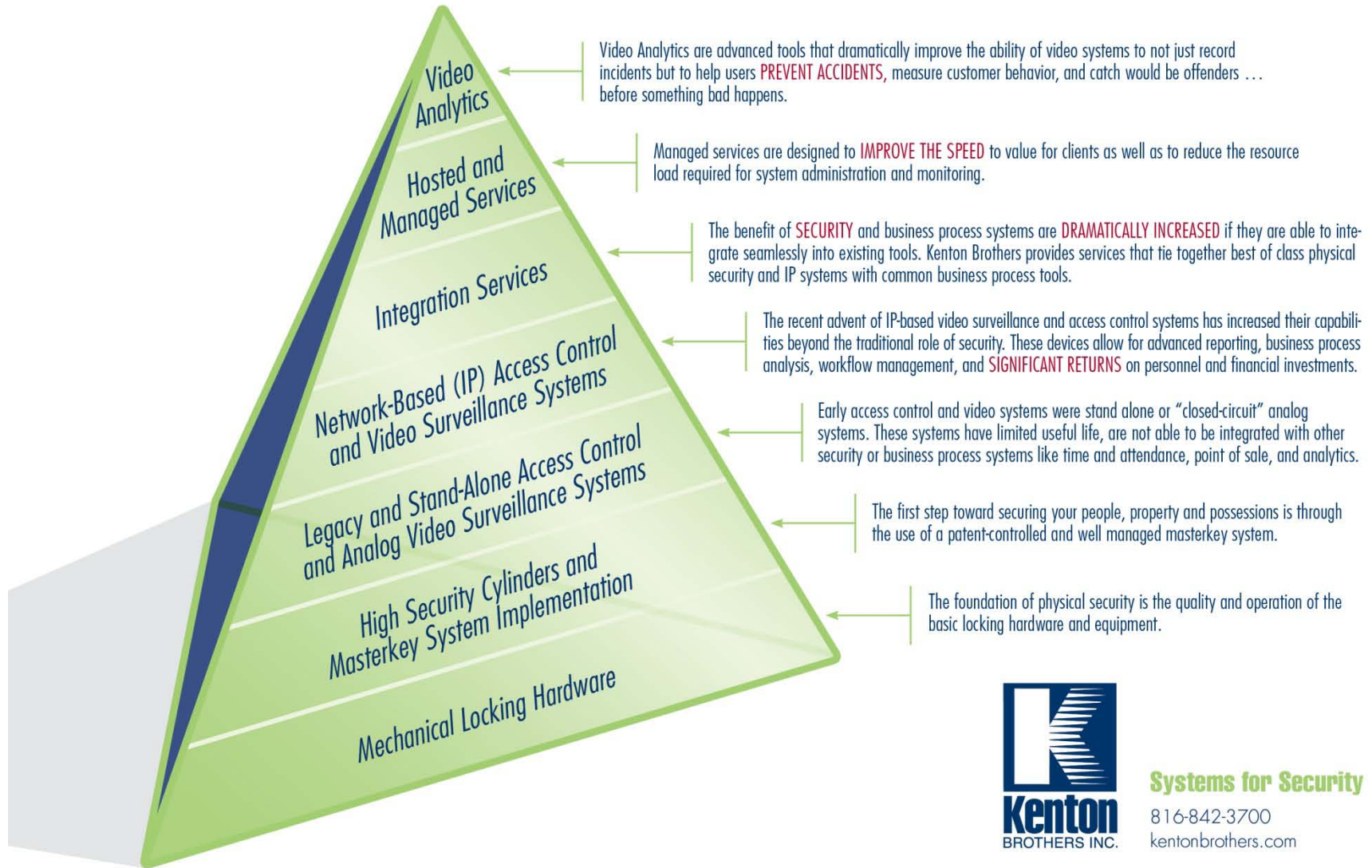


# The Complete Kenton **Solution**



**Systems for Security**

816-842-3700

[kentonbrothers.com](http://kentonbrothers.com)

# Video Surveillance Technology



**IP VIDEO SOLUTIONS:  
SECURITY AND BEYOND**

# Definitions:

## **Analog video**

A video signal transferred by analog signal. It contains the luminescence and chrominance of the image, which may be carried in separate channels, as in component video (YPbPr) and S-Video, or combined in one channel, as in composite video and RF connector.

