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February 16-March 2 • 2011



MILITARY/Updates 7
Trusted partner: Raytheon's pitch

AEROSPACE/Updates 8
India's defence spend to increase: A.K. Antony

AEROSPACE 12
Unmanned Vehicles

AEROSPACE 14
Major Programme



INTERNAL SECURITY 15
Security roadmap for airports

INTERNAL SECURITY 19
Cyber attacks in Asia

NEWS & EVENTS 20
Cassidian and L&T pact

Focus India



India's own light combat helicopter (LCH) taking to the skies at Aero India 2011, clearly demonstrating to the world that India's military capabilities will soon transform it into a regional power.



MILITARY

4 | Updates

AEROSPACE



- 8 | Updates
- 12 | Unmanned Vehicles
- 14 | Major Programme

INTERNAL SECURITY

- 15 | Updates
- 18 | Viewpoint
- 19 | Cyber
- 22 | Breaches

+ DEPARTMENTS

- 3 | From the Editor's Desk
- 20 | News & Events



Cover Photo:

India's own Light Combat Helicopter (LCH) taking to the skies at Aero India 2011, clearly demonstrating to the world that India's military capabilities will soon transform it into a regional power.

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SP's MAI catches the eye at Aero India 2011



February 9, 2011, is a red-letter day for SP Guide Publications. *SP's MAI*, a fortnightly publication, was unveiled by the Minister of Defence A.K. Antony at the premier aerospace event of Asia—Aero India 2011. Adding to its portfolio of defence and aviation magazines, *SP's MAI* endeavours to capture the essence of India's growing importance as military, aerospace and internal security player.

The Defence Minister indicated how violent disturbances in the neighbourhood posed security challenges, necessitating rapid modernisation of the armed forces. The current defence expenditure – 2.5 per cent of the GDP – has been consistent with the projected security requirements which are bound to increase over the next two decades.

In the current issue, the breadth of India's defence modernisation programmes, as witnessed partially at Aero India, are highlighted. The Defence Minister, the Chief of the Air Staff, and the head of Defence Research and Development Organisation (DRDO) are on the same page when it comes to equipping the armed forces with the state-of-the-art equipment and also on the acceleration needed for self-reliance in defence technology.

Multinational companies are foraying into India and the latest is Raytheon expanding its operations here. Raytheon India President William Blair talks about the company's capabilities and how they fit the bill as per India's defence and security requirements. Raytheon showcased a variety of solutions including its integrated sensor suite; air-to-air and air-to-surface weapons and maritime surveillance and coastal security solutions.

We have highlighted two major programmes – the first being the joint effort between Embraer and DRDO. Embraer has presented the EMB 145 airborne early warning and control (AEW&C)

platforms that will feature advanced electronic systems currently being developed by DRDO. The second being AeroVironment's Nano Hummingbird programme, an unmanned air vehicle.

Cyber security continues to unnerve all authorities. Securing military systems from cyber attacks is a major challenge. Lt General P.C. Katoch's article on "cloud strategy" outlines how limitations of "public cloud" is under constant debate, major issues being authentication/user access models, requirements of invoicing and billing, quantum of firewalls, etc.

Reiterating our commitment to provide relevant and latest information on defence and security updates, *SP's MAI* has made an earnest beginning in facilitating "actionable intelligence" and would appreciate your feedback on the same. **SP**

Jayant Baranwal
Publisher and Editor-in-Chief



Oshkosh Defence unveils TAPV prototype

Oshkosh Defence has unveiled its prototype for Canada's tactical armoured patrol vehicle (TAPV) programme. The company also unveiled its plans to work with subsidiary, London Machinery (LMI), in pursuit of Canadian Department of National Defence (DND) vehicle programmes.

LMI provides local advanced manufacturing capabilities and a highly skilled workforce to the Oshkosh Defence and General Dynamics Land Systems-Canada team's bids for the TAPV and medium support vehicle system (MSVS) programmes.

The joint effort for the TAPV programme will replace the armoured patrol vehicle (APV) and the Coyote reconnaissance vehicle. The companies also are teamed up for the MSVS programme, which will replace the medium logistics vehicles, wheeled (MLVW) fleet. The new programmes will enhance the capabilities of the Canadian forces with protected, high-performance vehicle fleets. **SP**

Rockwell Collins sets up EuMEA headquarters in Paris

Rockwell Collins President and CEO Clay Jones recently met key European customers to discuss on the company's strategy for continued growth in the region and to formally announce its newly established headquarters for Europe, the Middle East and Africa (EuMEA).

"The new hub in this region of the world will optimise our core positions in Europe and beyond," said Jones. "We'll be closer to our customers' needs and our responses to them will be instantaneous and not transatlantic," he added. The new Rockwell Collins EuMEA hub, led by Bruno Rambaud, Vice President and Managing Director, will serve as a conductor for its well-established presence in the region. **SP**

BEL and Sagem join hands

Navratna defence public sector undertaking Bharat Electronics Ltd (BEL) and Safran Sagem have signed a memorandum of understanding (MoU) in the field of land navigation and artillery pointing applications based on Sagem Sigma 30 inertial navigation system. Sigma 30 equips the world's leading artillery systems, including the indigenous Pinaka missile system.

The signing of the MoU was announced during Aero India 2011 in Bangalore. The MoU shall pave the way for transfer of technology of Sigma 30 to BEL and will reinforce BEL's position as a leader in artillery fire control systems. The partnership offers the Indian Army a local source of manufacturing and maintenance.

International Corporation

BEL also announced the signing of a technology collaboration agreement (TCA) with Optelian International Corporation,

designer and manufacturer of optical transport systems. The agreement establishes a long-term partnership between the two companies for the manufacture and design of optical networking systems in India, and deployment throughout the SAARC region. The initial period of the agreement is for 15 years. The TCA will focus on joint technology development, as well as all facets of the optical networking business.

"Optelian is pleased to be partnering with a company of BEL's calibre and reputation," said Mike Perry, President of Optelian International Corporation.

H.N. Ramakrishna, Director Marketing of BEL said, "We are happy to have executed this important agreement with Optelian and look forward to a dynamic partnership that will benefit all our customers." **SP**

FLIR Systems sensors to US Army

FLR Systems announced that it has been awarded a delivery order totalling \$15.8 million for its Star Saffire II stabilised multi-sensor systems to support the US Army Medevac programme. The units delivered under this order will be employed on the Army Medevac UH-60 Blackhawk helicopters serving in Iraq and Afghanistan.

Work under this contract will be performed out of FLIR's facilities in Wilsonville, with deliveries expected to be completed within the next 12 months.

"With hundreds of sensors already supporting US Army initiatives, this contract reiterates FLIR's leadership in providing reliable and effective imaging products," said Earl R. Lewis, President and CEO, FLIR Systems. "FLIR invests heavily in research and development to ensure our sensor systems are the most technologically advanced and dependable solutions for protecting troops in the harshest environments." **SP**

Thales AESA RBE2 radar validated on Rafale



Thales has announced that the production model AESA RBE2 radar with active electronically scanned array antenna has been validated on the Rafale omnirole combat aircraft.

Following a comprehensive programme of flight tests conducted between September and December 2010 with the AESA RBE2 on the Rafale, Dassault Aviation confirmed that all aspects of the radar's performance comply with the technical specifications of the 'roadmap' contract, awarded by the French defence procurement agency (DGA).

The success of this test campaign is a further endorsement of Thales's European leadership in airborne radar. The AESA RBE2 with active array will give the Rafale a number of key advantages including extended range for compatibility with the latest generation long range missiles and ability to detect low-signature targets; higher module reliability for reduced cost of ownership (no maintenance required on the active array for 10 years); and extended waveform agility, making it possible to acquire sub-metric synthetic aperture (SAR) imagery while increasing the radar's resistance to jamming. SP

New concept for mass military training

A team comprising Rockwell Collins, Advanced Infoneering and the University of Iowa Operator Performance Laboratory (OPL) has been awarded a Phase II contract by the Naval Air Warfare Centre Training Systems Division, Orlando.

This contract will allow further development in a new concept for mass military training called skill appropriate training environment (SKATE). SKATE is aimed at ensuring that mass military training exercises are tailored to individual skill sets versus a 'one fits all' approach.

"SKATE is a very promising solution to problems that occur in large-scale exercises when lower-skilled participants experience training scenarios that are too advanced for them, and higher skilled trainees are underutilised," said Ken Schreder, Vice President and General Manager, Simulation and Training Solutions for Rockwell Collins. "This next phase of research will further advance SKATE by using our latest training technology to develop an assessment tool aimed at increasing training effectiveness, while also saving time and money for training organisations."

