

Clairview is a professional IP Surveillance brand developed and supplied by VMSOft/Orion Technology

Specification Sheet

Network Video Recorder

Video Management Solution, VMS, NVR, IVS

Intelligent Video Analytics Solution

September 2017

Smart IP Video Surveillance Solution

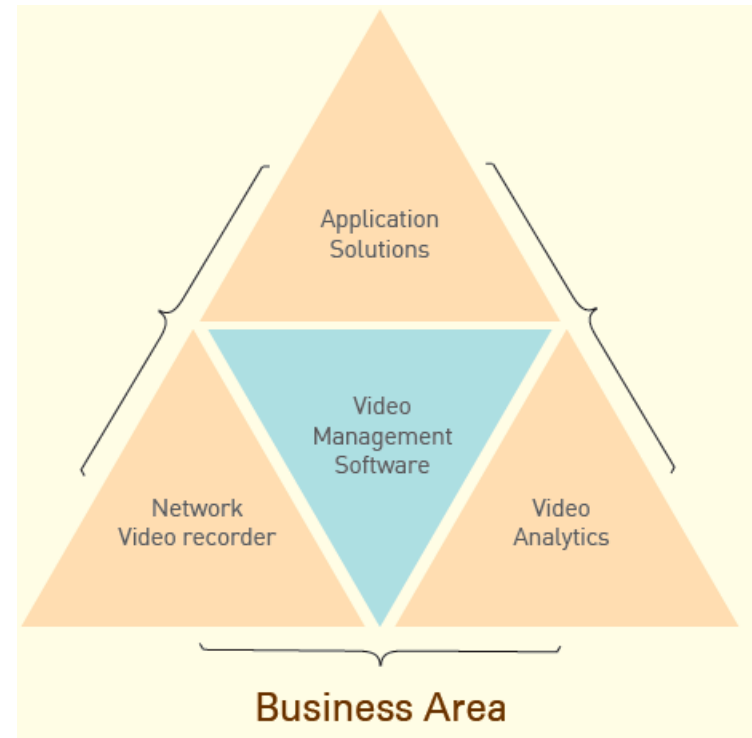


0. Clairview Introduction

Clairview is not only making **conventional NVR** and **VMS** packages.

Clairview recently and upcoming with a number of extensive applicable solutions such as:

- IP Matrix video wall controller
- Video analytic-based forensic search module
- Video gateway server
- RETINEX-based video enhancement module
- Fire detection module without using VA
- GPU-applied NVR software.



1. Clairview Total Solution

NVR

- NVR is like a stand-alone embedded NVR, NVR solution have one server and one client.
- NVR is able to management and operate on its own machine (No CMS).

VMS

- VMS have multi server and multi client.
- VMS is integrated all servers logically.
- VMS administrator can configuration and monitoring, linked event device etc. all servers.

Product	item	License
NVR	Basic	64,49,36,25,16,9,4ch
	VA	64,49,36,25,16,9,4ch
	Fire Detection	36, 25, 16, 9, 4ch
	CMS	Limitless
	CMS Pro	Unit
VMS	Basic	Channel L/C
	VA	Channel L/C
	Fire Detection	Channel L/C
	Smart Client Pro	Unit
Solution	Gateway Server	Server L/C
	RTD Video Wall	Unit
	Parking Violation	Channel L/C
	GIS Client	Unit
SDK	Clairview Sever	-
	Fire detection Module	-

1. Clairview Total Solution

Item	Features	NVR	CMS	VMS	
Overview	Open Platform : Open API, SDK Supported, Third Party Solution integration	√		√	
	Multi-Monitor supported	√	√	√	
	2-Way Audio supported	√	√	√	
	Developed Database for Clairview	√	√	√	
	Device Plugin	√		√	
	Fail over (Standby & Active)	√		√	
	User Management : Detail User Authorization	√	√	√	NVR: login at local single server VMS : login at multi server
	Integration server (Recording server, User account)			√	
	Active-X supported	√		√	
	Health monitor	√		√	
Live & Monitoring	Multi-View Registration & Select, Automatically change the split screen	√	√	√	NVR: monitoring with videos added by local single server VMS : monitoring with videos added by multi server
	Instant Playback supported	√	√	√	
	Supported E-Map	√	√	√	
	Dual Streaming Display	√	√	√	
	Adaptive Display	√	√	√	
	GIS based Client			√	
Recorder	Continuous/Motion/Event Recording supported	√		√	
	Recording Scheduling	√		√	
	Multi Channel Linked Recording by Event	√		√	NVR: linked event at local single server VMS : linked event at multi server
	Unlimited Recording Quality & Capabilities : Limited by System Spec & IP Devices	√		√	
Search	Smart Search : Motion(Event), Thumbnail, Panorama	√	√	√	
	Book Mark : Backup function linked	√	√	√	
	TimeLine Positioning (Under the images or over the images)	√	√	√	
Play back	Time-Synched Playback	√	√	√	
	Progressive Play Control (2,4,8,16,64x speed)	√	√	√	
Backup	AVI, DB Backup supported	√	√	√	
	CD, USB, HDD, Ext. Storage NAS	√	√	√	

1. Clairview Total Solution

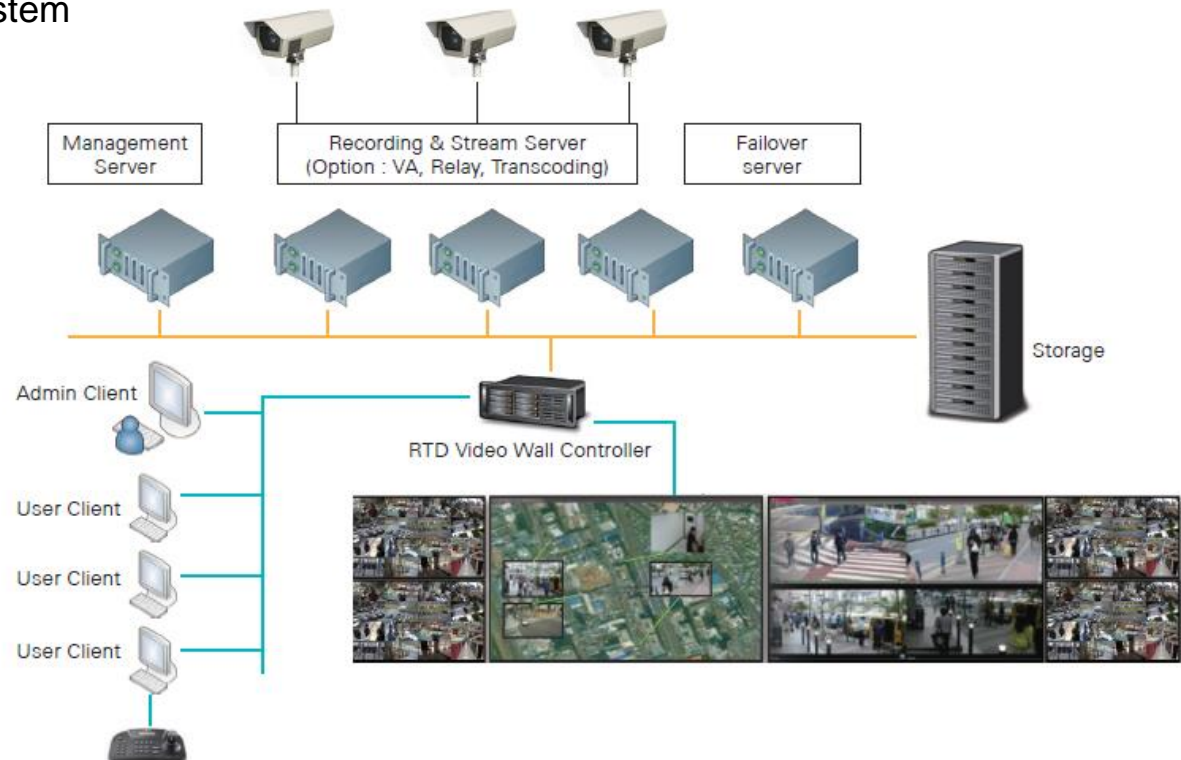
Item	Features	NVR	CMS	VMS	
Media Streaming	Each Live, Search, Backup Streaming supported	√	√	√	
	Relay Server & Broad Cast Streaming supported			√	
	Auto Bandwidth Adjustment	√	√	√	
PTZ Control	Mouse	√	√	√	
	Joystick Control (USB type)	√	√	√	
	Auto-Touring	√		√	
	Supported One-Click Control (On Screen PTZ control)	√		√	
Configuration	IP Devices and other System Auto-detect (Discovery) supported	√		√	
	Recording Profile Setup	√		√	
	User Setup data Auto Save function	√		√	
	Configuration Data Export	√		√	
	CSV File Import supported : simultaneous configuration over multiple Devices	√		√	
Plugin Interface	IP Camera / Video Server	√	√	√	
	DVR & NVR plugin			√	VMS : streaming via server to server
	ONVIF supported	√	√	√	
	Gateway Server Streaming/Relay service	√		√	
Solution	RTD Video Wall IP Matrix & video controller for a large number of HD Channels	√		√	
	Parking Violation Parking violation system based on VMS			√	
3rd party	Event server			√	
	Integrated Access control, License plate recognition, Alarm device etc			√	

