

# Safe City Solution



Dahua Technology,  
Make Your Life Safer



An aerial, high-angle view of a dense urban skyline, likely New York City. The Empire State Building is the central focus, standing tall above the surrounding skyscrapers. The sky is filled with soft, wispy clouds. The overall color palette is muted, with greys, blues, and whites, giving it a cinematic or documentary feel.

About Dahua

# CHAPTER ONE

# A glance at Dahua

Dahua Technology is the world-leading video surveillance solution provider

- Rank **2nd** in terms of CCTV & video surveillance market share by IHS report 2015
- Rank **5th** by a&s Security 50, 2015

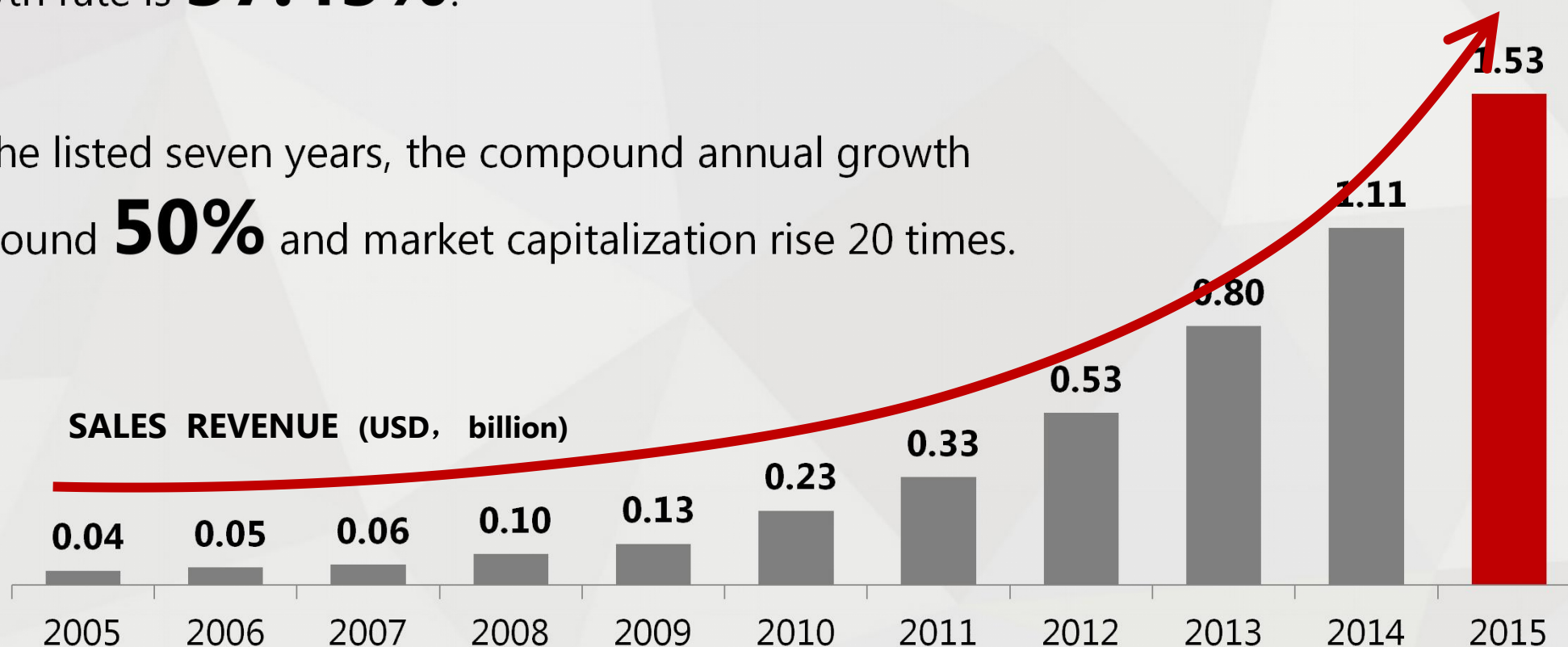




## Sales revenue

In 2015, annual business income is **1.53 billion USD**,  
the growth rate is **37.45%**.

During the listed seven years, the compound annual growth  
rate is around **50%** and market capitalization rise 20 times.



# Globalization



**24** overseas subsidiaries

Located in strategic regions including USA, Canada, UK, Netherlands, France, Spain, Hungary, Australia, Singapore, Thailand, Korea, Dubai, Brazil, Mexico, Peru, Colombia, Chile, Panama, South Africa, etc.

