Mr State Secretary, Commodore, AFCEA Fellows, Honoured guests, ladies and gentlemen.

Let me begin to say that I am honoured to be here as one of the keynote speakers for this symposium “From Weather to Warfare- Integrating all source Information for Optimum Defence”.

In the old days, that is the time frame when I joined the Swedish Air Force and the years following that, the interpretation on such a headline would be pure military defence.

As we all are aware, that is no longer the case. While the core business for the military remains armed combat as described by General Sir Rupert Smith in his book *“The Utility of Force”*, an “Optimum Defence” contains numerous other activities and actors than military forces can provide.

Terrorism, smuggling, proliferation of arms, uncontrolled migration, modern slave trade et cetera all needs to be handled by different agencies within and between nations. The situation is, in my opinion, so complex, that no single governmental agency can handle any of these threats all by themselves, and that no single nation can handle the threats on their own. It is simply overwhelmingly difficult and it would also prove to be so expensive that no nation could afford it, even if they had the ambition.

The answer; we need to co-operate even more than today, interagency and internationally.

The key enabler for achieving the aim of co-operation is information gathering, information management and information sharing.

Within the Swedish Armed Forces we have for the last 5-7 years worked hard with this within our Strategy and investment of a Networked Based Defence. Many of the concepts, ideas and initiatives that have been produced fit very nicely in a broader context and I will use this opportunity to tell you a bit of what we have done and how this work can be of mutual benefit.

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Within the military, and I believe also in competitive business alike, there have always been the strive for knowing what is behind the next hill, or to put it in another way, to lift the ”fog of war” that the military strategist von Clausewitz described.

In today's language we address as “Situational awareness”. We invest time, knowledge and money to get as good situational awareness as possible, on both land, in the air and on and under the surface of the sea. However we have always done this, nothing new with that.

What is new is that the technology we see emerging today gives us an opportunity, to significantly give us a more comprehensive but at the same time clearer picture than we have had before, that is - if we use it in a wise way.

But, as we all know, it is very dangerous to rely only on technology. It has to be combined with sound strategy, operational art, tactics and maybe most important of all; well trained men and women who know how to do their job.

But technology will help, and if I look at my own kids, they use information technology in a way I could not imagine or dream of when I was in their age, but even more impressive Isthat they also use it in a more mature way today than what we in the older generation do. This we, the older decision makers, must understand and make use of in our systems for the future.

Systems for the future existing today

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Many, if not even most, of our operational systems within the Swedish Armed Forces are very capable and have proved their value in exercises and not least in international operations.

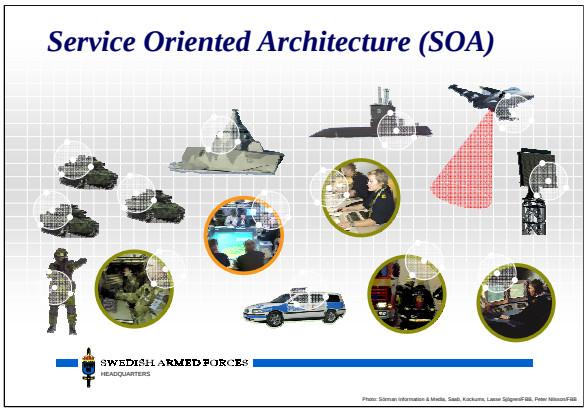
An example of this is our Corvettes of the Gothenburg class, here represented by HMS Sundsvall, patrolling the waters outside Lebanon within the UNIFIL force earlier this year.

Equipped with very advanced sensors that gather information of the air picture, the surface situation and also the underwater information the commanding officer is presented with an astonishing amount of fused information in the ships combat information central.

This fused information can, of course, be linked to other ships within the naval information grid, it´s just a question of the availability of links and bandwidth.

But the information remains platform centric, its content is static and the information is very much point to point within the naval community.

We have seen in our demonstration programs, that we have conducted for the last couple of years, that it could be much more than that, opening up for a number of very interesting options, not just military.



