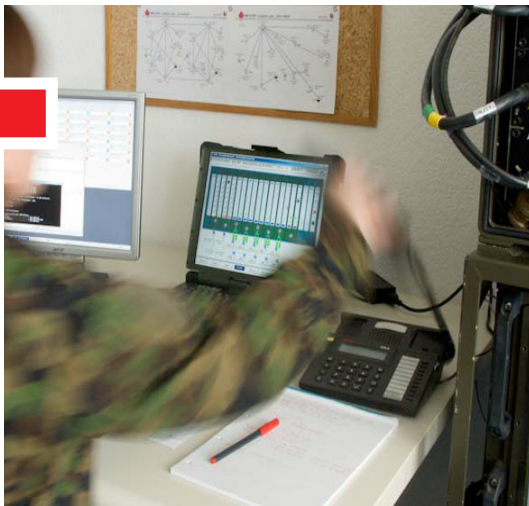


[REFERENCE CASE]

Product:	IP Migration
Customer:	Swiss Army
Solution:	IMFS
Segment:	Defense
Division:	Security Communication



IMFS IP MIGRATION - BASE STRUCTURE OF FUTURE MILITARY COMMUNICATIONS

An evolution to an IP enabled Tactical Information Network will provide an integrated foundation for a future Communication System of the Swiss Army

Effectiveness

A Communications System is more about networking than networks. It is about the increased efficiency that can be generated by a network-centric force. The strength is derived from the linking or networking of knowledgeable entities that are geographically or hierarchically dispersed. This yields effectiveness, the foundation of all mission critical communication and is extremely important in the combat arena where flexible and reliable tactical communication infrastructures must without fail allow the necessary coordination between fixed and mobile head-quarters with mobile field personnel and their equipment.

The Swiss Army, respected for international participation in peace-keeping missions and their national military defence strategy, recognises the value of a well connected force. Political neutrality does not affect security, and domestic operations in addition to defence include military disaster relief, maintaining air sovereignty, support of police and Border Guard and protection of conferences and facilities. Practical experience has proven that speed in communications and increased situational awareness through networking improves effectiveness in operations.

Evolution

Working with incumbent supplier, Ascom, the Swiss Army is in the process of building a better network. The installed base of their Tactical Information System, known as IMFS, has grown to several hundred circuit switched nodes since its beginning in 1996. The current project entails the migration from the existing circuit switched Eurocom voice network to an 'IP Everywhere' environment.

Scheduled for completion early 2009, IMFS will facilitate the integration of the army 'intranet' and enable mobile, secure, robust, seamless multi-media connectivity. Their goal is to better synchronize ground forces by providing enhanced networked data services capable of disseminating information on demand to troops wherever they are, on-the-move or not. The communication system will cover the entire army from the front line to the office-based personnel and provide the foundation for future communications in homeland security and international peace-keeping missions.

Decision

The Swiss Army took the evolution path. This decision has proven to be a powerful scenario and an intelligent solution. In addition to eschewing higher costs, the Swiss Army in their analysis concluded that to 'scrap and start fresh' would not guarantee a more advanced network. The step-by-step approach, in fact, retained a robust platform constructed on proven technology. Initially designed for voice communications, the original Swiss network and predecessor to IMFS has been in reliable operation for over a decade.

Continuing to work with the incumbent contractor, Ascom presented best economic efficiency while insuring backward compatibility with legacy systems - a requirement of most military organizations when provisioning IP communication systems. As the IP enabled network migration approaches completion, the Swiss Army is pleased to say that this major undertaking has been well orchestrated and the transition smoothly managed.

