LIVING LIVE WITH ROSS

Q3 2022

Revision 1.8

ROSS®

WE ARE ROSS

- Corporate Overview and Culture ▷▷▷|

- Living Live with Ross – Our Clients ▷▷▷|

- Spotlight on Products & Services ▷▷▷|

- The Ross Commitment ▷▷▷|

Servus TV (Red Bull Media House) Control Room, Salzburg, Austria

ROSS®

A PASSION FOR
LIVE PRODUCTION

- Ross creates technology, solutions and services for the live production industry

- Ross has a unique position in the industry thanks to our focus, and the breadth and depth of our portfolio

- Ross solutions enable customers to develop *High Impact, High Efficiency* live productions

Ross, Technology deployed in the LED Control Room for 86th edition of the NFL Draft

ROSS®

THIS IS WHO WE ARE

Privately Owned, Founded in 1974

Majority Owned by David Ross

422 Employee Shareholders

Self Funded & Net Debt Free

Revenue > $300M

Revenue Growing at 17% (CAGR)

David Ross, President and CEO

ROSS®

THIS IS WHO WE ARE

DOING BUSINESS IN

100+ COUNTRIES EVERY YEAR

$TOP Rated*
- Value For Money
- Great Customer Service

Top 3 Ross Video Word Associations*
Innovative   Leader   Reliable
*Source: Devoncroft Big Broadcast Survey

20 GLOBAL OFFICE LOCATIONS

Ottawa
Iroquois
London - Reading
London - White City
Singapore
Virginia
Kanata
Sunnyvale
Sydney
Fort Lauderdale
Beijing
Melbourne
Salt Lake City
Connecticut
Toronto
Miami
Rancho Cordova
Frankfurt/Salzberg/Atlanta

1300+ EMPLOYEES

LIVE PRODUCTION
Technology & Services

ACQUISITIONS IN 14 YEARS

19

1) Media Refinery – Graphics
2) Norpak – Data and Ratings Insertion
3) Codan Broadcast – Routers
4) FX Motion – Robotic Cameras
5) Cambotics – Robotic Cameras
6) Montalto – Routers
7) MCP – Mobile Production Services
8) ADS – News Room Computers
9) Unreel – Virtual Set Technology
10) Rocket Surgery - Creative Services
11) Coveloz – IP Technology
12) Abekas – Video Servers & Replay
13) Portalis – Workstation Integrator
14) Piero – Sports Graphics Analysis
15) Coiron – XPression Applications
16) Image Video – Tally Control Platform
17) Primestream – Asset Management
18) D3 LED – Integrated LED Experiences
19) Spidercam – Cable Camera Systems

9 VERTICAL MARKETS

SPORTS · NEWS · ESPORTS · GOVERNMENT · CORPORATE
ENTERTAINMENT · HoW · EDUCATION · LIVE EVENTS

ROCKET SURGERY
ROSS CREATIVE & PROFESSIONAL SERVICES

100+ CUSTOMER PROJECTS A YEAR

PRODUCT & SERVICE CATEGORIES

28
Graphics, Camera Robotics, Production Switchers, Signal Processing, Routers, Master Control, Automated Production, Facility Control, Virtual & Augmented Reality, Creative Services, Mobile Production Services, Cameras, Video Servers, Replay Systems, Media Asset Management, News Room Editorial Systems, Social Media Media Management, Venue Signage System, MultiViewers, Media IP Technology, LED Video Processors, Studio-In-A-Box, Workstation Integration, Sports Analysis, Tally Systems, Remote Production Cloud, LED Displays, Cable Camera Systems

ROSS PRODUCTION SERVICES

500+ EVENTS A YEAR

180,000 Sq.ft
2 MANUFACTURING FACILITIES

ROSS

OUR PHILOSOPHY

- The Ross Corporate Code of Ethics is well known in the industry and guides our team in their interactions with the world around us, starting with #1: 'We will always act in our customer's best interest'

- Ross is recognized for having a strong corporate culture. We are well known as being a great company to work for and to do business with

ROSS®

OUR **MISSION** OUR **VISION**

- Vision

  To Lead the World in Live Production Solutions

- Mission

  We Make Cool Practical Technology

  We Provide a Superior Customer Experience

Atlanta Braves – Truist Park. Ross technology powers the total **Venue Control System**. It is used to seamlessly trigger all displays and devices and to integrate closed captioning and emergency messaging.

ROSS

EXPERIENCED STABLE LEADERSHIP

Jeff Moore
Executive Vice President &
Chief Marketing Officer,
Vice Chair of the Board

David Ross
CEO & Chairman of the Board

Troy English
Chief Technology Officer
& SVP Product
Development

George Angus
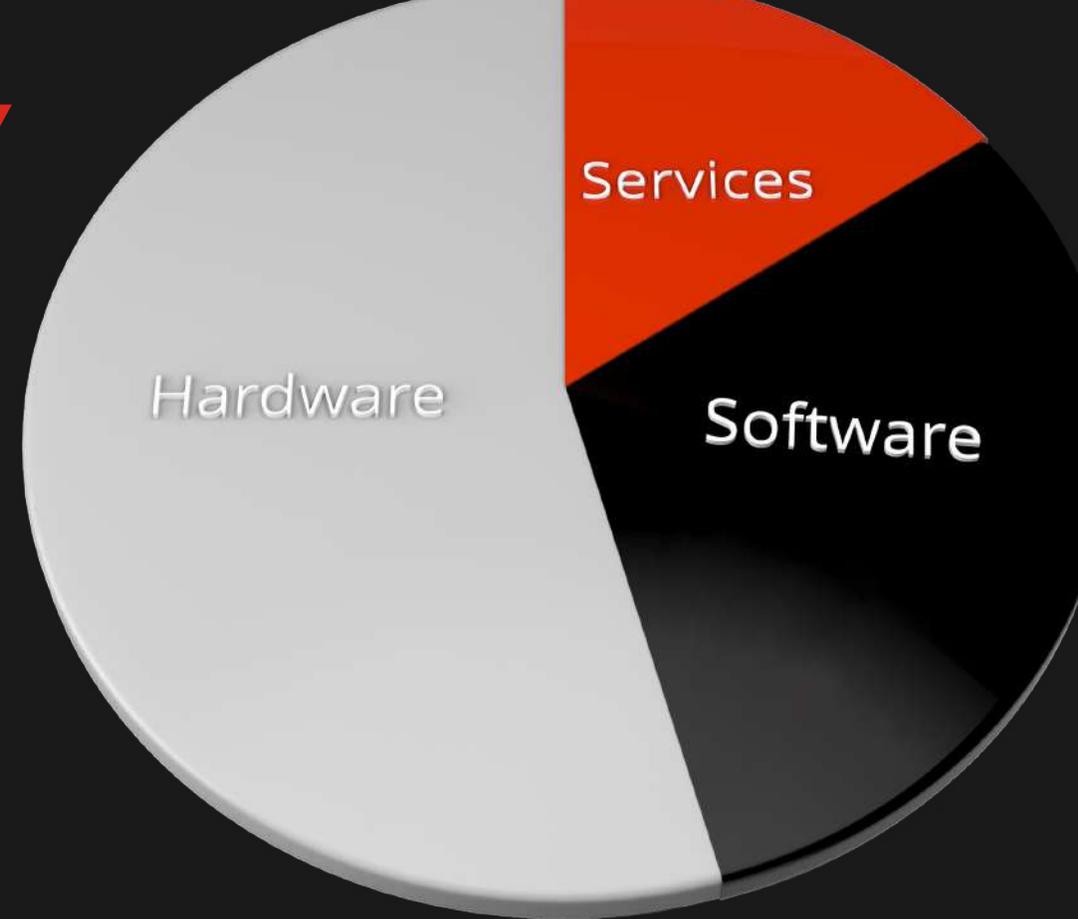Chief Financial Officer

Jeff Poapst
Chief Manufacturing & Services
Officer

ROSS®

RESILIENCE THROUGH DIVERSITY

- Market Vertical Diversity
- Geographic Diversity
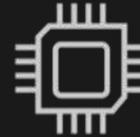- Product Diversity
- Technology Diversity
- Staff Diversity

Services

Hardware

Software

ROSS®

Connectivity

Processing

Deployment Models

SMPTE ST 2110

JPEG xs

NDI **12G SDI**

NMOS WebRTC SRT SECURE RELIABLE TRANSPORT

CPU

GPU

FPGA

On-Premises

Hybrid

Cloud

DIVERSE EXPERTISE

- The Ross Workflow & Technology R&D Roadmap is Customer Driven

  ► Committed to SDI (12G), IP and streaming standards

  ► Industry leader in GPU, CPU, FPGA processing technologies

  ► Customer-driven deployment models

  ► Open standards focus – NMOS, 2110, AES67

  ► Technology Innovation -AI

ROSS®

OUR CUSTOMERS AND OUR VERTICAL MARKETS

Broadcast, Corporate, Education, Worship, Entertainment, Government, Stadiums, Esports

LIVING LIVE WITH ROSS

@ [NEWSNATION]

- Ross technology enables easy on-set display workflow for the National Super Channel, Chicago, Illinois, USA

- Ross Products & Services

  ▶ Acuity, OverDrive, CamBot, XPression, Tessera and Mosaic

On-set Display Workflow for the National Super Channel, Chicago, Illinois, USA

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LIVING LIVE WITH ROSS

@ SoFi Stadium

- Ross technology deployed in Control and Display Control Rooms. It powers the Oculus (center hung LED screen) at the SoFi Stadium, Los Angeles, California – home of the LA Rams, LA Chargers, and LA Bowl