In our program work we came to realise that we indeed could create an environ-ment where information from many platforms such as ships or aircraft could be gathered, and most importantly shared with the help of so called Service Oriented Architecture.

Architecture, in this context, is a hard word for most of us, me included, so instead I will describe it in other words.

Firstly, we needed to create a system so that is possible for all the platforms or nodes to post or publish information that could be shared with others. This could be radar information, signal intelligence, information from databases and so on. The general idea is that you share information that could be shared, depending on tactical situation, but you do not necessarily need to know that someone is going to use it.

Secondly, we needed to create a way for different actors to understand what kind of information that actually exist within the network and of course also to get access to the relevant information for the task at hand.

This is very important because different actors need different information in different situations. They need to be able to pick and choose from the information that is available. I personally do not think that we can create some kind of mastermind sitting in some remote place that controls who gets which information. That will simply not work. No, we have to train, and trust, our people so that they can make that choice by themselves. Again look at kids doing their homework.

And, why not compare to the internet and how we all browse for information.

Is everybody allowed to see and access everything? Are we opening up our threat library data for anyone on the net? Are the police opening up all their information on “bad guys”. Of course not. We will share what we can share and protect things that cannot be shared, for example threat libraries.

We can also work with roles so that depending on what kind of role you have you may be given access to different parts of the system. But the more rules and regulations we put in, the lesser trust we give to our people. So it is all a question of risk management and information security and weigh that against mission effectiveness.

Together this calls for a system with publishing services that is dynamically reconfigurable so that it can be situation adaptable in real time.

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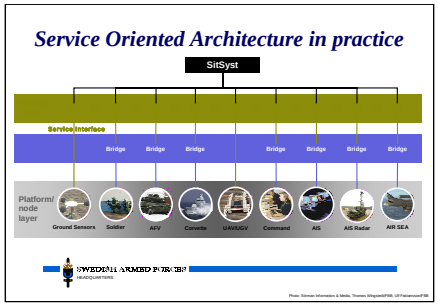
Of course, we early on also realized that we needed to find a way to integrate all relevant information sources into a fully joint network, both old systems and new.

With new systems I mean systems that from the beginning are developed in a way that they can be connected to the net and share and receive information “plug-and-play”, or maybe even “plug-and-fight” ready systems if you like. However, there are not many of them around yet but for me it´s clear no new system being brought into service should not have an USB-connection.

With old systems, I mean all the systems that are in operation today and will be operated in the foreseeable future as well. As a former test pilot of the Gripen, not that long ago, I have a hard time to regard it as an old system, but in this context it is and it will be operated in Sweden and other nations for decades to come.

We have similar situations for a number of other systems like our corvettes, our different combat vehicles, air control systems and so on. To exclude these systems from being parts of the overall network was, and is, simply not an option.

The challenges to do so should not be underestimated. Issues like weapons safety, system safety, information safety must be addressed and taken care of, industry must help in “opening up” the current systems so that they can be part of the network ok to put in other words so that networks can make use of these systems.



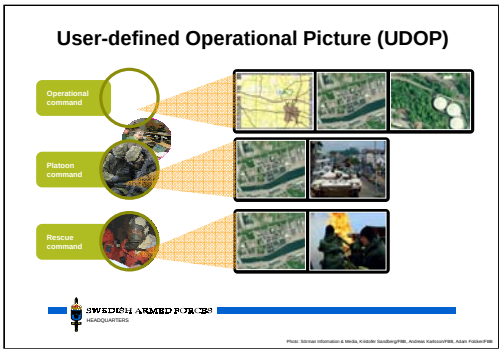
But it can be done and we have done it. Within our demonstration program, together with the Defence Materiel Administration and the Industry we have developed, produced and tested, tools that overcome the obstacles I just presented.

The principle is fairly simple. The information is collected by different sensors on different platforms, The information is then fed into the service layer where all information is gathered. For old systems the adaptation to the net is done by a “bridge” that takes care of all details such as data protocol, format and so on.