1. Clairview VMS / Features

Clairview VMS is to enable security professionals to architect an integrated surveillance System in pursuant to the security purpose & site condition, for Clairview VMS is basically designed by distributed server diagram on multi-to-multi connections.

Major features

- Limitless video channel integration
- Distributed system diagram by core function
- Various IPC model plug-in on open-architecture
- Easy add of optional modules to basic package
- Ready-to-interface with 3rd party system



1. Clairview VMS / Features

Major functions	Description
Integration server	Integration server is to connect, control, and relay VMS servers so that it basically enables serial connections of multiple VMS servers.
Recording server	Recording server is to receive and store IP video data by the rule of its own ZEUS DB structure so that a security professional is able to easily add more recording servers upon his demand.
Streaming server	Streaming server is to stream video data to a variety of remote clients at effective network bandwidth management.
Smart client	Smart client is to utilize the full functions of VMS in the standpoint of remote administrator on the basis of multi to multi connections.
GIS client (Option)	GIS client is to display space vector data on geographic map, arrange a set of device icon, and display IP CCTV video in connection with the space data & a set of icon so that security administrator is able to intuitively monitor live video. Pop-up window triggered by event alert, zooming-in & out of the map, editing the video linkage with icon are all available in it.
Failover server (option)	For prompt contingency method, failover server is to take over the recording storage in replacement of any malfunctioning storage server so as to minimize video data loss.
Video analytic server (Option)	Not only a variety of video analytic modules have been interfaced with either NVR or VMS, but also forensic video search by VA meta-data rules is available on the basis of full integration with edge-device-compatible IPCs.
Fire detection (option)	Without using a specific VA module, fire detection is functionally available in both NVR and VMS as an option. It detects a fire in video scene if the fire is kept for over 5 seconds. This fire detection module might be valid not as a primary fire prevention solution, but a secondary alerting tool in association of video surveillance.



2. Clairview NVR / Features

Clairview NVR is to get the core parts of VMS modules operated in single platform, producing video process of record, display and stream full HD video up to 64 HD channels.

Clairview NVR offers 4, 9, 16, 25, 36, 49 and 64 licensed channel sets.

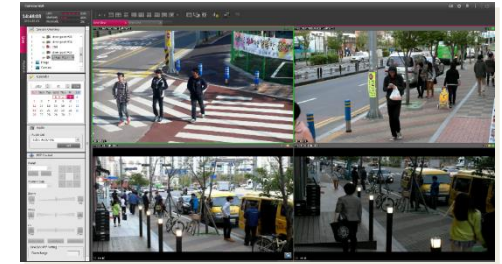
Following is optional modules to the basic NVR package

- fire detection
- smart search
- intelligent video forensic search using video analytic meta data
- IP video matrix
- GIS client
- LPR
- VA edge-device
- VA server modules, etc.

Not necessarily building up a scalable VMS system, instead, this type of powerful Clairview NVR installation must have saved a considerable amount of the budget.

Major features

- Optimized performance archived.
- Interface of a variety of IP camera models and brands
- Simultaneous operational performance on record/display/stream/archieve
- Multi-functioning web-client








2. Clairview NVR / Features

Major functions	Description
Record profile	User can customize and register recording profile in NVR by recording mode, assortment of video/audio & event, time, and motion zone. Each profile is independently operational.
Adaptive display	Adaptive display is to automatically switch video streaming codec from primary resolution to secondary one in multichannel view, or vice versa in single/quad channel view, so that the user can monitor live video at the optimum speed of the frame rates and the best video resolution fitting in the size of each channel.
ZEUS video engine	Clairview® NVR is operated on its own proprietary database engine named ZEUS minimizing a commercial DB system for independently optimum process of video storage & management.
Fish-eye camera support	Either 180 degree or 360 degree of view angle is supportive through API interface between fish-eye cameras and Clairview® NVR. User can simultaneously monitor the both general view of the fish-eye angle and also split view by normal rectangle video ratio.
Powerful multilateral performance	Maximum 64channel display in single platform, absolute time-synchronization in multi-channel playback, all-channel real-time recording speed up to 64 camera connections, built-in dual-streaming server, speedy backup performance, bookmark & panoramic search, smart search for option, fire-detection for option, video-analytics for option, intelligent forensic search for option, etc.
Video Analytic IP camera interface (License option)	Full lines of video analytic IP cameras interfaced with NVR/VMS by edge-device offer a security manager wider options of VA functions in the practice of intelligent video search. All the meta data of video analytics are fully recorded along with video objects & events though user does pre-configure any VA rule. Yet, user is able to utilize these VA rules for search, so that the user can instantly sort out the target object with his own conditions.
Video Analytic server module (License option)	A server type of various video analytic modules is optionally available ; loitering, people count, smart direction, intrude, virtual fence, exit, tampering, etc.
RETINEX image enhancement (License option)	This special image enhancement is to manipulate a part or whole of light in each video frame by frame in order to produce the best possible image in the standpoint of user's target ; letter line, WDR-cleared object, effects of back-light-compensation, etc.
Fire detection (Fire detection)	Maximum 40 channels of fire detection at D1 resolution is optionally available. Detecting fire for longer than 5 seconds will trigger event alarm, which might be a secondary fire prevention system along with primary anti-fire solutions.
Smart search (License option)	Many cameras connected to VMS/NVR through RTP/RTSP/ONVIF protocols without motion-detection interface. User can simply set single or multiple zones for the system to automatically detects motion clips in thumbnails at X100 higher speed during playback.
GIS client (License option)	GIS client is to display space vector data on geographic map, arrange a set of device icon, and display IP CCTV video in connection with the space data & the set of icon so that security administrator is able to intuitively monitor the live video. Pop-up window triggered by event alert, zooming-in & out of the map, editing the video linkage with icon are all available in it.