In Phase 2, the team will conduct human factors studies using simulator and flight test assets at OPL in order to validate the SKATE concept by developing an initial prototype for a software-based assessment tool. The prototype will utilise the Rockwell Collins instructor operator station (IOS) currently used in simulation and training programmes for the military. The work will take place over the course of 2011. The team's ultimate goal is to integrate the SKATE system into existing military training programmes. SP



Selex and Rolta tie up for tactical communication system programme

Selix Communications and Rolta, provider of geospatial solutions and services with specific competencies in C4IS-TAR information systems etc, have signed a strategic partnership teaming agreement for the Indian tactical communication system (TCS) programme for the Indian Army.

Selex communications will undertake transfer of its state-of-the-art technology for radio relay systems, switching systems and field wireless systems etc, to address the TCS programme needs. With a high level of Indian content, these sophisticated military communication systems will fulfill the long-standing national need of indigenous technology in this critical area.

Mario Damiani, Senior Vice President Sales of Selex Communications stated "We are very excited about this partnership with Rolta. Our world-class technology, when coupled with Rolta's deep understanding of Indian defence needs and systems integration expertise, would make our offering comprehensive and fully compliant with the demanding performance requirements of Indian TCS programme".

K.K. Singh, Chairman and Managing Director of Rolta, said, "We are very pleased that we are in a position to address the Indian military communications requirements with field proven technology from Selex Communications, and to integrate them with Rolta's defence solutions, to meet the stringent standards of the Indian armed forces under the Government of India's defence modernisation and capacity building programmes. It has always been our endeavour to provide our defence forces with indigenous, customised, and cutting-edge solutions for mission critical applications to keep our country safe and secure." SP



General Dynamics awarded \$60 million contract for Virginia-class submarines

General Dynamics Electric Boat has been awarded a \$60 million US Navy contract modification that funds continued design efforts to make Virginia-class submarines more affordable.

Initially awarded in 2008, the overall contract—known as Block III—calls for the procurement of eight submarines through FY 13, and has a potential value of \$14 billion. The last Block III ship is scheduled for delivery in 2019.

Under the terms of the modification, Electric Boat will continue to develop and implement cost-reduction design changes, an effort called design for affordability (DFA). This work will enable the Virginia-class programme to reduce acquisition costs by 20 per cent in time for the FY 12 submarines.

The most significant design change implemented in Block III is the modification of the submarine's bow, replacing the sonar sphere with a large aperture bow array and the 12 vertical-launch missile tubes with two Virginia payload tubes, each carrying six missiles. This redesign will save more than \$40 million per ship, beginning with the submarine North Dakota. **SP**

BAE's rubber tracks for Afghan ops

Two Norwegian Army CV9030 infantry fighting vehicles have been using rubber tracks in northern Afghanistan since December. The 28-tonne BAE Systems vehicles are the heaviest to have used them on operations.

The rubber track system is jointly developed by Soucy International in Quebec, Canada and BAE Systems in Sweden. While Soucy has designed and produced the tracks, BAE Systems has qualified the system in full-scale trials. The tracks reduce vehicle weight by more than one tonne compared with conventional steel tracks. They also cut noise by a massive 10dB and vibration levels by 65 per cent.

BAE Systems technical and durability tests on a CV90 over several years weighing 28,000 kg gave good results, with a track life comparable with conventional steel tracks. Trials by the Norwegian Army in late 2010 were positive and the two vehicles were sent to Afghanistan before the planned schedule was completed.

CV90 trials at 35 tonnes will take place through 2011. The increasing vehicle weights possible with rubber tracks are the result of advances in rubber track technology and vehicle configuration. Also planned for early 2011 are mine blast trials to assess the effect of blast and fragments on the tracks. **SP**

US Army's huge orders for thermal weapon sights

The US Army is ordering 21,877 thermal weapon sights at an investment of about \$195 million. The thermal weapon sights are lightweight systems that are mountable on a weapon rail and operate to the maximum effective range of the weapon.

Raytheon is to deliver 9,001 thermal weapon systems at a contract price of \$68,680,036; DRS to deliver 6,876 units for a \$68,225,668 contract; and BAE to deliver 6,000 units at a cost of \$58,023,450. The orders are estimated to be completed by June 30, 2012. **SP**

Northrop Grumman, Pipavav Shipyard sign MoU

Northrop Grumman and Pipavav Shipyard have signed a memorandum of understanding (MoU) representing the first step in exploring potential business relationships between Northrop Grumman's Electronic Systems and the Pipavav Shipyard in India resulting from synergies in technology, experience, and capabilities for the mutual security interests of the United States and India.

The MoU covers the exchange of programmatic and planning information in accordance with the export laws of the Governments of India and the United States. It also allows both companies to identify synergies and develop operational concepts that may benefit future potential customers. **SP**



Trusted partner: Raytheon's pitch



Raytheon team: (Left to right)
Ajay K. Mathur, Walter Doran,
Thomas M. Culligan and William L. Blair



Auspicious start:
Walter Doran lighting the lamp

[By R. Chandrakanth]

Making a strong statement of “long haul” commitment to India, Raytheon Company has expanded its Raytheon India office, the next logical step being setting up a manufacturing facility as and when the defence and homeland security business finds the scale.

Reinforcing the “expanding partnership” with India, Senior Vice President of Business Development, Thomas M. Culligan; Raytheon Asia President, Walter Doran and Raytheon India President William L. Blair announced at the opening of the office at Radisson Commercial Plaza in New Delhi, that it will “support the company’s efforts to deepen its relationships across India.”

“For more than 60 years, Raytheon has collaborated with the Indian Government and has been a valued partner across civil aviation, air traffic management, satellite navigation and defence,” said Blair. “As we look toward the future, our new office will enable Raytheon to further support the requirements of our customers and suppliers in India.”

Defence and homeland security focus

The “sweet spot” or the “DNA of Raytheon” is defence, said Doran and reiterated that the company would offer the best of equipment to India. At the recently concluded Aero India 2011, the US in general and Raytheon in particular displayed the latest technologies that would be made available to India. “The lineup of aircraft and systems from the US at Aero India is indicative of its commitment. Boeing’s F/A 18 Super Hornet was fully loaded with the weapons platform and Lockheed Martin’s F-16 IN Super Viper on show was the latest. The P-81 maritime surveillance aircraft is already with India and has not entered service in the US as yet.”

The US contingent, led by the US Commerce Secretary Gary Locke and other senior government and military officials at Aero India 2011, is testimony to the fact of the strengthening relationship between the US and India.

Reiterating Raytheon’s focus on the 126 medium multi-role combat aircraft (MMRCA) deal, Doran said Raytheon platforms are compatible with five of the six aircraft in the race for the

MMRCA deal, the exception being the Russian aircraft. Raytheon’s active electronically scanned array (AESA) radar systems with groundbreaking performance and tactical advantages are the cornerstone of current and future aircraft.

Blair told SP Guide Publications about Raytheon’s focus on the defence and the nascent homeland security market and the impending visit (in July probably) of the US Secretary of Homeland Security, Janet Napolitano. “We will first consolidate our relationship with India and then as the partnership expands, we will look at manufacturing here.”

Culligan endorsed how India is not just a huge market but also a strategic partner. Commending the Raytheon India team, he said, the company will extend all assistance in its roadmap of expanding partnerships with India.

At the inauguration, Raytheon featured interactive demonstrations highlighting key capabilities of interest to India. These include integrated fighter; integrated air and missile defence; and global intelligence, surveillance and reconnaissance. Another capability it is highlighting is cybersecurity.

At Aero India, Raytheon showcased a variety of solutions including its integrated sensor suite; air-to-air and air-to-surface weapons and maritime surveillance and coastal security solutions. For the first time in India, Raytheon demonstrated Silent Guardian, the company’s millimetre wave nonlethal directed energy solution. David Howell, Senior Manager, Public Relations said that the Silent Guardian (known as the “pain gun”) generated a lot of interest at the show from homeland security authorities and clarified that the “pain gun” does not have radiation as reported in the media.

During the past several years, Raytheon has built on its heritage in general aviation and strengthened support for India through the state-of-the-art defence and security technologies, in addition to satellite navigation and air traffic management. Most recently, in 2010 Raytheon was awarded a radar contract for P-81 maritime surveillance aircraft; partnered with Larsen & Toubro Limited to submit an L&T-led proposal to upgrade Indian Army T-72 tanks; and was awarded a contract by the Airports Authority of India to automate air traffic control services at the Chennai International Airport. **SP**

India's defence spend to increase: A.K. Antony



Defence Minister A.K. Antony with Karnataka Chief Minister B.S. Yeddyurappa and Secretary Defence Production R.K. Singh at Aero India 2011


Inaugurating the eighth edition of Aero India 2011, the Minister of Defence A.K. Antony signaled that India's defence expenditure – 2.5 per cent of the GDP – is consistent with projected security requirement and is bound to increase over the next two decades. The defence budget for the current fiscal is over \$32 billion, of which \$13 billion is earmarked for capital outlays.