With the help of a special tool, currently called SitSyst, you can then pick and choose the data you need from the gathered information in the service layer. As an example, the Commanding Officer on the Corvette may feed data into his system that he originally did not have. It may come from UAVs, Ground or Air based radars and so on, resulting in enhancing his situational awareness, which much of this is all about.

It is easy to realize the tactical benefits you could get from this. A commander on the Visby class Stealth corvette or of a group of fighter planes can feed information into his or her system without transmitting and thus avoiding giving the own position away.

But a system like this also gives operational benefits that can be of significant help where military and civilian units operate together, helping building overall situational awareness so that all available resources can be coordinated in an orderly fashion and put to best possible missions effect, for instance in a search and rescue operation at sea.



How quickly can this be done you might ask. Well, we know that we, together with industry today, can produce a bridge as described previously in a matter of two to three weeks. The dynamic reconfiguration with the help of SitSyst is done in a matter of minutes once the bridges are in place, thus making it a very powerful tool for all levels.

In one of our demonstrations we “opened up” one of our most modern, “but still old”, command and control system from a corvette and connected it to the net. That gave us ships data directly transmitted into the net and to a command facility on shore, but it also improved the ship commanding officer´s situational awareness when he received data from others and guess what he said afterwards? Do not take this away from me!

As you understand, it is not without challenges to introduce this capability into the entire force or to make it work with other authorities and agencies. Industry must do their part and be helpful when the bridges are being built, different agencies need to come together in advance and create bridges and so on. We need to train and educate our people and ourselves. Of great importance is also to make this as easy as possible without any special inventions. We therefore strive to use open architectures, available standards and design rules and so on, but the job still needs to be done. Plug and play or plug and fight is not fully in place yet.

But one fact is for sure. Those young men and women who have seen this working, they demand from us that we will help them get it. Not ten years from now, but tomorrow. That is our responsibility.

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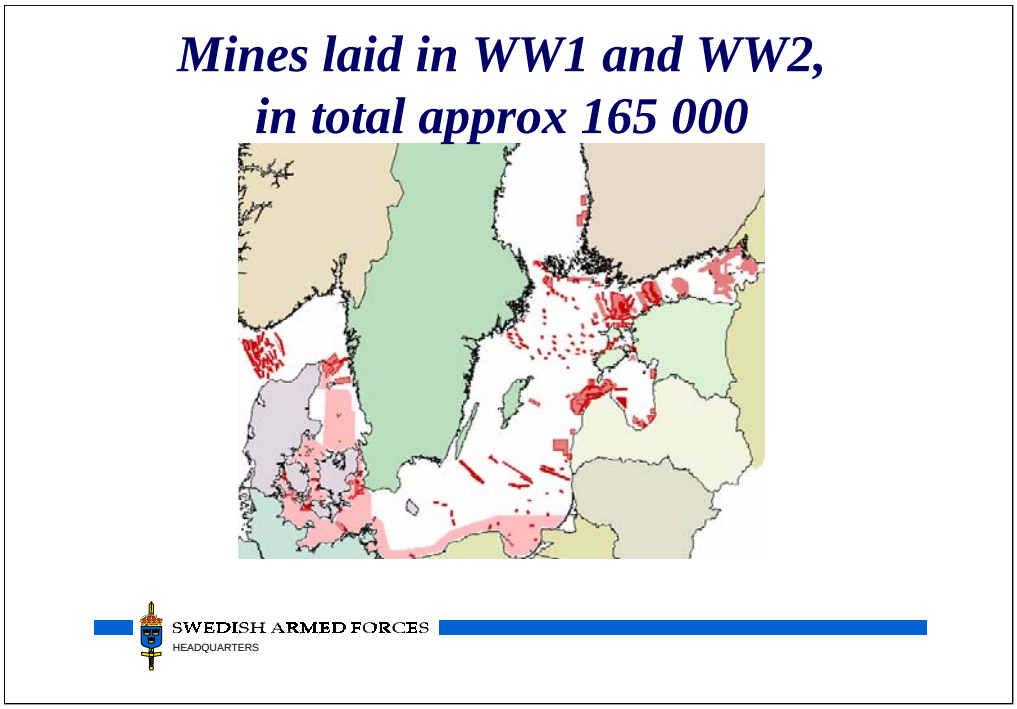
But what about today?