# Collaboration

Over **2000** global partners

Export to **180** countries

Dahua actively seeks opportunities to cooperate with leaders in respective field across different industries to develop scalable security solution to serve customers' business need

**Solution  
partnership**

**Internet business  
partnership**

**Supply chain  
partnership**



# Innovation



## **R&D MANAGEMENT**

Over 5000 R&D professionals, 1000 with master degree or higher



## **QUALITY CONTROL**

State-of-the-art testing technology;  
Various testing methods



## **GREEN SYSTEM**

Green Purchasing;  
Green Design; Green Manufacturing;  
Green Service; Recycling



## **ADVANCED MANUFACTURING**

Advanced Design Capabilities; Strong Investment in HW/SW; Strict Manufacturing Procedures

# Comprehensive product lines



## Network Product

- Network camera
- Network PTZ camera
- NVR
- IP storage
- IP KIT

## HDCVI Product

- HDCVI camera
- HDCVI PTZ camera
- HDCVI DVR

## Intelligent Building

- Video intercom
- Access control
- Smart lock
- Alarm

## Vertical Product

- Intelligent traffic
- Mobile
- ARM
- Forensic NVR

## Software

- DSS
- SmartPSS
- Easy4ip

## Display & Control & Transmission

- Transmission
- Display
- Control



# Well-proven solutions



Dahua's solutions are widely applied in various verticals worldwide, including banking, public security, energy, elecommunication, intelligent-building and intelligent-transportation.

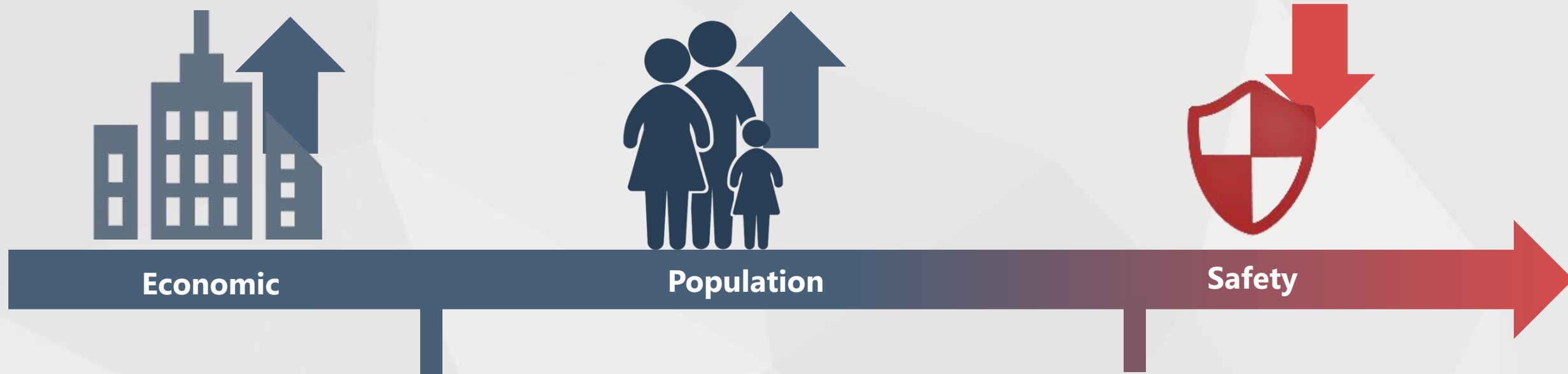




Safety is a key issue of city

# CHAPTER Two

# Safety problem challenges city development



- In recent years city economic is boosting
- More people are attracted to city because of vast opportunities and better lives
- City offers convenience to people and benefits from rich human resources
- The surge of population also brings a lot challenges and safety is the greatest one
- Poor safety results in a huge losses
- It also makes people less likely to stay in city which would undermine city economic



# Common safety issues in city



# How safe city to address safety challenges

## Prevent

- Video surveillance for public security and transportation
- Smart detection of illegal activities/suspects
- Fire and intrusion alarm
- Emergency call station
- Police patrol

## Respond

- Unified emergency response and dispatch
- Cross systems/departments information sharing
- Specialized communication support
- Emergency preparedness

## Post Event Analysis

- Intelligent analytic tools for crime investigation
- Case archives to improve prevention methods

**Integrated Command & Control Platform**

A large red arrow pointing to the right, spanning the width of the slide, with the text "Integrated Command & Control Platform" written in white inside it.



