. Education
1983-87 Head, Resource Centre, Brisbane College of Ad. Education
1982-83 Dean, School of Lib. and Information Science and College Librarian, Riverina CAE
1980-81 Director, Information Resources Centre and Head, Dept. of Library and Information Science,
Riverina CAE
1976-79 Director, Information Resources Centre and other administrative responsibilities, Riverina CAE
1974-75 Lecturer then Senior Lecturer, Riverina CAE
1973 Curriculum Officer, NSW Dept. of Education
1960-72 Teacher, subject master, promoted Deputy Principal, NSW Dept. of Education

Summary of Experience:

Since 1965 involved in a wide range of managerial positions. From 1976, primarily within the
information services areas. Work undertaken includes:

The development of strategic plans, personnel systems, effective committee structures, development of
wide range of policy and procedural documents, reviews of services offered, changes to operations,
setting-up of automation of procedures, development of management information systems,
established successful business operations, effectiveness audits, changes involving change process,
team building, etc.

Workshops / Consultancies:

Review of operations for other institutions, effectiveness audits, establishing strategic plans, effective
communication, leadership, decision making, time management, making effective use of committees
running effective organizations, role of management, effective climate in organizations, use of
information technology in organizations, staff development programs and team building.

Publications/Presentations:

Editor of two books; 5 articles in referred journals since 1982; 26 other published articles; wide range of
presentations covering such topics as: management, planning, etc., telecommunication implications
information delivery, integration of services and other areas.

Citations:

Men of Distinction (Oxford publication)
Who's Who in Australia

Others Recognition:

Fellow, International Bibliographical Association

Wednesday 14th July
9.50 am - 10.30 am

AARNet - The Changing Patterns of Communications

Mark Turner

Network Technical Officer
AVCC

This talk looks at AARNet in terms of its background, current position and likely future direction. There is little doubt that this network has heralded a crucial change to our national research environment and is now reaching into the broader information domain with similar levels of impact on traditional patterns of organisational interaction. This session examines the genesis of the network and analyses the reasons behind its phenomenal growth over the past three years in terms of the broad requirement for communications connectivity in the higher education and research environment. The technical direction for AARNet is examined, focussing on the issues surrounding technical developmental efforts as well as examining other side effects of scaling of this technology into other domains. In addition current network usage patterns are examined and areas of current development of networking applications as they relate to information management are discussed. The likely directions of AARNet as a private network operator are also examined, and the possible composition and role of AARNet three years hence is explored.

Profile

Education: BE in Communications Engineering, University of Canberra

I began work in 1986 for "Network Research", an OEM company formed to produce X25 packet switching nodes for CSIRONET. I was mainly involved with hardware aspects of the X25 switching node. I Left in 1988 to take up an engineering position with the Department of Defence. Projects there related to hardware and software aspects of both land and mobile (seagoing) communications systems. In 1992 I took up the position of Network Programmer with the Australian National University, and joined a team responsible for the maintenance and implementation of the campus inter-network, with particular personal emphasis in the field of Network Management. Joined AARNet earlier this year, and have since been involved in all technical aspects of AARNet's ongoing maintenance and expansion.

Wednesday 14th July
11.00 am - 11.30 am

QUESTnet and its affiliates

Mr Alan W Coulter, B.Econ(Qld) FACS MAPsS,
Director of the Prentice Centre
University of Queensland

QUESTNet is the name given to embrace the Queensland region of AARNet and in addition covers extensions of this network to meet Queensland requirements. The Department of Business Industry and Regional Development has a representative on the QUESTNet Management Committee. Other representatives are the Directors of Queensland University Computer/Information Technology Centres. The talk by Alan Coulter, Chairman of the QUESTNet Management Committee will cover some recent developments within QUESTNet and relationships between AARNet and QUESTNet.

Profile

Mr Alan W Coulter, B.Econ(Qld) FACS MAPsS, is Director of the Prentice Centre (the Information Technology Centre of The University of Queensland). He is a Fellow of the Australian Computer Society, a Governor of the International Council for Computer Communication (ICCC) and a Foundation Member of the Australian Psychological Society.

Within The University of Queensland, he is a member of the Academic Board, the Computing Sub-Committee of the Research Committee, the Vice-Chancellor's High Performance Computing Committee and the Board of the Centre for Information Technology Research (CITR).

Alan Coulter is Chairman of the QUESTNet Management committee (the Queensland region of AARNet) and a member of the National Committee for Scientific Information of the Australian Academy of Science. He is chairman of the Board of Management of SERT (the computer/network Security Emergency Response Team) which serves the Australian region of Internet.