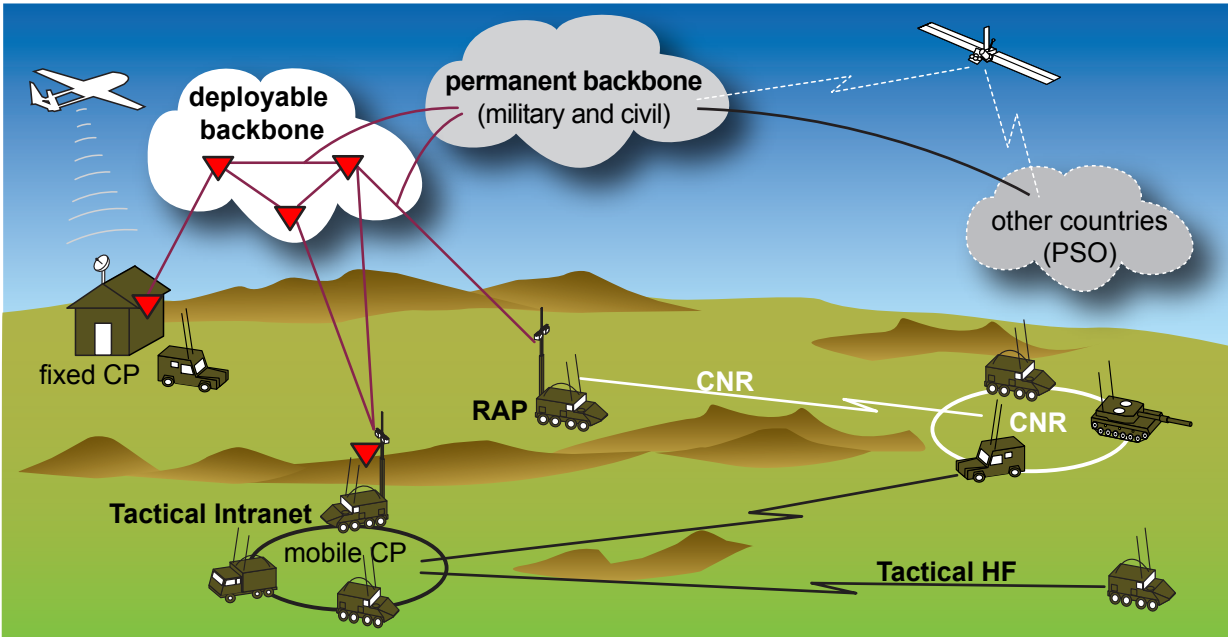
Challenges

The Swiss Army priorities for increased mobility, data-capable radio and free mobility of the network users were fully realised in the Ascom solution. The implemented communication platform is also open and application-neutral, able to support other and different technical systems. Plug & play enabled, the access and routing nodes were supplied with industry standard network interfaces.

Equipment had to be easy-to-operate, fitted for a militia organisation with frequent change of semi-skilled radio users. Communication gear had to be able to withstand repeated deployment and dynamic break-down when rapid total or partial relocations were required. The Ascom communication equipment proved reliable on all counts; while verifying a dependable easy to take-down and fast to build-up design. The Swiss Army specification for robust military design and construction with flexibility were satisfied.

The network is of a hierarchical architecture and scalable up to 999 network nodes per region and up to 9 regions. The dynamic design offers decentralised configuring, high flexibility and freedom of personnel movement demanded by the Swiss defence organisation.

IMFS AS TACTICAL COMMUNICATION SYSTEM



SWISS ARMY TACTICAL INFORMATION SYSTEM (IMFS) TODAY

The unique features of IMFS lie in its versatility. The system offers full mobility to network users. It is transportable, modular, scalable, and can evolve as the user needs it to. The data enabled radio solution fully meets the growing importance of mobility in the Swiss military organization.

The communication platform is independent from applications and can be used for different communication services.

The evolution of IMFS to an IP enabled information network included a number of extensions and function integration. The most important are:

- Remote conferencing
- Multicasting allows for efficient transmission of replication data
- QoS handling allows for prioritized transmission of real-time data, such as e.g. video streams
- Real-time transmission of position data over VHF radio
- IP based data-enabled VHF radio
- HF radio integration
- Load-balancing over LOS connections
- Optical trunk connections



For containers and wheel vehicles a new Com Rack 19" was engineered that incorporated the complete suite of IMFS functions. The 15 slot element has voice capability and is a data router with optical and electrical trunk connections. It is fitted with a Com PC data radio and LAN switch. The large user console has an intuitive navigation interface making it easy to accommodate frequent change of users.

