Award of a contract for the upgrading of the server system including adaptation of the hardware in the Visiodrom Wuppertal for the system integration of a new projection screen for Visiodrom GmbH

Here: Invitation to tender

In the event of discrepancies between the translations, the original version (German) shall prevail.

Visiodrom GmbH awards the contract for the upgrading of the server system including adaptation of the Visiodrom hardware in the gas boiler in Wuppertal by 15.03.2022. Due to the new floor space of 440 square metres, the technical components required for this are to be integrated into the overall system of the existing server landscape under the conditions listed below. The additional projectors are to be fully integrated into the existing Vertex system (Ioversal) on the software side. The hardware is to be adapted in accordance with the requirements for optimal continuous operation.

The entirety of the technical upgrade with all components will be referred to in the following as "technical extension".

You are hereby requested to submit an offer for the technical extension, taking into account the specifications and services described below.

The following specifications essentially apply to the awarding of the contract:

I. Background and objectives of the procurement

Visiodrom GmbH operates the world's first Visiodrom in the Gaskessel Wuppertal, a listed MAN disc gas tank from 1952. In this almost circular space 38 metres in diameter and 47 metres high, changing immersive projection shows run on 6,100 square metres of screen, distributed over five different surfaces. This will be expanded by 440 square metres of floor space in a separate tender. This has far-reaching implications for the server technology. As a result, the visitor is surrounded by the theme and can immersively immerse himself completely in it. The roof and all walls are already projection surfaces.

The goal is to design the operating technology in such a way that a coherent, technically smooth show experience can be offered on all surfaces in continuous operation, thus offering the guest an experience beyond the experience itself. To create an emotional experience of the subject matter seen.

The project is supported by public funding from the Federal Government Commissioner for Culture and the Media (BKM), the State of North Rhine-Westphalia and the City of Wuppertal.

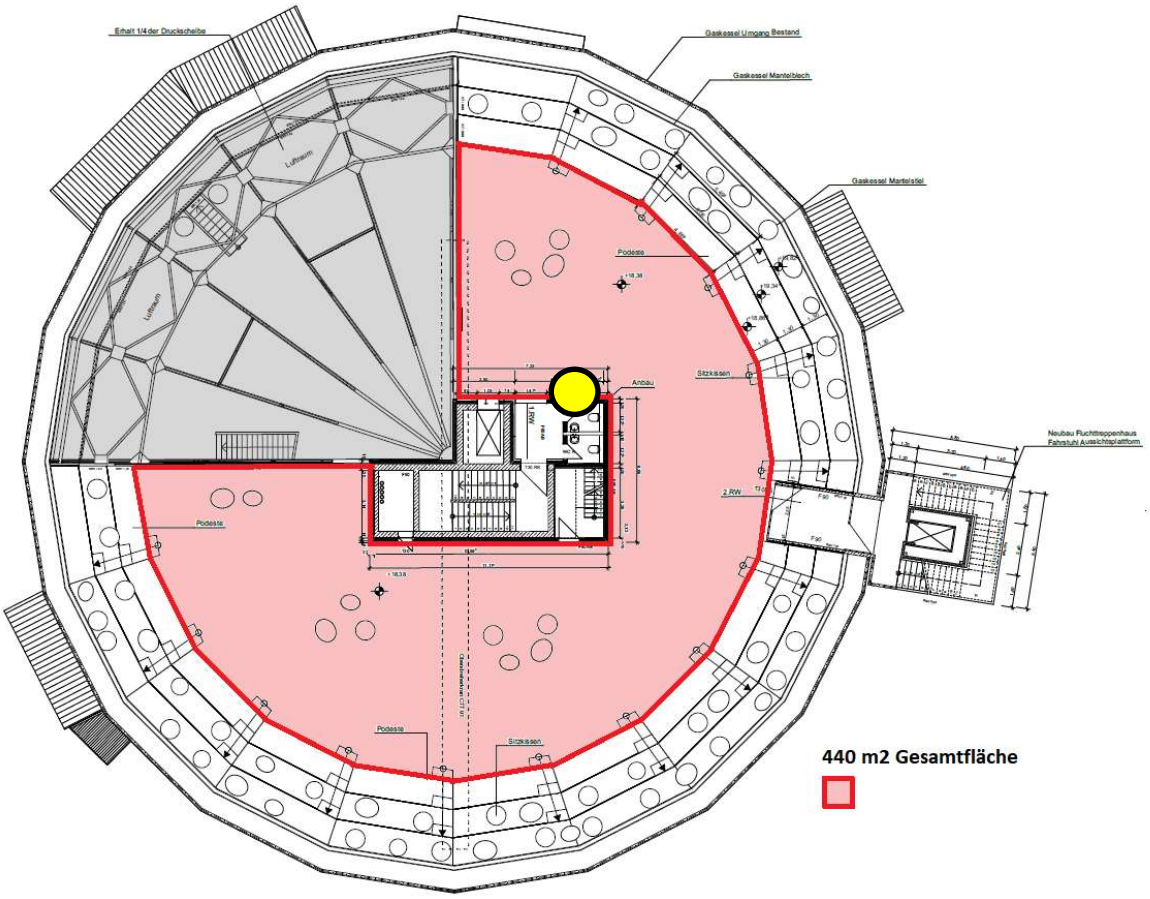
For further information on the Visiodrom, please visit the website www.visiodrom.de. There you will also find information on the currently running immersive show HUMANS.

