



Technology for a better society

Research Director Eldfrid Ø. Øvstedal

SINTEF - Security

Security and the society

- Risk- and vulnerability analysis of technical systems
- Evaluation of technical, human and organizational factors related to security and safety issues
- Development of protection equipment (clothing in extreme environments)

ICT Security

- Information security and vulnerability
- Development of secure, safe and reliable technology and solutions
- Development of detection technology

Assessment of safety and security

- Assessment of security, safety, reliability and maintainability of technical systems



RAMSS research in SINTEF

- **Information security**
(SINTEF Information and Communication Technology (ICT))
- **Risk analysis, safety management, accident investigation, establishment of robust organizations and systems.**
(SINTEF ICT, SINTEF Technology and Society)
- **Safety-related control systems**
(SINTEF ICT)
- **Transport Safety**
(SINTEF Technology and Society)
- **Safety in shipping and off-shore**
(SINTEF Marine)
- **Safety in fisheries and aqua culture**
(SINTEF Marine)
- **Clothing in extreme environments**
(SINTEF Health Research)
- **Fire development, extinguishing and investigation.**
(Norwegian Research Fire Laboratory).
- **Accident investigation**
(all)

Information Security

Development of technology and methods to prevent undesired incidents in database systems and ensure that the systems retain their functionality when undesired incidents occur

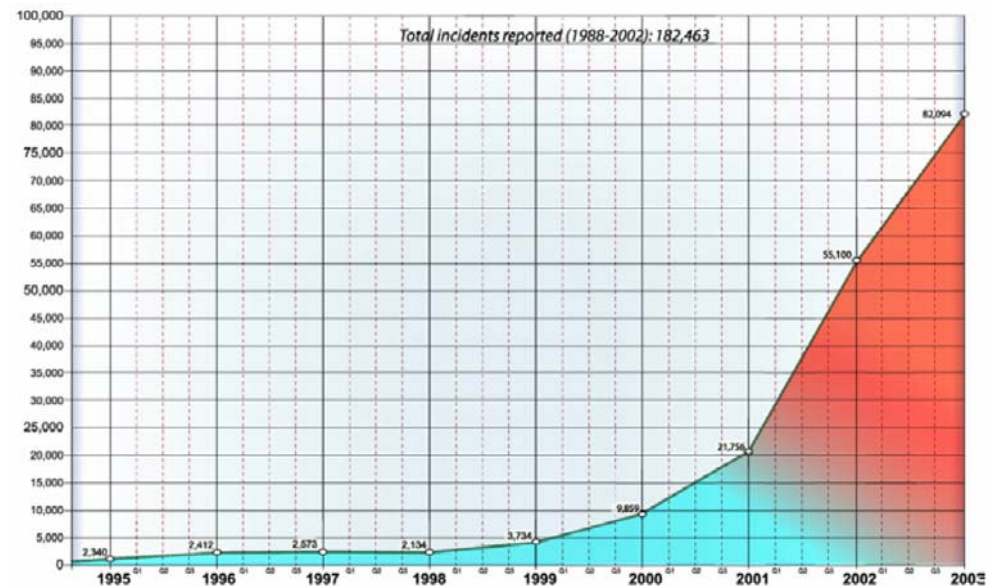


Areas of work

- Software security
- Awareness and incidents response management
- Mobile networks
- Access control and privacy in distributed systems
- Health applications
- Integrated operations – oil and gas industry

Projects

NFR- and EU-projects i cooperation with the oil industry, Telenor and public administration.



