Industry-leading IP Solutions

Started ahead…Staying ahead

Broadcast and media organizations are migrating to IP-based workflows at a rapid pace.

The industry is now embracing (and enjoying) many of the benefits of IP, such as a data-agnostic transport layer, ultra-high bandwidth, huge scalability and fiber connectivity. IP has enabled opportunities for greater resource sharing, thereby rationalizing workflows, yielding better economics and increased flexibility.

Right from the early days, Grass Valley established a blueprint for its IP architecture. As one of the media industry's most trusted vendors, Grass Valley continues to innovate with dynamic solutions for distributed IP networks.
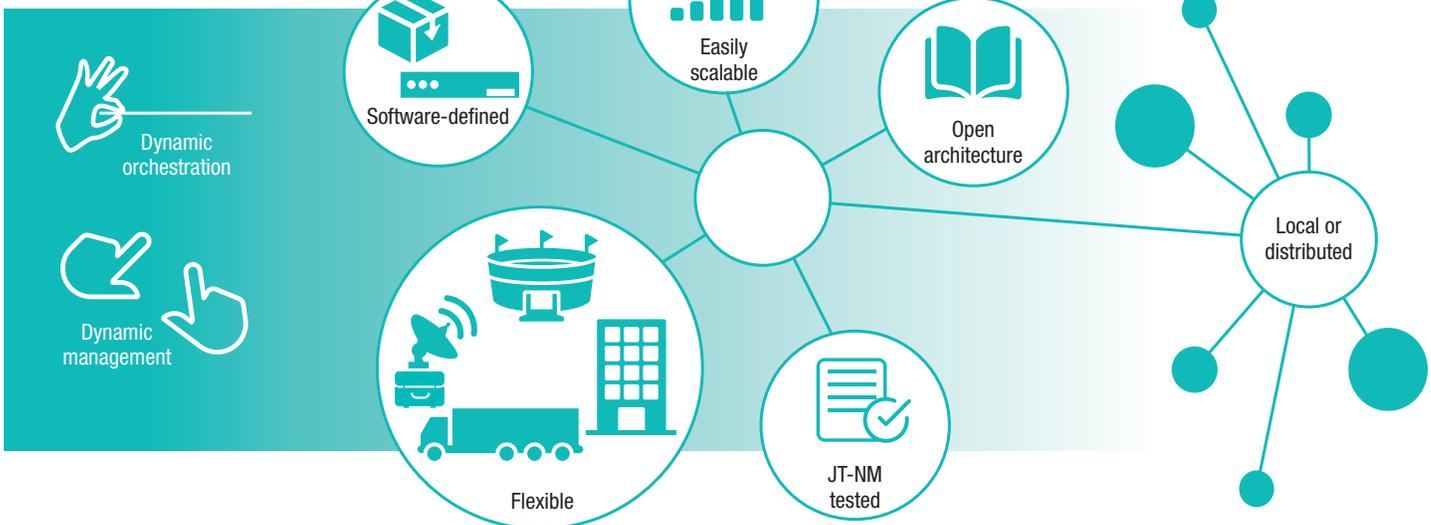
Maximizing ROI from an IP architecture

As never before, broadcast and media organizations are under pressure to justify capital expenditures and optimize workflows. Moving to IP connectivity and networking is a great start, but it's only a first step.

Real business efficiencies and enhanced ROI are driving the desire for:

- Software-defined generic hardware platforms and COTS-based equipment
- Ease of scalability to unlock more revenue streams, services and distributed resources across regions
- Flexible utilization, deployment and management of resources
- Agile methods for changing functionality as business needs change
- Pay-as-you-go and/or flexible "on/off" licensing models

Successfully enabling the above demands solutions requires not just software-defined resources, but their dynamic deployment, orchestration and management. Any such solution must also be able to manage the complexity inherent to each step change in flexibility.

Grass Valley Dynamic IP Blueprint

Dynamic orchestration

Dynamic management

Software-defined

Easily scalable

Open architecture

Local or distributed

Flexible

JT-NM tested

Glass-to-Glass

Grass Valley's GV Orbit has been specifically architected for dynamic orchestration of distributed IP systems, adding a whole new dimension to existing industry capabilities.

GV Orbit

Dynamic System Orchestration

"On-the-fly" Control, Configuration & Monitoring with automatic pathfinding for agile IP networking

Fully customizable control surfaces

Designed for a software-defined world

Dynamic Software Processing

Software applications deployed & managed on common platforms

Conversion, synchronizing, HDR, Multiviewer, QA & more

Dynamic Infrastructure Management

COTS hardware and GV high-density software application platforms

Many automated features ensure rapid configurations & re-purposing

Fast, easy deployment, scaling & management

Dynamic Device Management

"SDI-like" connectivity for both GV and third-party NMOS-compliant devices

GV Orbit — Dynamic System Orchestration

- Dynamic "on-the-fly" orchestration
- "SDI-like" connectivity
- Automatic pathfinding

GV Orbit is a single consolidated, overarching control, configuration and monitoring software package specifically structured for the Dynamic Orchestration of IP broadcast media networks, although it's equally suitable for SDI or hybrid IP<>SDI operations. Designed for IP from the ground up, its architecture is based on true internet publish-and-subscribe methodologies.

