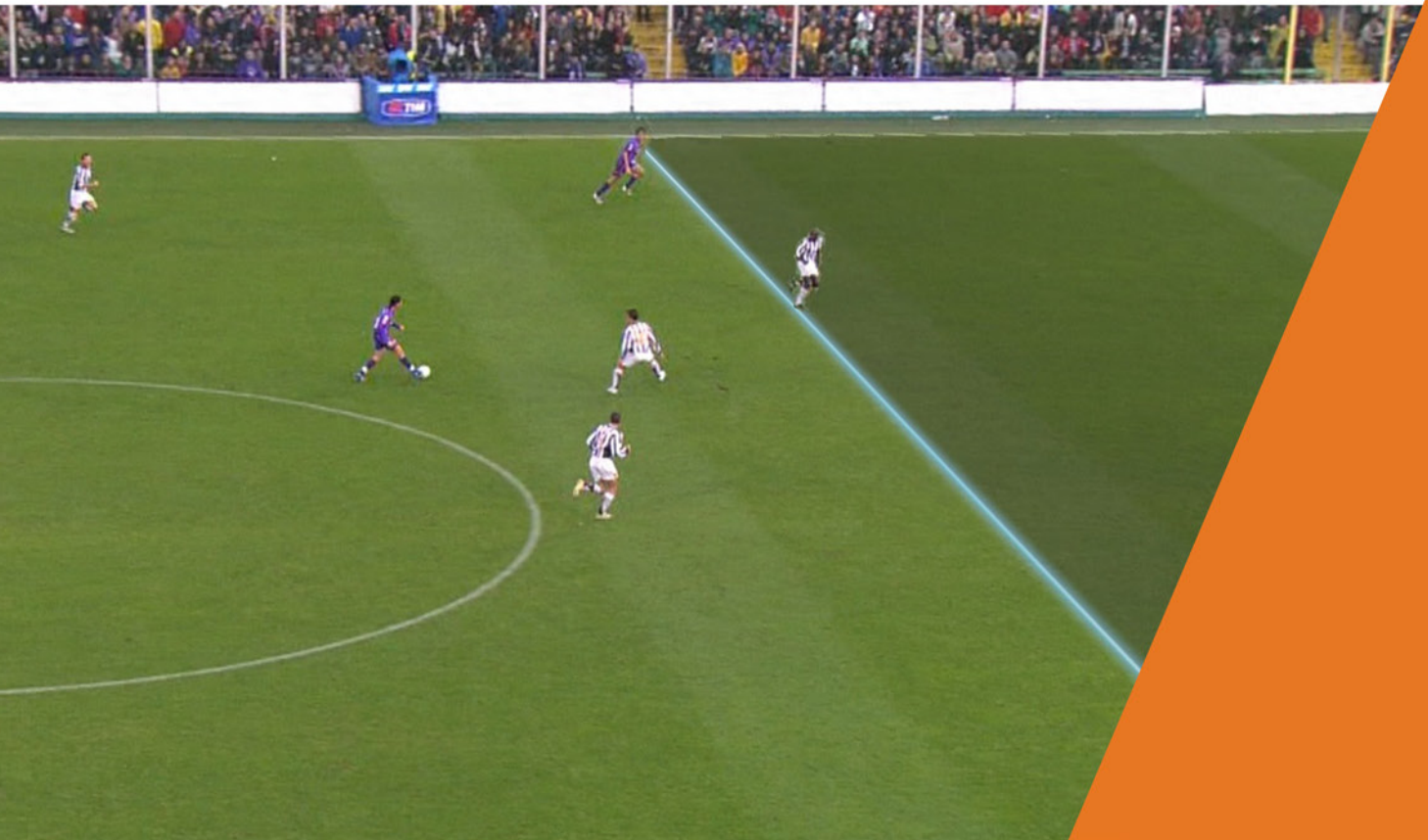