Will you be able to sail with this fine ship to Helsinki later on today and rest assured that someone is watching over the ship in addition to the captain and his crew.

Do we have anything in place “here and now” that can help us with this question?

The answer is yes. Let me therefore give you an update of the mine situation in these waters.



We have, in one of our databases probably the most accurate mine situation picture for the Baltic and the Baltic approaches.

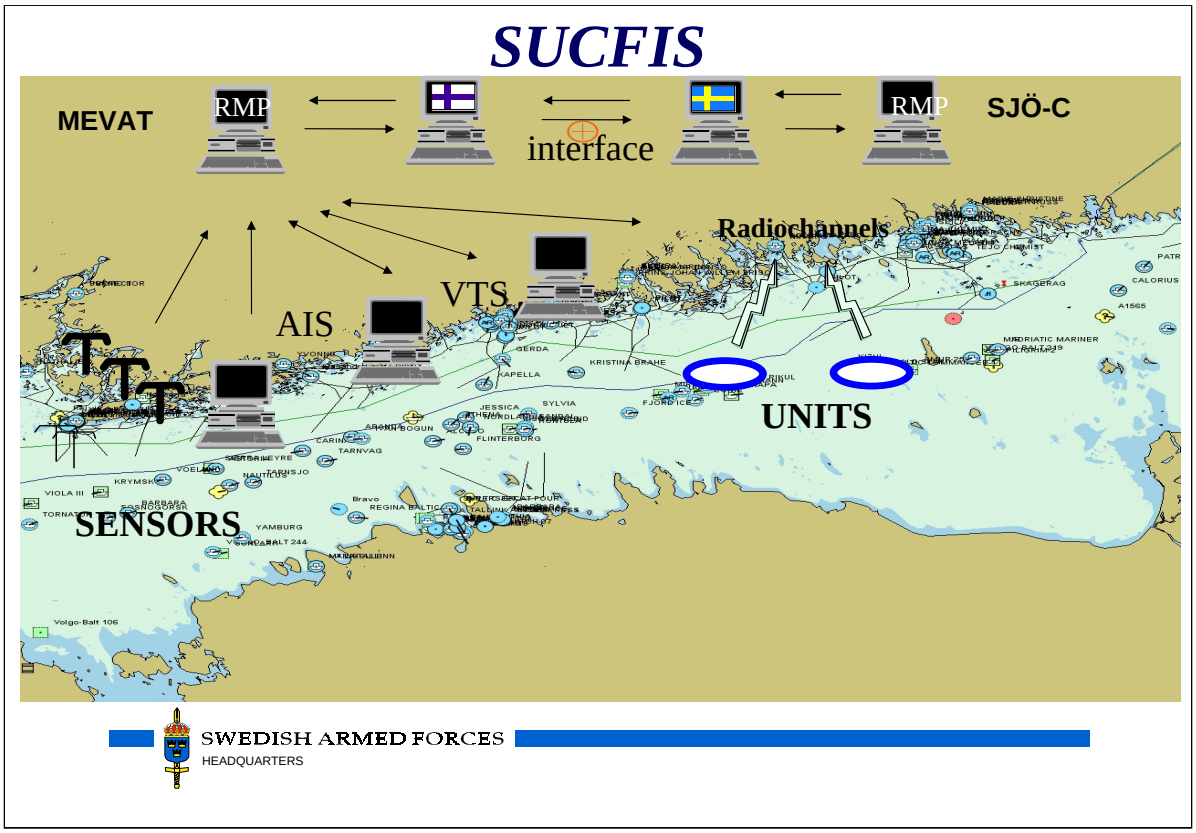
We know that a significant number of the approximately 165 000 mines that were laid in the waters surrounding us during the 1st and 2nd World Wars are still lying on the seabed. The red markings on this chart show where the minefields once were and where we today can expect to find them.

