ACTi

Physical Security End-to-End Solution Provider

White Paper | Hybrid DVR

HYBRID DVR

A practical white paper for mixed analog and IP surveillance, phased migration, and cost-controlled security operations

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Contents

Document purpose

This white paper explains how a hybrid digital video recorder combines analog and IP camera channels in one practical surveillance platform. It is written for system integrators, consultants, end users, security managers, facility teams, and procurement professionals who need to preserve useful coaxial infrastructure while adding network-based cameras and modern remote access.

The document focuses on system-design principles rather than individual product models. It covers mixed-channel architecture, migration planning, storage, format compatibility, operator workflows, deployment risks, and ACTi portfolio positioning.

1. Executive Summary

Hybrid DVR platforms provide a controlled bridge between established analog CCTV infrastructure and newer IP surveillance. Instead of forcing an immediate replacement of every camera, cable run, and field device, a hybrid recorder can accept selected analog inputs over coaxial cable while also receiving IP camera streams over the network.

For end users, the value is operational continuity: existing cameras can remain in service where they still meet the security objective, while new IP cameras can be introduced where higher detail, flexible placement, or network-based features are required. For system integrators and consultants, the same platform supports phased migration, reduced site disruption, simpler budgeting, and one consistent workflow for live view, recording, playback, export, and remote access.

ACTi describes its Hybrid DVR category as mixed analog and IP camera recorders for price-driven projects. The official product page highlights support for both camera types, remote access over an IP network, four common analog formats - TVI, AHD, CVI, and CVBS - plug-and-play installation, and NDAA-compliant options. [1]

Core message

A hybrid DVR should not be evaluated only as a recorder with two input types. It should be evaluated as a migration platform that protects useful infrastructure, unifies evidence handling, and allows a site to modernize according to risk, budget, and operational priorities.

Key takeaways

- Use analog channels where installed coaxial infrastructure remains reliable and the scene requirement is stable.
- Use IP channels where network flexibility, additional detail, or future expansion creates clear value.
- Confirm analog format support, IP interoperability, channel allocation, storage, resolution, frame rate, and bandwidth as one complete design.
- Plan the operator workflow - live view, search, export, user permissions, remote access, and incident response - before selecting capacity.
- Treat cybersecurity, retention, power, cable condition, environmental limits, and maintenance access as project requirements, not afterthoughts.

Procurement principle

Specify the migration outcome: which assets will be retained, which camera points will become IP-based, how long video must be stored, who needs access, and how the system will support future expansion.

2. About ACTi Corporation

ACTi Corporation is the writer and publisher of this document. ACTi is a Taiwan-based international company founded in 2003 and serving customers in more than 100 countries. ACTi states that it has more than 20 years of security-industry experience and has been a pioneer in video-based security technology development and innovation. [2]

ACTi positions itself as a physical security end-to-end solution provider. Its ecosystem includes IP cameras, analog cameras, network video recorders, hybrid DVR, VMS software, workstation applications, web clients, access control, control-center platforms, system health management, redundancy, backup, and integration with third-party alarm, intercom, access control, sensors, and IoT systems. [2]

This broader system scope is important for hybrid projects. A recorder creates more value when mixed camera inputs can be managed through reliable viewing, playback, evidence export, remote operation, incident handling, and long-term system expansion.

Why ACTi is relevant to hybrid DVR projects

ACTi strength	Project relevance
End-to-end system scope	Analog and IP cameras can be planned together with recording, clients, central management, access control, alarms, and third-party systems.
Security-industry experience	ACTi states more than 20 years of experience and global adoption across commercial, government, and infrastructure requirements. [2]
Hybrid migration path	Existing coaxial assets can remain useful while selected areas migrate toward network cameras and modern management.
Unified operational workflow	Live view, playback, export, remote access, user management, and incident response can be planned as one system rather than isolated devices.
Compliance-oriented portfolio	Project teams can select region-appropriate and compliance-sensitive options, then verify current status before procurement.