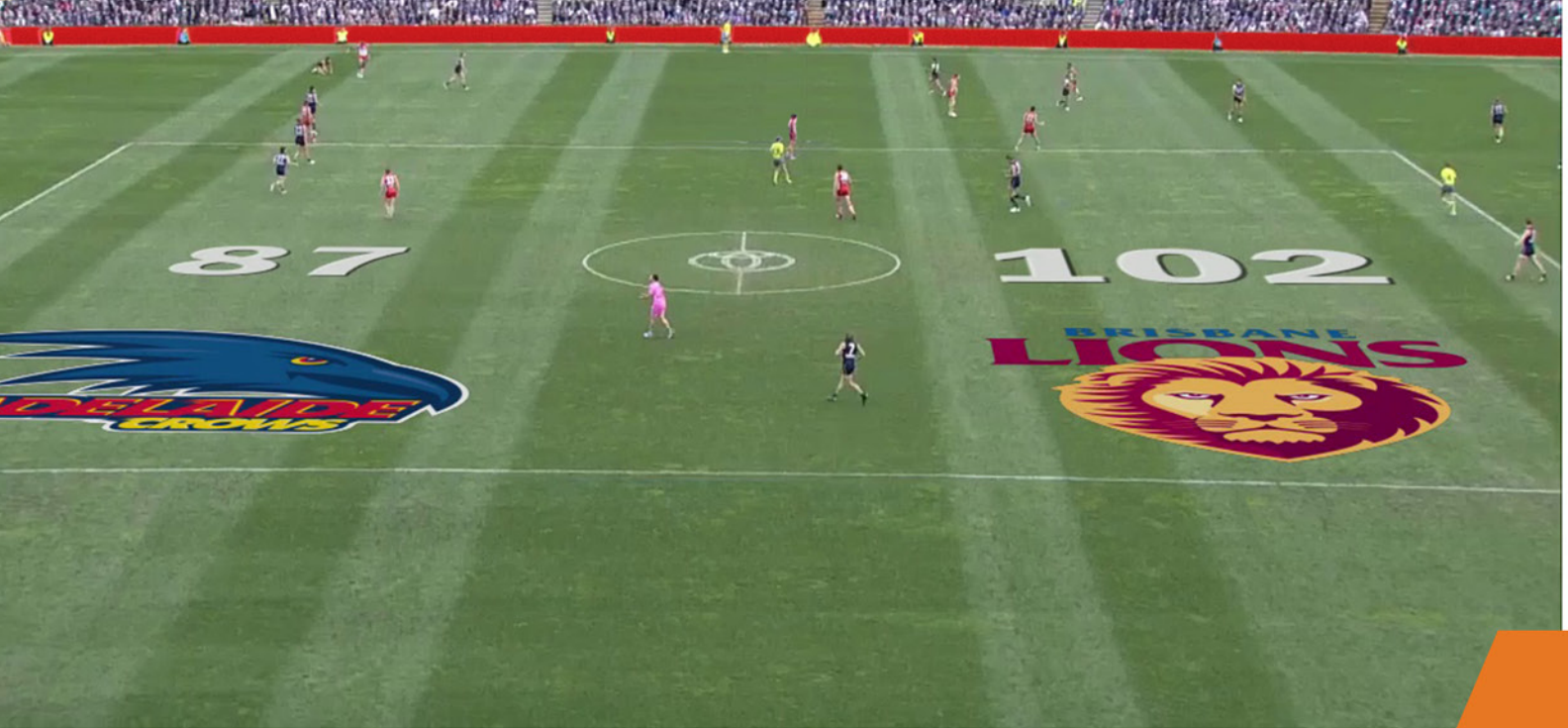# PIERO™
LIVE