He served on a committee to recommend on the feasibility of establishing supercomputer facilities at the University of Queensland and was a member of the Organising Committee of the Fourth Australian Supercomputer Conference.

He was Australian representative on the Data Communications Technical Committee (TC6) of the International Federation of Information Processing (IFIP) from 1973-1984. He served as National President of the Australian Computer Society (1984-85), President of the Royal Society of Queensland (1986-87), Chairman of the Organising Committee for the joint Queensland Universities Pavilion at World Expo 88 and as a member of the AARNet Advisory Board (1989-91).

Wednesday 14th July
11.30 am - 12.15am

The role of public networks in the provision of Personal Communication Services

Les Williamson

Marketing Manager
Commercial and Consumer
Ericsson Australia

This paper explores the possible outcomes with regards to the recent developments in the areas of development of Personal Communications provision from Public Networks.

The paper extends the potential of current commercial networks, and looks at how regulations and suppliers are coping with the rapidly changing telecommunications environment, in order to fulfill the requirements of delivering truly Personal Communications to those that require it. The paper also briefly investigates the requirements for the service, and how they are already changing and forging new directions.

The emphasis of the paper is with regards to the Public Switching Network evolution, and how this network is providing the transparent bridge between Private PBX Networks, Public Cellular Networks, and the PSTN Public Networks.

This paper does not reference directly to any sources or previous papers, as the detail of this document is a combination of the many papers, articles, product descriptions and comments that are available to the telecommunications industry as a whole.

INTRODUCTION

As those in the industry and the general public realise, telecommunications and the way in which they are being provided is developing rapidly, and is already challenging the traditions of the industry. regulatory bodies all over the world, especially those involved with Spectrum Management, are already readdressing traditional procedures in light of recent developments, particularly in the area of Cellular communications. This change is being forged by both operators and suppliers work wide, and to a certain extent by the general populous of the developing and developed worlds. As an aside, in years to come the general populous will of course play a MUCH larger role in determining the future of wireless developments, as the "early adopter" administrations around the world proceed to introduce the first stages of what may be seen as truly Personal Communications.

The late eighties and early nineties have seen the introduction of vast Cellular based networks, initially offering vehicular connection to the rest of the network via radio signals. We now see these essentially unchanged networks offering a more "personal" service helped by the introduction of small and lightweight, yet technically efficient, handsets and other communication devices. However, limitations exist in Cellular Networks as they do in any other networks, and to extend the existing traditional networks into a more functional Personal

Communications Network is already being explored by operators and suppliers alike. However, to utilise these ever developing sophisticated networks, the potential user must enter into the terminal market and purchase a suitable terminal, be it for voice, data or a mixture thereof. This challenge has been met successfully in certain markets, but with Cellular penetrations just edging into 8 per cent in some markets in 1992, obviously it cannot be stated that we as an industry have fulfilled the visions of Personal Communications. The idiosyncrocies of consumerism do not escape telecommunications as they do not escape any product on offer; where price, availability, functionality, and the economics of the individual (or group) all play a part in the purchasing process.

But the ability to successfully provide personal communications need not lay in the handsets or terminals available at the time, rather it lies in the network infrastructure, and the ability for a service or feature to be carried over several telecommunication network parts, just as a person moves throughout various social and business networks in their day to day lives down streets, into buildings and offices, out on the open roads, in plans or inside their homes. Each component of these "travels" requires possibly different service and feature levels, and *from* a telecommunications network, it requires differing delivery mediums for the particular service or feature.

THE INSTALLED BASE

The majority of countries around the world today have a telecommunications installed base. In some countries it is less developed than others, but generally it can be stated that at least some sort of infrastructure exists in the form of Fixed PSTN Networks, offering a two wire predominantly voice and data service to business and the community as a whole. Other more developed installed bases may exist of dedicated Transmission Networks, Satellite Networks, Paging Networks, Cellular Networks, Trunked Mobile Networks, PBX Networks, Cordless Networks and a basic Intelligent Network infrastructure. Various levels of interwork are offered between and within these networks, ranging from no interwork at all to a limited transfer of intelligence between two or many distinctly differing service offering networks, allowing for some sort of "transportation" of service between them.

The concept of "overlying" the existing installed base with more advanced, "blanket" networks to provide a personal communications service is already being investigated commercially by many administrations around the world, and in the majority of cases this concept is being spearheaded by recent developments in the area of Cellular Telephony Networks.

However, this does not, and will not, compensate for the huge investments in the already installed base, and economic equations are vast becoming the friving factor for the installation of these "early adopter" blanet radio networks. Likewise, the economic; question is posed even stronger to the consumer of these potential service offerings, as they are being faced with the dilemma of sacrificing one form of communication for another one, or worse still, facing the need to purchase a number of communication tools and terminals in order to simply remain "in contact" during their days and nights.