## **IP Based Video**

IP Camera video is based on the Internet Protocol. This means that the cameras can send and receive data via a computer network (WAN/LAN) and the Internet, CCTV (analog) cameras cannot.

## **Megapixel**

A megapixel refers to one million pixels, and is commonly used in reference to digital cameras as an indication of resolution capability.

## **CCTV or Traditional Closed Circuit Television**

the use of video cameras to transmit a signal to a specific place, on a limited set of monitors.

**The differences between traditional analog cameras  
versus IP-based digital cameras:**

**Image quality**

**How the video data is transmitted**

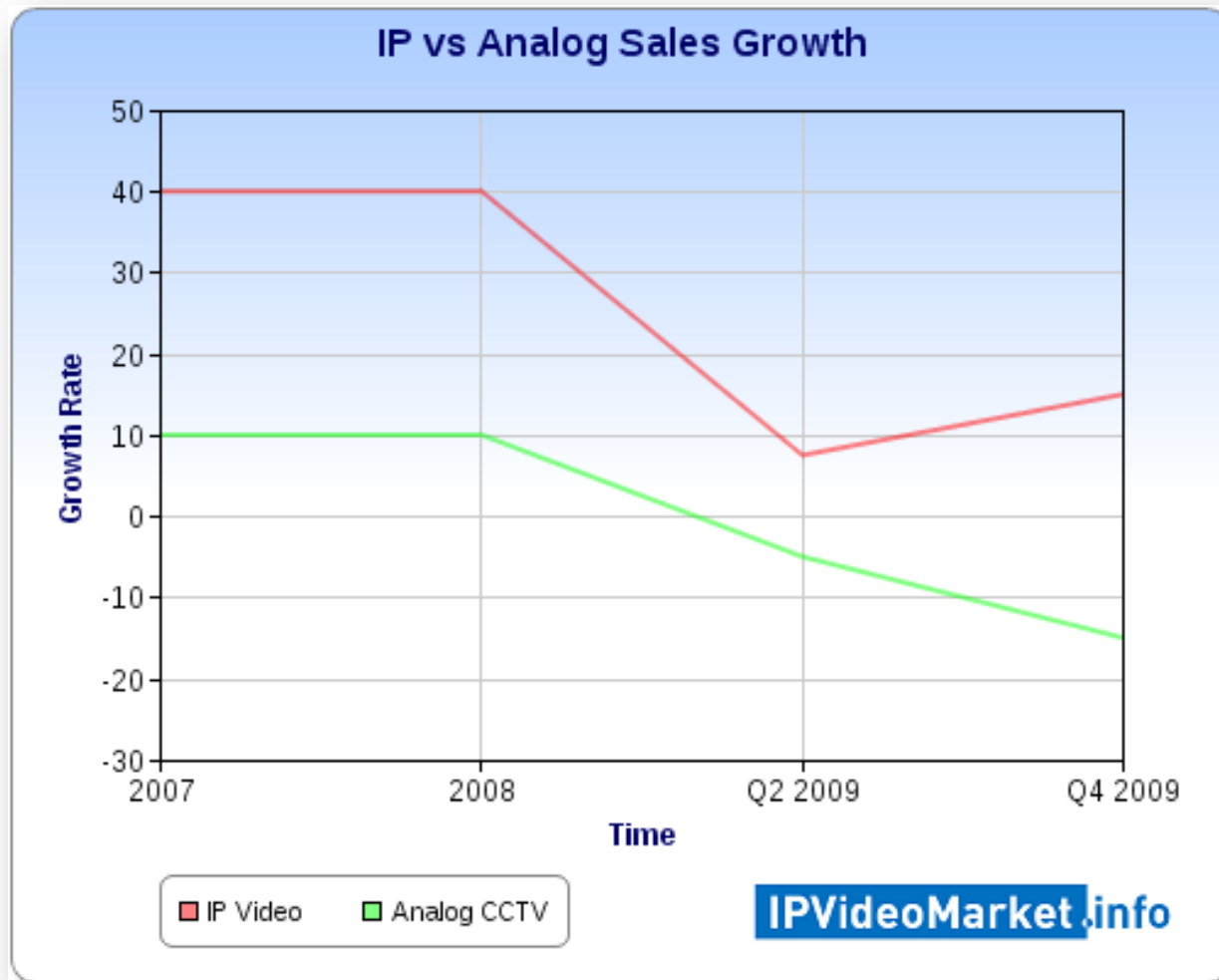
**How the video is stored**

**Flexibility in deployment**

# Six Generations of Video

Generation	Description	Timeframe
1	Analog CCTV systems using VCR	1980s
2	Analog CCTV systems using DVR	1990s
3	Analog camera using network DVR	2000
4	IP Cameras with video servers	2004
5	Network video systems using On-camera systems	2009
6	100% web enabled/hosted IP Cameras	2010

