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VMS & VCA SOLUTIONS

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AGENDA

1. Company Profile
2. Project References
3. VMS & VCA Explained
4. 3rd Party Integration Options
5. Netavis VMS Modules
6. VMS & VCA Features
7. AI Face Recognition
8. Smart Data Warehouse Features
9. Security Cockpit
10. Conclusion

EXECUTIVE SUMMARY

Proven Technology

- MOI Prisons, KSA
  - 8,500 Cameras
  - Distributed Across the Country
- Clock Tower Complex, KSA
  - 15,400 Cameras
  - 260 Concurrent Users
- City Surveillance, Eastern Europe
  - 3,000 cameras
  - Project-specific failover concept

A Single Integrated Software Platform

- Open Video Management System (VMS)
- iCAT Video Analytics Included in VMS
- Event Database platform for Dashboard Visualization and Management Reports

One-Stop Solution Provider

- Video Management System & Video Analytics
- Server and Client Hardware
- Local, Regional and Factory Sales and Technical Support

COMPANY PROFILE

Pioneer in server-based IP video surveillance and integrated video analytics

About 15,000 installations
over 124,000 sold licenses
1 to 15,000 cameras per installation

Customers in industries such as retail, government, public administration, banks, transportation, manufacturing industry and many more

Software easily adaptable to various languages, currently available in over 20 languages, including Arabic

Headquarters in Vienna, Austria	Development in Budapest, Hungary	Delivers products and services through solution partners and distributors	Key focus on Europe and Middle East

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PRESTIGIOUS PROJECTS

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Abraj Al-Bait Tower (Clock Tower), 15,000+ HD IP CCTV Cameras

PRESTIGIOUS PROJECTS

Security of Critical Buildings

- Region: Middle East
- Cameras: 8,500
- 5 sites
- Indoor and outdoor
- 4 petabyte external storage
- Integration with Siemens SiPort (access control)
- High availability (clustering)

Security of Critical Buildings

- Region: Middle East
- Cameras: 15,400
- Installed in year: ongoing
- Partner: Panasonic
- 4 sites, 200 clients
- Indoor and outdoor
- SNAP integration

Ministry of Justice

- Region: Central Eastern Europe
- Cameras: 3,100
- Installed in year: 2009
- 300 sites
- OEM version of NETAVIS Observer

PRESTIGIOUS PROJECTS

City Surveillance

- Region: Central Eastern Europe
- Cameras: 3,000
- Installed in year: 2011
- Encryption (HTTPS, AES)
- Dual streaming video analytics
- Project-specific failover concept

Bank – Security of Branches

- Region: Central Eastern Europe
- Cameras: 1,000
- Installed in year: 2006
- 120 branches connected
- Integration of alarm system
- Live monitoring at the HQ
- Distributed update

NGHA – Security of Healthcare

- Region: Middle East
- Cameras: 2,600
- Installed in year: 2014
- Integration of alarm system
- Live monitoring at the HQ
- Distributed update

PRESTIGIOUS PROJECTS

Ministry of Interior Saudi Arabia

NGHA Madinah

King Saud University Riyadh

Civil Defense, Makkah

Alpha Bank Serbia

Port of Tallinn

PRESTIGIOUS PROJECTS

Fairmont Hotel Group

Movenpick Hotel

Zamzam Hotel

Raffles Hotel

Swiss Otel

Mobistar Concept Stores

PRESTIGIOUS PROJECTS

Benetton Megastores

Copenhagen Airport

Nippon Express

SOL Palvelut

Linz AG

TNT Linz

PRESTIGIOUS PROJECTS

IBM

DHL

IKEA

Jamie Oliver Restaurants

Dnata

Ministry of Justice Romania

SELECTION OF REFERENCES

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Retail

Government

(Austrian Ministry of Interior)

(City of Vienna)

(Ministry of Justice Romania)

Utility

Bank

Health

(Vienna General Hospital)

Children's Hospital Dresden

(Copenhagen Hospital)

(Salzburg Hospitals)

(University Hospital Graz)

Transport

(Copenhagen Airport)

Corporate

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WHAT SHOULD YOU HAVE IN A VMS AND VCA

1. Scalable, stable and reliable
2. Native analytics
3. Open platform for different CCTV suppliers / third party systems
4. Easy to integrate with third party systems
5. Bandwidth optimization
6. Archiving security
7. Connectivity health check
8. Smooth and easy operation
9. Behavioral analysis
10. Backend optimization
11. Artificial intelligence for informative decisions making
12. Machine learning

TYPICAL PURPOSE OF ANALYTICS

1. Know the number of visitors
2. Organize automated access control of people
3. Track the movements of suspicious individuals
4. Find people in the video stream or archive using the images of their faces
5. Observe objects left unattended
6. Raise alarm on accumulation of too many people
7. Detection of CCTV camera malfunction
8. Cover a larger area of observation with fewer cameras
9. Fever Screening
10. Social Distancing
11. Reduce cost of the video surveillance system
12. Accumulate business intelligence

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UNIFIED DASHBOARD

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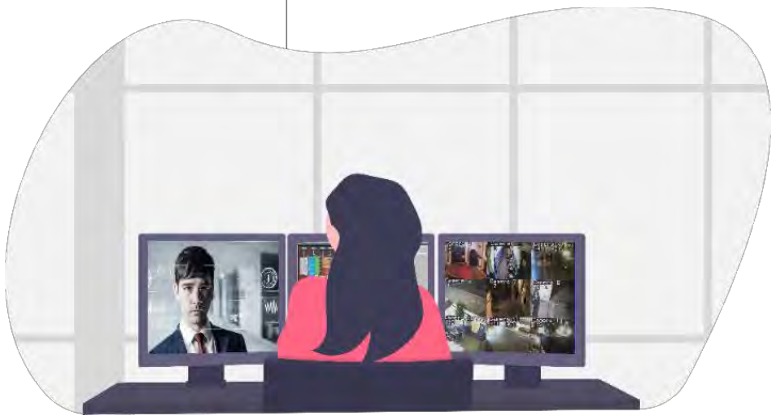
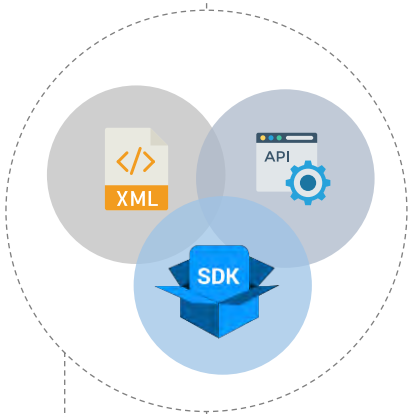
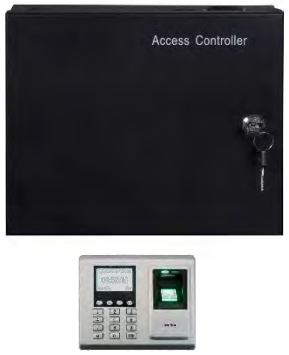


3rd PARTY SYSTEM INTEGRATION



CCTV System



Access Control System

BMS System

Burglar Alarm System

Fire Alarm System

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ONE PLATFORM – THREE COMPONENTS

NETAVIS Observer: Linux-based video management system

iCAT: Versatile video analytics solution integrated into NETAVIS Observer

sMart: Data warehouse that stores, processes and visualizes data from Observer, iCAT, and other sensors (e.g. 3D and TOF sensors)

NETAVIS
OBSERVER
Video Management System

iCAT
Video
Analytics

sMart
Data Warehouse

Security Cockpit

NETAVIS OBSERVER VIDEO MANAGEMENT SOFTWARE

Edition Table

Features & Modules / Edition	Basic	eXtended	Enterprise	Licensed by
Max number of cameras	64	128	unlimited	Camera
Max number of concurrent users	10	20	unlimited	User
Max number of interconnected servers	unlimited	Unlimited	unlimited	Server
Max number of I/O Devices	unlimited	Unlimited	unlimited	Server
Smart Motion Detection	●	●	●	Server
Event Management	●	●	●	Server
ONVIF Profile S	●	●	●	Camera
I/O Device Administration for Easy Integration	●	●	●	Server
Centralized Management with Extensive Management Reports	●	●	●	Server
Multilevel Administration for Advance Security	●	●	●	Server
SDK (.NET/Java) for 3rd Party Integration	●	●	●	Server
Rule Administration for Automated Actions	●	●	●	Server
Mobile Client	●	●	●	User
Archive Encryption	●	●	●	Server
Active Directory Integration	●	●	●	Server
SNMP	●	●	●	Server
ABS Bandwidth Management	○	○	●	Camera
Extensive iCAT Video Analytics with AI and 3rd Party Integration	○	○	○	Camera
iCAT Number Plate Recognition Including Arabic	○	○	○	Lane
iCAT Face Detection with Age, Sex and Engagement Time	○	○	○	Camera
Highly Advance Video Wall Controls	-	○	○	Client
Video4Web	○	○	○	Session
Layout Navigation with Actual Floor Plans and Maps	●	●	●	User
SNAP XML Interface for 3rd Party Integration	○	○	○	Session
SNAP URL Interface for 3rd Party Integration Including other VMS, PSIM etc.	○	○	○	Session
NETAVIS sMart Data Warehouse for Data & Business Intelligence	○	○	○	Sensor/User
NETAVIS Security Cockpit with Substantial Security and Management Dashboards	○	○	○	System

