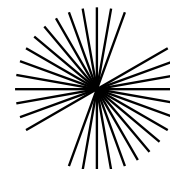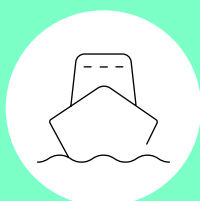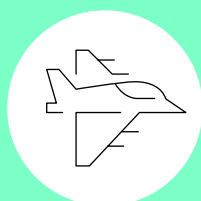# BGAN Application Framework

Gatehouse
Satcom

BGAN Application Framework

The BGAN Application Framework (BAF) enables you to perform many tasks related to building a BGAN terminal. The BAF is a powerful software framework to aid you in the process from fast and reliable prototyping to final product - with least possible risk and cost.

BAF is developed for terminal manufacturers who wants to improve control and optimize the process of developing an application layer. The BAF forms the foundation of the BGAN terminal application layer and can be used by BGAN terminal manufacturers to build an application layer that is tailored to their specific requirements. In this way, the BAF minimizes

the risk, cost and time of delivery involved in building a BGAN terminal.

BGAN terminals are required to be compliant to the Inmarsat Common MMI and Mandatory Test Requirements (MTR). The MTRs are executed using an Inmarsat BGAN Test Case Manager (TCM), BGAN Physical Layer Tester (BPLT) and about one thousand test scripts. Consequently, a major effort is required by the terminal manufacturers in developing the application layer software of a BGAN user terminal, and the risks involved are considerable.

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Rapid Prototyping

The BGAN Application Framework is already integrated with the BPS and works out-of-the-box. Only integration with USIM, GPS and the physical layer is necessary to use the platform for IP data transfers.

Stability

The fact that the BAF is a mature software framework ensures that the customer will get a stable product.

User-friendly

The BAF includes a simple API for interfacing to the MMI of a user terminal, such as keypad and display. The API enables user-assisted antenna pointing and GPS position display. No AT command interface or complex ETSI 3GPP API is needed.

Reference Implementation

The BAF is an example of how the application layer of a BGAN terminal can be implemented and extended according to the customer's platform requirements if any special functionality is needed. This allows the customer to focus on the implementation of the physical layer and platform.

Extensibility

The BAF can be extended into custom configurations and is delivered with a reference implementation for IP data using dial-up networking through RS-232 or Ethernet.

Portability

BAF and BPS are fully portable and can even run on Windows for early integration and testing.

Final Product

The BAF contains a standard AT command interface which is fully compliant to the interface required by the Inmarsat Common MMI and Inmarsat MTR tests.

Use Cases

The development of a user terminal involves a number of phases. The BAF allows for prototyping with fully functional reference implementation, hereby making it a powerful tool throughout the development process. The use of the BAF depends entirely on the terminal project at hand, but as an example we have described the typical use below.

Phase 1

The BPS and BAF are tested on a PC. All peripherals (USIM, GPS, physical layers, etc.) are simulated. This setup is also used for testing the BPS and BAF as part of the routine release procedure.

Phase 2

The BPS and BAF are tested on the target platform with simulations of the customer-developed modules. This increases the confidence in compliance between the BPS and BAF and the platform (see figure A).
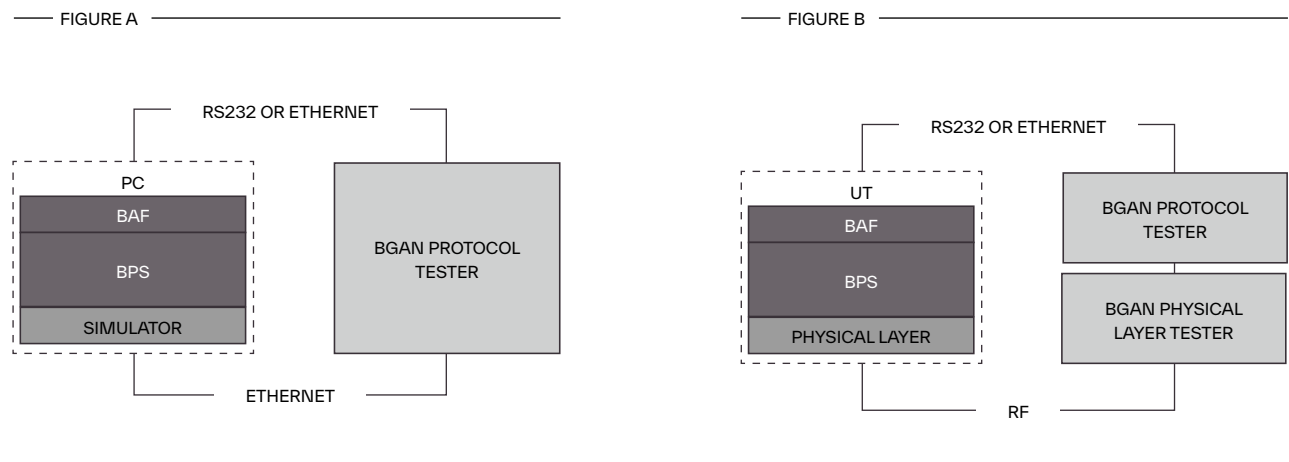
Phase 3

