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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Broadband, triple-play and advanced multimedia
services – Advanced multimedia services and applications

Architecture for intelligent visual surveillance systems

Recommendation ITU-T H.626.5



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Recommendation ITU-T H.626.5

Architecture for intelligent visual surveillance systems

Summary

Recommendation ITU-T H.626.5 defines an architecture of intelligent visual surveillance systems, including the functional requirements, functional architecture, entities, service flows and reference points. The intelligent visual surveillance system provides intelligent analysis capabilities and services for users based on the images and video streams from surveillance cameras through the network. This Recommendation is based on Recommendation ITU-T F.743.1, "*Requirements for intelligent visual surveillance*".

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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Architecture for intelligent visual surveillance systems

1 Scope

This Recommendation specifies architecture for intelligent visual surveillance systems.

The scope of this Recommendation includes:

- Functional architecture
- Entities
- Signalling
- Reference points

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- | | |
|-----------------|---|
| [ITU-T F.743] | Recommendation ITU-T F.743 (2009), <i>Requirements and service description for visual surveillance.</i> |
| [ITU-T F.743.1] | Recommendation ITU-T F.743.1 (2015), <i>Requirements for intelligent visual surveillance.</i> |
| [ITU-T H.626] | Recommendation ITU-T H.626 (2011), <i>Architectural requirements for visual surveillance.</i> |
| [ITU-T H.626.1] | Recommendation ITU-T H.626.1 (2013), <i>Architecture for mobile visual surveillance.</i> |
| [ITU-T H.627] | Recommendation ITU-T H.627 (2012), <i>Signalling and protocols for visual surveillance.</i> |
| [IETF RFC 2616] | IETF RFC 2616 (1999), <i>Hypertext Transfer Protocol – HTTP/1.1.</i> |
| [IETF RFC 3261] | IETF RFC 3261 (2002), <i>SIP: Session Initiation Protocol.</i> |
| [IETF RFC 3428] | IETF RFC 3428 (2002), <i>Session Initiation Protocol (SIP) Extension for Instant Messaging.</i> |
| [IETF RFC 3550] | IETF RFC 3550 (2003), <i>RTP: A Transport Protocol for Real-Time Applications.</i> |
| [IETF RFC 7826] | IETF RFC 7826 (2016), <i>Real-Time Streaming Protocol Version 2.0.</i> |

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 application [b-ITU-T Y.101]: A structured set of capabilities, which provide value-added functionality supported by one or more services.

3.1.2 functional architecture [b-ITU-T Y.2012]: A set of functional entities and the reference points between them used to describe the structure of an NGN. These functional entities are separated by reference points, and thus, they define the distribution of functions.

3.1.3 functional entity [b-ITU-T Y.2012]: An entity that comprises an indivisible set of specific functions. Functional entities are logical concepts, while groupings of functional entities are used to describe practical, physical implementations.

3.1.4 reference point [b-ITU-T Y.2012]: A conceptual point at the conjunction of two non-overlapping functional entities that can be used to identify the type of information passing between these functional entities.

3.1.5 service [b-ITU-T Y.101]: A structured set of capabilities intended to support applications.

3.1.6 customer unit [ITU-T H.626]: A device located at the customer part of a visual surveillance system and used to present multimedia information (such as audio, video, image, alarm signal, etc.) to the end user.

3.1.7 premises unit [ITU-T H.626]: A device located at the remote part of a visual surveillance system and used to capture multimedia information (such as audio, video, image, alarm signal, etc.) from a surveilled object.

3.1.8 service platform [ITU-T H.626]: A series of devices and subsystems located at the centred part of a visual surveillance system. It is used to integrate all of the capabilities and provide visual surveillance services to customers. The main functions include service control function, media switching, distribution, storage, and control and management functions.

3.1.9 surveilled object [ITU-T H.626]: The target (such as site, human, and related environment) on which surveillance is performed.

3.1.10 visual surveillance [ITU-T H.626]: A telecommunication service focusing on video (but including audio) application technology, which is used to remotely capture multimedia (such as audio, video, image, alarm signal, etc.) and present them to the end user in a user friendly manner, based on managed broadband network with ensured quality, security and reliability.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 intelligent video unit: The intelligent video unit (IVU) identifies specific objects automatically, and outputs recognition results to an intelligent video management (IVM) system. The recognition information includes triggered events and acquired data. One or more intelligent analysis algorithms can be loaded or unloaded on an intelligent video unit (IVU) according to different requirements.

3.2.2 intelligent video management: The intelligent video management (IVM) unit supports strategies configuration of intelligent application by users and video sources schedule dynamically. The IVM accepts registration, deletion, capability report from IVU and schedule IVU dynamically. It can also store, manage, and schedule those capabilities dynamically. IVM can be invoked by an intelligent application from the centre management unit (CMU).

3.2.3 APP: The application (APP) is the third-party data analysis system, which can be used to configure the data analysis algorithms and strategies. The APP receives and analyzes data from the visual surveillance platform, whereas it can send alarm information to the visual surveillance platform if needed.

3.2.4 intelligent customer unit: The intelligent customer unit (ICU) is the client subsystem within the intelligent visual surveillance system. The client intelligent video (CIV) is added to the customer unit (CU) in order to achieve comprehensive intelligent video analysis.

3.2.5 intelligent premises unit: The intelligent premises unit (IPU) is the premise subsystem within the intelligent visual surveillance system. The premises intelligent video (PIV) module is added to the premises unit (PU) for intelligent video analysis.

3.2.6 premises intelligent video: The premises intelligent video (PIV) unit is an intelligent identification module in the premises unit (PU). It identifies required information from input video and outputs the result.

3.2.7 client intelligent video: The client intelligent video (CIV) unit is an intelligent identification module in the customer unit (CU). It identifies required information from input video and outputs the result and retrieves the recorded video data with specified information.

3.2.8 media distribution unit: The media distribution unit (MDU) is used to transport media from the premises unit (PU) to the customer unit (CU). Its main functions include media receiving, media processing, media routing, media transmission, media forwarding and media replication.

3.2.9 media storage unit: The media storage unit (MSU) is used to retrieve, store media and provide media serving capability. Its main functions include media storage, media serving, media indexing and media downloading.

3.2.10 centre management unit: The centre management unit (CMU) is located at the centre of the visual surveillance (VS) system. Its main functions include centralized system management, service operation management, etc.

3.2.11 service control unit: The service control unit (SCU) is located at the centre of the visual surveillance (VS) system. It is distributed network equipment, fulfilling the access functions of the premises unit (PU) and the customer unit (CU). Its main functions include access registration, access authentication, identification, authorization, call control, location, presence and target media serving function selection.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

API	Application Programming Interface
APP	Application
C/S	Client/Server
CIV	Client Intelligent Video
CMU	Centre Management Unit
CPU	Central Processing Unit
CU	Customer Unit
HTTP	Hyper Text Transfer Protocol
ICU	Intelligent Customer Unit
IPU	Intelligent Premises Unit
IVM	Intelligent Video Management
IVU	Intelligent Video Unit
IVS	Intelligent Visual Surveillance