eurofunk

news

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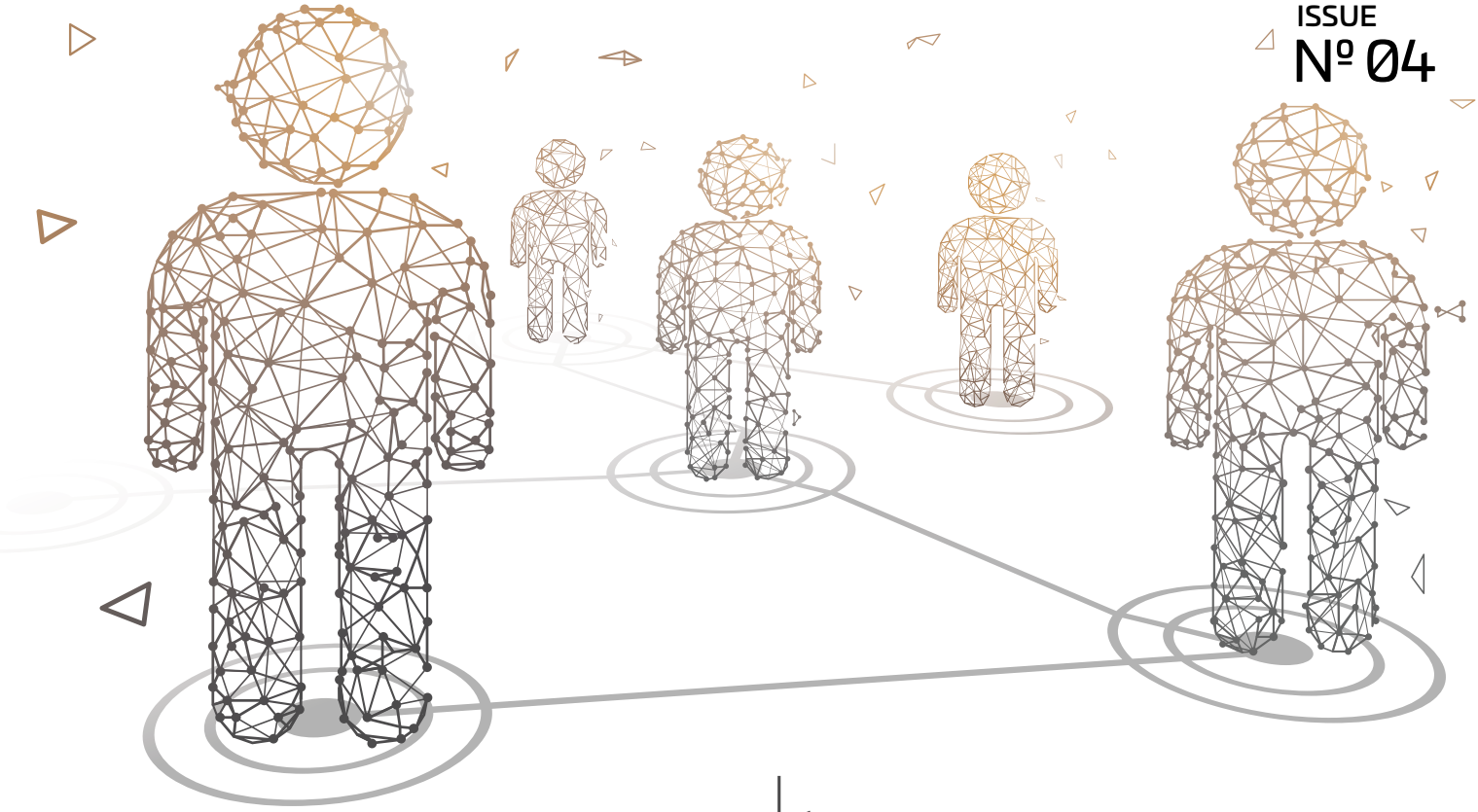


BUSINESS INTELLIGENCE, IP TECHNOLOGY, ACTIVE MONITORING

Some of the many topics you will find in this issue.

ENNOV8 LAB

For over 50 years eurofunk has been driven by innovation

CLEARED FOR TAKEOFF

eOCS goes live at the Hesse State Police

IP EMERGENCY CALL

First control centers are finishing the IP emergency call conversion and start operating

eurofunk remains at the cutting edge and your strong partner

IP technology has many advantages, and we like to use words like reliable, scalable and inexpensive to describe it. If there were any doubts however and a case study were needed to confirm our convictions, the far-reaching European lockdown in the spring of 2020 gave us unintended opportunity.

Within the space of a weekend, more than 400 eurofunk employees found themselves working from home. What amazed even experienced IT specialists was the ease with which staff and management were able to communicate using Microsoft Teams and Skype.

Some doubts were expressed about development planning sessions known as PI Planning, where as many as one hundred eurofunk employees come together to agree on and plan the next phases of software development. Was it going to be possible to create the dynamic, imaginative environment needed for constructive cooperation while communicating remotely by headset? It certainly was and the results were tangible.

Even our customers, who are understandably conservative when it comes to IP technology, have benefited from new areas of application. For example, remote workstations allowed for the necessary separation among users while still supporting the handling of increased call numbers.

In all these weeks of increasing infection rates and restricted travel, eurofunk has provided its customers with reliable, uninterrupted service.

Despite the tension and uncertainty caused by the pandemic, eurofunk continues to place emphasis on new, ground-braking technologies. In this issue we present insights into current projects and new products.

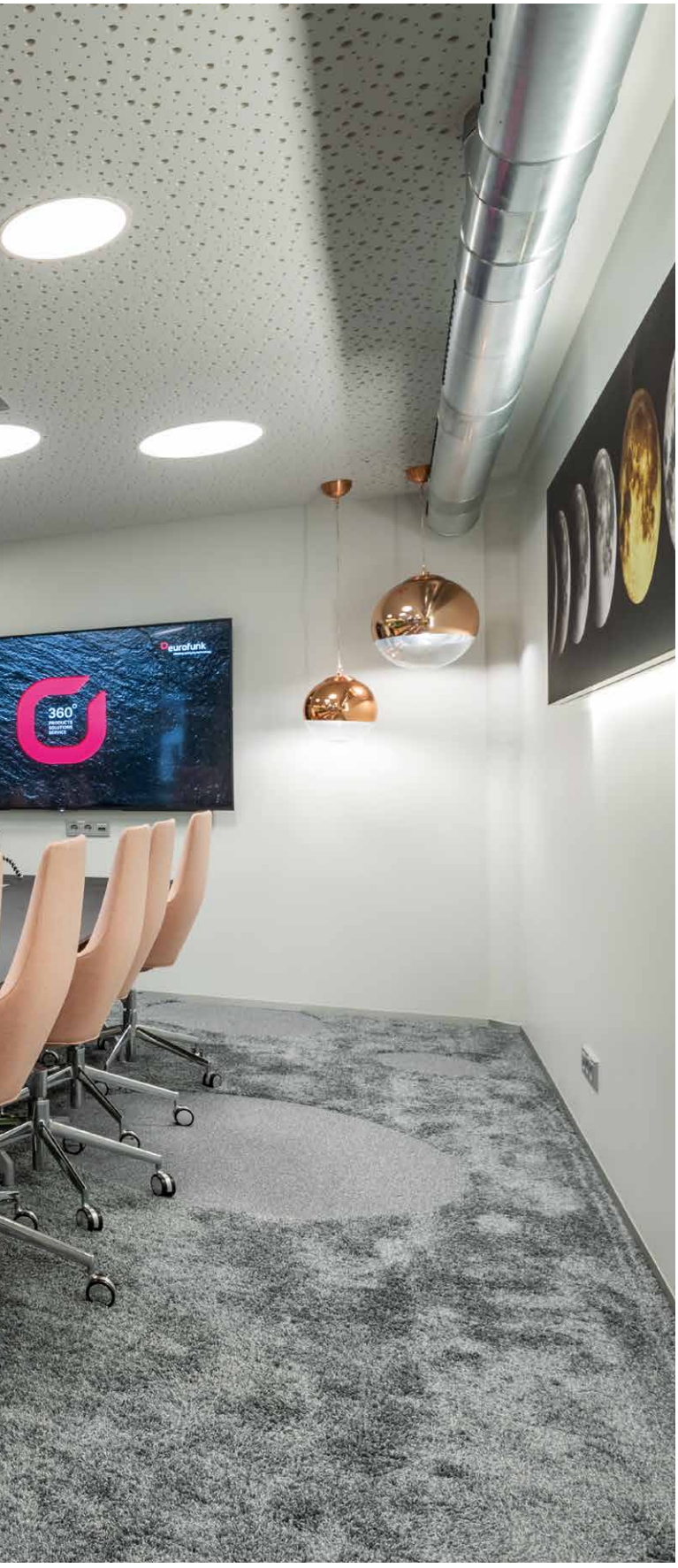
IP technology for emergency call-taking was recognized early as development that needed thorough preparation and careful planning. As a result of eurofunk's foresight, the switch was carried out without noticeable disruption to control center operations (more details can be found on p. 18-21).

