Case Study
Installation

THEATER VANEMUINE, Tartu, ESTONIA

Situated in the Estonian city of Tartu, Vanemuine Theater is the country's oldest theatre and first Estonian language facility, with its origins dating back to the late 19th century.

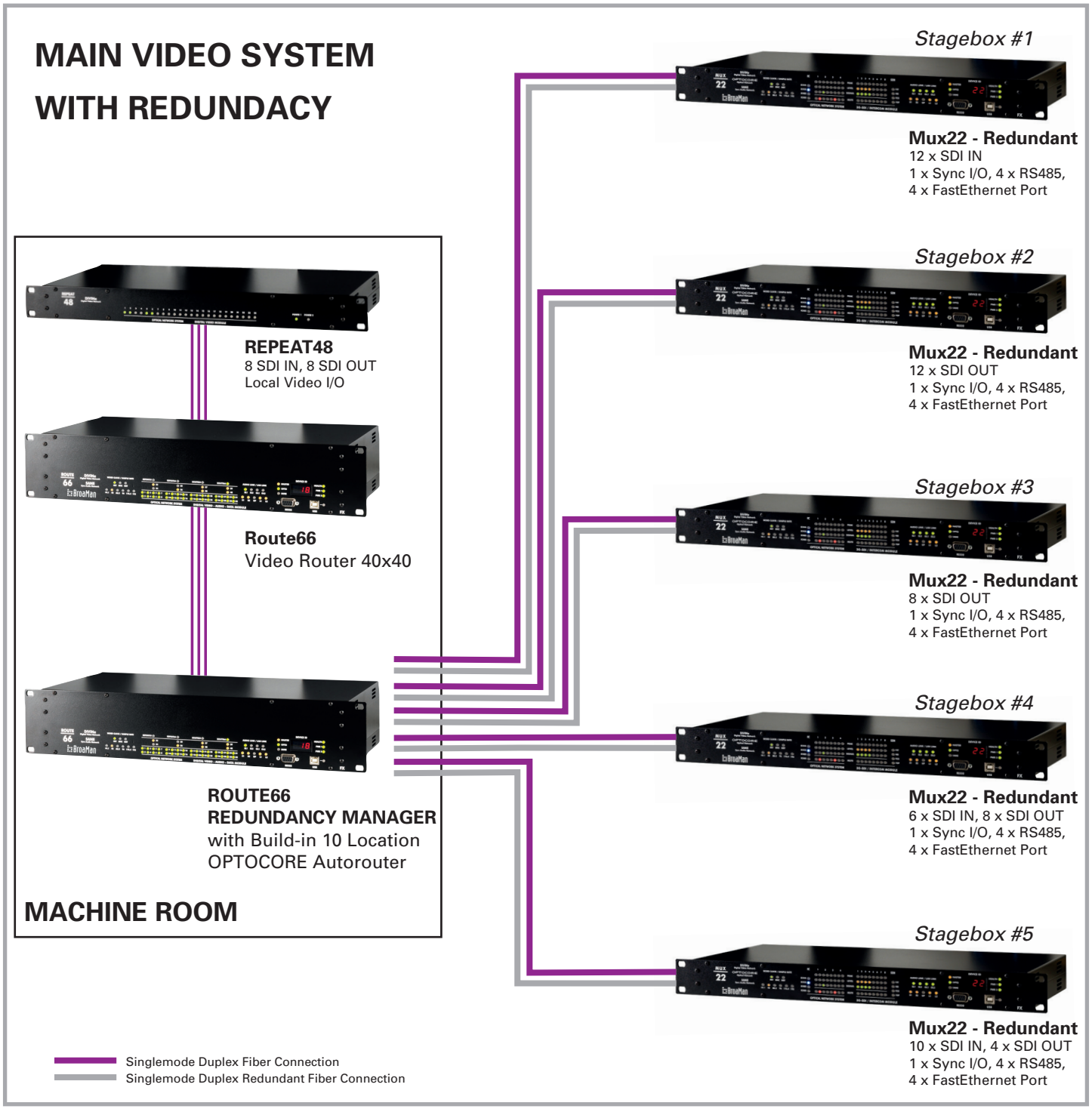
The facility comprises three venues, with the main hall seating 682, a small theatre holding 446, and a concert hall that seats 900. All genres are performed – from opera to classical drama, from musicals to children's plays, from modern ballet to symphony concerts.

Recently, Teater Vanemuine has undergone a complete renovation including a two-phase audiovisual makeover at the hands of long-standing German specialists, Amptown System Company (ASC). They worked with overall architects / engineers, Wibbeke & Penders, who in turn were guided by recommendations made by media consultant Dr. Reiner Chemnitius.

