

simple. broadcast. control.

KSC CORE by BFE - The independent broadcast control and monitoring solution of the future.

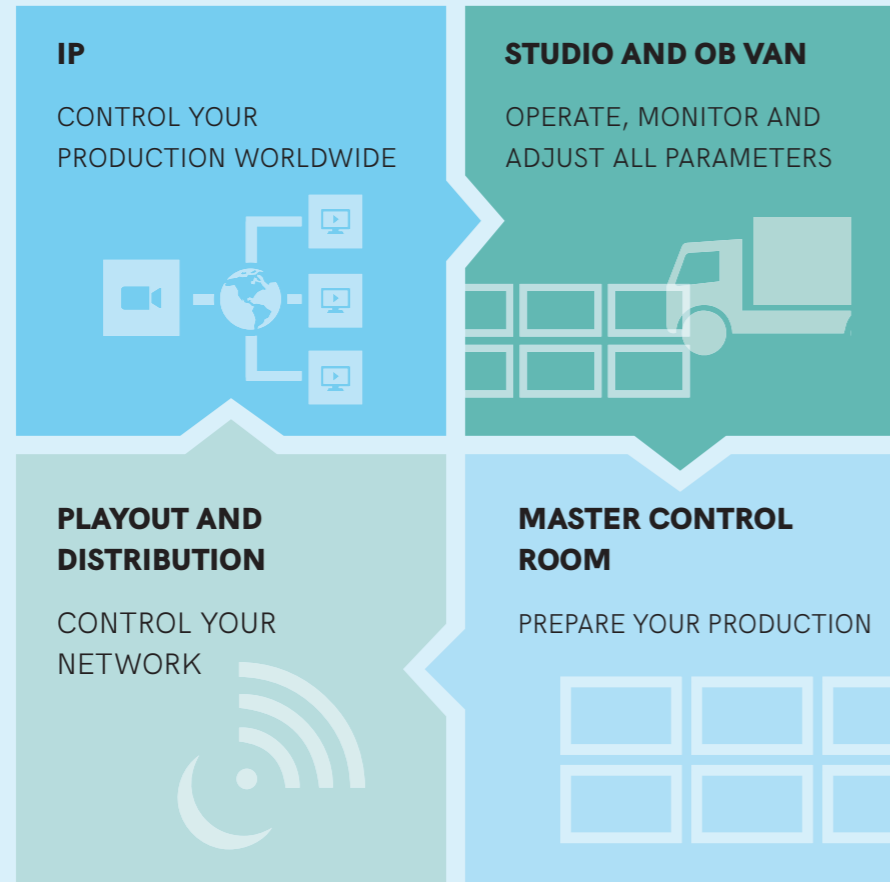


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KSC CORE AT A GLANCE



MANAGE YOUR BROADCAST CHAIN.