2. Clairview NVR / Hardware specification

- **IPX-ST series** : Industrial chassis – Hospital, schools, campus, and other medium-size applications.
- **IPX-EP series** : **Built-in Storage Server** Public sectors, buildings, complex, enterprise-size applications /
No need for extended-storage device required (Cost-saving effect)



Description	IPX-ST series	IPX-EP series			
					
Recommend Channel	16~32CH	16~32CH	32~64CH	32~64CH	64CH
CPU	intel core i-3 / i-5/ i-7	intel Xeon E3-1220v2	intel Xeon E3-1230v2	intel Xeon E3-1240v2	intel Xeon E3-1270v2
HDD bay	SATA 6port	SATA 6port Hot-swap 6bay	SATA 8port Hot-swap 8bay RAID controller 0,1,5,6,10,50,60	SATA 12port Hot-swap 12bay RAID controller 0,1,5,6,10,50,60	SATA 24port Hot-swap 24bay RAID controller 0,1,5,6,10,50,60
Master Drive	SSD 120GB (for OS)	SSD 120GB (for OS)	SSD 120GB (for OS)	SSD 120GB (for OS)	SSD 120GB (for OS)
Storage	MAX 15TB (3TBx5EA)	MAX 20TB (4TBx5EA)	MAX 28TB (4TBx7EA)	MAX 44TB (4TBx11EA)	MAX 92TB (4TBx23EA)
NIC	Gigabit LAN 1port	Gigabit LAN 2port	Gigabit LAN 2port	Gigabit LAN 2port	Gigabit LAN 2port
Power Supply	450W (ATX single power)	550W (Dual Redundant PSU)	550W (Dual Redundant PSU)	550W (Dual Redundant PSU)	760W (Dual Redundant PSU)
OS	Windows 10	Windows 10	Windows 10	Windows 10	Windows 10
Size	19" 4U 482(w)x177(h)x400(d)	19" 2U 482(w)x88(h)x660(d)	19" 2U 482(w)x88(h)x660(d)	19" 2U 482(w)x88(h)x660(d)	19" 4U 482(w)x176(h)x660(d)

2. Clairview NVR / Recording & Live performance

- Recording spec : Full HD 64ch x 30fps = **1920fps**

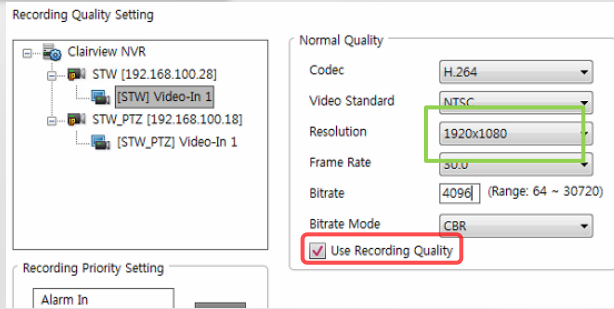
CPU i7-3770 Memory 4G PC-10600 HDD 1TB(ST31000524AS) 7200rpm							
Live	Resolution	VGA	channel	CPU Sharing	MEMORY	Live FPS	Remark
	1920X1080 2Mbps	GT630	6	approx 73%	550MB	370fps	
	1280X720 2Mbps	GT630	8	approx 45%	250MB	530fps	
	D1 512K 30fps	GT630	64	approx 90%	550MB	1920fps	
Recording	Resolution	No. of Ch.	CPU	MEMORY	Network(1Gbps)	Recording FPS	Remark
	1920X1080 2M 30fps	64CH	11%	250M	28%	1920	
		48CH	9%	150M	20%	1440	
		32CH	8%	100M	15%	960	
		16CH	5%	100M	7%	480	
	1280X720 1.3M 30fps	64CH	8%	100M	17%	1920	
D1 512K 30fps	64CH	6%	100M	5%	1920		

- LIVE Decoding Improvement Function : Adaptive Display (Auto/Instant adjustment of streaming resolution by display screen)

2. Clairview NVR/VMS / Functional features

- **Dual Streaming setting / Live resolution auto-adjustment**
 - Auto-adjustment of streaming resolution by display screen mode in split.
 - Dual streaming setting; high & low-resolution (IP camera to be available)
 - Optimum video resolution for record & display.
 - Select record/play video channel.

Record setting

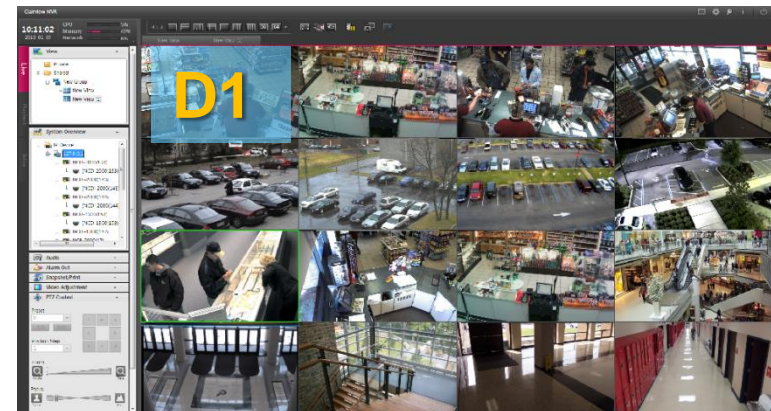
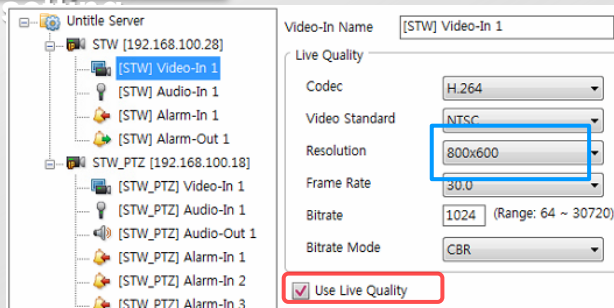


Auto-switching of Live resolution



- Auto-adjustment of streaming video resolution by display split.

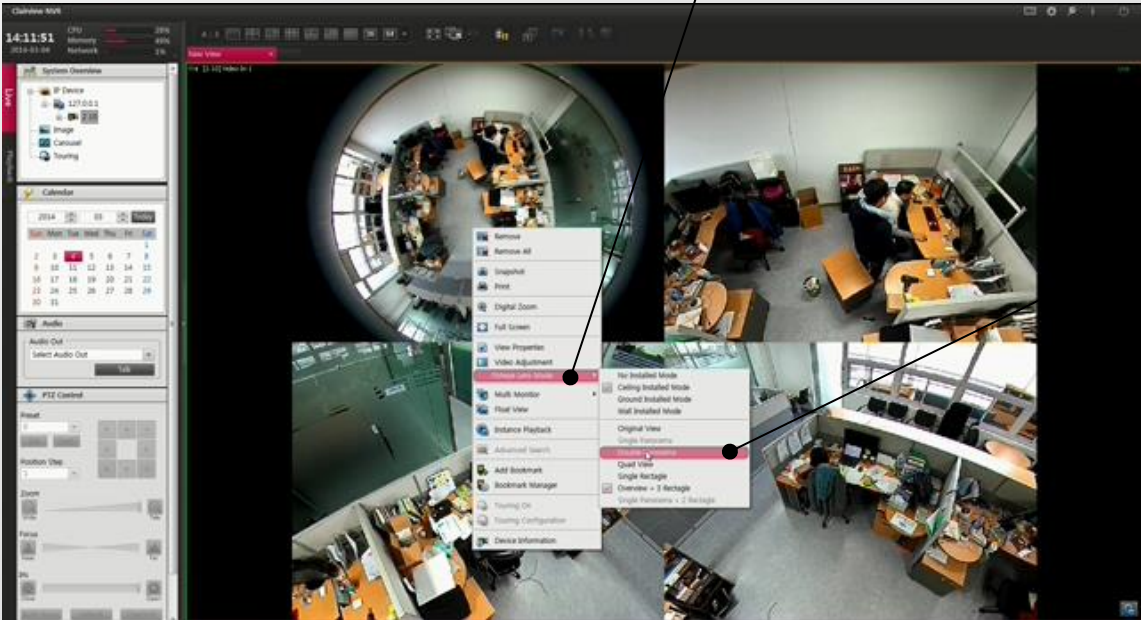
Live video



2. Clairview NVR/VMS / Functional features

- **360° Fish-eye camera**
 - Installation mode (Ceiling, Wall, Ground)
 - View mode (Double Panorama, Quad, Single, Overview + 3Rectangle)
 - Live/Play mode change support
 - Model plug-in shall be available