REAL-TIME LIVE GRAPHICS

AT A GLANCE
PIERO Live is a real-time graphics system built on an industry-leading sports graphics and analysis engine. Designed for studio applications, the system adds sophisticated data visualizations and augmented reality elements in real time.

BUILT FOR BROADCAST
PIERO Live was created by broadcasters for broadcasters, and it engages audiences by using groundbreaking graphics and tracking technology to tell a clearer, more compelling story. With the PIERO Touch solution, presenters can interact with the graphics directly using touch screens while live on the air.

CUTTING-EDGE TECHNOLOGY
All graphics in PIERO Live are applied in real-time using optical tracking or third-party encoded camera solutions. Graphics can be customized freely, and workflow is optimized for speed. Additionally, the system offers full integration with leading third-party data providers.

SOCCER, RUGBY AND AFL PRODUCTIONS
In Soccer, graphics for offside lines, laser offside walls, free kick circles, and distance to goals can be pushed to air in seconds. For Rugby, try conversions frequently rely on the distance to posts, and AFL productions can take advantage of graphics like mark and kick, live scores, and distance to posts.
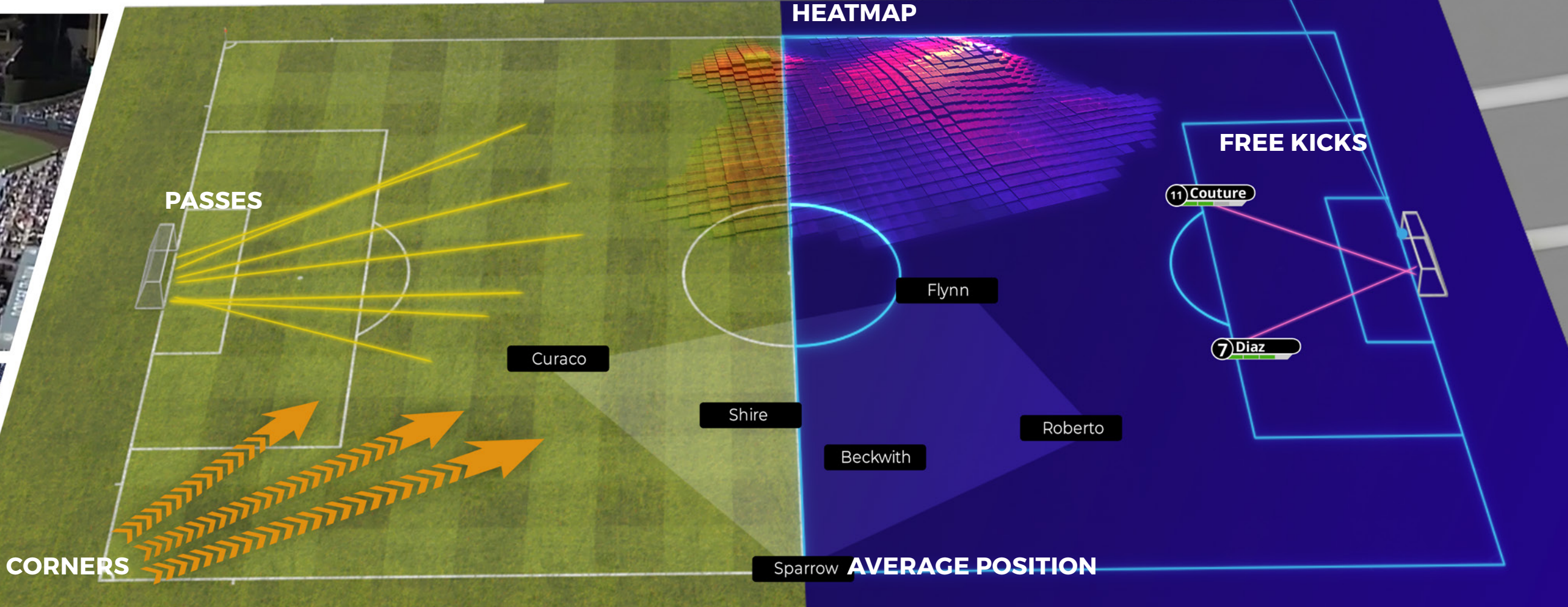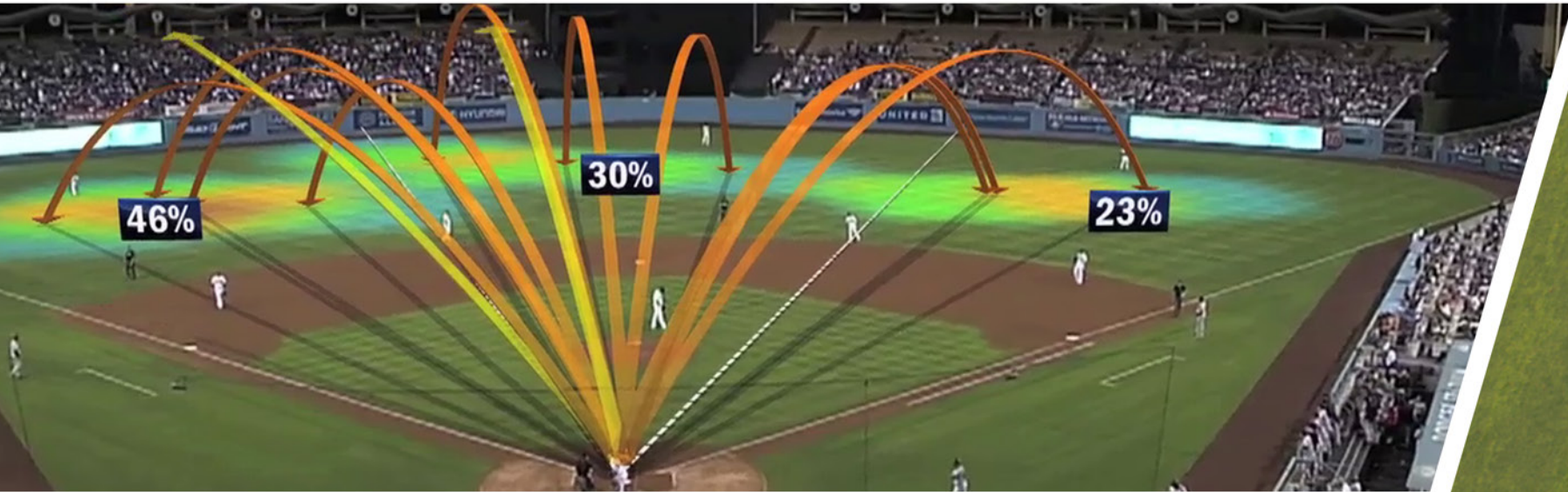
BRINGING DATA TO LIFE