Growth of Security Breach Incidents Reported to CERT/CC

SODA

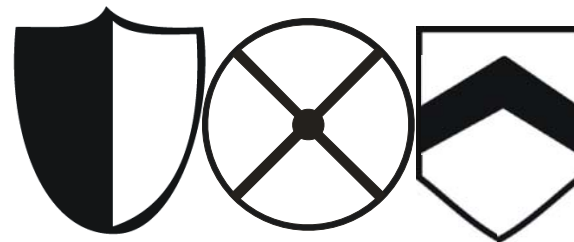
Security-Oriented Software Development Framework



Et sikkerhetsorientert rammeverk for programvareutvikling

Vår ambisjon er å lage et rammeverk for utvikling av *vanlig* programvare, der resultatet skal ha færre sikkerhetshull enn det vi opplever i slike produkter i dag.

Et resultat av prosjektet er **SHIELDS** -
et prosjekt under EU ICT 2007-1-4
med oppstart 1.januar 2008



Kontakt: Per Håkon Meland, per.h.meland@sinter.no



- Hovedmålet med forskningsprosjektet IRMA er å styrke informasjonssikkerheten knyttet til integrerte operasjoner innen olje- og gass-industrien, gjennom å utvikle en metode for bedre håndtering av sikkerhets-brudd.
- IRMA er finansiert av Norges forsknings-råd og Oljeindustriens lands-forening, og prosjektperioden er 2005-2007.
- Mer informasjon: <http://www.sintef.no/irma>

Kontakt: Martin G. Jaatun, martin.g.jaatun@sintef.no

Open Broadband Access Network

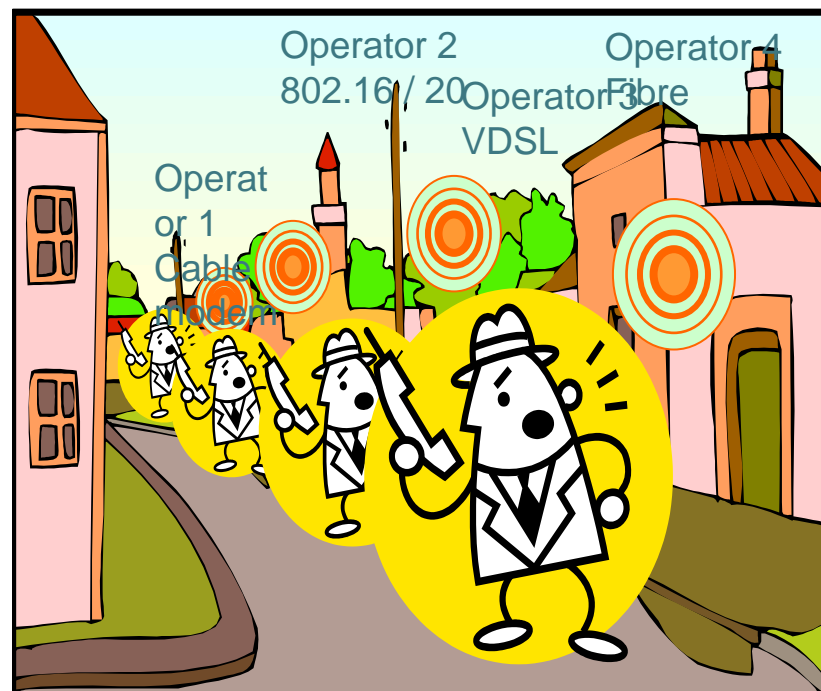
OBAN

OBAN

- er et EU-prosjekt
- utvikler mekanismer for å utnytte overskudds-kapasitet på bredbånds-forbindelser i de tusen hjem.
- SINTEF har en ledende rolle i arbeidet med sikkerhets-arkitektur i OBAN.