THE CONCEPT OF TOTAL MOBILITY

Much debate has been instigated in the telecommunications industry with regards to the provision of personal communications, and the industry is even having problems in defining this concept for itself. Marketeers and Sales Executives around the world are already utilising industry acronyms such as PCN, PCS (and soon UPT) to "jump the gun" on competitors, with the rather unfortunate end results have been posted by suppliers and operators that have been just a bit too quick of the mark with their marketing terms, leaving the technologies labelled as bad debts and cast aside. These embarrassments have also left certain regulatory bodies around the world with a great deal of doubt when it comes to "new, all purpose radio technologies", and if not controlled, even more devastating effects could be left by the industry in the coming years.

The concept of mobility has been discussed at great length, and the general consensus is that it should represent "a single distinguishing number string, a single or specifiable billing address, with the ability to be locatable at any time at will, and likewise originate contact at any time will, by the most appropriate and convenient method at that given moment".

This is a tall order for the industry as a whole, and it is only when these basics are covered that true Personal Communications can begin to be developed and offered. However, many existing and soon to be launched networks, mechanisms, and products are leading us along the mobility path, and very rapidly.

THE PATH FORGERS

Existing networks are already being enhanced and upgraded to allow for some sort of mobility to be offered. Fixed traditional networks are beginning to offer personalised billing for example, or early Intelligent Network services such as "one number" access codes from any where in the world. even video telephony falls under the title of path finding personal communications.

cellular Networks such as those based on AMPS, DAMPS, GSM and DCS 1800 are entering into the quest for mobility and personal communications, with varying degrees of success and implementation. Cordless Networks based on CT-2 for Public Access, CT-3 and DECT for Business Access, CT-1 for Domestic, and a combination of all of them are all helping to ready the market places for future- radio based devices to be used for communication needs.

Further developments in Paging and Trunked Radio services, along with Satellite and transmission Networks are each in their own way (and some times in a combined way) expanding the use of telecommunication networks and the services they can offer.

Regulatory bodies and Standardisation Groups are also working hard in readdressing traditions procedures and management, especially in the areas of Spectrum Usage and Deregulation.

The challenge facing the, suppliers and operators of today is to combine these established networks with new and future network developments, in order to realise the concept of mobility-

The role of radio based networks is increasingly important in realising this goal, and as the growth networks of the nineties (Cellular, Cordless, and Transmission) become more incorporated with and transparent to the existing traditional wired networks, an infrastructure will surfact truly capable of delivering the services fitting to a Personal Communications offering from an operators.

The control and intelligence required for these networks has already been tabled in many standardisation bodies around the world, and centres on the concepts of the Intelligent Network, along with other mechanisms now being standardised such as smart card developments, card reading terminals, databased, HLR's, and VLR's, will all combine and mature to develop into THE basic infrastructures for all competitive telecommunication networks around the world.

THE CHALLENGES AHEAD

The challenges ahead for the industry are many and varied. The merging of existing networks, and cementing those radio based networks now appearing in the market place, is the short term goal of many suppliers and administrators. Deregulation needs to develop further, and operators all over the world will soon realise the virtue there is in "sharing" certain intelligence, and allowing for the transfer of services and features across commercial network boundaries. Governments and Regulatory bodies will need to investigate, understand, and develop further the areas of Spectrum Management, Policy Setting, and Standardisation to allow for the industry to "go through" certain stages in order to reach the end goal of providing mobility to end users on a wide scale. Terminal manufactures will Tied to expand their initial design criteria, to allow for multupal purpose, multi mode personal terminals to appear in the market place, facilitating at greater ease the stability for a user to communicate and to remain in touch if so required.

Markets need to be carefully developed and cultivated to ensure that networks invested in now remain an integral part in the provision of such personal services. Extensive research needs to be carried out to ensure that the industry does not diverge too much away from the general populous with regards to their communication needs and perceptions- Furthermore, the industry needs to question itself along the way in order to eventually provide functional, economical, and technically sound network solutions to operators.

The Ericsson Group, Ericsson Australis, and other manufacturers, are already today providing many of the building blocks for a Personal Communications infrastructure. We are ensuring that the dream of personal telecommunications mobility will be fulfilled by the end of the century, and further developed into the new decade and beyond.

CLOSE

Returning to the title "The Role of Wireless Technology in Personal Communications", it can be stated that in fact radio based networks are providing the initial direction for the eventual delivery of such personal services. Cellular and other radio based developments and commercial installations all around the world are proving that the radio form of access does not solve a lot of problems as yet unanswered by the fixed networks of today and tomorrow. The time when these radio based networks are truly integrated and interworking with traditional wired and transmission networks is the day that operators all around the world will be able to offer the mobility concepts of today, changing the way in which people communicate with each other, and their machines, forever.