- Ross Products & Services

  ▶ Acuity running UHD/HDR HLG2 (primary and redundant), XPression(s) UHD IP, XPression Tessera Display Control, Ultrix FR5s 12G, Frames, Gator Toolbox Cards, DAs, DashBoard, Inception Social

Control Room and Oculus LED Display
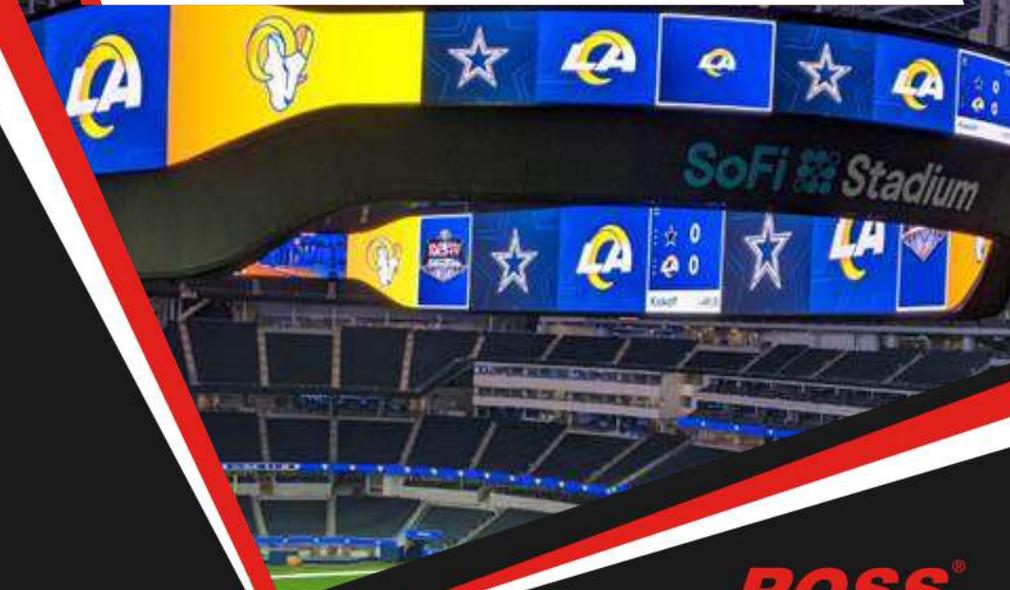
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LIVING LIVE WITH ROSS @ vtm

- Ross technology used to create a stunning gallery designed for motion at VTM, Flanders, Belgium

- Ross Products & Services

  - ► Multiple Furio(s) robotic pedestals on integrated painted tracks that are custom made at the Ross factory

  - ► Lucid Studio, a highly flexible and customizable control platform designed for virtual productions

Stunning Gallery Designed for Motion

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ROSS®

LIVING LIVE WITH ROSS
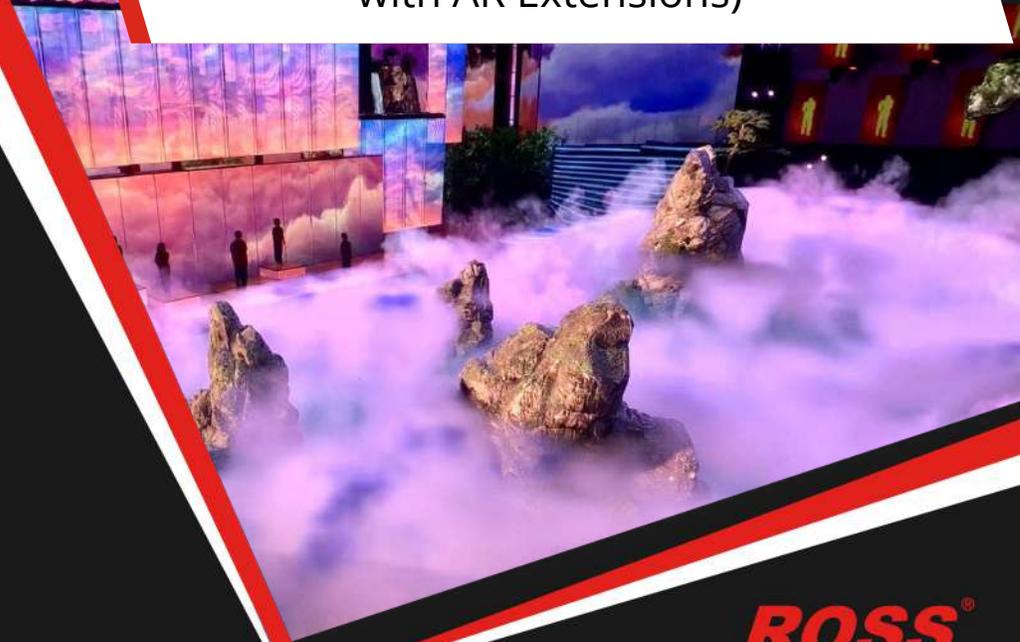
@ CCTV

- Ross technology used to wow the world's largest TV audience during the 2021 New Year's show by CCTV, Beijing, China

- Featuring extensive coverage in HDR 12G UHD including multiple animated graphics and augmented reality sequences

- Ross Products & Services
  - ▶ 1st Voyager XR (Extended Reality) user

Extended Reality (LED Floor and Walls with AR Extensions)

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LIVING LIVE WITH ROSS

@ Red Bull MEDIA HOUSE

- Ross technology used in a complete refurbishment of the studio gallery to enable production automation, and extended reality (XR) for greater creativity and efficiency at Servus TV, owned by Red Bull Media House, Salzburg, Austria

- Virtualized Inception NRCS with customer created integration points

  ▶ XPression MOS, Tessera for Onset Displays, XPression Maps, Voyager, HTML5 plugin, Streamline Enterprise, OverDrive, Carbonite Furio, Mosaic and Tria News

Servus TV (Red Bull Media House) Control Room

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LIVING LIVE WITH ROSS @ Google

- Ross technology creates an immersive experience for Google staff and stakeholders at their Event Centre, Pier 57, New York City, USA

- Ross Products & Services
  - ▶ 12G Distributed Ultrix, Acuity, Carbonite, XPression, openGear, & DashBoard

Google Event Centre, Pier 57

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LIVING LIVE WITH ROSS

@ passion city church

- Ross technology creates an immersive experience for Passion City Church, Passion Conferences in Atlanta, GA / Cumberland, GA / Washington, D.C., USA

- Passion City Church also produces Passion Conferences that are multi-venue and global, pushing the limits for production and transmission

- Ross Products & Services

  - ▶ Carbonite Black and Ultra, Ultrix, Tria, XPression & DashBoard

Leaders in Messaging and Creative Production

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LIVING LIVE WITH ROSS

@ [CITY OF SAN ANTONIO TEXAS logo]

- Ross technology brings openness and accountability to the City of San Antonio, Texas, USA

- The City of San Antonio deployed four systems for various rooms and functions, including the main council chamber for televised legislative meetings

  ► Single operator workflow!

- Ross Products & Services

  ► Lightning Control System, Carbonite, XPression, CamBots, DashBoard

CITY COUNCIL MEETING
MIKE GALLAGHER
DISTRICT 10
www.sanantonio.gov

Leader in Legislative Production Solutions

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ROSS®

LIVING LIVE WITH ROSS

@ 1GC
INCHEON GLOBAL CAMPUS

- A full Ross solution is deployed by ICG Incheon, Korea to deliver outstanding educational courses for Editorial and Television Production

- Certification process via collaboration with Ross
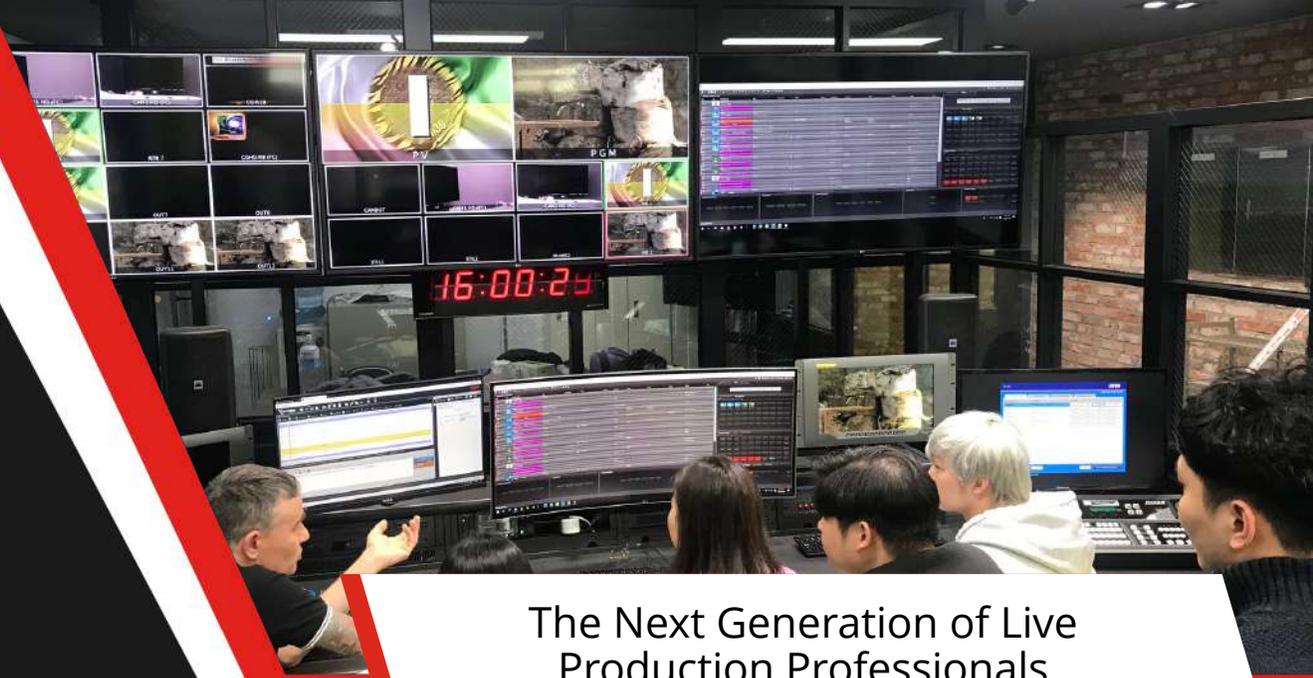
The Next Generation of Live Production Professionals