Many control centers are taking steps to increase reliability and availability by networking with associated organizations. The goal is to provide mutual support in the event of major emergencies or technical failures. The control center network LAWZ is an excellent example of this kind of cooperation (see p. 10-11).

A major concern for many of our customers is the early detection – ideally before business operations are affected - of possible system failures. In addition, systems are increasingly networked so that the precise causes of failures can no longer be deduced from user interaction with the system alone. This is where our Active Monitoring **eAM** comes in, which permanently monitors all relevant systems and processes and immediately reports back to the eurofunk service team. This function is not limited to the infrastructure supplied by eurofunk but extends also to adjacent IT systems (More on about eAM on p. 28-29).

We wish you much reading enjoyment and, above all, the best of health!

Dr. Christian KAPPACHER – Managing Director



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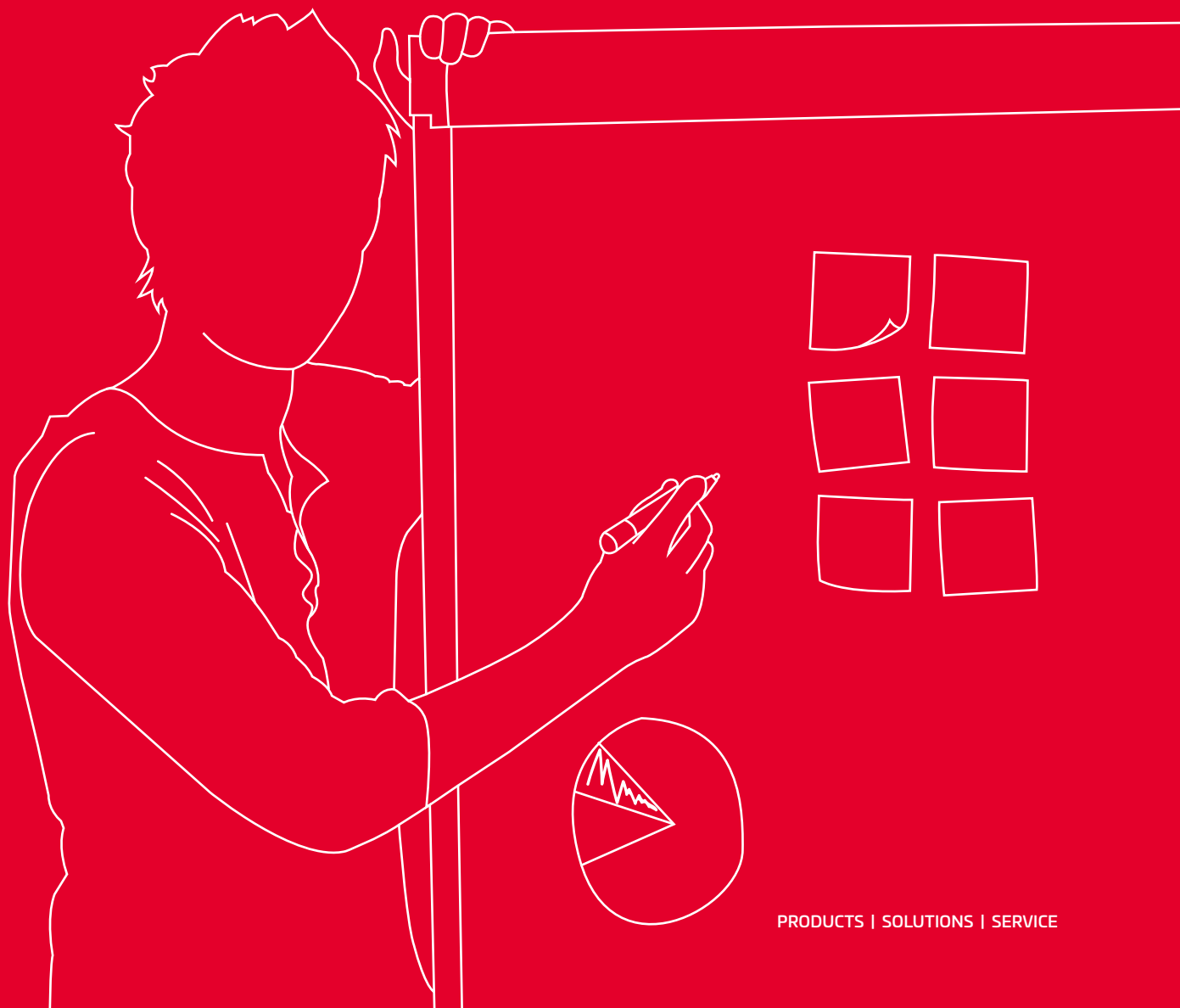
COMMUNICATIONS

360° SOLUTIONS

COMPANY

Cleared for take-off – eOCS goes live at the Hesse State Police

With its ground-breaking, 100 % browser-based architecture, eurofunk's Operations Center Suite **(eOCS)** drives the innovation in mission control systems and has gone into operation in Hesse.



Christian REPASKI

Intensive development, exhaustive testing and comprehensive customer coordination all led to the launch of eOCS, eurofunk's state-of-the-art standard product in the segment of mission control software.
Marking an important milestone, the East Hesse Police Headquarters of the Hesse Police Force switched to live operations on August 26, 2019. By maintaining a migration schedule of 2-week intervals for the other six headquarters we were able to completely replace the former mission control system by the end of 2019.

EUROFUNK SOFTWARE DEVELOPMENT BREAKS NEW GROUND

eOCS ushered in a new era in mission control software and a new era warrants new ways of thinking. This is why eurofunk made the conscious decision to go agile rather than use the waterfall method still being prescribed for most tendered software projects. The waterfall method involves the implementation of specifications, ideally in use cases, over a period of many months which, particularly in this complex environment, can result in a software product that does not always correspond to the original idea or initial customer requirements.

In some instances, the specification phase will give an exact picture of the functionalities planned or the user interface expected and for this the waterfall development model brings decided advantages. With large software projects that last for several months or years, however, parameters, requirements and technology can change over the course of the project and the resulting change requests will often be met with incomprehension on the part of the customer.

In new and innovative projects, the agile approach allows for the inclusion of customers or users in the iterative development process. Development results become visible at an early stage and the feedback gained can be incorporated immediately into the next iteration. The result is a made-to- order customer solution.

Fundamental for the successful launch of this highly innovative standard product - **eOCS** - was the close cooperation and partnership that developed between eurofunk and the project members of the Hesse police force. Eurofunk benefited greatly from the experience and frequent feedback from users, who were able to offer valuable insight into the question of usability.

DESIGN MEETS TECHNOLOGY - USER INTERFACE/USER EXPERIENCE-TEAM (UI/UX)

The UI/UX team, together with external software designers, has set new standards in mission control system usability. State-of-the-art design and extensive technical know-how come together in an innovative, intuitive user interface continually enhanced by operational findings.

An important feature offered by the **eOCS** user interface is the direct integration of external UI components. Examples of this are the BAO module user interface, voice documentation or structured emergency call enquiry. Various police data retrieval systems such as POLAS, INPOL, SIS and ZEVIS have already been integrated into the user interface, thus enable necessary tactical decisions.

One of the core issues to be defined in the project phase was the ability of the entire Hesse police force to access a common database in real time. By establishing geo-redundant data centers and combining them with the **eOCS cloud architecture** we were able to make this essential requirement a reality. →

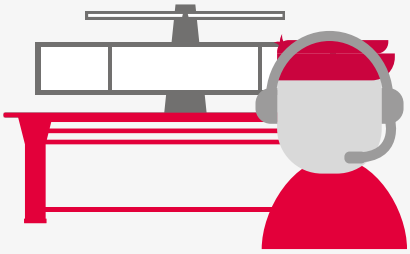
eOCS
the 360° solution by eurofunk

eOCS goes live at the Hesse State Police

Performance features of eOCS:

- 100 % browser-based application - No client installation necessary except for a current web browser
- State-of-the-Art Cloud Architecture - On-premises operations still possible
- Enormous flexibility in terms of scalability and reliability
- Database independence (Oracle, MySQL etc.)
- New control concept including fully integrated communication technology control
- Direct integration of user interfaces of other web applications
- Newly developed mechanisms for networking and cooperation between control centers
- Complete integration of system components into the **eAM** (eurofunk Active Monitoring)

Agile product development and a user-centered approach enable us to create solutions – based on our standard products – which were optimally tailored to customer needs. In close cooperation with our customers, we are shaping the future of control center solutions.



The latest in communication technology for the Police Force of Saxony-Anhalt

The challenge and excitement generated by a province-wide project is always something special for us at eurofunk - which is why we were pleased to hear at the end of 2018 that the police force of Saxony-Anhalt had decided to upgrade their existing communications system to the **IDDS UCiP** communication platform and to implement the IP emergency call system.

