SIEMENS

Command & Control Solutions for Critical Infrastructure

Bernhard Voit
Product Management ELS Family
I BT SES SYS

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Contents

1 The Market

2 Sell our Solution!

3 Our Solution

4 Sales Support

5 Application Service

6 Service in the Regions

7 Live Demo

8 Best practice examples

9 Q&A

The Market

Why is there a need for Command & Control?

Germany December 08

Teenagers smash man's skull in Munich U-Bahn

Published: 9 Dec 08 16:31 CET

Police on Tuesday reported a group of at least six teenagers recently attacked a 24-year-old man in the Munich U-Bahn station, causing skull and facial fractures. His brother suffered a broken nose when he tried to intervene.

The Local
GERMANY'S NEWS IN ENGLISH

Germany Juni 07

Atomkraftwerk Krümmel nach Brand abgeschaltet

28.06.2007

Nach Augenzeugenberichten hüllten riesige schwarze Rauchwolken das Atomkraftwerk ein. Über die Trafostation wird der Atomstrom in das Netz eingespeist. Wann das Atomkraftwerk wieder ans Netz gehen kann, war zunächst offen.

Das Atomkraftwerk wird von der Kernkraftwerk Krümmel GmbH betrieben, die jeweils zur Hälfte Vattenfall Europe und E.on Kernkraft gehört. E.on Kernkraft verwies gegenüber SPIEGEL ONLINE darauf, dass die "Betriebsführung" für das KKW Krümmel bei Vattenfall liege und wollte deshalb keine Angaben machen.

SPIEGEL ONLINE WISSENSCHAFT

Holland February 09

At least nine killed as Turkish Airlines plane crashes near Amsterdam

More than 50 injured as plane carrying at least 127 passengers splits in three on approach to Schiphol airport

At least nine people were killed today when a Turkish Airlines plane crashed into a field as it came in to land at Amsterdam's Schiphol airport, breaking into three sections on impact.

Among these who died were the three flight crew, whose bodies remained on the stricken plane, officials said. A total of 80 people had been taken to 11 hospitals around the region, a medical official told a press conference. Six of these were very critically hurt and it was not known whether they would survive. Five others were seriously hurt, she said.

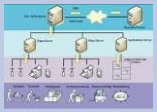
guardian.co.uk 25 February 2009

What is Command & Control?

Command and Control is an approach in which functions are performed through management of personnel, equipment/systems, communications, facilities and procedures

Three main elements of Command & Control

IT infrastructure



Emergency

Telephone

Perimeter Surveillance

Security CCTV

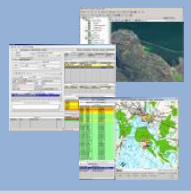
Others

Video Analytics

Access Control

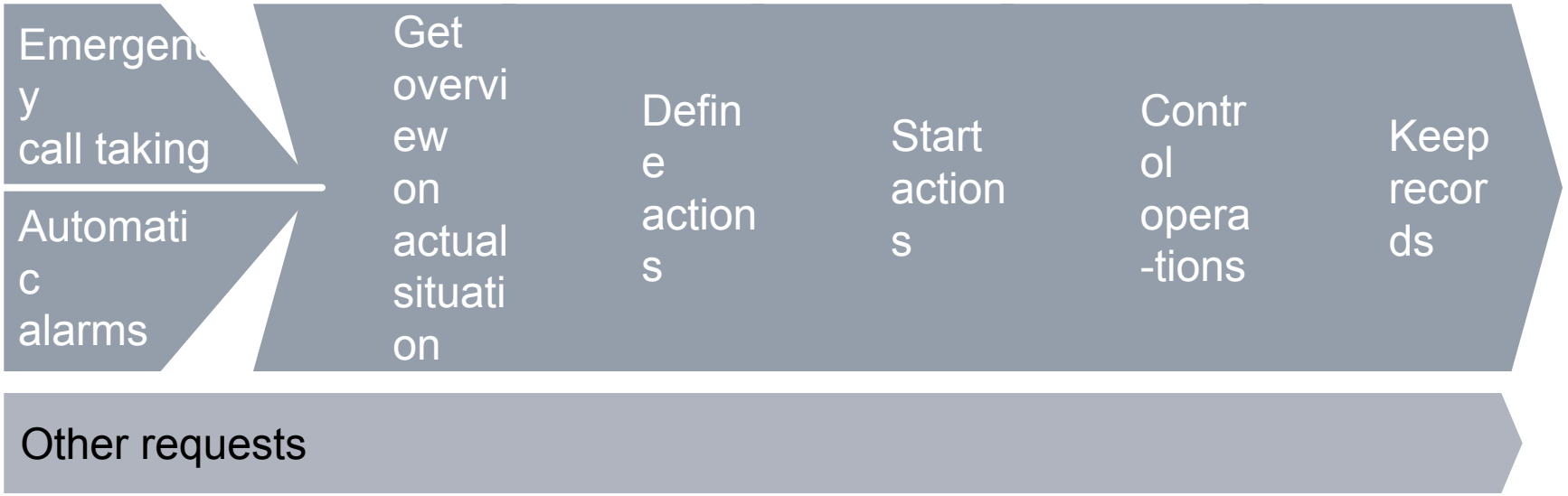
Policies & Scenarios

Decision Support

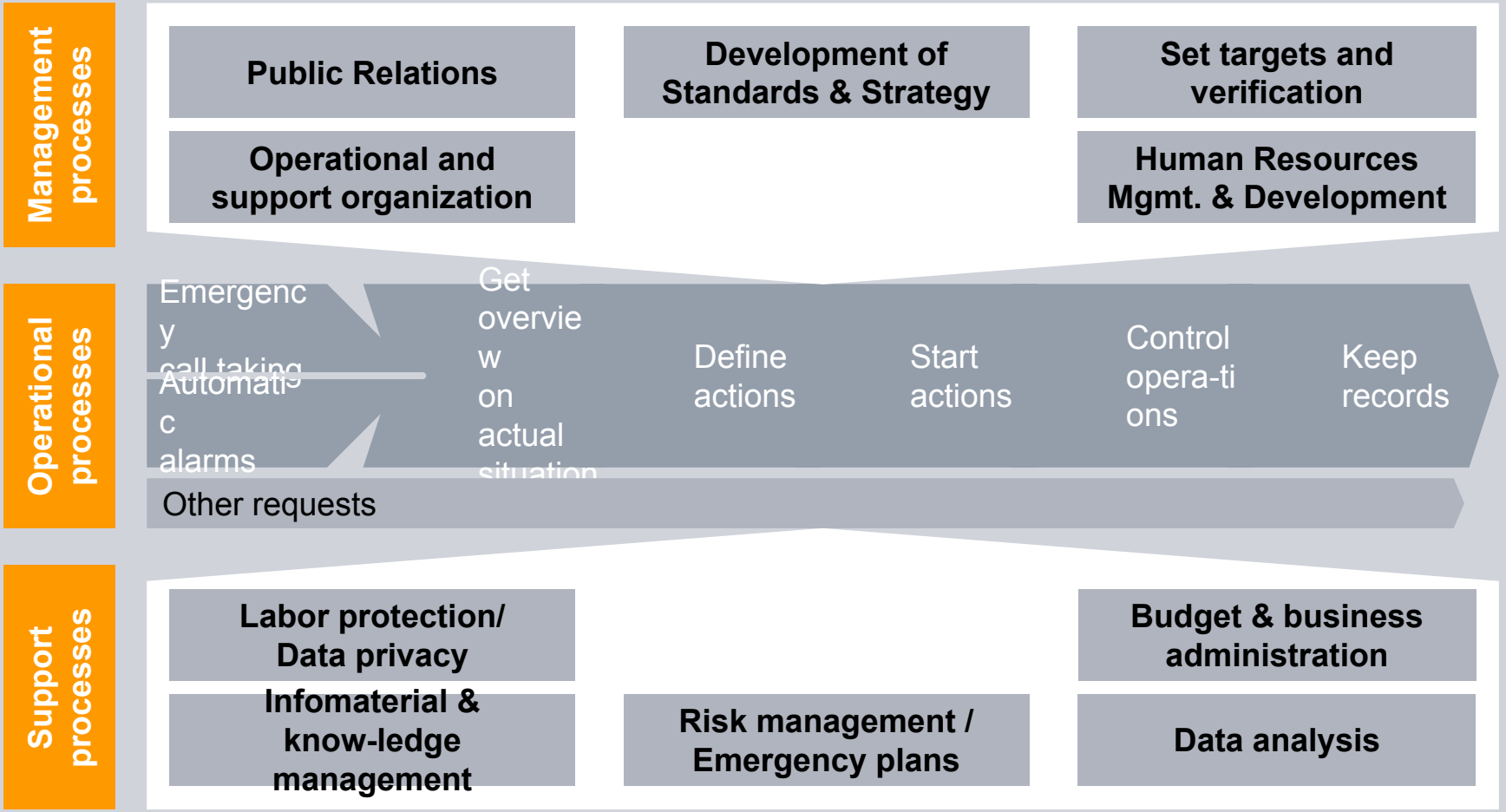


Actions and Operations

Operational processes



Management and Support Processes



Command & Control Centers

Areas of application

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Public Security

- Computer Aided Dispatch for Fire Brigade, Police, Rescue / Ambulance
- "112" / "911" emergency calls
- Crisis Management