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LIVING LIVE WITH ROSS

@ **NFL DRAFT**

- The Ross LED Control Solution and Kiva Presentation Server were used at the 86th Edition of the NFL Draft, held in Cleveland, Ohio, USA

- Ross Products & Services

  ▶ Ultrix, Ultritouch, Mosaic, XPression Tessera, DashBoard, XPression Studio, and Kiva are all being used to drive more than 50M pixels of LED on the main stage

Ross Technology Used in the LED Control Room for 86th Edition of the NFL Draft

ROSS®

SPOTLIGHT ON SERVICES

- **Ross Professional and Support Services** Team provides a complete range of local support for clients looking to get the most out of their Ross technology

- **Ross Production Services (RPS)** produces over 500 events per year for organizations like ESPN, NBC, Fox, ACC Network and SEC Network

- **Ross Rocket Surgery Design Services** offer cutting edge motion graphics design, virtual set design with custom panel control and data integration

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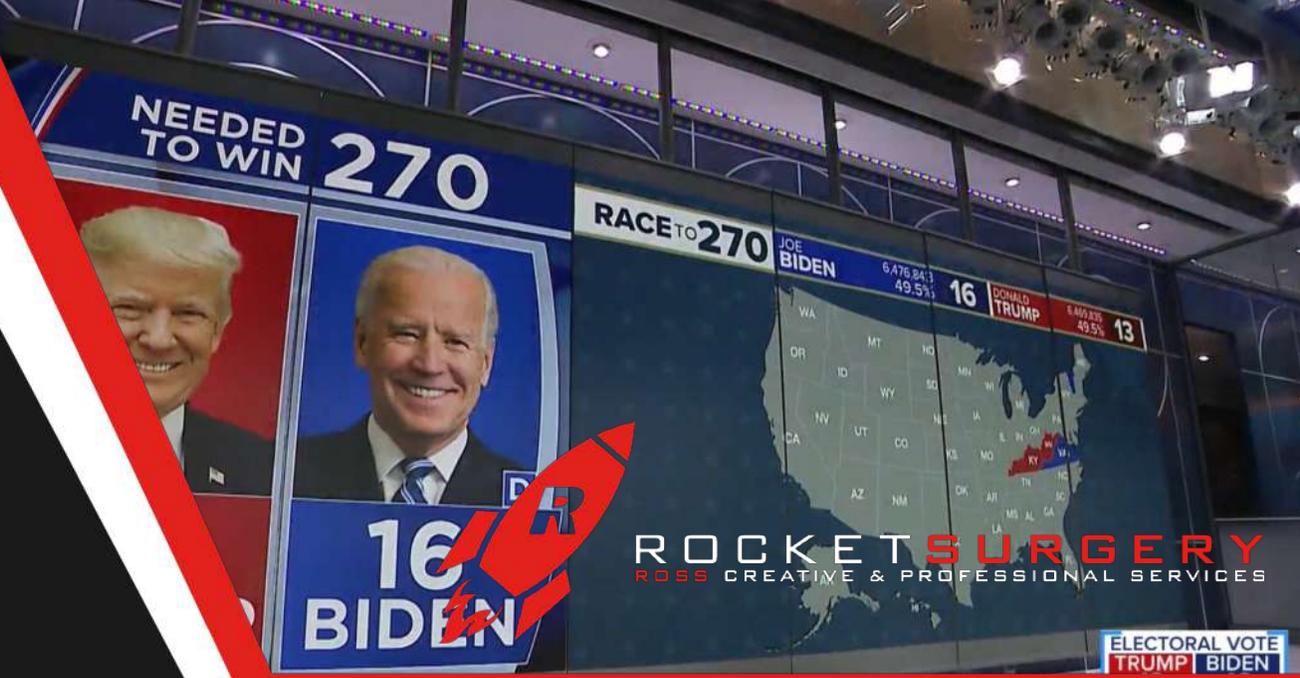
MOTION GRAPHICS

XPRESSION | Single, Triple, 4K UHD Flex, Prime, Go!, Designer, Developer, Remote Sequencer
XPRESSION CLIPS
XPRESSION ELECT IT
XPRESSION MAPS
XPRESSION TICK IT
XPRESSION TELESTRATE
XPRESSION TESSERA | Multi-Screen Processing
XPRESSION TOUCH FACTORY

1RU, 2RU & 4RU

PIERO | Sports Analysis Graphics
PIERO BROADCAST
PIERO BROADCAST FILE
PIERO CLUB
PIERO LIVE | Soccer, Rugby, AFL and NFL Productions

VIDEO SERVERS

PRODUCTION
TRIA EXPRESS DUET
TRIA+
TRIA+ UHD

PRESENTATION
KIVA+

REPLAY
MIRA Express
MIRA+

PROTECTION DELAY

AIRCLEANER-2

HYPERCONVERGED SOLUTIONS

NK | Cost-effective, high-performance router
ULTRIX | UHD and IP routing, multiviewers, A/V signal processing
ULTRIX FR12 | Larger-scale Hyperconverged Solutions with Smart Door
ULTRICOOL | Smart, directional 1RU rack mount cooling system
ULTRICORE | Fully featured connectivity control system
ULTRITOUCH | System control and monitoring panel

OPENGEAR | Modular signal processing
MASTER CONTROL SWITCHERS | Master control and branding
IGGY | AES67 and ST 2110 AUDIO BRIDGE platform
NEWT | COMPACT UHD-OVER-IP SDI / HDMI CONVERTER
RAPTOR | ST 2110 Gateway
TALLY CONTROL | Signal tracing and monitoring
MASTER SYNC GENERATORS | system timing solutions
AUDIO MONITORING BRIDGES | 1RU and 2RU monitoring tools
KVM SYSTEMS AND PRO-XI | Command and control centers solutions
GEARLITE CONVERTERS | SDI and fiber mini converters
AUDIENCE MEASUREMENT | Audience engagement measurement

ACQUISITIONS, TRANSCODE & PLAYOUT

MEDIA I/O |
Software Based Capture,
Playout and Transcoding

SOFTGEAR |
Software Microservice
Media Processing Platform

PRODUCTION TECHNOLOGY & SERVICES

VIRTUAL PRODUCTION SOLUTIONS

LUCID STUDIO |
Control System & Workflow

VOYAGER |
EPIC Unreal Engine 4
ARVS Renderer

CAMERA MOTION SYSTEMS

PAN AND TILT HEADS | X300, X350, VR0, VR100, VR600, 520PT, 600PT, 700PT
BLACKBIRD | C2, S2 and SE Elevation Systems
CAMBOT | 600XY-S2, 600XY-S3, 700XY Free-Roaming Pedestals
FURIO | SE Studio & SE Live Floor Rail Systems, and SkyDolly Ceiling-Mounted Rail Systems
SMARTSHELL | Robotic Camera Control System
VISION[AI]RY | Facial Tracking [Fr] System
ACID CAMERAS | Z50-UCHR, H200-UCHR
PTZ CAMERAS | PTZ-12G, PTZ-NDI
SPIDERCAM | Cable-suspended camera system

ASSET MANAGEMENT & STORAGE

PRIMESTREAM | Video Asset Management
STREAMLINE | Graphic Asset Management
EVO | Networked Storage

NEWS & SOCIAL MEDIA

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

SERVICES

ROSS PRODUCTION SERVICES |
Live Event Productions & Rentals

ROCKET SURGERY |
Graphics Creation

CONTROL SYSTEMS

OVERDRIVE | Automated Production Control
DASHBOARD | Facility Control
LIGHTNING | Assembly Control
ULTRITOUCH | Touch Screen Control
POWERPLAY | Event Control System

LED DISPLAYS

D3 LED |
Integrated LED Experiences

LED SOLUTIONS |
Displays Processing Control

PRODUCTION SWITCHERS

CARBONITE

TOUCHDRIVE PANELS | TD3S, TD2S, TD2, TD1, TD1C
CARBONITE BLACK SOLO / SOLO13 | Compact Production Switcher
CARBONITE BLACK / BLACK PLUS / BLACK PLUS 12G | SD/HD/UHD Mid-Sized Production Switcher
CARBONITE ULTRA | 1RU SD/HD/UHD Production Switcher
ULTRIX CARBONITE | Mid-Sized HD/UHD Hyperconverged Production Platform
CARBONITE MOSAIC | Multi-Channel Video Image Processor

ACUITY

ACUITY PANELS | 1S/1SDD, 2M/2MDD, 2X/2XDD, 3M/3MDD, 3/3DD, 4/4DD
ACUITY FRAMES | 4RU & 8RU SDI, SD, HD, UHD
ULTRIX ACUITY | HD/UHD Hyperconverged Production Platform

GRAPHITE

GRAPHITE | All-in-One SD/HD Production System
GRAPHITE PPC | All-in-One Portable SD/HD Production Center

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SPOTLIGHT ON
PRODUCTION SWITCHERS

Production switchers are our passion. We have been making them since 1974, and they are the core of our business. We provide the tools you need to get your creative vision on the air