Dynamic Orchestration

Automatic Pathfinding

Comprehensive Monitoring

Operational Options

GV Orbit key capabilities include:

Single, unified package for Control, Configuration and Monitoring

- No more switching between dedicated applications
- Consolidation of data repositories means all changes are instantly recognized and immediately effective network-wide
- All operational surfaces have a common look and feel

Dynamic Orchestration — WYSIWYG…"What You See Is What You Get"

- "On-the-fly" configuration in real time, ideal for fast re-purposing of resources in rapidly revolving production scenarios. There's no downtime pushing new configurations to system controller(s)

Network Topology View — Full system device and connectivity at a glance

- Drill down to check, monitor or re-purpose IP stream flows

Extensive configuration toolset with enhanced automated setup for COTS IP switches with "zero-touch" provisioning when adding devices

- That gets you close to SDI-like connectivity…if not better than SDI!

Unique Automatic Pathfinding capability for dynamic insertion of processing elements as they are needed

- Grass Valley's Audio Live processor, for instance, can compile new SMPTE ST 2110-30 audio flow profiles "on-the-fly," resolving incompatible connectivity issues between devices

SDN — Software-defined Networking

- For both monolithic or spine-and-leaf IP switch arrangements

Comprehensive Monitoring — Powerful, feature-rich toolset

- Includes GV multiviewer configuration, customizable screens and/or pre-defined sets. Create custom alarms, graphical indicators and display streamed thumbnails
- Making GV Orbit perfect for "monitoring by exception" meaning a status window or notification will only appear after receipt of a warning or alarm

An extensive range of control panels including LED/LCD switch button types and a 19" rack-mountable capacitive touch panel

- Choose the control surfaces that best suit your operational requirements

Dynamic Software Processing

Grass Valley's agile IP solutions provide system architects with a wide choice of software applications for implementing common (single- or multichannel) video, audio and data processing functions. These are deployed on either COTS platforms or Grass Valley high-density modular application platforms.

GV Orbit provides dynamic, on-the-fly orchestration and management of all networked devices for both on-premises and off-premises solutions.

Typical Grass Valley software applications include:

COTS Platforms (Servers)

- GV Orbit system orchestration and services (such as network logging)
- Multichannel audio routing, processing and flow manipulation
- Enterprise multiviewers
- Frame-rate and format conversion

Modular Platforms

- Gateways — SDI <> IP, MADI <> IP conversion
- Gearbox functions — UHD Quad Link <> Single stream
- Frame synchronization
- Up/down/crossconversion (including HDR <> SDR)
- Signal processing
- Multiviewers

Grass Valley software applications encompass the full breath of signal types and formats from SD SDI to 4K UHD SMPTE ST 2082-1/-10 single-stream IP and AES digital audio (including MADI) to SMPTE ST 2011-30 IP audio.

This comprehensive suite represents an unparalleled industry portfolio for local or distributed architectures covering multiple applications including OB/mobile, venues, studios and control rooms.
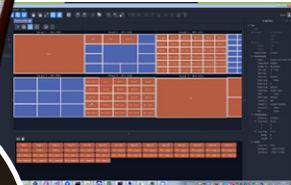
Cameras

Switchers

Replay

MV Cluster Manager

Multiviewers

Dynamic Device Management

Any production facility includes devices dedicated to specific functions with control surfaces uniquely crafted to suite operations. Their inclusion in an IP network yields enhanced benefits such as easy resource sharing, distributed working and reduced cabling.

GV Orbit implements dynamic management of all devices, ensuring functions such as IP switch connectivity, flow routing and general device monitoring are integrated under a single umbrella.

Grass Valley's wide IP multiviewer portfolio encompasses multiple types. These include software applications running on COTS or generic modular platforms, plus dedicated "boxed" hardware types.

GV Orbit's dynamic device management capabilities are eloquently demonstrated when using its multiviewer configuration tool. This includes full tile construction, mosaic layout with video, plus audio monitoring and customized alarming. Moreover, the integrated MV Cluster Manager enables simultaneous linked orchestration across multiple units for "cut-and-paste" of repeated configurations.

Dynamic Infrastructure Management

Other than dedicated hardware device types, such as cameras and switchers, Grass Valley glass-to-glass networks are implemented using COTS hardware combined with universal modular applications platforms for deploying a wide range of software application processes.