ADVANCED ANALYSIS
Using PIERO's powerful graphics engine, PIERO Live creates 2D and 3D real-time visualizations in the studio and on top of live footage. The graphics provide rich insights into the patterns of play by teams and individual players, which creates more opportunities for on-air game analysis.

DATA VISUALIZATION
PIERO Live is compatible with market-leading third-party data providers, including OPTA, TracAB, 2nd Spectrum, STATS and StatCast. Events and live data can be used in real time, in the studio and at the venue. PIERO's remote API is also open to data science teams, and this allows for easy integration of any geo-based data or custom datasets.

EVENT GRAPHICS
Geo-based event data can be ingested via PIERO's open remote API or using the PIERO Data module for fast data parsing and filtering. Some examples of data-based event graphics include pass maps between players, shots on goal, free kicks, heatmaps, historical shot maps, touch maps, attack profiles, line-outs and corner kicks.

SHOTS ON GOAL

46% 30% 23%

Touch Map

HEATMAP
PASSES
FREE KICKS
11 Couture
Flynn
7 Diaz
Curaco
Shire
Roberto
Beckwith
CORNERS
Sparrow AVERAGE POSITION
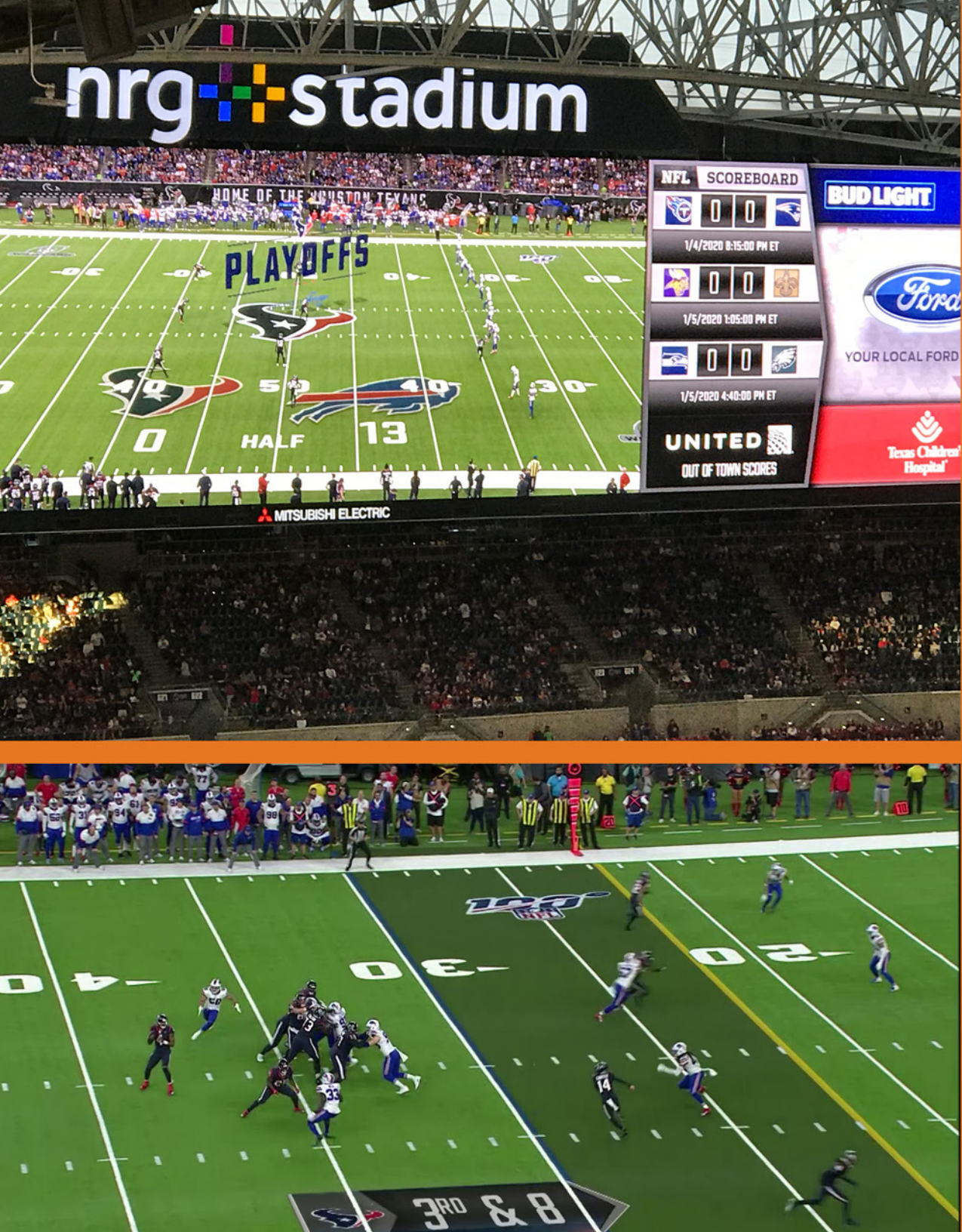
STUDIO AUGMENTED REALITY