- Production Switcher Lineup

  ▶ Acuity | Flagship Production Switcher

  ▶ Carbonite Black & Ultra | Mid-sized Production Switchers

  ▶ Carbonite Black Solo | Compact Production Switcher

  ▶ Graphite | All-in-One Production System

  ▶ TouchDrive | Touch-enabled panels for Carbonite

ROSS®

SPOTLIGHT ON
HYPER-CONVERGED PRODUCTION

Based on the concept of the Software-Defined Production Engine (SDPE), Ross has developed integrated production solutions by merging its production switchers with its award-winning routing platform

Hyper-Converged Production Solutions

- ▶ Ultrix Acuity | Large Hyper-Converged Production Platform
- ▶ Ultrix Carbonite | Mid-Sized Hyper-Converged Production Platform

SPOTLIGHT ON
TOUCHDRIVE™

- TouchDrive is the next generation of production switcher panels for Carbonite

- TouchDrive redefines the relationship between a Technical Director/Vision Mixer and their switcher by bringing smartphone display technology to video production switchers – even gestures

- Every display on the control panel is touch-enabled – all of them allow features to be dropped right under the fingertips of the operator

ROSS®

SPOTLIGHT ON
XPRESSION

- XPression is the fastest growing real-time motion graphics platform in the industry today, offering a cost-effective, seamless and efficient workflow

- Built from the ground up to be a 3D system, XPression also fully supports 2D workflows, including clips, and seamlessly composites real-time 3D animation with media assets from today's hottest design applications

- XPression Lineup

  ▶ A suite of XPression configurations are available to suit any budget or level of production

  ▶ Powerful solutions available from 1RU to 4RU supporting MOS Workflows with HD-SDI, SMPTE ST 2022-6, 2022-7 & 2110 and 12G, in HDR and SDR

  ▶ XPression Tessera, an infinitely scalable architecture for driving canvasses over multiple and massive, pixel-accurate display panels, projectors and video walls

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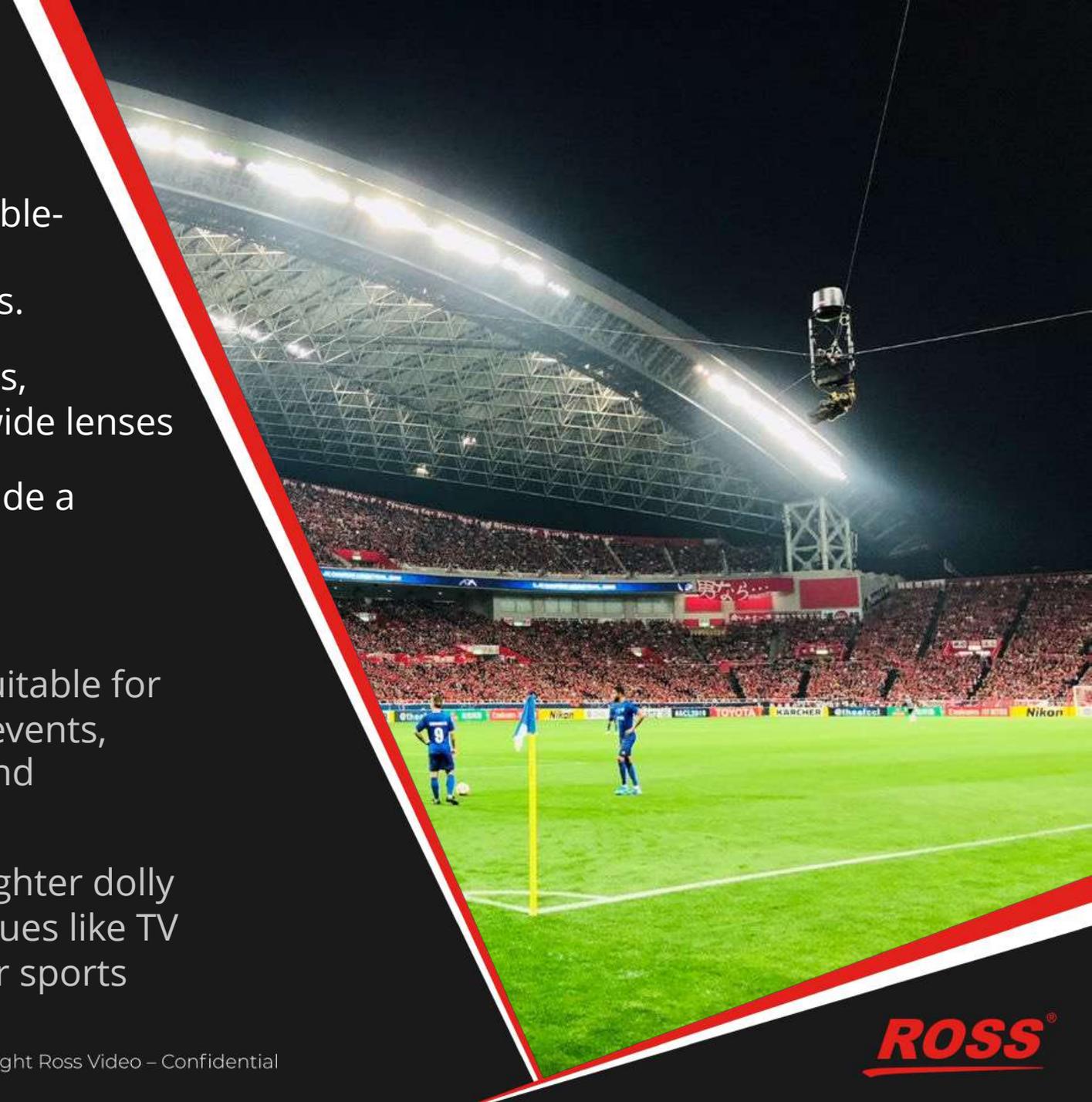**ROSS**®

SPOTLIGHT ON
CAMERA MOTION SYSTEMS

- Robotic solutions for a wide range of applications from live sporting events to studio broadcast to worship productions to your home office. Ross offers the widest range of robotic camera systems including track-based dollies, free-roaming pedestals, and standalone pan & tilt solutions

- Robotics
  - ▶ Ross Video has the most complete robotics offering available, whether you are looking for the unparalleled smoothness of a track-based system, the unbeatable flexibility of a free-roaming pedestal, or the simple efficiency of a standalone pan & tilt head

- Remote Control
  - ▶ Control architecture enables remote and automated productions including AI features.

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ROSS®

SPOTLIGHT ON
SPIDERCAM

Spidercam has been providing cutting-edge cable-cam solutions to sporting events, concerts, television shows, and more for almost 20 years.

- Carry a variety of gimbals and camera setups, including 4K broadcast cameras with ultra-wide lenses

- Deliver fast, smooth camera shots that provide a unique perspective to the production

- Current Spidercam Models include:

  ▶ Spidercam FIELD – This 3D solution is suitable for outdoor productions or other stadium events, such as horse racing, cricket, football, and concerts.

  ▶ Spidercam LIGHT/MINI – This smaller, lighter dolly was designed to perform in smaller venues like TV or news studios, concert halls or smaller sports arenas, movie sets, and more.

ROSS

SPOTLIGHT ON
VIRTUAL PRODUCTION SOLUTIONS

- **Voyager** is Ross Video's latest graphics platform, powered by Epic Games' Unreal Engine. Voyager leverages the world's most powerful and realistic renderer, enabling its use for augmented reality, virtual studios and LED XR Stages. A workflow built with flexibility and speed of operation in mind, Voyager helps customers create stunning, complex virtual environments designed for use in broadcast television, corporate events, esports, and entertainment

- **Lucid Studio** is a highly flexible and customizable control platform designed for virtual productions, including MOS workflow

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SPOTLIGHT ON
VIDEO SERVERS

Built on rock-solid architecture, Ross video servers provide broadcast-level quality and reliability for a wide range of live production applications

- Video Server Lineup
  - ▶ Tria Express Duet | Clip Player
  - ▶ Tria+ | Multi-Channel Production Servers
  - ▶ Tria+ UHD | Dual Channel UHD Production Server
  - ▶ Tria News | News Playout Server
  - ▶ Kiva | Visual Live Presentation Server

