Zweckverband für Rettungsdienst und Feuerwehralarmierung Saar

Hybrid alerting: Self-reliant alerting networks and LTE capable devices enabling efficient management for intervention forces

Rainer Buchmann, Head of Rescue Control Center, Saar

Introduction

About me

- **Rainer Buchmann**
- **Head of the Saarland Integrated Command and Control Centre**
- **Responsible for about 13,000 emergency services personel**

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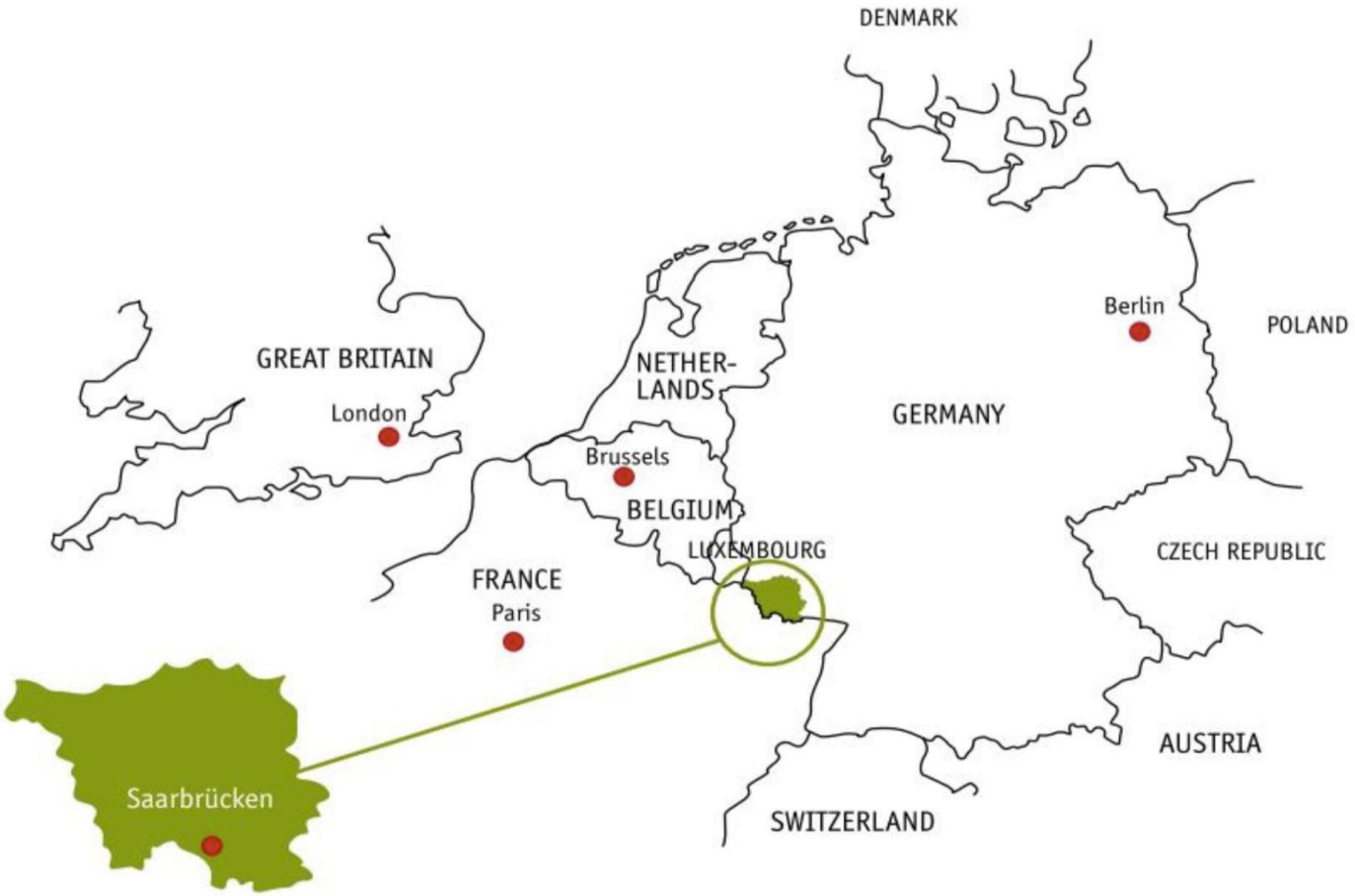
Saarland



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The human perspective

Needs of victims

- **Time: The faster the help, the greater the chances of rescue**
- **Is the right emergency services personel comming?**
- **Discretion: Information about the victims must not be overheard during alerting process**

Needs of emergency services personel

- **High availability**
- **Highly accurate and targeted alerting process**
- **Terminals they can rely on**

Needs of operator and authority

- **Low reimbursement costs**
- **Legal regulations must be complied**
- **Maximum availability of the alerting system**
- **Independence from commercial networks**
- **Cost-efficiency thanks to minimal investment and operating costs**
- **Data protection law**