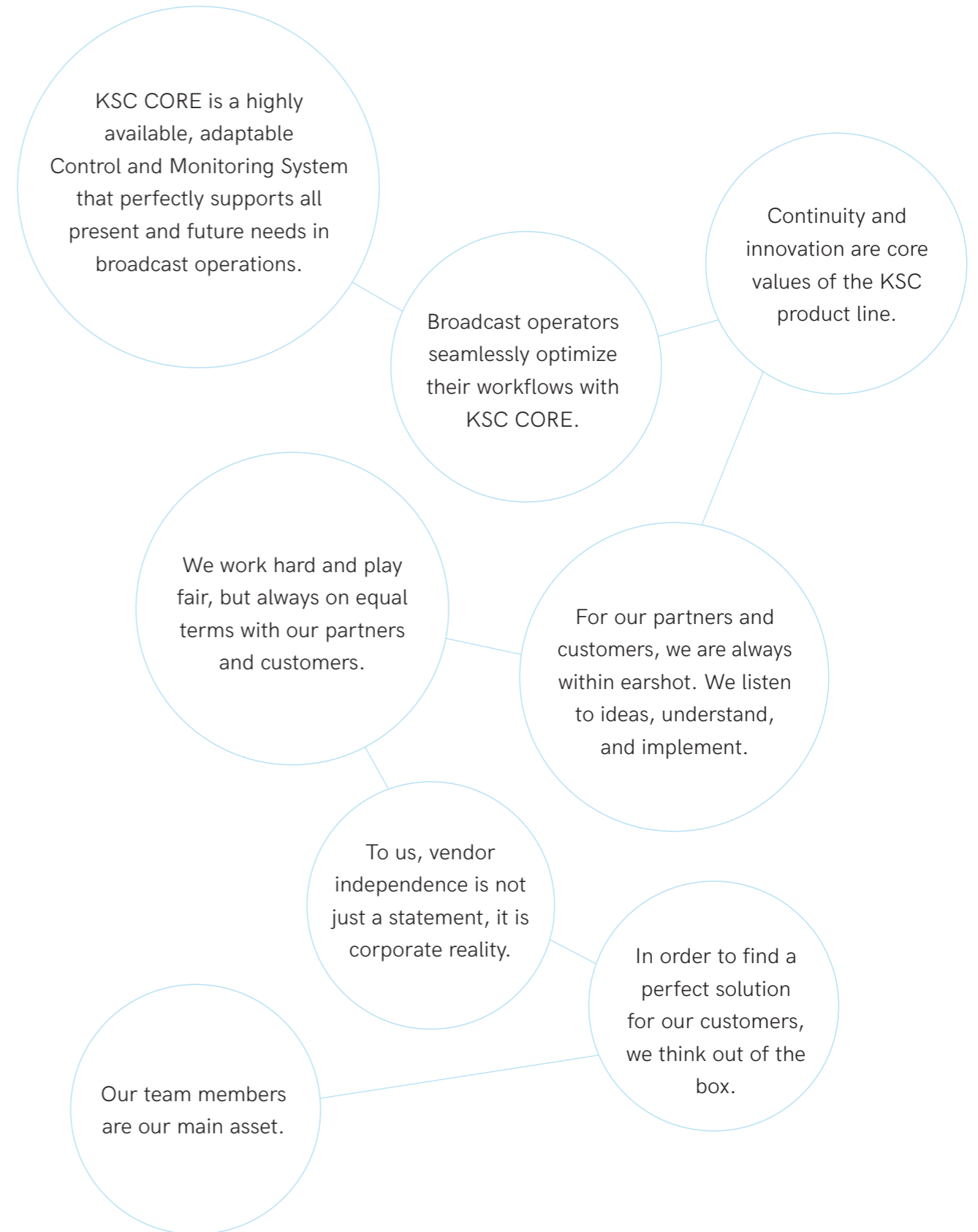
Designing a control and monitoring system that takes care of the entire broadcast chain has been the underlying goal when creating KSC CORE. Modular interfaces allow you to use KSC products in all areas of planning, production, payout and distribution.

KSC CORE enables the fast and flexible control of studio and OB van systems by using production setups, intuitive GUIs, and control panel layouts. Efficient signal and resource management in the MCR is guaranteed with KSC's Manager option enabling operators to seamlessly work in the SDI and IP world. Payout systems benefit from KSC CORE's backup functionalities and automated

device-exchange while further easing the operators work with live-video feeds in KSC CORE client GUIs. Video- and Audio-over-IP is already part of today's broadcast infrastructure. With intelligent interfaces and software modules that unify the operations of these often hybrid infrastructures, KSC CORE bridges the gap.