Dahua solution makes city safer

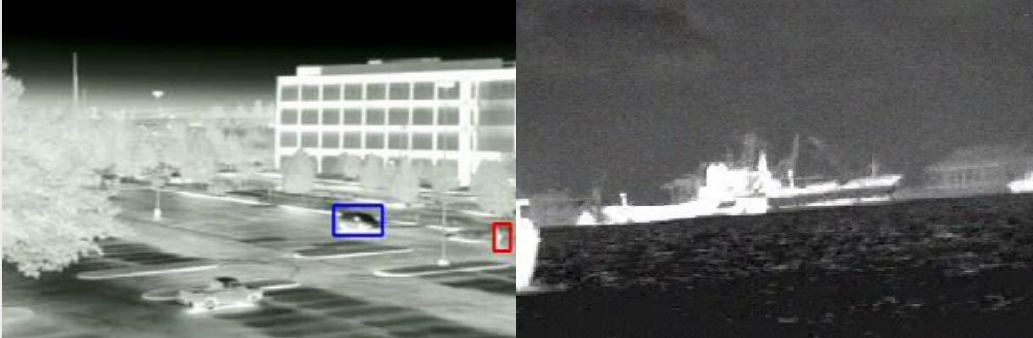
# CHAPTER Three



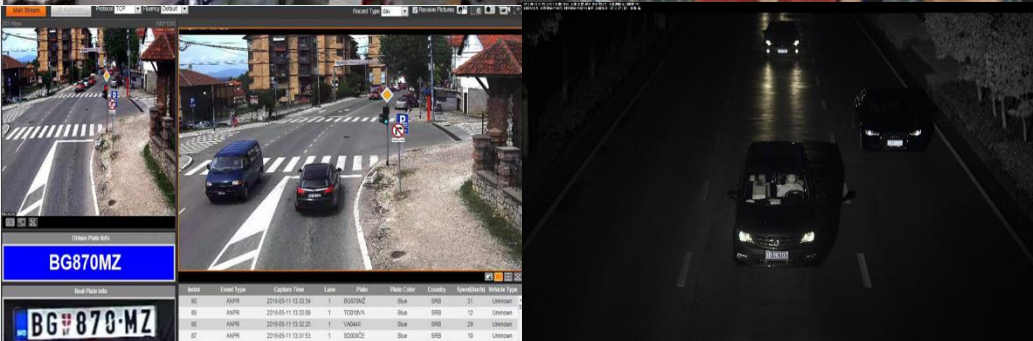
# Prevent – key features



# ■ Prevent – features & scenarios

| Feature                                                                             |  | Scenario                                                                                                                                      |
|-------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------|
|    |  | <ul style="list-style-type: none"> <li>• City high spot</li> <li>• Transportation hub</li> <li>• Downtown center</li> <li>• Square</li> </ul> |
|   |  | <ul style="list-style-type: none"> <li>• City border</li> <li>• Canal</li> <li>• Airport</li> <li>• Port</li> </ul>                           |
|  |  | <ul style="list-style-type: none"> <li>• City high spot</li> <li>• Cross road</li> <li>• Square</li> </ul>                                    |