ROSS®
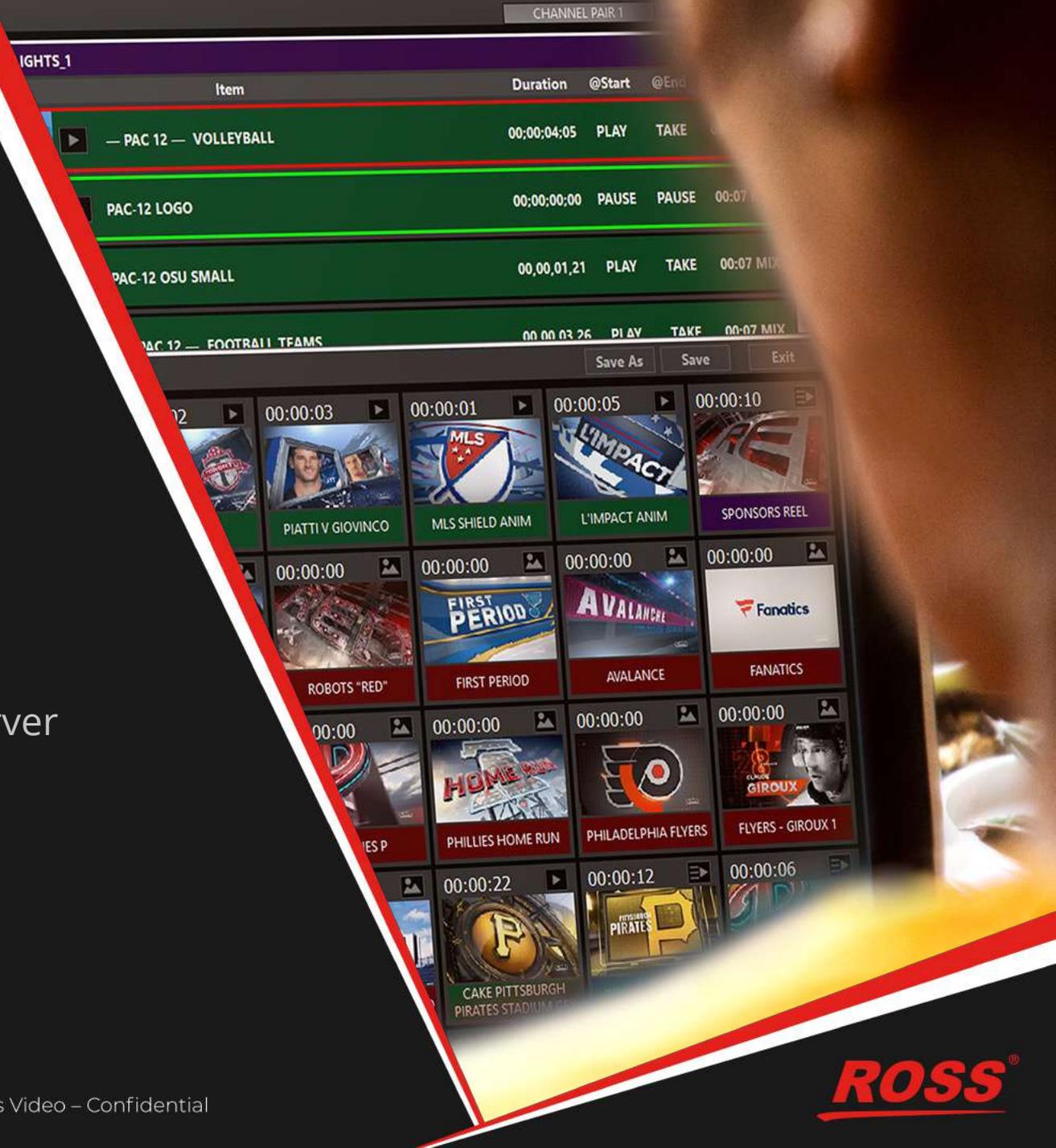
SPOTLIGHT ON
REPLAY SERVERS & DELAY SYSTEM

Producing instant replays of live televised sporting events is always a fast-paced and demanding job

- Mira meets the critical requirements of reliability, instant responsiveness, superior image quality, and interoperability within live production workflows

- AirCleaner is the world's most popular profanity elimination delay device and ensures that you can eliminate any unwanted content from your live broadcasts while maintaining program continuity

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SPOTLIGHT ON
CONNECTIVITY

Routers, Multiviewing, and Broadcast Control

- **Ultrix** – Routing and AV Processing Platform
  - ▶ Baseband and IP video and audio routing – from 1.5G to 12G UHD, Fiber, ST2110
  - ▶ MultiViewers and monitoring
  - ▶ Processing – audio processing, frame synchronizing, clean/quiet switching, and audio mixing
  - ▶ Ultricore BCS – control system for basic configuration, control and monitoring and with advanced features to manage complex tie-line systems and/or new IP topologies for small to large scale applications.
  - ▶ Comprehensive suite of control panels including basic push button, LCD button, and the industry first, Ultritouch touchscreen-based integrated system control panel
  - ▶ NK Routers – cost effective, compact high performance routing platform for basic routing applications

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SPOTLIGHT ON
CONNECTIVITY

KVM and Tally

- **TSI-4000** Tally Control
  - ► All your tally signals managed via one smart control environment – great for large and complex systems
- **pro-xi 100** Workstation Integrator
  - ► Improves decision-making workflow for operators in Command and Control
  - ► Strengthens ROI while reducing error rates and operational costs
  - ► Allows simultaneous monitor and control of multiple, disparate computers

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SPOTLIGHT ON
SIGNAL PROCESSING

Signal Processing – openGear, SoftGear and inGear

- ### openGear
  - ▶ Created by Ross, the world's only open signal processing platform. Choose from dozens of manufacturers products
  - ▶ Modular design with 20 card slots
  - ▶ Ross has a full range of SDI video and audio processing cards from 1.5 to 12G processing. Gator, AMX, MC1-UHD and more

- ### inGear
 - ▶ Sync Reference Generator, Point of Use Modules for IP conversion and more

- ### SoftGear
  - ▶ Advanced, software-based processing system on a computer appliance
  - ▶ Virtualized platform using microservices
  - ▶ Broadcast Audio Processor – Loudness, Watermarks and Dolby Encoding
  - ▶ Radio Audio Processor with Orban Processing
  - ▶ Streaming Gateway – IP streams to/from SDI

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SPOTLIGHT ON
PIERO

- PIERO is an award-winning sports graphics analysis tool which employs visual or hardware tracking using encoded camera heads to overlay tactical graphics on sports content. PIERO brings new angles to every game, on the screen and in the studio, with visually engaging and informative effects

- Piero Lineup

  - ► PIERO Broadcast for replay explainer graphics

  - ► PIERO Live for real-time display of offside and first down lines

  - ► PIERO Club is a coaching tool for visually communicating strategy and tactics with players

ROSS®
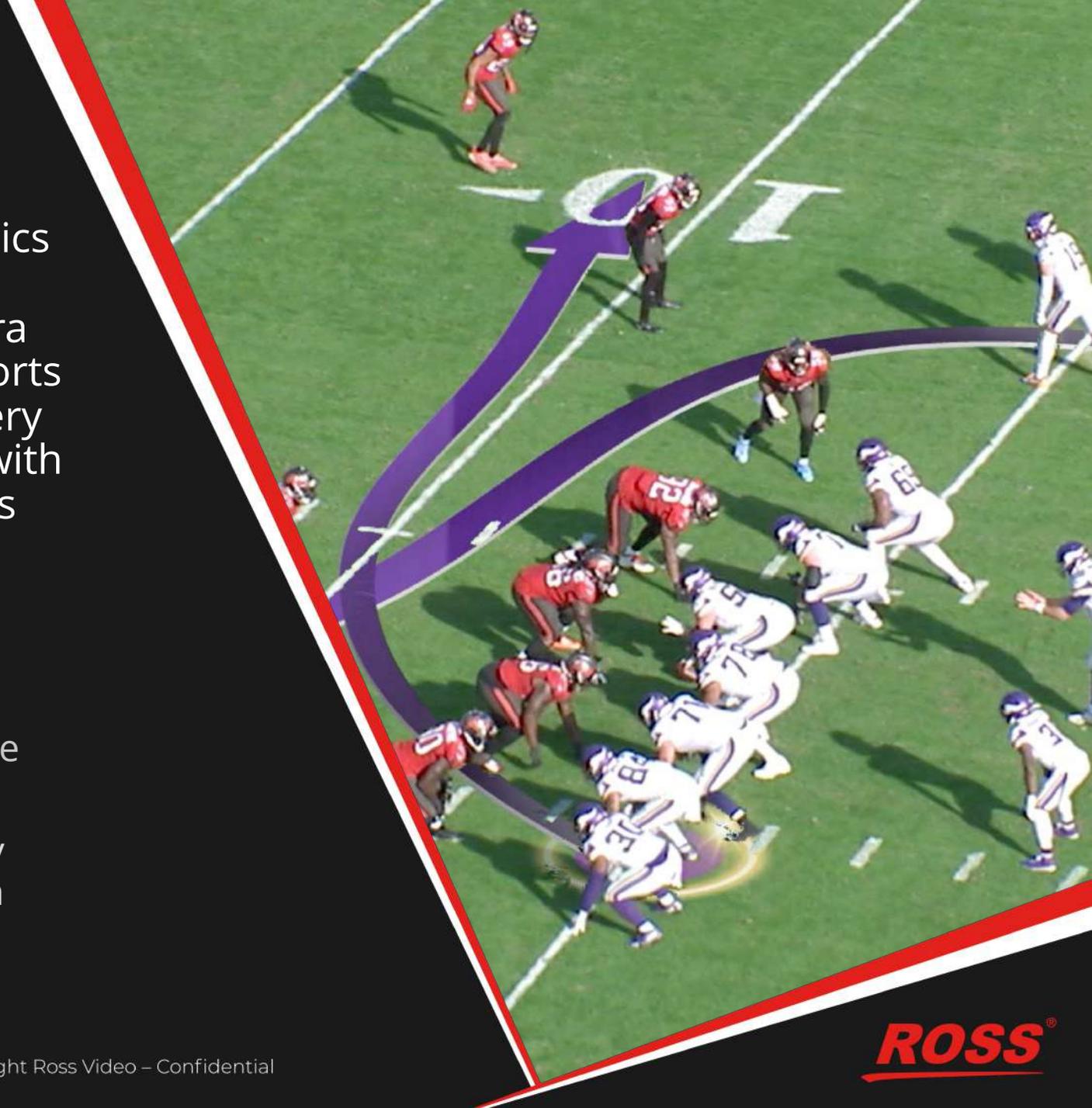
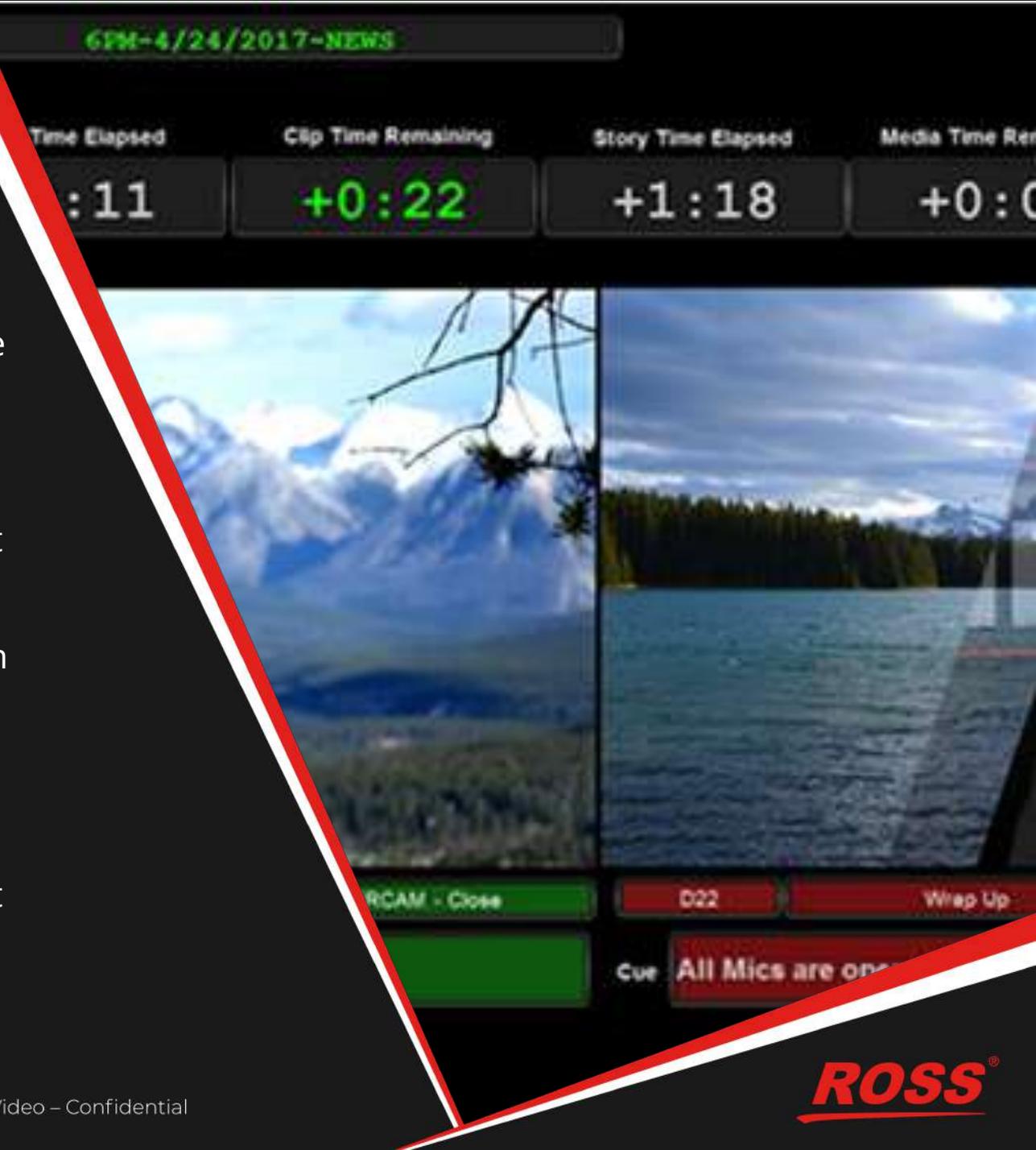# SPOTLIGHT ON
NEWS AND SOCIAL MEDIA