Referring to the violent disturbances in its neighbourhood, India is forced to increase its defence spending. The strategy is to ensure rapid modernisation of the armed forces, equipping them with state-of-the-art systems, equipment and platforms. Another aspect, he highlighted, is self-reliance in defence technologies for which the defence public sector undertakings, the ordnance factories and the private sector had to play a collective effort, and in coordination with international players. "I am sure that leading aerospace companies will form long-term partnerships with the Indian industry. We are open to joint ventures, public-private partnerships and licence production under transfer of technology."

Antony, who has been Defence Minister since 2006, expressed happiness at the increasing business interest in Aero India. "Compared to its 2009 edition, the international participation has gone up by 25 per cent, with over 40 foreign delegations participating at this year's Aero India."

Later at a press conference, the Minister rejected feelers by the US on an offer for the F-35 to India. "We are already in an agreement with Russia on the Fifth Generation Fighter Aircraft (FGFA). No other country offered us a fifth generation aircraft in the past. We have already taken a decision."

The Karnataka Chief Minister B.S. Yeddyurappa announced plans for an Aerospace City at Devanhalli near Bengaluru.

Among those present at the inaugural ceremony were Minister of State for Defence M.M. Pallam Raju, Marshal of the Air Force Arjan Singh, Chief of the Air Staff Air Chief Marshal P.V. Naik, Chief of Army Staff General V.K. Singh, Defence Secretary Pradeep Kumar, HAL Chairman Ashok Nayak, Chairman of the CII National Defence Council Baba Kalyani and CII Director-General Chandrajit Banerjee. 

MMRCA contract likely to be signed by September: Air Chief

Commercial negotiations in the medium multi-role combat aircraft (MMRCA) tender will start soon, the Chief of Air Staff, Air Chief Marshal P.V. Naik announced at Aero India 2011, expecting the contract for 126 fighters to be signed by September 2011.

"The offsets problems have been sorted out. Unless dissatisfied vendors put a spoke in the wheel, I'm sure the contract will be signed by September," Air Chief Marshal Naik said.

In another significant announcement, the Deputy Chief of Air Staff, Air Marshal R.K. Sharma said commercial negotiations for the upgrade deal for 51 IAF Mirage 2000 aircraft have been concluded. "It'll be our best effort to sign the contract by the end of the financial year 2010-11," he said. The deal is now being vetted by the Ministry of Finance. The IAF expects this upgrade to make the Mirage 2000 fleet relevant for another 20 years. The upgrade package includes a glass cockpit, new radar, state-of-the-art avionics, sensors and EW suite as also new weapons.

Air Chief Marshal Naik also announced that India would order 50 more Mi-17 V-5 helicopters from Russia. Delivery in the earlier contract for 80 of these medium-lift helicopters will start



this year. Giving the status on the helicopter induction, he said 12 AW-101 VVIP choppers will be delivered to the IAF shortly. Flight evaluation reports in tenders for 197 Light Utility Helicopters - in which the Army is the lead service - and the 22 attack helicopters will be ready soon. In the heavy lift category, in which the Chinook and Mi-26 are in contention, the trial evaluation is yet to start.

Bids by Rolls-Royce and Honeywell for the re-engining of the Jaguar deep penetration strike aircraft are expected by the end of February. This tender involves the re-engining of 60 IAF Jaguars. It will involve the series production of 200 engines at HAL. Also, the Jaguar will be the first IAF fighter to be equipped with sensor-fused weapons being acquired from Textron. The final evaluation report for 180 basic trainers to

replace the grounded HPT-32 has been submitted to the Ministry of Defence, and commercial negotiations should begin in a month or two.

The Air Chief strongly supported international collaborations to speed up development of defence systems. "We need collaboration in some areas to get to the next stage, the cutting-edge stage," he said. **SP**

India to become a potent force in aerospace sector: Dr. Saraswat

With the United States removing the Defence Research & Development Organisation (DRDO) from the Entity List, the premier scientific organisation is hoping that there would be "acceleration of cooperation" in many programmes.

The DRDO Chief and Scientific Adviser to the Defence Minister, Dr. V.K. Saraswat said DRDO was participating in 30 programmes to do with materials; sensors; advanced communication; low intensity communication equipment etc. "While we are off the Entity List, we have to see how it will evolve. We need to see how it would be applied to dual use technologies as the US licensing is stringent on this aspect. We need to see what kind of trust is going to develop between us and the US on licensing of dual use technologies which will be used both in civil and military applications."

Dr. Saraswat said efforts are on to make India a potent force in the aerospace sector and this is likely to happen in this decade. Since the development of the HF24 by the HAL about 15-20 years ago, India had turned corners in several areas, particularly defence and aerospace sectors. "We have had launch vehicles,

missiles, aircraft, and various systems. We have the infrastructure today. There is a vast pool of scientific talent to make India a potent force in aerospace."

Nirbhay, the subsonic cruise missile, is undergoing integration and that the first trial flight would happen in 2012. Similarly the test trials for the HSTDV (hypersonic technology demonstrator vehicle) will be early next year. After USA and Australia, India is the third country working on hypersonic missile. "It is a most complex technology under development. The HSTDV is an unmanned scramjet demonstration aircraft for hypersonic flight (Mach 6.5). India is pushing ahead with the development of ground and flight test hardware as part of an ambitious plan for a hypersonic cruise missile.

DRDO is also working on "future MBT" (main battle tank) to include missiles, passive and active protection system etc. "It is on the drawing board as of now." On the status of MBT Arjun, he said the DRDO had got an additional commitment of 124 MBT Arjun, to its earlier order of 124 and MBT MkII will be available for production in early 2014. **SP**

First navy pilot to fly carrier variant of Lockheed Martin F-35

Lt. Cmdr. Eric "Magic" Buus recently became the first United States Navy pilot to fly the Lockheed Martin F-35C Lightning II. The F-35C will operate from the US Navy's large aircraft carriers by way of catapult launch and arrested landing. The United Kingdom's Royal Navy and Royal Air Force also will employ the F-35C.

"The in-air handling qualities of the F-35C are excellent, and very similar to the B variant. I immediately felt right at home in the aircraft," said Lt. Cmdr. Buus. "The Navy should be excited about having an aircraft that will be able to launch from our carriers with enough internal fuel and weapons to project power where we need to, and will have the stealth characteristics to go in and out of harm's way unseen. This will be a great leap in technology and capability for the future of naval aviation."

The mission lasted 2.1 hours and was the 32nd flight for CF-1, the first F-35C test aircraft. Lt. Cmdr. Buus has now flown both F-35 sea-service variants. On February 3, he became the first Navy pilot to fly the short takeoff/vertical landing F-35B, to be operated by the U.S. Marine Corps and the Italian Air Force and Navy.

The F-35C is scheduled to begin land-based catapult launches and arrested recoveries later this year, with ship-board test flights beginning in 2013. The F-35B will begin test operations from US Marine Corps amphibious assault ships this fall.

F-35s have completed a total of 624 test flights, including 78



flights in 2011. The F-35B has completed 32 vertical landings including 22 in 2011.

The F-35 Lightning II is a fifth generation fighter, combining advanced stealth with fighter speed and agility, fully fused sensor information, network-enabled operations and advanced sustainment. Lockheed Martin is developing the F-35 with its principal industrial partners, Northrop Grumman and BAE Systems. **SP**

Eurocopter's Fennec show-stopper at Aero India

Eurocopter, leading helicopter manufacturer, successfully concluded Aero India 2011 with several contracts for civilian helicopters being signed and its static display of the AS550 C3 Fennec playing host to several dignitaries, who were greeted by Lutz Bertling, President and CEO of Eurocopter Group.

Eurocopter is in the race for the largest helicopter deal – the contract for 197 Reconnaissance and Surveillance Helicopters by the Indian Ministry of Defence. While the final decision is expected to be announced by the middle of the year, Eurocopter spared no resources in showcasing the proposed rotary-wing aircraft for the contract, the AS550 C3 Fennec.

The Fennec was the centre of attention. Bertling hosted several Indian military top brass at the Fennec display, including Minister of State for Defence M.M. Pallam Raju; Chief of Army Staff General V.K. Singh; Deputy Chief of Army Staff Lt General J.B. Singh; and Deputy Chief of the Air Staff Air Marshal R.K. Sharma. German Minister of Defence and French Chief of Air Force also visited the display and met Dr. Lutz Bertling. **SP**



(Left to right) Norbert Ducrot, Senior Vice President Asia Pacific for Eurocopter, Chief of Army Staff General V.K. Singh, Lutz Bertling, President and CEO, Eurocopter Group

PHOTOGRAPHS: Lockheed Martin, Eurocopter

Cobham receives \$25 million contracts from Lockheed Martin

Cobham has been awarded contracts in excess of \$25 million from Lockheed Martin to supply aerial refuelling systems and external fuel tanks for that company's C-130 Hercules aircraft.