Legend: ● included, ○ optional, - not supported

LIST OF ENHANCEMENTS IN OBSERVER VMS

Observer 5.0.2

Security related issues

- Permissive HTTP Strict Transport Security Policy Detection
- jQuery Prototype Pollution
- Admin menu: Add SMTP settings and support for more options (incl. authentication)

New cameras

- Extend ONVIF driver to support H.265
- Integrated Honeywell 30 series cameras

Observer 5.0.1

List of enhancements

- I/O devices: Implement Axis Generic I/O driver
- SNAP URL/XML & Java SDK: functions to update ANPR lists
- Admin Console: Option to disable HTTP access
- Admin Console: Display CentOS version
- Admin Console: [22] Show network details: Include MAC address
- Support updates from USB sticks
- Updates: Add check whether /Images1 exists on first hard drive before an update is executed
- Add XML option to reduce the Hella polling time

New cameras

- Integrated Axis generic camera driver
- Integrated Hikvision generic camera driver

Observer 5.0.0

List of enhancements

- Renewal of camera admin
- Camera admin's pages to be replaced with table where multiple select, multiple setting and sorting is available for cameras and it's settings
- Convert existing camera admin into new
- Combo boxes to be replaced with text fields for video parameters, image size, frame rate
- Camera discovery wizard to be changed: easier selection, info fields to move into camera admin table
- Support multi-select for camera/group movement and delete
- Excel import allow cameras already existing in Observer
- Consolidation: removing "The 'I/O Control'" and "Video parameters" panels from camera admin (as the first one is accessible from I/O admin, and the other one is unused)
- Allow to add cameras to an NCS camera groups directly from the NUS
- Update Face Detection SDK to latest version
- Add support for Attention and Dwell time
- GUI changes: Parameter fields for Attention and Dwell time

Contd...

LIST OF ENHANCEMENTS IN OBSERVER VMS

Observer 5.0.0

List of enhancements

- Events: Eliminate face detection event, but put attention and dwell time parameters into age & gender event
- Implement H.265 support
- H.265 support in Axis drivers (models: M2026-LE, M3106-L MKII, M3106-LVE MKII, M3106-L)
- H.265 support in Vantage drivers (model: VP-NC5394P, VV-NC9425D)
- H.265 support in Generic RTSP and ONVIF Profile S drivers Installation, Operation System
- Update the installation base system to CentOS 7.5
- Adapt install.sh to the new CentOS 7 environment (INSTALL only)
- Update the shell scripts to support CentOS 7
- Update the Java part to support CentOS 7
- Additional useful error messages in the course of install
- Protect grub with password
- Define new partitioning scheme, handle most storage configurations automatically
- UEFI support for bundled version
- Rpm packages for CentOS 7
- Installing Observer from a USB stick
- Support for ONVIF Profile S conformant devices

- Security related issues
- X-Frame-Options Header
- Remove insecure Transportation Security Protocol (TLS 1.0)
- Updated Tomcat
- Cookies to be marked as Http Only
- Disable weak ciphers
- Network Time Protocol Daemon (ntpd) upgrade to version 4.2.7-p26
- Restrict Network Time Protocol (NTP) mode 6 queries
- HTTP/HTTPS: filter metacharacters for cross site scripting
- HTTP/HTTPS: application error messages to be logged
- HTTP/HTTPS: password field submitted through POST instead of GET
- HTTP/HTTPS: Javascript library updated
- Weak SSh algorithms disabled

Various Improvements

- Camera Admin: Add fields for additional GDPR-information (responsible person and use of camera)
- Java version change to latest IBM Java 8
- iCAT Tripwire: Added arrow to indicate direction of counting
- Add System Event: configured recording period cannot be reached due to insufficient disk space
- Online Monitor window popup if an event occurs
- License allocation on license server's host admin
- Added PTZ privileges to user groups
- New Rule Admin action: show in view
- OpenJDK 11 support on client side
- Netavis AD users keep their IDs (and configurations) if AD connection was lost and recovered
- Simplifying the code: Store events in one table instead of many

New cameras

- Integrated Vantage cameras with a generic driver (model: VP-NC5394P, VV-NC9425D)
- Integrated ONVIF Profile S driver

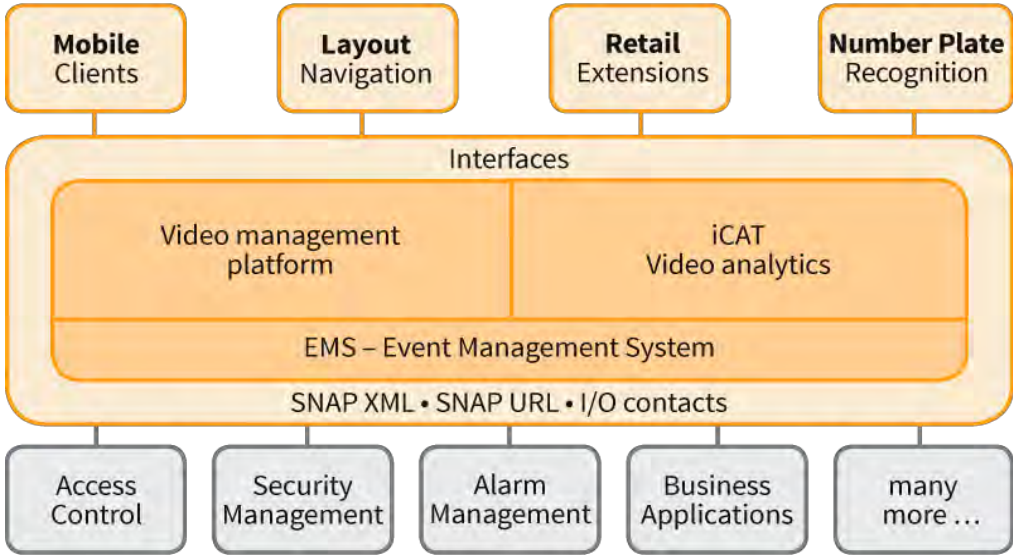
Bugs fixed

- Install fails if DNS configured incorrectly
- Recording interval extended up to 1 pic / 5 minutes
- Minimal face detection size editor on Java 10
- No fatal dumps in case of archive encryption and multi camera SAFE export
- Camera access rights synced to slave NUS in sync group for AD user
- Added IO Device values in automatic export
- Layer Navigation Tool can start via https using Web Start on JAVA 8 and 10
- Stream in online monitor after restoring old system backup
- System Backup restore modifies the DB schema to latin1 from utf8
- Exception occurs when pushing 'cancel' button for modifying user group's privileges
- Online monitor stream not jerky when motion happens
- Import of 270+ cameras are no longer slow

OBSERVER VIDEO MANAGEMENT

VIDEO MANAGEMENT PLATFORM BASED ON LINUX, WITH THE MAIN ADVANTAGES

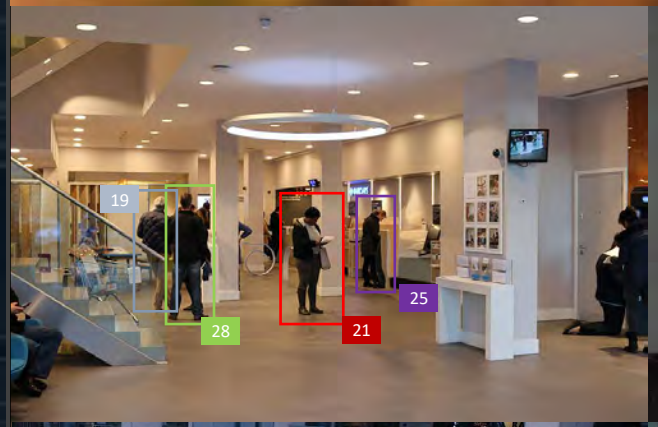
- Cost (included in bundled (with OS)NETAVIS Version) – Unbundled without OS
- Secure Linux OS CentOS Ver 7.5
- Support of NETAVIS addresses OS questions as well