- **Inception** is the world's most innovative newsroom computer system and social media management tool

- Inception sits at the core of the end-to-end news workflow. It allows users to easily create content remotely, manage social media and plan new ideas

- Inception is available as a cloud-hosted SaaS offering in addition to on-premise

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SPOTLIGHT ON
CONTROL SYSTEMS

- **OverDrive** is the most advanced Automated Production Control (APC) system enabling the most sophisticated productions on the planet. With nearly 400 systems on-air, it offers unparalleled choice with integration to more than 220 different production devices

- **DashBoard** provides control and monitoring to hundreds of products from over 50 partners within the openGear, the DashBoard Connect ecosystem and most Ross Video products

- **Lightning Control System** enables even a single person to produce assembly meetings in HD quality with graphics and multi-camera operation

- **PowerPlay** helps users centralize device control to a single server and simplifies playout and scheduling of production and environmental devices for any live event – venue, corporate, faith based, or broadcast

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SPOTLIGHT ON ASSET MANAGEMENT & STORAGE

- **Streamline Production** is designed to bridge the gap between the newsroom computer system (NRCS) and playout server. Create placeholders, search customizable metadata and select the clip needed to tell the story. Use rules-based workflows to move content between locations and servers

- **Streamline Graphics** is designed to work alongside XPression motion graphics workflow to organize asset requests, search existing assets and easily add them to on-air graphics with ease

- **EVO** is the ultimate high-capacity and high availability storage system specifically designed for video applications

- **Primestream** is an award-winning asset management platform proven to arm some of the world's top media creatives with the best-in-class solutions to capture, produce, manage and distribute their most valuable assets.

ROSS®

SPOTLIGHT ON
PRIMESTREAM

- Powerful and easy to use

- Solutions for live and file-based ingest, transcoding, logging, search, editing, review and approve, playout, file-based distribution, and nearline and cloud archiving.

- Scalable and highly configurable across markets, platforms and infrastructure to ensure long term flexibility and value.

- Key Solutions:

  ▶ **Primestream MAM** for managing content, automating workflows and improving collaboration through out the media creation lifecycle.

  ▶ **Media IO** for real-time capture of IP and SDI sources

ROSS®

THE ROSS **COMMITMENT**

Your success is the priority of the entire Ross Video family.

Customers and Business Partners, as part of our family,

all have direct access to our CEO, David Ross.

dross@rossvideo.com

https://www.linkedin.com/in/david-ross69031913

Ross Code of Ethics

- We will always act in our customer's best interest
- We will do our best to understand our customer's requirements
- We will not ship crap
- We will be great to work with.
- We will do something extra for our customers, as an apology, if something big goes wrong and it's our fault
- We will keep our promises
- We will treat the competition with respect
- We will cooperate with and help other friendly companies
- We will go above and beyond in times of crisis

If there's no one to authorize the required action in times of company or customer crisis – do what you know in your heart is right. (You may rent helicopters if necessary)

ROSS®

CONTINUING THE CONVERSATION

Website:

www.rossvideo.com

Community Platform Ross Live:

https://livinglive.community/home

OPTIONAL SLIDES

March 2021

ROSS®

ROCKET SURGERY
ROSS CREATIVE & PROFESSIONAL SERVICES

Let Rocket Surgery help you realize your vision and bring your brand to life.
www.rocketgfx.com

- For XPression, Voyager, and DashBoard customers in broadcast and venue production, Rocket Surgery offers unmatched design and data integration expertise because we have exclusive insight and input into Ross' advanced system

- From broadcast graphics and animation and dazzling arena displays, to groundbreaking virtual sets and augmented reality, you get access to experts with the know how to maximize production value

ROSS

OUR **ENVIRONMENTAL** COMMITMENT

- Environmental sustainability has been a focus at Ross for more than a decade

- Restriction of Hazardous Substances (RoHS) & China RoHS and Waste Electronic and Electrical Equipment (WEEE) compliant

- Emission-free Manufacturing Processes (air, water, noise)

- Sustainability in sourcing – local sourcing, lower carbon shipping, recyclable packaging

- Major facility expansion using low carbon technologies, with integrated solar power

- Working toward a Net Zero Carbon Factory
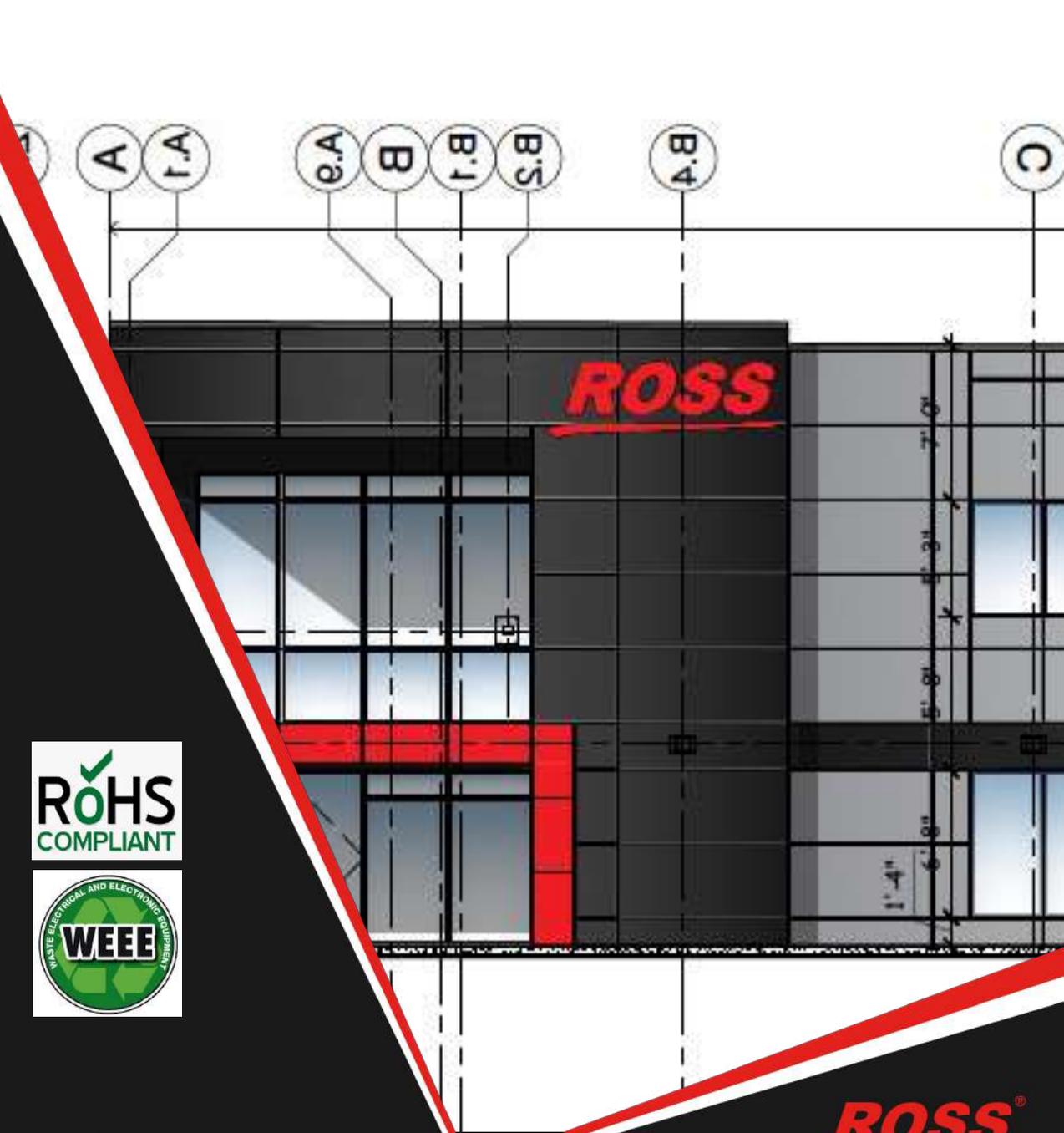
OUR MANUFACTURING & SUPPLY CHAIN