PIERO Live can overlay graphics on the studio floor and on the table in front of presenters. The system's real-time engine allows for live interaction with augmented reality visuals with an iPad or touchscreen.

By displaying data in the studio, this reduces the need to cut to pre-rendered full screen clips. The non-scripted and interactive workflow is reactive to the presenter's analysis.

PIERO Live for Studios requires a third-party mechanical camera head to function. The system offers direct compatibility with NCAM and Stype protocols. Other manufacturers, such as Mo-Sys, Motion Analysis and Furio, are compatible through the Ross UX VCC translation layer.

DOWN & DISTANCE

AT A GLANCE

PIERO Live offers a broadcast-quality Down & Distance (1st & 10) solution for American Football which supports field crowning, lens distortion and adjustable keying.

The solution works with both optical and mechanical camera tracking and offers an operator workflow that has been engineered for maximum flexibility and simplicity.

Graphics including feather, lines, play clock, 3rd down fill, field goal target line and red zone are easily user-customized and can be tied to existing scoreboard data feeds. Adding graphics for virtual advertising is as simple as importing logo files.

INTERNAL KEYER

3 INPUTS, 1 OUTPUT
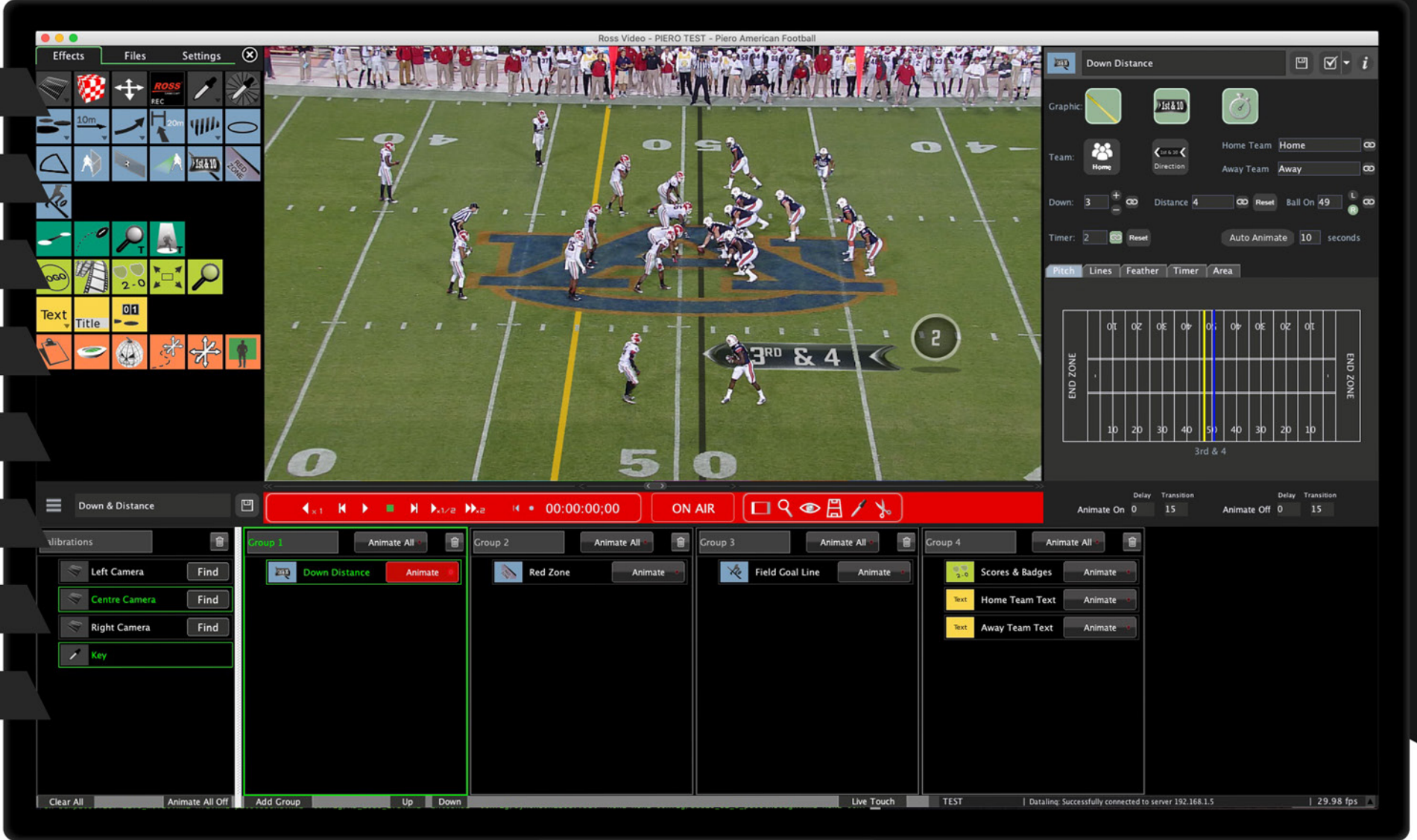
GHOST PREVIEW BEFORE EFFECT ANIMATION

REMOTE INPUT SELECTION VIA THE ROSSTALK PROTOCOL

GROUP ANIMATION

RED ZONE AND FIELD GOAL LINE INSERTION

PLAY CLOCK INSERTION