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Needs of dispatcher

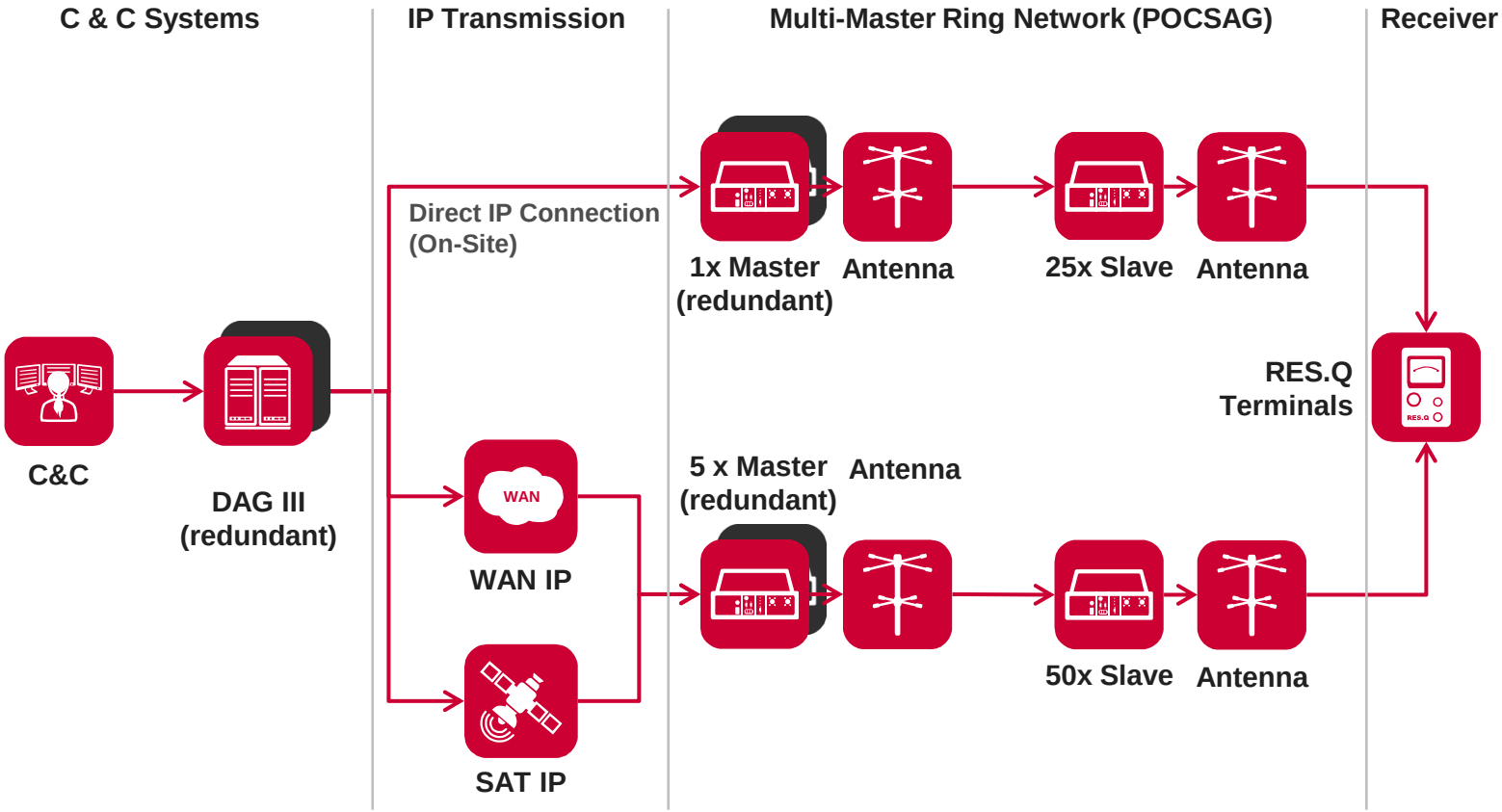
- **Independent quick and reliable alerting**
- **Resilience and Redundancy**
- **Resource management: Availability and monitoring**
- **Minimizing time of communication with emergency services personel**

Needs of the employer

- **No excessive alerting**
- **Minimizing absence from work**

Crucial question: How can Saarland satisfy all these needs?

System Design I: Base System



Express-Alarm: Much faster

Comparison of alerting times:

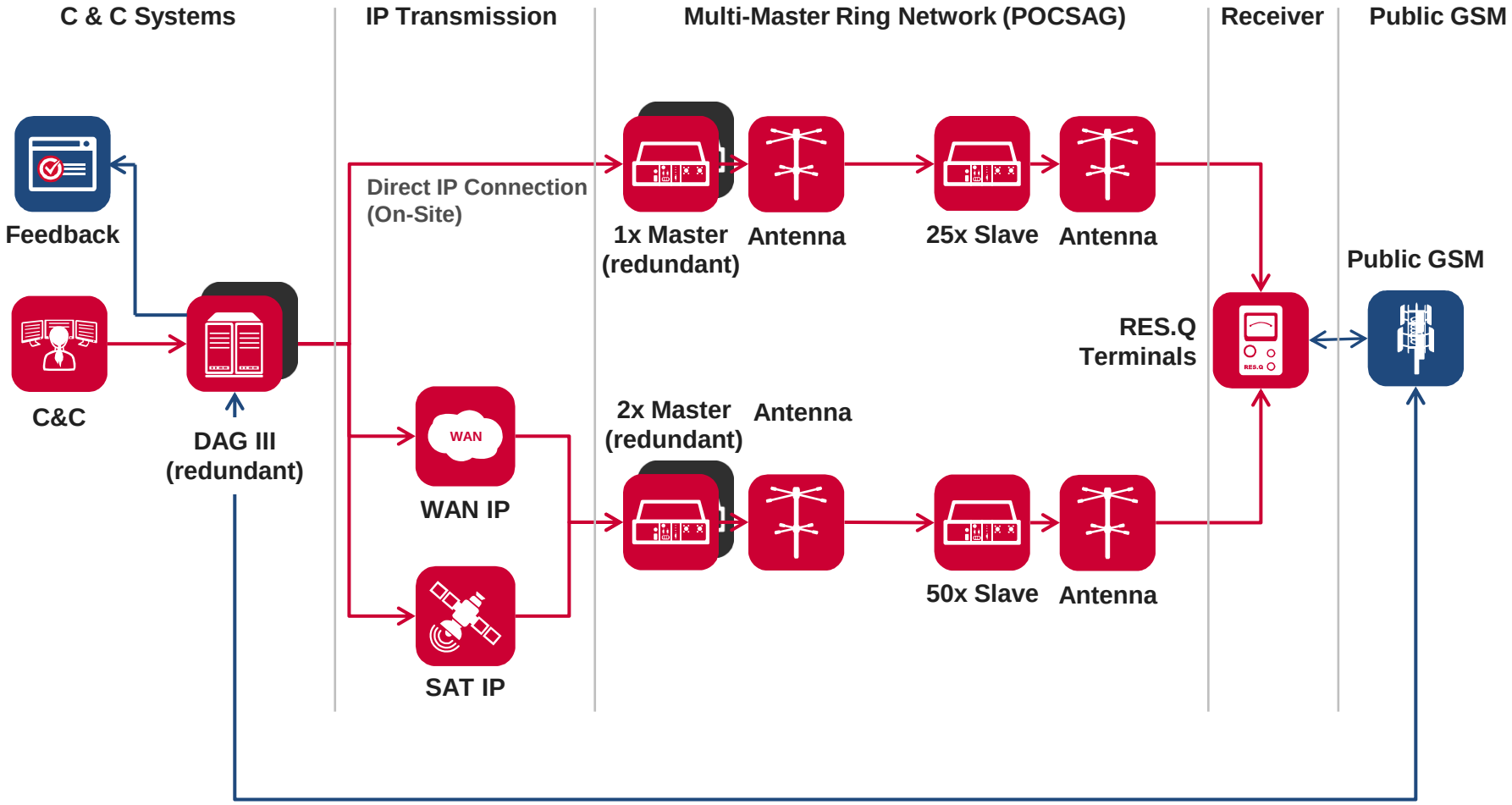
Standard POCSAG

Express Alert

Advantages:

- **Flexibility**
- **Shorter alarming times**

System Design II: Availability and Feedback



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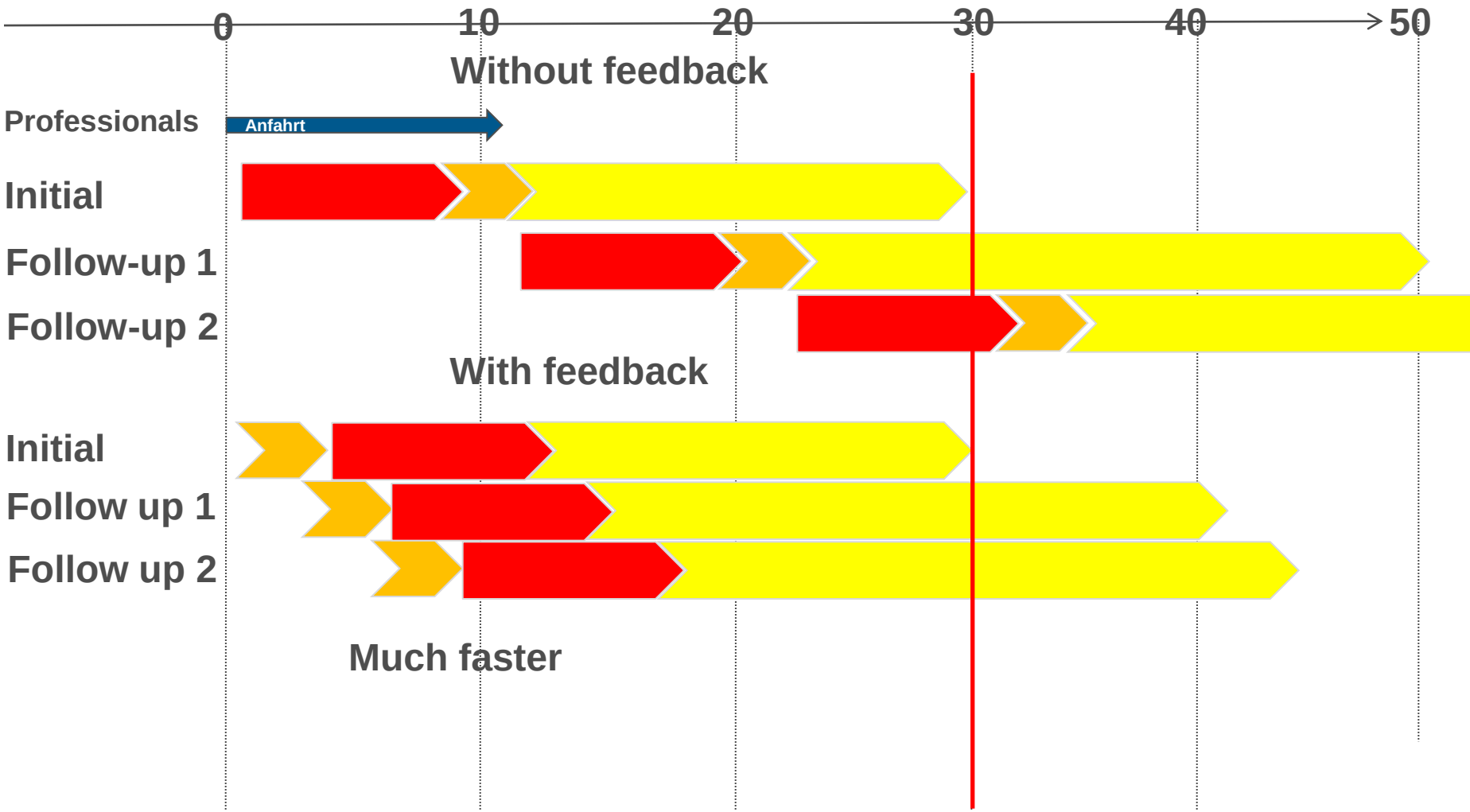
Alerting with feedback channel with GSM