Security Management Services

Remote monitoring and special application, MSS Project Columbus

Critical Infrastructure

Applications in the Heavy Industry, Power Generation & Distribution, Oil & Gas, Transportation, Ports, Airports …

Tactical Defense, Ground Traffic

 Not targeted

Security in Critical Infrastructure

Characteristics

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- Covering geographically large areas
- Extensive security policies
- Need for situational awareness
- Multi vendor subsystems
- Handling of tasks and operations, not just alarms
- Number of operators typically 3-8
- High workload 24/7 operation
- Highest availability
- Integration with communication systems
- Management and dispatch of security forces

Critical infrastructure

There are risks in case of an incident

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Critical infrastructure:

- Heavy Industry
- Pharma
- Power Generation & Distribution
- Oil & Gas
- Transportation
- Ports
- Airports
- …

Vital need for operational continuity
High risk of financial damage
High risk of loosing reputation

Why should the customer invest?

To secure operational continuity!

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What	Why
Situational awareness	▪ Allows to take the correct decisions
Integration of communication	▪ Ensure fast reaction in stress situations
Implementation of security policies	▪ Ensure that the defined action is taken ▪ Safe vital seconds for counteractions ▪ Minimize impact of an incident
Unified and homogeneous handling of subsystems	▪ Allows the operator to act as quick as possible
Redundancy, high availability for 24/7 operations	▪ Ensure that no incident is missed

Minimize the impact of an incident

Why should the customer invest?

To secure operational continuity!

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What	Why
Complete operational picture, from beginning to the end of an event	▪ Allows to keep control
Display data in geo-referenced maps and site plans, 2D or 3D	▪ Ensure a quick reaction
Statistics and reports	▪ Allows to analyze effectiveness ▪ Improve processes and organization
Online configuration	▪ Security around the clock
Web based solution, role based user concept	▪ Support a flexible organization

Run a professional security organization

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Application example

Why should the customer invest?

For interoperability!

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What	Why
Open interfaces to subsystems	▪ Allows to implement the scope of interaction as needed
Standard protocols (e.g. OPC), SDK interface	▪ Allows integration of existing systems ▪ Future-oriented support of new systems
Centralized or decentralized multi-site application through IP & Web	▪ Ensures most effective security organization
Communication protected through VPN or HTTPS (SSL) means	▪ Ensure privacy and consistency of data

Flexibility and investment protection

Why should the customer invest?

For profitability!

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What	Why
Faster and well organized responds to incidents	▪ Minimize potential damage
Upgradability and "future proof", compatibility and open interfaces	▪ Lower costs for future extensions and subsystem replacements
Well defined security policies implemented in the C&C tool	▪ Possible lower insurance costs
Logging of all events	▪ Give evidence in liability issues
Supports of a most effective and professional security organization	▪ Less people required

An effective security organization minimizes your risks

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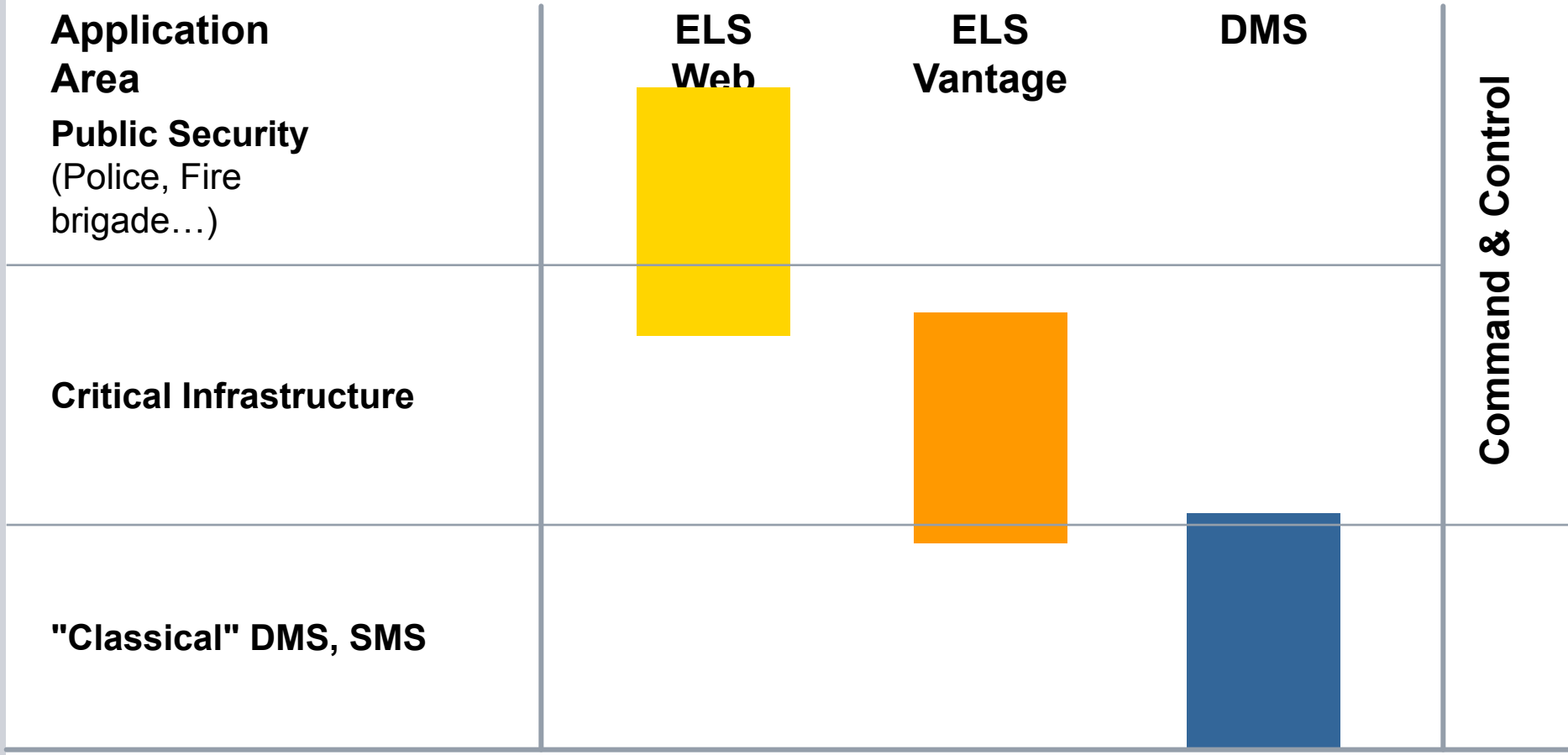
Sell our solution!

Our Management Station Offering



DMS: Danger Management Station / SMS: Security Management Station

Criteria from Selection Matrix

When a Command & Control solution fits

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Here it fits perfectly …

- Security Centers, multiple disciplines in Engineered and Value Solutions, with high security focus
- Extensive security policies
- Multi-site integration
- Remote site management
- Information system integration
- Integration of external databases
- High reliability operation – minimum downtime
- Resource and operational management
- Analog / digital radio system integration
- Telephone system integration (CTI)
- Geographical information system GIS