Profile

Mr Les Williamson graduated from the now Caulfield Campus of Monash University in Melbourne in 1987. He joined Ericsson Australia on their Graduate Program and spent the first six months implementing an industrial engineering process in their AXE manufacturing plant. He then joined the ISDN design team, part of the Ericsson staff responsible for implementing the overlay ISDN network as supplied to Telecom Australia. After a year in design, Mr Williamson moved to the head office of Ericsson Telecom, in Stockholm, Sweden. For the next 2 years Mr Williamson worked on an Implementation team investigating the next generation of Public Switching equipment to be offered by Ericsson in the mid nineties. Mr Williamson then became involved in the early development stages of their Business Cordless Telephony products, based on and incorporating the now released DECT Digital European Cordless Telephony - standard. This activity was based in Amsterdam, Holland.

For 18 months after his return to Australia in 1991, Mr Williamson has been involved in the commercial introduction of these products, as well as representing the strategic interest of Ericsson Australia in the area of Personal Communications.

For the last 15 months Les Williamson has been Marketing Manager, for the Commercial and Consumer sectors of Telecon Australia, for the area of Customer Residential and Business features, and how they are to be implemented and introduced to the Australian market.

Stream 1.
Wednesday 14th July
1.30 pm - 2.00 pm

Network Management in a Multi-protocol WAN

Mike Dransfield
Software Consultant
Digital Equipment Corporation

This session provides an overview of the Infoserver products and their ability to share data across a LAN. It will cover the range of Infoserver hardware and details of providing disk, tape and VXT services.

Profile

Mike Dransfield is a software consultant in the Customer Support Centre of Digital in Sydney. He has worked for Digital for 7 years and has a broad experience of Digital's networking products.

Stream 1.

Wednesday 14th July

2.00 pm - 2.45 pm

Encounters with a CDROM Network!

Michael Murphy

Information Services Division

Griffith University

CD-ROM technology has been one of the most significant developments to impact on libraries in the last decade. The medium has proved to be a popular and user-oriented means of literature searching.

The growth of this new type of service from databases mounted on stand-alone PCs giving single-user access to the provision of networked access has occurred in a very short space of time. Networked access eliminates the demand on staff to manually book and distribute CDROMs and breaks down the physical barriers of the traditional library.

Griffith University has recently installed a 42-drive CDROM network (Novell, SCSI Express, CDNET) giving access to staff and students on three campuses. The workshop presenter will outline the birth of the network, the problems encountered, and the ongoing issues. The presentation will delve into issues affecting both the computing services staff and library staff. Discussion time at the end will allow participants to share some of their own experiences.

Profile

Michael Murphy is employed by the Information Services division at Griffith University to install and manage local area networks and associated workstations. This year, he has been responsible for the installation of a CDROM network accessible from all campuses.

Michael completed his computing degree at Capricornia Institute (now UCQ) and went on to complete postgraduate studies at Massey University, New Zealand. His postgraduate research focussed on the use of packet switching techniques in a local area environment.

Stream 1.

Wednesday 14th July

3.45 pm - 4.30 pm

The state of play with networked information retrieval tools

Tony Barry

Head Centre for Networked Access to Scholarly Information

ANU Library

It has only taken a little over two years from the development of archie, the first of the networked information retrieval tools and the creation of free standing cwis systems; to the situation today where 2 million documents and services at 500 institutions are linked together into a unified cooperative information system across the internet. This has been achieved with no central organisation and planning but has been the result of creative energy and generosity of spirit typical of the society of the internet .

The economics of information distribution within the research and higher education sector are forever changed and major industries and professions scramble to find new roles and identity as individual author find they can communicate with their audience direct across the net without publisher, distributor or librarian intermediaries. This raises very difficult questions which will become more acute as the network tools become more effective.

Profile

Antony (Tony) Barry

Born 1942, 4 children (three of them programmers)

M.Sc Sydney University 1963 (Physics)

1961-63 Minor academic posts Sydney and Queensland Universities in Physics.

1968-72 Science specialist, Legislative Research Service, Commonwealth Parliamentary Library

1969 Research Assistant to the Senate Select Committee on Off-Shore Petroleum Resources.

1973 Research Assistant Australian Government Publicity Office

1973 Research Assistant, Prime Ministers Office

1974 Director Government Publications and Inquiry Centres, Australian Government Publishing Service and later Director, Service Publications.

1976-81 Director Secretariat, Commonwealth Department of Science and later Director Internal Information Services.