"These systems will enable the US Air Force and US Marine Corps operations where in-flight refuelling is critical to the success of the mission," said Iain Gibson, Vice President of Cobham Mission Equipment.

Cobham's 48-000 series aerial refuelling pods and 1360-gallon external fuel tanks are standard equipment on all Lockheed Martin HC-130J, MC-130J, and KC-130J tanker models. Cobham, which has more than six decades of experience designing and manufacturing fuel tanks for the aerospace industry has supplied a vast majority of air-to-air refuelling systems currently in operation around the globe. Work will be performed in Davenport, Iowa, with deliveries scheduled for 2011 and 2012. **SP**

Chromalloy crosses one-year milestone on Northrop Grumman KC-10

Chromalloy has crossed one-year milestone as a member of the Northrop Grumman team on the KC-10 extender logistics support programme, overhauling 48 CF6-50C2 aircraft engines in the initial programme year while meeting turnaround time requirements and improving engine performance.

The contract provides support for the US Air Force KC-10 refuelling fleet of 59 aircraft. Under the \$540 million, six-year contract with up to three incentive years that commenced in 2010, Chromalloy, with team member MTU Maintenance, is overhauling and repairing a fleet of 204 engines and an additional 77 auxiliary power units that provide energy for secondary electrical systems. **SP**

Air-to-air refuelling on A400M

Airbus Military recently performed an initial series of air-to-air refuelling trials of the A400M airlifter using a Vickers VC10 tanker of the UK Royal Air Force (RAF) operating from Toulouse.

A400M development aircraft Grizzly 1 executed a series of dry contacts with the VC10's fuselage-mounted hose drum unit (HDU) on the first day of the trials on February 15. The RAF is one of the launch customers for the A400M. **SP**



PHOTOGRAPHS: Airbus Military & USAF



An ACM-65 Maverick missile fired from the US Air Force A-10 Thunderbolt attack aircraft

Raytheon completes first series of laser-guided Maverick captive flight testing

Raytheon Company completed a series of initial captive carry flight tests of the AGM-65E2/L, the newest variant of the laser-guided Maverick missile. The missile is a direct-attack, air-to-ground precision munition used extensively by the US Air Force, Navy and Marine Corps in ongoing combat operations.

"The combat-proven, laser-guided Maverick is an ideal weapon for urban combat and high-speed manoeuvring targets, both on land and at sea," said Harry Schulte, Vice President, Raytheon Missile Systems Air Warfare Systems product line. "With more than 33 customers around the globe and certified on more than 25 aircraft, Maverick is clearly the warfighter's weapon of choice for direct-attack precision engagement."

The AGM-65E2/L will have an enhanced laser seeker and new software that reduces the risk of collateral damage and enables aircraft to use onboard, buddy and ground-based lasing to designate targets.

During the tests, which took place in the fourth quarter of 2010, the Maverick's laser seeker locked on to a variety of stationary and moving targets from distances as far as 28 kilometres (18 statute miles). The tests were conducted on the F/A-18, F-16, and A-10C fighter aircraft. **SP**


Elbit Systems performs joint missions of Hermes 450 and 900 UAS

Elbit Systems has successfully performed a series of joint flight missions of its Hermes 450 and Hermes 900 Unmanned Aircraft Systems (UAS). The two UAS were controlled and operated from the same universal ground control station (UGCS), transmitting the gathered imagery, Elint and Comint to their station operators, while using different communication systems.

Joint flight control and management of two different UAS provides users with enhanced operational flexibility, adapting each specific UAS to a specific mission and furthermore enabling management of highly complex missions in



diverse arenas. Conducting joint flight operation from a common UGCS is also highly cost effective as the two distinct UAS rely on shared software architecture and training programmes, thus reducing additional costs. Capable of simultaneously controlling two parallel UAS missions, each mission managed by a single operator, the UGCS enables advanced mission performance, automatic taxiing, autonomous flight and automatic take-off and landing systems common to all the UAS in the Hermes family.

Building on the operational experience of the Hermes 450, the backbone of the Israel Defense Air Forces with over 2,00,000 operational flight hours in its track record, the Hermes 900 offers additional capabilities such as higher flight altitude (over 30,000 ft), longer endurance and larger payload capacity (up to 350 kg), thus allowing the execution of more diverse and complex missions using the two distinct UAS. 


Israel Aerospace Industries presents airborne navigation system

Israel Aerospace Industries (IAI) presented a new airborne navigation system called TNF- Tamam Navigation FOG (Fibre Optic Gyro) at Aero India 2011. TNF is an advanced lightweight, airborne navigation and attitude heading reference system (AHRS) for use in unmanned air vehicles (UAV), target drones, small aircraft and helicopters. It is also used for accurate targeting applications (INS-on-Gimbal) in stabilised electro-optical/infrared systems.




TNF is in serial production and quantities worth several million of dollars were already delivered to local and international customers. TNF utilises Tamam's FOG based Inertial Measurement Unit (IMU) and a GPS receiver to provide precise integrated navigation solutions. TNF is a cost effective solution for various navigation and control applica-

tions for military and commercial purposes.

Shaul Shahar, General Manager of IAI's TAMAM division, said: "The TNF is part of Tamam's advanced line of successful airborne navigation systems, and we are proud that it was chosen for leading UAV programmes in Israel and overseas". 

Sea Avenger goes through wind tunnel tests

General Atomics Aeronautical Systems, (GA ASI), a leading manufacturer of unmanned aircraft systems (UAS), tactical reconnaissance radars, and sensor systems, has completed a key wind tunnel test on a model of its Sea Avenger UAS. Sea Avenger supports the unmanned carrier-launched airborne surveillance and strike (UCLASS) programme by providing a long-endurance, survivable, carrier-based UAS for the US Navy.

The wind tunnel test validated the low-speed characteristics of a new wing, resulting in higher endurance and lower approach speeds. The new wing is also designed to increase aircraft dash speeds, decreasing the time to respond to potential threats. 



World's first fully operational life-size Hummingbird-like NAV

It is capable of climbing and descending vertically, flying sideways left and right, flying forward and backward, as well as rotating clockwise and counter-clockwise, under remote control and carrying a video camera payload. The Nano Hummingbird has been developed by AeroVironment Inc which can fly in and out of a building through a normal-size doorway.

The unmanned air vehicle has been manufactured as part of the contract awarded to AeroVironment by the Defense Advanced Research Projects Agency (DARPA) to design and build a flying prototype "hummingbird-like" aircraft for the Nano Air Vehicle (NAV) programme.

The Nano Hummingbird is a controlled precision hovering and fast-forward flight of a two-wing, flapping wing aircraft that carries its own energy source, and uses only the flapping wings for propulsion and control.

"The historic achievement made by the Nano Hummingbird is an example of the leading-edge innovations introduced and deployed almost routinely by the AeroVironment UAS team," said Tom Herring, Senior Vice President and General Manager, Unmanned Aircraft Systems, AeroVironment. "From the battle-proven Raven, Wasp and Puma small UAS to the tiny Nano Hummingbird to Global Observer, the largest, highest and longest flying UAS, AeroVironment continues to define the future of unmanned aircraft systems. Our mission in doing so is to provide our customers with advanced tools that help



them succeed," he added.

The hand-made prototype aircraft has a wingspan of 16 centimetres (6.5 inches) tip-to-tip and has a total flying weight of 19 grams, which is less than the weight of a common AA battery. This includes all the systems required for flight; batteries, motors, communication systems and video camera. The aircraft can be fitted with a removable body fairing, which is shaped to have the appearance of a real hummingbird. The aircraft is larger and heavier than an average hummingbird, but is smaller and lighter than the largest hummingbird currently

found in nature.

The Nano Hummingbird has achieved many milestones—demonstrated precision hover flight within a virtual two-metre diameter sphere for one minute; hover stability in a wind gust flight which required the aircraft to hover and tolerate a two-metre per second (five miles per hour) wind gust from the side, without drifting downwind more than one metre; a continuous hover endurance of eight minutes with no external power source; it demonstrated controlled, transition flight from hover to 11 miles per hour fast forward flight and back to hover flight; demonstrated flying from outdoors to indoors, and back outdoors through a normal-size doorway; demonstrated flying indoors heads-down where the pilot operates the aircraft only looking at the live video image stream from the aircraft, without looking at or hearing the aircraft directly; fly in hover and fast forward flight with bird-shaped body and bird-shaped wings, etc. SP

AAI completes US Navy fee-for-service operations with Aerosonde UAV

AAI Unmanned Aircraft Systems has completed a fee-for-service operation on behalf of the US Naval Surface Warfare Center (NSWC) Dahlgren Division. NSWC Dahlgren has been chartered to conduct UAV flights in conjunction with tests of various types of ground radars and capture and analyse those results. AAI provided its operators in a fee-for-service based arrangement using the Aerosonde UAV.