PITCH CROWN DEFORMATION SUPPORT

SPECIFICATIONS

PIERO Live operates on a single 2RU server. The system connects to a tracked camera feed over TCP/IP or uses its own optical tracking algorithm to track camera movements. It is UHD capable and burns the effects on the SDI output (no Key and Fill). Third-party data can be accessed from the internet. Data filtering and graphics are controlled by the PC software operator.

WE PROVIDE

HARDWARE

2RU server with Nvidia Quadro and AJA card running on Linux CentOS. 5+ years product lifecycle.

SOFTWARE

PIERO Live is based upon the PIERO Broadcast engine with Live mode workflow only.
It requires a licensed USB dongle to run.

DATA MODULES

Data feed reader and visualization filter. PIERO Live is compatible with OPTA, TracAB, STATS, StatCast, DataLinq, and NextGen. Subscription to data feed not included.

OPTICAL CAMERA TRACKING

This solution offers a 3in 1out up to 12G SDI UHD. The operator controls and renders 1 SDI feed at a time. Camera tracking is based on PIERO internal texture tracking algorithm co-developed with BBC R&D. This solution offer easy deployment, minimum setup time and cost efficiency.

ENCODED CAMERA HEADS

PIERO Live supports NCAM and Stype protocols straight out of the box. Other manufacturers are compatible through Ross Video UX VCC. Using camera heads provide an increased tracking reliability and faster camera selection.

TYPICAL CONFIGURATION IN THE STUDIO

This diagram shows a typical AR configuration using the Stype camera tracking kit.

