Meshing: From Technology to Product.
What is needed?

Agenda

A little about Ascom

Topic of Discussion: Technology to Products

What the Community gets out of this

Brainstorming:

- General Ideas
- “Wagenburg” use case Ideas
- Crisis Management use case Ideas
- General Ideas

THE ASCOM GROUP

- Ascom has a workforce of some 2’300 employees worldwide
- Ascom has subsidiaries in 20 countries
- Yearly sales of approx. CHF 580 million
- Ascom registered shares (ASCN) are listed on the SWX Swiss Exchange in Zurich
- www.ascom.com

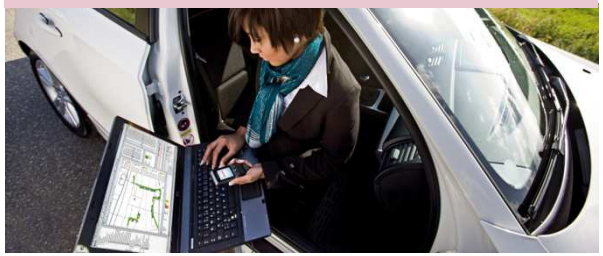
ABOUT ASCOM

Ascom is a business-to-business provider of customized communication solutions in niche markets.
The company focuses on Mission-Critical Communication in the following core areas:

Wireless Solutions

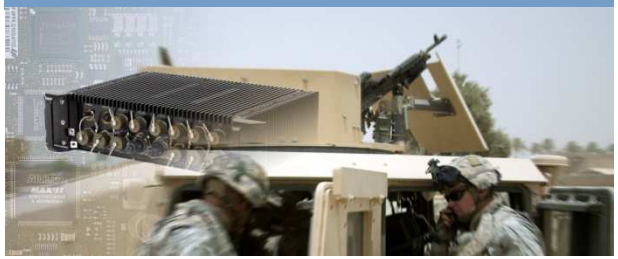
The WS division is a leading specialist in wireless on-site communication solutions for segments as hospitals, elderly care, industry, retail, hotels and secure establishments.
www.ascom.com/wireless-solutions

Network Testing



The NT division is a global market leader in testing and optimization solutions for mobile networks.
www.ascom.com/networktesting

Security Communication



The SeCom division specializes in secure, reliable communication solutions for alerts, mobilization, and tactical communication both for military and civilian use.
www.ascom.com/security-communication-n

SECURITY COMMUNICATION OFFERING (II)

INFRASTRUCTURE OPERATOR

ROAD

Convergent communication for Highway operators

RAIL

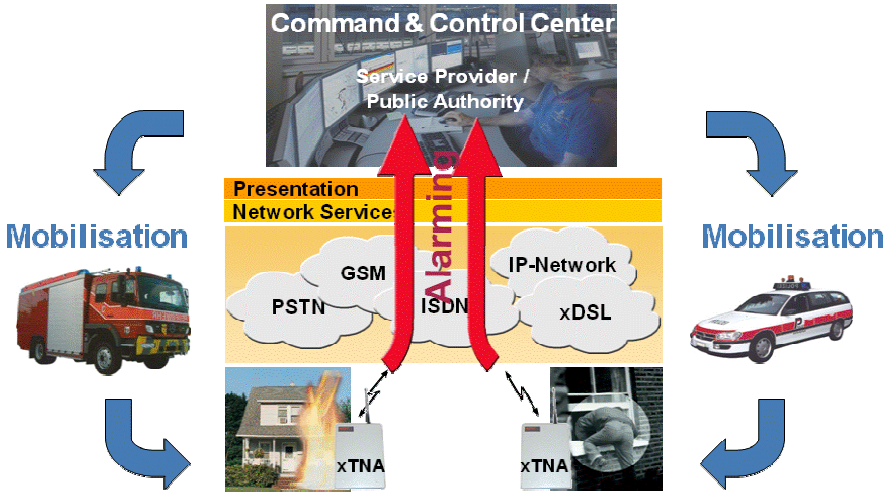
Convergent communication for Railway operators

Trackside-Phone

Emergency-/Info Call Stations

PUBLIC SAFETY

ALARMING / MOBILISATION



Meshing: Technology to Products. What is needed?