3. Definition of "Hybrid DVR"

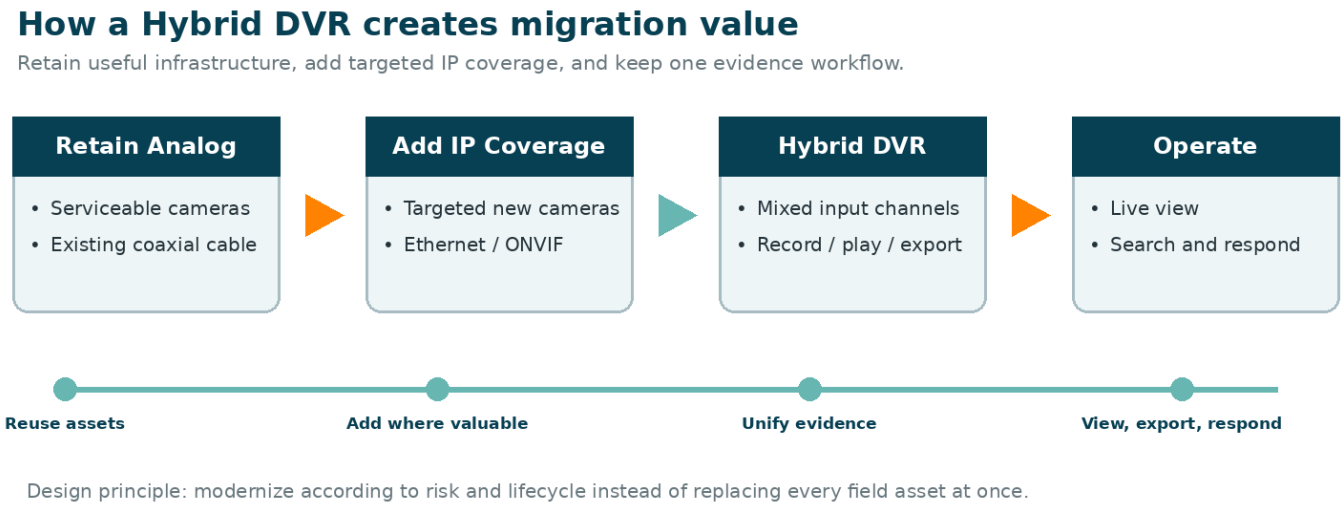
A hybrid digital video recorder is a surveillance recording appliance that supports a mix of analog camera inputs and IP camera streams. Analog cameras typically connect through coaxial cabling using supported video formats, while IP cameras connect through an Ethernet network and an interoperability method such as ONVIF. The recorder centralizes storage, live view, playback, export, local display, and remote access.

The term "hybrid" describes more than physical connectors. It also describes a transition strategy: retain suitable analog assets, add IP cameras where justified, and manage both through a common evidence and operator workflow. ACTi states that its Hybrid DVR products connect to analog cameras through coaxial cable and to IP cameras through Ethernet using ONVIF. [1]

Hybrid DVR vs. related recorder concepts

Term	Meaning	Common misunderstanding
DVR	Recorder primarily associated with analog camera inputs and local encoding/storage.	A DVR is not automatically hybrid; confirm whether IP channels are supported.
NVR	Recorder designed primarily for IP camera streams over a network.	An NVR generally does not accept direct analog camera signals without additional conversion.
Hybrid DVR	Recorder supporting both analog and selected IP camera channels.	The analog and IP channel mix may be constrained; verify allocation and expansion rules.
Video encoder	Device that converts analog video into network streams.	An encoder can enable migration, but it is not the same as an integrated hybrid recorder.
VMS / CMS	Software used to manage live video, events, users, sites, and investigations.	Management software complements the recorder; it does not replace field compatibility and storage planning.

Visual concept



4. Core Technical Concepts

Hybrid DVR selection should combine channel architecture, signal compatibility, network design, storage, evidence quality, cybersecurity, and operator workflow. A system can appear compatible on paper yet fail operationally if the channel mix, cable condition, bandwidth, retention, or export process is under-designed.