# Prevent – features & scenarios

| Feature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Scenario                                                                                                                                                                                                                                                                                     |                     |               |         |             |             |            |              |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------|---------|-------------|-------------|------------|--------------|--------------|----|------|---------------------|---|---------|------|-----|----|---------|----|------|---------------------|---|---------|------|-----|----|---------|----|------|---------------------|---|-------|------|-----|----|---------|----|------|---------------------|---|--------|------|-----|----|---------|----|------|---------------------|---|---------|------|-----|----|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p><b>Face recognition</b></p> <p>Detect the face of suspect in real time at the public transportation hubs or other crowded areas</p> <ul style="list-style-type: none"><li>• Transportation hub</li><li>• Public facility</li><li>• City downtown</li></ul>                                |                     |               |         |             |             |            |              |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
|  <table><thead><tr><th>No.</th><th>Event Type</th><th>Customer Time</th><th>Lane</th><th>Plate</th><th>Plate Color</th><th>Country</th><th>Speed/Km/h</th><th>Vehicle Type</th></tr></thead><tbody><tr><td>01</td><td>ANPR</td><td>2018-05-11 13:13:34</td><td>1</td><td>BG870MZ</td><td>Blue</td><td>SRB</td><td>35</td><td>Unknown</td></tr><tr><td>02</td><td>ANPR</td><td>2018-05-11 13:13:38</td><td>1</td><td>T21291A</td><td>Blue</td><td>SRB</td><td>12</td><td>Unknown</td></tr><tr><td>03</td><td>ANPR</td><td>2018-05-11 13:13:38</td><td>1</td><td>V0601</td><td>Blue</td><td>SRB</td><td>26</td><td>Unknown</td></tr><tr><td>04</td><td>ANPR</td><td>2018-05-11 13:13:38</td><td>1</td><td>000002</td><td>Blue</td><td>SRB</td><td>18</td><td>Unknown</td></tr><tr><td>05</td><td>ANPR</td><td>2018-05-11 13:13:44</td><td>1</td><td>N21291A</td><td>Blue</td><td>SRB</td><td>27</td><td>Unknown</td></tr></tbody></table> | No.                                                                                                                                                                                                                                                                                          | Event Type          | Customer Time | Lane    | Plate       | Plate Color | Country    | Speed/Km/h   | Vehicle Type | 01 | ANPR | 2018-05-11 13:13:34 | 1 | BG870MZ | Blue | SRB | 35 | Unknown | 02 | ANPR | 2018-05-11 13:13:38 | 1 | T21291A | Blue | SRB | 12 | Unknown | 03 | ANPR | 2018-05-11 13:13:38 | 1 | V0601 | Blue | SRB | 26 | Unknown | 04 | ANPR | 2018-05-11 13:13:38 | 1 | 000002 | Blue | SRB | 18 | Unknown | 05 | ANPR | 2018-05-11 13:13:44 | 1 | N21291A | Blue | SRB | 27 | Unknown | <p><b>License plate recognition</b></p> <p>Recognize the plate number of the vehicle instantly no matter day or night</p> <ul style="list-style-type: none"><li>• High way</li><li>• Bridge</li><li>• Tunnel</li><li>• Cross road</li><li>• Parking lot</li></ul> |
| No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Event Type                                                                                                                                                                                                                                                                                   | Customer Time       | Lane          | Plate   | Plate Color | Country     | Speed/Km/h | Vehicle Type |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
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| 02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ANPR                                                                                                                                                                                                                                                                                         | 2018-05-11 13:13:38 | 1             | T21291A | Blue        | SRB         | 12         | Unknown      |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
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| 04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ANPR                                                                                                                                                                                                                                                                                         | 2018-05-11 13:13:38 | 1             | 000002  | Blue        | SRB         | 18         | Unknown      |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
| 05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ANPR                                                                                                                                                                                                                                                                                         | 2018-05-11 13:13:44 | 1             | N21291A | Blue        | SRB         | 27         | Unknown      |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>Abnormal detection</b></p> <p>Detect safety threats like crowd gathering, loitering, fast moving, missing, abandoned automatically</p> <ul style="list-style-type: none"><li>• City border</li><li>• Restricted infrastructure</li><li>• Transportation hub</li><li>• Square</li></ul> |                     |               |         |             |             |            |              |              |    |      |                     |   |         |      |     |    |         |    |      |                     |   |         |      |     |    |         |    |      |                     |   |       |      |     |    |         |    |      |                     |   |        |      |     |    |         |    |      |                     |   |         |      |     |    |         |                                                                                                                                                                                                                                                                   |

- Transportation hub
- Public facility
- City downtown
- High way
- Bridge
- Tunnel
- Cross road
- Parking lot
- City border
- Restricted infrastructure
- Transportation hub
- Square



# Prevent – features & scenarios

## Feature



### Violation detection

Over speed, illegal lane change, wrong-way driving, red light running, parking violation...

## Scenario

- High way
- Bridge
- Tunnel
- Cross road



### Mobile enforcement

With the help of specialized mobile enforcement suit, communication between front and back can be more efficient