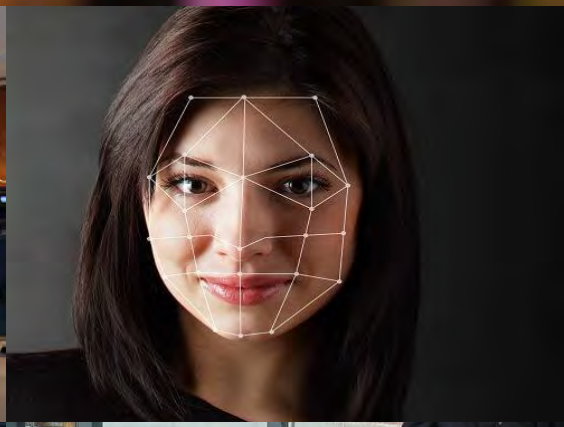


- High Usability by integration with NETAVIS iCAT Video Analytics in one common application
- ONVIF Profile S, native camera vendor integrations, Generic RTSP Driver
- Interfaces for fast implementation and deployment of 3rd party integrations
- Unlimited System Size (currently up to 15,400 cameras in existing systems)
- Scalability, system size of VMS and analytics defined by license key

netavis VIDEO CONTENT ANALYTICS

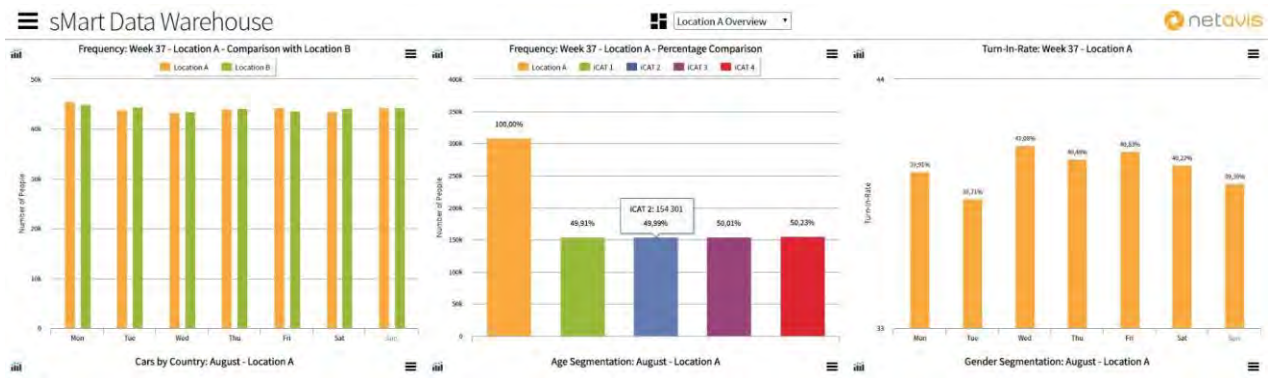
- **iCAT Video Analytic Bundle**
  - Smart Motion Detection
  - Object Counting
  - Privacy Masking
  - Camera Sabotage
  - Object Entering/Leaving
  - Directional Alarms
  - Object Detection
  - Object Starting Stopping, Loitering
  - Heat Maps/Crowd Density
- **3D/4D Sensor Integration (Optional)**
  - Enterprise People Counting
- **Face Detection (Optional)**
  - Gender Segmentation
  - Age Segmentation
  - Engagement Level
- **ANPR Arabic Number Plate Recognition (Optional)**
- **Enterprise Facial Recognition (Optional)**

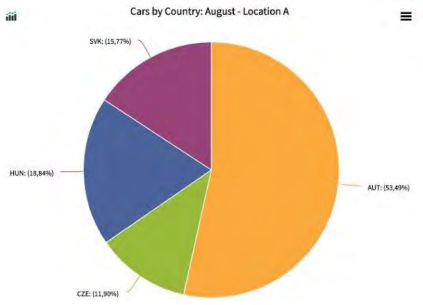


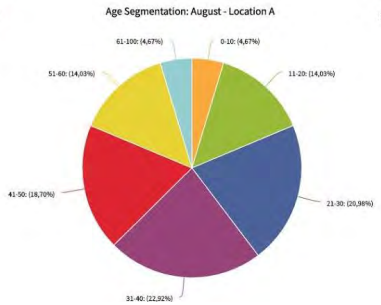


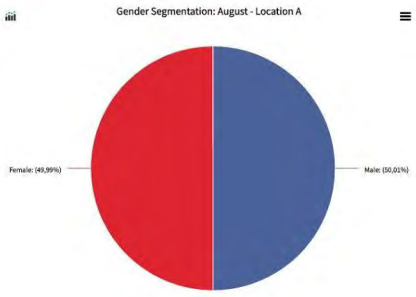
sMart DATA WAREHOUSE

- Collects and stores data from diverse data sources, including iCAT Video Analytics, and transforms it into key performance indicators.
- Each user is provided with user-specifically tailored information for sound decision-making
- Dashboard interfaces, scheduled PDF reports and business intelligence analysis tools
- Fast and easy implementation and adaptability to the requirements of the various users









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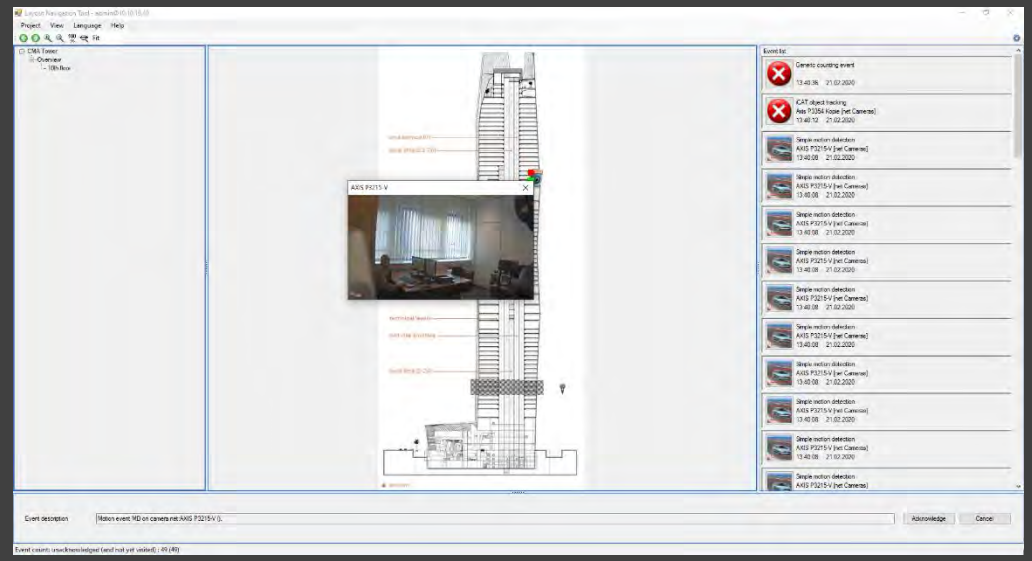
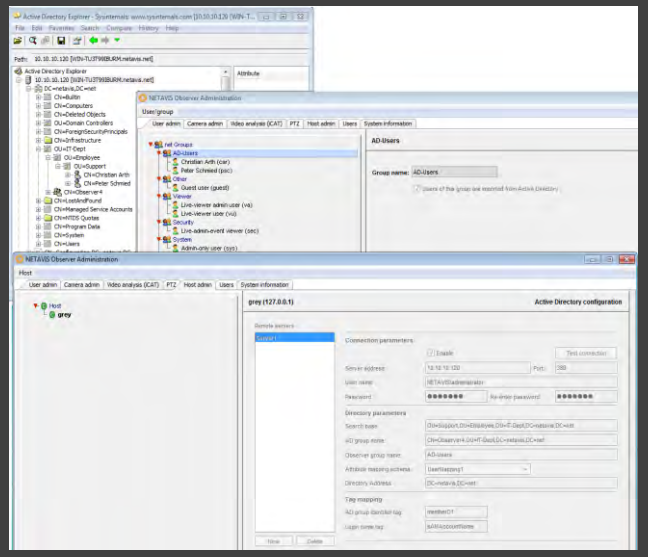
OBSERVER LAYOUT NAVIGATION



- Administration of camera systems
- Easy navigation of camera systems
- Graphic representation of maps, floor plans etc.

