



INTERCAI MONDIALE – CONSULTANTS

Our Consultants are highly skilled and experienced in the business of Telecoms

Brief career summaries for some of our consultants are shown below. Each consultant has at least 20 years industry experience and is currently working in the Defence sector. Each has pursued a career in Telecoms, and has had technical and managerial responsibility for aspects of Networking and IS at levels ranging from Team Leader to Director.

Mark Norris



Dr Mark Norris is an acknowledged expert on fixed networks and a specialist in the design and management of networks and the services they support. Mark has a proven track record of technical, communication and strategic skills allied with an ability to work with and influence others. He has led and contributed to a wide variety of projects across the world and is the author of a range of technical books.

Mark was the Director of Market Operation in the Bahrain telecom regulator and was responsible for the National number plan implementation, the introduction of quality of service measurement and technical regulation. He has subsequently been involved in the evaluation of licence bids for the CITC in Saudi Arabia and has contributed to the universal service study for MoICT in Jordan.

Gareth Jones



Gareth Jones's early career was in British Telecommunications, where he held a progression of manager/senior management posts covering public/private, voice/data network design and implementation, and the management of key corporate accounts.

He has undertaken many interim management assignments with new entrant Telcos, including Energis, Unisource, Dolphin and Enertel. His consultancy skills include programme/project management, and process improvement. His consulting experience has included network design, billing system specification/implementation, interconnection negotiation, and product and service development.

Recent Defence Industry projects include technical aspects of Satcom and support to the JNIB programme.

Steve Hodson



Steve Hodson brings a pragmatic, practical and business oriented approach to the application of technology, which is backed up by a series of successful implementations. Prior to joining Intercai Mondiale in 1998, he held a range of senior technical and managerial positions in GEC, ITT and, most recently, Racal Telecommunications.

Steve has developed strong skills in line management, business analysis, project management, service level agreement negotiation, network architecture and optimisation, performance analysis and prediction, service development and process re-engineering. In a varied career that includes some pioneering work on the setting of service level agreements, he has led the design and implementation of some of the most successful networks in the UK.

Angus Goldfinch



Angus Goldfinch has had an extensive career involving networks and security for IT and Telecommunications industries with a focus on network solutions, the applications running upon them and the integration with customer applications. He is an expert in network and security, including voice, technology and its application for solutions in today's fast moving business environment.

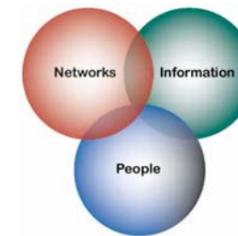
Angus has a proven track record in implementing IP Telephony, Networks and Security for Small Medium Business, General Enterprise and Local Government. He has had extensive experience in programme management and network architecture development.



NEC - MEETING FUTURE SKILLS REQUIREMENTS

An Intercai viewpoint

NEC is key to future military capability, and networks are a vital component of NEC



Our work within JNIB has highlighted to us the importance and scale of the transformation programme that is Network Enabled Capability. The Network dimension is a critical part of NEC. It is the essential enabler for the capture and dissemination of Information - which is then processed and used to create shared situational awareness and decision superiority, and ultimately to deliver enhanced military effect.

Our focus is the Network dimension. Within this dimension we can see a number of major changes in approach, which may give rise to a change of emphasis and requirement.

In recent times the focus, through the Smart Acquisition programme, has been on the "delivery of individually complex platforms to accomplish defined tasks independently of other systems within the battlespace." (AfNEC brochure). This focus has clearly been very effective in delivering comprehensive capabilities to support defined battlefield scenarios, but it has also created a 'Stovepipe' organisation and culture, and bespoke capabilities that cannot readily be exported to other platforms.

Networks and services must 'interoperate'. This requires a different approach to network design and operation, and service management

NEC requires networks to interoperate in such a way that information can be exchanged between end users on different networks transparently, flexibly and reliably. Not only must this be achieved for systems within the MoD but also for those beyond its boundaries. Although the terms 'integration' and 'network of networks' are common currency in the MoD today, the term that we believe truly characterises the long-term goal is 'seamless interoperability'.

'Interoperability' implies a number of changes from the current systems approach. For example, interface definitions, currently based on bilateral connection, may need to be refined, and new test regimes defined, to reflect their role in supporting end-to-end services that cross multiple networks.

- service-oriented architectural approach

The current approach to developing complex platforms such as Bowman, which relies upon a very high level of integration and interdependency between user applications and the network, may not be the right approach when providing end-to-end services via the interoperation of multiple disparate networks. It may be necessary to de-compose end user services into a hierarchy of intermediate services (eg an end-user information service may require a directory capability, a switching/routing capability and a transport capability) so that commonality and standardisation can be achieved at these lower service levels.

- end-to-end service assurance by enhanced interface management

The quality of an end-to-end service that spans more than one independently managed network must be adequate and consistent for end-to-end service assurance. Service delivery points and their expected performance parameters need to be defined at the boundaries of networks. From these, an overall service performance can be defined and managed using a Service Level Agreement (SLA) approach. It's of key importance that the parameters in such an SLA are properly reflective of the performance and manageability of the individual network services – or the goal of end-to-end service assurance is compromised.

