

**The.Firm**

**From:** The.Firm [the.firm@internode.on.net]  
**Sent:** Tuesday, 28 February 2006 11:45  
**To:** 'LtGen David Hurley CCDG <david.hurley@defence.gov.au>'  
**Cc:** 'Dr Stephen Gumley, CEO DMO <stephen.gumley@defence.gov.au>'; 'Norm Gray, Deputy DMO'; 'The Firm Distribution List'  
**Subject:** THE GREAT DEBATE - SOME CONTEMPORANEOUS PROOF

**Sensitivity:** Confidential

To: Lt Gen David Hurley, Chief of Capability Group



Dear Lt Gen Hurley,

In our last Bulletin, entitled 'The Great Debate' (copy attached) we observed that –

*“On the first point, of the six cardinal capabilities used to promote the JSF, three of these (radar, sensors & systems, networked communications) are systems (aka ‘black boxes’) that can and are intended to be integrated into other aircraft, such as the Super Hornet, A-10, B-2A, F-111S and the F-22A. Therefore, they are not unique to the JSF. Using them to promote the JSF over other aircraft is just lame. Of the remaining capabilities, the F-22 is considerably more stealthy than what the JSF is intended to be; the Super Hornet and the F-22 are multi role aircraft with the F-22 dominant in the air superiority role; the Block 20 F-22 (circa 2008) will have far greater multi role capabilities, all around, than the JSF or the Super Hornet; and, the JSF will cost well over twice what defence officials have told the Parliament.”*

Attached are two media reports, dated the 27<sup>th</sup> of February 2006, which go to support Air Power Australia’s and The Firm Consultancy Group’s advice in the first sentence of this observation. They are well worth a read.

There are two other points mentioned in these two attachments that are, also, well worth considering.

Firstly, the concerns in relation to the frequency spectrum, in particular interference with commercial users, which is the primary reason for modification and upgrade of the B-2 radar. An Australian domain expert in this area, Dr Viv Crouch, has been flagging the issue of the shrinking nature of the frequency spectrum with the influx of commercial users for years, now. He has also been flagging the risks this presents for military, research and Industry organisations, as well as ways these risk may be effectively addressed. Though many at the working levels are rightly concerned, we have yet to see any real traction on this subject within the senior levels of the organisations whose operations will be most effected. Some appropriately resourced leadership, able to coordinate the inputs and requirements of Australia’s interests would be an effective way of addressing this issue and its incumbent risks.

Secondly, the concerns expressed about the future effectiveness of the Link 16/JTIDS communications networking system, currently a corner stone of the network centric push within our Department of Defence and the resulting ‘system of systems’ situating of the appreciation being espoused.

An overview of the technology and some of these considerations is attached in the article entitled, ‘NCW-101 : Part 3’.

The use of ad hoc networks formed part of the Industry Proposal of 2001/early 2002 to the NACC AIR6000 Project Office, submitted in response to their request for proposals under the Force Mix Option Market Survey in support of Stage 3 – The Force Mix Option Analysis Stage of the project.

This is not to say that the experts within Defence are not across these concerns and the solution that is being applied by our friends across the pond – the Tactical Targeting Network Technology (TTNT) and related ad hoc networks. However, there is no visibility of such knowledge or understanding in the planning documents and public representations such as the [NCW Roadmap 2005](http://www.defence.gov.au/Capability/docs/NCW_Roadmap_2005) [http://www.defence.gov.au/Capability/docs/NCW\_Roadmap\_V2.7.pdf].

Given the defence acquisition system that Dr Gumley and his people in the DMO are diligently working to improve is still a somewhat ponderous juggernaut, perhaps this situation presents with an opportunity to further improve the system. This situation provides an ideal opportunity to demonstrate the need for more flexibility in such things as the approval process. Similarly in the need for retention of priority and funding support even when a project needs to undergo some significant changes in direction in terms of the solution/s identified to meet the war fighters' needs.

On current planning in the DCP and related documents, it would seem that our land, sea and air forces will be introducing/committing to the Link 16/JTIDS networking system around the time the US forces will be changing over to ad hoc network communications such as the TTNT system.

No doubt there are difficulties in changing horses mid stream if this, in fact, is the case. However, if we only have one hoof in the water or are still in the shallows of the river, maybe there are some advantages of significance and, moreover, opportunities for maximising return on future investments, by engaging in some rapid response re-thinking of current plans.

The domain experts within The Firm Consultancy Group and Air Power Australia stand ready to assist in such a process should you decide to take up the opportunity that has been identified. We also recommend determining an estimate of the cost/capability improvements and related savings of such an opportunity would be one of the first places to start. Our first cut on this is the reason for writing to you on this matter with these suggestions and this recommendation.

An Adobe PDT copy of this E-mail is attached in case the formatting is lost in the 'going through the ethers via who knows where' process.

Very Best Regards,

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*"Air Power Australia - Defining the Future"*

**Attachments:**



SP\_The-Great-Debate\_Issue1\_The...



AIMPoints\_First-flight-of-B-2-...



AIMPoints\_Plan-to-fight-existing...



DT-NCW-101-3-0905.pdf



E-Letter\_Some-contemporaneous-...

## Background and Bibliography of JTIDS/MIDS and Ad Hoc Networks in the Australian Context –

The issue of ad hoc networking capability was first raised by Dr Carlo Kopp back in 1999. Dr Kopp is one of Australia's leading domain experts in this area. Since then he has repeatedly pointed out the limitations of JTIDS/MIDS in the existing ADF NCW architecture. It is worth noting that US contractors L-3 and Northrop Grumman are currently performing experiments on the use of AESA fire control radars as high speed datalinks, something which was proposed in 2001 as part of the response entitled 'The Evolved F-111 Option' to the request for proposals from Defence.

The following bibliography is provided for background reading as well as tracing the history in the Australian context on the subject of Link16/JTIDS, its limitations and ad hoc network communication systems.

1. <http://www.ausairpower.net/OSR-0699.html> - First Australian reference to ad hoc networks, predating JTRS TTNT and JTRS WNW
2. Defence Today <<http://www.airpowerint.com/>> - August 2003 - Network Centric Warfare - NCW limitations discussed and the potential of ad hoc/JTRS raised. <<http://www.ausairpower.net/NCW.pdf>>
3. <http://www.ausairpower.net/TE-NCW-JanFeb-05.html> - Jamming of JTIDS
4. Defence Today <<http://www.airpowerint.com/>> - March 2004 - NCW - Buzzwords, Bytes and the Battlespace – includes discussion on JTIDS limitations <<http://www.ausairpower.net/NCW-MAR04-P.pdf>>
5. Defence Today <<http://www.airpowerint.com/>> - September 2004 - NCW - In the Land Environment - JTRS and ad hoc discussed <<http://www.ausairpower.net/DT-NCW-Aug-04-P-2.pdf>>
5. Defence Today <<http://www.airpowerint.com/>> - July 2005 - NCW 101 - Part 2 - Digital Datalinks and Networks – Further discussion on JTIDS limitations <<http://www.ausairpower.net/DT-NCW-2-0705.pdf>>
7. Defence Today <<http://www.airpowerint.com/>> -September 2005 -NCW 101 - Part 3 - JTIDS/MIDS - Detailed JTIDS critique including jamming considerations. Not posted on APAW as yet due to its late release in December 2005.