1981-1990 Deputy University Librarian, ANU

1990 -1992 Head Computing and Networking, ANU library

1993 Head Centre for Networked Access to Scholarly Information, ANU Library.

Stream 2.
Wednesday 14th July
1.30 pm- 2.30 pm

Network Management in a Multi-protocol WAN

Mike Bell
DEC

In this talk issues such as the tiered approach to WAN management and the issues regarding complimentary use of SNMP and CMIP based management platforms will be discussed. Recent developments in SMP V2 and CMIP interoperability will be discussed.

Mike Bell is an Associate Fellow of the Australian Institute of Management and one of the initial Personal members of the Australian Telecommunications Users Group. He is also a guest lecturer at Sydney University on the subject of Network Management for Facilities Managers. Mike Bell has over two decades of experience in the data communications industry in the Fields of Hardware Manufacture, Field Service, Research and Development, Sales, Marketing and Sales Support. Mike's employers have listed among the World and County leader including IBM AWA Datacraft WANG Labs and in the last few weeks Mike has joined Digital Australia's Regional Networking group. Mike Has spent the last few years as a vendor independent system Integrator designing and implementing large multivendor WAN's and LAN's.

Stream 2.
Wednesday 14th July
2.30 pm- 3.15 pm

Integration of Voice and Data in UCQ Net: A Case Study

John Voss

Assoc. Director Systems & Network Services
University of Central Queensland

The University of Central Queensland has adopted the concept of an Integrated Regional University for its five campuses in Rockhampton, Mackay, Gladstone, Bundaberg and Emerald.

The paper looks at the implications of this model with the goal of providing integrated communications services to the campuses.

By utilizing ISDN facilities the campuses in Rockhampton and Mackay were provided with a private network with transparent voice and ethernet connection. Details of the solution adopted are provided and a review of the operation and future developments are discussed.

Profile

John Voss is currently the leader of Systems and Network Services, Information Technology, University of Central Queensland. He commenced at the University of Central Queensland as a VMS System Manager in 1982, and since has been involved in UNIX system management as well as local and wide area networking. During this period he has been responsible for the campus wide network (UCQNET) since its inception in 1988 and has been involved with a variety of network equipment.

Stream 2.

Wednesday 14th July

3.45 pm - 4.30 pm

Integrated Digital Communications Networks in Australia

Kurt Hansen

Manager ACT & Federal Government Business

Business Communications Division

Ericsson Australia Pty. Ltd.

The growth of digital telecommunications networks in Australia has far exceeded market expectations in both the public or carrier, and private network segments. These digital networks are suitable for a variety of multi-media applications, including data, voice and video. The technology of integrating and carrying this variety of media on a common digital backbone is advanced and continually changing. Various elements will be examined including voice compression, packet switching, frame relay, integrated LAN bridging and routing, ISDN, and integration with existing Data Networks and PABX's. The concept of the LAN, MAN and WAN will be also explored. The management of these networks is also an important consideration. It is the purpose of this paper to examine the various options available to the user, and express several case studies in terms of the Ericsson Business Network Solution.

Profile

Kurt Hansen heads the Federal Government Business team at Ericsson Australia, responsible to deliver a wide range of telecommunications solutions and services to the Federal Government sector in Australia. At Ericsson, prior to this position in the ACT, Kurt was the marketing Manager, Data Networks within the Business Communications Division and was involved in Introducing Bandwidth Management, Packet Switching, Microwave Communications and Network Management Systems to the Ericsson Business network offering in the Australian market place. Initially at Ericsson Kurt held the position of the Senior Data Networking Engineer in the System Design and Engineering Division, responsible for the Data Communication facility of the MD110 PABX.

Prior to joining Ericsson, Kurt was with the Department of Defence - Army for a ten year period where he was as a Captain in the Royal Australian Signals Corps. Whilst in Defence he held a variety of postings in technical, command and training functions within both tactical and strategic communication units. Kurt holds Post Graduate Engineering qualifications from the Swinburne Institute of Technology, specialising in Telecommunications, and Systems Management.

Keynote Session

Thursday 15th July
8.50 am - 9.30am

Beyond OSI to a Distributed Systems Security Architecture

Professor William J. (Bill) Caelli, FACS, FTICA, MIEEE

Director of the Information Security Research Centre
Queensland University of Technology

The security architecture for the Open Systems Interconnection model (OSI) is now almost 10 years old. Along with the delays in the overall availability of full OSI network offerings and higher costs where these are available, the security architecture and associated security frameworks are still little more than broad overviews. Meanwhile the concepts of distributed systems have developed through both the "Distributed Computing Environment (DCE)" and the "Distributed Management Environment (DME)" architectures, strongly associated with the "Open Systems" concepts, and the "Open and Distributed Processing (ODP)" concepts of ISO while the use in practice of the Internet protocol set for computer networks has gained worldwide acceptance.