Ascom knows the technology quite well

- Small field trials with commercial systems
- Lab setup of B.A.T.M.A.N. and OLSR
- Demonstrations with a few customers to demonstrate the idea and asses market acceptance

However:

- We don’t know what is needed to make a Product
- What goes around the technology to make a product?

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What does the community get from this discussion?

It might sound like:

> Ascom will suck up all the ideas, implement them, and make lots of money.

That is not the idea. We want to take part in the community.

Open discussion about what parts of the puzzle are missing.

- Discussion can help coordinate work within the community.
- Trigger ideas for new interesting projects and subprojects.
- Ascom can help finance OSS work which helps Ascom.
- Commercial support for the not so interesting parts, e.g. Documentation

We will document all the ideas discussed here and make them available on the battlemesh.org wiki

No specific Use case – Open for all use case ideas

E.g. all commercial systems have a web GUI or application for management, topology viewer, etc. Is this really needed?

Is AdHoc mode in Linux WiFi drivers product ready?

Do we need a “Meshing for Dummies” book for the customer or is existing documentation enough?

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BUSINESS IDEA: **„Crisis Management needs Communication“**

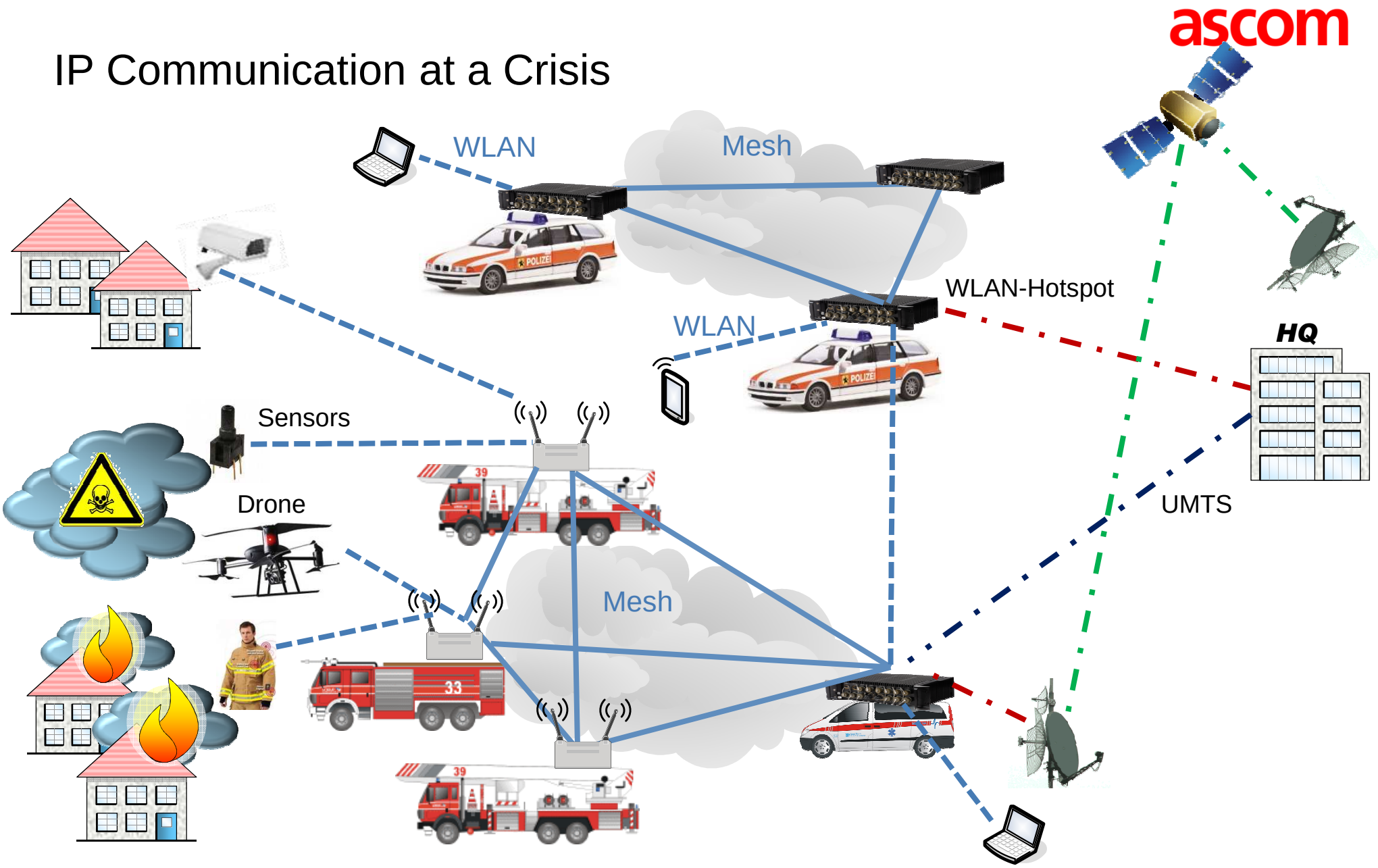
Goal of communication in crisis management