Fisheye



Fish-eye mode

Installation, View mode

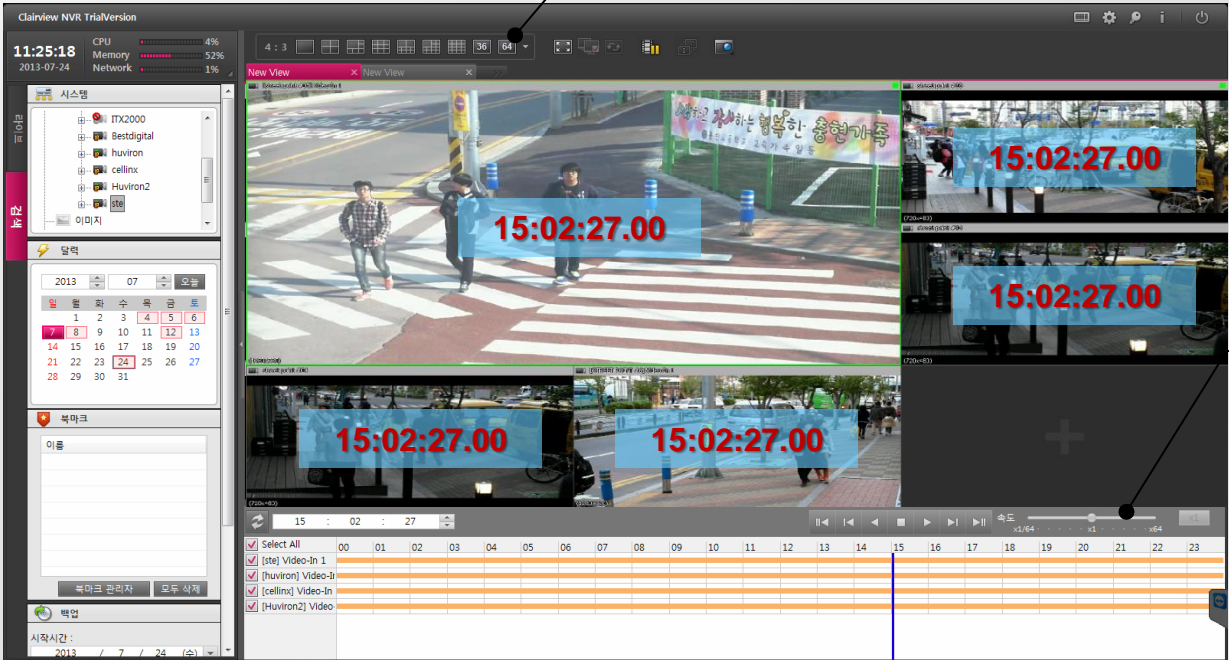
2. Clairview NVR/VMS / Functional features

• Powerful Playback

- Max. 64ch simultaneous play
- Fast play X1, 2, 4, 8, 16, 32, 64.
- Accurate time-synchronization in multiple channel play.
(Reliable accuracy in time synchron.)

Time synchron.

64ch display



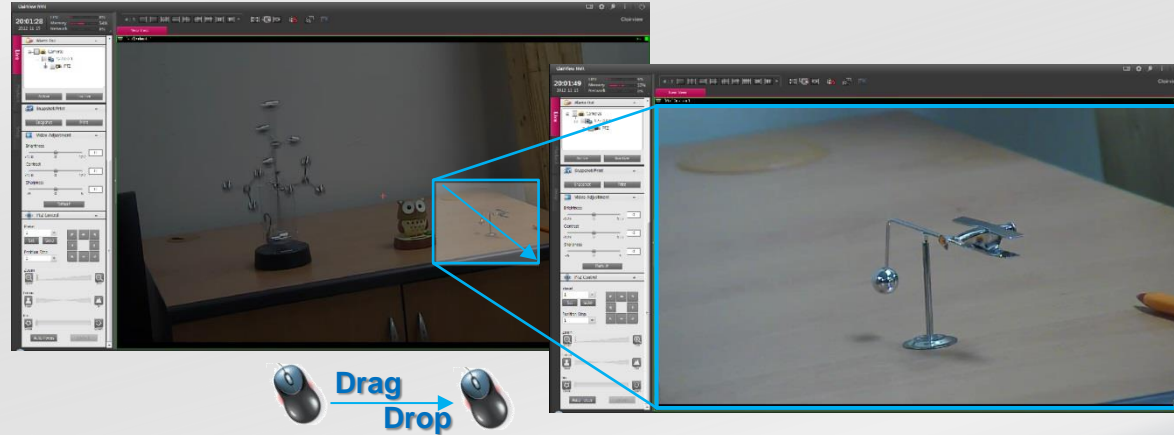
Fast play
X1,2,4,8,16,32,64

15:02:27.00

User interface : Intuitive control

One click PTZ

- **Pan & Tilt (Swing)**
Mouse pointer click on screen.
- **Zoom in**
Drag & Drop in quadrangle zone



Joystick

- **System**
Smart Client PC & Joystick Controller to be connected through USB port.
- **Control/Operation**
PTZ control over network by Smart Client
- Select camera ID, Pan Tilt Zoom

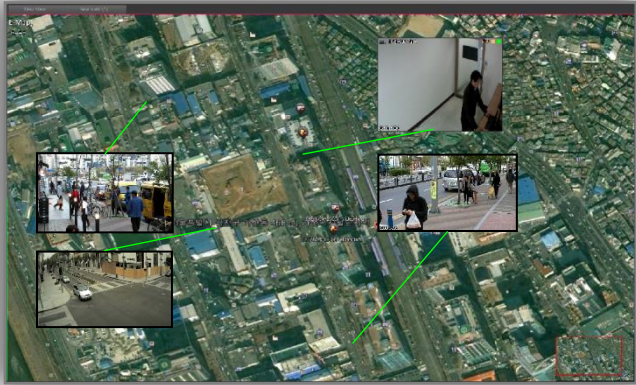
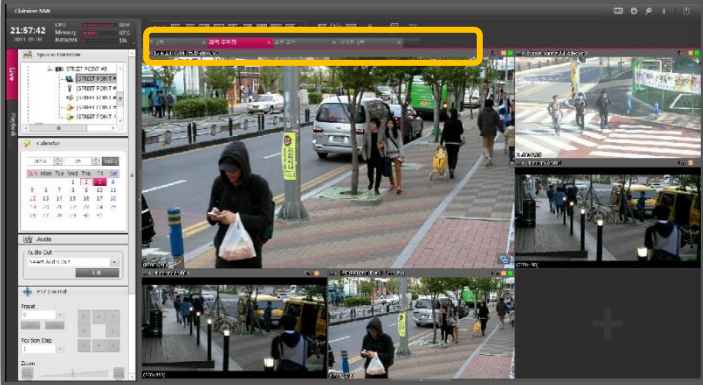


2. Clairview NVR/VMS / Functional features

- **Live & Emap view page**
 - Easy page creation of video surveillance screen and Emap.
 - Sequence, and multi-monitor support for the created view pages.
 - Actual data streaming process for visible channels in view pages only.