Concept	Practical meaning
Mixed-channel allocation	Confirm the allowed balance between analog and IP channels, including whether enabling extra IP channels changes analog capacity or total recording performance.
Analog format compatibility	ACTi lists support for TVI, AHD, CVI, and CVBS. Camera and recorder format support must match at each analog input. [1]
IP camera interoperability	Confirm ONVIF profile support, codec, resolution, frame rate, audio, events, stream settings, and third-party camera behavior.
Resolution and frame rate	High resolution does not guarantee useful evidence. Match pixel density, motion, frame rate, lighting, lens, recorder decoding, and display capacity.
Storage and retention	Calculate usable capacity from channel count, bitrate, recording mode, retention days, RAID or disk design, export needs, and expected growth.
Network and remote access	Separate camera traffic, client traffic, and remote access where appropriate. Plan bandwidth, addressing, authentication, encryption, firewall rules, and service continuity.
Playback and evidence export	Verify synchronized playback, search methods, export format, watermark or integrity controls, player availability, and handoff procedures.
Local display and decoding	Confirm output resolution, split layouts, simultaneous live/playback load, display count, and operator ergonomics.
Cybersecurity and compliance	Apply strong credentials, least privilege, firmware management, secure remote access, audit practices, and current project-specific compliance checks.

Specification interpretation

A recorder may support many channels but still be unsuitable if the required resolution, frame rate, simultaneous playback, display decoding, or retention exceeds its practical limits. Capacity must be validated against the actual camera mix and operator workload.

Procurement warning

Do not compare hybrid DVRs only by total channel count. Compare the complete evidence chain: camera type, signal format, cable or network path, recording performance, storage, playback, export, remote access, user control, cybersecurity, and maintenance workflow.

5. High-Value Applications

Hybrid DVR is especially valuable where project teams need to modernize surveillance without discarding all installed analog assets. ACTi positions the category for price-driven projects that combine HD analog and IP cameras. [1]

Application	Operational value	Typical locations
Existing CCTV upgrade	Improve recording and remote access while retaining serviceable coaxial cameras and cable runs.	Retail, restaurants, offices, residential buildings, schools
Phased analog-to-IP migration	Replace high-priority camera points first and move remaining points according to budget or lifecycle.	Multi-building sites, campuses, warehouses, branch networks
Mixed scene requirements	Use analog cameras for stable general views and IP cameras for scenes requiring added detail or flexible networking.	Entrances, counters, loading areas, parking, perimeter zones
Budget-sensitive branch security	Standardize one recorder-based platform across smaller locations with a controlled mix of camera types.	Shops, clinics, local offices, service centers
Temporary or transitional deployment	Support a site during renovation, relocation, or gradual infrastructure modernization.	Construction phases, leased facilities, takeover projects
Centralized operational access	Provide local recording while enabling authorized remote users or a management platform to view and investigate.	Multi-site operations, regional security teams, managed services

