CASE STUDY: SEARCH & RESCUE

SATELLITE COMMUNICATIONS SOLUTION PLAYS KEY ROLE IN INDONESIAN NATIONAL SEARCH & RESCUE AGENCY EFFORTS TO FIND AIR ASIA QZ 8501

Indonesia

Jakarta

INTRODUCTION

On December 28, 2014, an Air Asia flight travelling from Indonesia to Singapore plunged into the Java Sea. Tragically, all 162 passengers and crew on board were killed. In the hours that followed, search and rescue teams, on land and at sea, began the difficult task of searching for the victims and the aircraft wreckage.

BASARNAS (BADAN SAR NATIONAL) - SEARCH & RESCUE AGENCY

Indonesia is one of the world's largest archipelagic countries in the world with a total of 17,506 islands and a population of 253 million people. The country is flanked by the continents of Asia and Australasia and the Indian and Pacific oceans. Indonesia has a strategically strong geographic and economic position as it forms part of the Malaccan Straights, from which it leverages global trade and tourism.

However, this geographical position also places Indonesia on the brink of natural disaster as it lies on four active tectonic plates: Indo-Australia, Eurasia, Pacific, and Philippines plates. Indonesia also sits in the middle of the "Ring of Fire", an area in which earthquakes and volcanic activity occurs frequently, as it is home to some 130 active volcanoes.

The Government of the Republic of Indonesia is fully responsible for the safety and security of citizens facing natural disasters. It deploys and relies on the National Search & Rescue Agency (BASARNAS) which plays a critical role during times of disaster. BASARNAS is committed to saving lives and its vision is to conduct successful Search & Rescue (SAR) operations efficiently, credibly, and safely, anytime and anywhere.

Providing SAR communications to remote island areas is an absolute necessity in ensuring efficient operations. BASARNAS has branch offices on many of these remote islands. The difficulty is that a lack of infrastructure makes communication extremely difficult.

The Thuraya integrated communications solution incorporating Ultra Communicate technology deployed by BASARNAS helped solve these communications problems.

KEY REQUIREMENTS FOR BASARNAS

- THE INTEGRATION OF RELIABLE, LOW-COST VOICE AND DATA COMMUNICATION SOLUTIONS LINKING REMOTE BRANCH OFFICES WITH HEADQUARTERS IN JAKARTA

- A FULLY INTEGRATED VOICE AND DATA COMMUNICATION SOLUTION FOR MARITIME OPERATIONS INTEGRATING EXISTING COMMAND & CONTROL SYSTEMS

- EXISTING SAR VESSELS WITH LEGACY PHONE AND DATA SYSTEMS TO INTERFACE WITH THE SAR AGENCY'S HEADQUARTERS CORE SYSTEM

- RADIO SYSTEMS INTEGRATED INTO A COMMON PUSH TO TALK (PTT) NETWORK

- IMPROVED DATA THROUGHPUT AND TOLL-QUALITY CALLS, WITH REDUCED COSTS AND TOTAL RELIABILITY

- ROBUST SATELLITE TERMINALS THAT COPE WITH ADVERSE WEATHER CONDITIONS AND REQUIRE LOW POWER CONSUMPTION

AEP

Ultra ELECTRONICS

CHALLENGES:

The Indonesian Search & Rescue Agency has several offices scattered around the country. Many of these, however, are located on remote islands which have little to no infrastructure. The lack of communication technology from one island to another proved to be one of the biggest challenges in the search to locate the Air Asia QZ 8501 flight.

Fortunately, one remote office that was fully equipped is the Balikpapan branch. Their radio gateway was configured into a user group, allowing crew on board ships to talk directly to each other and to the Search & Rescue agency over the radio gateway. Vital messages were then passed on to headquarters over the Thuraya IP data link.

Ships fitted with Thuraya IP and Thuraya NettedComms allow crew to use a Push to Talk (PTT) function wherever they are. This means it is not essential for them to be based so close to a branch office in order to communicate effectively.

David Moss, Director of Government Services, Thuraya, said: "Thuraya has a corporate directive to put our technology to best use in saving and improving lives. We were privileged to work with BASARNAS and PT MSS our local Sservice partners in developing a tailor- made solution integrating technology from Thuraya, Ultra Electronics AEP and Speakerbus to meet the operational requirements of BASARNAS. We take pride in the fact that the technology assisted significantly during the search effort for Air Asia QZ 8501."