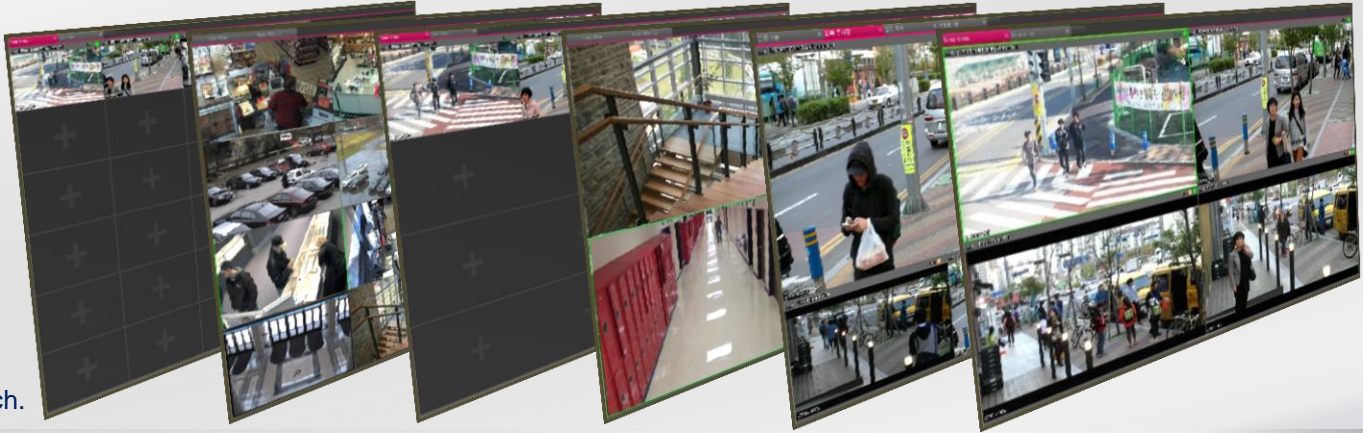
Multi monitor

- **View page creation**
Simultaneous multiple-pages and e-map page.
- **E-map**
Registering multiple maps, Auto pop-up, Easy adjustment of window.



Multi view page

- **View page creation**
Simultaneous multiple-pages, and e-map page.
- **Various split mode**
1, 4, 6, 10, 13, 16, 36, 64
- Duplicate allocation of channel,
- Actual data streaming for visible ch.



2. Clairview NVR/VMS / Functional features

• Profile

- Independent camera settings
- Record mode : Continuous, Motion detection, Alarm
- Record quality setting : Resolution, Frame rate, Bitrate, Codec
- Profile setting by weekly & hourly.

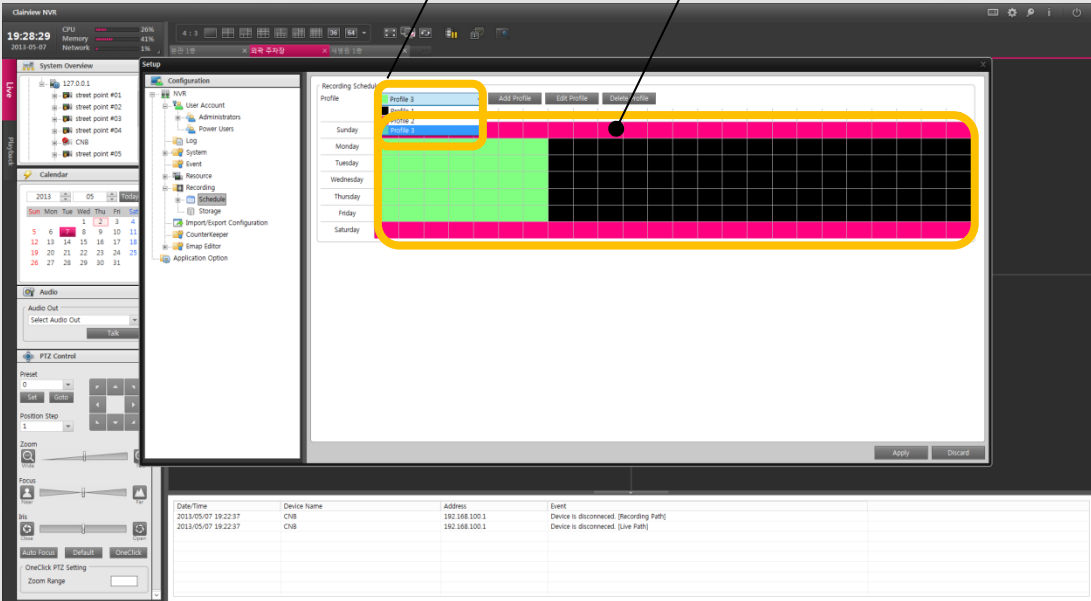
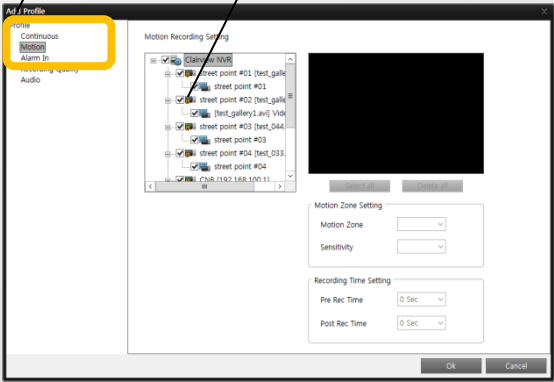
Multi monitor

Recording Mode

Camera each

Profile list

Profile Time table

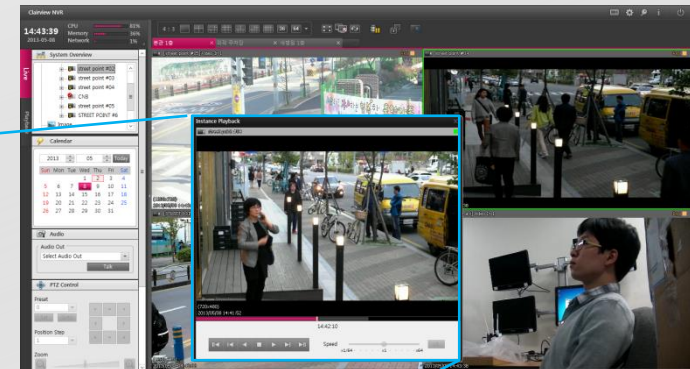
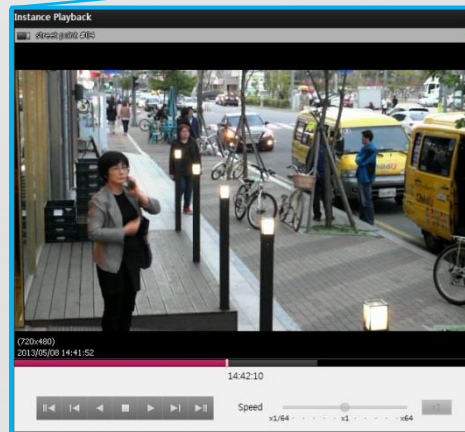


- **Instant Playback**

- Quick play upon event alert during real-time live monitoring.
- Latest 5minute~1minute of video data.

Instant playback

- **Simultaneous live & instant play.**
- Prompt action upon event alert.