Value by stakeholder

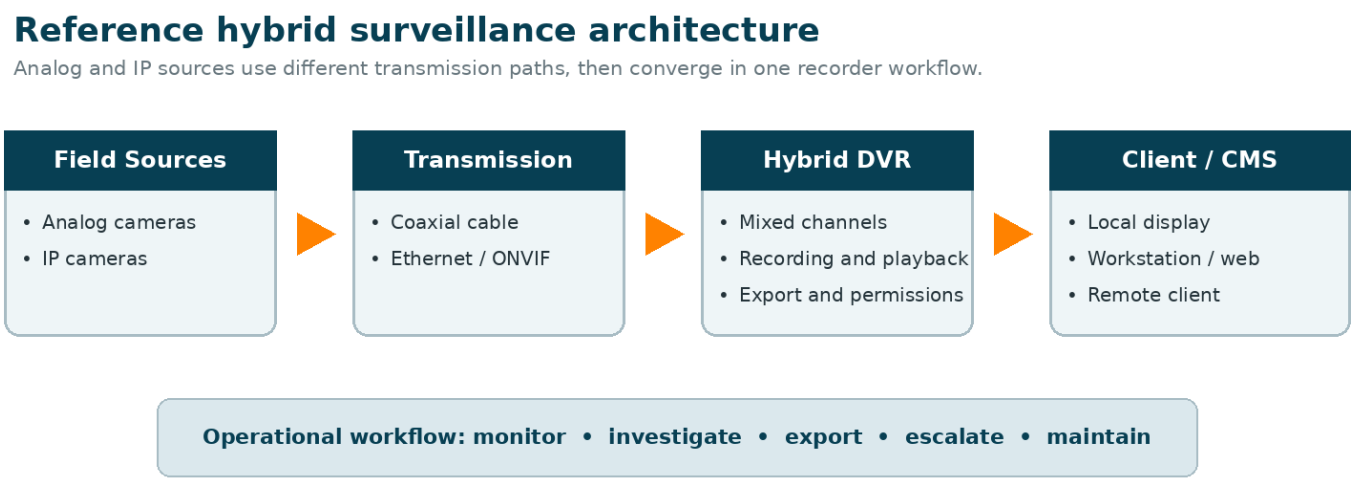
Stakeholder	Main benefit
Security manager	One evidence workflow across retained analog cameras and newly deployed IP cameras.
Control room operator	Consistent live view, playback, export, and remote access through the recorder or client interface.
Facility / operations manager	Lower installation disruption and a clearer replacement plan for legacy assets.
System integrator	Flexible design option for brownfield sites, price-sensitive projects, and phased upgrades.
Consultant / procurement team	More precise specification language for channel mix, compatibility, retention, network design, and migration stages.

6. System Architecture

A hybrid surveillance architecture has two field paths. Analog cameras carry video through coaxial infrastructure to direct recorder inputs. IP cameras send encoded streams through Ethernet and the site network. The hybrid DVR records both sources and provides local display, playback, export, user permissions, and remote access.

Project teams should confirm camera power, cable condition, switch and PoE capacity, IP addressing, analog format, network bandwidth, storage, time synchronization, local display, remote access, export, and the intended migration sequence.

Reference system architecture



Architecture layers

Layer	Role in hybrid surveillance
Analog field layer	Analog cameras, coaxial cabling, connectors, power distribution, grounding, signal format, distance, and cable condition.
IP field layer	IP cameras, Ethernet/PoE, switching, VLANs, addressing, ONVIF, bandwidth, cybersecurity, and time synchronization.
Recording layer	Hybrid DVR receives both source types, records evidence, manages retention, playback, export, local display, and user access.
Management layer	Workstation, web, mobile, or central management provides multi-user and multi-site monitoring, investigation, and administration.
Response layer	Operator procedures, escalation, guard dispatch, evidence handoff, maintenance, reporting, and third-party integration.

7. ACTi Product Portfolio Overview

ACTi positions its Hybrid DVR portfolio as compact standalone recorders that combine HD analog and IP camera channels. The official category page highlights mixed-camera support, remote access over the IP network, TVI/AHD/CVI/CVBS compatibility, plug-and-play operation, and NDAA-compliant options. [1]

Portfolio categories

Category	Where it fits	Use-case fit
Compact standalone hybrid DVR	Local appliance for small and medium mixed-camera deployments.	Branches, retail, restaurants, offices, residential and light commercial sites
Analog-focused hybrid configuration	Projects retaining a larger installed analog base while adding a limited number of IP cameras.	Brownfield upgrades and budget-controlled migration
Balanced mixed-channel configuration	Projects that need meaningful capacity for both analog and IP inputs.	Renovations, multi-zone sites, staged modernization
IP-expansion configuration	Projects using the recorder as a transition platform while increasing network-camera adoption.	Phased analog-to-IP conversion and new high-priority IP views
Single-appliance storage design	Sites that prefer a straightforward local storage and display workflow.	Small sites with defined retention and limited maintenance complexity
Compliance-oriented selection	Projects requiring current confirmation of NDAA or other regional procurement conditions.	Government-related, regulated, and supply-chain-sensitive projects