# Market Adoption of IP Video



The market is clearly shifting away from Analog technology in favor of IP-based systems

# Market Adoption: Why IP Video versus Analog

- Use of existing infrastructure
- Fewer cameras needed for same coverage
- High -quality recorded image zooming
- Long equipment shelf life
  - Multipurpose with on-camera analytics
  - Multiple deployment options
  - Industry Research \$ going into IP

**5.0 MP 2592x1944 (16.5x VGA)**

**3.1 MP 2048x1536 (10xVGA)**

**2.0 MP 1600x1200 (6.25x VGA)**

**1.3 MP 1280x1024 (4.25xVGA)**

**Analog/ VGA  
640x480**

3.1 MP 2048x1536

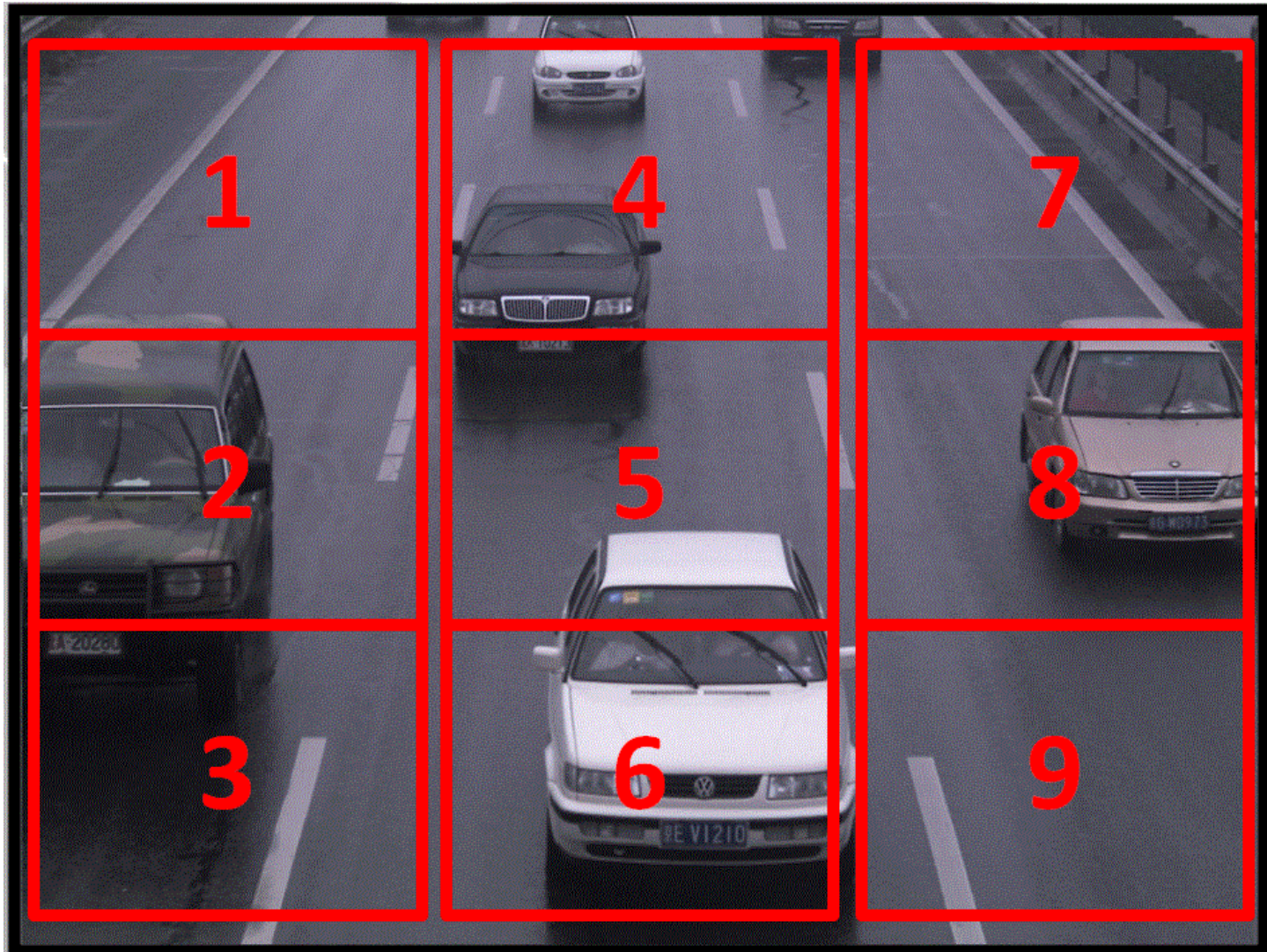
2.0 MP 1600x1200

1.3 MP 1280x1024

VGA  
640x480

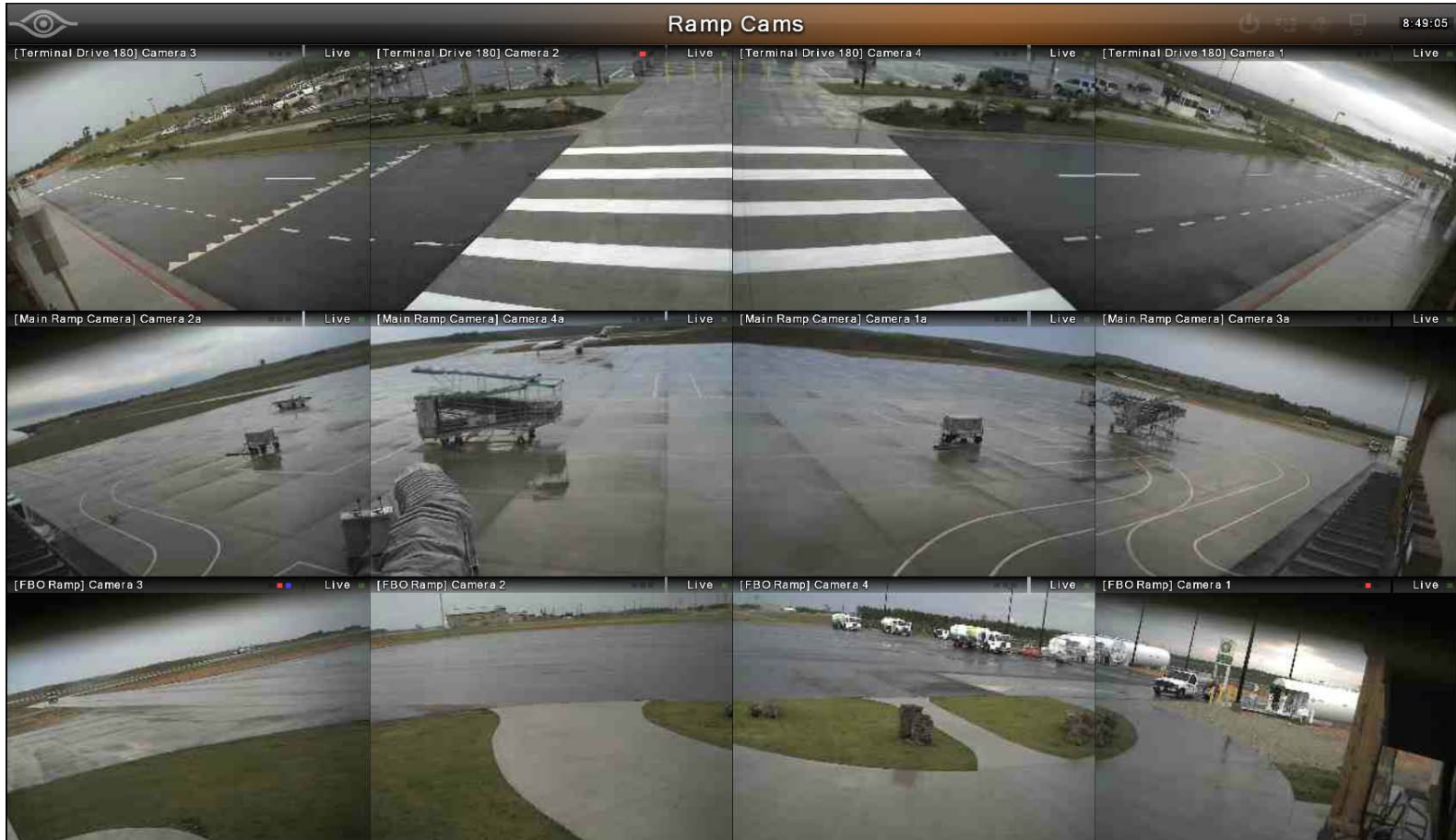


# Field of view: Analog vs. IP Megapixel



# Field of view: Analog vs. IP Megapixel

## Fewer cameras needed



Minimal "fisheye" effect and allows for digital zoom for detail

# View from a 180 degree Camera



Isolated image before digital zoom

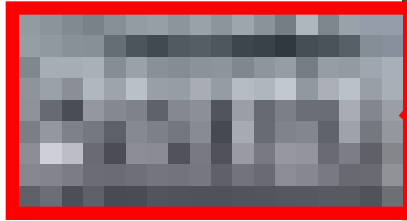
# View from a 180 degree Camera



Digital Zoom

