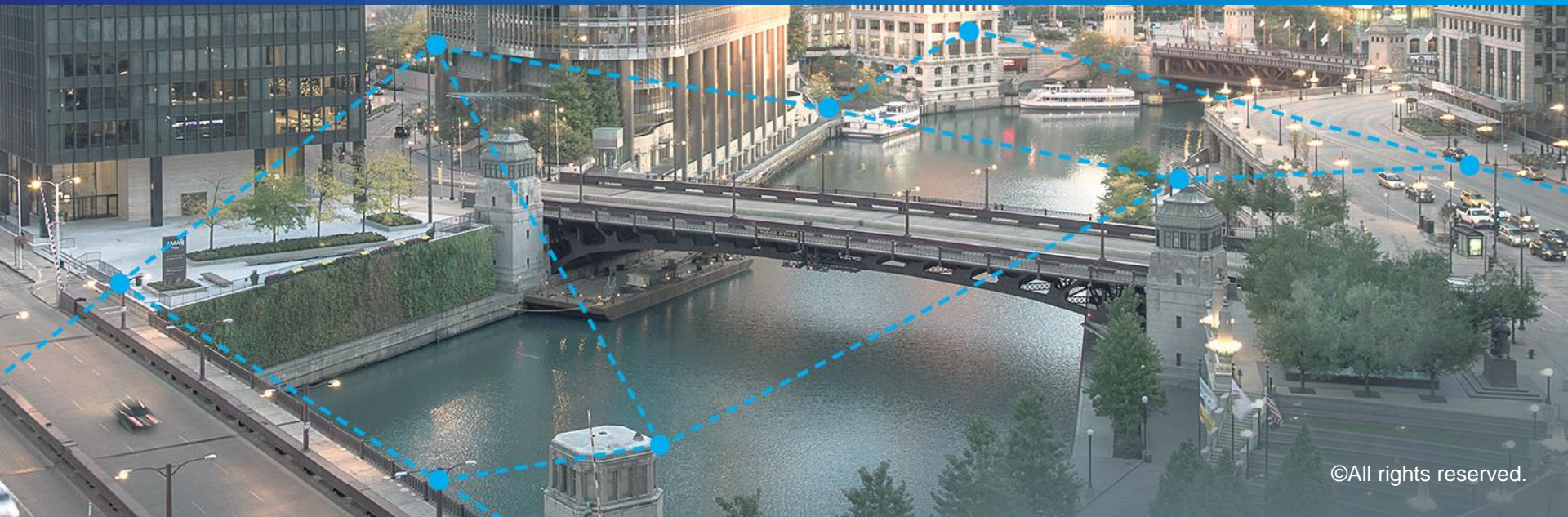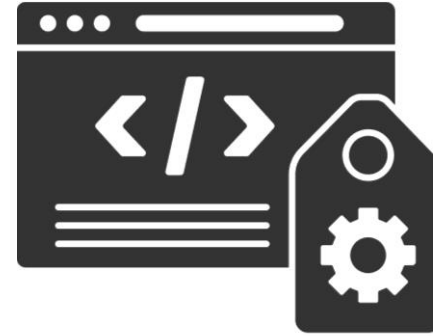May 2022

ONVIF Profile M

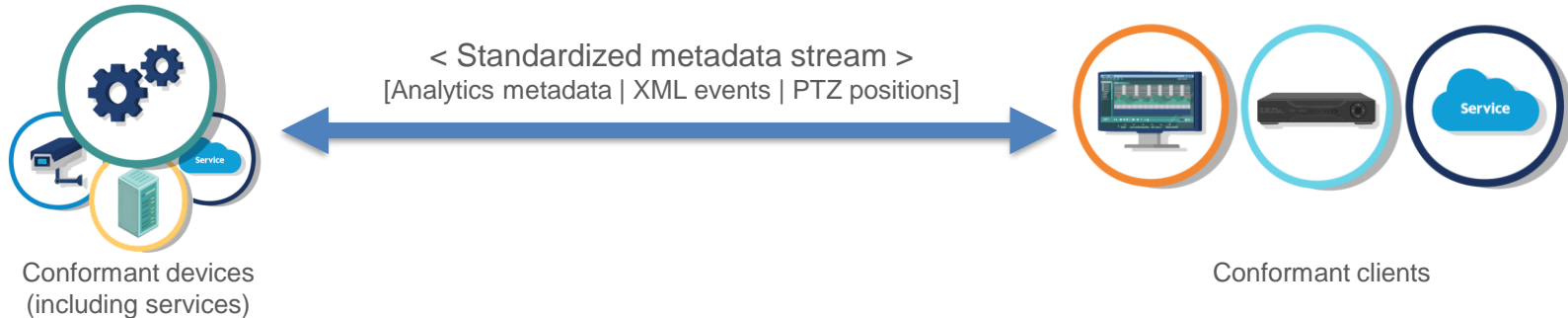# Interoperability demands for analytics applications