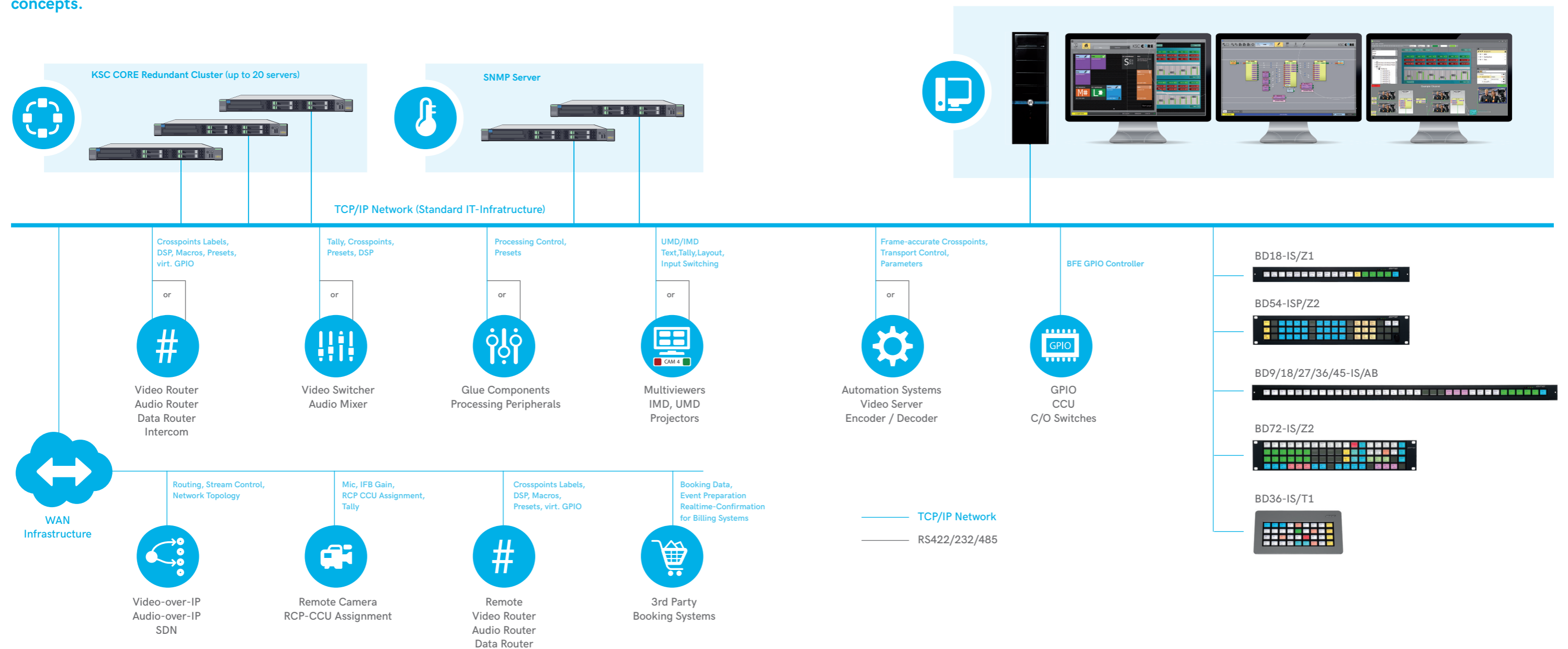
KSC CORE is the solution that optimizes your workflows, while others just take care of single features.

MISSION, VALUES, AND VISION



SYSTEM ARCHITECTURE

KSC CORE seamlessly integrates into existing network structures. A standard IT hardware backbone forms the basis of this highly available controller solution. KSC CORE further enhances reliability with hardware and software redundancy concepts.



KSC Systems have taken care of intelligent broadcast control for almost 25 years. Within this experience, hundreds of different protocols for monitoring and control have been implemented. They range from major broadcast manufacturers to highly specified components. Thanks to an independent R&D department, no limitations with regard to third party devices exist.

Talking native protocols to various manufacturers reduces the efforts on the manufacturer's side and consequently enables the use of high-performance communication.

KSC CORE acts as the neutral intelligent communications translator between different devices no matter which physical control interface (TCP/IP or serial) is provided. Therefore, KSC Systems can seamlessly be integrated into existing (even vintage) broadcast device infrastructure.

By using an unlimited number of internal logic controls, KSC CORE adds to the standard functionality of device control and allows operators to design completely new functions.

At the intelligent and robust core of a KSC System, redundant servers in a cluster with up to 20 physical or virtual machines form the basis for 24/7 fail-safe operation. Automatic or manual (initiated from any KSC Control Panel in the system) fail-over switching guarantees for highest safety.

As monitoring and control systems are growing increasingly inseparable, KSC CORE introduces SNMP monitoring capabilities to the control system infrastructure by using a dedicated server unit for independent surveillance of all system components.

Hardware LCD control panels in a wide range of key formats, mounting options, and front panel designs made by BFE in Germany are available. Additionally, software based GUIs and Virtual Software Panels offer simplified and adaptable control.

BFE's own hardware development and manufacturing delivers GPI/O interfaces and dynamic labeling UMDs as well as Sync-Interfaces for frame-accurate switcher- and automation systems operation.

When converting from serial control signals into the TCP/IP-world, KSC CORE relies on industry-standard components with a proven track record of hundreds of installations.



FLEXIBILITY IS KING, RELIABILITY IS A MUST.