TYPICAL CONFIGURATION IN VENUE

MOTION GRAPHICS

XPRESSION | Single, Triple, UHD Flex, Prime, Go!, Designer, Developer
XPRESSION CLIPS
XPRESSION TESSERA
XPRESSION MAPS
XPRESSION TELESTRATE
XPRESSION TOUCH FACTORY
XPRESSION BRAND IT
PIERO | Sports Analysis Graphics

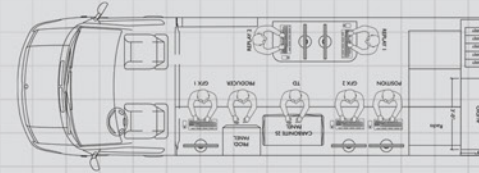## CREATIVE SERVICES

ROCKET SURGERY | Graphics Creation

RSVP
ROCKETSURGERY
VIRTUAL PRODUCTIONS
ROSS CREATIVE & PROFESSIONAL SERVICES

STUDIO IN A BOX

GRAPHITE | All-in-One Live Production Vehicle

2RU
4RU

GRAPHITE

OPENTRUCK
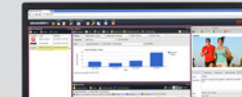
OPENTRUCK | Flight Case through 40-foot Truck

PRODUCTION SERVICES

ROSS MOBILE PRODUCTIONS

ASSET MANAGEMENT & STORAGE

STREAMLINE | Standard, Enterprise, Graphics
STREAMLINE.CLOUD
STREAMLINE NEWS VIDEO SUITE | MAM, Storage & Playout for News
EVO | Networked Storage

MULTI-SCREEN IMAGE PROCESSING

CARBONITE MOSAIC

CARBONITE BLACK

CAMERAS

ACID CAMERA | H200-UCHR, Z50-UCHR
PIVOTCAM | PivotCam SE

CHROMA KEYING

ULTRACHROME HR

CARBONITE BLACK

* Carbonite Black Chassis with UltraChrome HR Software

INFRASTRUCTURE

SIGNAL PROCESSING
OPENGEAR | Modular Signal Processing, OGX Frame
MASTER CONTROL | MC1 openGear Card, MC1 Panel
NIELSEN | Watermarks Encoder
GATOR | 12G UHD Signal Processor
RAPTOR EDGE | IP Gateway & Processor
GEARLITE | Point of Use Signal Processing

NEWT | IP Point of Use Gateway
MASTER SYNC & REFERENCE | SRG-2200, SRG-4400, ACO-4400
AUDIO MONITORING | MB 651, MB-652

CONNECTIVITY
ULTRIX 12G & IP ROUTER | 16x - 144x
NK ROUTER | 16x4 -144x144
ULTRITOUCH | Touch Screen Control
ULTRICORE BCS | Advanced Connectivity System Controller

ULTRICORE IP | IP Controller License for Ultricore BCS
PRO-XI | Workstation Integrator

Ultrix

NEWS & SOCIAL MEDIA

INCEPTION NEWS | Academic, Express, Standard, Enterprise
INCEPTION LIVE
INCEPTION SOCIAL
INCEPTION.CLOUD
HORIZON

CONTROL SYSTEMS

OVERDRIVE | Express, Prime, Premium
DASHBOARD | Facility Control
LIGHTNING | Assembly Control
ULTRITOUCH | Touch Screen Control
POWERPLAY | Event Control System

IP TECHNOLOGY

OEM PRODUCTS | Market Ready Modules & System-on-Chip
IGGY | Bidirectional AES67 & ST2110 to MADI converter
BACH | ST2110 AES67 Audio Networking Module

VIDEO SERVERS, REPLAY & DELAY

MIRA+ | Enhanced Replay System
TRIA+ | Enhanced Production Server
TRIA NEWS | News Clip Server
AIRCLEANER | Live Events Delay