Remuneration for the services rendered is paid in accordance with the contractual agreements after proof of achievement of the corresponding performance goals.

II. Performance specification

We expect a trusting and goal-oriented cooperation with our internal technical team. The advertised technical extension is essentially subject to the following **requirements**:

Overview additional projection surface and server room:



Server room / technical transfer point

The data streams and network connections of the projectors required for this (three to four) are to be integrated into the existing system. Since the installation is independent of the system upgrade, a clear technical transfer point is defined.

- All necessary cables and signals are located in the server room (yellow dot on the above diagram). The hardware is installed exclusively in this server room.
- The hardware is to be dimensioned in such a way that smooth continuous operation can be guaranteed.
- The system integration on the software side into the existing Vertex system (Ioversal) must also be guaranteed.

The technical documentation incl. block diagrams, performance requirements of the hardware, existing component overview, general technical system data as well as the software architecture of the existing Ioversal system will be provided immediately in case of serious intention to offer.

Contact: Christian Höher, 0174-9847903, hoeher@visiodrom.de.

Technical specifications

Hardware:

As performance requirements for common hardware solutions, we expect to guarantee smooth and reliable presentation of changing content in HAP and H264 (or their successors) over the next five years.

Software:

For a detailed description of the **VERTEX** software, please refer to Appendix I of this Call for tender. For a direct view of the software, the free download (with watermark but all functions and features) is available at https://www.ioversal.com.

Further, the contractor(s) is expected to have the following basic skills and/or attributes:

- Several years of experience in the field of projection mapping. Project planning, overall planning, technical construction and equipment as well as software engineering are part of the internal core competences.
- Work samples or project documentation can be enclosed with the offer and made available to the client on request.
- IT expertise required to integrate hardware and software.
- Experience and/or knowledge of Ioversal's Vertex system.
- Able to offer the client all required services for the timely completion of the order "from a single source" (expert team in-house or fixed network).

III. Award criteria and tender evaluation

Visiodrom GmbH will award the contract to the most economical bid. This will be determined on the basis of the criteria described below.

The evaluation is carried out for each award or sub-criterion by awarding 1 to 5 evaluation points. The points awarded are then weighted. For this purpose, the evaluation points awarded for a criterion are multiplied by the respective percentage weighting. This results in the weighted score achieved for the respective award criterion or sub-criterion. An addition of all weighted scores results in the total score. The bid that achieves the highest total score is awarded the contract.

1. Price (weighting: 50%)

The price-based bid evaluation is based on the total gross price offered (bid price).

The lowest gross bid price remaining in the evaluation (price minimum) is used as the reference value and receives the maximum number of points in this category. The percentage deviation from the reference value is then decisive for the evaluation of the gross bid prices of the other bidders. The deduction of points from the maximum score of 5 points is made in the same proportion. This system is implemented by the following formula:

〖points〗_bidder = 〖price〗_min/〖price〗_bidder × 5.