Depending on application …

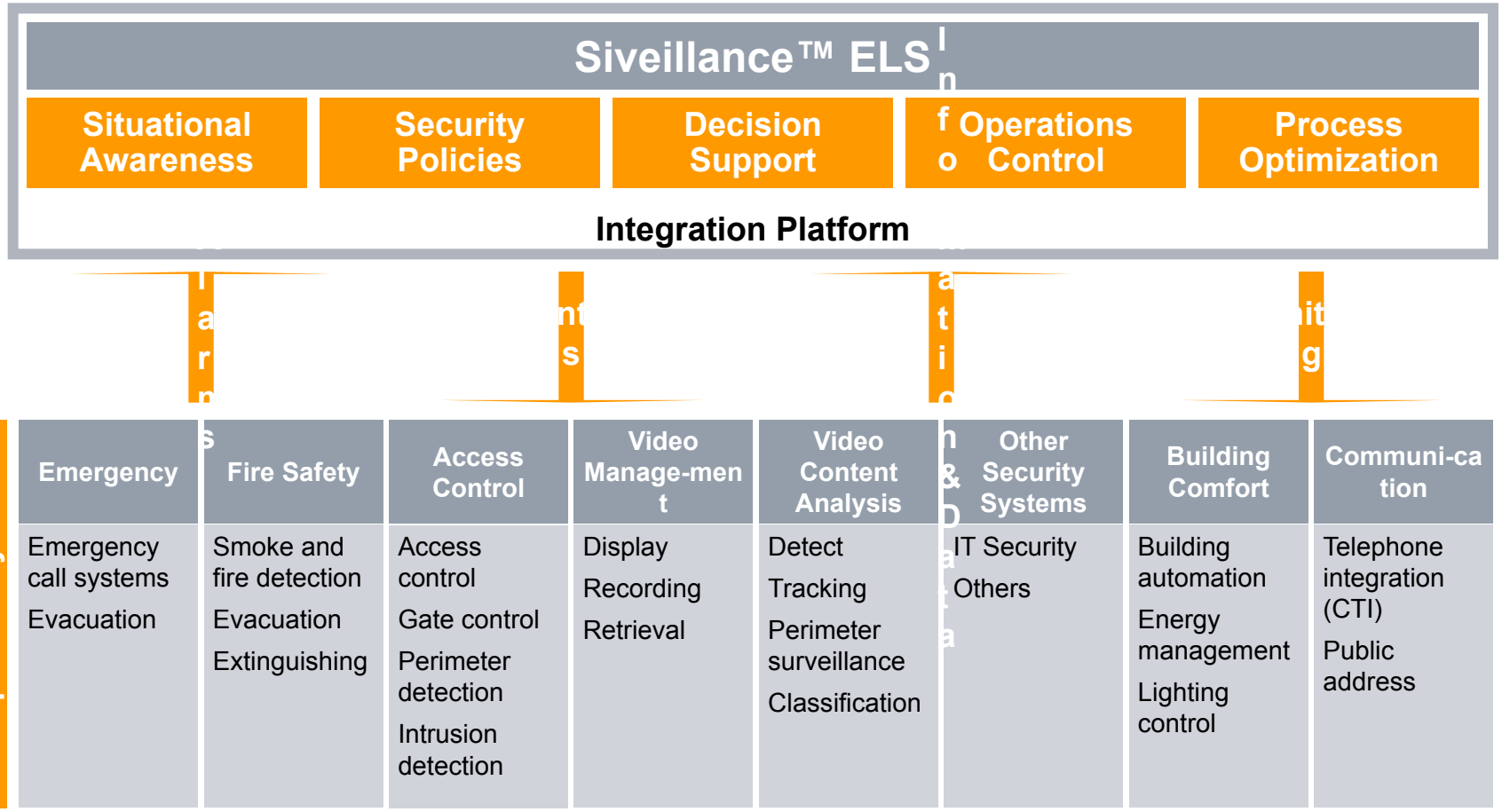
- High workload 24/7 multi-seat operation
- Multi vendor subsystem integration
- Intelligent video analytics

Highlights

Siveillance™ ELS Web and Siveillance™ ELS Vantage

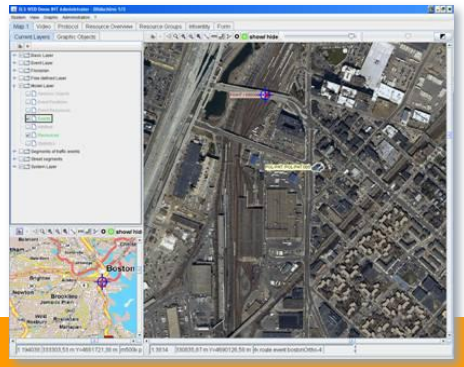
- Integrate Safety and Security subsystems and communication systems
- Provide tightest integration of Intelligent Video Analytics
- Avoid information overload by consolidated and prioritized visualization of all essential information to the operator
- Fully adapt security policies for decision support
- Offer full management of resources, including AVL (ELS Web)
- Role based user management
- Transparently manage the intervention operations
- Log all events and actions related to an incident
- Optimize the companies' security organization and processes

Integration platform

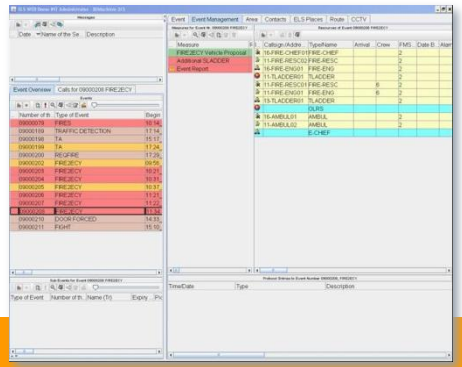


3/4 screen layout

GIS and information



Events and measures



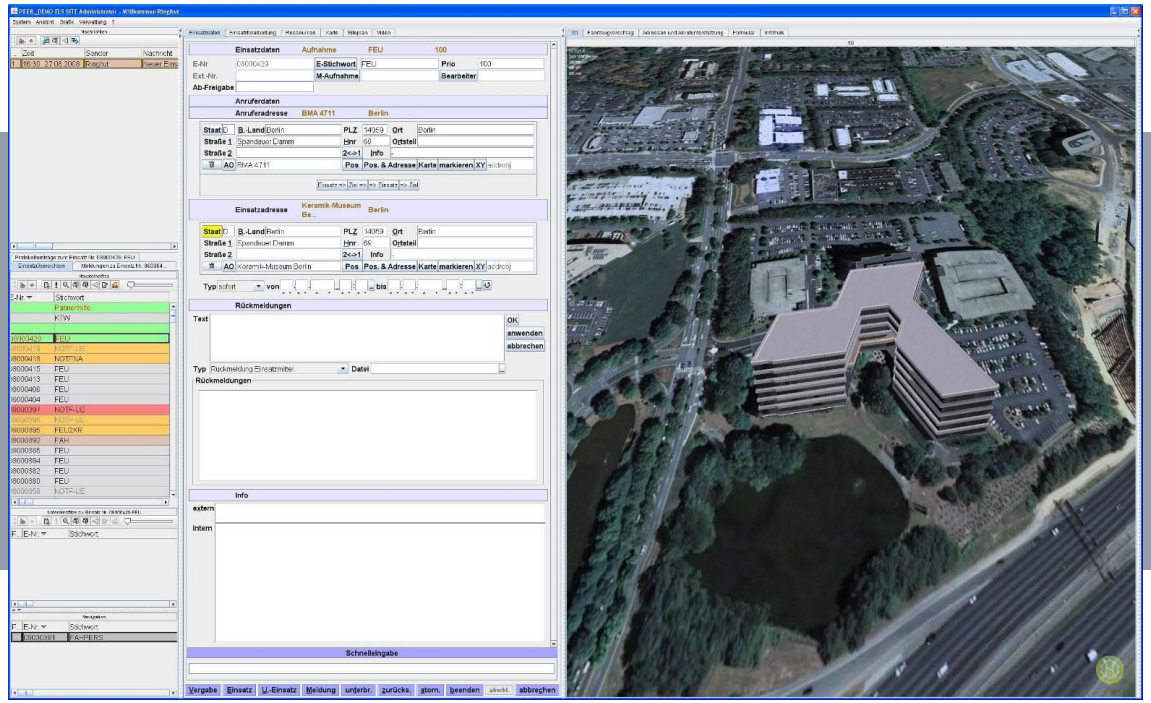
Site plans and details (resources)