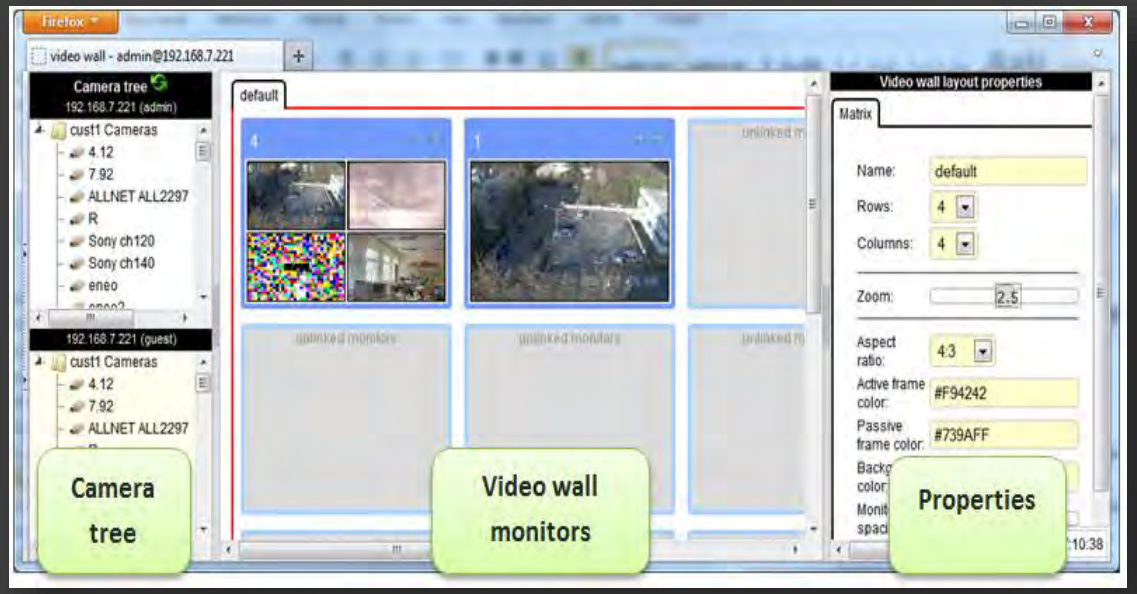
ACTIVE DIRECTORY INTEGRATION

Microsoft
Active Directory



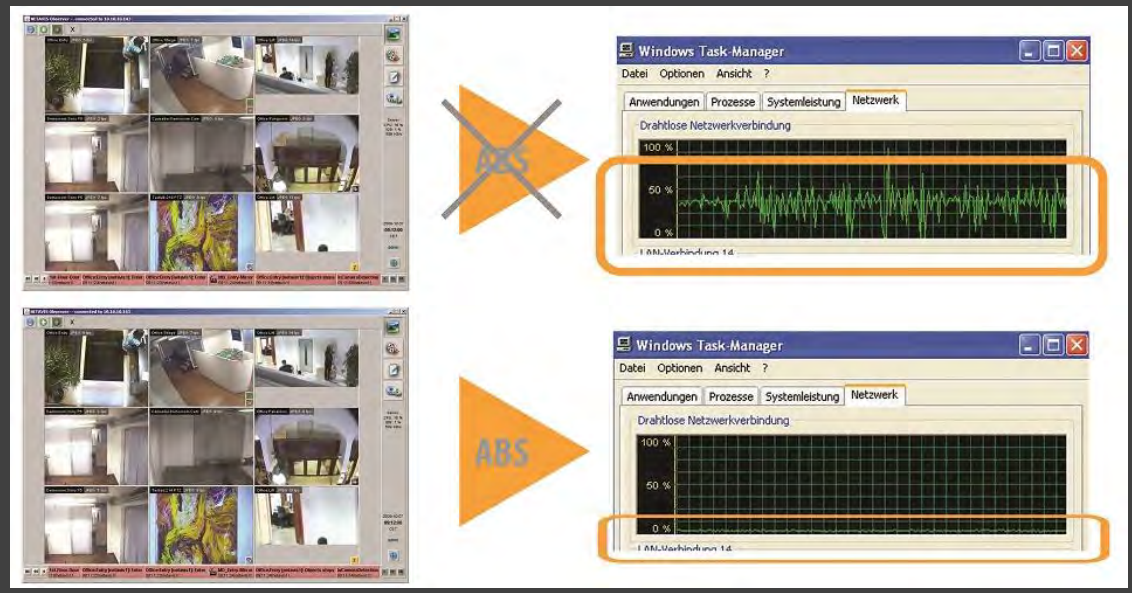
- For complex and large-scale Active Directory environments
- Administration of users through existing AD/LDAP infrastructure
- User groups are added with adjustable rights

OBSERVER VIDEO WALL CONTROL



- Efficient control of video walls
- Up to 10x10 screens built from standard IT components
- Flexible control of Observer views and viewports of any client machine

ABS BANDWIDTH MANAGEMENT

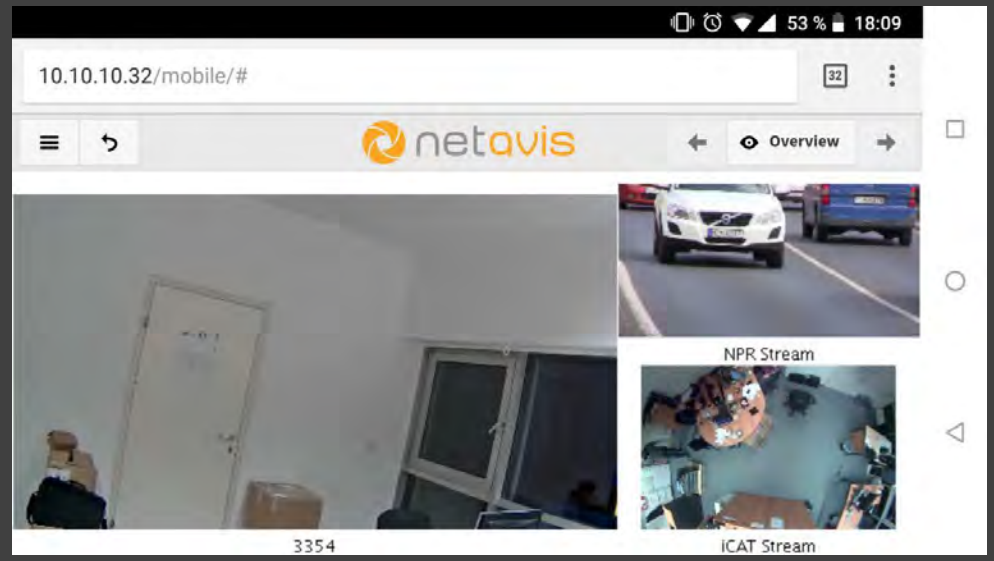


- Reduces and manages bandwidth needed for transmitting video streams
- Dedicate maximal bandwidth
- Independent from cameras, the streaming format and resolution

ARCHIVE ENCRYPTION

- NETAVIS Archive Encryption allows to encrypt the entire archive
- Access to archive only with decryption key, even if the hard disc was stolen
- Optional encryption of camera-server and server-client-connections included in every edition

MOBILE CLIENT



- Browser-based application
- Live viewing of up to 6 cameras
- Archive access
- Independent of Operating System

SMART MOTION DETECTION

- Alarm is triggered by movement into predefined area
- iCAT definitions are adjustable in advance and can be planned
- Different perimeter security settings possible, e.g. for workdays and weekends

HEAT MAPS

- Different layouts allow for the most intuitive visualization.
- Heat maps uses cameras in defined areas and integrate them to indicate high concentration of customer traffic and engagement areas.
- Maps can be based on specific time windows or integrated over a period.