Conditions of mobile productions are summarized easily: **Be cost-efficient, be flexible, be reliable.**

Three hours of setup time for a Champions League soccer game in 4K with 5.1 surround audio on OB vans with several control suites working for different - and of course demanding - clients. This scenario becomes more frequent as pressure on OB companies is constantly rising. Many of our product engineers for KSC CORE have their background in mobile production, thus bringing vast knowledge and tools necessary for highest on-site broadcast quality into KSC CORE. We have clearly understood the high demands in flexibility, and production engineers' requirements, not only for today, but for tomorrow as well. Worldwide Remote Production makes an intelligent, distributable Controller System indispensable in all stages of production. KSC CORE has been developed with exactly this focus: A Controller System for today's requirements and tomorrow's challenges.

- /// Group your production setup into different areas, load, and store snapshots for individual production areas
- /// Train your staff once: Freelance engineers and operators need to handle one CORE System, not many
- /// Prepare complex setups to be recalled and modified until last second before on-air or make your changes even while on-air - no recall of interfaces necessary
- /// Use KSC CORE as a master system for labels (up to 5 individually assignable), Tally, and GPIO - centralized control for fast setups and excellent overview
- /// Virtual signals and associations of signals facilitate operations in time-critical situations - one button to route multiple signals with pre-defined switching strategies
- /// Use KSC CORE's highly accomplished logics to create workflow-based actions in the system
- /// KSC Control Panels and freely designable GUIs (GFX Unit) form a simple workflow-centric interface to operators - no detailed explanation needed
- /// Wireless tablet (Windows) and Apple iPad® support for setup control within the venue or during rehearsals. Freelancers, bring your own control panel - on a pad!



FLEXIBILITY

- Production setups with freely configurable system settings for fast change-overs before and during broadcast
- Recurring use of event data with proactive conflict calculation
- Flexible exchange of system components via drag & drop incl. transfer of processing parameters
- Relocation of production areas by simple delegation



SIMPLICITY

- Fast and intuitive system design GUIs
- Simple and clear configuration of all system parameters
- Standardization of operating concepts for all attached systems
- Offline preparation of configurations



ROBUSTNESS

- Server cluster with manual and automatic switching
- Design of all system components for 24/7 operation
- Permanent status display of all important system components



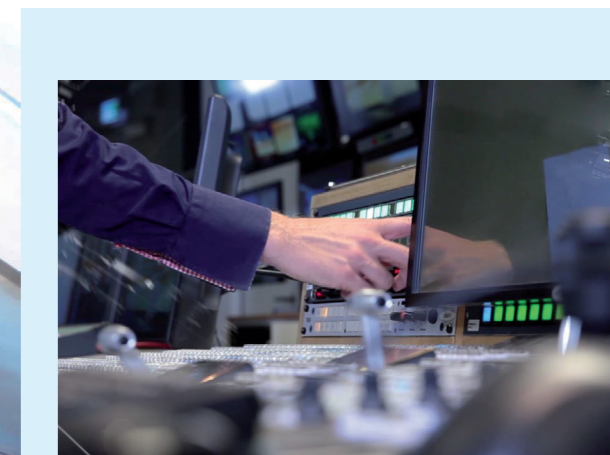


COST-EFFICIENCY IN STUDIO DESIGN TO MAXIMUM CAPABILITY IN OPERATION - HANDLED BY KSC CORE.

From our experience, there is not „the studio“ per se. Requirements in studio production are driven by fast changeover times between productions to secure ROI and cost-effective uptime. Studios are frequently used as small live MCRs in sports productions but become talk venues several hours later. Some studios work from containers outside a studio facility, each studio is different.

Key to efficient studio management is a controller system that enables the administration and resource planning for device pools and shared signals, and at the same time guaranteeing the flexibility of deciding in an emergency to use a different control room with a studio set just seconds before going live. Therefore, in KSC CORE you will find logic functionality which has been designed with experience from numerous "studio delegation" projects. From ZDF studios in Mainz to Shenzhen Media Group, KSC has been used internationally to ensure studio resource management on a keypress with hundreds of crosspoints set, mixer settings being recalled, and processing parameters varied in real-time.