SYSTEM REQUIREMENTS

- Stagebox fiber-based system
- Transport of multiple 3G-SDI video
- Full automatic redundancy for all transported signals including video, audio and data
- Savings on power consumption
- Plug-and-play Stagebox connection

inquiry@broaman.com



SOLUTION

Under the project management of ASC's Jan Vandrei and Rüdiger Aue, the engineer responsible, the second phase was successfully implemented, and along with Dr. Chemnitius they constructed an advanced and extensive redundant fiber-optic networking system around components from BroaMan.

To ensure continuous smooth operation, a custom version of BroaMan's Route66 Redundancy Manager, which brings the capability of full automatic redundancy switchover between devices, was implemented. Specially designed for this project, and harnessing the power of Optocore, ASC have provided the theatre with the security of a completely redundant connection to all points of the system. In the event of failure, switchover takes place instantly, seamlessly and imperceptibly.

The fiber-optic audio transmission network is configured as a virtual ring network topology with auto-routing. The video and fiber-optic network is set out as a redundant, star-shaped network topology. This is an ultra-modern system equipped with high-definition signals for AV throughout at all patch boxes in the

theatre. It also enables access to 3G SDI video signals and is transmitted via a fiber-optic interface beneath the rotating stage. This provides connection points for all video sources throughout the entire stage area, in the galleries, including the fly tower.

The BroaMan video network includes a video matrix, with 36 inputs and 40 outputs for the distribution of high-definition video signals throughout the premises. At the same time, a stage management video system by BroaMan with 12 inputs / 22 outputs transmits video signals from the eight Panasonic AS-HE-130 full HD cameras and presentation monitors in the stage housing, so that images can be received in this area as well.

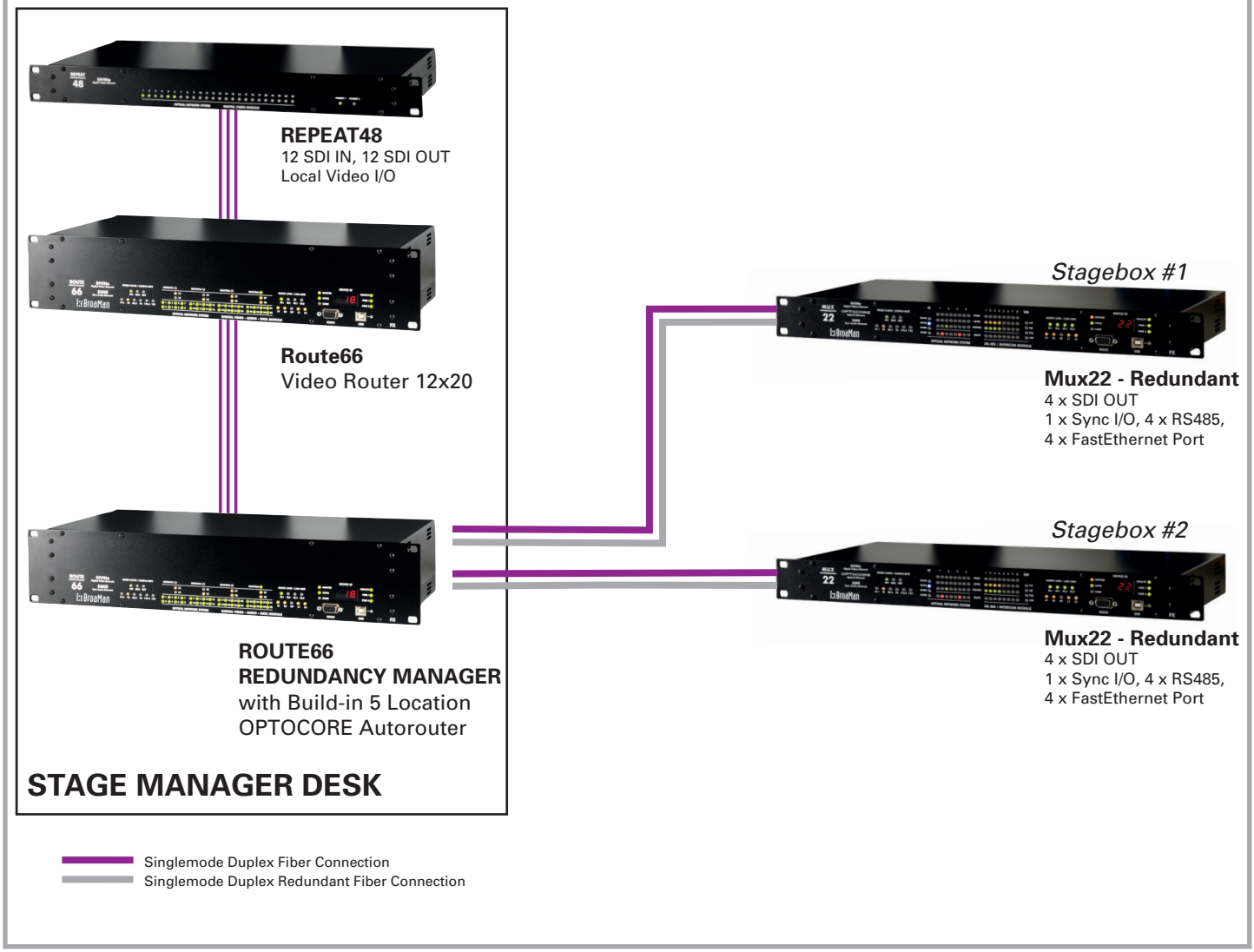
At the control end the theatre has invested in two DiGiCo digital mixing consoles and a redundant Waves server system with ProShow plug-in collection. A DiGiCo SD7 console running T software is used as the main console with an SD10 providing back-up in the control room. Both consoles are connected redundantly via a fiber-optic-based digital Optocore audio network, with connection at both FOH and production. These can be used in combination or independently. The Waves plug-in suite considerably expands the range of audio effects already stored in the mixing consoles, to satisfy the growing requirements of tonal representation by incoming sound designers.