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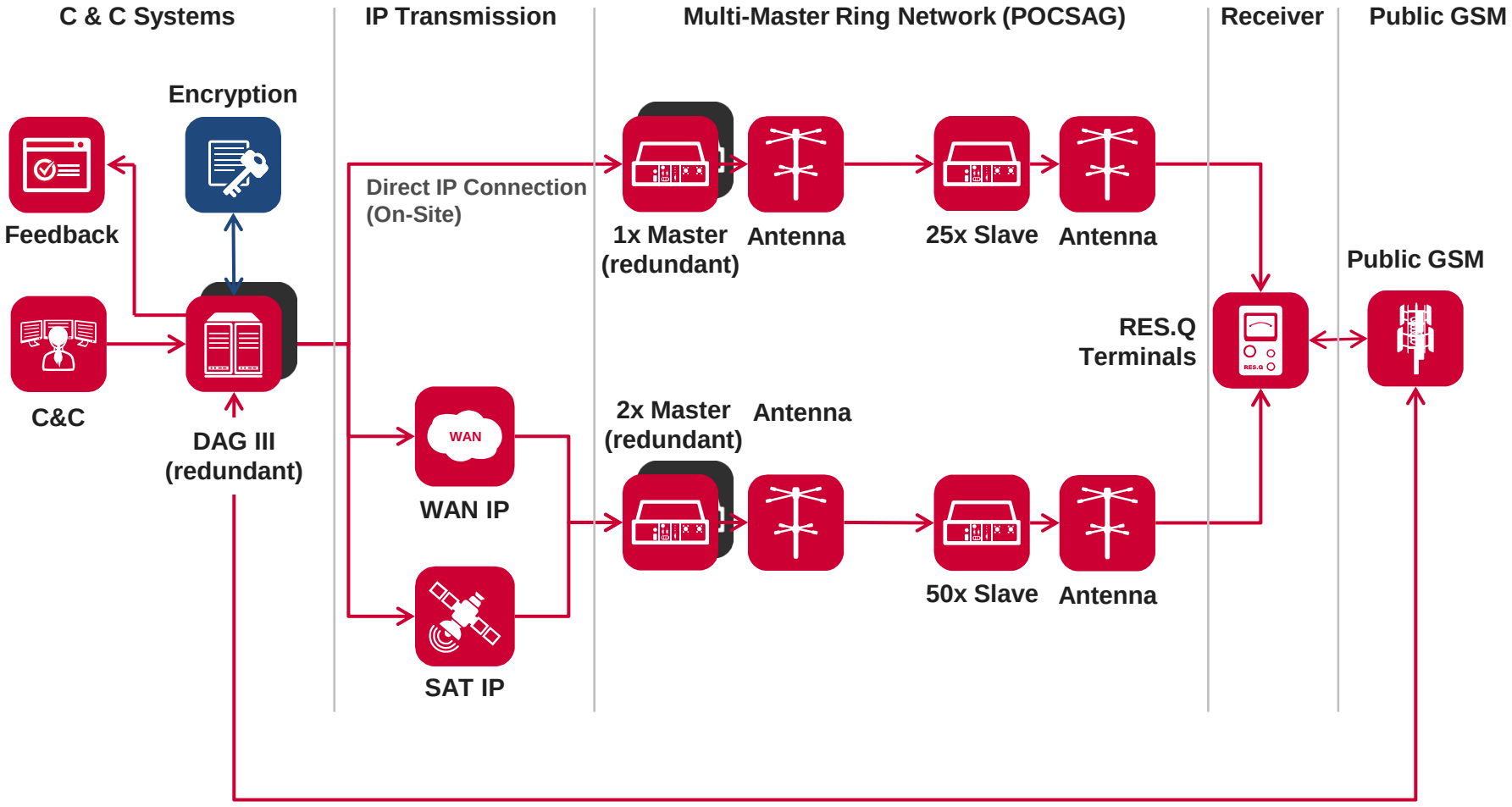
System Design III: Encryption



