ITU Global Industry Leaders Forum, Thailand 10 March, 2008

Ericsson contribution
Michael Bjärhov, Director, Government & Industry Relations

Access to accurate up-to-date information is vital for efficient response in an emergency situation. This access can be provided by the established communication systems or by separate systems swiftly provided to the rescue areas.

Ericsson has for many years provided support to countries suffering catastrophic events via its Ericsson Response organization. Examples include rescue work after earthquakes in Kabul and Pakistan and in Bandar Ache after the tsunami. But there are also many smaller scale events that need communications support.

Ericsson as a total end-to-end communications supplier has created several solutions to assist countries and their safety and security organizations to address the communications needs in these situations.

Three examples are given in this brief.

- **Secure and efficient communications for national security and safety forces via dedicated virtual network utilizing the combined resources of commercial networks.**
- **Rapid-deployment communications systems for emergency situations when normal infrastructures are out of operation.**
- **Public early warning via mobile communications.**

Secure and efficient communications for national security and safety forces via dedicated virtual network utilizing the combined resources of commercial networks.

A major challenge for National Security & Public Safety users is the availability of efficient communication. This must be able to balance the need to effectively respond to day-to-day operations and proactively handle extraordinary situations when they occur.

Key National Security & Public Safety users need to communicate with both data and voice, in a secure and efficient way. Cost-efficient solutions are required to achieve as much as possible with a finite budget.

Ericsson's Government Home Network (GHN) solution has been developed to enrich user's communication experience and meet these needs. It offers an excellent opportunity for National Security & Public Safety users to take advantage of leading commercial, mobile telecommunication technology and the vast deployment of commercial networks.

Data and voice communication is continuously evolving. Commercial mobile communication technology is driven by a force of more than 3 billion users worldwide and there are over 1 million new subscribers every day. About 80% of the world's population lives in areas with coverage of commercial networks and the demand for data and imaging capabilities is increasing everyday.

The Ericsson Government Home Network (GHN) solution provides wireless broadband data and voice communication for National Security & Public Safety users.

The GHN solution is built on the proven Mobile Virtual Network Operator (MVNO) concept. Benefiting from the reuse of already deployed and operational commercial infrastructure, made available through wholesale agreements with established network operators, GHN ensures continuous access to the latest communications technology and applications. The GHN creates a government-controlled virtual network operator on top of existing commercial networks utilizing the combined coverage and capacity of those networks.

Ericsson understands that its customers have individual needs, so the GHN solution can be tailored to include any or all of the following components:

- GHN Core - A platform for dedicated networks with tailored services and applications with an interface to external communications.
- GHN Transportable Core - A GHN Core platform as a transportable container installation.
- GHN Cell - A GSM/WCDMA radio base station providing permanent area coverage at crucial locations.
- GHN Transportable Cell - A vehicle mounted GHN Cell for rapid coverage in incident areas.
- GHN Subscriptions - GHN SIM cards for standard mobile handsets, with managed rights of use, for exclusive and prioritized access.

GHN offers benefits based on advances driven by commercial market forces:

- Leading wireless mobile broadband capability
- Superior cost efficiency
- Multivendor opportunities and interoperability through open standards and interfaces
- Security and privacy tailored to meet your needs
- Continuous access to the latest and upcoming communication technology, services, applications and devices.

Rapid-deployment Communications Systems for emergency situations - when normal infrastructures are out of operation.

In many countries around the world, government organizations such as home land security, domestic first responders and the military face geographically dispersed disaster relief and defense situations. The situation is aggravated by the rise of both terrorism and natural catastrophes. The increased challenges in communication associated with these situations have led to a demand for new, data capable, light weight communications solutions that can rapidly be deployed and operated in the field.

To meet this market demand, Ericsson has developed an extremely compact, easy to deploy and operate WCDMA network in a small portable package – a network-in-a-box.

This is an ideal solution where full service WCDMA coverage and communication needs to be deployed within minutes.

The primary users are national security and public safety organizations, private enterprises and defense organizations. Additionally public network operators and systems integrators may act as managed service providers.

Providing state of the art broadband, voice- and data communication in the field the WCDMA technology used is well proven in the public sector with several hundred million users world wide. The "Commercial Off The Shelf" character of this solution will ensure a superior price performance ratio compared to proprietary communication solutions.

The solution is designed to provide best in class ease of operation. Provisioning is made through an intuitive and easy to learn web-interface and can be done before field deployment.