- reduce **chaos phase**
- allow more **effective operations**
- more **secure missions**

Idea: push defence competences toward civil CM market

- **robustness** and **dependability** through heterogeneous networking and mesh technology
- **ad hoc communication,** no deep technological know-how needed
- **independent** of end devices and applications
- **keep local communication local,** infrastructure independent
- **Load balancing back link,** and use what every back link is available

IP Communication at a Crisis



No specific Use case – Open for all

Last chance to bring up new ideas

Results from Discussions (1 of 5)

Is a management Gui/Web page needed?

- Technical network manger normally does not require this.
- For none technical people, a global view might be necessary.
- For simple static setups, no management interfaces is needed, since not much change is expected.
- Management GUI is seen more as a marketing tick than an necessary technology.
- For community networks, the users want to see status information for the local part of the mesh they use. For guifi.net, users click on a map to get status information.
- The network topology information needs to imposed over a real map. Either GPS is needed in the nodes, or its location has to be manually entered.

Results from Discussions (2 of 5)

Is training about meshing needed?

- Meshing itself is not difficult.
- What is difficult is everything that goes around it:
  - Bridges, vlans, NAT to internet etc.
- Where education is needed is with wifi in general:
  - Where to place nodes, what is the limits of wifi, expectations of wifi, interference sources, etc.
- Most problems come from wifi, not meshing

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Results from Discussions (3 of 5)

Drivers, etc

- Atheros driver is still lacking 802.11n support in AdHoc mode, MT40
  - Some draft patches floating around.
- Madwifi still the best choice for a/b/g hardware
- Newer drivers based on mac80211 have a better defined interface for fetching formation. Makes it easier to have portable code between different hardware.
- There are test specifications from the wifi alliance, but it is unclear how good they are, or if Linux developers are using them when developing drivers.
- There are only a small number of people working in device drivers, so progress is slow.
- The drivers are the cause of most problems, not meshing protocols, 95%/5%
- Drivers have gotten better in the last years, but they are no way near perfect.

Results from Discussions (5 of 5)

Crisis Management:

- 802.11 is very easy to jam / DoS, etc.
- This needs to be made clear to potential users, it is a best effort network, nothing more. Is this acceptable to users?
- Security problems are potentially simpler because of the localized nature.
- Also, in a real crises encryption might not be needed.
- Germany currently does not have encrypted voice communication for blue light organizations. Tetrapol is not used in encrypted mode.
- Tetrapol is more difficult to jam than 802.11. Will best effort 802.11 be accepted?
- Is lots of mobility is still an issue for meshing protocols?