An interesting aspect to the project came in the form of PI Stendal, a completely new location, that was equipped with eurofunk technology from the ground up. This was in addition to the province-wide upgrade of the existing control centers. Helping to modernize the Police Inspectorate Central Services Saxony-Anhalt in Magdeburg, coordinating office for all control centers (e. g. responsible for software testing and release among other things) was the installation of eurofunk's state of the art control center desks.

Two technical sites were put into operation in Magdeburg and Halle (Saale). The locations of Stendal and Dessau-Roßlau are integrated with these central components.

In mid-2019, the Halle (Saale) Police Inspectorate went into operation, followed by the Magdeburg Police Inspectorate in November 2019 and the Dessau-Roßlau Police Inspectorate in March 2020.

The Stendal Police Inspectorate was fully operational by the end of October 2020. Meeting all requirements of the planned ISDN shutdown by Deutsche Telekom, this location will be ready to accept IP emergency calls.

With the switch to IP emergency call, the control center benefits from features such as data exchange in real time, the possibility of chats and video telephony, significant improvement in voice quality and increased overall availability.

Brigitte FRITZENWALLNER

Police control centers of Saxony-Anhalt

PI Central Services Saxony-Anhalt
Coordinating office for the control centers, where, among other things, software is tested and released.

LAWZ 3.0 – Europe's most contemporary control center network

After approximately one and a half years of implementation Europe's most modern control center network, the Carinthia State Alarm and Warning Center LAWZ 3.0, is now in operation.

In stark contrast to the previous concept with one control center location, this new network integrates the LAWZ in Klagenfurt, the command and control center of the Villach Fire Department and the command and control center belonging to the Klagenfurt Professional Fire Department.
Integrated in the network are also ten district alarm and warning centers throughout the province of Carinthia, each equipped with standardized systems technology. Individual locations are connected by a ring of network cable and digital radio relays. This coupled with highly redundant IT infrastructure guarantees outstanding reliability and high availability.
Also connected is the national analog voice radio and alarm network for sirens and pagers, which was renewed within the scope of the project. This network ensures the alerting of the emergency services via pager, radio voice communication and siren activation for the purpose of alerting the public. By renewing the transmission network, we were able to ensure continued use of the nationwide terminal infrastructure of siren receivers and radiotelephones.

One example of new technology and functionality is the all-important automatic location data collection – also known as Advanced Mobile Location (AML). This technology automatically matches the caller's exact location to the geographic information system used by emergency control centers when an incoming emergency call is received from Android cell phones. This is especially important in rural or impassable areas, where no specific address data is available.

The integration of the open source **feuerwehreinsatz.info** into the mission control computer system is considered a breakthrough in mission support solutions. By transferring extensive deployment information to the WEB-based system, volunteer fire departments, when alerted, can be kept informed via stationary and mobile devices. Beginning 2021, status reports and specific deployment information will be recorded on site via mobile devices and reported back to the operations control system. Over the course of this project, eurofunk, together with the **FWEI Community**, contributed significantly to functional enhancements, making this truly innovative collaboration with the country's volunteer fire departments possible.

The concept behind the national control center network and the integration of district alarm and warning centers is a milestone for Carinthia and a unique example within Austria of cooperation, service availability and alarm security. Using eurofunk's standard systems technology, the three control centers are able to lend each other assistance in the event of heavy caseloads or to assume full operation if necessary.

Hans-Jörg ROSSBACHER and Martin TIDL
The new operative dual leadership of the LAWZ 3.0 control center network.

Stefan HUTTER

Implementation was preceded by two years of intense logistic and technical concept planning by Ing. Christian Zens/AKLR and his project control team. The project steering committee, consisting of RegR Markus Hudobnik and Christian Gamsler MSc from the provincial government, the Carinthian Provincial Fire Brigade Association with OBR Ing. Oskar Grabner, HBI Hermann Maier, BI Hansjörg Rossbacher and OBM Martin Tidl, the main fire station Villach with Mag. Walter Egger and Stefan Pressinger MSc and the Klagenfurt professional fire department with OBR Otto Sommer and HBM Roland Brumnik, developed the concept of the **LAWZ 3.0 control center network**. The project control group was supported by the Technical Office of Dr. Bühler, which provided concept evaluation through a feasibility study and proof of concept for its realization.

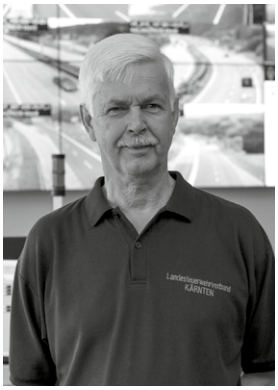
With his many years of experience as head of the provincial alarm and warning center, Mr. Maier, together with BI Hansjörg Rossbacher and OBM Martin Tidl, was greatly influential in defining network requirements. Particularly noteworthy in this respect is that Mr. Maier took his well-deserved retirement on September 1, 2020. It remained, however, of utmost importance to him that this groundbreaking control center project be brought to a successful conclusion providing his successors, Mr. Hans Jörg Rossbacher and Mr. Martin Tiedl, with the most innovative work environment possible.

We at eurofunk would like to thank HBI Hermann Maier most sincerely for the many years of close and successful cooperation. At the same time, we would like to extend our very best to Mr. Rossbacher and Mr. Tiedl and wish them every success in the continuation of this highly significant venture.

Ing. Oskar GRABNER,
Branch manager organization administration and technology

»Without Mr. Maier's profound expertise and his inexhaustible personal commitment, the implementation of this internationally unprecedented project would not have been possible.«

»It was a matter close to my heart to hand over a good working environment to my successors in the form of a completed and cutting-edge integrated control center project.«



Hermann MAIER,
Former Head of Department,
State Alarm and Warning Center

eMID 2.0 – second generation eurofunk Mission Information Display

Bring your mission-critical information safely to your emergency services.

Providing information to the emergency services in an efficient, swift and clear format is an essential factor in the rescue chain. The eurofunk Mission Information Display of the second generation (eMID 2.0) supports the emergency services in this task.

TECHNICAL SOLUTION

eMID 2.0 is designed for the latest web technologies. The application for displaying deployment information can be used on any end device. This means that mission-relevant information can be easily displayed in vehicle halls, crew rooms or canteens. The end devices do not require special equipment or additional applications. Access to the relevant data is provided via a separate website (URL) using a web browser.

During an incident, the following operational information is displayed in a clearly arranged form:

- Incident location
- Incident plan number
- Individual message picture
- Dispatched resources of the station
- Free text and/or reverse text

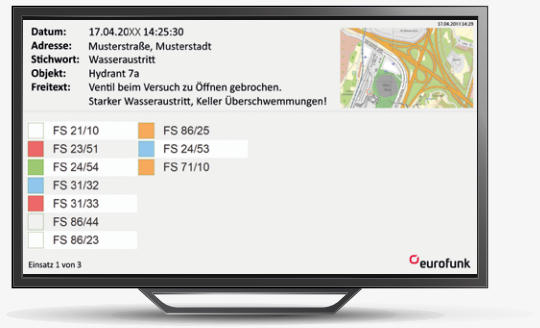


Fig. 1: eMID 2.0 – Example Display Board

eMID 2.0 AS DISPLAY BOARD

The **eMID 2.0** is used as a display board so that the station may track the progress of ongoing incidents. Several incidents are displayed simultaneously at a configurable interval and status changes are updated automatically. A sound file can also be played back in the case of a new incident.