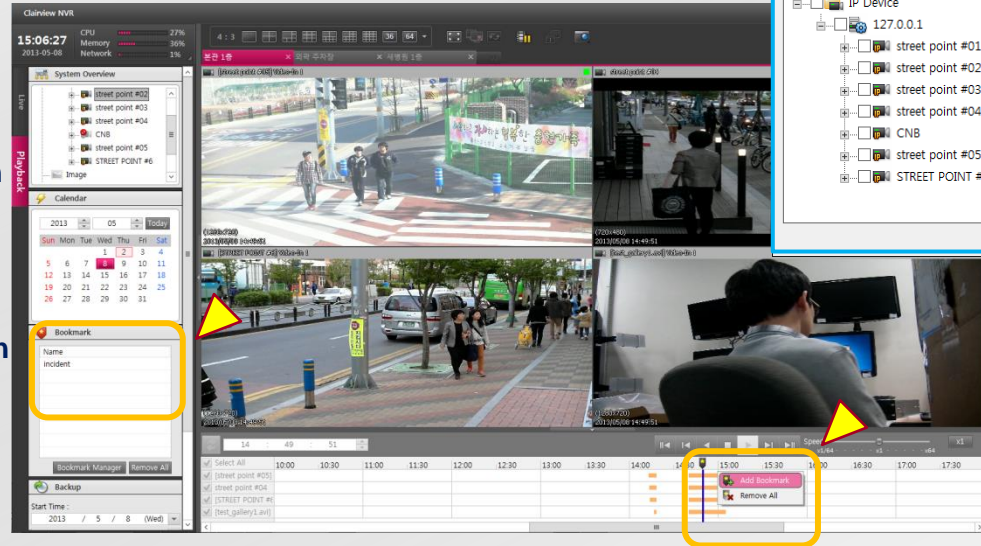
2. Clairview NVR/VMS / Functional features

• Advanced search

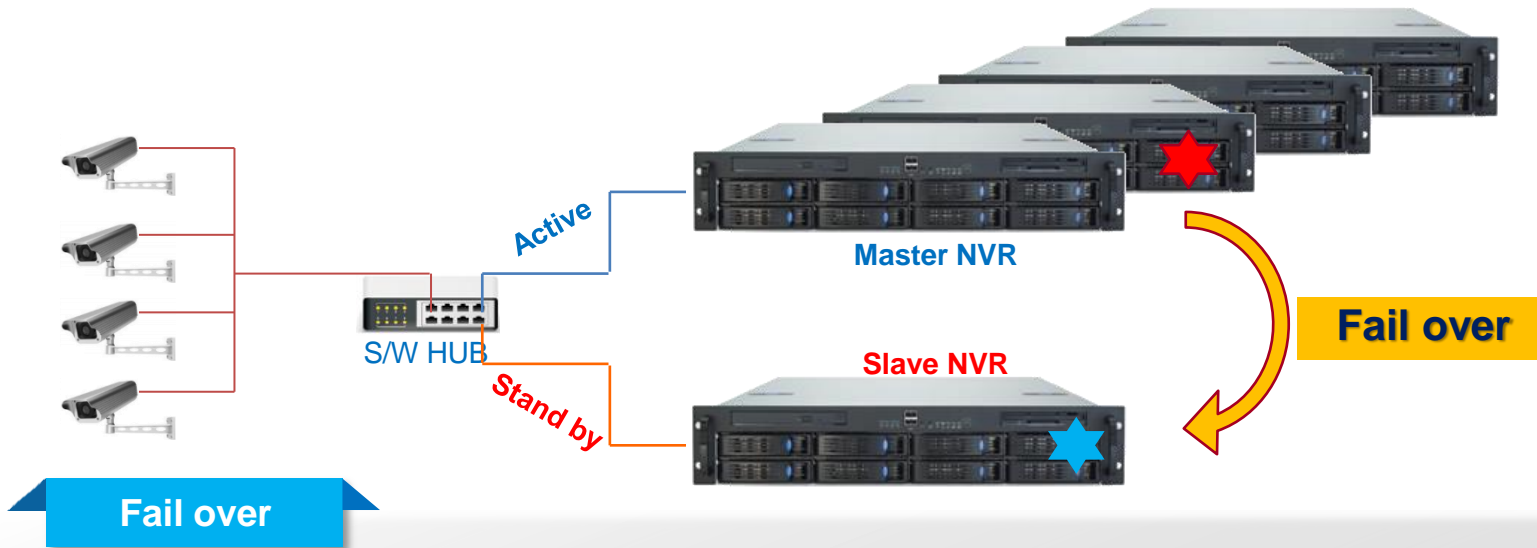
- Intelligent target search in massive amount of video data.
- Instant search with Bookmark function.

Book mark

- Marking on key video data.
- Easy setting with one-click mouse button & camera selection.
- Instant search in advanced search Bookmark list.
- Simultaneous multi-channel search HD video search.

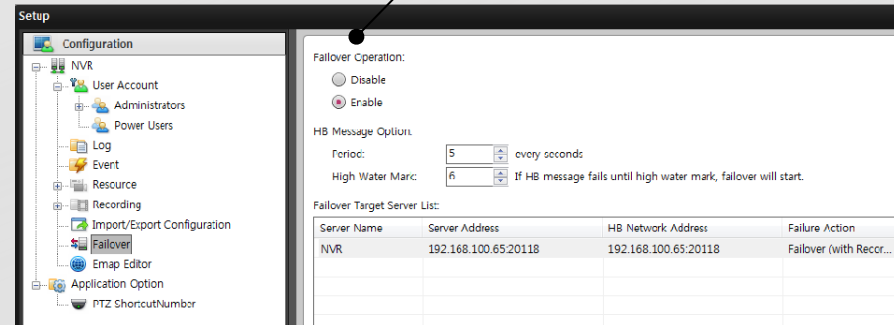
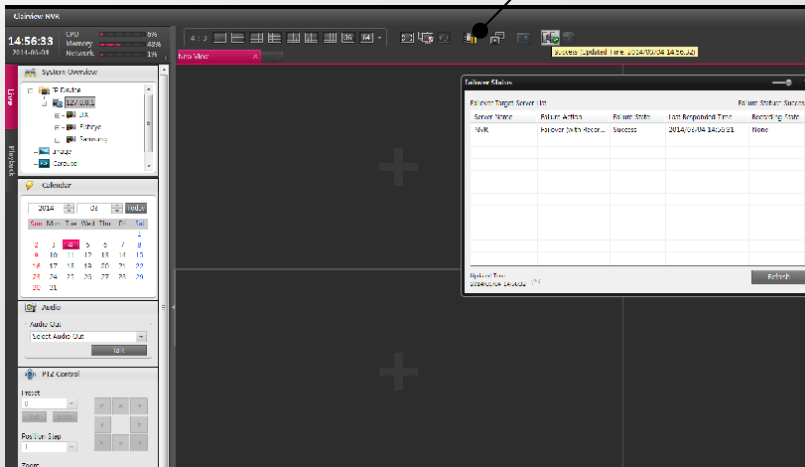


3. Clairview NVR/VMS Option / Failover server



NVR Status monitoring

Fail over setting



- Master NVR status monitoring.
- Auto-transferring the role of disabled NVR to standby slave NVR.