- /// Prepare complete setups for all areas of production: Mixer settings, tally logics, studio-CR delegations, multiviewer labels, etc. and recall complete shows in an instant
- /// Intelligent router timeline management with label transfer to efficiently handle signals with MCRs or connected OB vans
- /// Use KSC's highly acclaimed resource management to work with less equipment in your pool - less CCUs, less RCPs, less glue
- /// Intelligently change RCP-CCU or intercom assignment depending on studio-CR delegation
- /// Manage Tally signalization centrally across several studios, independent of their location
- /// Prepare complex show setups with KSC's Circuit Manager, visualize entire routings including signalization in a GUI overview
- /// Integrate any studio automation system with frame-accurate switching and processing control
- /// Interface with media asset management systems (MAM) to facilitate file-based workflows



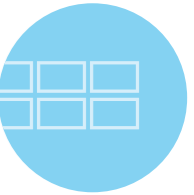
CONTROL

- Central, top-level controller system for all switching, adjustment and monitoring functions in the broadcast area
- Graphically simplified presentation of complex system settings and states
- Production-setups can be prepared offline, edited and selected on-the-fly in the system
- NMOS IS-07 version 1.0 compatible transmission of time-critical information (e. g. for camera tally information, audio levels as well as button press and status information from control panels)



SYSTEM MONITORING

- Complete monitoring of all control system components and all attached systems/devices
- Continuous error logging, error correlation and logging of events
- Detailed error messages with associated history, error message transfer to higher-level umbrella systems



ROUTE, MONITOR, MEASURE, PROCESS, ADAPT, DELEGATE, COMMUNICATE, REST & RELAX – MANAGE YOUR SIGNAL CHAIN IN ONE APPLICATION: KSC CORE.

Managing a broadcast MCR in TV or Radio to a large degree is based on fast and resilient decisions by operators in combination with excellent communications. KSC CORE's functions for time-based resource management, routing and processing ensure that operators can focus on these parts of their job. Frame-accurate activation of pre-prepared events, intelligent audio track-exchange and integrated Codec Control facilitate MCR duties. For many years, KSC Systems have set the pace for technological innovations in MCR controller systems, highly acclaimed from operators worldwide. Thanks to its database architecture, KSC CORE enables third party booking systems to easily interface with existing event planning data. Bi-directional communication allows for defined access to resources of the MCR systems as well as confirmation of completed bookings for billing information or even conflict indication for the booking system to correct orders. A seamless integration with **KSC Organizer** – a facility-wide planning and booking system – enables to extend the signal chain to program directors and planning departments. Monitoring signals and also devices has become more and more of an MCR operator's work. KSC CORE offers a simplified yet complete integration of SNMP monitoring into the operator's workflow based on control panel layouts and GUIs. Consequently, the operator's focus remains in one application providing all information – KSC CORE.

- /// Use sophisticated tools for time-based operation: Frame-accurate switching, preparation of entire events
- /// Seamlessly integrate with third party booking systems: From large vendors to self-made XML solutions, due to the database structure perfect exchange of data is guaranteed
- /// Operate complex bookings in **KSC's Circuit Manager** for real-time adaptations or relaxed preparation
- /// Monitor devices and signals with integrated SNMP functions which do not require separate configuration, it comes along with the control configuration
- /// Distribute labels to devices in different parts of your broadcast facilities, e.g. to the audio mixer desk's channel displays
- /// Take advantage of KSC CORE's intelligent Timeline Management to route signals via numerous routers and glues, hassle-free for your operators
- /// Manage device pools for MCRs or entire facilities based on KSC CORE's resource management
- /// Sit back and relax while KSC CORE will handle your audio track allocation and signal processing loop-in automatically



