NUUO ®
Trusted Video Management

Crystal

SECURE • POWERFUL • OPEN

The Linux Enterprise Solution

Advanced Central Management Architecture

Solid Reliable Recording Powerhouse

Cutting Edge Video Wall Technology

Unparalleled Integration Choices

Revolutionary VMS System

Crystal is the product that represents the next stage in VMS evolution. Rock solid, easily manageable, with powerful recording and viewing options available. Featuring revolutionary modular system structure that is made to handle large project size, Crystal is the ideal choice for your enterprise. Featuring technology that focuses on delivering stable video recording performance, recording failover, and 3rd party integration choice, you will be impressed with the stability and flexible options with Crystal.

Feature Highlights

Server Highlights

- Centralized management to manage unlimited devices and events on unified NuClient.
- Linux based system
- Records up to 64 megapixel cameras per recording server
- High throughput (250~550Mbps) supporting up to 64 channels of 5-Megapixel cameras[2]

- Recording failover (Ultimate, v2.1 and later)
- Metadata Server for 3rd party integration - POS, Access Control[1]
- Supports over 2000 camera models from more than 80 brands, and RTSP video stream[1]

Enterprise Management	• Built-in Management Server, Recording Server and Metadata Server in one Crystal Titan • Centralized I/O and event respond systems • Support NTP; Management Server can be a time server to make all system time consistent • Volume group to distribute cameras to assigned volumes • Individual Retention Condition (IRC) per device • PTZ control priority • Powerful authorization for device permission and function privilege	**Value-added Benefits**	• Synchronized audio and video recording • Stream up to 256ch live viewing connections per server to multiple clients simultaneously • Camera edge motion detection • Support continuous, scheduled, event based and I/O based recording • Schedule-based and input-triggered boosting record • Schedule-based user management • Scheduled Backup video to FTP location • Watermark for video verification • Dual gigabit Ethernet ports
Stability	• Support RAID 0,1, 5, and 10 • Support redundant power (CT-8000RP) • Support hardware watchdog (CT-8000R and CT-8000RP) and software watchdog	**Open Platform**	• Onvif Profile compatible • Camera multiple stream support[1] • Multiple codec support : H.264,MJPEG, MPEG4 and MxPEG

Client Highlights

- Cross platform for Windows and Mac
- All in one NuClient for remote configuring and viewing

- Unlimited channels of live view and playback
- Unlimited channels of NuMatrix Video Wall (Ultimate)

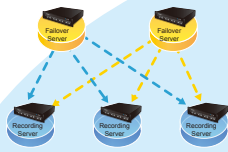|			
Enterprise Management	• Centralized E-map • Centralized I/O Panel and Event Panel • Public and Private View/View profile for each user • View Tour to loop through selected Views	**Open Platform**	• Export video with 3rd part data overlay • Generic Fisheye Dewarp technology for all fisheye cameras • Panorama 360° PTZ — Immervision and VIVOTEK fisheye camera • Support multiple stream profile • Auto and simutaneously switch stream profile
Value-added Benefits	• Support mobile client for iPhone / iPad / Android • NUUO Image Fusion Technology — stitch up to 10 cameras together • Layout Wizard - customized layout for viewing • Instant Playback on live view, e-map and event list • Twin Clients to support identical, full featured software client and web client		• Support digital and optical PTZ • Support preset and patrol • Save video clips into AVI, ASF and MOV • Intelligent Search in playback

External Supports

- External storage through 3rd party DAS, iSCSi[1]
- Support third party POS and Access control[1]
- Support up to 256 NUUO I/O boxes per server
- Support APC Uninterrupted Power Supply

*1. Please refer to http://www.nuuo.com/wiki.php for details.
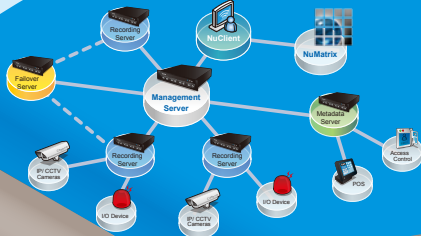*2. 250Mbbps: 64x 5-Megapixel cameras (based on H.264, 10 fps, moderate traffic)
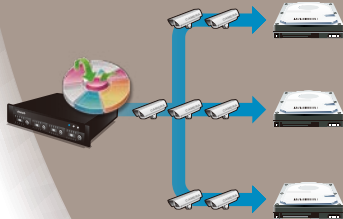*3. Available in Crystal v2.1 (General Availability in June)

Guranteed Uptime

A cornerstone of any enterprise level solution. Crystal features failover function[*3] to safeguard server uptime and performance consistency. Crystal failover function can be assigned and managed as a cluster, so that N+M redundancy can be achieved.