3. Clairview NVR/VMS Option / Video Analysis

- Maximum 64ch per server ; video analysis & event process
- 3D Calibration support
- Object detection (**size, speed, color**)
- VA event (**Loitering, intrusion, stop, counting, enter, exit, object remove**)
- Fast smart search (event type, object type, filter)
- Programmable search with VA rules

VA NVR
64, 49, 36, 25, 16, 9, 4ch

No.	Rule ID	Event Type	Time
1	1	Forward Direction	2014/07/21 11:24:15
2	2	Enter	2014/07/21 11:24:16
3	2	Enter	2014/07/21 11:24:48
4	2	Enter	2014/07/21 11:27:20
5	2	Exit	2014/07/21 11:27:22
6	2	Enter	2014/07/21 11:27:31
7	2	Exit	2014/07/21 11:27:32
8	2	Enter	2014/07/21 11:35:05
9	1	Reverse Direction	2014/07/21 11:35:06
10	2	Enter	2014/07/21 11:42:11
11	1	Reverse Direction	2014/07/21 11:42:13
12	2	Enter	2014/07/21 11:45:27
13	2	Enter	2014/07/21 11:45:27
14	2	Enter	2014/07/21 11:45:27
15	2	Enter	2014/07/21 11:45:27
16	2	Enter	2014/07/21 11:45:27
17	2	Enter	2014/07/21 11:45:28

Category	Image
Dome (indoor)	
Bullet (indoor)	
IR Dome (indoor)	
IR Dome (outdoor)	
Bullet (outdoor)	

3. Clairview NVR /VMS Option / Video Analysis

Solution Comparison

Clairview VA solutions	Built-in VA IP camera	VA server system IntelliVision
<ul style="list-style-type: none"> • Built-in VA IPC • No process burden by server 	<ul style="list-style-type: none"> • VA process by built-in IPC module 	<ul style="list-style-type: none"> • VA process by server PC
<ul style="list-style-type: none"> • Max.64ch of HD VA video support 	<ul style="list-style-type: none"> • Integrated system requirement • Time schedule required for integration • Budget required for integration 	<ul style="list-style-type: none"> • Max 16channel VA supports
<ul style="list-style-type: none"> • Hybrid VA supports ; VA IPC & VA server • 3rd party IPC support 	<ul style="list-style-type: none"> • Integrated VA camera support only • Specific models only • No compatibility with other models 	
<ul style="list-style-type: none"> • Compatible with other solutions ; VMS, MATRIX, Stream Server 	<ul style="list-style-type: none"> • 3rd party VMS integration required • Time schedule required for integration • Budget required for integration 	<ul style="list-style-type: none"> • 3rd party VMS integration required • Time schedule required for integration • Budget required for integration
<ul style="list-style-type: none"> • Minimizing the number of operational servers • Consistent solution integration (Easy & Cost-effective system maintenance) 		<ul style="list-style-type: none"> • High-performance server PC required (High cost platform)

* Comparison based on the same recognition performance



3D Calibration

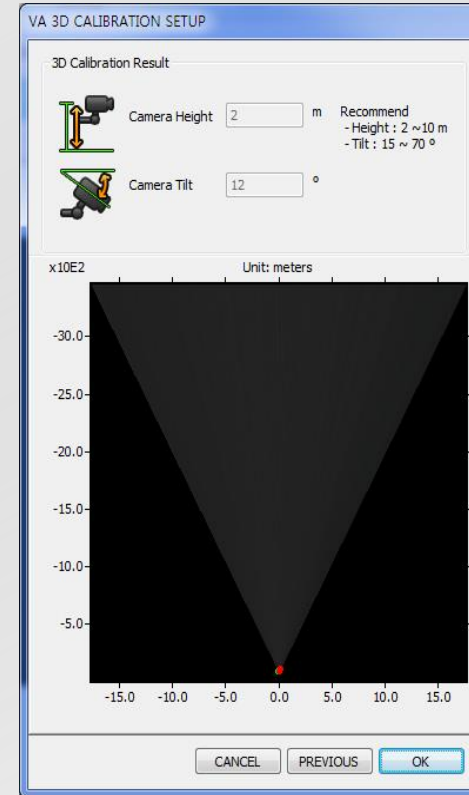


1. User interface : Wizard configuration
2. 3D Calibration : Min.5 icons -> Height, Angle
3. Object category :

size

color

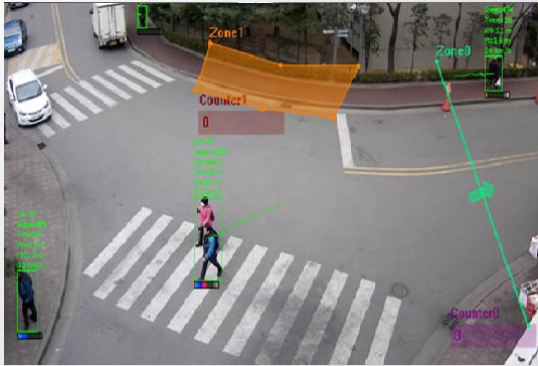
speed



PATENT







3. Clairview NVR/VMS Option / Video Analysis

Rule : Line (fence)

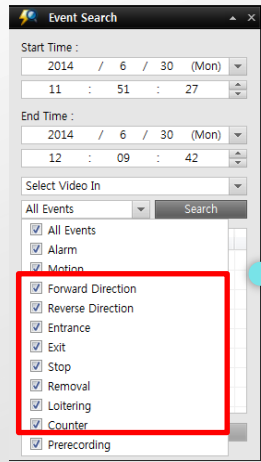


	Forward Direction
	Reverse Direction
	Counter

Rule : Area

	Entrance
	Exit
	Stop
	Removal
	Loitering
	Counter

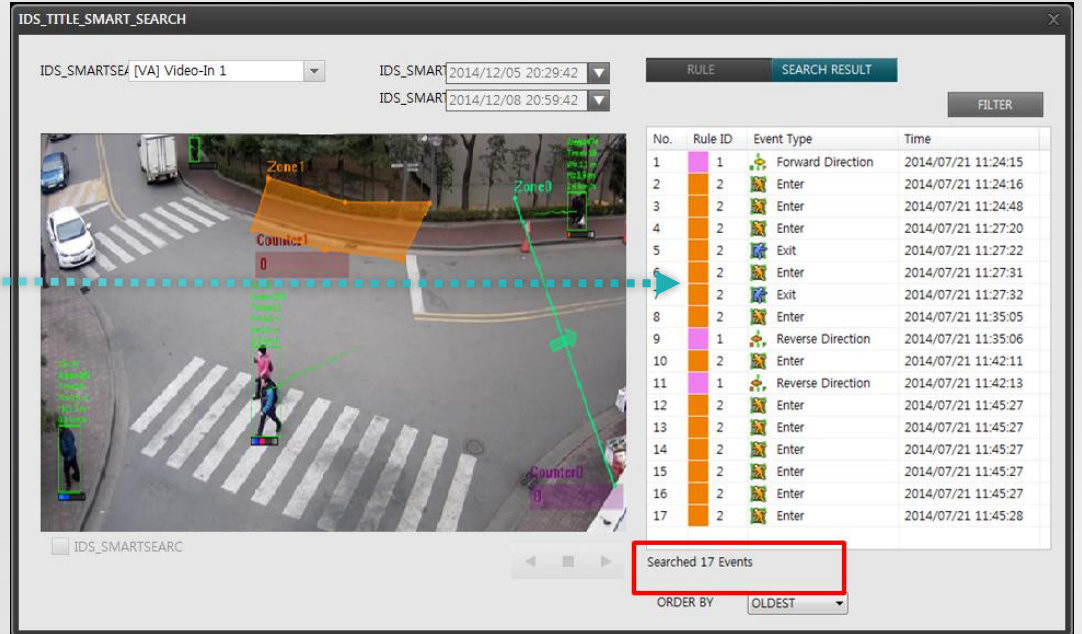
VA Programmable Search



Video forensic search

<Live>

Programmable search by VA rules using meta data, without prior event



Live VA metadata Recording Video + metadata VA Search (X100Speed) Separate configuration from live event setting

3. Clairview NVR/VMS Option / Fire Detection



Technology

- 1. Color detection
- 2. Farneback algorithm
- 3. Learning model : Vector analysis of optical flow in fire zone.