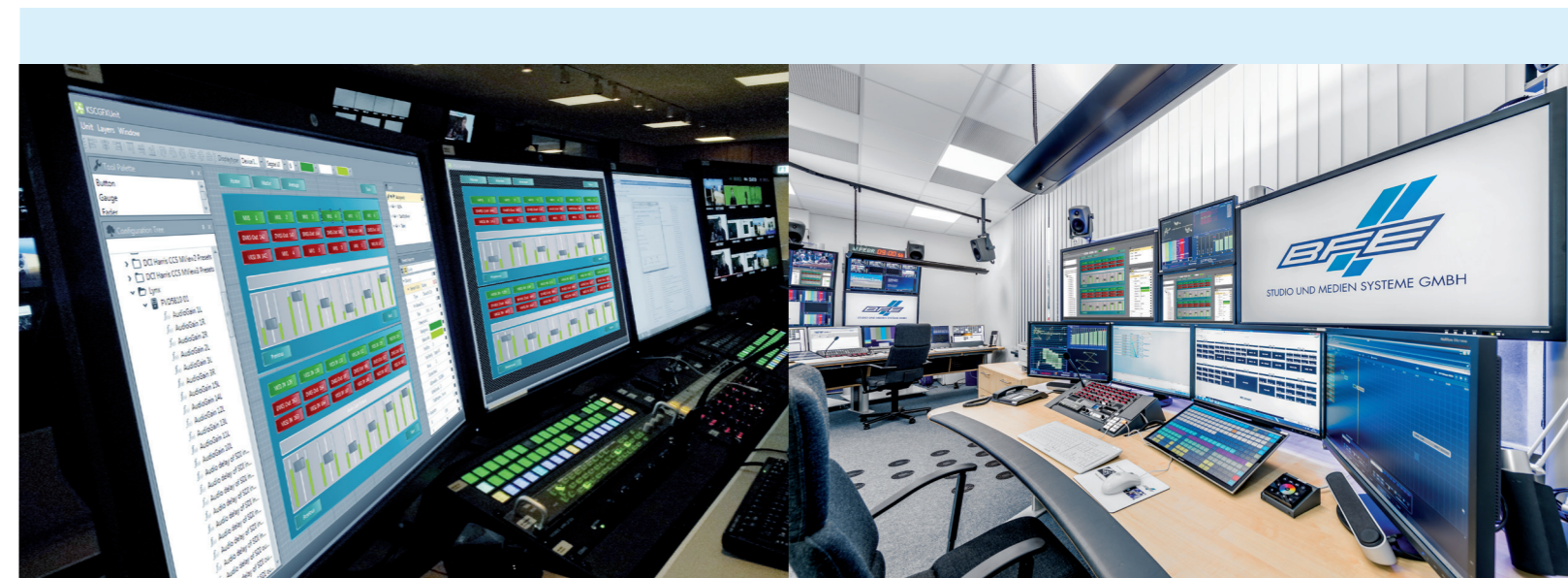
SCHEDULING

- Time-based resource management of all system components, recognition and solution of resource conflicts
- Advance booking of all resources, signal paths and processing functions
- Manual or automatic, frame-accurate on-time event activation or deactivation



STATISTICS

- Recording, logging and evaluation of all operating data
- Registration of usage frequency and duration for each system component
- Data basis for customer-specific statistical usage analyses and cost optimization





PRECISE AND RELIABLE SIGNAL MANAGEMENT, IP OR BASE-BAND CONTRIBUTION: KSC CORE PROVIDES THE NECESSARY TOOLS.



MANUFACTURER INDEPENDENCE

- Interfaces to all manufacturers that define broadcast today and tomorrow
- Return of investment even when switching to components from different manufacturers
- KSC CORE provides a suitable interface for each device selection
- Integrated control of heterogeneous system structures



PLUG & PLAY

- Device scanner for automatic detection and configuration of system components through a wide range of supported protocols - including NMOS IS-07 for IP based environments
- Automatic detection of firmware and software versions of connected devices
- Fully automatic default configuration of newly connected control systems

Workflows for signal contribution and playout systems are in constant development. From simple pass-through channels with legacy equipment to complex heavy-load channels using several routing and mixing systems, KSC CORE will easily scale with your demands.

Seamlessly integrating with today's broadcast automation industry standards, KSC CORE offers additional benefits that only an intelligent logic-based system can. From using automation commands for executing complex processings to spanning automation systems over several routers, KSC systems are designed for optimal performance especially in a multi-vendor environment.

By KSC's Sync-Interface technology, KSC CORE can - as one of the few systems on the market today - ensure a frame-accurate switching of crosspoints and GPIOs.

Playout environments require 100% availability. KSC CORE's proven track record of Playout Centers worldwide, relying on acclaimed technology and experience guarantee for the highest degree of fail-safe operation.

Using automatic device exchange in the signal chain makes sure that stand-by equipment will be automatically looped-in once needed. As KSC CORE acts as the umbrella system for all parameter control, processing settings are directly transferred to spare devices without manual effort for operators.