Fig. 2: eMID 2.0 as location-independent information system on a tablet

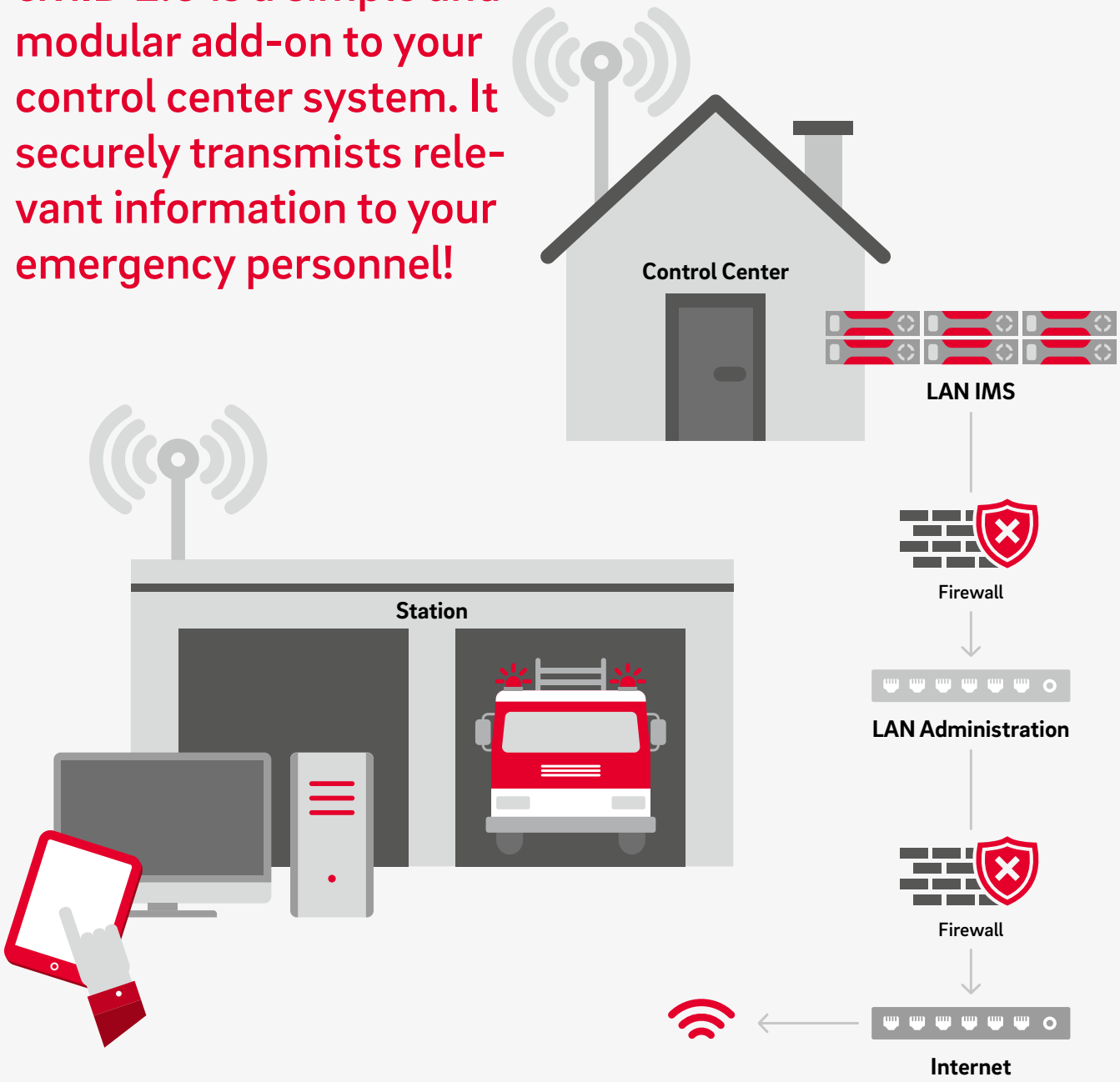
eMID 2.0 AS A LOCATION-INDEPENDENT INFORMATION SYSTEM

The **eMID 2.0** can be used, for example, as a tablet in the command vehicle or on an information PC as a location-independent information system. At a glance you can see an overview of all incidents (independent of the responsible station/department), with filter, sorting and search options.

We are looking forward to developing your individual solution. Please do not hesitate to contact us!

Martin JÖRG

eMID 2.0 is a simple and modular add-on to your control center system. It securely transmists relevant information to your emergency personnel!



eurofunk Service – a strong partner in times of crisis

2020 - when nature writes the script

When the clock struck midnight on 31.12.2019, Europe, with what now seems impossible levity, celebrated the start of 2020 with its customary festivities and fireworks.

The spread of the novel corona virus and the respiratory diseases associated with it have led many countries to the brink of collapse, overtaxing healthcare systems and significantly restricting public life. eurofunk, too, in an effort to maintain the high standards of service our customers had come to expect, was faced with unusual challenges as a result. In response, the eurofunk crisis management team reassessed the situation daily and initiated measures to align with those of European governments.

UNRESTRICTED BUSINESS OPERATIONS

Despite the Austrian lockdown, eurofunk was able to continue its business operations with very little restriction.

For several weeks, eurofunk employees worked almost exclusively remotely. Thanks to the high-performance, high-availability IT infrastructure at eurofunk head office and the tireless efforts of the IT team, our specialists were able to work from home without interruption of service. Collaboration tools ensured good cooperation among teams and management which in turn provided reliable communication with our customers.

Markus SCHAFFLINGER

COMMON CHALLENGES

As was to be expected, customer priorities also shifted during this period. While projects were put on hold or continued with less intensity, the unusual situation created a new set of requirements necessary to deal with the changing landscape. Unoccupied emergency control centers were converted to corona hotline centers at short notice. Other control centers required additional workstations in order to relocate staff to a remote work setting. eurofunk's focus at this time was to implement these requirements quickly, easily and to the satisfaction of our customers despite the measures in place.

Despite established business continuity measures[1], a crisis of this magnitude can never be fully planned. eurofunk, however, by providing stable service and system availability remained a reliable partner in otherwise unpredictable and exceptional circumstances.

[1] according to ISO/IEC 27001:2013 certification

KVBW commissions eurofunk

Peter KLIX

The Association of Panel Physicians in Baden-Württemberg receives state-of-the-art dispatching solution for the emergency services of the health insurance companies of.

The scope of the project as commissioned by the Association of Panel Physicians of Baden-Württemberg includes one data center, two control center locations and the complete technical infrastructure for the installation of 120 workstations. The new emergency medical services control centers of the state of Baden-Württemberg - KVBW for short - will use the eurofunk command and control system **ELDIS 3** and the communication platform **emc**[WEB].

At the core of this project is the data center for the central server infrastructure. The server platform was implemented using the latest HCI technology (Hyper Converged Infrastructure). Further technical components such as redundancy systems for the two remote control center locations, virtual machines, a virtualized long-term documentation system, the Session Border Controller for connecting the IP telephony of the medical emergency service and other services and a firewall cluster complete the overall technical solution.

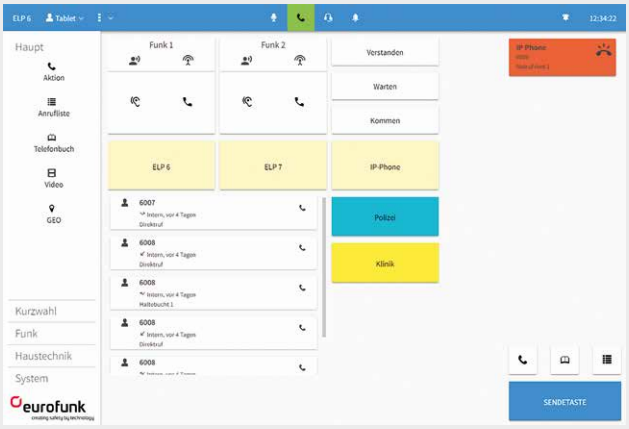


Fig. 1: Example of an incoming emergency call in **emc**[WEB]

The web-based eurofunk solution **emc**[WEB] enables the communication functions to be fully integrated into the user interface of the eurofunk operations control system **ELDIS 3** and thus provides a homogeneous and user-friendly user interface for dispatching.

The KVBW uses the **eurofunk ELDIS 3** operations control and management system in an ELDIS Public Distribution with supplementary configurations for the optimal mapping of customer business processes. Special focus is placed on the highest possible integration of all workstations at various customer-specific interfaces to data and communication systems.

The eurofunk solution will be put into operation in phases with varying cycles of sub-projects. In phase 1, we will be connecting systems for doctor master data and duty roster management to map the medical emergency service for dispatching in the dispatching control system. The next phase includes the integration of the software SmED (Standardized Medical Initial Assessment Germany) for medical queries. In the third project phase, a video communication system, a doctors' app and an electronic appointment service system will be integrated into the mission control system.

The first milestone was reached in the third quarter of 2020 with the go-live of the Mannheim site. The redundant site in Bruchsal with a further 50 workstations will follow by the end of the year.