Once in the filed, the system is made operational by the flip of a switch. The system has the capability to automatically and dynamically form a community with up to 10 nodes. This capability provides the means to extend or decrease coverage as the situation and events in the field unfold.

It can easily be connected to other networks through its standard E1/T1/Ethernet interfaces thereby allowing communication with other telecom networks and the Internet.

The typical operating scenario is when a large scale natural disaster, like a hurricane, earth quake, tsunami or the like has taken place. Public communication networks have been wiped out or incapacitated. Disaster relief organizations quickly enter the area which is usually in a chaos. These organizations, like international rescue disaster response teams, medical teams, construction companies, food distribution agencies, national guards etc, need to have instant communication with each other and with their home organizations for support and logistics.

This is when the system is brought into the area. Its nodes are placed at strategic places for coverage, they are turned on and after 5 minutes they provide broadband communication in the area. Communication with the

outside world is provided through one or several units that act as gateways communicating via satellite.

The supplied SIM cards can be used in any ordinary 3G handset or PC card. If necessary, additional terminals and PC-cards can be included. The SIM-cards are pre-registered in the system HLR and they provide the identity for every one in the instant community of rescue workers. They can now communicate with voice and data. They can call the outside world for assistance and they can run their e-mail applications. Video streams and digital imaging can instantly be transmitted to aid rescue work. Data producing sensors of various kinds, for example infrared sensors used in search for survivors, can transmit their data, wireless to command centers set up for the mission.
The system is implemented in two physical packages, one rack mount version for installation in a vehicle and one version, possible to carry by hand. The portable version is implemented in two hard cases, one case for core functionality and one case for the radio. It is designed for deployment within 30 minutes and has most of the functions of an ordinary WCDMA network with the exception of billing functions. The O&M functionality is reduced to one light emitting diode that shows if the system is operational or not. Each node operates autonomously in a single cell configuration. One node typically serves 35 voice- and data calls. Up to ten nodes can form a community where subscribers in each node are dynamically updated as nodes move in and out of the community.

The above description refers to the Ericsson QuicLINK™ - a 3G network in a box

- QuicLINK™ is specified for organizations and personnel that need to bring a communication solution in the field where regular communication infrastructure is absent or has broken down.
- Compact, lightweight, portable or easy to install vehicle mounted units
- No field configuration required, one button operation and easy maintenance
- Scalable 3G communication network, enabling situation awareness for all personnel
- Public telecom grade voice, video and data
- IP connectivity, mobile stand-alone operation with capability to connect to legacy networks
- Compatible with any standard WCDMA handset or PC-card

In remote areas where public service is not available, QuicLINK™ is the ideal solution to provide instant broadband communication where regular communication, for any reason has broken down.

Public early warning via mobile communications

Notifying the public of imminent or already occurring disaster events and alerting them to security and safety threats is a challenge in any society. Traditional systems can create awareness of an impeding disaster but provide no detailed information. Existing broadcasting (TV/radio) alerts are insufficient when people are out of town or on the move.

While alerts can be made via existing functionality in mobile communications systems (e.g. SMS) these functions are limited with respect to scale, speed, delivery time and detail of information.

The large scale deployment and public uptake of 3G mobile communications provides new opportunities. Standard functionality being introduced in networks and terminals this year will radically improve the capability to provide the general public with timely and detailed emergency alert information.

MBMS, Multimedia Broadcasting Multicasting Service, is a functionality for 3G WCDMA networks that comes as a network software upgrade and will begin to be deployed by network operators this year (2008). User terminals released will have the required capabilities in models gradually introduced this year. Being a feature of the global standard the MBMS functionality will gradually grow into a larger and larger share of the terminal population.

MBMS can as its name implies provide both broadcast service and multicast service. Broadcast means that the same multimedia message containing audio, video, graphics and/or text can be sent to all users in one, many or all network cells at the same time. Multicast means that the message can be targeted to an individual or a specific group of recipients.

MBMS can of course be used for commercial applications such as mobile-TV, podcasts, traffic information, etc but its functionality also makes it ideal for providing emergency alerts from a public warning system.

The public can receive not only text and audio messages but also e.g. map instructions of where to go or not go in disaster situations. Since MBMS is part of the functionality of a bi-directional it also offers the capability to instruct the recipient of how to response with feedback that allows authorities to assess the situation at the emergency location.

With its advanced capabilities and the commercial drive to deploy it to deliver commercial applications MBMS is an excellent tool for public-private cooperation to enhance the security of the general public.