These mines present themselves as an environmental challenge but also as a challenge for fishermen and others who come into contact with the seabed. You may remember the situation in Gothenburg some years ago when a fishing boat caught a mine in one of it's trawls and took it into the Gothenburg harbour, not a very wise thing to do.

When we recovered an old Swedish Air Force DC3, north of Gotland, just a couple of years ago (2004), shot down by a Mig-15 in 1952 we cleared not less than 51 mines in the near vicinity of the airplane in order for us to be certain that we could recover it in a safe way.

The mines´ horns and triggering mechanisms are not active anymore, and they are lying there on the seabed, so you do not have to worry about the trip to Helsinki later today. But since the explosives within the mine still can be functioning you have to take them into account in other circumstances.

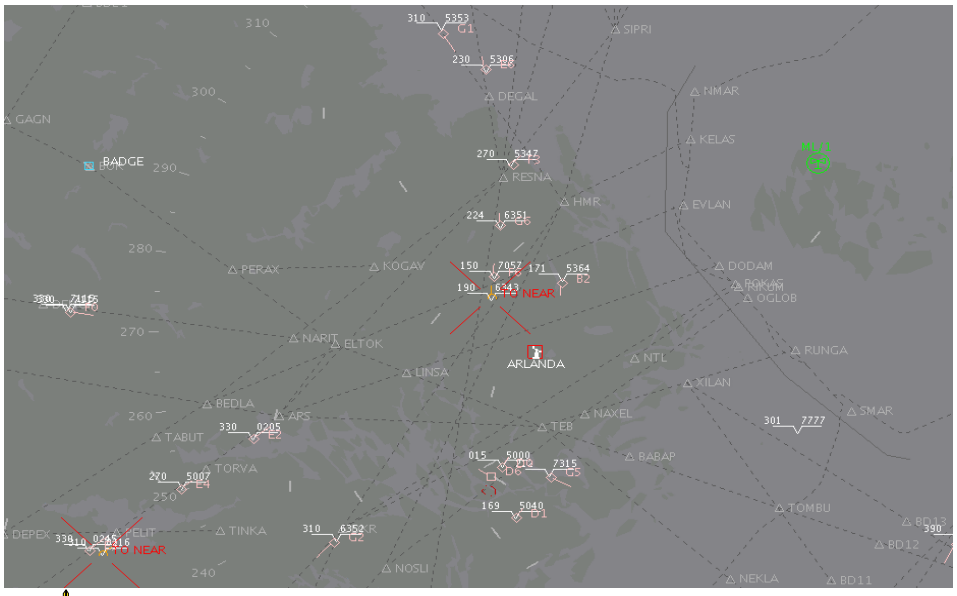
On the surface the action is a bit more modern and we today, together with Finland operate a combined network for naval situational awareness. It is called “Sea Surveillance Co-operation Finland Sweden, SUCFIS for short.



With the help of an encrypted real time link between the naval situation centre outside Stockholm and a similar installation in Åbo, Finland, our two nations exchange data on the maritime picture built by radar stations and other assets, thereby creating a common operational picture for the major part of the Baltic Sea.

The information that comes from this cooperation is not only used by our navies, but also by police, coast guard, customs and other agencies, thus increasing maritime security and safety in total as I speak.

Recognized Air Picture



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If we leave the surface for a short while we also, of course, recognize that a renegade Aircraft in this area is only minutes away from either country or even capital in this part of the Baltic and a common Recognised Air Picture is also essential.

A question and an operational need being addressed both bi- and multilaterally right now.

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I would like to wrap this up with a few final comments.

We have been working hard for the last 5-7 years, together with many nations, in order to be able to grasp what Networked Based Defence, or NEC is all about and what it could bring in order for us to reduce the “Fog of War”.

Today, we have results and a system tool in use, but the bulk of the conclusions and results remains to be taken care of. Our soldiers and sailors expect us do that today, not tomorrow. It is time to take off.

In order to achieve this, and thereby enhance interagency and international co-operation, events like this symposium can help as a catalyst and speed up the process. I therefore congratulate AFCEA and all the participants to two exiting days.

Thank you for your attention.