The evaluation points are awarded with an accuracy of two decimal places.

2. Quality (weighting: 50%)

For the evaluation of the quality of the offer, the following sub-criteria are evaluated separately:

a) Proposed hardware. (20%)

b) Experience in system design and/or integration with Ioversal's existing Vertex system. (40%)

c) Ability to execute: the contractor has a proven track record of having an established network or sufficient in-house capacity in all required trades. (20%)

d) Reference projects in the field of immersive projections and projection mapping. (20%)

The documents submitted with the tender are decisive for the qualitative evaluation of the tender. Additional, resulting experience and qualifications of the bidder in the above-mentioned areas will be evaluated separately as sub-criteria.

The decisive factor for the award of points is that Visiodrom GmbH is interested in the best possible technical solution and a perfectly organised workflow in every respect.

Visiodrom GmbH reserves the right to set a minimum score of 2 for each sub-criterion in order to guarantee a consistently high quality. A bid that falls short of this value for a criterion may be disregarded when the contract is awarded.

IV. Requirements for the offer

If you are interested in the contract described above, please send us your written offer including the requested script drafts by 15 March 2022, 23.59 hrs at the latest, to the following address:

Visiodrom GmbH

for the attention of Mr. Dirk Emde

Friedrich-Ebert-Str. 130

42117 Wuppertal

Or electronically to

emde@visiodrom.de

Bids that are not submitted in due form or time will not be considered for evaluation. You are welcome to add supplementary documents and work samples to your bid at your own discretion.

If you have any questions regarding this invitation to tender, please do not hesitate to contact Christian Höher, Tel.: 0174-9847903; hoeher@visiodrom.de.

Dirk Emde
Management Visiodrom GmbH

This invitation to tender includes the annexes 1 Technical Specification VERTEX, Software.

Vertex Features

Content Versioning

For every media content in your Vertex project any number of alternative versions can be created and toggled between in real time. This allows for highest flexibility in your content production.

Content Transfer

Content is being shared between source and target systems via decentralized P2P technology, thus allowing for best possible usage of network bandwidth and highest transfer speed. Users can manage content in specific target systems to save disk space on the playback systems.

Streaming

The whole arrangement of your show can be streamed online in NDI, RTP or RTMP formats either as a preview/ monitoring or as a basis for your XR event.

NOTCH LC & Hap Video Codec Support

For high-res videos Notch LC (8 & 10bit) and all HAP formats including multi-threaded chunk decoding are being fully supported.

Image Sequences

Choose a framerate and convert to 8, 10 or 16bit at import. Vertex supports the following formats in image sequences: .jpg, .png, .tif, .dpx, .bmp, .tga

Supported Image Formats

.bmp .tif .png .jpg .jpeg .tga .eps .gif .j2k .jp2 .svg .psd .pdf .dpx .heic

Supported Video Formats & Codecs

.mov .avi .wmv .mpg .mpeg .mp4 .mxl .m2v .mpv .mkv .m2ts
Hap, Hap alpha, Hap Q, Hap Q Alpha, Hap R, Notch LC

Supported Audio Formats

.wav .aif .aiff .mp3 .wma .mpa

Video Transcoding

Any supported video formats can be transcoded into the following formats:
Hap, Hap Alpha, Hap Q, Hap Q Alpha, ProRes

Video Encryption

Quicktime.mov videos can be encrypted directly by the media system. The encryption can be time limited or linked to one or more USB dongles or software licenses.

HTML & Web Content

Display or interact with web-based html content through our video rendering engine. A video URL or image URL will be displayed directly in Vertex's video engine.

Test Pattern Generator

Users can generate their own test patterns suiting all their different video playout resolutions.

System Monitoring

Any connected system analyzes in real-time the system's status of hardware capacity and rendering engine. Possible problems are being recognized early on and a backup is being saved automatically before an error becomes noticeable.

Smart Backup

The media system's fail-safe allows for both full redundancy and partial redundancy. Any connected system can automatically replace any other system. Tasks for audio- and video playback, as well as logic programming can be freely assigned to the systems and switched between automatically.

External Video Decoding

For operation safety, video decoding can be processed externally to prevent faulty video data from reducing software stability.