Grass Valley's dynamic IP solutions ensure virtually limitless scalability.
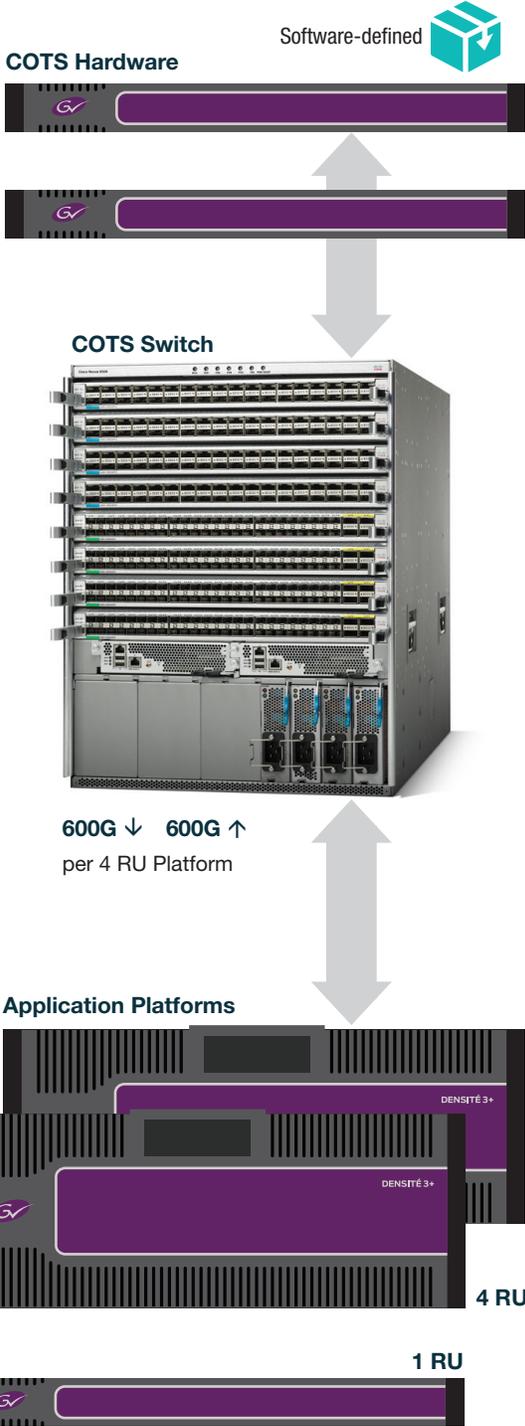
Main infrastructure types:

- COTS hardware servers for Grass Valley turnkey devices or Grass Valley packaged software applications — leveraging the commonality of supply and services of IT industry components
- Grass Valley modular application platforms for high-density multichannel video, audio and data solutions — optimizing available space and reducing power requirements That includes alternative housing options to suite system size — ideal for small, distributed and enterprise installations
- COTS IP switches, including Grass Valley's own GV Fabric range, deliver the versatility and freedom to work with a preferred switch vendor

GV Orbit's unique Dynamic Infrastructure Management adds a whole new level of efficiency. IP switch deployment, for example, is dramatically simplified by removing manual switch configurations and automating the set-up process, including IP addressing and port configuration, when adding or repurposing network devices. Another innovative capability is the independent selection of "fast" or "seamless" ("break-before-make" or "make-before-break") switching at each endpoint, all orchestrated on-the-fly. GV Orbit's unique dynamic behavior speeds up and solves workflow conflicts, saving valuable time and money.

Dynamic Infrastructure Management yields:

- Significant reduction in initial configuration timescales
- Rapid repurposing for alternative production scenarios
- Elimination of potential network errors and conflicts
- Robust and resilient working

COTS Hardware Software-defined

COTS Switch

600G ↓   600G ↑
per 4 RU Platform

Application Platforms

Software-defined

DENSITÉ 3+

DENSITÉ 3+

4 RU

1 RU

Open Architecture

As a founding member of AIMS (Alliance for IP Media Solutions), Grass Valley is helping drive industry-wide adoption of open standards-based IP as the only methodology that ensures vendor interoperability now and into the future.

The SMPTE ST 2110 suite of standards, combined with the SMPTE ST 2059-2 (PTP Timing) specification, have broadly satisfied primary require-ments at the media transport layer. The AMWA NMOS specifications (relating to the network control layer) constitute a key component in Grass Valley's IP blueprint for dynamic, automated IP deployment. NMOS specifications relating to device discovery, registration and connection management (IS-04/05) are now well established, but ensuing functional components are awaiting ratification.

Grass Valley is an active promoter and participant in the JT-NM (Joint Task Force on Networked Media) workshops, publicizing all its compliant products and test results.

Our open architecture approach to IP can be summarized as follows:
- An AIMS founder, Grass Valley is committed to open standards-based IP
- As a Glass-to-Glass provider, we have one of the widest portfolios of JT-NM tested and NMOS compliant products
- GV Orbit Dynamic System Orchestrator been specifically structured to permit straightforward upgrades as evolving IP standards are ratified and released
- Agility, flexibility and choice are key. Deploying your network using any of the major COTS IP switch vendors is just one example

…Grass Valley's "Open-IP" ensures you are firmly in the driving-seat!

Arista

Grass Valley

Cisco

Leading the IP Migration Worldwide

Grass Valley has been assisting the world's largest broadcast and media organizations with IP migration since 2014.

With numerous deployments in every continent (except Antarctica!) our IP systems and devices form the core infrastructure for studios, control rooms, OBs, fly-pack systems and more.

Our global IP footprint — Over 100 major deployments

grass valley

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