# Resolution: Analog vs. IP Megapixel

At a given distance Megapixel provides more clarity



**VGA  
(Analog)**



**5MP**



**1.3MP**



**3MP**



**2MP**

# Camera Field of View: Why pixel density is important



45 PPF



50 PPF



60 PPF



75 PPF



195 PPF

PPF - Pixels per Foot

# Traditional Video Systems are Passive

- Original benefits were as “Extenders of visual observation”
- Benefits were primarily for security teams
  - Active monitoring
  - Evidence Collection
- ROI was defined as a function of the number of screens
- 95 percent of video systems are not actively monitored

# ROI for Traditional Video



If four screens are 4x better than one...



Then adding a few more will make the team more efficient...



And if we add even more views we'll get...

# ROI for Traditional Video



Effectiveness of a dedicated viewer of video degrades to “well below acceptable levels” after 20 minutes

# Why change?

- Few organizations are able to get a significant return on their investment in traditional video surveillance
- Investigation of events with traditional systems is limited by and technology factors
- Focus is shifting from “Post event investigation” to “Event prevention and business data collection.”

# How can IP Based systems help?

Intelligent Video is about reducing the vast amount of information contained in video, making it more manageable.

IP systems have tools that can reduce the vast amount of information contained in video and bring passive surveillance “to life” using:

## **Video Analytics**

# What is Video Analytics?

## **VMD: Video Based Motion Detection**

Foundation of "event-driven surveillance".

Video is only recorded if activity is seen in target areas.

## **VCA: Video Content Analytics**

The capability of using algorithms for automatically analyzing video to detect and classify events.

Subheading

# Common Rules-Based Analytics



Movement-In-Zone (People/Vehicle)



Water Vessel



Line Crossing (Directional)



Left Object



Object Counting (People/Vehicle)



Illegally Parked Car



Loitering



Road Obstacle



Grouping



Asset Protection



Crowd Detection



Motion Detection on  
PTZ Presets



Tailgating (People/Vehicle)