- Ross products are manufactured at our world class Iroquois, Canada facility

- Fully IPC qualified staff and state of the art Surface Mount Technology processes in 70,000 square feet

- 55,000 square foot expansion now underway

- Coordinated local and global sourcing

- Major, ongoing investments in New Product Introduction

- Quality and service drive all that we do

ROSS®

ROSS PRODUCTION SERVICES (RPS)

SERVICES
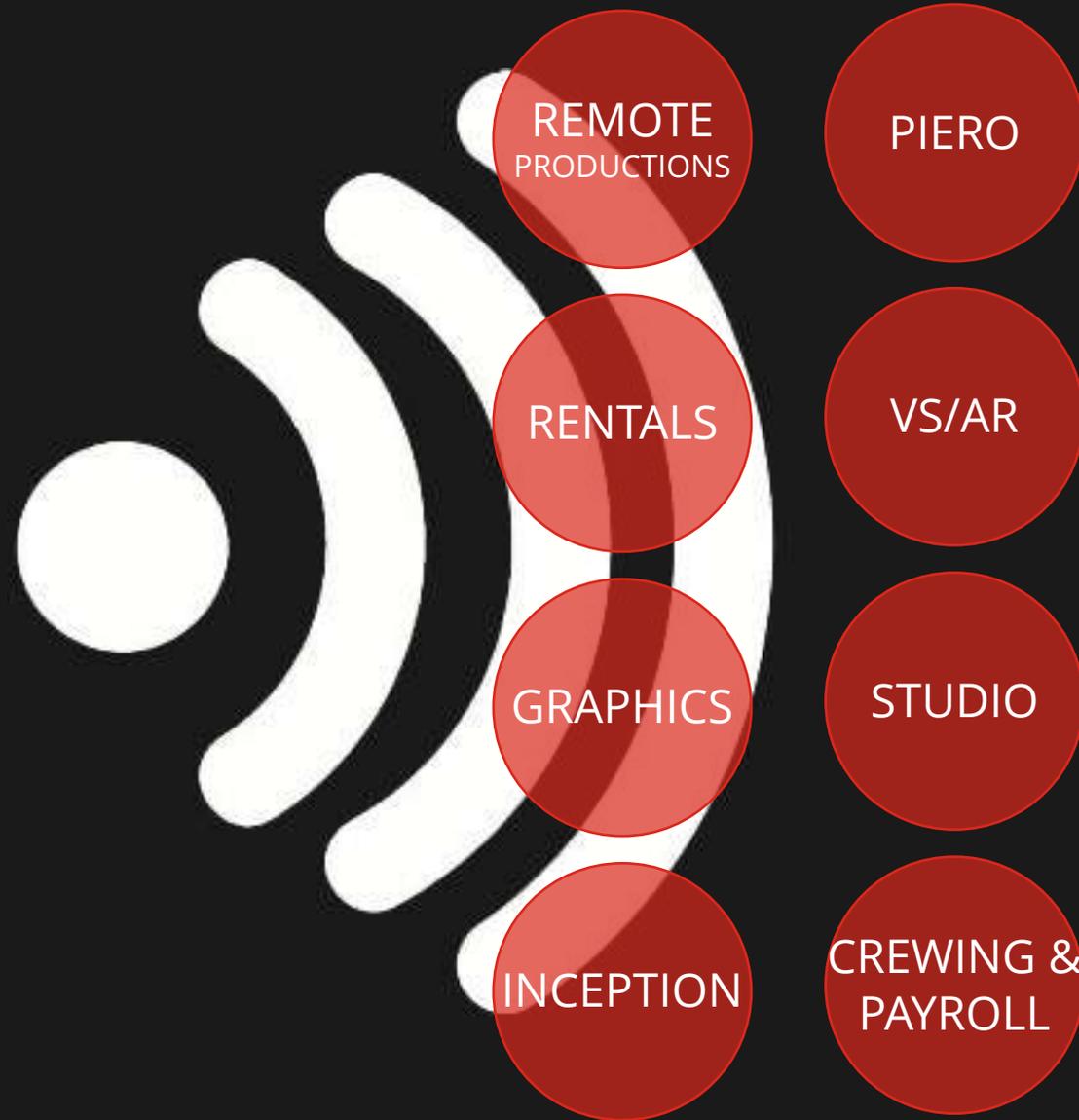
- REMOTE PRODUCTIONS
- RENTALS
- GRAPHICS
- INCEPTION
- PIERO
- VS/AR
- STUDIO
- CREWING & PAYROLL

ROSS®

A PASSION FOR
LIVE PRODUCTION

- Ross creates technology, solutions and services for the live production industry

- Ross has a unique position in the industry thanks to our focus, and the breadth and depth of our portfolio

- Ross solutions enable customers to develop *High Impact, High Efficiency* live productions

Ross, Technology deployed in the LED Control Room for 86th edition of the NFL Draft

THIS IS WHO WE ARE

Privately Owned, Founded in 1974

Majority Owned by David Ross

>200 employee shareholders

Self Funded, & Debt Free

Revenue Keeps on Growing; ~15% CAGR

David Ross, President and CEO

ROSS®

OUR ORIGIN STORY

- John Ross founded Ross Video in 1974 in his basement in Montreal, Canada

- John sold the World War II trainer airplane he had painstakingly rebuilt over a two-year period for $3,500 and used the money as seed capital to start the company

- To this day, this is the only investment that has been made in Ross Video, which has been self-funded since then, growing organically through reinvestment of profits from operations
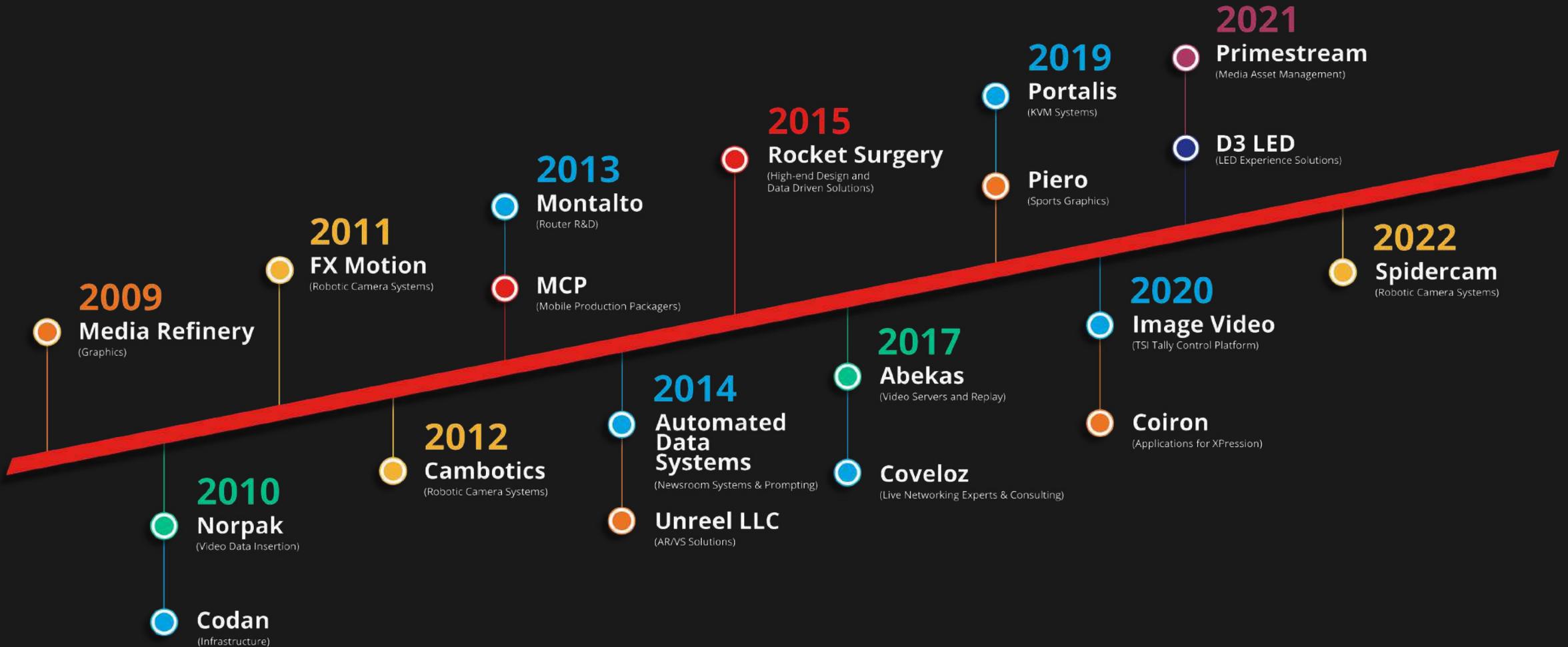
ROSS®