The BPS and BAF can be integrated step by step with the customer developed modules. To the right (figure B), this is illustrated for the physical layer. When integrating the physical layer with BPS and BAF, the customer can use the terminal directly against Inmarsat BGAN Physical Layer Tester (BPLT), or, in principle, directly to satellite communications.

Phase 4

When creating a very complex terminal, it is possible to integrate standard components into the BAF with minimal knowledge of the BGAN protocol.

FIG. 1

── FIGURE A ────────────────

RS232 OR ETHERNET

PC
BAF
BPS
SIMULATOR

BGAN PROTOCOL TESTER

ETHERNET

── FIGURE B ────────────────

RS232 OR ETHERNET

UT
BAF
BPS
PHYSICAL LAYER

BGAN PROTOCOL TESTER

BGAN PHYSICAL LAYER TESTER

RF

Technical Description

The BAF is an extension of the Gatehouse BGAN Protocol Stack (BPS). The BAF is high-quality and extremely reliable software. It can easily be extended according to customer requirements, minimizing the risk, cost and time of delivery for a BGAN application layer.

The BAF utilises the ETSI defined API in BPS. The ETSI interface is a generic interface for

UMTS protocol stacks and relatively complex. Therefore, the BAF is designed to encapsulate the complexity of the usage of the ETSI API.

The BAF architecture is shown in the figure above. It illustrates how the BAF encapsulates the complex ETSI 3GPP interface consisting of several SAP's (RABM, SM, PLMN, GMM, MM, AP, SMS, CC, SS and VC/HL).
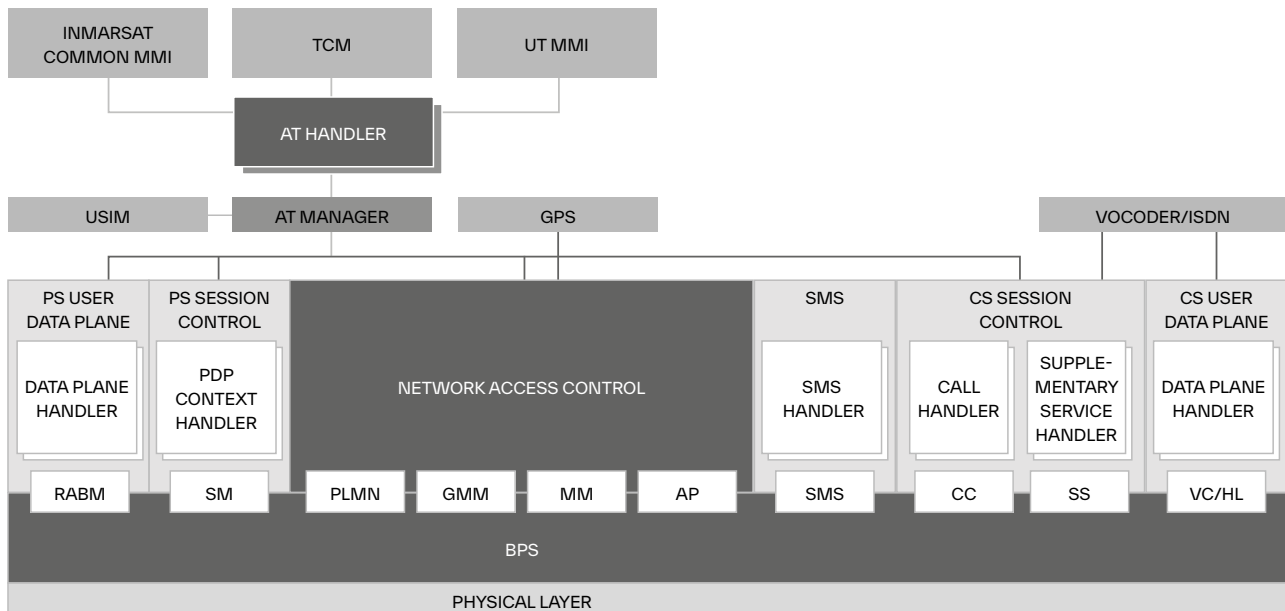
Get in touch

Get in touch with us to learn how you can minimize the risk, cost and time of delivery for a BGAN application layer.

You can contact us at satcom@gatehouse.com.

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Let's unlock the power of satellite communications software