3-screen

Communication touch screen

Optional touch screen for

Unique User Interface



Single Screen Solution - monitor 1920x1200 or 2560x1600 resolution

Innovative high resolution screen

Event handling and 3D graphics

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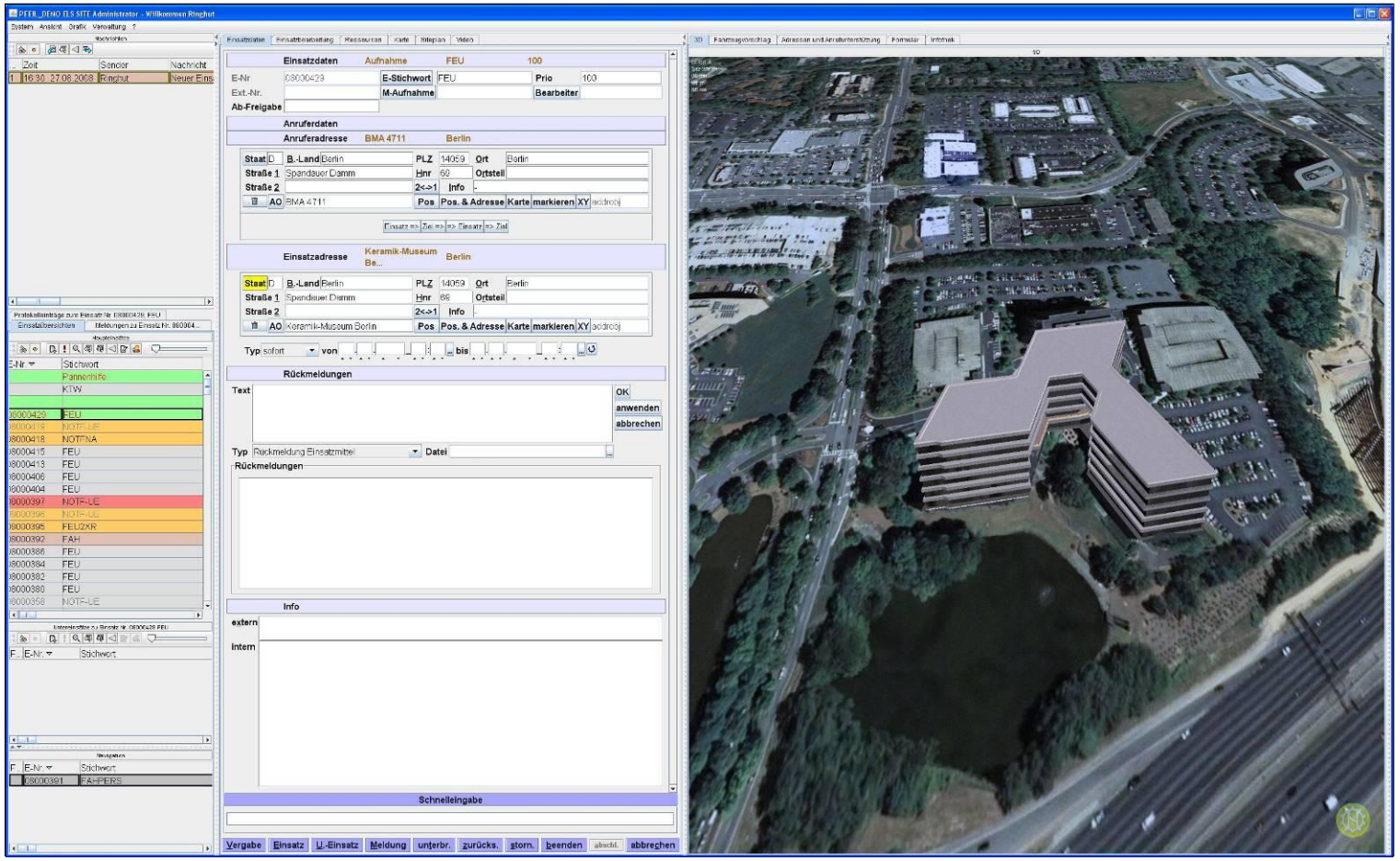

Innovative high resolution screen

Video feeds

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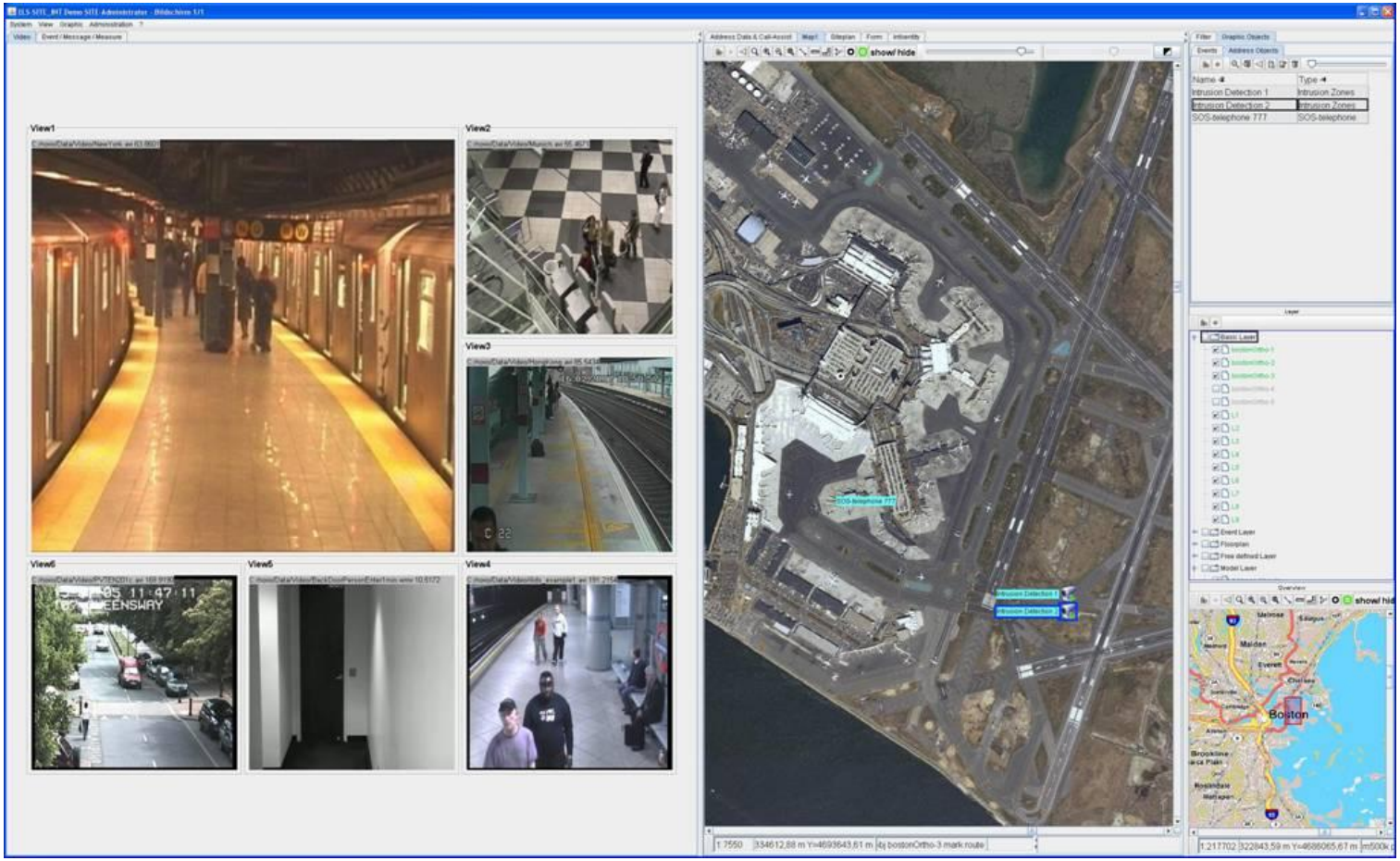

Unique selling points
Architectural

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- Unique fusion of Command & Control Center with intelligent video analytics
- Innovative high resolution screen with dynamic workflow driven layout
- Adaption of customers' security policies
- Assured situational awareness, avoiding information overload
- Open interfaces for subsystem integration
- Full operation via internet with low bandwidth requirements
- Thin web client / zero admin client
- Proven competence in lots of international applications

Unique selling points
Functional

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- Full interoperability within
  - Geographic Information System
  - Site plans
  - Information work flow
- 2D or 3D graphics
- CTI-interface to integrate telephone systems
- Customer specific information library
- Decision support minimizes faults and maximizes reaction time
- Embedded resource management and resource tracking

Communication messages

Main communication message	Promises and values	Reason why?
Reliability and stability	Being a long-term partner	Investment is save
Flexibility	We are able to adapt the system to customers needs	Customer stay technically up to date
New technology	We produce cutting edge systems	We introduce new technology whenever customer would like
Full offer	We are able to sell a full fledged system	Customer get everything from one provider

Integration of subsystems

Master of the situation …?

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Return on investment

What you can count …

- Reduced insurance costs due to professional security concept
- Effective guards organization
- Charging of actual security services, internally or externally

Priceless …

- 5 minutes – in case of an fire or intrusion alarm
- 10 days production stop in a car factory
- 10 km^2 contaminated next to chemical plant
- 1 minute delay in finding the next first aid in case of a heart attack
- 10 minutes access to your data for an industrial spy
- …

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Sales material for critical infrastructure

- Brochure
- Flyer "ELS Mobile"
- Product datasheets
- Planning poster
- Sales presentations
- Short description
- Case studies
- Specification texts

- Demo version with Boston GIS data
- Interactive movie
- List of implemented interfaces
- Reference list
- White Papers
- Articles
- Etc.