AWARDS & RECOGNITION

- Ross Video's commitment to innovation and the advancement of the broadcast industry has resulted in many awards

- Proud moments were the Annual Technology & Engineering Emmy® Awards in 2016 for openGear and then again in 2017 for the development and standardization of the MOS protocol

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ROSS®

ACQUISITIONS HELP DRIVE GROWTH & SOLUTIONS

2021
Primestream
(Media Asset Management)

2019
Portalis
(KVM Systems)

2015
Rocket Surgery
(High-end Design and Data Driven Solutions)

D3 LED
(LED Experience Solutions)

2013
Montalto
(Router R&D)

Piero
(Sports Graphics)

2011
FX Motion
(Robotic Camera Systems)

MCP
(Mobile Production Packagers)

2022
Spidercam
(Robotic Camera Systems)

2009
Media Refinery
(Graphics)

2020
Image Video
(TSI Tally Control Platform)

2017
Abekas
(Video Servers and Replay)

2012
Cambotics
(Robotic Camera Systems)

2014
Automated Data Systems
(Newsroom Systems & Prompting)

Coveloz
(Live Networking Experts & Consulting)

Coiron
(Applications for XPression)

2010
Norpak
(Video Data Insertion)

Unreel LLC
(AR/VS Solutions)

Codan
(Infrastructure)

ROSS®

TEAM ROSS - IT'S HOW WE PLAY

1. We make inspired contributions
2. We are hardworking, balanced individuals
3. We continually develop our skills
4. We are honest
5. We communicate effectively

6. We take the initiative
7. We get the job done
8. We are problem solvers
9. We debate and then decide
10. We treat each other with respect
11. We are good team members
12. We are fully committed

ROSS®

SPOTLIGHT ON
PIERO

- PIERO is an award-winning sports analysis tool that uses image recognition or encoded camera heads to overlay tactical graphics on sports content. PIERO brings new angles to every game, on the screen and in the studio, with visually engaging and informative effects

- Piero Lineup

  ► PIERO Broadcast for replay explainer graphics

  ► PIERO Live for real-time display of offside and first down lines

  ► PIERO Club is a coaching tool to better communicate with players in game strategies and tactics

ROSS
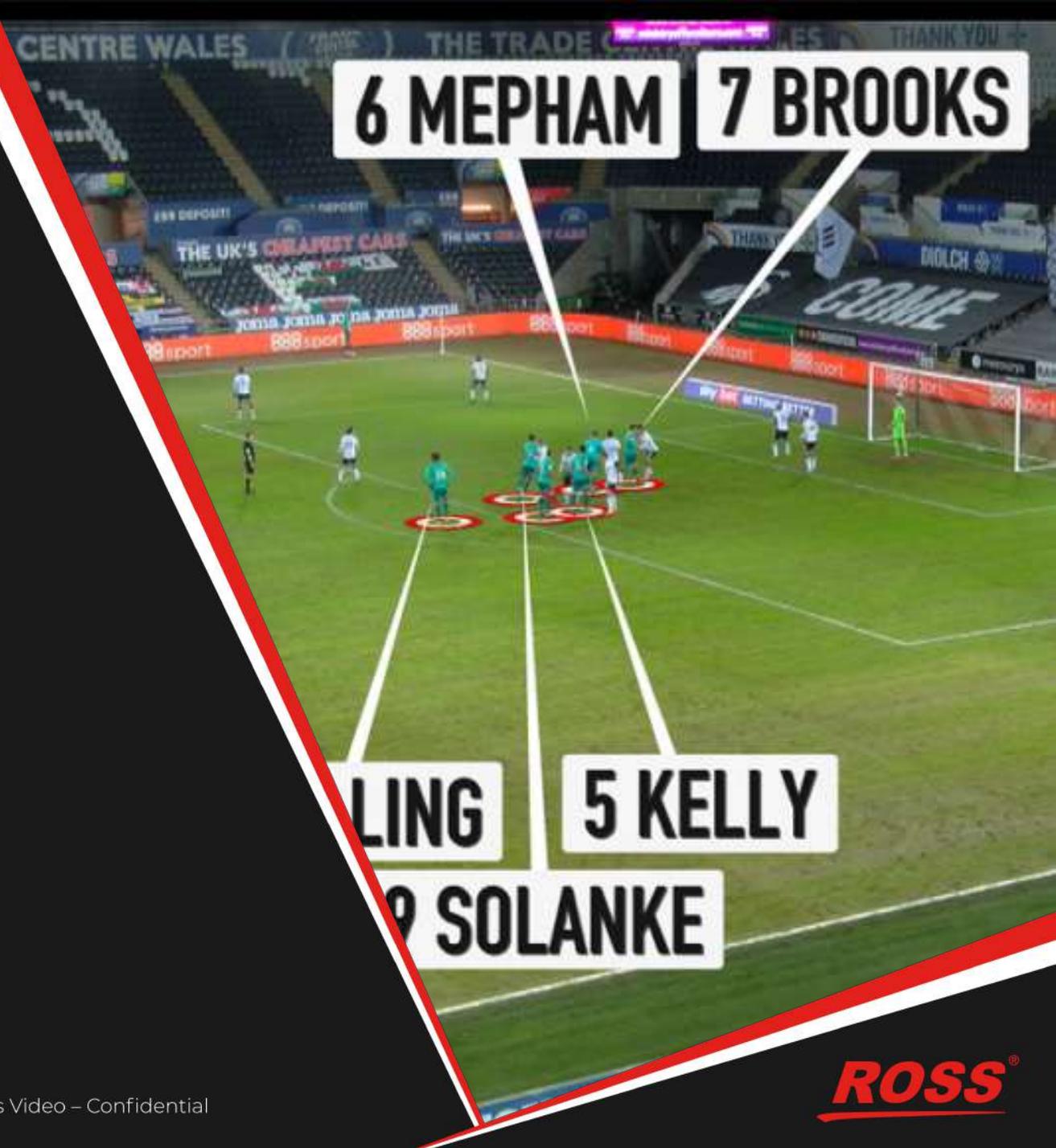
SPOTLIGHT ON
S2 LIFT

- Adapted **S2 lift** to work "upside down"

- Produces more interesting and dynamic moving shots
  - ▶ Adds silky smooth elevation to dolly shots
  - ▶ Furio and CamBot

- Supports real-world payloads
  - ▶ Designed for net payloads up to 30 Kg
  - ▶ Easily supports a full-size camera and prompter
  - ▶ Not limited to just a box camera and lens

SkyDolly

Sky Dolly gets a lift!

ROSS

SPOTIGHT ON
XPRESSION

- XPression Real-Time Graphics Platform with Video Codec with support for HDR, WCG and UHD
- XPression Remote Sequencer Updates
- XPression Sequencer Gateway for non-MOS workflows
- AE Graphics as a new provider of XPression Services
- XPression Elect-it! Server and XPression Elect-it! bundled with Rocket Surgery election graphics
- XPression HTML5 plug-in to include Clips, UX and Maps
- DashBoard API will be free in version 10 for XPression Studio owners

ROSS®

PRIMESTREAM SOLUTIONS

Capture	Produce	Manage	Deliver
File based	NLE Integration	Transcoding	Live Playout
Baseband	Proxy Editing	Asset Management	Traffic System Integration
IP Streams	Real Time Logging	Workflow scripting	Multi-format distribution
4K	Storage integration	Project Management	Newsroom Rundown Integration
Virtual Reality / 360	Quality Control	Archival workflow	File Delivery services
Remote Contribution	Review and Approval	Signal path management	
XML Data Import	Sub clipping Shot selection	Artificial Intelligence	
Subtitles	Markers and annotation	Versioning	
Databases	Project collaboration	Lifecycle Management	

ROSS®

PRIMESTREAM TRUSTED BY MARKET LEADERS

LIVING LIVE WITH ROSS

@ allegiant stadium

- Ross Technology is used amaze fans at Allegiant Stadium, home of the NFL's Las Vegas Raiders in Las Vegas, Nevada, USA

- Ross Equipment can be found in both the LED Display Control Room and Production Control Room

- Ross Products & Services

  ▶ Carbonite Black with C2S Panel; Encoders & and OGX frames; Ultrix FR5 Routers; XPression Tessera Masters, Nodes and Mosaics, and XPression Studio; Tria 8-channel; and DashBoard

Ross Technology powers all LED displays around the venue

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ROSS®

LIVING LIVE WITH ROSS

@ yahoo! finance

- Ross Technology provides 3D real-time graphics for live streaming financial news coverage from Yahoo Finance! Studio in New York City, USA

- Ross Products & Services
  - ► XPression 3D real-time graphics platform, Streamline for Media Asset Management and Ross Inception Newsroom Management system

Yahoo! Finance Studio, New York City

ROSS®

LIVING LIVE COMMUNITY

- A community platform for professionals working in live production

- We're here to learn, share ideas, and solve problems

- Be a part of the Living Live Community

- https://livinglive.community/home

ROSS®