The DCE/DME and Internet concepts pose different security environments from those associated with the original OSI concepts. The OSI computer network security architecture must now be considered in the light of growing practical acceptance of different computer network disciplines. The problem is whether or not the currently accepted network structures of DCE/DME and Internet provide any real foundations for security as envisaged in the OSI model.

Profile

Professor Bill Caelli is the Director of the Information Security Research Centre (ISRC) and Acting Head of the School of Data Communications at the Queensland University of Technology (QUT). He is also the Technical Director and Founder of ERACOM Pty Ltd, a world leading company in all aspects of information security and management. Professor Caelli is the representative of the Australian Computer Society (ACS) to, and is currently Chairman of, Technical Committee 11 (Security and protection in Information Processing Systems) of the International Federation for Information Processing (IFIP) based in Geneva, Switzerland. Professor Caelli received the 1986 Australian Information Technology Award (AITA) for achievement in the information technology area.

Thursday 15th July
9.30 am - 10.00am

DCE Security Service

Selwyn Russell

Manager of the Secure Networks Laboratory
Information Security Research Centre
Queensland University of Technology

The Distributed Computing Environment (DCE) is a product of the Open Software Foundation and will be supported by all the members of the OSF. It is designed to provide secure networked distributed multi-processing. This session will present an overview of DCE and its Security Service. The Kerberos system from MIT is the basis of authentication and will be described. Portions of the IBM OS/2 release of DCE will be given as examples of a practical implementation.

Profile

Selwyn Russell is the Manager of the Secure Networks Laboratory in the Information Security Research Centre at the School of Data Communications, Queensland University of Technology, Brisbane. He graduated as an electrical engineer from the University of Queensland and also holds a M Eng Sc and Dip Comp Sc. He worked at Telecom before his present position. He is enrolled in a PhD at QUT with a topic of security in EDI.

Thursday 15th July
10.00 am - 10.30am

Build it high

Alan Agnew

Leader, Communications Support Group
Queensland University of Technology

We set out to build an authentication wall to make it difficult for non authorised people to dial-in to machines on our network. We wanted to build the wall as high as possible.

This presentation gives an outline of why we chose the particular building blocks used, and what we have built with those blocks.

Profile

Alan Agnew is the leader of Communications Software Support, Computing Services, QUT. I began "serious networking" at QIT with X.25 and Coloured Book protocols, too many years ago. I introduced e-mail management (PMDf) to provide users with a single "incantation" for addressing e-mail, independent of the network for which it was destined. I ushered QIT into the nirvana of AARNet. I have helped mould the network at QIT->QUT since it was a circuit switch.

Stream 1
11.00am - 11.30am

Comparison of Authentication Techniques

Peter Nikitser
SERT

As research into strong authentication techniques continues to develop new methods, it is beneficial to compare the newer techniques with ones in common use, to determine if the current research is producing results of a usable nature. This paper examines techniques in common use (such as UNIX passwords and Kerberos) with newer techniques (such as the X.509 standard) by comparing the strengths and weaknesses of each technique and how well they combat the known threats to authentication sequences.

Profile

Peter Andrew Nikitser is employed by The Queensland University of Technology since the as a Systems Programmer specialising in the maintenance and implementation of computer security for the University.

Part of this position involves a secondment to the Security Emergency Response Team for two days each week.

My interest in computer security started in 1988, with my position at the Australian Defence Force Academy (Canberra), where a cadet obtained access to numerous other cadet accounts and databases.

Stream 1

Thursday 15th July

11.30 am - 12.30pm

Profile of Attacks - How to Improve Your Security

Rob McMillan

SERT

Prentice Centre

University of Queensland

During the past 12 months, there has been an increase in unauthorised attempts to access computers in Australian tertiary institutes and research organisations. Some of these attacks have been successful, causing the destruction of information and endangering expensive research equipment. These attacks have been confined mostly to UNIX machines.

This paper presents an overview of how these incidents occurred. General technical principles for attack prevention are outlined, along with a description of the non-technical measures that should be taken for attack prevention and impact minimisation.

Profile

Rob McMillan works for the Prentice Centre at The University of Queensland, where he has been since 1989. More recently, he has been seconded full time to the Security Emergency Response Team.

From the time Rob joined The University of Queensland until the end of 1990, he was a systems programmer on an IBM 3081KX Mainframe system. In 1990, he developed an interest in computer networks, and became involved with the university's computer networking team. Through his association with this group he has worked with several protocols, such as DECNet, X.25 and TCP/IP.