Centralized Management

Crystal features support for unlimited numbers of cameras, 3rd party access control systems, POS, and I/O devices. Any number of users and user groups may be assigned for different levels of management rights, monitoring points, and event processing. Combined with the intuitive NuClient software to provide centralized live view and playback video stream, Crystal provides user with total control over the entire system at their fingertips.

Megapixel Recording Powerhouse

Revolutionary Enterprise VMS

Ultilizing custom recording technology known as File Ring, Crystal is able to handle high megapixel recordings by redefining how hard drives store and retrieve video data. File Ring is a custom technology built from the ground up. Able to maintain data throughput up to 250 Mbps for a single volume, 400 Mbps for two volumes, and 500 Mbps for three volumes, Crystal is a true recording powerhouse.

Cutting Edge Video Technology

Crystal supports an unlimited number of video wall displays up to 100 channels per monitor. With built-in View Wizard, changing view configuration is as easy as draging and droping different view grids. Crystal also features Image Fusion to stitch multiple views into one single picture. Combined with PTZ joystick control, Fisheye Dewarp algorithm, and video tour modes, reviewing and monitoring just became simpler than ever.

Linux Based	Centralized Management	High Throughput	File Ring	Volume Group	NuMatrix	Image Fusion	Fisheye Dewarp	Access Control
Dual Gigaports	Failover	Boost Record	RAID 0, 1, 5,10	Individual Retention Condition	Multi-Stream	Centralized E-map	Centralized Event	POS

Solution Partners — EMC² | ONVIF

Technology Partners — intel inside | InnerVision Enabler
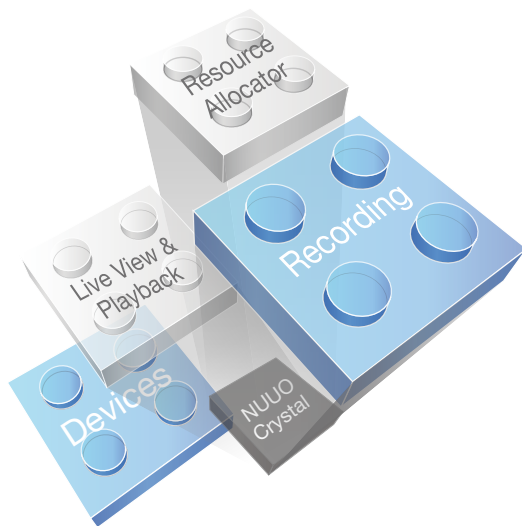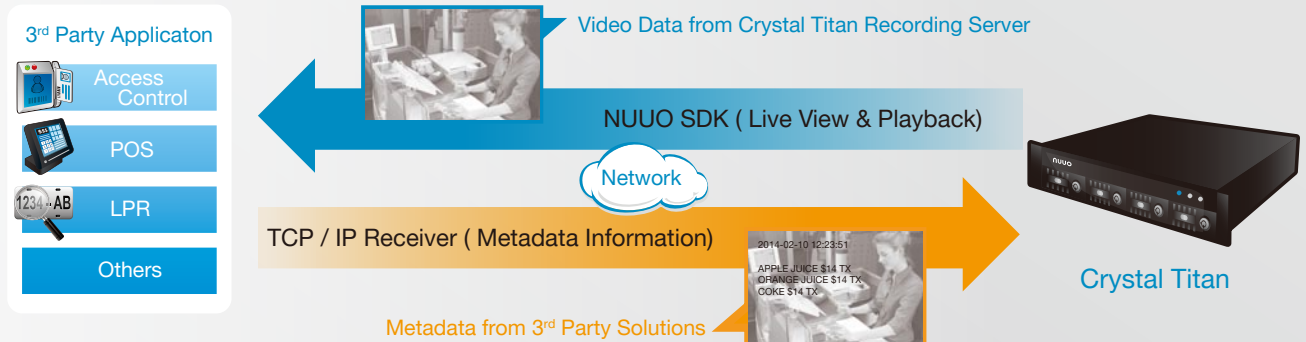
Windows/ Mac Client

Browser

Mobile Apps — iPad / iPhone | android

Open Innovation Platform

NUUO Crystal offers developers an easy and open platform to integrate on. By embracing and empowering the open platform choice, NUUO hopes to create a thriving ecosystem full of integration possibilities. NUUO has created many tools to help developers, and by using them, Crystal can be made adaptable to handle and exchange information with other exisitng solutions effortlessly.