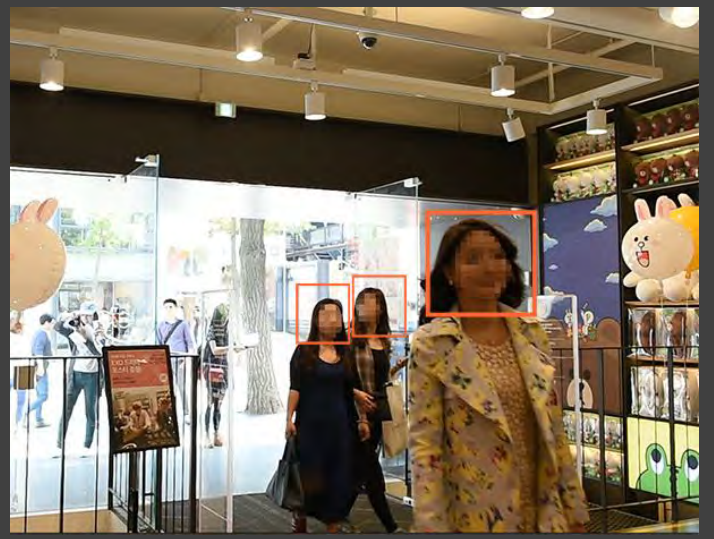
PEOPLE COUNTING

- NETAVS iCAT detects and counts people in defined areas
- Virtual tripwire detects the direction of the object in the video stream
- Extremely low error rate – minimal double counting
- Added value for existing installations

OBJECT DETECTION, LOITERING DETECTION

- Detects moving objects, that stop in a defined area
- Alarm per system event, SMS, and email notification

DYNAMIC PRIVACY MASK



- Dynamically protects peoples‘ privacy
- Freely configurable
- Can be turned off when required (e.g. via panic button or time-schedule)
- Useful in security and retail applications

iCAT SABOTAGE DETECTION

- Detects camera sabotage:
  - Defocusing
  - Covering
  - Moving
- Documentation of camera sabotage
- Optional alarm

iCAT NUMBER PLATE RECOGNITION

- Input for statistical data
- NPR list management & events: search and export, real time actions for individual vehicles
- Over 70 countries including Saudi Arabia
- Seamlessly integrated in NETAVIS Observer, no extra server

iCAT FACE DETECTION

- Detects and counts faces
- Estimates gender
- Estimates age group
- Measures Attention time
- Direct data export

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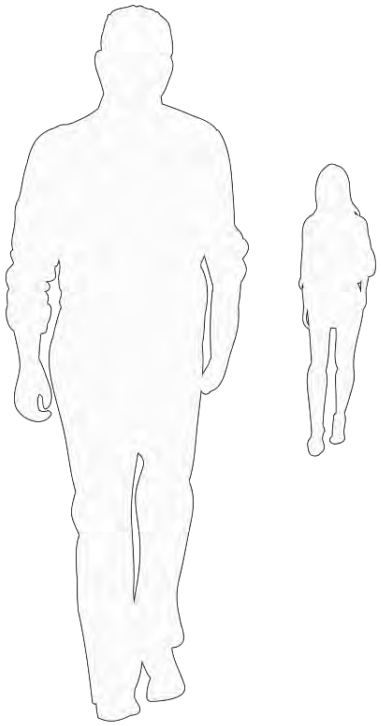
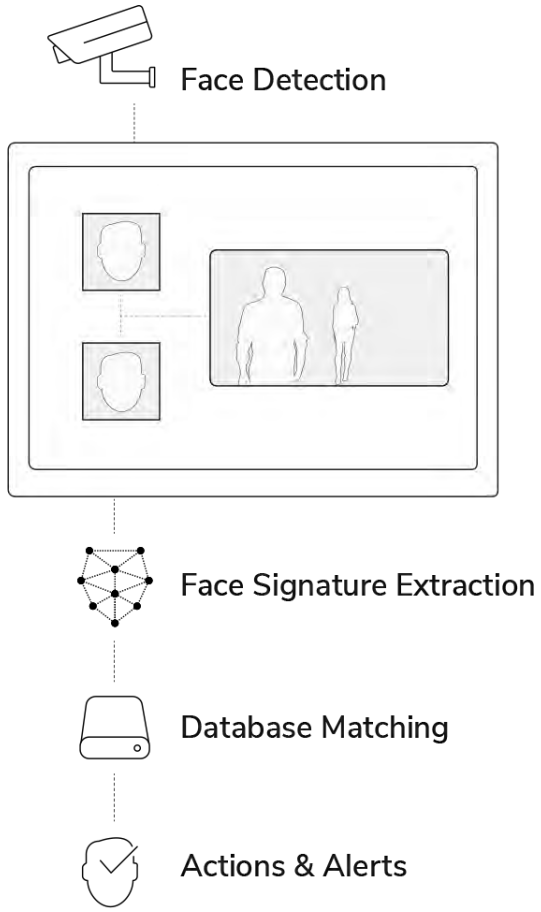
ACCURATE FACIAL RECOGNITION