PTZ Tracking



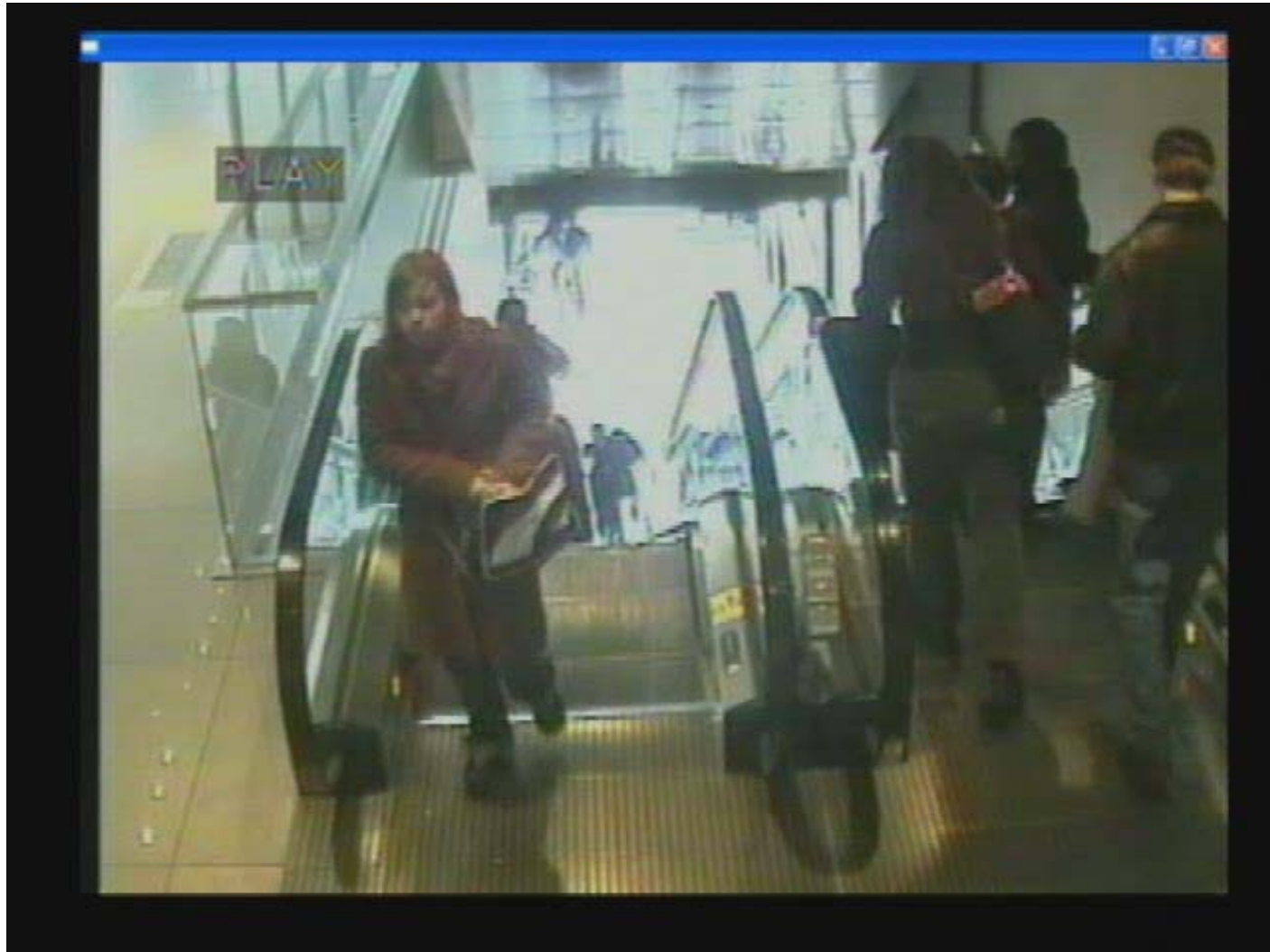
Stickiness



PTZ Bundle

## Object Left Behind

Alert generation when an object has been left in a busy scene



## Object Left Behind

Alert generation when an object has been left in a busy scene



# Object Left Behind

Alert generation when an object has been left in a busy scene

## Security Application:

- Suitcase left in an airport
- Cars parking in illegal areas
- People in incorrect places (sleeping on heaters)

## Business Applications:

- Materials blocking key flow areas
- Preventing parking tickets

# Object Tailgating

Sends alerts when a single access rule is violated

**Vi-System  
Analytics Rule:  
Tailgating Vehicle**

Powered by **AGENT** 

# Object Tailgating

Sends alerts when a single access rule is violated

## Security Application:

- Maintaining tight traffic control in secure areas
  - Server rooms, security areas