Worldwide expertise and ready to sell

Recent references

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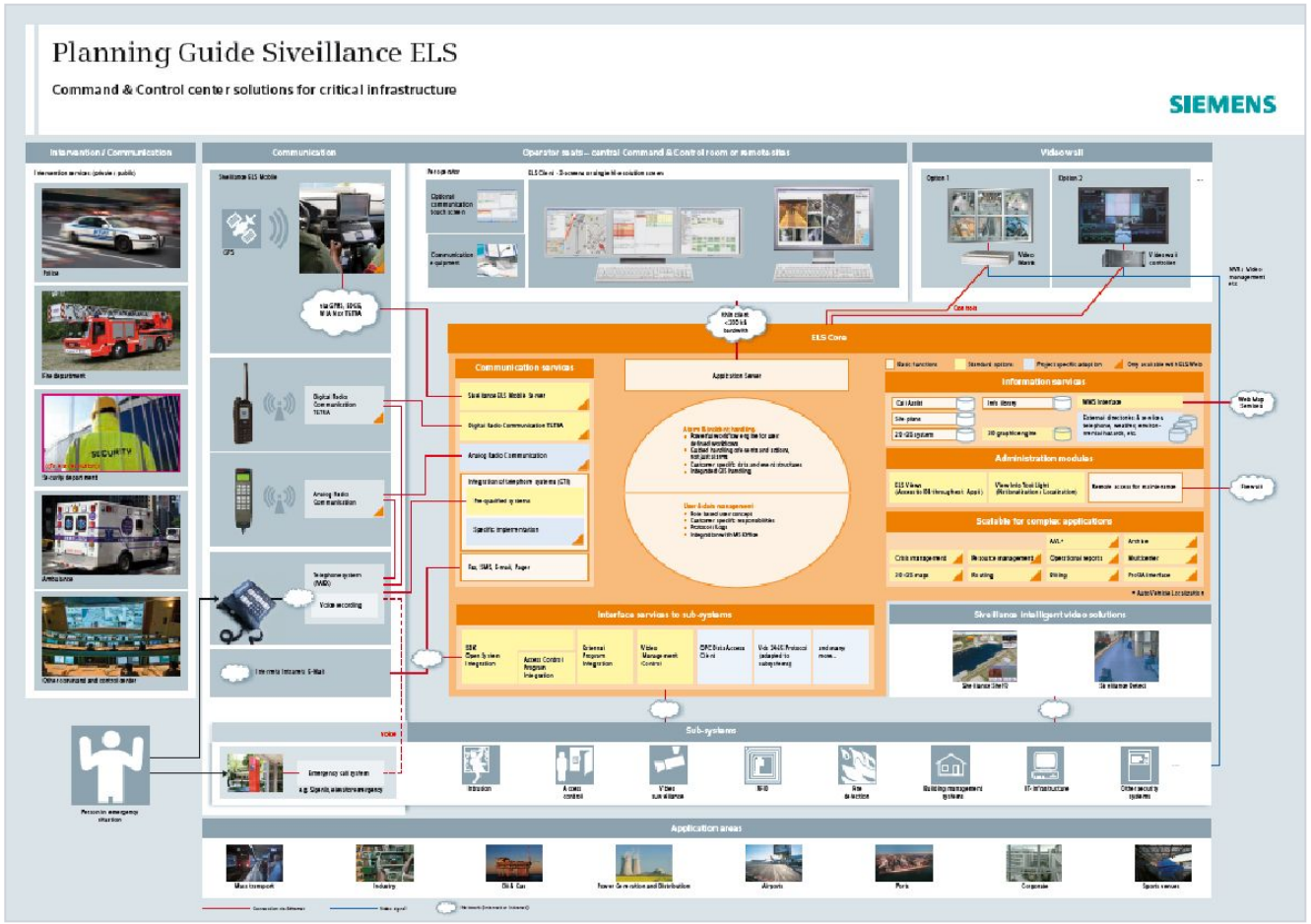
Thyssen Krupp Steel – Brazil	▪ 30,000 Fire detectors ▪ CCTV integration ▪ 4 operator workstations + 1 crisis center
Amsterdam Schiphol Airport	▪ Separate CCCs for Security and Fire Brigade ▪ Several Fire alarm systems, 60,000 detectors ▪ PABX, radio, CCTV, WMS MapServer ▪ 14 operator workstations for Security, 4 for Fire
Daimler Sindelfingen / Untertürkheim	▪ 2 sites, one database ▪ PABX, radio, CCTV, Siemens & Bosch Fire alarm systems ▪ Perimeter protection ▪ 2x5 operator workstations for Fire and Security

Trainings

Target Audience	Results
Sales People	▪ Know how on application, product and solution ▪ Perform demonstrations with movie / VM-ware ▪ Training on request / regular training
Portfolio Managers / Solution Managers	▪ Detailed know how on features, sales support and PEx process ▪ Be able to develop a roll out plan
Application Administrators, Power-Users	▪ Know how on administration and configuration ▪ Be able to conduct operator trainings ▪ Will be done on a project base
Customer Operators	▪ Operation in the specific system ▪ Be able to work within the specific application ▪ Will be done on a project base

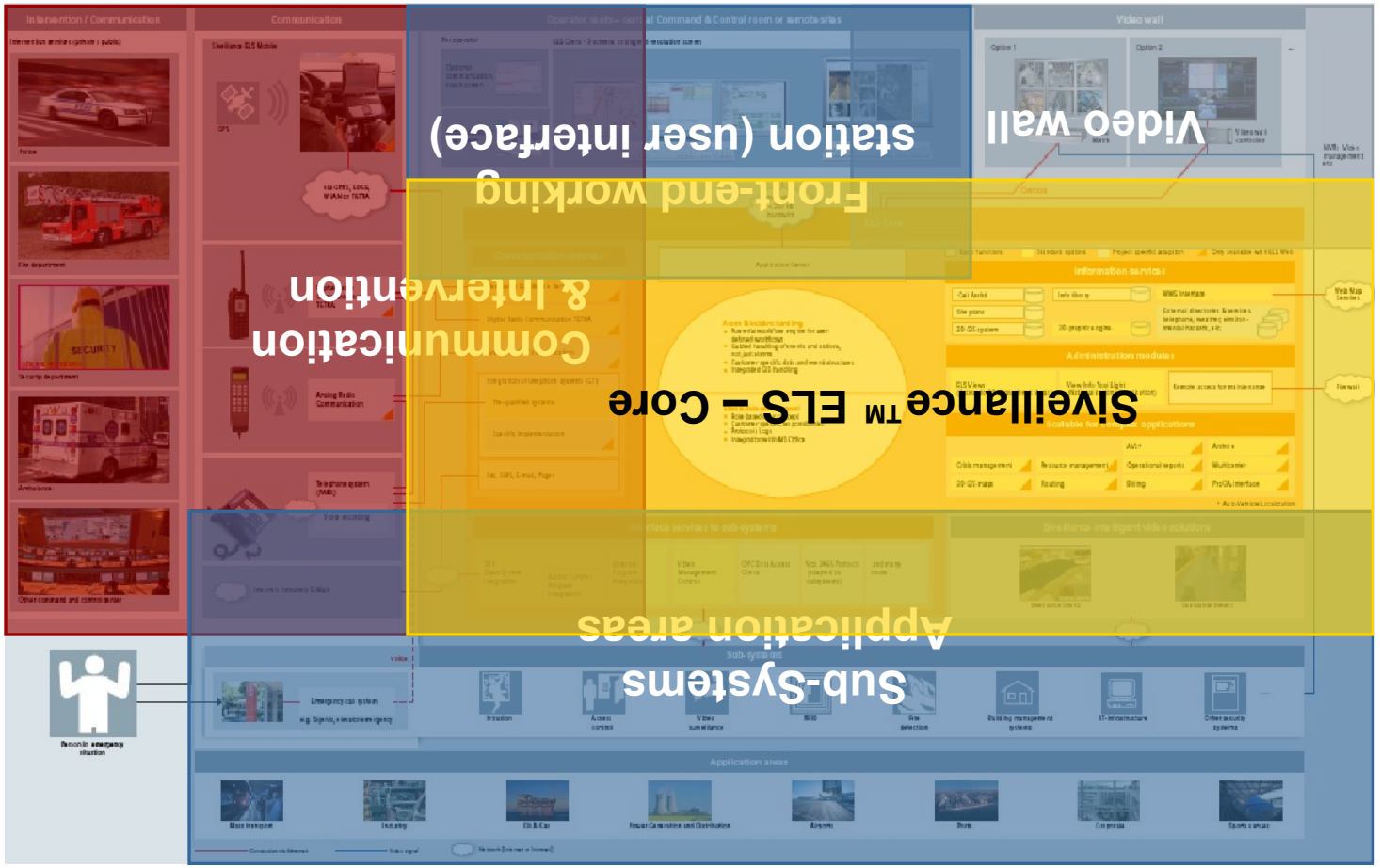
Planning poster



SIEMENS

Our solution!