His other main area of interest is computer security, which he has been working on essentially exclusively since the middle of 1992. He has seen his domain of responsibility in the area extended from The University of Queensland to the whole of AARNet as part of the SERT team.

Prior to joining The University of Queensland, Rob spent six and a half years with the Queensland State Department of Environment, Heritage and Tourism as a systems administrator and applications programmer. He holds a Bachelor of Applied Science degree in Computing from the Queensland University of Technology.

Stream 2
Thursday 15th July
11.00 am - 11.45am

The AARN X.400 gateway.

George Michaelson
University of Qld

A brief review of the background, current status and futures of the AARN gateway to X.400 services in Australia. Conceived ad-hoc, implemented in a hurry, and with the scars still showing the AARN X.400 gateway is a low-cost 'it almost works' project that represents great value for money to AARN and the Australian X.400 connected community. It raises interesting issues of funding and access to and from AARN for the wider community.

Profile

George Michaelson joined the Prentice Centre UQ in December 1988 and works on MHS, Directory Services and ISODE for the University Community, when not distracted by his chaotic approach to running the Queensland hub for mail and news distribution within the AARNet, and related consultancy and fire fighting.

George completed an honours degree in computer science at the University of York in 1982, and ever since has worked on Communications, Networking, Unix systems, and their joint (mal)administration, at the universities of Leeds and York, at the University College London, and at CSIRO DIT Melbourne.

Stream 2
Thursday 15th July
11.45 am - 12.30 pm

Network Managment

Peter Elford
Senior Systems Engineer
Cisco Systems Australia

What is Network Managment ? What can I do to better manage my network ? What application software is out there to help me ? Where does SNMP fit in to all this ? This tutorial will look at these questions and perhaps provide some ideas about how to develop a network management strategy.

Profile

Peter Elford is a Senior Systems Engineer with Cisco Systems Australia based in Canberra. He joined Cisco in February, 1993 after three years as the Network Coordinator with the Australian Academic and Research Network (AARNet), the Australian arm of the global Internet. Prior to that he worked for six years in a systems and networking support role for the Australian National University on VAX/VMS hosts, Fujitsu mainframes and supercomputers, and a variety of UNIX and PC systems. His professional interests include network management and the continued success and expansion of the Global Internet.

Thursday 15th July
1.45 pm - 2.30pm

The Australian SERT

Rob McMillan

SERT

Prentice Centre

University of Queensland

Peter Nikitser

SERT

The Australian Security Emergency Response Team (SERT) was formed in March 1993 as an initiative of the South East Queensland Universities. Cooperative arrangements are in place with AARNet, CERT and the Australian Federal Police.

This presentation will cover SERT's creation and operation, as well as examining its effectiveness over the first three months of operation.

The Australian SERT aims to provide a community response to computer security incidents within AARNet. The method of operation is very similar to CERT

Current computer security advisories concern the areas of protecting user accounts and passwords, filesystems and physical access to hardware, but as more computers are connected to the Internet, there is little or no emphasis placed on securing those computers that run X windows.

Thursday 15th July
3.00 pm - 5.00pm

Security BOF Panel presentation / question / answer

Peter Elford

Rob McMillan

Selwyn Russell

Keynote Session

Friday 16th July
8.50am - 9.30am

**Higher Education and Information Technology in the
Twenty-First Century: A New Highway to the Future?**

Dr. Mike Zastrocky
Vice-President CAUSE (USA)

Information technology has had a significant impact on the management of higher education during the past twenty-five years. What began as a revolution to automate business and data processes has evolved into a transformation of our organizations and the way we do business. During this session, Dr. Zastrocky will examine some of the problems and issues facing higher education. He will also review the impact that information technology and particularly the NREN and the "information superhighway" talked about by the Clinton administration in the United States may have on institutions as they work to solve problems and prepare higher education for the twenty-first century.

Profile

Dr. Michael Zastrocky is currently Vice President of CAUSE, an international association for people who manage and use information technology in higher education. Prior to assuming his current position, he served as Secretary/Treasurer of the CAUSE Board of Directors and was a graduate professor and Director of Information Services at Regis University in Denver, Colorado.

Dr. Zastrocky has served as a consultant to numerous colleges and universities during the past 25 years and as a keynote speaker, faculty member, and presenter at numerous conferences, workshops, seminars, and institutes in the U.S. and abroad. He is widely published in the areas of information technology, mathematics, management and higher education.

Friday 16th July
9.30am - 10.15am

Developments in High-Performance Computing and Communications

Dr. Paul Pritchard

Professor of Computing Science
Head of the School of Computing and Information Technology
Griffith University.