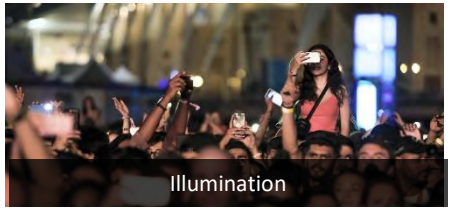


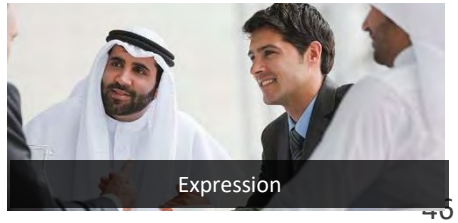
Live Gender, Age and Mode Analytics

Wild Face

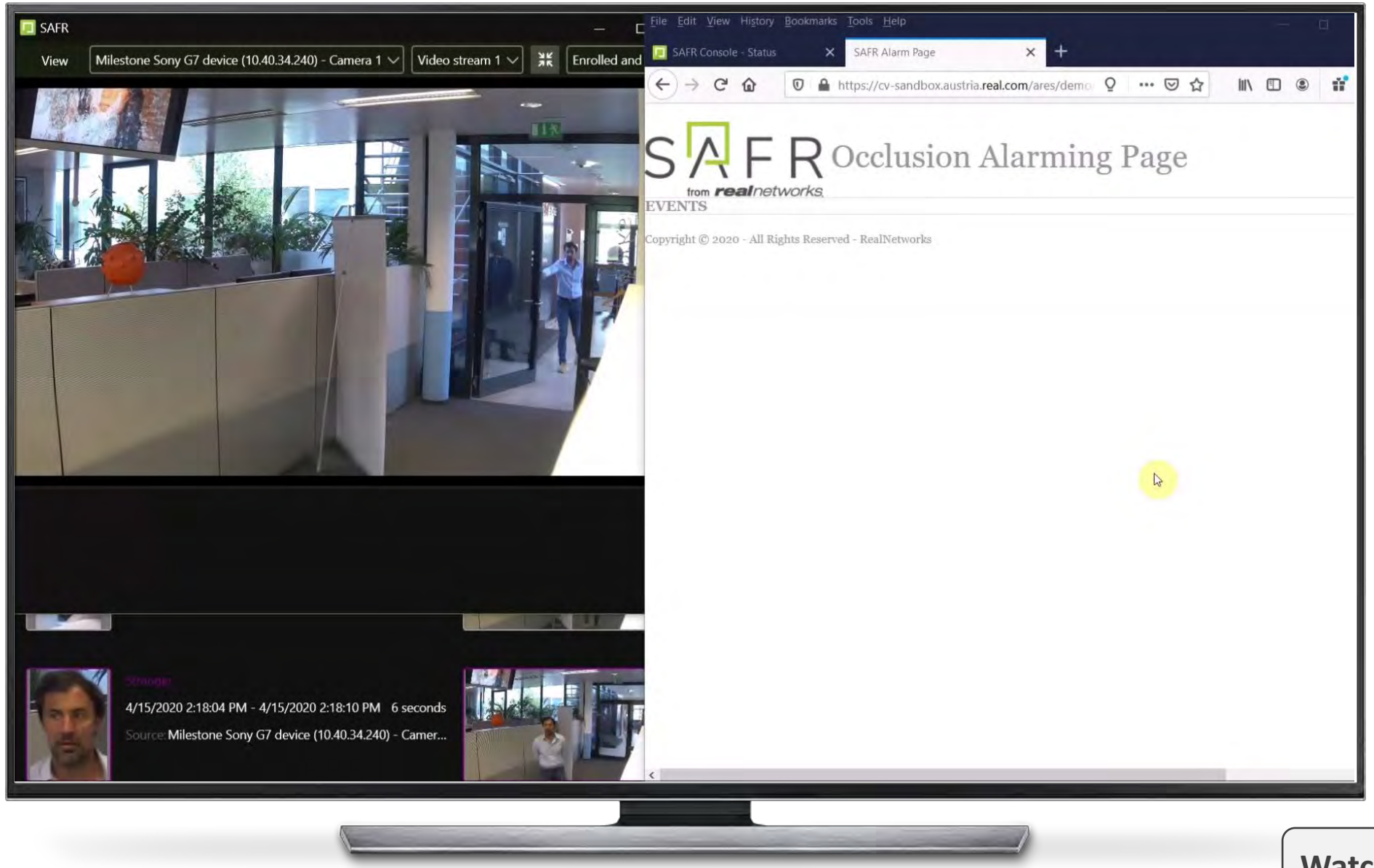
Visa Face

Performance in Adverse Condition





OCCLUSION ALARMING



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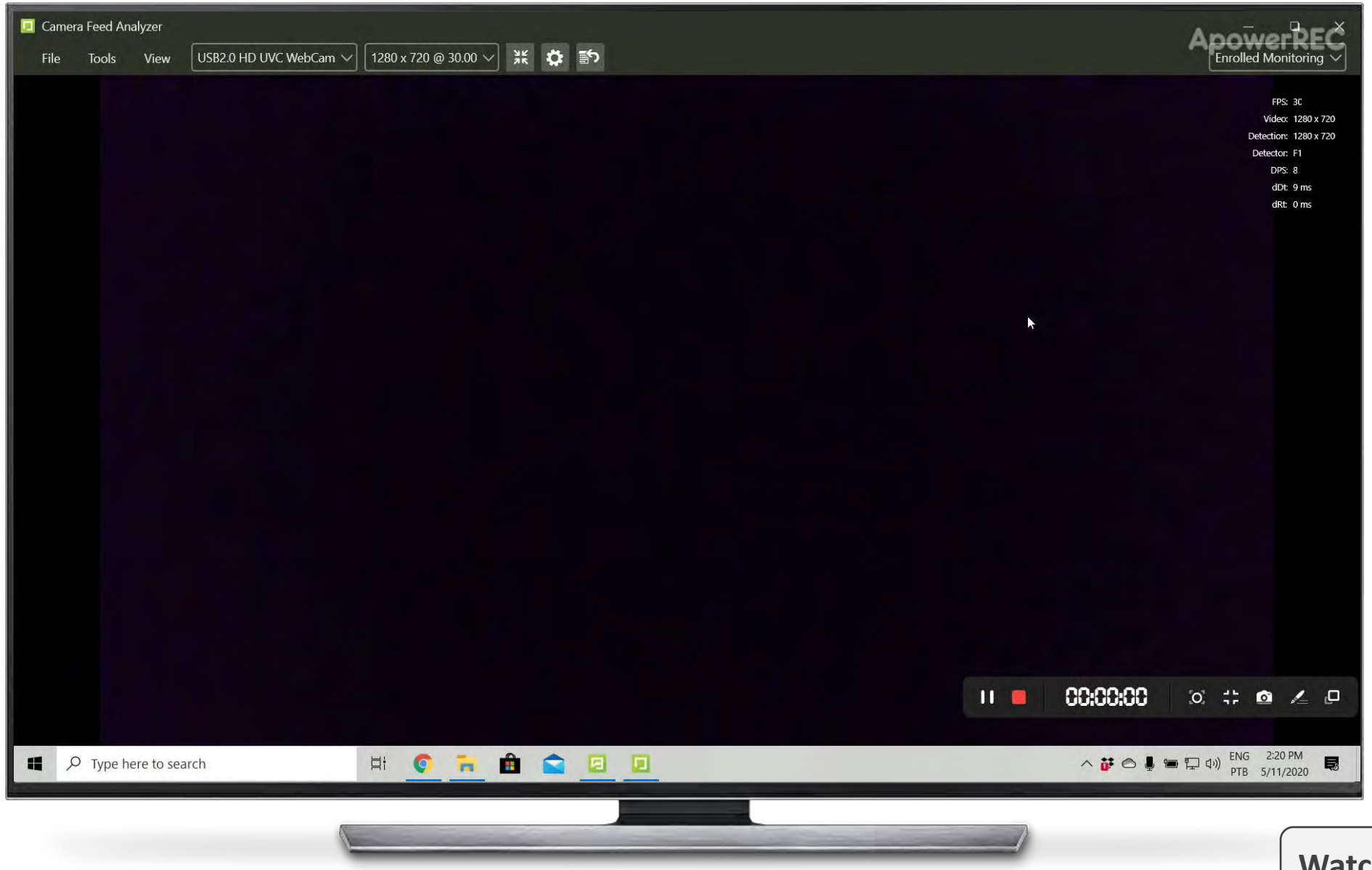
FACIAL RECOGNITION WITH MASK DETECTION