The Aerosonde Mark 4 series UAV performed this maritime mission profile by conducting pre-programmed flights over water at altitudes of only a few hundred feet at more than 20 miles from shore. The Aerosonde crew used a satellite system in conducting this beyond-line-of-sight (BLOS) operation. SP

Mumbai Police to get UAVs to track extremists

In its bid to equip the Mumbai Police with the best of equipment to deal with extremists, the Maharashtra government is getting 24 unmanned aerial vehicles (UAVs), under a new centre-state joint funding plan. Mumbai Police could be the first police force in the country to be equipped with such equipment.

In a Government resolution issued on February 14, the state government has listed 24 UAVs besides modern arms and ammunitions such as 950 units of AK-47 rifles, 250 MP5, MP4 and MP9 guns, 500 bullet-proof jackets, 100 static and portable X-ray baggage scanners, bomb detection and disposal equipment and 100 new cars. Under the programme, the Centre will contribute 75 per cent to the ₹109.13 crore fund. SP

Embraer unveils new **EMB 145 AEW&C platform for India**



Embraer presented the first of the three EMB 145 airborne early warning and control (AEW&C) platforms to representatives of the Indian Government at a ceremony held at its headquarters in São José dos Campos, Brazil, on February 21.

Based on the proven Embraer ERJ 145 regional jet, the aircraft features an in-flight refuelling system, SATCOM capability, a significant increase in electrical and cooling capacities, and a comprehensive set of aerodynamic and structural changes. These improvements will allow the installation of the advanced electronic systems currently being developed by India's Defence Research & Development Organisation (DRDO) under CABS (Centre for Airborne Systems) coordination.


Following its official presentation, the aircraft will start intensive ground and flight tests. The ferry flight to India is scheduled for the second semester of 2011, where it will receive the equipment being developed by the DRDO.

"The smooth progress of such a complex programme is strongly based on the good will and the high level of professionalism that both the Indian and Brazilian teams have demonstrated over the last two-and-a-half years. Given Embraer's experience in the field of ISR aircraft and equipment, we believe that this jointly developed product will offer outstanding operational capability, and we look forward to its entry into service," said Eduardo Bonini, Senior

Vice President Operations & COO, Embraer Defense and Security.

Presently, four Embraer Legacy 600 jets are operated by the Indian Air Force (IAF) for the transportation of VIPs and a fifth Embraer Legacy 600 is in service with the Border Security Force (BSF).

The EMB 145 AEW&C is a member of Embraer's Intelligence, Surveillance and Reconnaissance (ISR) family of aircraft and systems. Embraer provides a flexible, reliable and affordable aircraft for ISR missions, with a perfect blend of effectiveness and economics. Its primary mission is to detect, track and identify targets in its patrol area and transmit this information to friendly forces, in order to provide them with an accurate and comprehensive operational picture. Therefore, EMB 145 AEW&C can perform airspace management, fighter positioning and intercept control, signals intelligence, and surveillance of seas, borders, and exclusive economic zones (EEZs).

The EMB 145 AEW&C for India will join the successful family of Embraer surveillance aircraft. It will be equipped with a complete set of mission systems, composed of a powerful air surveillance radar and command and control system, plus a complete set of mission support systems, such as communications and electronic support measures, communications with data link, and self-protection devices. 

Adoption of security roadmap key to countering terrorism



The adoption of a roadmap by 14 ICAO (International Civil Aviation Organisation) member states to further protect global air transport from terrorist and other security threats has been praised by the Secretary General of the ICAO, Raymond Benjamin, at a recent conference on regional aviation security in New Delhi.

Among the measures included in the roadmap are actions that States will take to strengthen security screening procedures by ensuring that professionals are appropriately trained and equipped. Air cargo security will be enhanced through working with customs authorities on common goals. Capacity-building assistance to States in need in cooperation with ICAO, other States and the aviation industry has been emphasised in the roadmap.

"The challenge is to turn commitment into action. Terrorism is a global problem that requires global solutions," Benjamin emphasised. "This roadmap is a key step in addressing the security challenge and can serve as a model for other regional aviation security conferences, culminating in a global security conference planned for next year at ICAO headquarters in Montréal."

He pointed to ICAO's ongoing collaboration with the air transport industry on a security checkpoint of the future concept to improve the effectiveness of passenger and carry-on baggage screening at airports. ICAO is also working with the World Customs Organisation to establish best practices for air cargo security.

The Minister for Civil Aviation, Vayalar Ravi conveyed India's appreciation of the work done by ICAO towards a safe, secure and environmentally sustainable global air transport system. Airport security is being reviewed in consultation with the Ministry of Home and intelligence agencies.

He said that improvement of infrastructure and the need for increased trained manpower for surveillance had been identified as one of the main challenges. "By middle of next year all six of our largest metro cities would have brand-new airports with capacity to manage this growth till at least next decade. In this time we would also totally modernise about 50 of our non-metro airports."

Delegates from 16 countries including Saudi Arabia, UAE, Qatar, Pakistan, Afghanistan, Maldives, Bhutan, Mauritius, Sri Lanka, Nepal, Bangladesh, Thailand, Singapore, Malaysia and representatives from Airport Council International, European Commission, International Air Transport Association, Department of Transport, UK, the Transport Security Administration, USA attended the conference. **SP**

CCTVs must at airports: BCAS

The Bureau of Civil Aviation Security (BCAS) has issued a directive to all airports to install CCTVs, besides taking other measures to secure the airport area. The directive comes in the wake of the recent blasts at Moscow's Domodedovo airport.

BCAS has directed the airport authorities to tighten the security in and around the airports - including parking zones and the air-side. It said that besides increasing the number of Central Industrial Security Force (CISF) personnel, the airports have to put in place technologies which can monitor movement of passengers and others and also cargo. **SP**



DRS Technologies bags US Coast Guard contract

DRS Technologies, a Finmeccanica company, announced that the United States Coast Guard (USCG) has exercised an option under its indefinite delivery, indefinite quantity (IDIQ) contract for continuing programmed depot maintenance support, product line engineering and project management for the Coast Guard's fleet of HC-130, HC-144 and HU-25 aircraft. Fully exercised, the value of this order will be approximately \$24 million.

This order is the second under a three-year \$67 million competitively bid IDIQ contract initially awarded in 2009. Work will be performed in DRS facilities in Elizabeth City, North Carolina, and will continue through 2012. This award allows DRS to continue providing high quality aircraft maintenance services to the men and women of the Coast Guard. **SP**



Indian Coast Guard on expansion spree

The Indian Coast Guard (ICG) will be inducting three more state-of-the-art ships by March 2011, adding to the eight it inducted in 2010. The service is expected to achieve an effective strength of about 200 surface platforms and 100 aircraft by 2018, indicative of the emergence of a new, modern and far more capable Coast Guard.

Giving details on the eve of the Indian Coast Guard's 34th anniversary, the Director General, Vice Admiral Anil Chopra said the theme for 2011 is "Committed to serve – making a difference." On the infrastructure front, one district headquarters, five coast guard stations and one air enclave were established in 2010. Next month, two more stations and a regional headquarters at Kolkata would be established. By the end of 2012, there will be a total of 42 coast guard stations, five air stations and 10 air enclaves functioning from various locations along the coast.

The ICG increased its sanctioned strength by about 1,200 personnel during 2010. Vice Admiral Anil Chopra said that in order to keep the exclusive economic zone and the coastline under constant surveillance, a major thrust has been accorded to operations, with 18-20 ships and about five aircraft being deployed every day. Further, for enhancing the surveillance capabilities a coastal surveillance network (CSN) is being established. In Phase-I, 46 stations are being set up and 39 in Phase-II.

He said that search and rescue operations within the Indian search and rescue region are undertaken by the ICG, round-the-clock and that the service saved 559 lives during 2009-10. The pollution response operations undertaken for MV Chitra oil spill in Mumbai Port area last year, minimized the damage to the marine environment in and around Mumbai. The oil spill was dispersed by the Coast Guard ships and aircraft, despite adverse weather and navigational hazards of drifting containers. **SP**



MTL Group awarded "V" Hull contract for Foxhound vehicle

MTL Group, a major European defence manufacturing specialist, has been awarded contract from Force Protection, Europe to supply a serial production of fabricated armoured "V" hulls for the Foxhound project of the United Kingdom.

MTL Group has also supported Force Protection, Europe and Ricardo on this project through its design for manufacture (DFM) service. This DFM service provided an opportunity to select the optimum materials and influence the design for volume production. MTL Group will produce these complex highly protected hulls, using the state-of-the-art equipment including the world's largest robot press and robot welding to ensure consistent quality and volume achievement.

MTL Group's Sales Director Karl Stewart said "We are delighted to be involved in the Foxhound programme and design for manufacture has been a key service that enabled us to work with our customer to enhance their product and reduce costs." **SP**

IAI unveils Dart 45

Israel Aerospace Industries (IAI) unveiled its new laser designator Dart 45 at the Aero India 2011. Dart 45 is a lightweight compact laser designator and range-finder for ground, airborne and naval applications. The laser designator and range-finder module was designed to be easily fitted into very small electro-optical systems and payloads.