40ch

Max. 40ch simultaneous analysis by D1 resolution in single server

NVR, VMS

Integrated solution
Record/Remote Smart Client

Fire, Smoke

Fire Detection
Event area marking

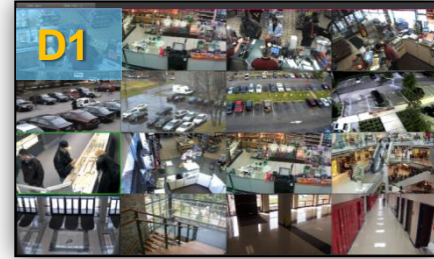
Event

Event integration
Video pop-up, Sound out-put,
Alarm out

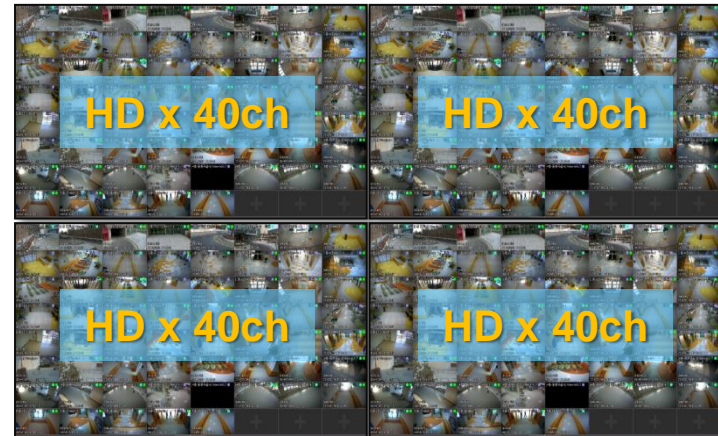
Clairview Fire Detection NVR & Module

3. Clairview NVR/VMS Option / Video wall solution

Conventional central monitoring station



VIDEO EVOLUTION !!!



**Max.
HD
160ch**

Full HD



UHD

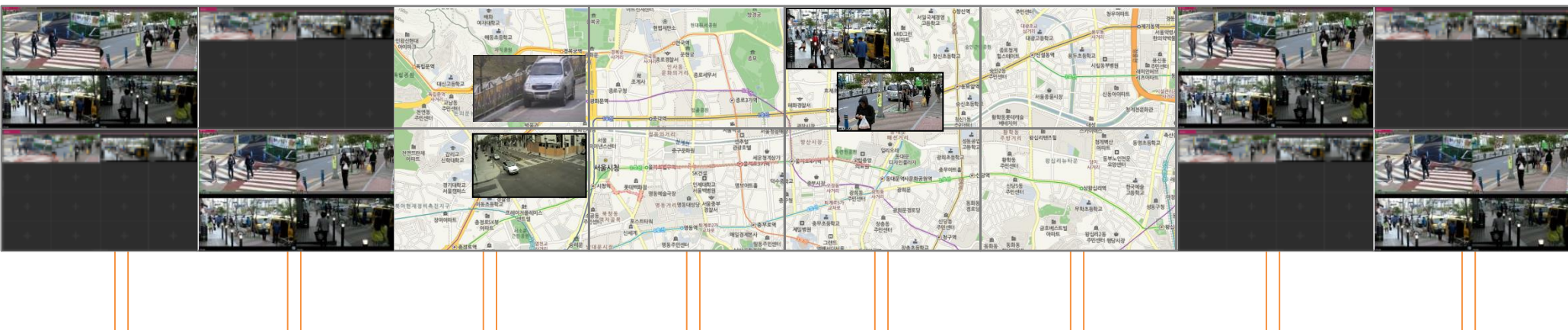


UHD x (n)



HD high video resolution / **UHD** Ultra resolution display / Optimum central monitoring station

3. Clairview NVR/VMS Option / Video wall solution



**HD 160ch in
Monitor 16 out**

Monitor 16 out



RTD Video Wall Controller



RTD Configurator

Video streaming
HD 160 ch Network streams



VMS(NVR) Server

VMS(NVR) Server

VMS(NVR) Server

VMS(NVR) Server



Operator's PC

Replacing conventional RGB / IP MATRIX with the cutting-edge VMS, NVR solutions

3. Clairview NVR/VMS Option / Gateway server

1. Integrated universal platform (Unified Platform)

- Media Streaming from any Device (Live, Search)
- Media Streaming Everywhere (Live, Search)

2. Full line of compatibility

- Device (VMS, NVR / SDK interface)
- Server & Client structure (Service : Client, Mobile, Matrix etc)
- Plugin structure

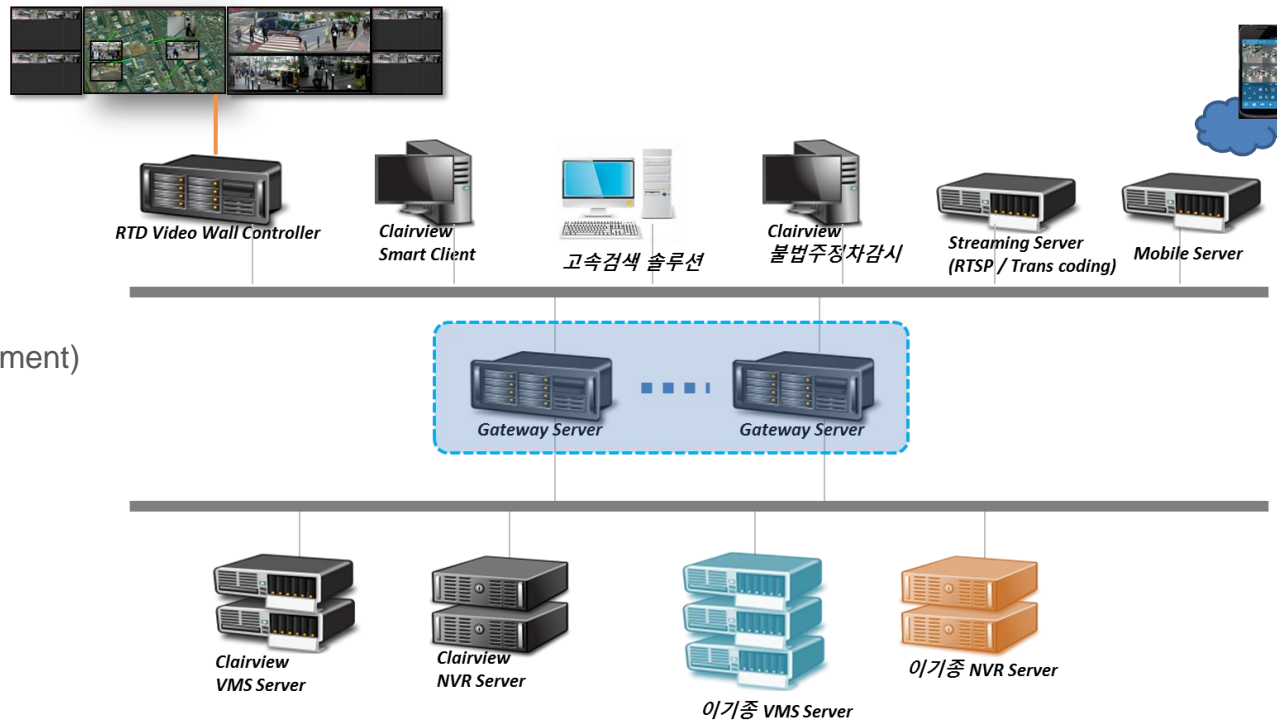
3. Web-Based Management

4. Specialized functions on IP surveillance

- Live display, control, management
- PTZ, Alarm control, monitoring

5. Special auxiliary features

- Transcoder
- Video Filter (Retinex image enhancement)
- VA event rules (Fire detection)



Total integration between existing systems and new VMS-relevant solutions