Portfolio-level capabilities to confirm

- Analog channel capacity, IP channel capacity, and any rules governing the total mixed-channel allocation.
- Analog formats, IP interoperability, supported codecs, resolution, frame rate, audio, and event behavior.
- Storage bay design, maximum supported disk capacity, recording mode, retention, export, and backup strategy.
- Local display outputs, decoding limits, simultaneous playback, user accounts, remote access, and client compatibility.
- Network interfaces, cybersecurity controls, firmware policy, time synchronization, logging, and secure service practices.
- Environmental limits, power supply, mounting, accessories, regional availability, and current compliance status.

Project note

Product availability, exact channel combinations, detailed specifications, compliance status, firmware behavior, and regional part numbers should be reconfirmed from the latest ACTi product pages, datasheets, release notes, and quotation documents before project submission.

8. Related Keywords and Terminology

The following reference groups collect common terms related to hybrid recorders, mixed analog and IP surveillance, migration, storage, remote access, security operations, and project procurement.

Core topic keywords

hybrid DVR, hybrid digital video recorder, mixed analog and IP recorder, hybrid surveillance recorder, analog IP camera recorder, standalone hybrid DVR, professional hybrid DVR, CCTV migration recorder, recorder-based surveillance

Analog input and infrastructure keywords

TVI DVR, AHD DVR, CVI DVR, CVBS DVR, coaxial camera recorder, HD analog DVR, analog camera input, BNC video input, coaxial cable reuse, analog CCTV upgrade, plug-and-play recorder

IP integration keywords

IP camera channel, ONVIF camera integration, Ethernet camera recording, network camera stream, H.264 recorder, H.265 recorder, IP camera bandwidth, PoE network design, VLAN for surveillance, third-party IP camera compatibility

Recording and storage keywords

video retention, surveillance storage calculation, continuous recording, event recording, motion recording, playback search, synchronized playback, evidence export, recording bitrate, hard disk capacity, local video storage

Operations and access keywords

remote viewing, local display, web client, workstation client, mobile surveillance, user permissions, audit log, incident investigation, evidence management, multi-site monitoring, control room workflow

Migration and application keywords

analog to IP migration, phased CCTV upgrade, brownfield surveillance, mixed camera deployment, branch security recorder, retail hybrid DVR, restaurant CCTV recorder, office surveillance, warehouse camera system, residential security recording

Procurement and design keywords

hybrid DVR specification, total channel capacity, analog IP channel allocation, CCTV compatibility check, hybrid DVR for system integrators, hybrid DVR for consultants, hybrid DVR for end users, NDAA hybrid DVR, surveillance lifecycle planning

Common question phrases

what is a hybrid DVR, how does a hybrid DVR work, hybrid DVR vs NVR, hybrid DVR vs DVR, can analog and IP cameras use one recorder, how to reuse coaxial CCTV cable, how to migrate from analog to IP cameras, how to calculate DVR storage

Source notes

This white paper is based on ACTi public source pages and general surveillance system-design practices. Product details should always be reconfirmed against the latest ACTi datasheets, firmware release notes, regional availability, and quotation documents before formal project commitment.

Ref.	Source
[1]	ACTi Corporation, “Hybrid DVR,” official product category page. URL: https://www.acti.com/products/hybrid-dvr. Accessed: July 21, 2026.
[2]	ACTi Corporation, “About ACTi,” official corporate page. URL: https://www.acti.com/corporate/about. Accessed: July 21, 2026.

Revision note: This document is a marketing and technical education white paper. It is not a regulatory certification, cybersecurity standard, or final project design. Validate compatibility, retention, bandwidth, evidence quality, remote access, and operator workflow in the target environment before deployment.

Prepared by ACTi Corporation
For hybrid DVR projects, confirm camera mix, analog format, IP interoperability, channel allocation, storage, client access, compliance, and regional availability with your ACTi sales contact or authorized system integrator.
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