- Routine patrol
- Important event
- Emergency situation

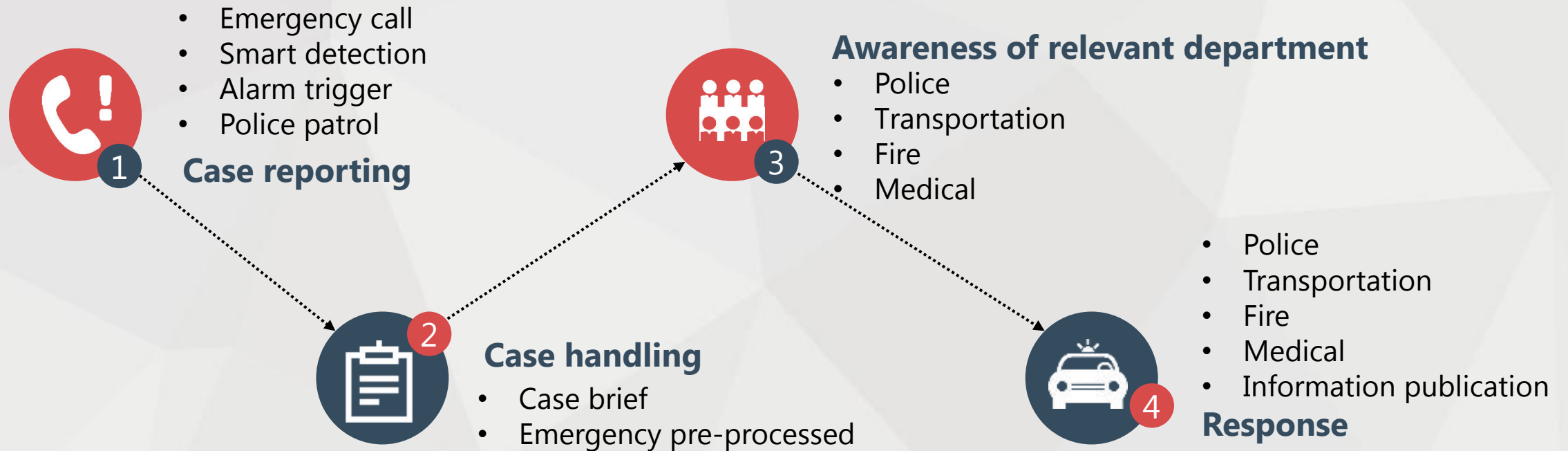


### Rapid emergency service

Help to report video, audio and location to emergency center in the first time when incident happened

- Side street
- City downtown
- Square
- Campus

# Respond – general workflow



# ■ Respond – Integrated platform

General monitoring

Transportation monitoring

Emergency call

Police patrol

Other departments

## Command & control

- Video wall
- E-map
- Multi-system integration
- Unified command & control
- Specialized communication
- Hierarchy architecture
- Flexible response strategy



