VIDEO SOLUTIONS BUILT FOR RETAIL.
Today's Agenda

Introductions
Who is Hanwha?
Cyber Security
VMS Integration
Covid-19 Solutions
Solutions Built For Retail
Value Adds
Questions & Wrap-up
Founded in 1952, Hanwha is a Fortune Global 500 company and the 8th largest business group in Korea, comprising 70 domestic affiliates and 325 global networks around the world.

Hanwha's businesses span chemicals & materials, aerospace & mechatronics, solar energy, finance, leisure & lifestyle, and construction. Through the integration of our growing number of affiliate enterprises worldwide, we are harnessing the power of sustainable, quality growth to continually increase the value we bring to our customers.
• $62B USD in Sales Revenue in 2019
• 68 Years of operation, founded in 1952
• Over 249 Global Areas of Operation
• #261 on the 2019 Fortune Global 500
• 635 R&D Engineers focused on security
  ◦ Proprietary Chipset Development
  ◦ Camera and Recording Solutions
  ◦ Optics
  ◦ Cybersecurity
CYBER SECURITY

- Hanwha Techwin takes pride in having one of the strongest cybersecurity track records in the video surveillance industry.

- Hanwha's cyber security related, long-term firmware support policy includes various firmware improvement activities, vulnerability countermeasures and product security quality improvement activities.

- Additionally, Hanwha operates a security vulnerability response team (S-CERT) to track and monitor unauthorized security breaches from external sources, and to prevent internal security flaws.

S-CERT & External Monitoring
Security Vulnerability Response Team Monitoring via CVE, ICS-CERT, KISA

Hardening
Practical setup guide, detailed guide for 4 levels of security implementation

Disclosure
Security Vulnerability disclosure policy. Clear and published policy for sharing vulnerabilities

Cyber Essentials
3rd Party accreditation
UK Government backed accreditation scheme

Other Certificates
TTA Public IP Camera Certificate
KISA Intelligent CCTV Solution Certificate
MANUFACTURING & COMPLIANCE

Product made in Korea and Vietnam
TAA, NDAA, & GSA Compliant
NEXT GEN SOC CHIPSET: WISENET7

2010
Wisenet
720p
30fps

2011
Wisenet II
2MP 30fps

2013
Wisenet II
3MP, 30fps, 2MP, 60fps
H.264/MJPEG, 2-frame WDR

2017
Wisenet V
5MP 30fps, 2MP, 60fps
H.265/H.264/MJPEG, 2/4 frame WDR

2020
Wisenet7
5-8MP, 30fps, 2-4MP 60fps
Support Multi-Sensor
WDR/Line-by-line WDR
DSP/HWA for deep-learning
H.265/H.264/MJPEG, 2/4 frame WDR
3RD PARTY VMS INTEGRATION

VMS PARTNERS

ECO SYSTEM APPROACH
PROACTIVE STRATEGY
UNIFIED API FOR FAST & RELIABLE INTEGRATION
OPEN STANDARD ONVIF COMPLIANT
## Challenges in the New Normal

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<th>Curbside Delivery</th>
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<td>Investigations and Forensic Review</td>
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<td>Elevated Body Temperature Detection</td>
<td>Floorset Changes</td>
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New World. New Solutions.

AI-based technology for mask detection, occupancy monitoring and social distancing.
A "New Normal"

What will this mean to customers and businesses?

According to the NRF (National Retail Federation) Operation Open Doors:

- Retailers should "establish protocol for monitoring store occupancy (metering) in compliance with any applicable laws. Consider whether you can designate specific entrances or exits for ingress or egress to control the flow of traffic and reduce contact."

"Adjust store hours of operation, as necessary, to support social distancing efforts by limiting store traffic."
• Ultra compact design
• 2MP/5MP @ 30 fps
• 113 degree FOV
• 2.8 mm lens
• Defocus, motion, and tampering detection
• People counting
• *HDMI output for PVM on QND-8011
• License free!!
• Easy to configure
• Connect up to 8 cameras
• Accurate AI people counting
• Customized messaging
• PC-less display options
• Alarm output to trigger lights, audio…
• Local reporting

Occupancy Monitoring Application
Elevated Body Temperature Detection

- Purpose built Bi-Spectral AI / Thermal
- Multi-person detection
- Accuracy within +/- 0.54°F w/ Blackbody, .9° w/o Blackbody
- Verification & identification of subject with visible camera
Face Mask Detection Demonstration with a Wisenet X series Camera

- Compact design
- 2MP/5MP @ 30 fps
- 113° FOV
- 2.8 mm lens
- Defocus, motion, and tampering detection
- People counting
- *HDMI output for PVM on QND-801
- Edge-based and simple
- Detect up to 4 people
- Alarm Out for alerting
- Records upon alarm
- Compatible with select X-Series cameras
- Full WAVE integration

Mask Detection

Example Set Up

- Workstation
- Network
- Camera
- Audio Message
- Entrance
Social Distancing Detection

• Compatible with existing cameras
• Alert when people are too close to each other
• Overcrowd and Over Occupancy Detection
• Configurable settings and notifications
SOLUTIONS BUILT FOR RETAIL.
Complete Retail Solutions

Hanwha Techwin's video surveillance technologies can help protect every area of your retail location, boost operational efficiency and deliver deep insights into your business with a full suite of license-free business and video analytics.