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AGENDA

1 Company Profile

2 Project References

3 VMS & VCA Explained

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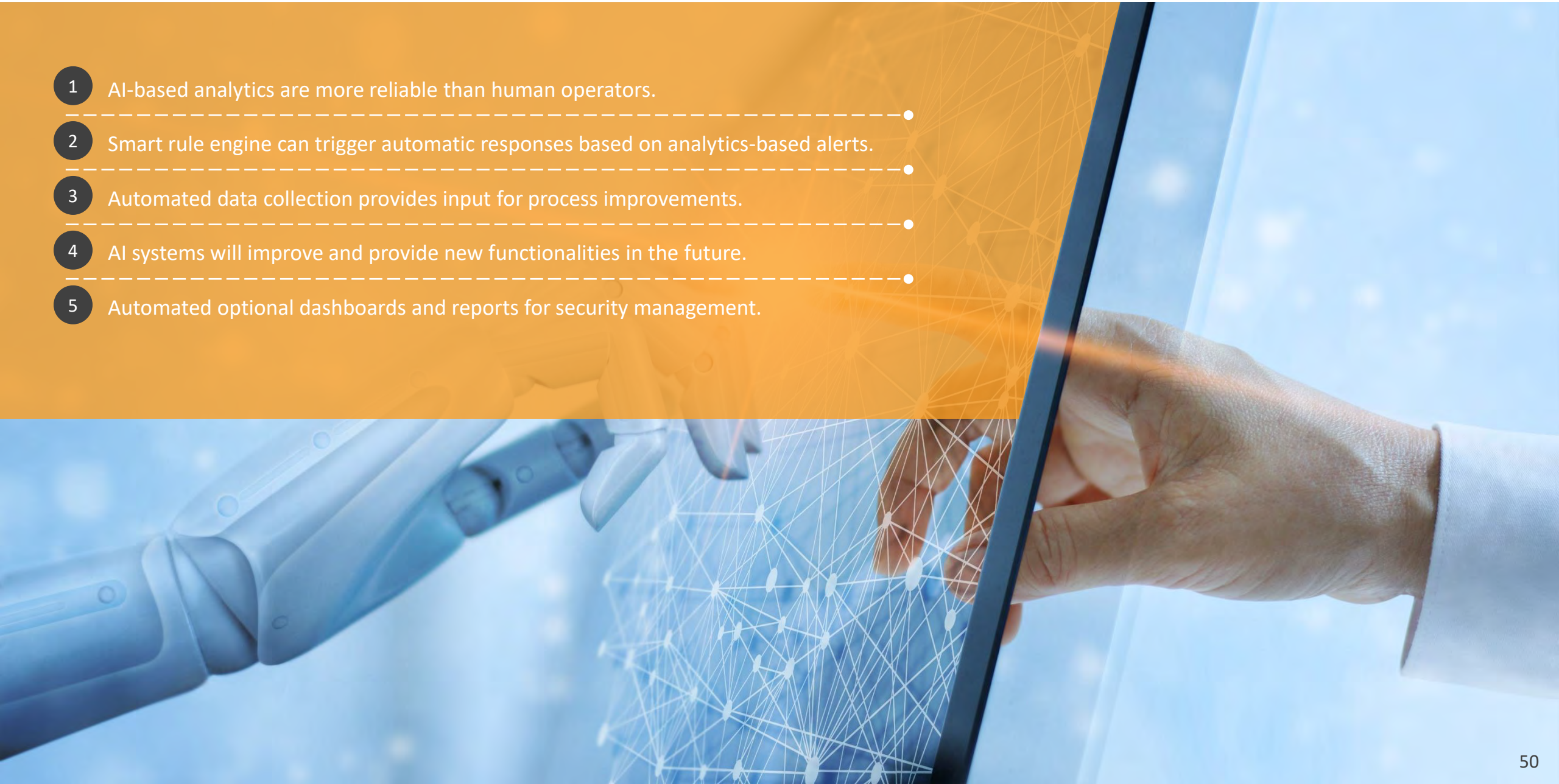
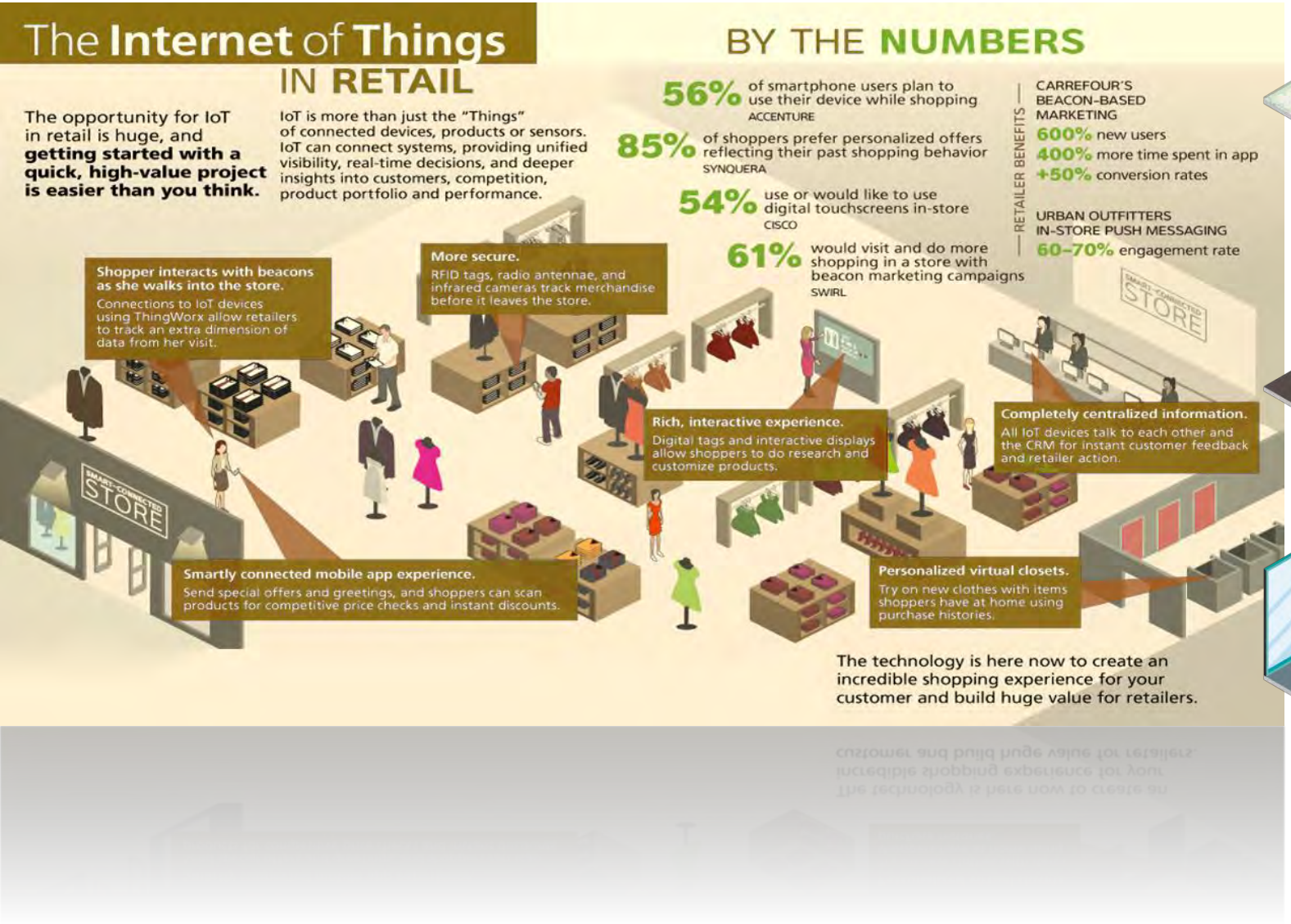
10 Conclusion

STRATEGIC BENEFITS OF USING ARTIFICIAL INTELLIGENCE

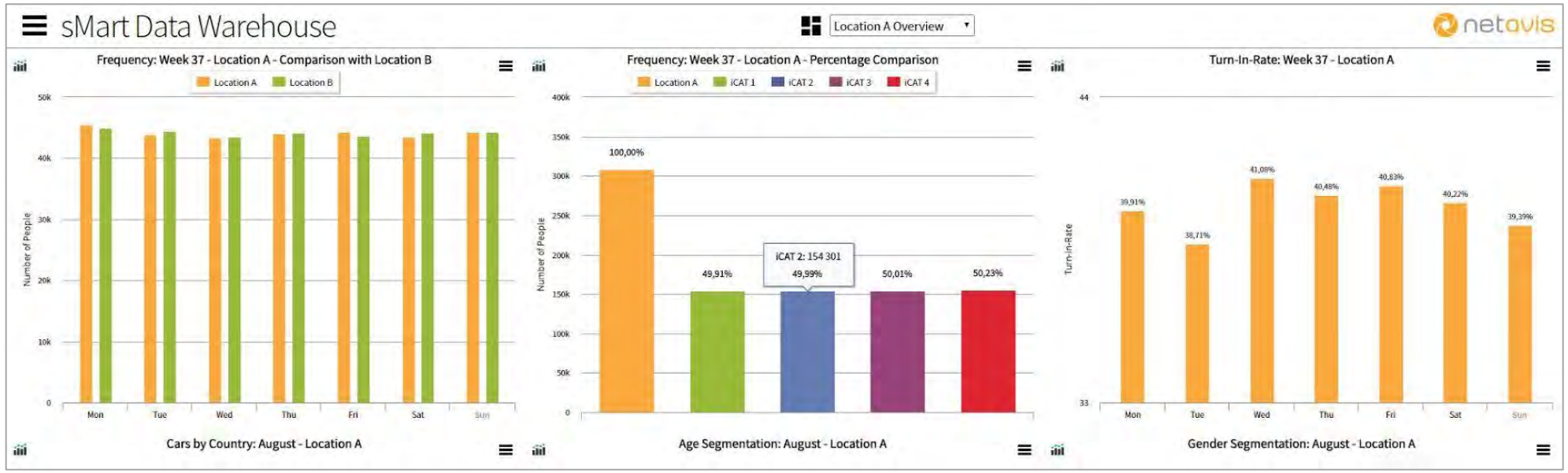
1. AI-based analytics are more reliable than human operators.
2. Smart rule engine can trigger automatic responses based on analytics-based alerts.
3. Automated data collection provides input for process improvements.
4. AI systems will improve and provide new functionalities in the future.
5. Automated optional dashboards and reports for security management.