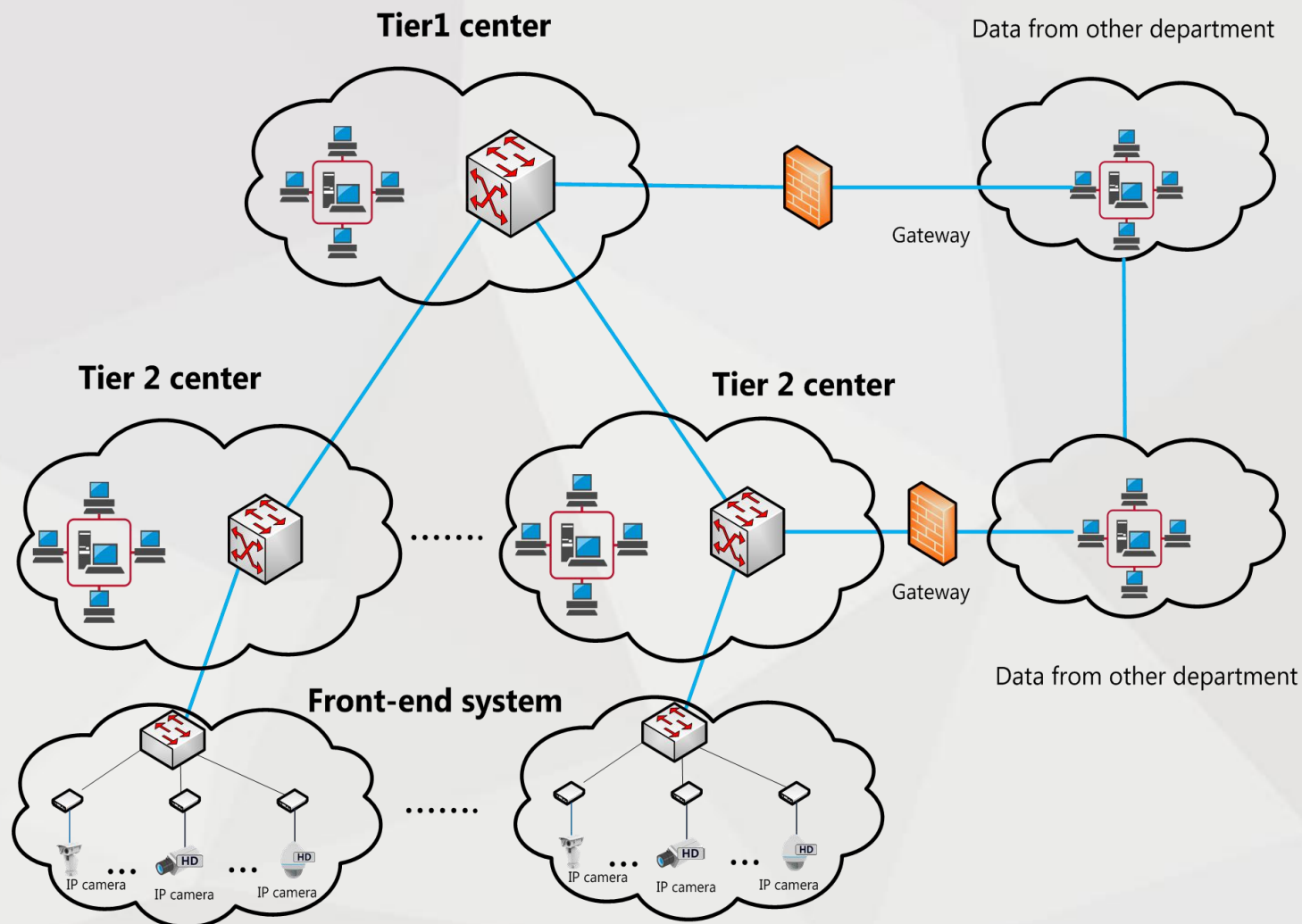
## Data storage

- Centralized storage
- Cloud technology
- High reliability
- High availability
- Extreme performance
- Good scalability
- Openness





# Respond – hierarchy architecture



## Tier 1 center

- Ability to manage all systems
- Process the case that tier 2 center cannot handle
- Dispatch mission to tier 2 center
- Supervise all tier 2 centers
- Data integration with other department

## Tier 2 center

- Process regional emergency all, alarm, routine patrol
- The exceptional incident can be forwarded to tier 1 center
- Restricted authority
- Data integration with other department

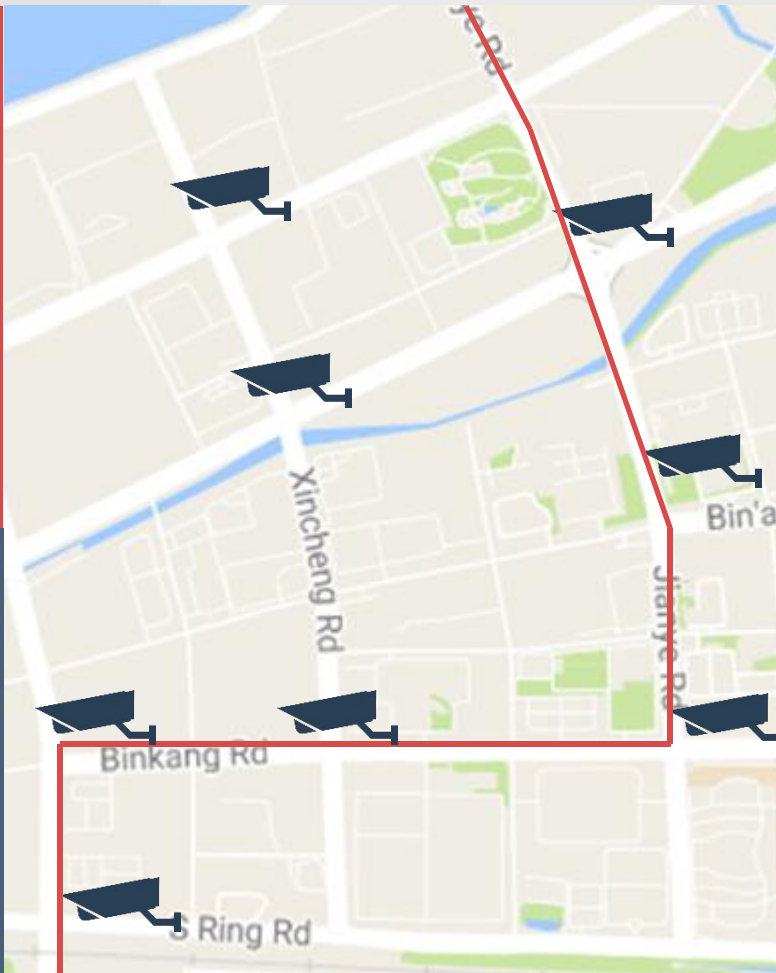
# After event analysis methods

## Trail restoration

Restore the trail of specific vehicle according to the data collected by multiple transportation monitoring cameras