Following the success of the "Queensland Parallel Supercomputing Initiative" ARC Mechanism C proposal in 1992, Queensland's universities will acquire a scalable MIMD (parallel) supercomputer with Gigaflops of peak performance. The Queensland Government's Information Policy Board has recommended that a supercomputer centre of national prominence be established in south-east Queensland, to capitalize on the considerable high-performance computing and communications infrastructure, expertise and demand in the universities, government agencies and industry. This talk will report on these developments, and their implications for high-speed networking. Emerging international standards will also be discussed.

Profile

Dr. Paul Pritchard is a Professor of Computing Science and the Head of the School of Computing and Information Technology at Griffith University. His main research interests are in parallel computing and high-performance computing.

Friday 16th July
10.15am - 11.00am

An Overview of OSF's Distributed Computing Environment (DCE)

John Court
Digital Equipment Corporation

From OSF's Request For Technology for DCE, issued June 1989 :

The User Community Needs "... a single software technology that will let computers from a variety of vendors transparently work together and share resources such as computing power, data, printers, and other peripheral devices."

The Open Software Foundation's (OSFs) Distributed Computing Environment (DCE) is a set of services and tools that attempt to address the above user needs. It provides support for the creation, use and maintenance of distributed applications in a heterogeneous computing environment. The product includes distributed directory services, a distributed file system, remote procedure call support, a distributed time service, multi-threading, and an authentication capability.

This talk will give an overview of DCE itself, describing the technology components, organisation of a DCE environment, and the relationship between DCE and it's underlying computer system(s). How distributed applications can be developed using DCE will also be discussed.

Profile

John Court works for the Digital Equipment Corporation (DEC) as a software engineer in the Australian Networks And Communications group (NaC) based at the Bond University research park on the Gold Coast. He is primarily involved in the production of Wide Area Networking software for DEC's UNIX platforms and is currently occupied with work for V1.1 of OSF's DCE product in the area of Cell Directory Services (CDS).

11.20 am - 12.20pm
Friday 16th July

Mobile and desk top communications.

Richard Owens
Systems Engineer
Apple

A look at the future of computer based communications with demonstrations of some current and future products. Topics will include desk top video conferencing, remote access of computer networks, AOCE (Apple Open Collaboration Environment), wireless communications, hand held devices and speech technologies.

Profile

Richard Owens has been a Systems Engineer with Apple Computer Australia Pty. Ltd. for over six years. During that time he has worked in both the Education and Advanced Systems divisions of the company and is familiar with a wide range of Macintosh based communications and networking solutions. Before joining Apple, he worked for NEC Australia and had almost fifteen years in the computer industry in Ireland before emigrating to Australia.

1.30pm - 2.15pm
Friday 16th July

ATM - The Emerging High Speed Technology

Dave Jacobson

Product Manager
ComTech Communications

For years, network visionaries have dreamed of rapidly transferring large files and running high-quality, real-time video over seamlessly integrated local area and wide area networks. Such integration would enable the creation of true multi-enterprise networks, desktop-to-desktop connections across states, countries and continents that would tie together an organisation with its most important partners, suppliers and customers. With wide spread adoption of Asynchronous Transfer Mode (ATM) networking, that dream will become a reality. This lecture will examine ATM technology and LAN/WAN integration.

Profile

Dave Jacobson joined ComTech Communications as a Product Manager in September 1990. He is responsible for the Synoptics and Network Management products. He has overall responsibility for product marketing, customer presentations, training, and handles pre-sales activities for respective products. With more than 7 years experience in the computer industry, Dave has extensive experience with design and manufacture of hardware, software and networking products. He has a Bachelor of Science Engineering (Electronic) and Graduate Diploma in Engineering (Electrical).

2.15pm - 3.00pm
Friday 16th July

Emerging Technologies in Internetworking

Peter Elford

Senior Systems Engineer
Cisco Systems Australia

This presentation looks at what new technologies are driving the internetworking industry by examining the driving forces behind the deployment of today's LANs and WANs. Existing and promised technologies are reviewed and discussed in the context of how they will effect internetworking in a multiprotocol environment utilising multiple physical media.

Profile

Peter Elford is a Senior Systems Engineer with Cisco Systems Australia based in Canberra. He joined Cisco in February, 1993 after three years as the Network Coordinator with the Australian Academic and Research Network (AARNet), the Australian arm of the global Internet. Prior to that he worked for six years in a systems and networking support role for the Australian National University on VAX/VMS hosts, Fujitsu mainframes and supercomputers, and a variety of UNIX and PC systems. His professional interests include network management and the continued success and expansion of the Global Internet.