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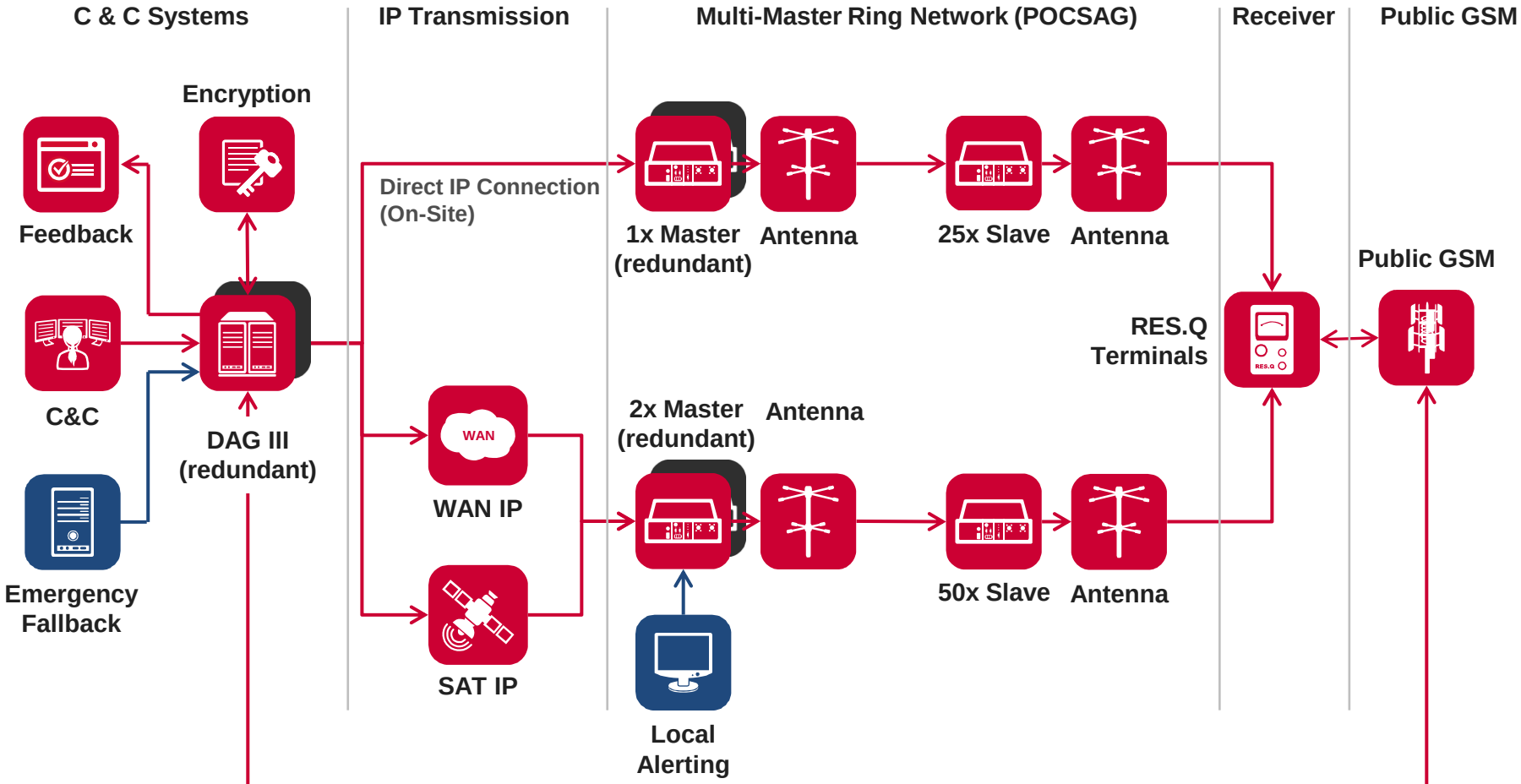
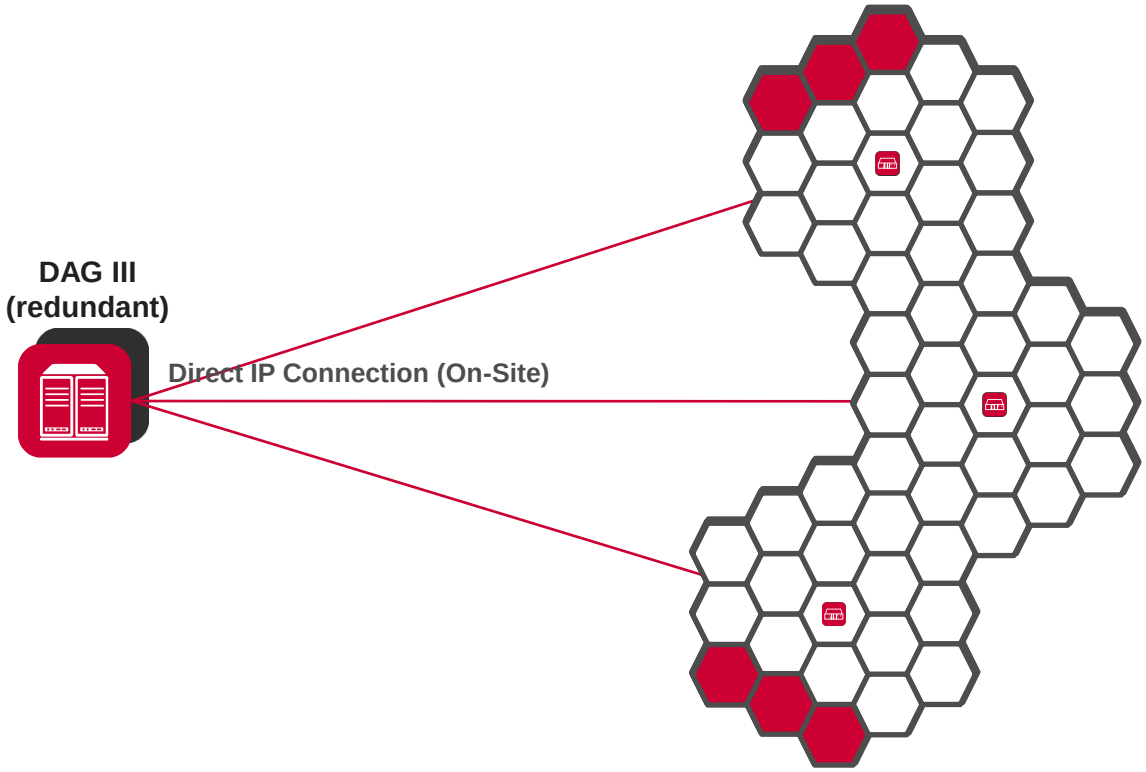
System-Design IV: Fail-Safe System (redundancies)