## Advantage

Reduce the difficulty to analysis the possible places where the suspect may go



## Commonly found face analysis

Analysis the face which appears most frequently in specific area

## Advantage

Easy to identify the stranger who loiters in sensitive area



# After event analysis methods

## Video synopsis

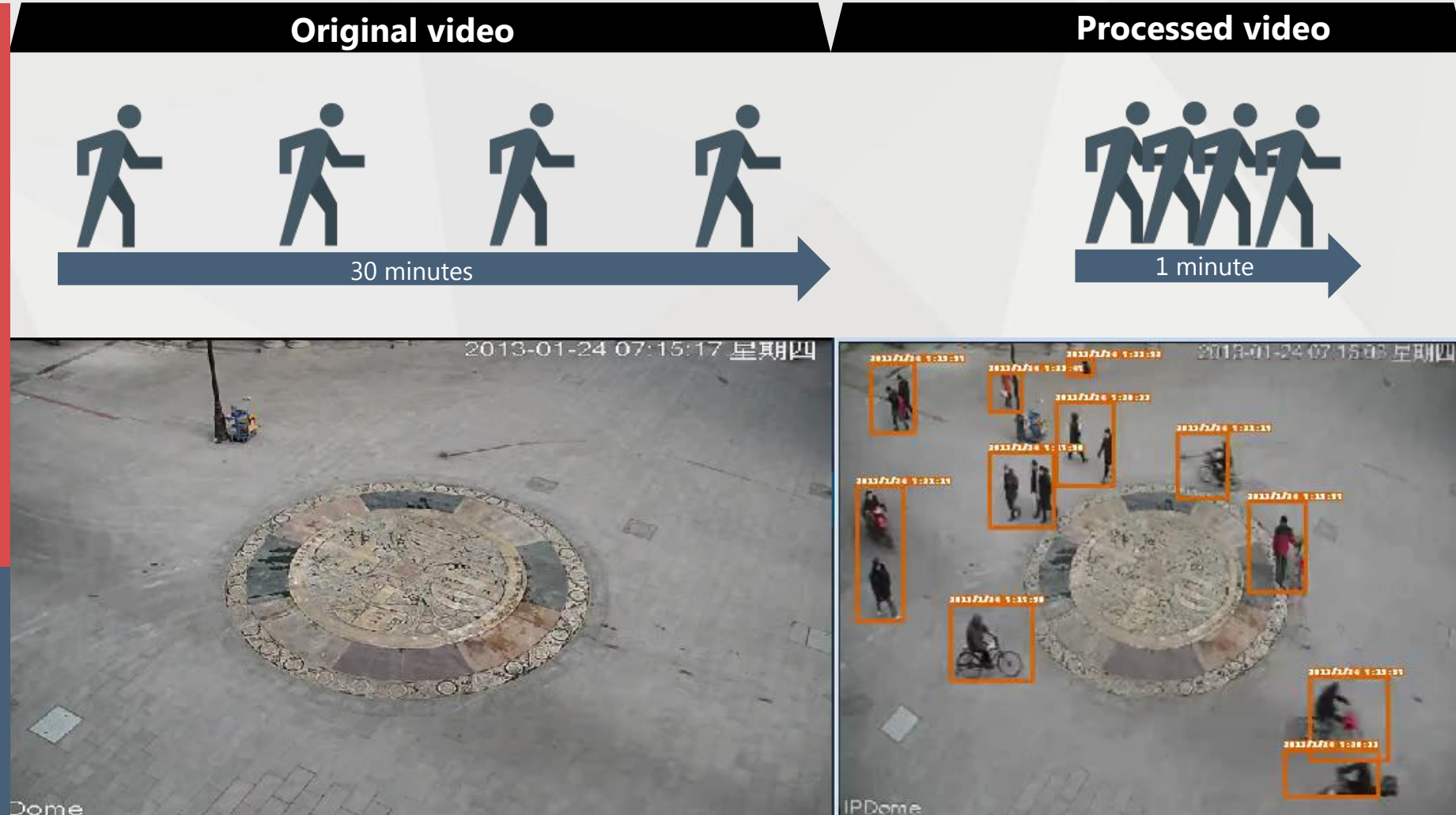
The moving objects can all be detected including the characteristics like size, color, direction and speed

Ability to reduce the time gap between each moving object when playback

Support to query moving object according to different characteristics

## Advantage

Improve the efficiency to find out target from enormous video data significantly





# System maintenance – smart diagnose

## Maintenance issue

Due to complex working environments, video quality of devices cannot be stable after long time running. Maintenance will become a big problem especially when there are thousand of devices