Kontakt: Martin G. Jaatun,
martin.g.jaatun@sintef.no

<http://www.ist-oban.org>



Security in Wireless Sensor Networks

Severe constraints and demanding deployment environments of wireless sensor networks make computer security for these systems more challenging than for conventional networks

- Wireless links must be secured against eavesdropping, tampering and denial of services
- Existing security techniques and mechanisms are inadequate
- Challenges to be solved include
 - Solutions for security architectures
 - Finding new cryptographic keys and distribution for communication between sensor nodes and to/from data acquisition equipment.
 - Exploitations of redundancy and scale
 - Finding ways to tolerate lack of physical security

SINTEF has a broad experience in wireless networks and is building up competence on wireless sensor networks. Information security is a strategic area under development. Security in wireless sensor networks will be a focus topic.

iAccess

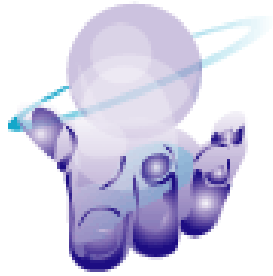
iAccess er et forskningsprosjekt som tar for seg hvordan man kan integrere tilgangs-kontroll til helseopplysninger fra mange ulike systemer.

Prosjektet er finansiert av Norges Forskningsråd og vil vare fra 2005 til 2008. Partnere i prosjektet er:

- NTNU (IDI)
- UiO (AFIN)
- SINTEF IKT

Kontakt: Inger Anne Tøndel, inger.a.tondel@sintef.no

Mer informasjon: <http://iaccess.idi.ntnu.no>



m·power

**Middleware Platform for eMPOWERing
cognitive disabled and elderly people**

Security services

- ✓ Access control
- ✓ Digital signatures
- ✓ Encryption
- ✓ Secure communication
- ✓ Secure storage of information
- ✓ Freshness

Kontakt: Maria Bartnes Line, maria.b.line@sintef.no

Integrerte operasjoner

- Fra lukkede til åpne nettverk og systemer i prosessindustrien
- Nye teknologier og arbeidsprosesser krever kunnskapsoverføring og samarbeid på tvers – f.eks. prosessfolk og IT-folk.
- Vi har fokus på:
 - Sikkerhetsbevissthet og håndtering av sikkerhetsbrudd
 - Tekniske løsninger for integrerte operasjoner
 - Olje- og gassektoren spesielt
- Prosjekter:
 - IRMA: Håndtering av sikkerhetsbrudd; nye utfordringer knyttet til innføringen av integrerte operasjoner.
 - Secure Safety: Sikring av kommunikasjon fra leverandør på land til installasjon offshore.

Secure Safety

Secure Safety er et prosjekt finansiert av Norges Forskningsråd og PDS-forum.

I prosjektet ser vi spesifikt på

- hvordan man kan sikre instrumenterte sikkerhets-systemer på offshore-installasjoner i forbindelse med integrerte operasjoner.

Kontakt: Martin G. Jaatun,
martin.g.jaatun@sintef.no



Systems Safety

Assessment of the safety and interoperability of safety critical systems in order to prevent undesired events that can harm life or health

Areas of work

- Independent Safety Assessments
- Secure communications
- Interoperability Assessments
- Safe technology for rail transport

Projects

Norwegian and Swedish railway administrations and European railway suppliers



- The **Centre for Railway Certification (“SJS”)** is appointed as a notified body according to
- EU directive 96/48/EC on Interoperability of the trans-European high speed rail system.
 - EU directive 2001/16/EF on Interoperability of the European conventional rail system

SAMRISK-prosjekt:

Risk and Decision Systems for Critical Infrastructures

Primary objectives:

- To provide new knowledge about ROS analyses and decision-making processes concerning measures to reduce risk and vulnerability of interconnected and interdependent critical infrastructures
- To establish a framework for analyses across sectors and decision support regarding critical infrastructures, which can be applied by government, directorates, local municipalities and companies responsible for the infrastructure.

Secondary objectives are:

- To provide new knowledge about society's acceptance and decisions related to critical societal functions across sectors
- To develop and evaluate a new generic ROS methodology for lifelines, addressing safety and security (all hazard approach),
- To explore the use of ROS analysis for one local and one national case, covering the previous mentioned lifelines.
- To define/develop a few important indicators to monitor, evaluate and predict the societal risk and vulnerability.