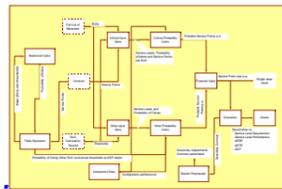


-service and network optimisation through high level overviews, and models

In a 'network of networks' environment, where different, and potentially autonomous, networks combine to support end-to-end services it is important to have a set of 'network of networks' views to support planning, operational and commercial decisions.

A *planning* view will allow services to be designed to take full advantage of the alternative paths within and between networks without causing capacity shortfalls leading to degradation or denial of other services – a particular problem when the source of traffic is not the affected network itself.

An *operational* view gives real time visibility of performance at the component service levels, allowing quick identification of problems. With appropriate service and network models and integration with the management system capabilities of individual networks, it can offer rapid service reconfiguration, and enhanced service resilience.



Typical Availability Model

Of particular importance where the 'network of networks' includes both controlled systems and third party services (eg DFTS and Skynet5) is a *commercial* view, which represents networks in terms of their cost/performance characteristics. As well as informing routeing priorities this view is also important to support SLAs (see above) and prime contract negotiations, ensuring best value overall.

All these views must be underpinned by the development and maintenance of appropriate network and service models that are consistent with an overall MoDAF approach.

The interoperability requirements of NEC are not unique.

The challenges of interoperability have a lot in common with those faced by the Telecommunications industry where a uniform and predictable end-to-end service has to be delivered across, potentially, a number of independently managed networks. Nowhere has this been more evident than in Western Europe where the liberalisation of the market place has seen the rise of many new operators, and consumer appetite for more complex services, with the consequent need to interface networks of different design and technology and to support increasing complexity of service.

The skills of the Telecommunications sector have traditionally been network - rather than IS - based, and with a strong service focus. The changing environment has forced many to hone their skills in network operations and service delivery and to develop new skills in modelling and business planning. Although the commercial imperatives of the Telecommunications sector may differ from those of the MoD, the need to provide quality services and to demonstrate value for money are the same, and so are many of the skills requirements.

Best practice in the Telecoms industry can help achieve NEC goals

We therefore suggest from the above analysis that best practice in the Telecommunications industry may have much to offer the MoD in achieving NEC goals.

The NEC requires both the wide area networking (WAN) skills and service focus of the Telecoms industry as well as the Local Area Network (LAN) and IS-focussed skills of complex platform suppliers.



INTERCAI MONDIALE - COMPLEMENTARY SPECIALIST SKILLS

Intercai is a leading supplier of telecoms-based consultancy and interim management services



www.intercai.co.uk

Intercai is experienced in working with the Defence sector

Intercai Mondiale is an internationally renowned management consultancy that has, since its creation in 1988, operated in the breadth and depth of telecommunications and information technology. We use our management consulting skills to serve the technology, media and telecom sectors.

We have conducted over 400 assignments for clients in Europe, the Middle East, Africa and the US. Our clients include government, regulators, fixed and mobile telecom operators, systems integrators, equipment developers, new media businesses, broadcasters, banks and venture capital companies.

We specialise in identifying and applying best practice in a number of key areas including: technology selection; network and service design and operation; and network and business modelling.

Intercai's breadth and depth of experience in the Telecom sector have also been applied to assignments for the Defence Sector.

We wrote a major report in 2002 for MoD on commercial best practices in telecommunications and their relevance to military networks. This report included techniques for establishing end-to-end performance parameters in an SLA managed environment, and a review of the capabilities of network Operational Support Systems (OSS) COTS products.

We have been actively involved with EADS companies on the Skynet 5 project. We have conducted network assessments, reviewing ground infrastructure and OSS aspects, and we have made recommendations based on best practice in telecoms. We have subsequently addressed specific design areas including network synchronisation and network traffic loading.

We are currently part of the Paradigm team working in the MoD/Industry JNIB initiative, which has a key role in the roll-out of NEC, and have had extensive contact through workshops and meetings with representatives of IPTs, DCSA, IA , AfNEC and DEC.

Many of our projects have addressed key interoperability issues

Our projects have covered many of the areas relevant to the interoperability of networks that is key to NEC:

We advise Telecom Operators in the UK and Europe on the technical and commercial aspects of network interconnection; and we have advised and acted as Telecom Regulators in creating effective interconnection environments.

We advise Service Providers and we have run specialist courses on the subject of SLAs, focussing particularly on aspects of network design and operation, and how they should be reflected in SLAs to ensure appropriate service performance.

We have developed models of UK defence networks to assist in planning, dimensioning and service assurance. We have also developed a number of high level models for fixed and mobile telecommunication networks to support economic studies.

Intercai and the DCSA Catalogue

Intercai Mondiale has relationships with a number of DCSA Catalogue suppliers.

For further details about Intercai Mondiale, its services and its experience in the Defence sector please call Gareth Jones or Nick Gill on 01628 478470, or e-mail defence@intercai.co.uk