Taming the Alarm Problem:
To boldly go where others have gone before
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Alarms have been used in other domains for a long time

Commercial Aviation
- Air Traffic Control
- Collision Avoidance
- Cockpit Avionics

Continuous Process Industries
- Oil Refineries
- Power grids
- Chemical plants

Alarms systems develop problems over time

- no single alarm believes it is the source of flood
- easy to add alarms
- hard to remove alarms
  - alarm floods
  - standing alarms
  - nuisance alarms
  - poor alarm configurations

Alarms system problems have contributed to many tragic losses

2005 BP Texas City Refinery Explosion
1B$ economic loss, 15 people killed

1994 Texaco Milford Haven Refinery Explosion,
£ 400M economic loss

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Over 3800 people killed

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Other domains have learned how to tame their alarm problems

1. International Society of Automation (ISA):
   “SP18 – Alarm Systems Management and Design Guide”
2. Abnormal Situation Management (ASM) Consortium:
   “Effective Alarm Management Practices”
3. UK Health and Safety Executive (HSE): “Better Alarm Handling”
4. Engineering Equipment & Materials User’s Association (EEMUA):
5. NAMUR: “NA 102: Alarm Management”