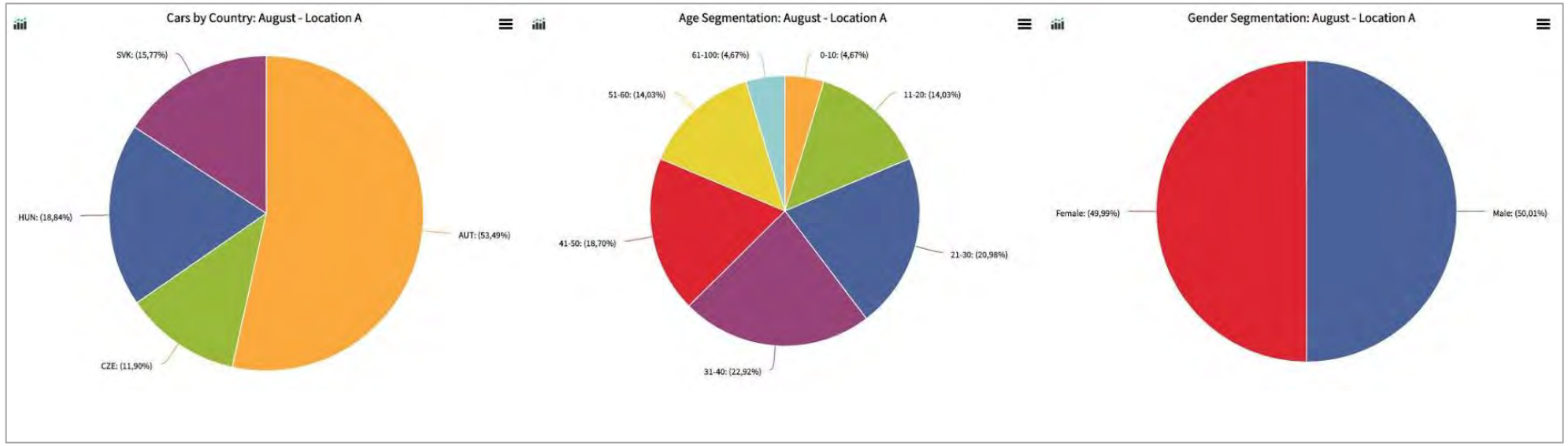


STRATEGIC BENEFITS OF USING AI FOR BUSINESS INTELLIGENCE



BUSINESS INTELLIGENCE THROUGH sMart DATA WAREHOUSE





AGENDA

1 Company Profile

2 Project References

3 VMS & VCA Explained

4 3rd Party Integration Options

5 Netavis VMS Modules

6 VMS & VCA Features

7 AI Face Recognition

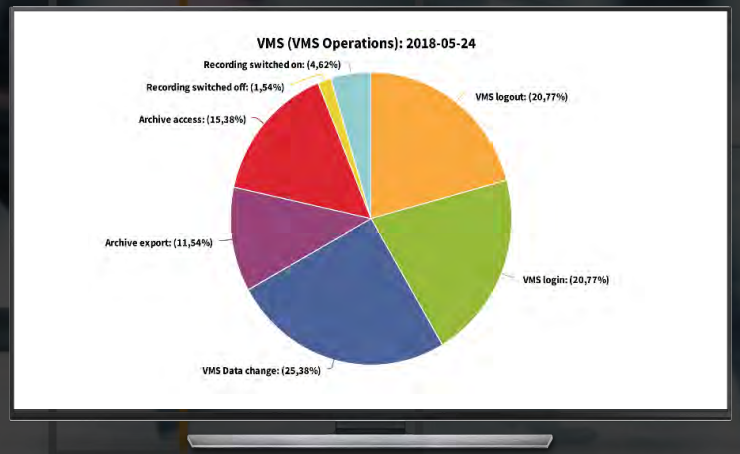
8 Smart Data Warehouse Features

9 Security Cockpit

10 Conclusion

netavis SECURITY COCKPIT (NSC)

The Security Cockpit is the analysis tool for data from the CCTV system and the integrated video analysis. All security-relevant events can be visualized for detailed analysis in user-specific dashboards and automatically compiled reports. This information provides a constant overview of the system.



Detailed analysis of security related Observer events

- VMS Status events
- VMS Operations events
- I/O Devices events
- External Devices events

User-specific dashboards

Automatically compiled reports

NSC Dashboards

- The interface to data
- In-depth analysis of all relevant information
- User friendly customizable dashboards

Deployment Options

- Hosted on customer organization's IT infrastructure
- NSC as a Service hosted in the cloud

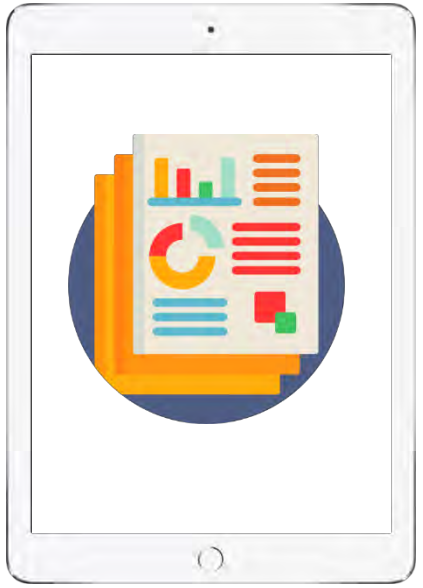
NSC Reports

- The data can be compiled into passwords protected PDF reports
- System data across time can be compared

SECURITY COCKPIT (NSC)

The Netavis Security Cockpit (NSC) is an integral part of the sMart Data Warehouse, which provides a detailed and customizable analysis of security related Observer Video Management events and alarms. Individual adjustable dashboards and personal reports provide clear in-depth analytics at a glance of the data gained through Video Management Systems (VMS) and Video Analytics (VA).

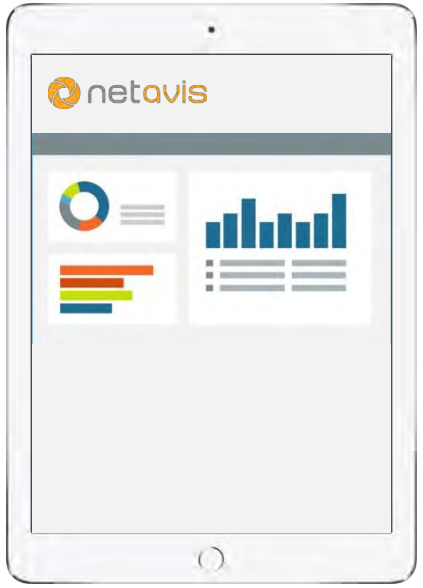
Customer Added Value



The NSC monitors three different security and GDPR relevant aspects of the installation:

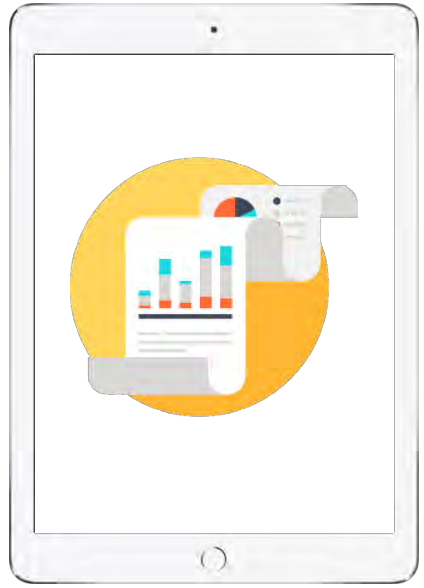
- User Interaction such as logins, archive access and export of video streams
- Security Alarm Information e.g. motion detection or VA
- System Information provides a system alarm overview of the entire installation e.g. camera connection loss.

User-Specific Dashboards



Dashboards are the interface to the data. They provide an overview and allow a more detailed analysis of all relevant information. Ease of use and customizability help to understand and track relevant information for each user. Various chart options display complex records and comparisons over periods or locations of event categories.

Automated Reports



All data collected in NSC can be compiled into password-protected PDF reports and regularly sent as e-mail to predefined recipients. The reports are tailored to the individual user and can be used to compare all system data over time (for example: current month compared to last month) or between different locations.

AGENDA

1. Company Profile
2. Project References
3. VMS & VCA Explained
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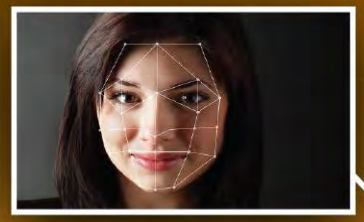
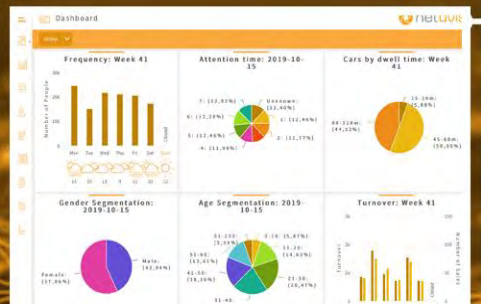
Actionable Intelligence for Improved Security & Operational Efficiency

Value proposition of Netavis Software GmBH solution





WHY NETAVIS IS THE BEST VMS PLATFORM FOR BANKS?

Secure and most stable OS

Unlimited camera connectivity

Advance native Analytics

Powerful Dashboard & Health check

Industry's best business intelligence data analysis

Proven system for large & mega projects in KSA and Globally

Integrated with Fever Detection Cameras

Integrated with world's best ANPR & Face Recognition systems

Twenty-five (25) year of data analytics expertise

Extensive integration options with access control, fire and burglar alarm, building management & control systems

THANK YOU