Com Rack Ruggedized is for combat vehicles. Equipped with 5 slots it carries only the minimum communications functions of voice, data routing, has an optical/electrical bundle and supports data radio services.

A compact ruggedized data communication node, the Ascom openAccess® based Com PC, also for combat vehicles was introduced. It is dedicated to data radio services.

LEGACY MODERNISATION

The Internet Protocol (IP) is the common standard of today's mission critical communications infrastructures being adopted by national and international military forces, peace keeping troops and crisis management teams. But this acknowledged direction, for both technical and economic reasons, is usually not realized in a single quantum jump. As a consequence, legacy integration has become a 'hot' topic throughout the industry and according to some analysts 'legacy system integration' is going to be a critical issue for at least the next 10 years. Contemporary thinking today is to modernize military network infrastructures and leverage the benefits of legacy systems.

In the practical sense, evolving to IP is really about legacy modernization. This is usually a multi step process which needs careful planning and takes time. In addition to interoperability challenges, this process creates the need to address consistency and integrity issues as both old and new systems continue to co-exist.

In some cases, legacy modernization initiatives need not replace legacy systems, but expose them as modern devices that can be meshed into new composite network architectures and protocols. From an economic perspective, very few (if any) military network operations can afford to scrap everything in one sweep and invest totally in new all-IP enabled equipment.

Legacy radios are also beginning to incorporate cognitive characteristics, such as spectrum-awareness, thereby expanding their capabilities. New analysis from Frost & Sullivan Advances in Radio Communications for Aerospace and Defense, finds that legacy high frequency/very high frequency (HF/VHF) radios continue to find increasing utility value through integration with emerging technologies.

Meanwhile, the rise in the number of global military coalition operations has created a need for interoperability among incompatible radio communication systems from different countries. Legacy communication systems that use diverse protocols and incompatible waveforms have often impeded efficient communication in critical times. Therefore, a robust communication infrastructure is vital for the timely dissemination of critical data to all mobile units.

One should also consider that IP networks in military territory are relatively new and carry risk of intermittent failure. Some military communication specialists appreciate having legacy voice back-up to reach their scattered signal operators when the network needs trouble-shooting

THE SWISS ARMED FORCES

The Swiss Armed Forces are flexible and competent. Their activities are focused and stem from the three main missions which have been assigned to them

- Civil affairs support
- Area protection and defense
- Peace support

Civil affairs support comprises operations on behalf of the population and are carried out at the request of the civilian authorities. This occurs when the resources of confederation, cantons and communes are no longer sufficient. Such operations include military disaster relief, maintaining air sovereignty, support of police and Border Guard and protection of conferences and facilities. The operations are carried out in a subsidiary manner which means, that responsibility and management are in the hands of the respective civilian authority.

Area protection operations serve to protect important areas and airspaces.

Peace-keeping operations are aimed at consolidating peace abroad and preventing renewed outbreak of hostilities. They are carried out on the basis of an international mandate – often the United Nations -- and usually in conjunction with other states.

ABOUT ASCOM

Ascom is an international solution provider with comprehensive technological know-how in Mission-Critical Communication. The company concentrates on core areas as Wireless Solutions (high-value, customer-specific on-site communications solutions), Network Testing (a global market leader in optimization solutions for mobile networks) and Security Communication (tactical communication for national security and secure communication solutions for civilian organizations). The company has subsidiaries in 20 countries and a workforce of some 2,300 employees worldwide. Ascom registered shares (symbol ASCN) are listed on the SIX Swiss Exchange in Zurich (Switzerland).

(Approved by armasuisse: 28.04.2009)

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