Multi-Master Technology



Standard Operation: Multi-Master Transmission within Net segment

Wide broadcast as fallback mode if TCP/IP connection lost

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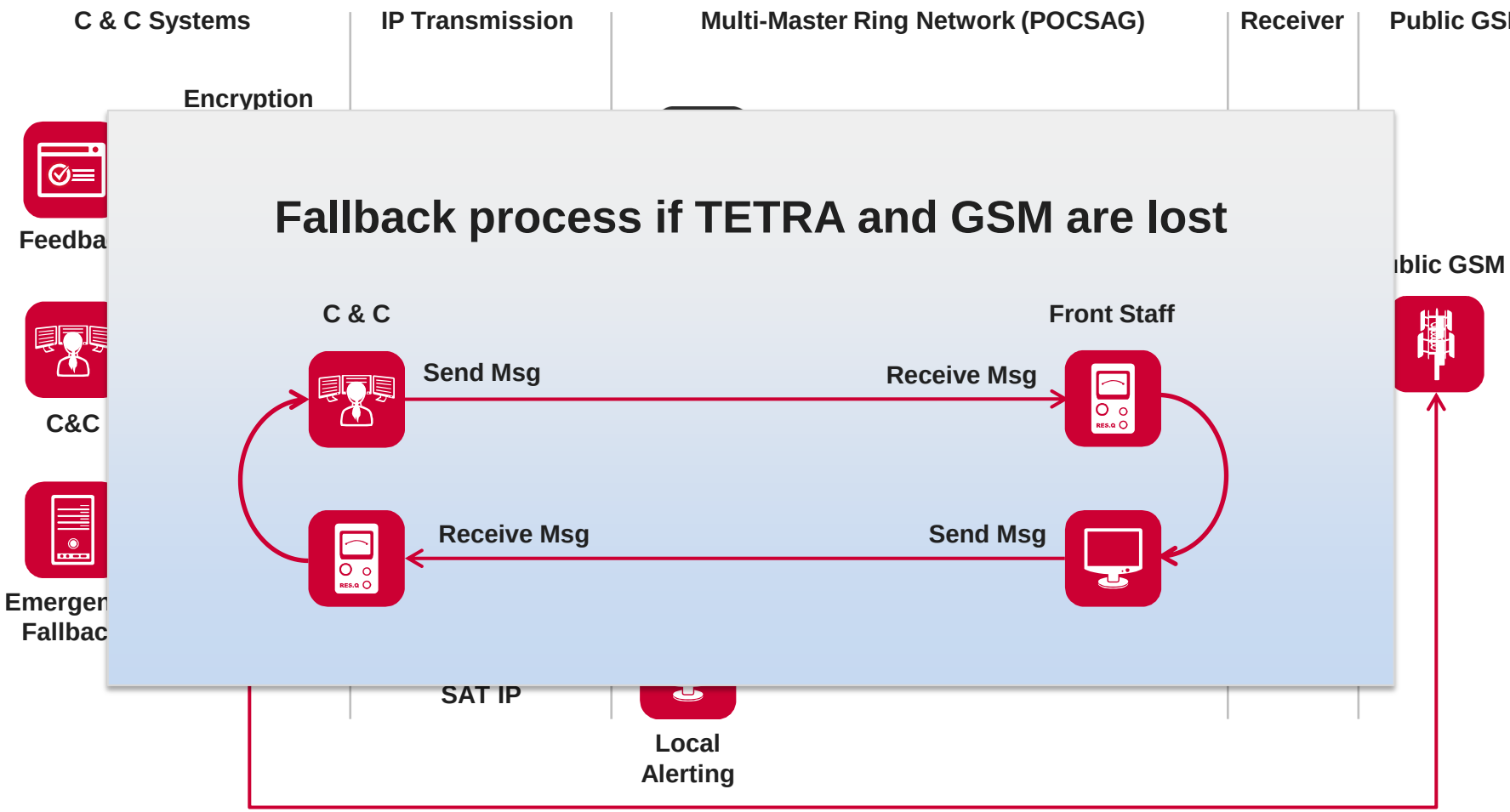
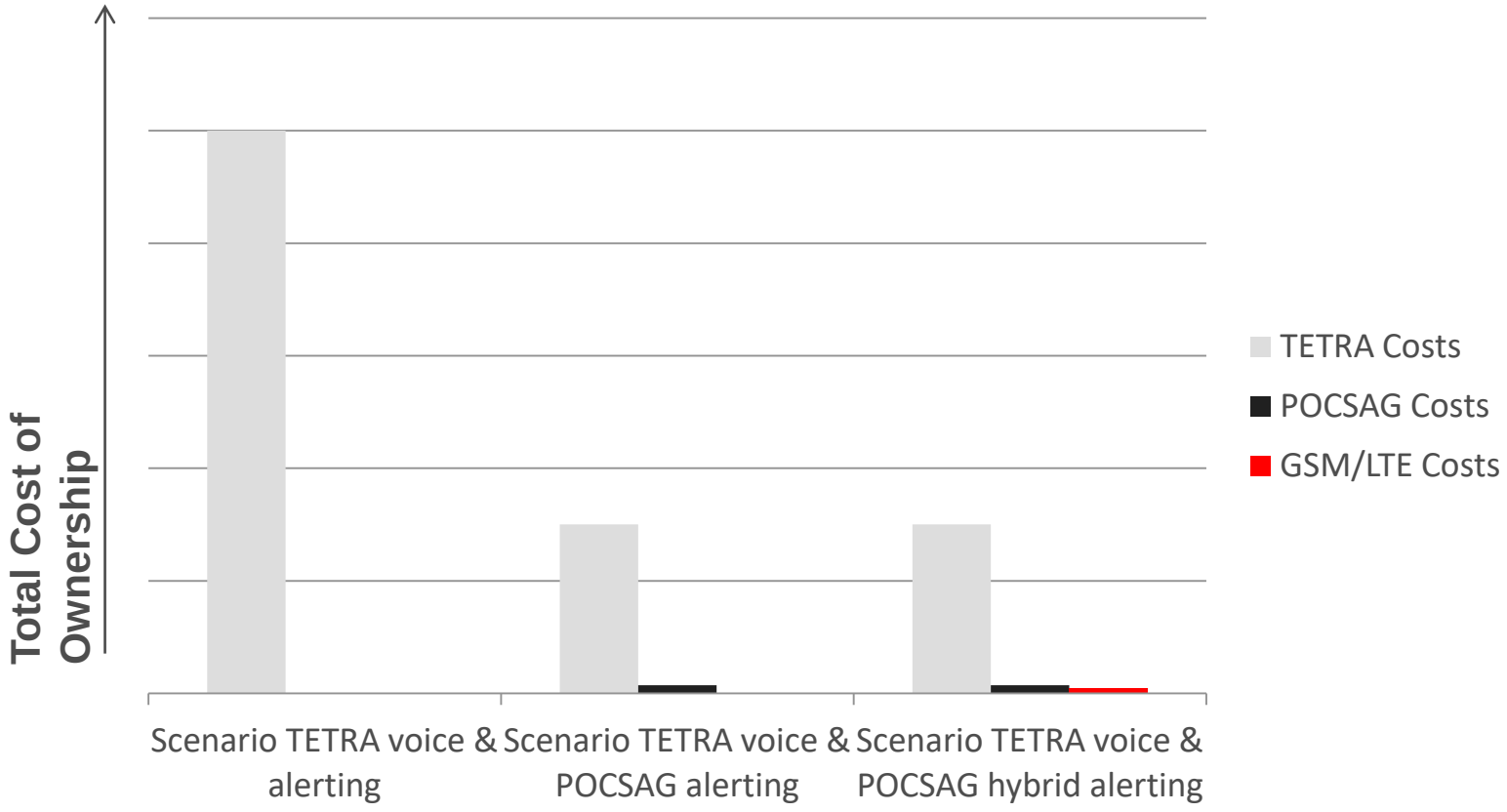
Blackout