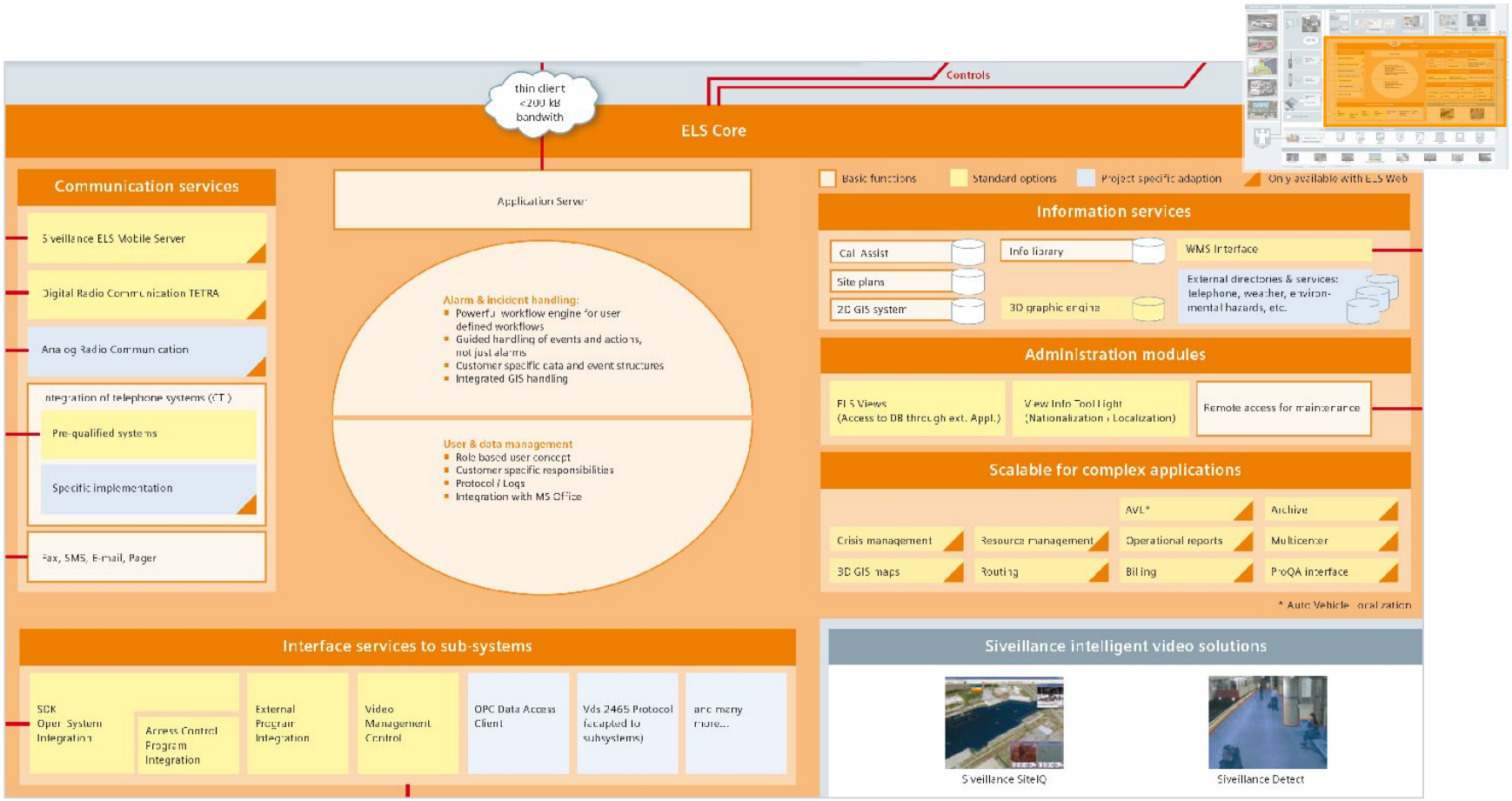
Planning poster



Planning poster

ELS Core

SIEMENS



Planning poster

Interfaces to subsystems

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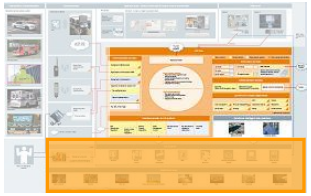

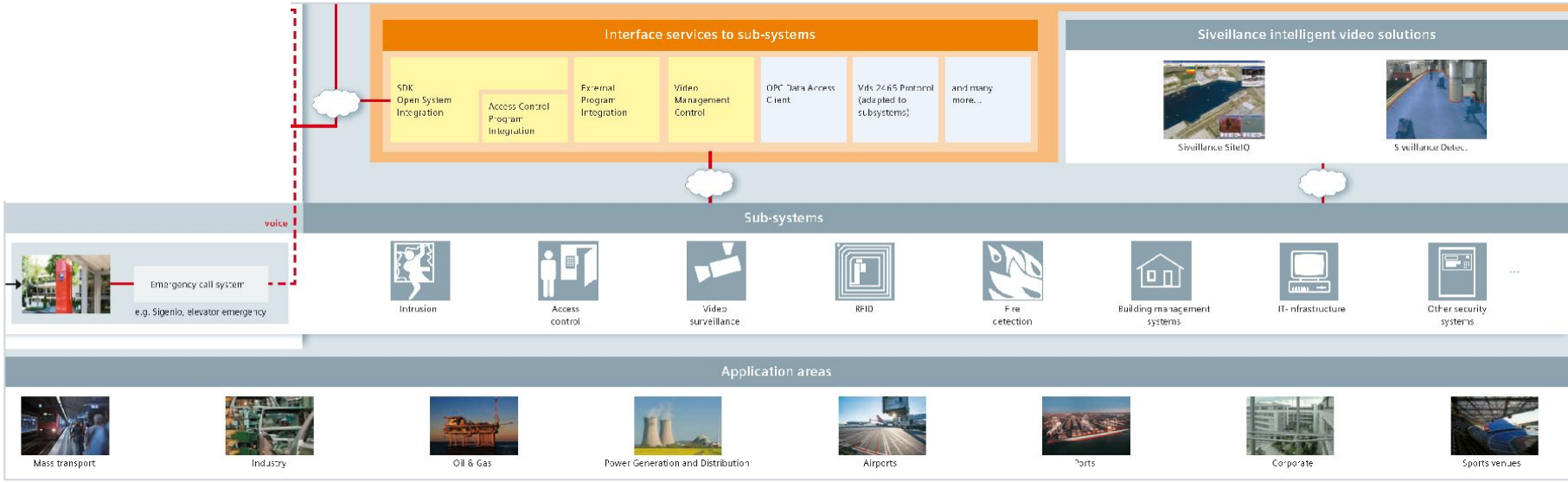

Planning poster

Communication

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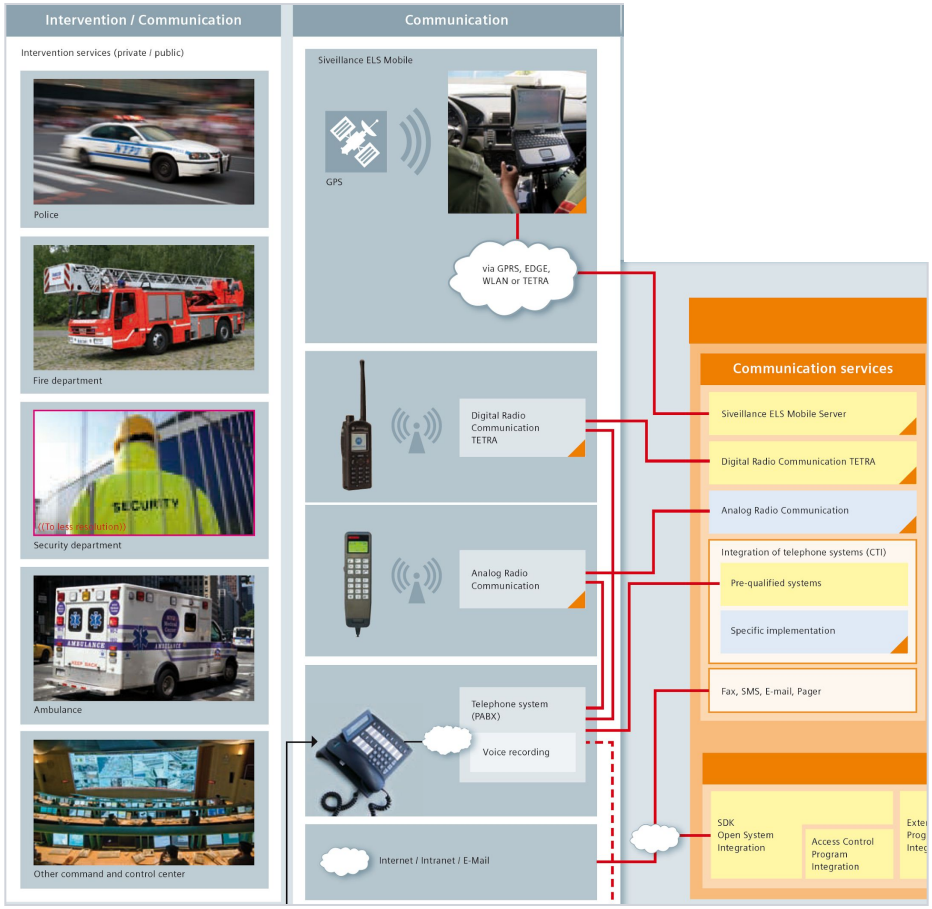