3rd Party Applicaton

Access Control

POS

LPR

Others

Video Data from Crystal Titan Recording Server

NUUO SDK (Live View & Playback)

Network

TCP / IP Receiver (Metadata Information)

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APPLE JUICE $14 TX
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Metadata from 3rd Party Solutions

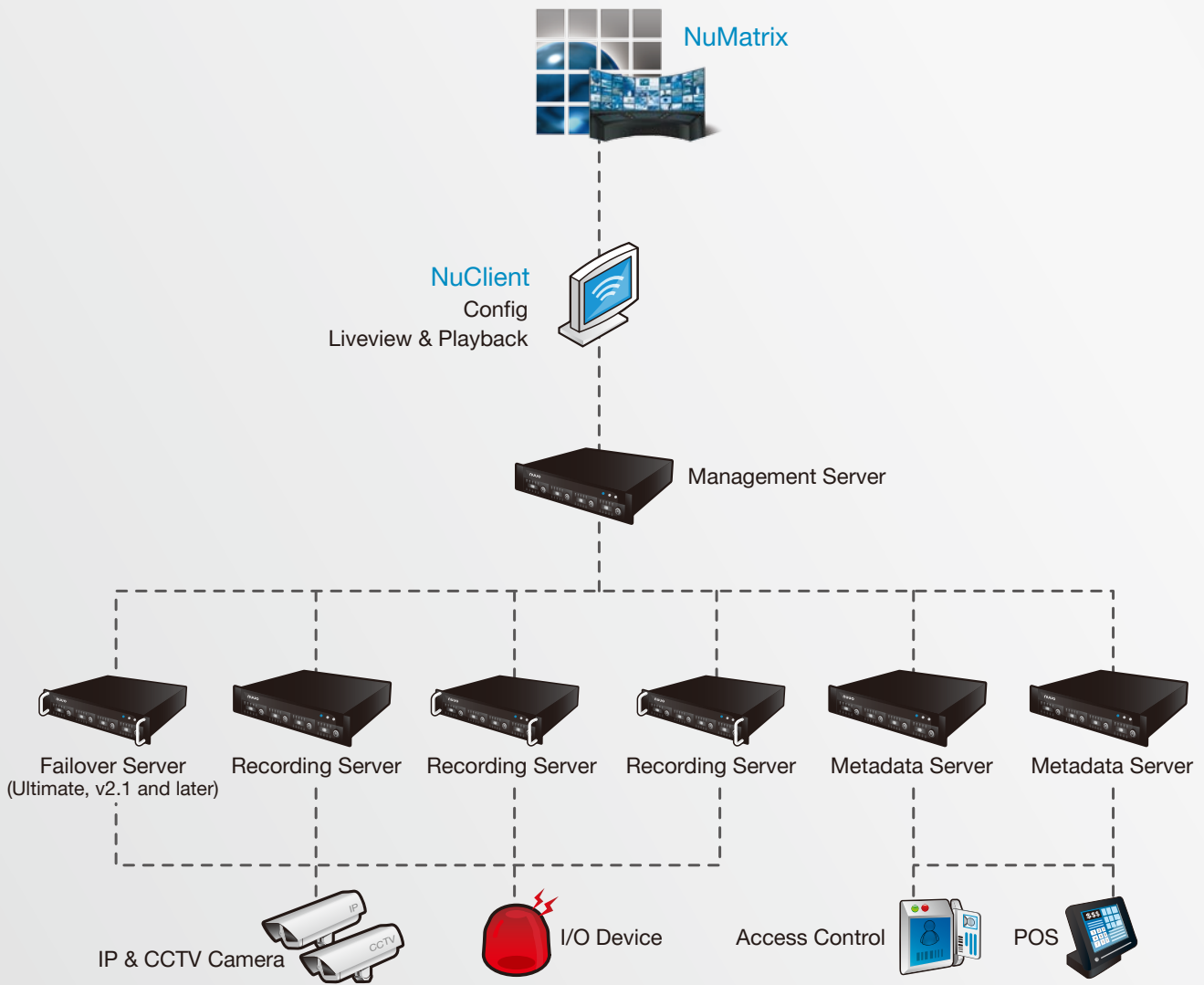Crystal Titan

Advanced Modular Design

Crystal features revolutionary modular system structure design. The benefits of a modular system design is that not only can it be managed centrally, down on a process level every module can also work independently of each other. So when a process fails, only that process module shuts down and the rest of the system will continue to function normally, further enhancing Crystal's system stability.