Showrooms/End Caps
- Flexible camera options for changing layout and lowering cost of ownership
- Remotely adjustable camera fields of view – even after installation is complete
- Available in ZMP and SMP models with modular designs for easy upgrades

Entrances/Exits
- Specialty camera solutions blend into any environment without missing critical information
- Public viewing monitors assist in actively deterring retail crime
- Industry-leading low-light performance with wide dynamic range capabilities
- Equipped with intelligent business analytics including people counting

Parking Lots/Loading Zones
- Monitor and capture wide areas with a single multi-sensor panoramic camera installation
- License plate recognition technology for monitoring parking lots, garages and loading docks
- Equipped with loitering detection analytics
- Durable vandal-resistant dome and bullet-style cameras also available

Loss Prevention/Command Center
- View forensic evidence from anywhere with an internet connection with scalable P-video management and NVR solutions
- Network and analog digital video recorders store video data onsite
- Analog video encoders for live viewing or use with popular VMS solutions

Warehouse/Storage Rooms
- Keep staff and inventory safe under all conditions with durable camera solutions
- Multi-sensor devices monitor several areas with a single camera installation
- Covert cameras provide clear images even in challenging lighting

Sales Floor
- Easily view entire store floor with a single high-resolution fisheye camera
- Compact dome cameras maintain aesthetics
- Micro-PTZ cameras can discreetly follow subjects of interest
- License-free video and audio analytics easily monitor activity in multiple areas

Checkout Counters/Customer Service
- View two areas with a single dual-head, multi-sensor camera installation
- Discreet and low-profile camera designs
- Queue management analytics alert managers and staff to long lines
# Hanwha Camera Line-up

## Feature Comparison

<table>
<thead>
<tr>
<th>Features</th>
<th>WISENET HD+</th>
<th>WISENET L</th>
<th>WISENET Q</th>
<th>WISENET T</th>
<th>WISENET X</th>
<th>WISENET P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>2MP/4MP</td>
<td>2MP</td>
<td>2MP-5MP</td>
<td>VGA-5MP</td>
<td>2MP-5MP</td>
<td>7.3MP and higher</td>
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<tr>
<td>Wide Dynamic Range</td>
<td>60dB / 120dB</td>
<td>120dB</td>
<td>120dB</td>
<td>150dB</td>
<td>150dB</td>
<td>120dB</td>
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<tr>
<td>H.265 codec</td>
<td>NA</td>
<td>No</td>
<td>Yes</td>
<td>Yes¹</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>WiseStream</td>
<td>NA</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes¹</td>
<td>Yes</td>
<td>Yes¹</td>
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<tr>
<td>Hallway view</td>
<td>No</td>
<td>Yes</td>
<td>Yes¹</td>
<td>Yes¹</td>
<td>Yes¹</td>
<td>Yes¹</td>
</tr>
<tr>
<td>Intelligent Video Analytics</td>
<td>No</td>
<td>No</td>
<td>Yes¹</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>SD card slot</td>
<td>NA</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes (Dual¹)</td>
<td>Yes</td>
</tr>
<tr>
<td>Simple focus</td>
<td>Yes¹</td>
<td>No</td>
<td>Yes¹</td>
<td>Yes¹</td>
<td>Yes¹</td>
<td>Yes¹</td>
</tr>
<tr>
<td>Defocus Detection</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes¹</td>
<td>Yes</td>
<td>Yes¹</td>
</tr>
</tbody>
</table>
How AI Changes Everything

ACCURATE DETECTION
• High confidence in alarms for alerts or storage
• Gateway to more practical cloud and hybrid architectures

EFFICIENT FORENSIC SEARCH
• Attribute to allow metadata to power super-efficient search

SENSOR VERSATILITY
• Use a FOV for analytics that is also practical surveillance
  FOV
AI Cameras - P-Series

Edge based artificial intelligence

- 4K resolution, 4.5~10mm Motorized V/F, H.265, 120dB WDR
- Built-in-AI: Object classification and attribute extraction
- Modular design (X-Plus)
- Plug-ins to Genetec, Milestone, & WAVE

![AI Camera Features Diagram](image-url)
AI SEARCH

Person Attribute Search

Vehicle Search
AI Based Business Analytics

Improved accuracy and business intelligence

Non AI

✓ Overhead view only
✓ Rule based detection – Moving object
✓ Counting visitor

Wisenet AI

✓ Normal view, useful for surveillance
✓ People Object based detection for increased accuracy
✓ Additional metadata including gender & age
Small Yet Powerful