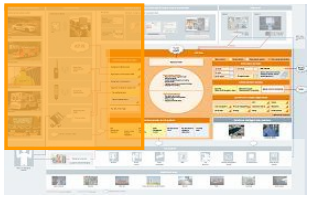

Planning poster

User interface

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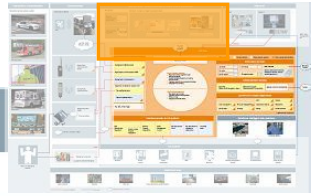

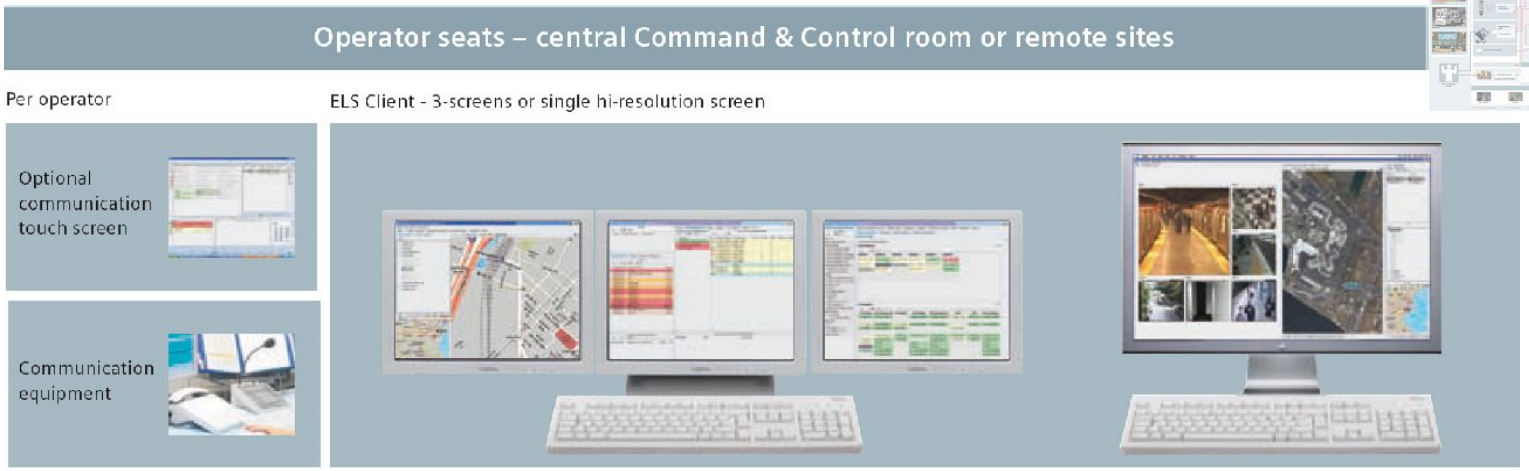

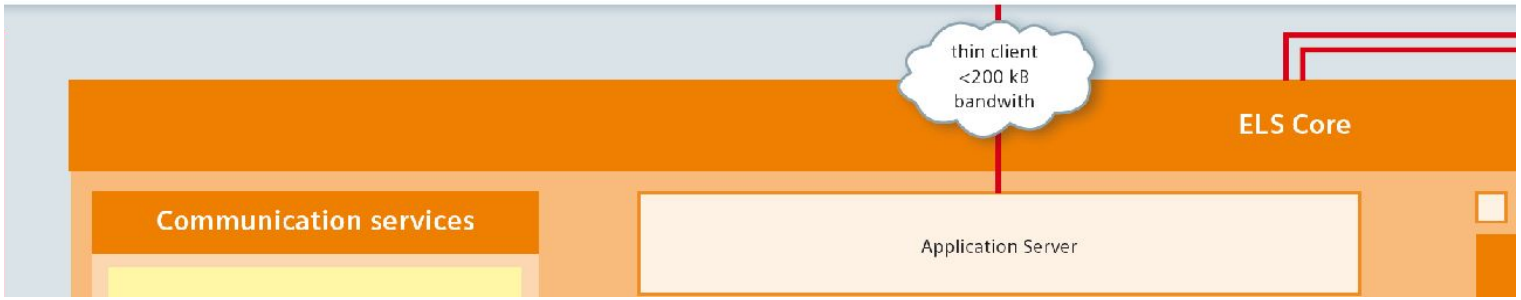

Planning Poster

Video Wall Control

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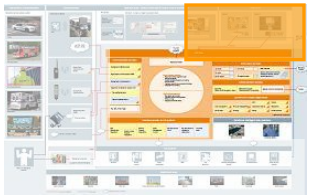

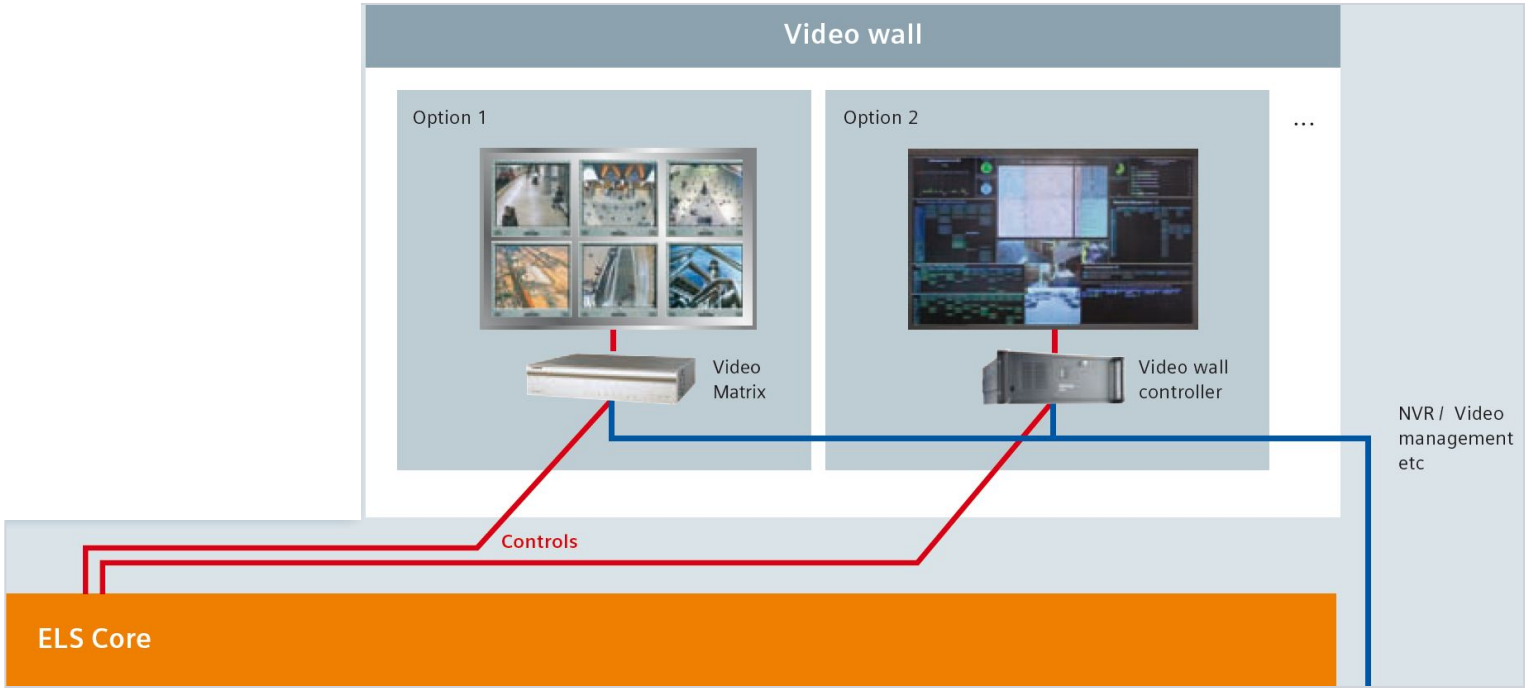

Security Platform

Modular Concept

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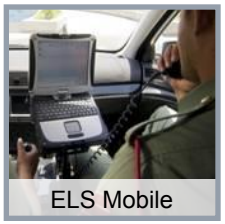

ELS Mobile

Resource Mgmt

TETRA

Routing

Crisis Mgmt.