Automated Softedge Blending

For horizontal or vertical projector arrangements the system provides you with an easy user interface that can automatically blend overlapping areas from the projectors and allows for adjustment of luminance and gamma both individually or in groups.

Automated Camera-Based Calibration

Thanks to VIOSO, softedge and warping can be set up automatically with a camera. This leads to a more precise setup and automated re-calibration and ensures the sharpest image in every show – even if surrounding conditions would impact the projectors.

Marker Based 3D Calibration of Projectors

Vertex lets you calculate a projector position based on 3D markers and their 2D positions in the projected image. For this the projector position, angular aperture and lens offset are being calculated.

Render Engine GPU Sync

The render engines of every connected system can synchronize to a central GPU genlock clock via the network. This prevents video content from «tearing» when played out by huge projections or LED screens.

Multi-Channel Audio

ASIO audio devices can play back with up to 128 channels per interface. This offers the possibility to playout audio via Dante Virtual Sound Card or a PCI card. All audio channels can be individually routed.

DMX 512 / SMPTE LTC

Since Vertex supports a great variety of protocols and interfaces, the media system can communicate with lighting boards and other controllers for a synchronized show.

Geometry Modifiers

Video outputs as well as video image layers can be individually adjusted in their geometry. It's possible to layer geometry modifiers and run them as a chain of filters. Vertices as well as UV coordinates can be edited individually per point or grouped points.

Video Effects

Video effects can be assigned to just the media as well as whole video outputs. The video effect can be stacked and combined to a video filter chain.

Live Preview Mixing

Vertex offers multiple preview layers for editing content in a separate preview window. Various playbacks, timelines or playlists can be individually faded in and out or blended at different times.

Multi-User / Networking

The system is laid out for multiple users that are simultaneously working on adjustments within the same project in real-time. This is a real time-saver especially in situations with complex setups. All objects and properties are being checked and synchronized between the multiple systems automatically via the network in real-time.

LED Processor Mapping

For individual LED module mappings, separate LED modules can be created for each video output with the possibility to configure source and target pixels freely.

Audio / Video Synchronization

As means for synchronization you have the following options: audio clock, GPU clock, system clock or SMPTE LTC timecode.

Software Automatization / Scripting

Automatize your workflow with an easy script language, for instance start sequences and playlists or write and read their properties.

Software Extension / Plugin Interface

Software API for extending customized program modules in the form of C# DLLs. The software development kit offers full access to an application's internal objects for custom control and programming. Customized script commands and properties that have been synched via the network can be shared by the plugin.

Remote API

All internal commands for controls and reading/writing of properties can be accessed from external devices or software via TCP, UDP or HTTP with optional password protection.

HTTP Webserver

The system‘s http server offers the possibility of sending custom html content with access to a project’s internal objects like sequences or playlists via JavaScript to external browsers.

Customized Control Elements

Customized control elements can be created and arranged on multiple pages. The control elements can run flexibly in the application‘s full screen mode or via HTML in a web browser.

Node Systems for Visual Programming

For complex logic programming users can define and create individual node-based data flow schemes. Composite node systems can be wrapped and re-used. Multiple node systems can be processed independently.

Device Library

The system is equipped with a wide array of devices in its library to control various projectors, video mixers and other controller units, which can all be connected via TCP/ UDP network, serial bus, MIDI or DMX. Users can hook up their own devices for TCP, UDP or serial bus.

Scheduler / Timer / Trigger

For easy control of the data flow the system offers calendar-based events to automatize recurring events. Timers and triggers can be started and stopped dynamically and system runs can be automatized.

Folder Monitoring

Media files, such as audio-, image-, and video files can be automatically imported from folders with the option to generate sequences or playlists from the source folder and play them back right away.

Media Monitoring

All media content can optionally be monitored for changes and will be automatically updated. The files will be updated in both source and target systems where content is being played out or used further.

Templates

Any media clips including all keyframe animations can be used as a template for other clips. If parameters in the template change, any clips that the template refer to will be automatically updated.

VNC Viewer / Server

The system includes both a VNC viewer and server to grant remote access to the desktop.

NDI Output Streaming

The system supports NDI 5 for both input streaming and output
Streaming. Output streaming is being processed in the background independent from full screen video playout.