Defocus

Overexposure

Underexposure



Low contrast

Color cast

Stripes



Loss

Freezing

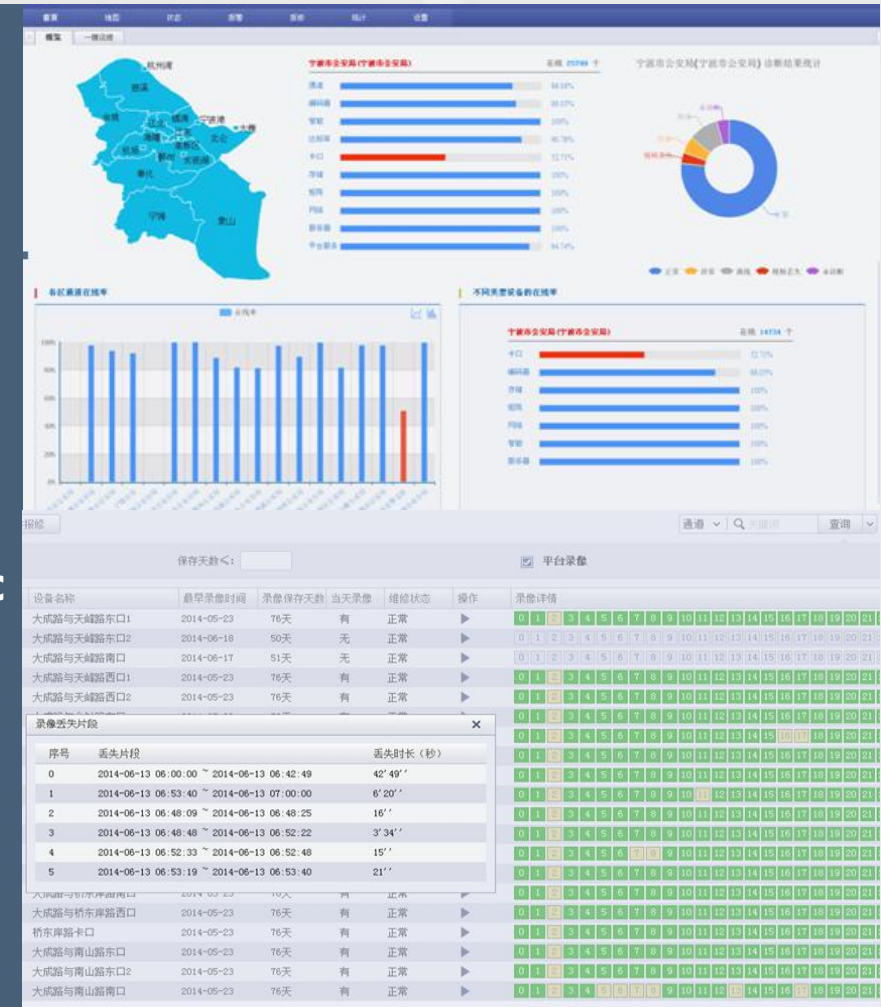
Tampering

## Video quality analytic

- Online devices
- Channel capacity
- Video quality
- Real-time alarm

## Storage quality analytic

- Storage duration
- Status of each day
- Storage loss



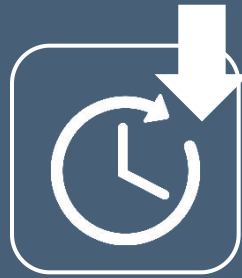
# Benefits of safe city solution



**Less criminal rate**



**Less traffic violations**



**Shorter response time**



**Better citizen satisfaction**



**Better city economic**

Dahua safe city solution can help cities to cope with safety challenges of today and tomorrow !

# Why choose Dahua safe city solution



## **Well-Proven**

Dahua's solution has been widely used by many cities and it has also been proven effectively to protect city safety



## **Excellent ecosystem**

Dahua has over 1000 global partners. It makes Dahua's system is able to integrate with most of main stream manufactures seamlessly



## **Scalable**

Dahua safety city solution is flexible to upgrade and expand with the city growing because of advanced system architecture and openness



## **Customizable**

Dahua has more than 3000 experts in R&D which allows Dahua's solution can be highly customized to meet different requirements



# Sample safe city project

Source – Xuzhou safe city project, China



## Project scale



Total Area (km2)  
**11258**



Urban Area (km2)  
**3054**



Population (Million)  
**8.7**



Fund (Million USD)  
**10.8**



## Related work



### Integrated command & control platform



General monitoring sites **1292**



Transportation monitoring sites **1457**



## One year after project implementation



Criminal rate **down 8.2%**



Police case closure rate **increase 5.72%**



**85%** homicide cases can be solved within **3** days



City safety satisfaction **up to 92.3% (increased 2.5%)**



**Top 10** safest city of China