New communication platform for Vienna's professional fire department

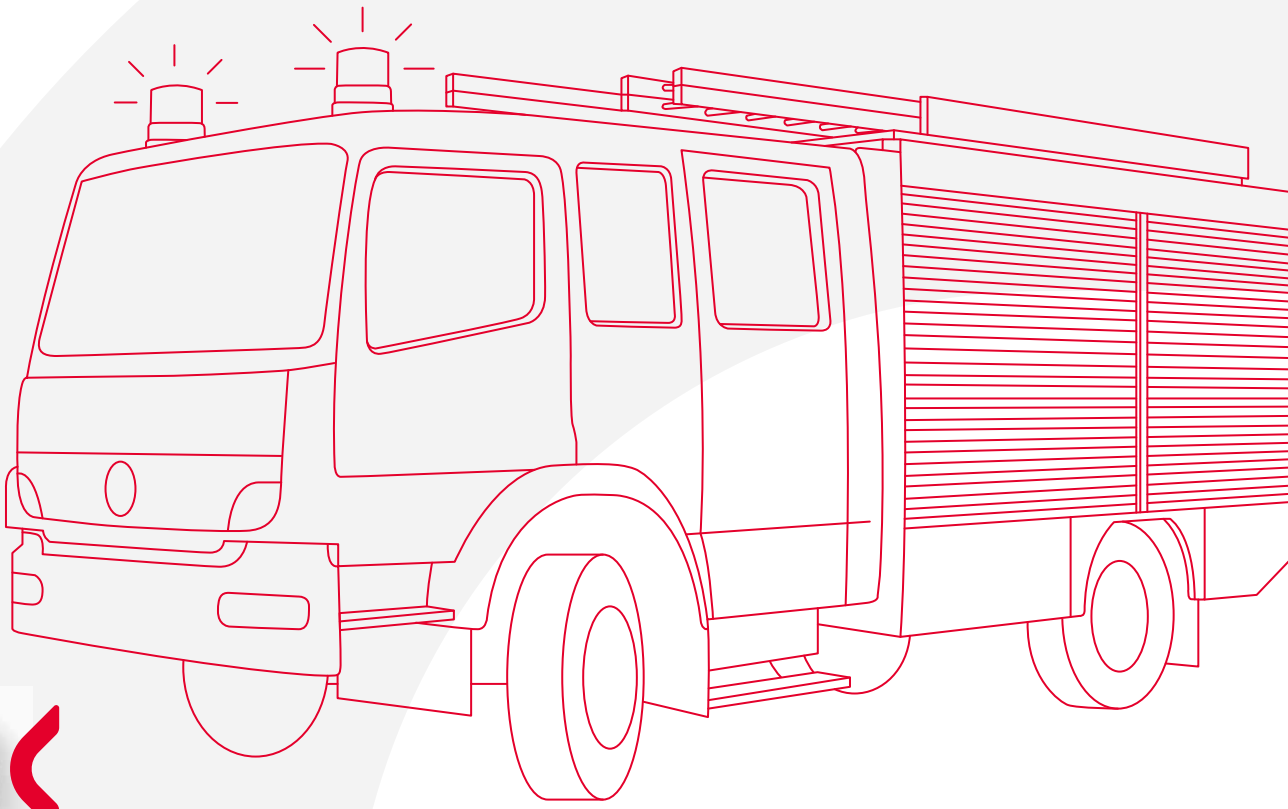
The Vienna Professional Fire Department has commissioned eurofunk with the implementation of the communication platform **IDDS UCiP**.

Responsible for an area over 415 km² and about 2 million people , the Vienna Professional Fire Department has nine main fire stations, two train stations, eleven group stations and two voluntary fire departments. Several hundred emergency calls are processed daily (approximately 36,000 incidents per year).

The IP-based eurofunk communication platform **IDDS UCiP** (Integrated Digital Dispatching System - Unified Communications IP) ensures high availability and 24/7/365 operational capability.

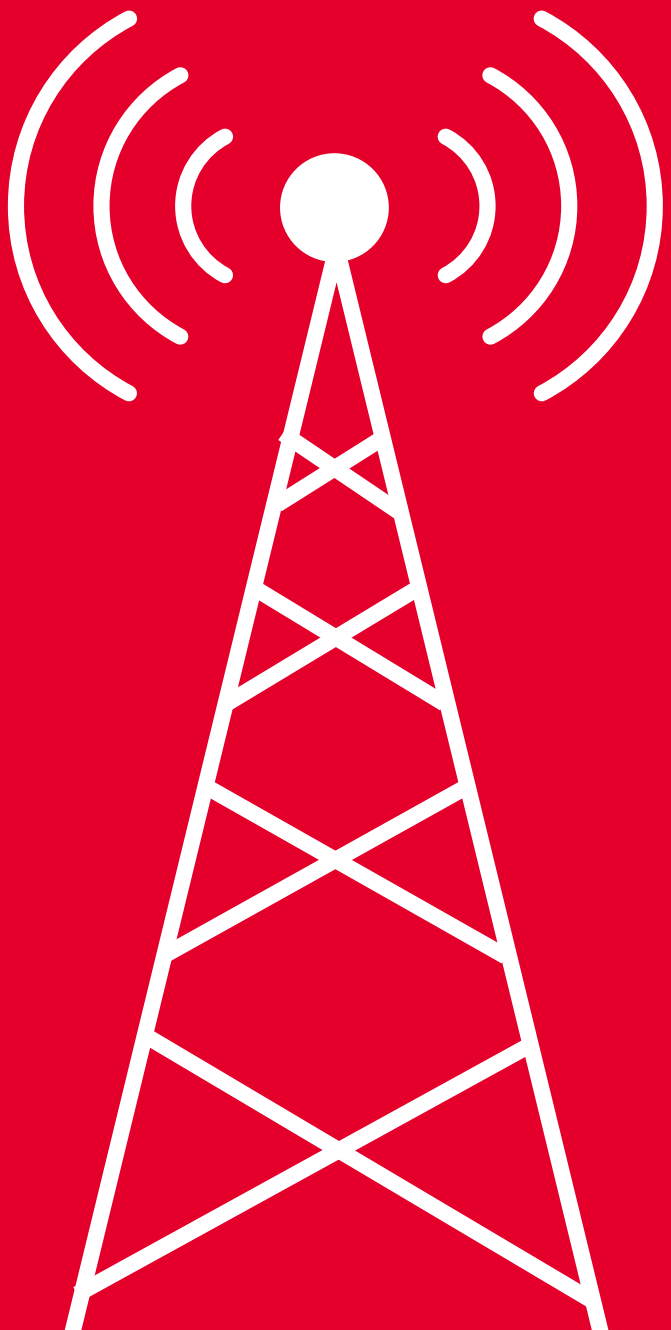
It is based on a highly innovative hardware and software platform that integrates various interfaces for services and subsystems such as facility management, voice documentation or monitoring systems.

The functional integration of the new communication system with the existing operational control system of the Vienna Fire Department is an important part of the project and provides easy handling of complex features.



Brigitte FRITZENWALLNER

eurofunk migrates the ICC Munich



IDDS UCiP is a state-of-the-art, innovative IP communication system, which is fully capable of handling existing and impending control center requirements. The main emergency telephony technology in use is ISDN. Throughout Germany, the conversion to Voice over Internet Protocol (VoIP) has already entered its final stages.

Georg WEISS

Through the addition of new IDDS UCiP functionality, extensive tests of the redundant IP emergency call connection on the test platform of Deutsche Telekom AG in Bonn and the recently completed IP emergency call conversion of the ICC Munich, we can say with complete confidence that eurofunk is ready for the upcoming migration to IP in existing BOS control centers.

CAREFUL ADVANCE PLANNING

The migration of an emergency control center from TDM-based emergency call routing (ISDN) to IP-based emergency call routing based on the Technical Guideline Emergency Call Connections 2.0 of the German Federal Network Agency, requires considerable advanced planning and must include provider implementation options to ensure high availability. Deutsche Telekom offers the connection options silver, gold and platinum[1]. The choice of the appropriate connection type is extremely important and depends on the availability requirements of the respective control center.

STATUS QUO

The ICC Munich is comprised of a main and an backup control center. These are equipped identically with the eurofunk communication platform IDDS UCiP and fully networked. Through the clever use of rights and role management, appropriate functionality is made available to the user upon login; technically all communication channels are available at each workstation in the network. A corporate telecommunications system provides an additional layer of telephone functionality in the main control center.
The call capacity for IP emergency calls has been specified so that 100 emergency calls can be procesed simultaneously.

CLOSE COOPERATION

Together with the professional fire department of Munich and the service provider, a concept was developed over the space of several workshops. This included a double connection with node-disjunct and edge-disjunct multi-way routing (platinum connection) at both the main and backup locations; in effect each location will each have two telecom lines which will be routed on separate paths to separate technical rooms. Deutsche Telekom's responsibilities end with the placement of one router (RD) in each of the separate technical rooms. →

[1] For further information please see the eurofunk NEWS issue No. 03 - available for download at www.eurofunk.com

eurofunk migrates the ICC Munich

Following this, eurofunk will establish a network connection between the router and the Session Border Controller (SBC). The SBC fulfils two essential tasks in the IP connection:

- The SBC serves as a dividing line between the external VoIP connection and the **IDDS UCiP** system. It allows only authorized calls to access the system and provides an essential building block for IT security.
- The SBC provides routing and codec conversion functions for adaptation to specific control center requirements.

An independent SBC is used for each technical room; these are then connected to form a cluster for each location. The cluster provides reciprocal function monitoring and automatic operation takeover in case of malfunction or maintenance. To provide maximum availability per site, each SBC is connected to both provider routers.

The SBC cluster is the logical end point of the provider-side IP telephone connection (Session Initiation Protocol [SIP] Trunk).

Subsequently, the calls/conversations are offered via several existing, duplicate eurofunk Emergency and Telephone Gateways (**ETGAs**) and processed within the control center using **IDDS UCiP** functionalities.
The **ETGAs** are fully compliant with the Technical Guideline for Emergency Call Connections 2.0 of the German Federal Network Agency and, in addition to the voice functions, also provide the required data functions to the communication dispatchers or, via the IDDS-ELR interface, to connected control computer systems.

The corporate telecommunications system described above plays also a role of the solution's high availability. For this purpose, the telecommunication system is also connected to the SBC cluster and provides a fallback level for voice communication in the main control center.

The voice recording system is connected directly to the SBCs via SIP-Rec protocol. This solution corresponds to „line-related" emergency call recording.