BACKGROUND:

PT Mega Sarana Satelit (PT MSS), one of Thuraya's service partners, is based in Jakarta. Together with Thuraya, PT MSS gathered market leading technology partners to provide an advanced integrated communications solution to meet the requirements of the SAR agency.

Equipment with proven reliability in adverse conditions, often used by military organisations, was brought in. The overall network incorporated existing communication assets already owned by BASARNAS. These run over a core network of Ultra Electronics AEP (http://www.ultra-aep.com) routers with Push-to-Talk (PTT) NettedComms being provided by Speakerbus - (http://www.speakerbus.com)

CONCLUSION:

The search operation for the missing Air Asia Flight QZ 8501 is one of the most successful large-scale operations BASARNAS has ever conducted. The search was conducted over 80 days, cost Rp. 570 million, and involved the deployment of hundreds of trained divers and volunteers. More than half of the victims and countless pieces of the plane's wreckage were found.Air Marshal Mr. F. H. Bambang Sulistyo, S. Sos, M.A.P, Head of the SAR Agency said: "Our search and rescue co-ordination officers at HQ communicated directly with commanders of the deployed ships conducting the search. This was due to the early adoption of the Thuraya NettedComms integrated communications solution which was installed in remote offices and in the SAR coordination centre in Jakarta. This solution contributed greatly to the speedy location of the missing Air Asia plane as existing radio systems onboard the ships were easily configured into the Thuraya NettedComms system."

EQUIPMENT:

BASARNAS, with a pressing need to save lives, deployed the flexible Thuraya NettedComms solution. The data connection linking headquarters and remote branch offices was conducted using Thuraya IP.

At the headquarters, the telephone communications and data network services connected to AEP's VadEDGE intelligent network routing solution which provided the optimised data that was transmitted over the Thuraya link to provide crucial information to the remote sites.
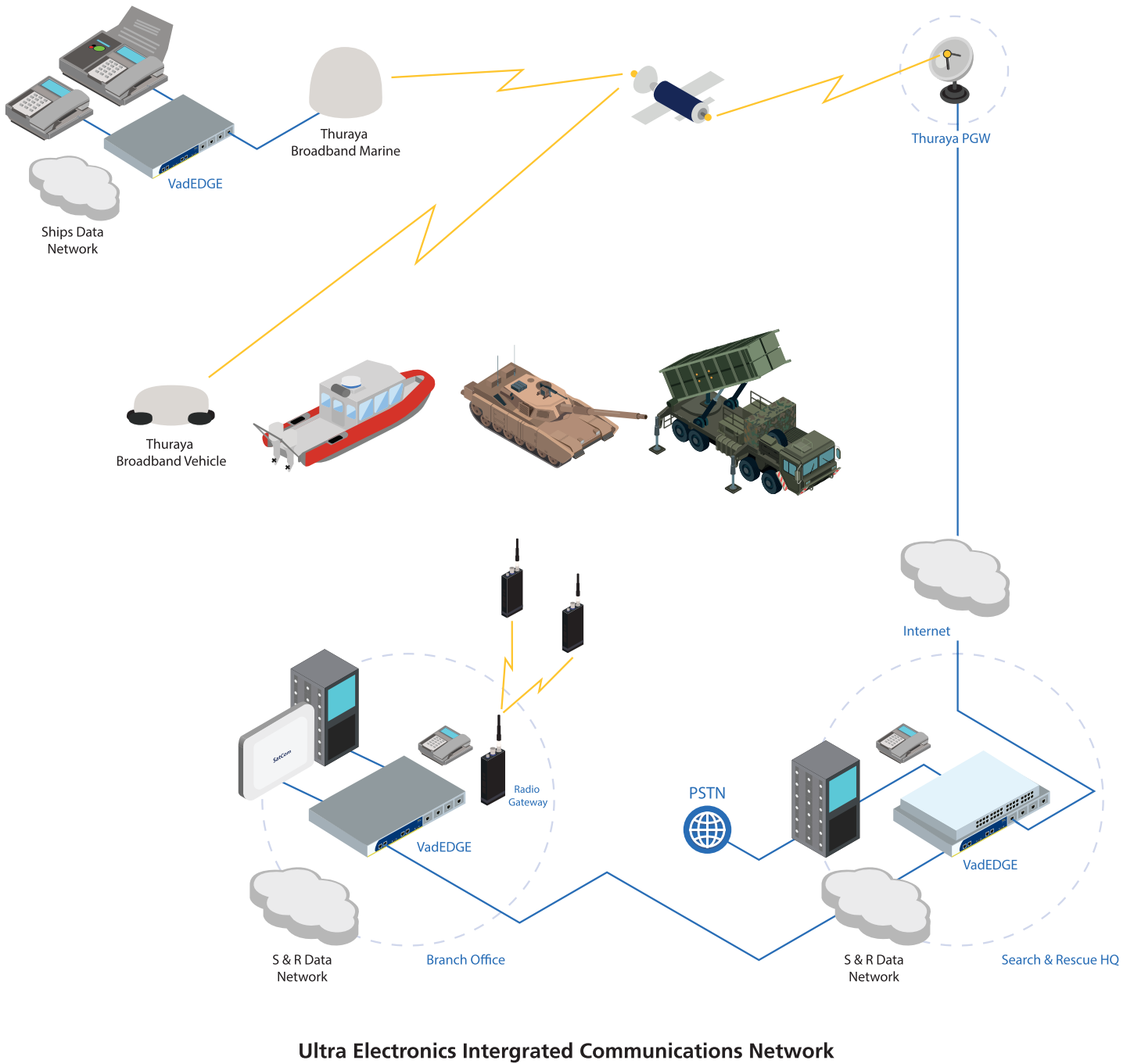
The Thuraya NettedComms solution from Speakerbus provided a 'Push to Talk' (PTT) capability that enables users to talk immediately to a pre-defined group of people with a single press of a button. The network, managed at BASARNAS' headquarters, is easy to use with minimal training needed to operate it, thus saving valuable time. Thuraya NettedComms uses technologies ranging from simple analogue voice to leading edge Voice over Internet Protocols (VoIP) to meet this requirement. This flexibility ensures the solution is fit for purpose, uses the best infrastructure available, and is always simple to use.