- Ultra compact design
- 2MP/5MP @ 30fps
- 113 degree FOV 2.8mm lens
- H.265, H.264, MJPEG
- Defocus, motion, and tampering detection
- People counting
- *HDMI output for PVM on QND-8011

*Only for QND-8011/8021
Q-mini Fisheye

• Ultra compact design
• 6MP & 12MP @ 30fps
• Orig. fisheye view, single pano., double pano., quad view
• People counting & Heatmap
• Micro SD 1 slot 256 GB
- Ultra compact design
- 2MP/5MP @ 30 fps
- 113 degree FOV
- 2.8mm lens
- Defocus, motion, and tampering detection
- People counting
- *HDMI output for PVM on QND-8011

Multi-Sensors
2, 4 & 5 Sensor Models

- Use one camera to replace 4
- 2MP/5MP options
- PTRZ in select models
- Commonly uses one VMS license
- Save on network drops
- Perfect for planogram changes
- Indoor/Outdoor

Hanwha
Techwin America
HD+ Analog Cameras & Recorders

- 2MP & 4MP Cameras
- AHD/CVI/TVI/CVBS
- Petabrid recorders (4, 8, 16ch.)
- Multiple form factors
- Leverage existing infrastructure
- Migrate to IP
• Ultra compact design
• 2MP/5MP @ 30 fps
• 113° FOV 2.8 mm lens
• Defocus, motion, and tampering detection
• People counting
• HDMI output for PVM on QND-8011

Specialty Solutions

Door jamb, mullion, height strip, POS

• Surface or flush mounts
• Covert lens options
• 2MP IP w/ analog output
• Edge Recording
Public View Monitors

Retail Crime Deterrent Solutions

- 10", 27", 32" models
- 2MP IP
- Recording In Progress
- Face detection for deterrent
- PIP with decoder
- PoE or DC Power

Hanwha
Techwin America
PoE Extender Camera

Pushing the boundaries of traditional video

• PoE+ powered Extender Cameras can connect downstream PoE devices including cameras, sensors, intercoms, lights, and more.
• Built-in switch in the camera can extend PoE and data for up to 262 feet for infrastructure savings.
Encoders & Decoders

Creating a path forward

• Leverage existing infrastructure
• Supports Analog/AHD/CVI/TVI
• Easy web management
• PoE Powered
• Useful for PIP or PVM display
Encoders & Decoders

Available in 1 / 4 / 16 channel models

Encoders allow you to use existing analog infrastructure while migrating to a VMS.

Supports analog / AHD / CVI / TVI

Supports up to 5 megapixel high resolution cameras

PoE powered (1/4 channel)

HDMI out for 4 / 16 channel models

4K HDMI / VGA / BNC output

Clone / Expand modes

Display up to 49 cameras

Easy web management

PoE powered

Useful for PVM or PiP display
Form Factors & Accessories

For a Total Retail Solution

- Flush mount cameras and accessories
- Long distance ethernet solutions
- Smoked bubbles
- Black dome covers and painting service
• Ultra compact design
• 2MP/5MP @ 30 fps
• 113 degree FOV
• 2.8 mm lens
• Defocus, motion, and tampering detection
• People counting
• *HDMI output for PVM on QND-8011 PTZs

PTZs
Active Surveillance Tools
• IP and HD Analog PTZ
• 4.3x - 55x zoom
• PTZ handover
• Ultra-compact form factor
• Compatible with legacy control systems
WAVE VMS
Video Management

- User Friendly
- One-time flexible licensing
- Free failover
- Access from anywhere
- Smart Search
- Advanced Integration
- Rack or Tower form factors
- Agility Integration
Value Adds

INCLUDED FEATURES
LICENSE FREE ANALYTICS

EDGE-BASED VIDEO ANALYTICS
License free analytics enable smarter retail.

AUDIO ANALYTICS
Trigger event-based alarms based on sound classification analytics.

BUSINESS STATISTICAL ANALYTICS
Gain deeper insights into your store’s performance.
H.265 - HIGH EFFICIENCY VIDEO ENCODING

H.265 + WiseStream II

BW

2.5Mbps

0.81TB

H.265

BW

5Mbps

1.62TB

H.264

BW

10Mbps

3.24TB

Up to 75% Reduction
ADVANCED FEATURES

Superior WDR Technology

Highlight Compensation

Hallway View

Lens Distortion

Advanced DIS w/ Gyro Sensor
WISNET DEVICE MANAGER

- Essential system management / maintenance tool
- Automatically search and check for Hanwha cameras / encoders / NVRs / DVRs on the network
- Configure multiple cameras with a few clicks (IP address, password, firmware update, video profiles)
- Easily push out cyber security or company wide settings / configurations
- Reporting capabilities
CATCH US AT THESE VIRTUAL SHOWS
Questions?
Comments?

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