## Business Applications:

- Preventing double dipping in parking
- Point of sale applications

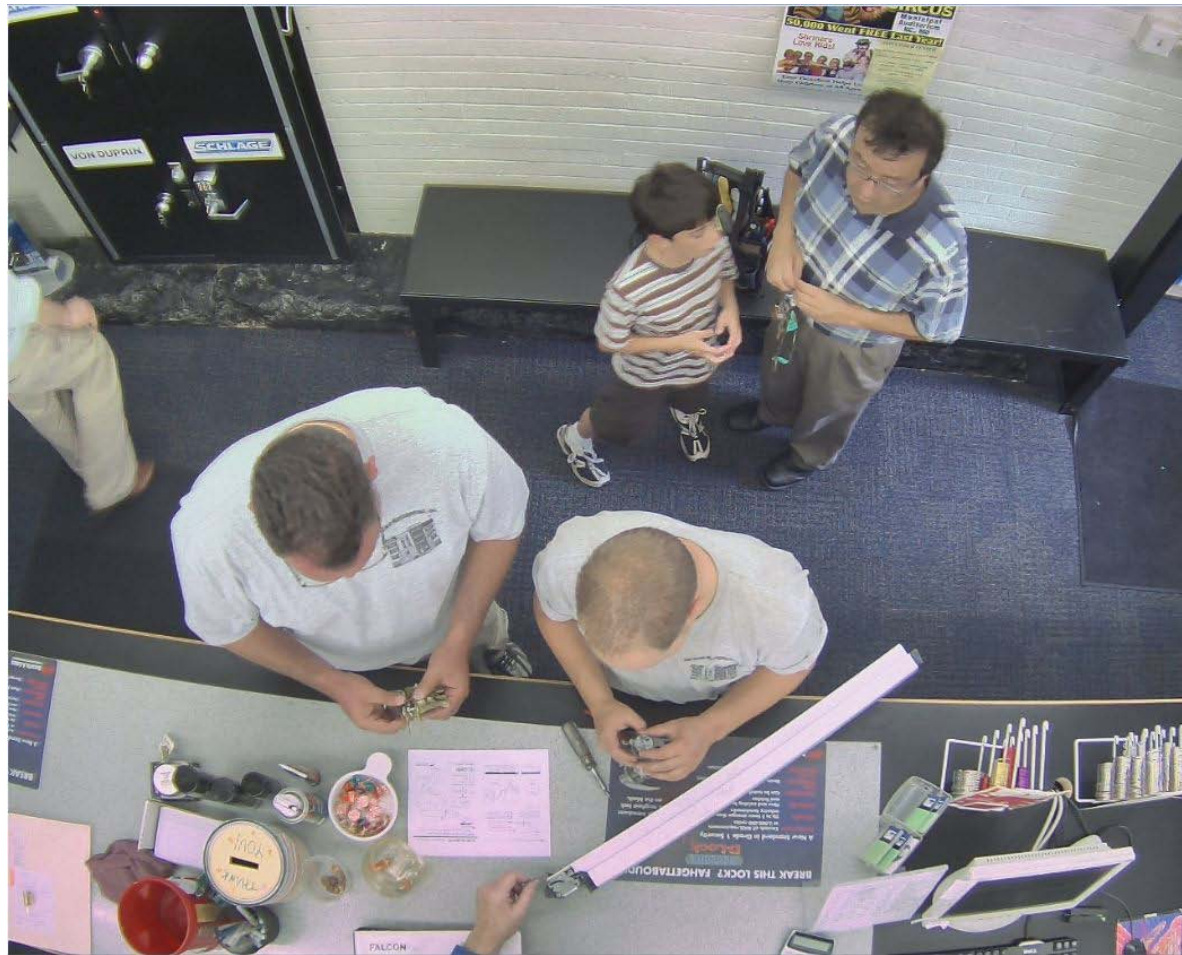
# Congestion Detection/Capacity/ Wait Times