Several units of the new module have been integrated into mini Pop-D (designator) electro-optical naval payloads for an export customer, as well as into IAI/Tamam's new ground targeting and designating system (GTADS).

Dart 45 offers a 45mJ (milliJoule), very low divergence laser designator as well as an eye-safe range-finder which enables high performance in a very lightweight and compact package. Its design is based on diode-pumped advanced Nd:YAG laser, compatible for all US and NATO laser-guided munitions.

Shaul Shahaar, General Manager of IAI's Tamam division, said, "The new state-of-the-art Dart 45 is an important addition to IAI's electro-optical systems portfolio. We know that the new laser designator and range-finder will play a central role in missions and challenges that the battlefield is facing today".

Dart 45 unique characteristics make it an excellent and attractive solution for the rising market of 6" to 8" EO targeting payloads for UAVs, for static and ground vehicle sights and for targeting and designating hand-held systems. **SP**

Connecting firmly: L3 Communications

[By R. Chandrakanth]

The first sale for Wescam division of L3 Communications in India is on the Boeing P-81 long-range reconnaissance aircraft. It is a big step forward for us," announced Bill Swindall, Director International Sales & Marketing, L-3 Wescam at Aero India 2011.

Talking about Wescam's strengths and how it would meet requirements of the Indian military and homeland markets, Swindall said the MX Series offered the best imaging technology for airborne visual intelligence, as well as the most advanced gyro-stabilisation, large-aperture optics and multi-spectral sensors.

The systems come handy for military, maritime surveillance, search and rescue operations and policing, he said and added that users could create a seamlessly integrated visual information system from camera to command centre with advanced electro-optical/infra-red (EO/IR) payloads and Wisard (digital microwave and reception system).

"Post-26/11, the requirements of the homeland security market in India is booming. There are a few request for proposals (RFPs) for maritime surveillance equipment." In anticipation of the expanding market, there is a proposal to set up a service centre in Bengaluru. Also, the company is exploring possibilities of sourcing suppliers from here considering the technology expertise and the cost-effective solutions India offers. "The requirement here could be over 1,000 camera systems by 2015."

The uniqueness of the cameras is that they offer "far better stabilisation" for aerial photography, thus ensuring clearer pictures.

"MADRAS" recorders in Bangalore

"India is one of our biggest export markets, both from commercial and military aviation. Of the 70 per cent of aviation recorders exported from our company, about 8 per cent is accounted for from India," said William Brankin, Director, Business Development, Aviation Recorders, L-3 Communications.

Excited about the market opportunities, Brankin said this year "it is special for us as we have manufactured our first recorder in Bengaluru through United Avionics and Centum Electronics." Called "MADRAS" (Modular Airborne Data Recording/Acquisition System) voice and data recorder it is the first L-3 product produced by the Centum Group for the Indian market.

The MADRAS recorders integrate voice and data recording with built-in data acquisition into a single box solution for military and commercial aircraft.

"Centum is excited at the speed with which this association with L-3 is progressing, and we are pleased to announce the launch of MADRAS production," said Apparao Mallavarapu, Managing Director of Centum Group. "This product launch is the first step towards Centum widening its product and service portfolio in the aerospace and defence markets and bringing more world-leading L-3 products to the Indian market." SP

Huge airport security market

Electronics.Ca Publications, market research and knowledge network, has come out with a report entitled "Airport Security Equipment - A Global Strategic Business Report". The United States and Europe account for a major share of the global demand. The untapped market for low-cost airlines in Asia is a potential growth area for the aviation sector, which is encouraging the fast paced development of airline infrastructure and subsequently airport security operations in the region.

India and China are the most preferred destinations for outsourced manufacturing and service operations, boosting business travel, thereby requiring airport security measures. Market for perimeter and access control equipment in Asia-Pacific is expected to reach \$25.6 billion by 2015. SP

Sniffer mice now at airports

Researchers in Israel have come up with an explosive detector, which can be used by security agencies in airports and other busy places. The device looks like a metal detector or full-body scanner, but one side of it houses three concealed cartridges, each containing eight specially trained mice. The detector has been made by a bomb-detecting unit at BioExplorers, a Herzeliya-based company founded by brothers Eran and Alon Lumbroso.

The rats work on four-hour shifts, milling around in an allocated cartridge while sniffing air pumped in from outside. When the rats pick up traces of explosives or drugs, they would flee to a side chamber, triggering an alarm. To set the



pattern of shifts, air is pumped to a different cartridge every four hours. This gives the rodents eight hours to sleep and play before they are required to clock on again. The mice take around 10 days to learn their first smell. Subsequent odours take just a few days each.

Unlike sniffer dogs, mice do not require constant interaction with their trainers or to be plied with treats to keep them motivated. It is an alternative to those who fear that the full-body scanners introduced at many airports are exposing them to harmful radiation and invading privacy.

The device was first tested in December at a large Tel Aviv shopping mall, Azrieli Center. Over 1,000 people passed through the detector including 22 people with mock explosives under their shirts or in pockets. SP



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Cloud strategy

Numerous benefits of cost savings, power savings, green savings, and increased agility in software deployment recommend migration to clouds, but cloud security may actually drive and define how we adopt and deploy cloud solutions

Cloud represents a fundamental shift in computing, providing a platform for agile and cost-effective business applications and IT infrastructure. Simply put, it is convergence of virtualisation and utility based billing. How does one choose a cloud solution? Logically, it should support private networking, enterprise grade virtual appliances with full visibility into the life cycle of IT applications running, adequate security and accountability. The architecture should support hybrid computing, combining cloud infrastructure and dedicated infrastructure in a single solution, enabling dynamic provisioning of resources to meet workloads. Though private clouds allow customers full control of IT platform, switch to an enterprise cloud will significantly decrease deployment time while increasing scale and stability. Enterprise cloud services should minimally include virtual networking, virtual computing, virtual storage and virtual disaster recovery.

Limitations of public cloud is under constant debate, major issues being authentication/user access models, requirements of invoicing and billing, incorporating traditional ways to interact with customers, quantum of firewalls (firewall in every virtual machine's operating system), service management and monitoring health, performance and availability of virtual machines. Profitable business requires analysing cloud economics including expenses like storage though theoretically cloud computing should avoid major new capital expenditure and operational expense. Some feel that companies might be able to save upfront capital expenditures, but not many may actually pay more as operating expenses. Where capital expenses are relatively small, or where the organisation has more flexibility in capital budget than operating budget, cloud model may not make great fiscal sense. Other factors having an impact on cost savings include efficiency of a company's data centre as compared to the cloud vendor's, existing operating costs, level of adoption of cloud computing and type of functionality being hosted in the cloud.

Security is a major concern. Users naturally are concerned about the security, access and privacy

of their own data in the cloud. Goals of computer and network security fundamentally are confidentiality, integrity and availability. Can cloud providers monitor communication and data stored? Can unauthorised users gain access to your confidential data? Will users need to adopt community or hybrid clouds that are typically more expensive and may offer restricted benefits? What about acceptable levels of availability and performance of applications hosted in the cloud? Cloud providers argue that because threats in cloud computing are same as in virtualisation and even if you're not using the cloud, you rely on and trust network service providers, hardware vendors, software vendors, service providers and data sources. One can assume that while there are both advantages and challenges in cloud computing, key security issues like trust, multi-tenancy, encryption and compliance needs to be addressed.

Numerous benefits of cost savings, power savings, green savings, and increased agility in software deployment recommend migration to clouds, but cloud security may actually drive and define how we adopt and deploy cloud solutions. Can strong security controls provide leeway to adopt the most cost-effective approach assuming that massive public clouds may be more cost effective than large community clouds which again may be more cost effective than small private clouds? Issues of cloud adoption, organisational impact, economics and change management need analyses. Thought also needs to be given to issues like flexibility and innovation—are we offering monopoly on the plate to big players, who owns the data, what rules and policies will apply if data is abroad, what happens if the data is lost, what happens if the remote server breaks down crashes, what happens if the cloud server is backed up and the Internet is running slow, will normal applications need adaptation with cloud systems using different protocols/APIs/workflow systems, what business losses will occur if a rogue country interferes with Internet, etc on balance, the many advantages of cloud computing need to be optimised by analysing all the above issues and arriving at a sound cloud strategy that suits individual industry. **SP**

Northrop Grumman strengthens data security in the “cloud”

Northrop Grumman Corporation unveiled a new methodology for strengthening data security in the “cloud” at the recent 6th Annual SANS Institute Cyber Defense Initiative conference. Northrop Grumman introduced its cyber architecture reference series, an approach to building strong security measures in the highly vulnerable world of public/private clouds – or hybrid clouds – storage vehicles that offer enormous capacity but possess significant security risks.