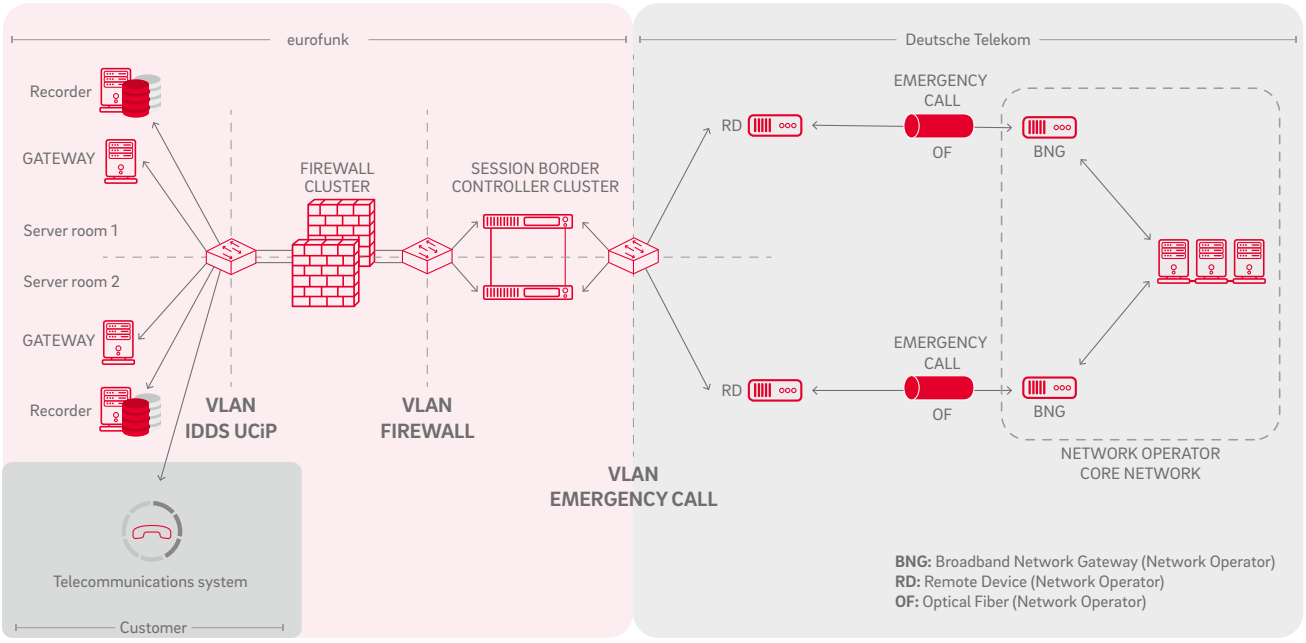


Fig. 1: Network switches, SBC and firewall are distributed to both technical rooms while still forming a logical, redundant unit (cluster).

IMPLEMENTATION IN THE FIELD

Working in close collaboration with the Munich Fire Department, the important phase of concept finalization began once the contract had been awarded. Particular attention was paid to the network architecture in addition to the high availability requirements in order to comply with BSI baseline protection measures.

The system architecture of the **IDDS UCiP** communication platform allows the necessary gateways for IP emergency call telephony (**ETGA**) to be set up as „additional" call resources. Furthering the development of the **IDDS UCiP** was a software update for the implementation of the IP telephony in accordance with the Technical Guideline Emergency Call Connections 2.0 of the German Federal Network Agency.

The provider supplied a test number for the implementation phase. With this number, function and load tests can be carried out without disturbing ongoing operations. Due to the complexity of the solution offering end-to-end redundancy from the provider to the workstations, comprehensive test scenarios with a high number of failure simulations and load tests were performed.

To prepare the actual migration, IP call resources were added to the existing ISDN emergency call lines in the rights management module of **IDDS UCiP's** administration system. The final point of the migration – the switch to IP emergency calls by the provider – went unnoticed by the end users.

ADVANTAGES FOR ICC MUNICH

Based on the previously described networking of the two locations by means of **IDDS UCiP**, the control center can be cleared without having to re-route emergency calls, depending on the operating status of the system. In the event of a complete emergency call failure to the main control center, these calls can be diverted easily to the backup control center, while the dispatchers continue their activities in the main control center.

Of particular interest here is the technical, physical connection on which the concrete transmission of calls (logical connection) is based. This type of call bundle is called a SIP trunk. Several SIP trunks can be routed over one physical connection. This for example opens up the possibility for a neighboring control center to use the Munich backup control center should the need arise.

The use of extended call management functions such as **eACD** (eurofunk Automatic Call Distribution), **eIVR** (eurofunk Interactive Voice Response), **LAR** (Last Agent Routing) and d**ynamic voice announcement** (contains for example the function „situation-related queuing texts") is recommended owing to mostly higher line capacities in relation to available workstations. During peak load situations, these can contribute significantly to reducing stress levels in the control center while at the same time improving the quality of emergency call processing for the citizen seeking help.

The eBI Dashboard – Information where it is needed!

Martin JÖRG

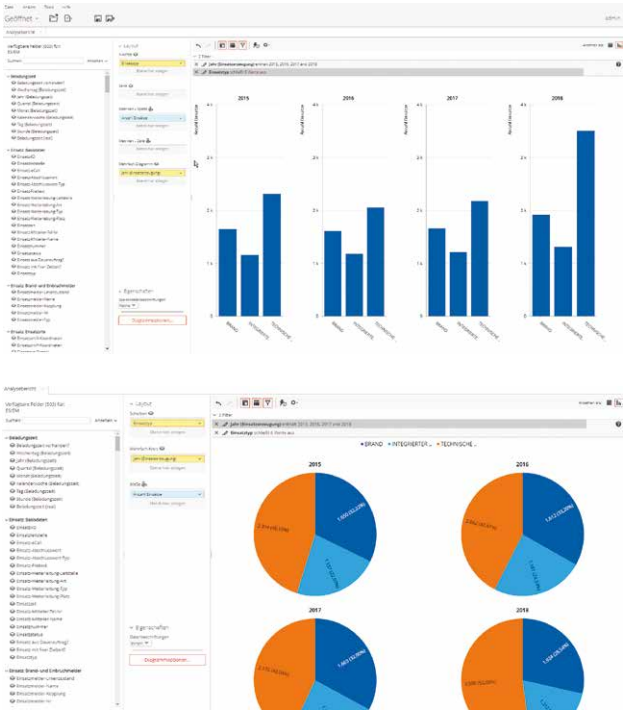
With the help of the eurofunk Business Intelligence (**eBI**) Dashboard, control center managers and shift supervisors are kept abreast of current events as they unfold. This enables them to react to current trends with the appropriate manpower to save valuable time.

eBI Dashboard

Questions regarding the current situation in the control center or the reassignment of tasks based on call and assignment volume are not easy to answer but often involve quick decision making. By presenting relevant data in a clear and simple layout, the dashboard helps to simplify the decision-making process. The **eBI Dashboard** enables at-a-glance visualization of key indicators while at the same time keeping track of operations currently in progress, emergency calls pending and a comparison of current and average event values.

The Dashboard is part of eurofunk's Business Intelligence solution and can be used as an extension of an existing **eBI** installation. It is also possible to use the dashboard without the **eBI** components in place. It can be called up via web browser and can be made accessible with or without user authentication, depending on customer requirements.

eurofunk's **eBI Dashboard** can also be customized through the integration of external systems to include such features as forecasts or machine learning.



eBI analyses & reportings

News from the ennov8 LAB

Christian REPASKI

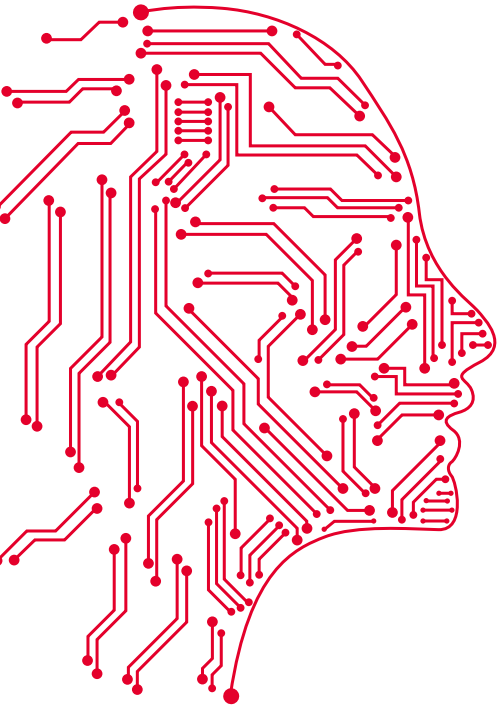
For over 50 years eurofunk has been driven by innovation, with many of our most interesting products resulting from the dynamic nature of projects and the close collaborations with our customers.