Each remote branch office is equipped with the PTT system that includes a radio gateway that is connected to BASARNAS's existing radio systems.

For this mission, staff at BASARNAS headquarters configured a radio gateway linking the branch office closest to the search area into a dedicated PTT user group. This enabled ships conducting the search to talk directly to headquarters from existing ship radios.

"WE WERE PRIVILEGED TO WORK WITH BASARNAS AND PT MSS OUR LOCAL SERVICE PARTNERS IN DEVELOPING A TAILOR-MADE SOLUTION INTEGRATING TECHNOLOGY FROM THURAYA, ULTRA ELECTRONICS AEP AND SPEAKERBUS TO MEET THE OPERATIONAL REQUIREMENTS OF BASARNAS AND TAKE PRIDE IN THE FACT THAT THE TECHNOLOGY ASSISTED SIGNIFICANTLY DURING THE SEARCH EFFORT FOR AIR ASIA QZ 8501."

David Moss, Director of Government Services, Thuraya

Ultra Electronics Intergrated Communications Network

The Ultra Electronics Group manages a portfolio of specialist capabilities, generating highly-differentiated solutions and products in the **DEFENCE & AEROSPACE, SECURITY & CYBER, TRANSPORT** and **ENERGY** markets, by applying electronic and software technologies in demanding and critical environments to meet customer needs.

Ultra businesses constantly **innovate** to create **solutions** to customer requirements that are **different** from and **better** than those of the Group's competitors. By applying these differentiated solutions to a **wide range** of international platforms and programmes, Ultra has built an exceptionally broad range of **specialist capability** areas. Where the Group has a number of complementary capabilities it can also combine these to offer wider solutions. Furthermore, the products, capabilities and the associated domain expertise uniquely position Ultra to be able to provide system and subsystem solutions. These solutions are underpinned by through-life management support offerings that ensure the capabilities are delivered and sustained in-service. The Group has an active programme of reinvestment of funds to strengthen its capabilities in its **specialist markets**.

Ultra offers support to its customers through the **design, delivery** and **support** phases of a programme. Ultra's businesses have a high degree of **operational autonomy** so that they provide exceptionally **agile** and **responsive** support to customers and partners normally associated with a smaller business. These benefits of customer focus and agility are augmented by the access to wider and complementary **technology** and **expertise** that lies elsewhere in the Group and by Ultra's strong financial position.

Ultra's deep understanding of its specialist capability areas combined with knowledge of the customer environment is a key factor in delivering innovative solutions to meet the customer need.

GEOGRAPHIC REACH
Over the last two decades, Ultra has expanded and developed its international footprint and now has significant business in Europe, North America, the Middle East and the Asia Pacific.

Ultra has operations based in the countries shaded light blue on the map, and conducts business in the countries shaded in dark blue.

making a difference

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