Resource Allocator

Recording

Live View & Playback

Devices

NUUO Crystal

Crystal Keeps Adventuring Safe

Built for large scale projects, Crystal has been successfully adopted by many enterprises in a variety of verticals. The latest adoption showcases Crystal's ability to manage complex and chaotic environments such as a theme park. This project involves integration with POS system to track purchases and advanced camera grid layouts throughout the park. By utilizing Crystal's amazing view wizard and integration platform, the theme park is able to achieve all of the above and most importantly without the recurring costs of other solutions. Head to www.nuuo.com and check out other Crystal Success Stories and see how it can revolutionize your view today.

Client Case Study

www.nuuo.com

License Type

License	Part Name	Description
Ultimate	CT-CAM-ENT	The most powerful control for multi-server and high channel project, featuring NuMatrix and Recording Failover.
Enterprise	CT-CAM-ULT	Efficient central management, featuring flexible 3rd party integration and volume group for higher throughput and risk management.
Upgrade	CT-CAM-UPU	Easily upgrade from Enterprise to Ulitmate, without resetting the whole system.
POS	CT-POS-Generic	The generic license for POS device via TCP-IP or POS box connection.

Specification

Crystal Titan

Product Image				
Type	Tower	Rack-mount 1U	Rack-mount 2U	Rack-mount 2U (Redundant Power)
Model Name	CT- 4000	CT- 4000R	CT- 8000R	CT- 8000RP
Max IP License	64			
License Type	Enterprise / Ultimate / Metadata License			
Server O/S	Linux based			
Video Compression	H.264, MPEG4, MJPEG, MxPEG			
Recording Performance	250 Mbps (MAX), 180 Mbps (OPTIMAL)*		250 Mbps / 1 Volume 400 Mbps / 2 Volumes 550 Mbps / 3 Volumes	
Removable HDD Trays	4x SATA II		8x SATA II	
HDD Support	4TB per drive (Max 4 drives)		4TB per drive (Max 8 drives)	
RAID	0, 1, 5, 10			
External Storage	DAS, iSCSI (http://www.nuuo.com/wiki.php for details)			
External Ports	6 x USB 2.0 (for mouse, UPS); 1 x eSATA (for DAS)	4 x USB 2.0 (for mouse, UPS); 1 x eSATA (for DAS)	2 x USB3.0, 2 x USB2.0, 1 x eSATA (for DAS)	
Ethernet (NIC)	2 x Gigabits Ports			
Voltage	100 - 240V			
Power Consumption	200W		400W	400W (Redundant Power)
Dimensions (H x W x D)	212 x 200 x 318 mm	45 x 447 x 429 mm	88 x 447 x 583 mm	88 x 447 x 583 mm
Weight (Without HDD)	5.3 kg (11.7 lbs)	6.0 kg (13.2 lbs)	11.4 kg (25.1 lbs)	13.2 kg (29.1lbs)
Temperature (Operating with HDD)	0°C ~ 40°C (32°F ~ 104°F)			
Humidity (Operating)	5% ~ 95%			
Supported Language	Czech, Chinese (Traditional), Czech, English, Finnish, French, Japanese, Korean, Polish, Portuguese (Brazil), Russian, Spanish, Thai, Turkish			

*Max recording throughput (250 Mbps): Approx. 64ch 5-Megapixel H.264 cameras at 10 fps when server is streaming out 16 channels of live video without playback.
 Optimal recording throughput (180 Mbps): Approx. 64ch 2-Megapixel H.264 cameras at 15 fps when server is streaming out 128 channels of live video and 16 channel playback.

About NUUO
Founded in 2004, NUUO Inc. is one of the leading global surveillance solution providers known for its reliability, prompt service and innovative spirit. NUUO's VMS and NVR solutions offer comprehensive recording, monitoring, and seamless 3rd party solution integration for IP and analog cameras.

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