alert a user in the event of a build-up of congestion in an area of interest

**Vi-System  
Analytics Rule: Grouping**

Powered by **AGENT**<sup>VP</sup>

# Congestion Detection/Capacity/ Wait Times In action at the KB Retail Counter



# Congestion Detection/Capacity/ Wait Times

alert a user in the event of a build-up of congestion in an area of interest

## Security Application:

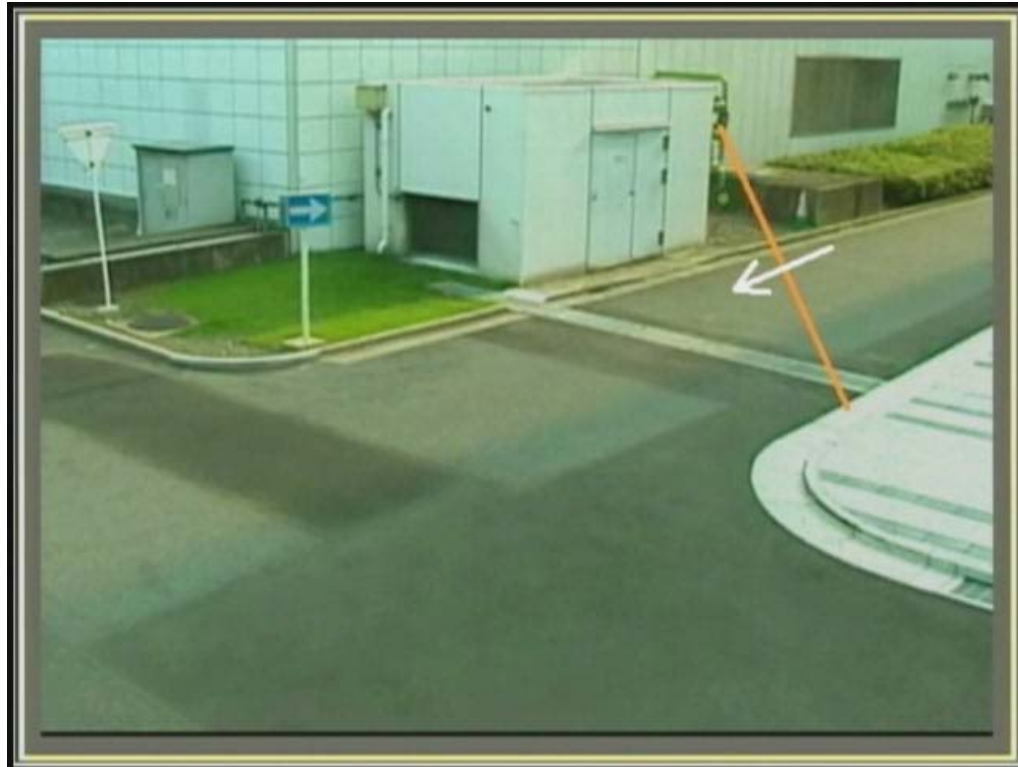
- Congestion Detection is used for station platforms
- public spaces (After hours in parks)
- highway onramps/exits

## Business Application:

- Alert managers to customer service issues
- Data collection for business capacity planning
- Data collection for best practice development

# Counter Flow/ Wrong Way Detection

Counter flow is available to alert a user to a person or vehicle moving in an unauthorized direction



# Counter Flow/ Wrong Way Detection

Counter flow is available to alert a user to a person or vehicle moving in an unauthorized direction

## Security Application:

- Person moving against the permitted flow
- Vehicle traveling in the wrong direction on a road
- Fire escape management

## Business Application:

- Fork truck flow errors

# Single Tripwire

Pixel line alert that is triggered when a defined object crosses it – understanding direction



# Single Tripwire

Pixel line alert that is triggered when a defined object crosses it

## Security Application:

- Someone hopping a fence
- Protection of parked equipment (construction site)
- Protection of high value materials
- Someone approaching a building or area of interest

## Business Application:

- Counting of customers entering/exiting store
- Counting of cars at a drive through or ATM

# Shape Based Detection

Distinguish between an animal, a vehicle and a person

Vi-System  
Analytics Rule:  
Traffic Obstacle

Powered by **AGENT** 

# Shape Based Detection

Distinguish between an animal approaching a boundary fence, and an intruder.

## Security Application:

- Monitoring remote sites to distinguish between a person and an animal

## Business Application:

- Counting of customers entering/exiting store
- Counting of cars at a drive through or ATM

# Changing Who Watches the System

Is someone on your staff responsible for watching your video management system?

All of these analytic options can send electronic alerts instantly— but to who?

Remote monitoring as-a-service can help maximize the effectiveness of a video management system that takes advantage of video analytics.

# Changing Who Watches the System

*Remote services for...*

Video Event Monitoring

Video Verification

Video Tours (fixed & PTZ)

On Demand Incident Reports

On Demand Video Escorts

# Migration Path from Analog to IP

“What about my existing equipment?”

Encoders for analog cameras are an option...

Hybrid systems are available

Add-on video management solutions/analytics

# Video Surveillance Technology



Questions?