With the conclusion of a project and the need to prioritize system stability, innovation can find itself taking a backseat - which is why, in 2019, eurofunk established the "eurofunk Innovation Circle". Taking place two to three times a year, this series of workshops encourages cooperation among eurofunk customers and product designers with the goal of developing new ideas or considering the potential of new technologies. The workshops are held on customer premises, allowing us insight into the „microcosms" of the individual customer, which in turn gives us the ability to derive and develop new ideas.

Participant numbers were kept low for the first few workshops in order to properly evaluate the proposed format. We also made the decision to concentrate on control centers in the industrial market segment. The first workshop took place at Daimler AG in Gaggenau in January 2019 and the second workshop in October 2019 in the Franport AG offices at the Frankfurt Airport. A workshop planned for the end of March 2020 was postponed due to COVID-19.
While the range of subject areas, initially, was kept broad, the second meeting focused on specific areas of interest such as the possible advantages of AI or mobile applications. This workshop also gave us the opportunity to add new ideas to our list of potential developmental topics.

As a direct result, eurofunk established independent, internal research projects for both topics. A prototype evaluation of speech analysis software for emergency call acceptance is currently being conducted by selected customers.

The Open Innovation initiative is just one of the many areas currently receiving our attention. Another one that is generating some excitement is gesture control – the ability to customize the workstation using hand gestures. →



ennov8 LAB

GESTURE CONTROL

This idea was conceived on a warm summer's eve in an Italian restaurant on the heels of a successful **eDESK** presentation. While relaxing over dessert, we bandied about the idea of being able to control the **eDESK** using hand gestures, as if by magic. This stayed an idea for a long time, until – as if by magic - we stumbled upon a sensor that made the technical implementation possible.

In addition to the sensor, we found that eurofunk's vast experience not only in table production but also in the development of hardware and software came as a great advantage. In surprisingly little time, what began as a theoretical discussion among colleagues over a serving of tiramisu, became reality: all motors and the lighting of the **eDESK** can now be controlled using hand gestures.

As innovative as that sounds, we didn't feel that we had done all we could to improve the usability of our workstations. So, in a second step, our gesture control was coupled with **eOCS** (eurofunk Operations Center Suite). We found that the integration of a hardware sensor with a web application was as demanding as the initial programming for the gesture controls but our commitment to the idea never wavered and, as a result, a holistic control of the operations control system and the work environment via gestures is now available.

The technologies developed in the process are the basis for the **eOCS feature myDESK**: workstation settings are stored according to users which means he or she will have a perfectly adjusted working environment at any **eDESK** at the touch of a button.

DISPLAYS IN EMERGENCY VEHICLES

Have you ever wondered why, in a modern emergency vehicle equipped with high-resolution infotainment display, it would be necessary to install supplementary operational displays?

It's a question that has bothered us at eurofunk as well. So much so that we began a cooperative venture with vehicle manufacturers to develop concepts and solutions to make better use of the existing infrastructure in future models. Through this we are looking to avoid installation problems and the difficult process of getting safety approval for additional displays on the one hand and, on the other hand, to increase usability and passenger safety.

AUDIS 2.0

The process of accepting emergency calls and the ability to make crucial decisions based on these calls lays the foundation for efficient and targeted incident handling. By using **AUDIS** as a module for structured emergency call inquiries, the user is given the best possible support. Together with our partner **softaware gmbh** we have thought about how we can make this process even easier and more intuitive - the result is **AUDIS 2.0**.

Supporting, not patronizing - this was the intention of **AUDIS** from the beginning. With the newly created „Intelligent Assistants", valuable information is displayed to users during the emergency call:

- Are there defibrillator locations within a radius of 200 meters?
- Which hazardous material is hidden behind the UN number 0386?
- Which doctor is on duty in the area today?

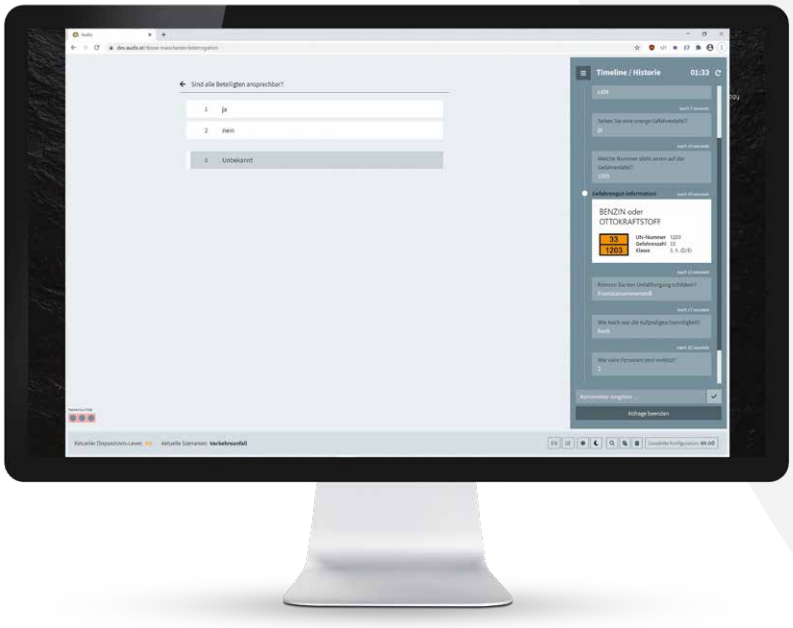
In addition, the question catalogs were completely redesigned in relation to **AUDIS 1.0**: Similar to a Word document, the questions and their answer options can be clearly arranged - **AUDIS** generates the question structure dynamically.

A significantly enhanced quality assurance module provides valuable insights into the course of the calls:

- Which questions take particularly long?
- Are the first, critical questions of a conversation answered quickly?
- When is **AUDIS** aborted and not used?

We have learned from our experiences with **AUDIS 1.0** and created a completely new, innovative module for structured emergency call inquiry.

If you are interested, we look forward to hearing from you for a free live demonstration.
Further information is available at: www.audis.at

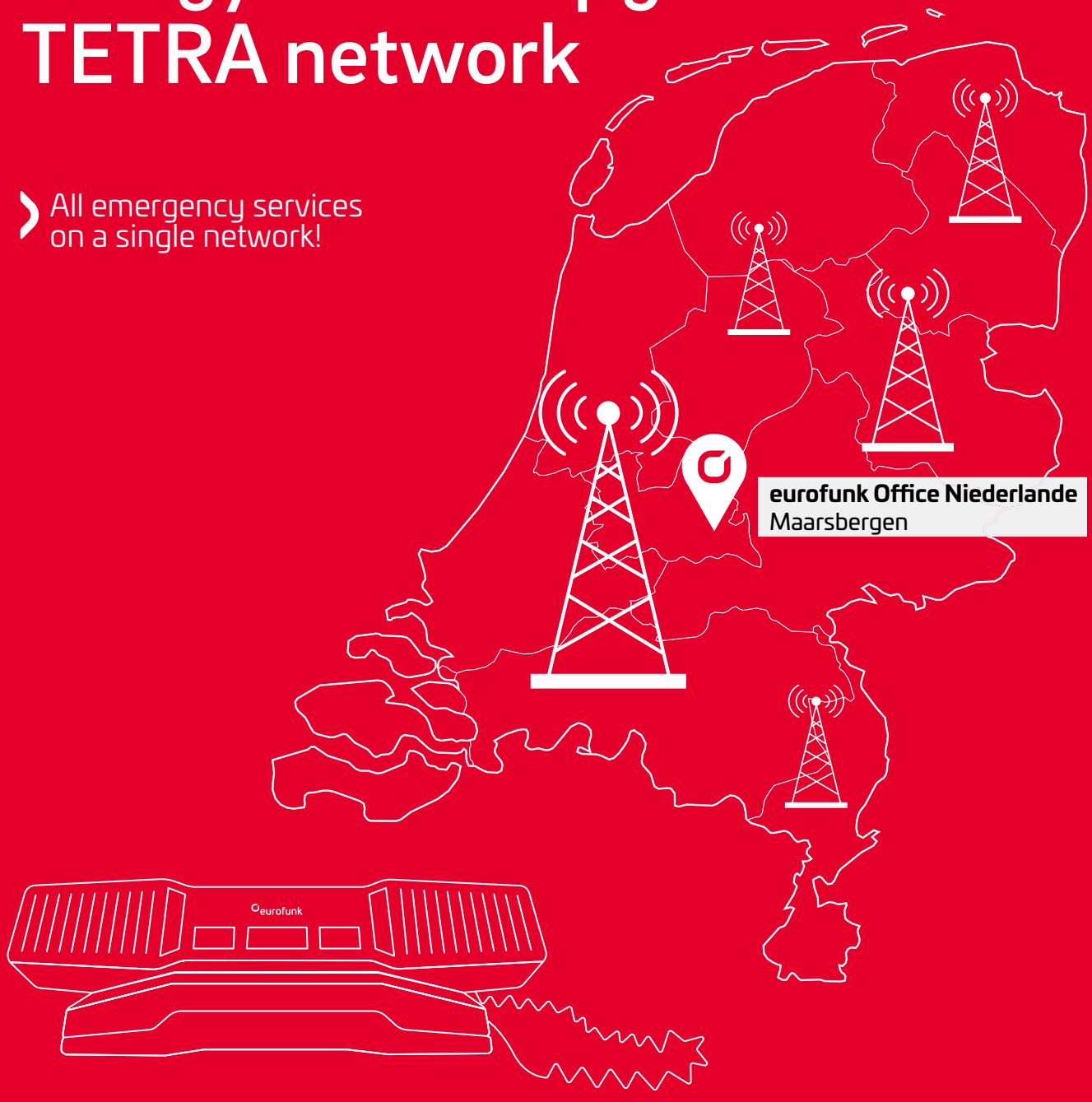


Join our Innovation Circle!
We hope you will join us for the next eurofunk Innovation Circle Workshop and, in keeping with our motto **creating safety by technology**, take the next step towards public safety.