MIRA EXPRESS | Replay System
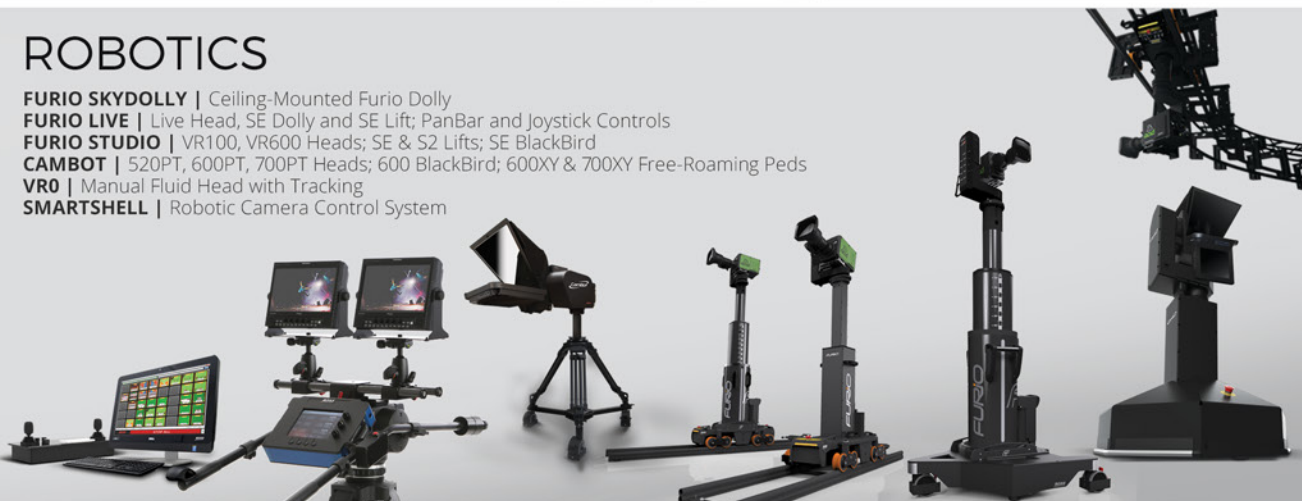**TRIA EXPRESS** | Video Clip Server – new 1080P version

ROBOTICS

FURIO SKYDOLLY | Ceiling-Mounted Furio Dolly
FURIO LIVE | Live Head, SE Dolly and SE Lift; PanBar and Joystick Controls
FURIO STUDIO | VR100, VR600 Heads; SE & S2 Lifts; SE BlackBird
CAMBOT | 520PT, 600PT, 700PT Heads; 600 BlackBird; 600XY & 700XY Free-Roaming Peds
VR0 | Manual Fluid Head with Tracking
SMARTSHELL | Robotic Camera Control System

VIRTUAL & AUGMENTED REALITY

TRACKLESS VIRTUAL
UX5 | Control System & Workflow
VOYAGER | EPIC Unreal Engine 4 ARVS Renderer

PRODUCTION SWITCHERS

ACUITY | Panel: A1s, A2m, A2x, A3m, A3, A4 Frame: 4RU, 8RU
CARBONITE BLACK | Panel: C1, C1s, C2, C2s, C3s, C3x Frame: 2RU
CARBONITE BLACK PLUS
CARBONITE BLACK PLUS 12G
CARBONITE BLACK SOLO
CARBONITE BLACK SOLO 13
CARBONITE ULTRA
ACUITY & CARBONITE IP SOLUTION

CARBONITE

PIERO™ LIVE

Ross Video has a complete range of technical services available to ensure that your PIERO installation is a success.

Operational Training can be provided at Ross Video, on-site, or on the web. Experienced Ross operators will teach your staff to get the most out of your new system and enhance your productions.

Commissioning is a service to help get your production system properly configured, connected, and installed. This service is performed by factory-trained Ross technical staff.

Technical Training can be provided at Ross Video, on-site, or over the web. Technical training will teach your engineering staff the technical details of the system you have purchased. System configuration, interfaces, databases, and routine maintenance procedures are some of the topics covered.

PIERO comes standard with a 1 year comprehensive warranty. Extended Warranties on hardware and software maintenance are available for an annual fee.

Technical advice is available on-line, by telephone, or email to Ross Video – Included for the life of your system.

Contact Us

Global: +800 1005 0100
North America: 1-844-652-0645

Email: solutions@rossvideo.com

Technical Support
Emergency: +1 613 349-0006
Email: techsupport@rossvideo.com

www.**rossvideo**.com

ROSS VIDEO LIVING LIVE!

SOLUTIONS
Broadcast & Production
Augmented Reality & Virtual Sets
Sport & Live Events
Legislative
Mobile Production
House of Worship
Education
Corporate

PRODUCTS
Production Switchers
Motion Graphics & Clip Servers
Replay & Production Servers
Robotic & Camera Systems
Control Systems
Routing Infrastructure
Signal Processing Infrastructure
News, Live & Social Production Management
Asset Management & Storage

SERVICES
Creative Services
Mobile Production

ROSS®
LIVING LIVE!