Signal contribution has started its way to IP technology. KSC's development has successfully realized systems for campus-wide, national and intercontinental signal distribution based on standard IT hardware starting back in 2012. KSC Systems since then haven't been setting the pace in the field of IP audio and video signal management.

- /// KSC CORE provides you with advanced features, adding up to functionalities of traditional playout systems
- /// Automatic device-exchange with parameter transfer guarantees the signal integrity of your processing chain
- /// Built on a highly redundant server cluster architecture, adding server hardware, updating individual machines or simply maintaining components is greatly facilitated
- /// Using proven standard IT hardware adds to a station-wide spare part management
- /// Frame-accurate switching for crosspoints and GPIOs using KSC's Sync-Interfaces
- /// Multi-vendor support guarantees for your future-proof investment, even when exchanging the automation system



CONTROL PANELS



FULL CONTROL AT YOUR FINGERTIPS.

The BFE series of control panels benefits as third generation devices from the long-standing international BFE experience in the area of controls for the broadcasting and telecommunications market. The control panels are characterized by a long service life, reduced power consumption, and compact dimensions.

Keys with brilliant LCD displays are also guaranteed to have a long service life. These keys provide a great viewing angle with better contrast values and enable a compact control interface with up to 72 keys in 2 rack units. All control and display functions are comfortable and configurable online via KSC CORE.

In addition to the LAN and USB port, features include a freely configurable GPIO interface with 4 in/out ports in each control panel.

The BFE Control Panels provide operators with high tactile comfort for reliable and intuitive manual operation in all situations. The centralized process intelligence in KSC CORE allows for easy configuration and management with an easy to navigate user interface.

Individual configurability means there are no limits to the number of functional possibilities for assigning keys: router control in any system sizes, control of audio/video parameters in an unlimited number, control of logical functions, and triggering presets are possible with the same control panel.

The BFE Control Panels are available in different designs: 9, 18 or 36 keys, 19"/1RU; 54 or 72 keys, 19"/2RU; 144 keys 19"/4RU.

Flat surface mount modules with 9, 18, 27, 36, 45, 216 or 288 keys can for example be mounted directly in front of vision mixers whereas panels with 18 or 27 keys for vertical table installation are available as well.

All 19" control panels can be equipped as needed with a universal incremental encoder.

The international success of BFE Control Panels - not only for broadcast but even in highly classified applications (military and police) - has given us the confirmation that our highest standards in Control Systems also reflect in our hardware components.

- /// Quality - R&D and own manufacturing by BFE in Germany
- /// Heavy-duty design - for professional 24/7 operation
- /// Scalability - different key layouts for highly specified applications
- /// Intelligence - simple layout management and change in KSC CORE
- /// Flexibility - Each key can take any function within a KSC CORE System
- /// Compatibility - BFE control panels are compatible with third party systems

BD72-ISP/Z2



BD54-IS/Z2



BD36-IS/AB



BD18-IS/Z1



BD36-IS/T1



Excerpt from our product line.

SERVICE AND SUPPORT

Broadcast controller systems at the heart of your network infrastructure are unthinkable without the proper support.

At BFE, we strongly believe that understanding 24/7 operations and the relevant needs has led us to designing the optimal Controller System. In addition, we offer a support that has been unrivaled ever since, and we are proud of it.

Professional call-handling with support centers operating on ITL-oriented service processes ensure non-stop availability and fast response times. Qualified service engineers with IT- and Broadcast Audio/Video backgrounds support our customers worldwide. Via telephone, e-mail, live-chat or a remote VPN connection, our engineers can be reached in English, French, and German. Mandarin Chinese soon to be added.

Additionally, the KSC support team keeps all customer backups on a virtual server environment at BFE for ultra-fast setup times of test systems.

With Service Level Agreements (SLA) these support concepts are extended to regular maintenance, workflow-oriented trainings and software update packages.

- /// 24/7 support with telephone hotline, e-mail and live-chat availability
- /// Fast remote-access to your systems
- /// Transparent call handling with BFE Issue Tracking System
- /// SLA support for guaranteed response times available
- /// Training programs in English, German, and French
- /// Large user-community for sharing best practice with other operators and administrators

BROADCASTERS ALL AROUND THE WORLD PUT THEIR TRUST IN BFE*



*excerpt of references





BFE

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