“Although many private clouds can be made highly secure, more and more federal agencies are seeking a hybrid cloud approach to expand capacity and respond to emergency server needs, like the Haitian earthquake, when agencies needed additional IT capacity,” said Robert F. Brammer, Vice President, Advanced Technology and Chief Technology Officer, Northrop Grumman Information Systems.

The featured architecture model was “The FAN”, a layered cyber security defensive technology reference model along with “CyCape” a cyber capability reference model. These reference models serve as a baseline for customers to build a secure architecture in the cloud that will keep data safe. The approach is based on years of cyber security experience with government customers within the Department of Defense, intelligence community and federal marketplace. **SP**

US military concerns about cyber attacks in Asia

The US military in its first revision of the National Military Strategy since 2004, has singled out Asia as a region of rising power and concern, and pointed to the increased threat of cyber attacks.

The National Military Strategy, which was released recently, is the White House’s periodic appraisal of the pressing threats America faces and how it plans to deal with them. It also points to the need to expand and deepen military relationships with both China and India. **SP**

McAfee: mobile threats on the rise

Mobile threats are spreading and spam continues to be a thorn in the average person’s side, according to a new McAfee report about the fourth quarter. Mobile malware threats increased by 46 per cent last year as criminals continued to embrace new opportunities on smartphones and tablets, the security firm has said.

“One of the most important threats of the quarter” among mobile devices was the Android-based Geinimi Trojan that Zeus botnet creators unleashed. It was flanked by several other malware threats, like the Symbian OS-focused Zitmo.A, McAfee said.

“Cyber criminals are keeping tabs on what’s popular, and what will have the biggest impact from the smallest effort,” Vincent Weafer, Senior Vice President of McAfee Labs has said. “McAfee Labs also sees the direct correlation between device popularity and cyber criminal activity, a trend we expect to surge in 2011.”

McAfee’s latest report could help bolster support for the company’s plans in 2011 to become increasingly invested in mobile security, thanks to Intel, which announced plans to acquire the security firm last year in a deal valued at \$7.68 billion. Intel said at the time that it plans to use McAfee’s core security products to improve protection for mobile devices, TVs, and other products that the chipmaker believes don’t have enough protection. **SP**



Increased convergence enhances security risk: DRDO chief

The Scientific Adviser to Defence Minister and head of Defence Research and Development Organisation (DRDO), V.K. Saraswat has said that the country faced new security threats from the cyber world as increased convergence of technologies was changing the rules of engagements.

“Cyber security is a major challenge as our operations are going to be on the network-centric system which is dependent on the information and communication technologies,” Saraswat said and added that securing the network-centric system would be a huge challenge. India has to build robust systems and platforms with proprietary software to make sure the networks were safe and almost invincible.

“As far as the security threat is concerned, it is always evolving. Beyond the conventional threat from land, air or sea, the new threats are economic and cyber, where we have to become more vigilant,” Saraswat remarked. **SP**



ITT Corporation touches \$11 billion revenue

ITT Corporation has reported 2010 fourth-quarter revenue of \$3 billion and income from continuing operations of \$272 million. Excluding special items, income from continuing operations was \$253 million, reflecting year-over-year growth of 42 per cent.

For the full year 2010, ITT reported revenue of \$11 billion and income from continuing operations of \$654 million. Excluding special items, income from continuing operations was \$818 million, an 18 per cent increase over 2009. For the full year, free cash flow was \$937 million, a 104 per cent conversion of net income from continuing operations adjusted for non-cash special items.

"We are very pleased with the exceptional strategic and operating performance delivered by our teams across the globe in 2010. We realised outstanding productivity across our businesses, while driving overall top-line growth, generating very strong free cash flow and investing for our future," said Steve Loranger, ITT Chairman, President and Chief Executive Officer. "This record-breaking year provides momentum for continuing strong performance in 2011 and sets a solid foundation for our transformation into three independent publicly traded companies by year end." **SP**

PHOTOGRAPH: ITT

L&T and Cassidian forge partnership

Cassidian and Indian engineering giant Larsen & Toubro (L&T), Mumbai, have joined forces in the field of defence electronics. The joint venture, based in Talegaon near Pune and in Bengaluru, will be active in the defence electronics market. It aims to cover manufacturing, design, engineering, distribution and marketing in the fields of electronic warfare, radars, avionics and mobile systems (such as bridges) for military applications.

L&T will hold 74 per cent in the joint venture and Cassidian the rest. The joint venture will cooperate closely with Cassidian's new engineering centre in Bengaluru where systems design and engineering activities will be carried out in the fields of electronic warfare, radars and avionics for military application.

M.V. Kotwal, Member of the Board, L&T and President Heavy Engineering, said: "In addition to its other businesses, L&T has been a leading company in India for engineering, manufacture & integration of custom-made technology-intensive equipment and systems. The coming together of L&T with Cassidian, the defence, electronics & security arm of the European defence & aerospace company – EADS, is a major milestone in the area of defence electronics. It will not only serve the Indian armed forces with state-of-the-art technology, but also provide a platform for making significant contributions to the global market in high-technology defence equipment."

Bernd Wenzler, CEO Cassidian Electronics, said: "Our joint venture is proof of our commitment to India. Cassidian would like to establish an Indian industrial base for our European technologies with the development of a long-term partnership. We are prepared to bring additional capabilities into the JV company after the Indian laws allow an increase of shares up to 49 per cent." The venture will deliver indigenous solutions for military requirements of Indian customers as well as the world market. The new venture will provide the armed forces with locally produced high-tech equipment and assured life-time support. **SP**

BAE systems robust performance

BAE Systems has delivered another robust set of results with the business performing well in a challenging business environment. "We are successfully meeting the affordability challenge with both improved returns for shareholders and lower costs for our customers. There continues to be sustainable growth prospects across our markets and we have a clear strategy which provides confidence in the resilience and strength of our business," said Ian King, Chief Executive, BAE Systems.

The sales were £22.4 billion, up 1.8 per cent and the dividend for full year up 9.4 per cent to 17.5 per cent. The company has reported strong balance sheet and has plans of organic investment and selective acquisitions. BAE systems has planned £500 million of acquisitions in the first half of 2011. **SP**

Esterline acquires Eclipse Electronic

Esterline Corporation, a leading speciality manufacturer serving aerospace and defence markets, has acquired Eclipse Electronic Systems for total consideration of approximately \$120 million.

Eclipse is a leading supplier of signals intelligence and communications intelligence (SIGINT/COMINT) receiver hardware to the airborne intelligence, surveillance and reconnaissance (ISR) market. The company's products incorporate modern, open-architecture software/firmware configurable designs, and are deployed on a wide range of US and foreign manned airborne platforms. Eclipse products also are deployed on such next generation unmanned platforms as the Northrop Grumman Global Hawk, and General Atomics Reaper and Predator.

Brad Lawrence, Esterline CEO, said Eclipse is a "True technology leader with a significant presence on the majority of airborne SIGINT platforms." Lawrence added that "Eclipse is a highly respected and fast growing company with a broad base of customers, both among major industry prime integrators and within the government defence and intelligence communities." **SP**

Ultra to acquire 3e Technologies International for \$30 million

Ultra has agreed to acquire 3e Technologies International Inc. (3eTI) from EF Johnson Technologies Inc. for a cash consideration of \$30 million with an additional amount of up to \$1 million payable by early 2014.

3eTI designs, develops, markets and supports military grade wireless local area network access points, mesh networks, security software, and encryption technologies for military, government and commercial markets. 3eTI's specialist capabilities are critical to the growing market for secure wireless networking and communications 'on the move'. Mesh networking is an adaptive type of networking that 'self-configures and self heals'. 3eTI also has an innovative network node that uses encryption to prevent access to a protected network, thereby addressing the need for enhanced cyber security.

3eTI has developed and offers mesh networking and secure communication solutions for critical infrastructure protection, video surveillance, shipboard and ship-to-ship communications, and wireless monitoring and process control. **SP**

Ashok Leyland Defence and KMW join hands

Hinduja Group's Ashok Leyland Defence Systems Ltd (ALDS) and Krauss-Maffei Wegmann GmbH & Co. KG, Munich, Germany, have concluded a memorandum of understanding during the International Defence Exhibition (IDEX) at Abu Dhabi to cooperate in the development of advanced defence systems for world-wide market.

The scope of the cooperation will initially include the development of armoured-wheeled vehicles, recovery vehicles, artillery and combat systems, bridge laying systems and other similar products. Krauss-Maffei Wegmann (KMW) will provide the technology and the technical assistance that will be required for the development of these defence systems.

Dr. V. Sumantran, Chairman, Ashok Leyland Defence Systems, said, "This strategic partnership seeks to harness the formidable skills of both companies, namely, the technological bandwidth of KMW and our approach to innovations aimed at cost advantage. For ALDS, this brings a new range of product opportunities with which we hope to fulfill India's growing defence needs and over time to address select overseas markets."