Archive

Advanced Functions (ELS Web)

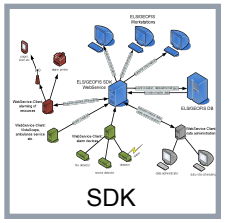
Video Analytics

Object Detection

Subsystems

Emergency calls

CTI Integration

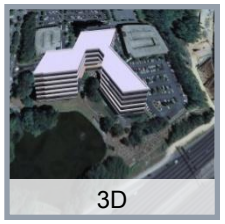

SDK

Communication, Interfaces

Internet

Video Surveillance

2D GIS

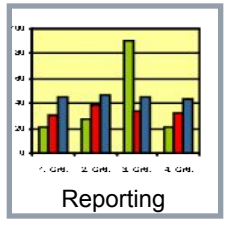

3D

Site Plan

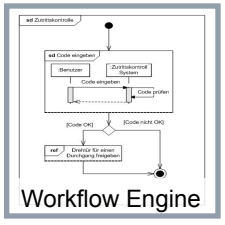
Video Wall Control

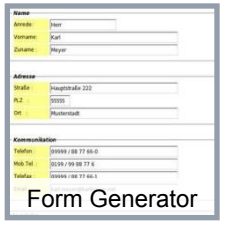
High Sophisticated Display

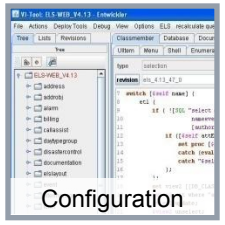
Roster


Reporting

Info Library


Workflow Engine


Form Generator


Configuration

Basic functions

Engineered Solutions through unique combination of modules

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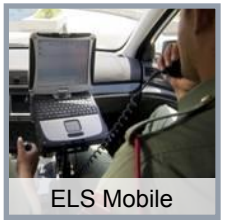
ELS Mobile

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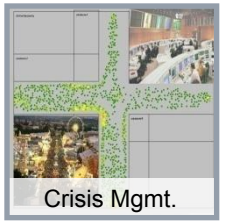
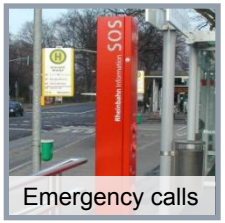

Crisis Mgmt.

Archive

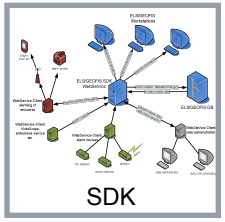
Video Analytics

Object Detection

Subsystems


Emergency calls

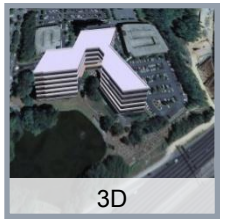
CTI Integration


SDK

Internet

Video Surveillance

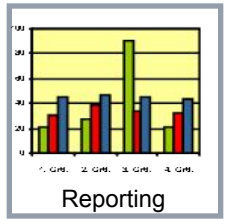
2D GIS


3D

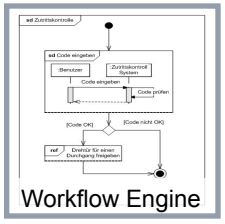
Site Plan

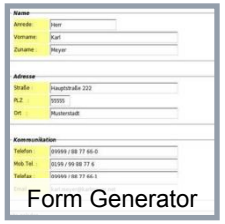
Video Wall Control

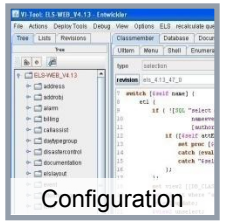
Roster


Reporting

Info Library


Workflow Engine


Form Generator


Configuration

Engineered Solution

Software Development Kit SDK

Standardized interface to other systems: Allows independent project implementation

Incoming communication
- ELS receives information on from subsystems
- Situational awareness

Outgoing communication
- Reaction to incidents
- Controls

Administrative Tasks
- Queries of master data

Implemented interfaces

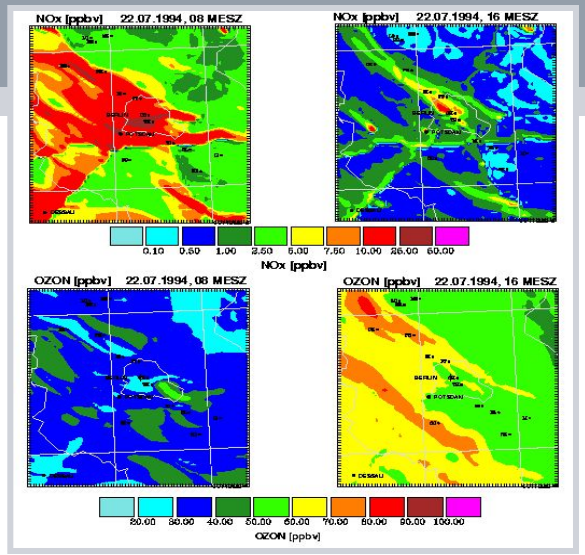
Alarm / Subsystems	▪ CCTV Siemens IVM, Pelco, Plettac ▪ Access SIPASS ▪ Fire / Intrusion Bosch UGM / (VdS 2465), SM88, SIGMASYS ▪ Emergency calls Schneider Intercom, Sigenio ▪ DMS, others MSD4000, Netcom, GMA-Manager TOPSIS
Communication System	▪ Pager / email / SMS Rescuecall, SMSC, various SMTP / HTTP / email alarms ▪ CTI Hipath / Procenter, Cisco Call Manager, Frequentis ILLProxy (Nortel), Thales Norumat, Alcatel-Lucent ▪ Analog radio Siemens VAS-B, Weda RCA, Carls (AG595, Dat855) ▪ TETRA EADS, Motorola, Rhode & Schwarz ▪ Voice recording Voxlog, ASC
Others	▪ Databases Herold, Safenet ▪ Video Walls Barco, Mitsubishi

And many more

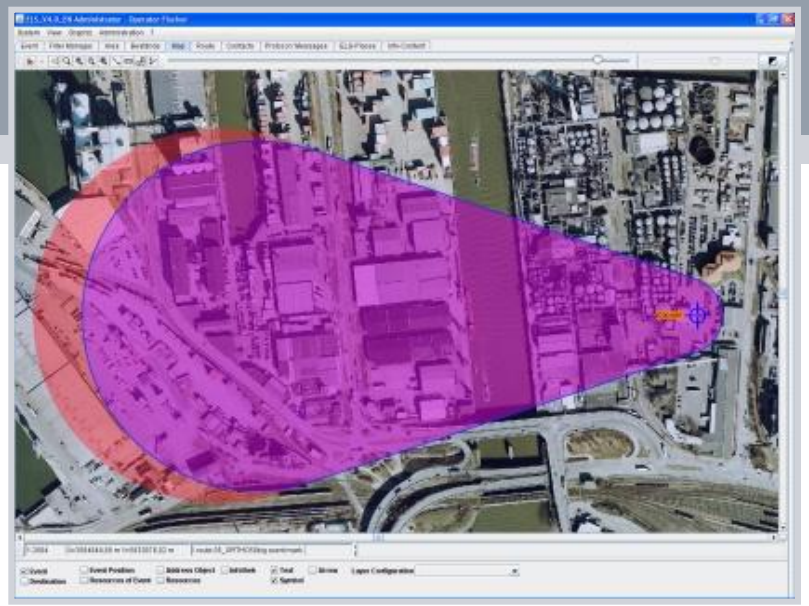
Implemented Interfaces

External program calls

- External programs can be started
  - Automatically through measures
  - Manually through links
- External programs will run with their own user interface in a separate window



SIEMENS

Web Map Service WMS

- Interface to an OGC-compliant Web Mapping Service (WMS) for integration of fixed and dynamic maps stored in an external database
- WMS delivers real-time geo-references graphics in the requested resolution