There are numerous connection points for microphone inputs, and mobile DiGiCo stage boxes—DiGiCo SD racks and DiGiCo Mini racks—are used.

In fact, the Vanemuine Theater has over 700 inputs and the Optocore audio network can process 504 audio channels at 96 kHz. The DiGiCo consoles' software enable any number of the interfaces to be connected or disconnected. The ensemble regularly goes on tour, and as such, the mobile equipment is also used for guest performances at other locations.

The Theater has responded well to its modernisation which includes renewal of the entire power distribution measures for stage lighting, AV and IT technology. The transition from largely manual operation to highly complex, computer-aided control of stage machinery, stage lighting and audio and video technology has clearly evidential benefits and represents a quantium leap into the future.

STAGE MANAGER REDUNDANT VIDEO SYSTEM



The overall project included all facets of media technology: lighting, sound, video, communication, control and IT/network. It is also notable for the unusual system solutions evolved by ASC, in particular the modern video network and BroaMan fibre-optic network as a redundant star-shaped network topology.

Thanks to careful planning, diligent preproduction, a flawless installation and good onsite communication the transition was both quick and seamlessly.

KEY ADVANTAGES

- Full Automatic Redundancy with automatic switch over
- Redundancy for video & audio signals, as well as for build-in Fast Ethernet & Serial Data Transport
- 40 x 40 Non-blocking Video Matrix

SYSTEM COMPONENTS

BROAMAN Device	Localization	Functions
MAIN VIDEO SYSTEM		
Route66 Redundancy Manager	AV ROOM	Redundancy Manager with Build-in OPTOCORE Autorouter for 10 Locations
Route66 Video Router	AV ROOM	40 x 40 Video Router
Repeat48	AV ROOM	**8** x 3G-SDI IN, **8** x 3G-SDI OUT - Local Video I/O
Mux22-Redundant	Stagebox #1	**12** x 3G-SDI IN, SYNC I/O, Serial Data I/O
Mux22-Redundant	Stagebox #2	**12** x 3G-SDI OUT, SYNC I/O, Serial Data I/O
Mux22-Redundant	Stagebox #3	**8** x 3G-SDI OUT, SYNC I/O, Serial Data I/O
Mux22-Redundant	Stagebox #4	**6** x 3G-SDI IN, **8** x 3G-SDI OUT, SYNC I/O, Serial Data I/O
Mux22-Redundant	Stagebox #5	**10** x 3G-SDI IN, **4** x 3G-SDI OUT, SYNC I/O, Serial Data I/O
STAGE MANAGER SYSTEM		
Route66 Redundancy Manager	AV ROOM	Redundancy Manager with Build-in OPTOCORE Autorouter for 5 Locations
Route66 Video Router	AV ROOM	12 x 20 Video Router
Repeat48	AV ROOM	**12** x 3G-SDI IN, **12** x 3G-SDI OUT - Local Video I/O
Mux22-Redundant	Stagebox #1	**4** x 3G-SDI OUT, SYNC I/O, Serial Data I/O
Mux22-Redundant	Stagebox #2	**4** x 3G-SDI OUT, SYNC I/O, Serial Data I/O

BroaMan

BroaMan Broadcast Manufactur GmbH
Alte Allee 28, 81245 München-Pasing · Germany
Phone +49 89 899 964 – 60 · inquiry@broaman.com
www.BroaMan.com