Frank Haun, CEO and President, KMW, said, "This partnership with ALDS is a further consequent step in KMW's strategy to internationalise its business. Along with ALDS, we are now able to jointly develop future Indian defence solutions based on our proven and worldwide leading technologies." **SP**

Cassidian's Cyber Operations Centre of Excellence

Cassidian, Emiraje and Khalifa University of Science, Technology and Research have completed the first phase of establishing a Cyber Operations Centre of Excellence agreed under a Memorandum of Understanding (MoU) signed in May 2010. The Centre of Excellence is intended to help increase the intellectual capital in cyber technology areas within Khalifa University in particular and in the United Arab Emirates (UAE) more generally. The Centre of Excellence will provide research and demonstration capabilities for cyber activities and developments. It will particularly focus on Cryptology, Forensics and Industrial Control Systems (ICS) security.

The collaboration programme specified within the MoU also includes various activities such as an agreed collaborative research programme, summer internship opportunities for Khalifa University students in various Cassidian facilities, a programme of lectures on the topic of cyber security by visiting specialists in the field and the sponsorship of appropriate postgraduate studies. **SP**

SECURITY EVENTS

Unmanned Aircraft Systems

1-3 March
Sheraton San Diego Hotel & Marina,
San Diego, CA, USA
www.ttcus.com

Asian Aerospace

8-10 March
Asia World Expo, Hong Kong
www.asianaerospace.com

Soldier Modernisation Asia

14-17 March
Amara Sanctuary Resort Sentosa,
Singapore
www.soldiermodasia.com

Global Security Asia 2011

15-17 March
Sands Expo and Convention Centre,
Singapore
www.globalsecasia.com

Cyber Security Conference

16-18 March
Holiday Inn Rosslyn, Arlington, VA, USA
www.ttcus.com

Defence Logistics Europe 2011

21-23 March
Radisson Edwardian Hotel, Heathrow,
London
www.defencelogistics.org/Event.aspx?id=421342

Air Surveillance and Reconnaissance 2011

21-23 March
America Square Conference Centre,
London, UK
www.asarcevent.com

Future Artillery

23-25 March
Olympic Conference Centre, London
www.future-artillery.com

Network Centric Warfare 2011

29-30 March
National Convention Centre, Canberra,
ACT, Australia
<http://www.networkcentricwarfare.com.au/Event.aspx?id=410802>

Offshore Patrol Vessels Asia-Pacific

5-7 April
Grand Hyatt Singapore, Singapore
www.offshorepatrolasia.com

Royal breaches!

Prince Charles and Camilla had the scare of their lives recently. They were on their way to watch a performance at the London Palladium when a mob went berserk and broke one of the windows of the armoured vehicle. Fortunately, the royals were unhurt but the incident has raised questions on security.

The demonstrators were protesting rising school fees outside Parliament when the incident happened. Alex Bomberg, former aide to the royal family and CEO of a security firm, has called for enhanced security. The police, he remarks, should have advised the royal protection squad to take a different route. The 1977 Rolls-Royce they were in did not have bulletproof windows and lacked in speed and manoeuvrability. **SP**



Rahul Gandhi's vehicle stopped in UP

During a recent visit to Allahabad, Congress general secretary Rahul Gandhi had to face an irate mob who tried to stop his car and clamber on to the vehicle but were pushed by the Special Protection Group (SPG).

The Centre has written to the Uttar Pradesh government seeking explanation on the incident and also on the lack of coordination between the state police and the SPG. The Union Home Ministry has asked the state government to send a report on the incident when activists of Samajwadi Party's youth wing waved black flags and tried to stop Rahul's car. **SP**

The great escape!

He seems to have mastered the art of escaping from high security prisons in France – each time via a hijacked helicopter! On other occasions Pascal Payet has helped organise the escape of three other prisoners – again with a helicopter.

Payet who was sentenced to a 30-year jail term for a murder committed during the robbery of a security van, first escaped in 2001. He subsequently escaped from Grasse prison using a helicopter that was hijacked by four masked men from Cannes-Mandelieu airport. The helicopter landed some time later at Brignoles, 38 km north-east of Toulon, France on the Mediterranean coast. Payet and his accomplices then fled the scene and the pilot was released unharmed. **SP**



Taxiing onto the runway

Manisha Pawar, a 21-year-old cab driver, recently drove on one of the taxiways near the runway of Chhatrapati Shivaji International Airport in Mumbai, a major security lapse which left the airport authorities in a tizzy.

According to reports, Manisha Pawar told authorities that she was to pick up a passenger from the domestic terminal and that she followed a catering truck which was entering the restricted area. She claimed that since she was not familiar with the route she just followed the truck and passed through the security checks without any difficulty.

It was only a while later that the airport officials noticed the cab and alerted the Central Industrial Security Force guards on duty. The cab driver was taken into custody for trespassing. The airport authorities suspended four security guards for the lapse. **SP**

47

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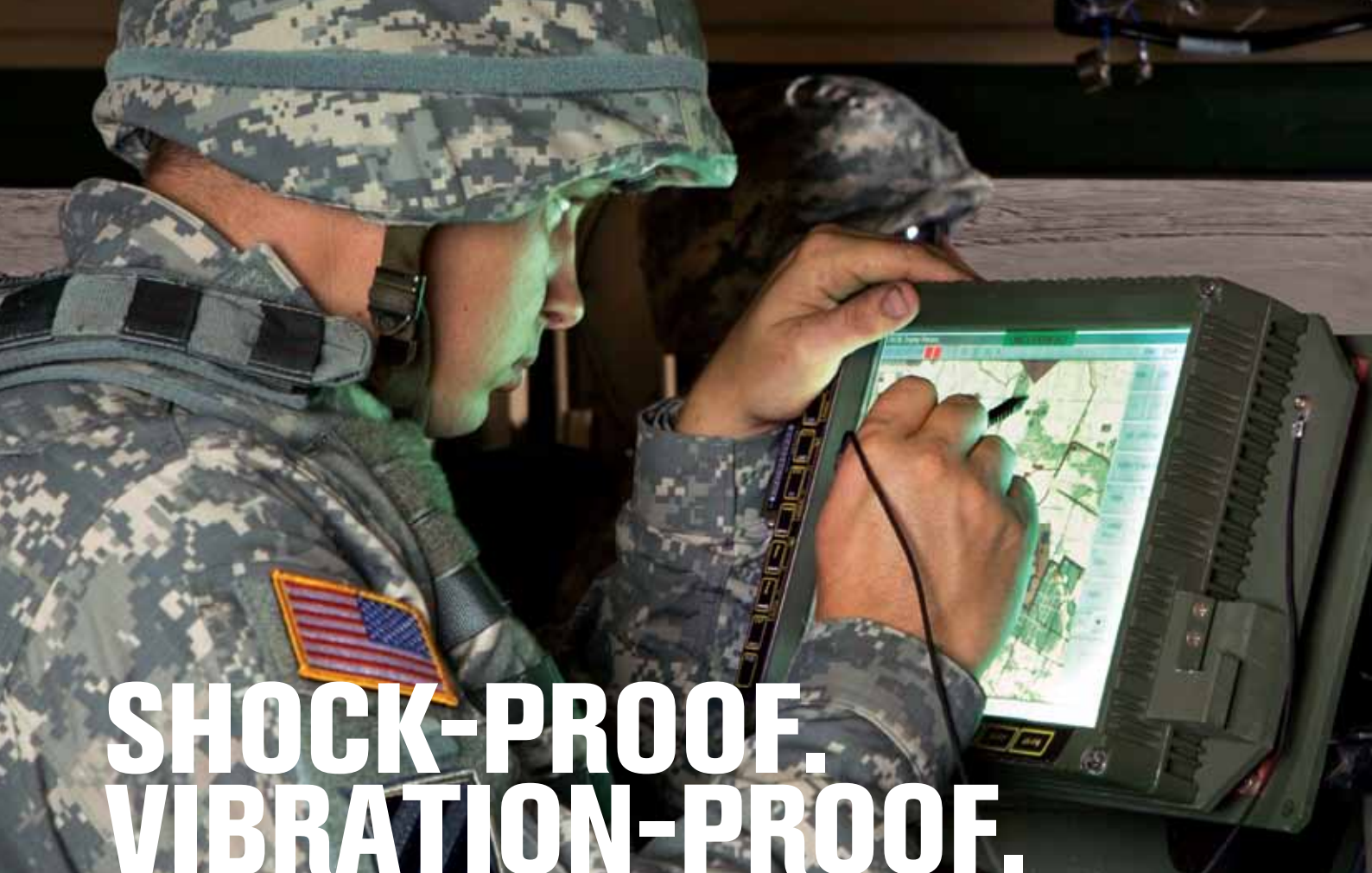
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