Get in touch with:
Christian Repaski
Product Manager Innovations
crepaski@eurofunk.com

High-tech innovation for the Netherlands with the latest in centralized data center technology and an upgraded TETRA network

› All emergency services on a single network!



Christoph DIHANITS

C2000 is a digital communication system for the emergency services. It is used by police, fire department, rescue services, the Ministry of Defense and various partner organizations. In recent years considerable effort has gone into preparing existing systems for renewal. The roadmap for this includes:

- **Part 1 (P2000)**
  Renewing the paging network for alerting purposes.
- **Part 2 (T2000)**
  Establishing the TETRA network for communication.
- **Part 3 (C2000)**
  Rollout of the **eOCS** communication and radio control system on a centralized platform with high availability.

Long anticipated by eurofunk and its project partners **Vernieuwing C2000-Communicatie-Infrastructuur** was phase 2 of the project, the commissioning of the TETRA network. This was put into operation on January 27th, 2020 with the help of the latest eurofunk infrastructure and technology.

Facts:

- In operation: approx. 90,000 radios, approx. 11,000 talk groups, approx. 600 radio masts and approx. 480 workstations in the control centers and two computer centers
- Endurance tests: the storms Ciara and Dennis; Carnival celebrations
- An average of approx. 18,600 peripheral devices are in operation every day.
- On average 300 TETRA emergency calls are answered daily.

eurofunk components form the central core of the communication system's data center infrastructure. High performance components connect all control centers in the Netherlands to the data center via virtualized desktops. Redundancies that use only the most advanced technologies are providing 24/7/365 system availability. Operations are also closely monitored from a central location.

In addition to the renewal of all computers for radio software, we have implemented **eTALK**, a reliable and intuitive communication device developed by eurofunk.

OPTIMIZATION, 24/7 AFTERCARE AND SERVICE ORGANIZATION

A strong team of specialists provided by the customer, the project partners and eurofunk worked around the clock during the initial phase following migration to ensure system optimization and stability.

The project partners then created the Integrated Service Organization (ISO) as a permanent support structure to serve as first point of contact for the customer on site and to provide comprehensive support for the customer's concerns.

eOCS - THE NEW COMMUNICATION PLATFORM FOR THE NETHERLANDS

Now that the first two parts have been completed, eurofunk will begin implementing the eurofunk Operations Center Suite (**eOCS**). We are convinced that this central, web-based communication platform will bring the **C2000** renewal project to a successful conclusion.

eurofunk Active Monitoring – Practice Report

Avoid problems before they occur with Active Monitoring – eurofunk's permanent system monitoring solution.

eurofunk has been offering Monitoring-as-a-Service since 2019 under the name eurofunk Active Monitoring (**eAM**) with the aim to increase customer system availability and reduce downtimes. Through constant monitoring and prompt reaction to system notifications, many potential errors can be avoided before they occur.

EAM BY THE NUMBERS

Currently we have 20 customers up and running with **eAM**. We monitor more than 3,700 hosts with over 74,000 individual monitoring sessions. Systems are reporting an average of 100 events per month. Not every event leads to an error, but we can gage the overall health of a system by the number of events reported.

> »Dear Customer, we have recognized that your system has a problem. We are taking care of it ...«

WHY IS THIS GOOD FOR YOU?

Through implementation and daily application, we have gained insight into the various ways the **eAM** can be useful to our customers. One example is a defective battery in a RAID controller. This component serves to provide temporary storage for data not yet written to hard disks and will work reliably as long as server power supply is available. With **eAM**, a defect in the battery can be detected early, the battery replaced, and loss of data avoided.

An unstable network connection to the digital radio connector tends also to remain undetected in systems without active monitoring. Redundancy mechanisms provide for a switch between primary and secondary paths except for the duration of the switch. With the help of **eAM**, the network connection can be stabilized through quick detection of the initial error.

WHAT DOES THIS MEAN FOR EUROFUNK?

By implementing **eAM**, we are helping our customers focus on what really matters - saving human lives. For eurofunk this means a continuous learning process and being at the very heart of our customers' systems and processes.

Christoph SEIDL

Anton GROSCHACK,
Head of ICC Traunstein

»Active monitoring has a decisive advantage. Possible sources of interference are detected at an early stage before they begin to impact control center operations. By using eAM, the operational dependability of the control center as a high-reliability organization is increased many times over. ICC Traunstein therefore recommends to all eurofunk control center customers: consider implementing eAM in your control center and let eurofunk advise you.«

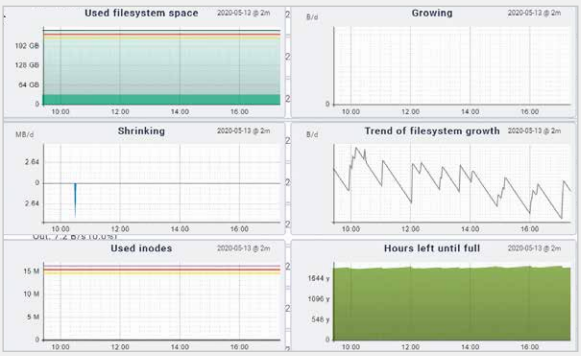


Fig. 1: Trend of the file system utilization and time forecast until the critical filling level is reached.

Fig. 2: Aggregations are used to combine individual monitoring events into an overall view of system state.

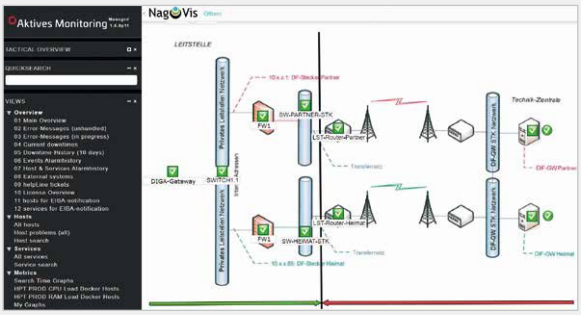


Fig. 3: The system provides a simple overview of complex technical relationships.

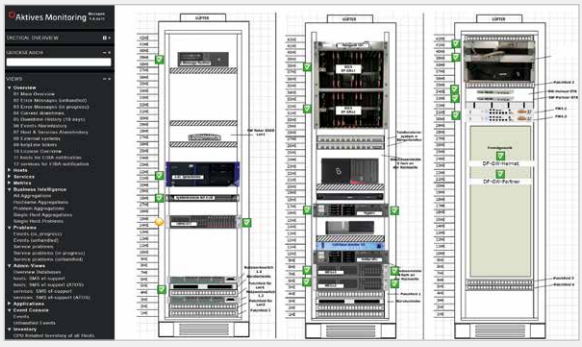


Fig. 4: Overview of the technical room.

eurofunk CO_2 balance sheet

Thanks to the rapid switch to remote work – caused by the drastic restrictions of the COVID-19 pandemic – from mid-March onwards the associated reduction in commuting distances and business trips, we were able to save a considerable amount of CO_2. In just a couple of months a positive environmental impact could be achieved.

Further constructive impulses resulted from the intensive, digital interaction with our customers and ensured secure operations in the control centers.

We look forward to the upcoming year with confidence and continue to benefit from the gained experiences.

AIR TRAVEL

Kilometers saved:

- 10,214 km

Saved CO_2:

- 15,980 kg

CAR/BUS/TRAIN

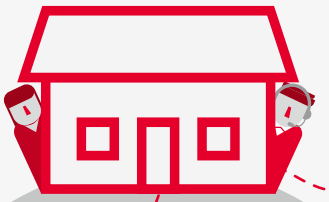
(company and private vehicles)

Kilometers saved:

- 1,410,000 km

Saved CO_2:

- 261,101.7 kg



Savings in a few months correspond to the

ANNUAL OUTPUT of approx. 29 people

in Austria

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eurofunk

creating safety by technology

eurofunk KAPPACHER GmbH
eurofunk-Straße 1 – 8
5600 St. Johann im Pongau
Österreich / Austria
T +43 57 112 - 0
T +49 7231 7782 - 0
office@eurofunk.com
www.eurofunk.com