C & C Systems
IP Transmission
Multi-Master Ring Network (POCSAG)
Receiver
Public GSM
Encryption
Feedba
C&C
Emergen
Fallbac
ublic GSM
SAT IP
Local
Alerting
Fallback process if TETRA and GSM are lost
C & C
Front Staff
Send Msg
Receive Msg
Receive Msg
Send Msg

Total Cost of Ownership



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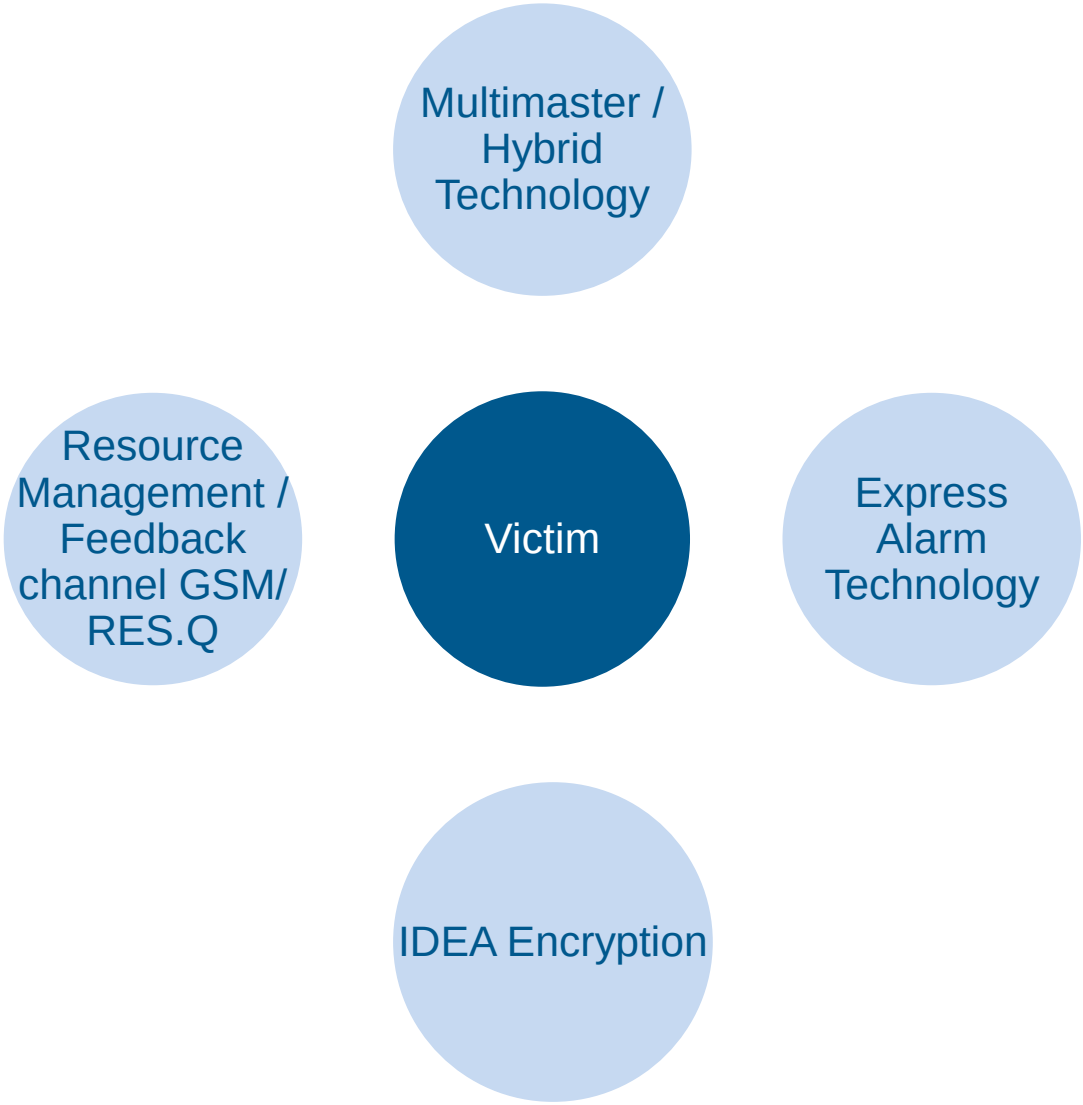
Question: How does technology support the human needs?

Our solution for the victims



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Our solution for emergency personel

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Our solution for operator and authority

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Our solution for the dispatcher

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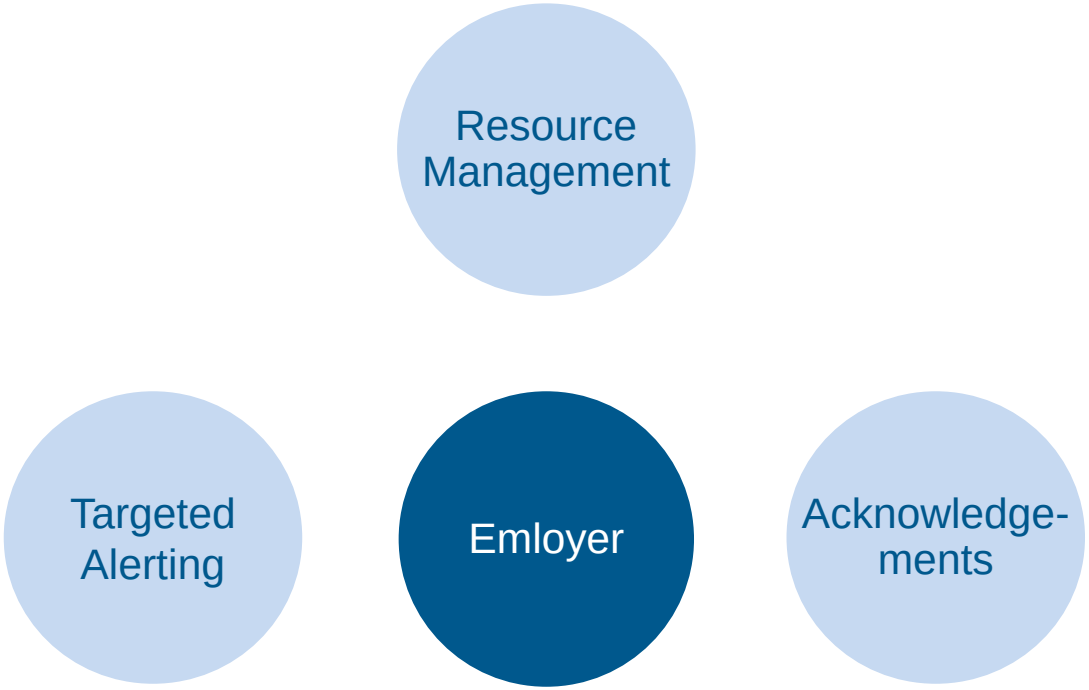
Our solution for the employers



- **No excessive alerting**
- **Minimizing absence from work**

Conclusion:

By combining our alerting technology with GSM networks and leveraging their synergies, we managed to increase resilience, redundancy, speed and availability. On top, our solution is even self-reliant due to several fallback modes. And finally, it increases the overall system redundancy by providing a fallback scenario for our Public Safety Voice Communication infrastructure. These reasons make me believe we maximised the total value of our Public Safety Communications Infrastructure.

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Thank you.

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