- Rise in analytics applications for security and safety, business intelligence and IoT devices
  - **Security** – Object detection, classification, tracking
  - **Business Intelligence** – People counting, vehicle traffic analysis
  - **IoT** – Smart building management

- Metadata helps tag elements in a scene
  - Highlight certain objects, including, for instance, heat mapping in a retail store or vehicle mapping in a parking lot
  - Trigger automatic responses
  - Effectively store and search for content of interest

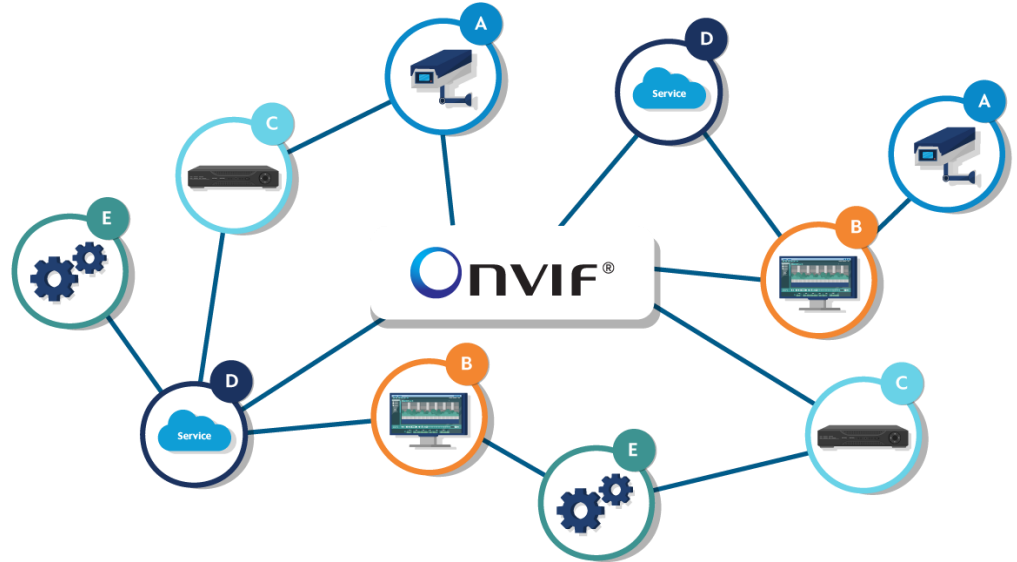Onvif® | Standardizing IP Connectivity for Physical Security

ONVIF Profile M – Summary

Metadata and events for analytics applications

- Supported metadata

- Supported events

- Streaming metadata and sending events

< Standardized metadata stream >
[Analytics metadata | XML events | PTZ positions]

Conformant devices
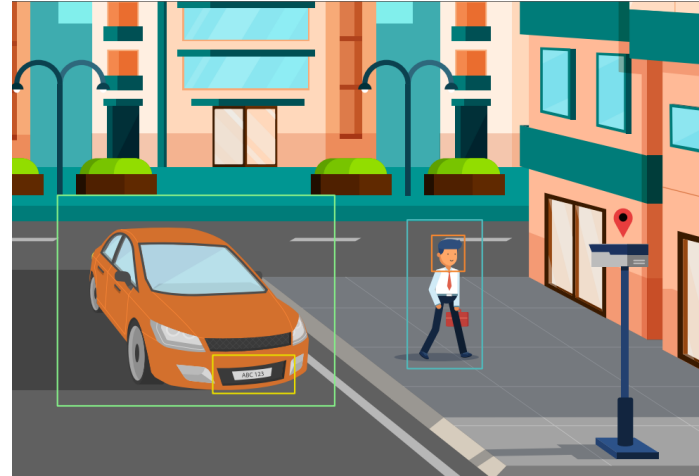(including services)

Conformant clients

ONVIF Profile M – Benefits

- Easier integration of analytics solutions

- Easier integration with IoT applications

- Greater product choice for system integrators and end users; flexibility to mix and match products from different vendors

- Expanded market opportunities for traditional camera and VMS vendors, as well as for independent developers of analytics solutions

- Can be combined with other ONVIF video and access control profiles for an integrated system based on ONVIF interfaces

- Future proofs your system for a more secure investment

ONVIF Profile M – Supported Metadata

- Analytics configuration

- Generic object classes

- Specified object classes
  - Geolocation
  - Vehicle
  - License plate
  - Human face
  - Human body

- Use cases
  - Displaying objects of interest in video
  - Heat mapping in retail, vehicle mapping in parking lots
  - Forensic search

Play video >

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ONVIF Profile M – Supported Events

- Line crossing counter for object counting events
  - For gaining visitor statistics, crowd control, visitor or queue management
- License plate recognition events for access control to a parking lot
- Facial recognition events for access control to a building premise

Profile M – Streaming Metadata & Sending Events

Support for metadata stream is mandatory for all Profile M conformant products.

< Mandatory interface: Standardized metadata stream >
Data in stream: analytics metadata / XML events (e.g. motion alarm) / PTZ positions

Profile M also specifies two conditional methods for communicating events.

< Conditional interface: ONVIF event service >
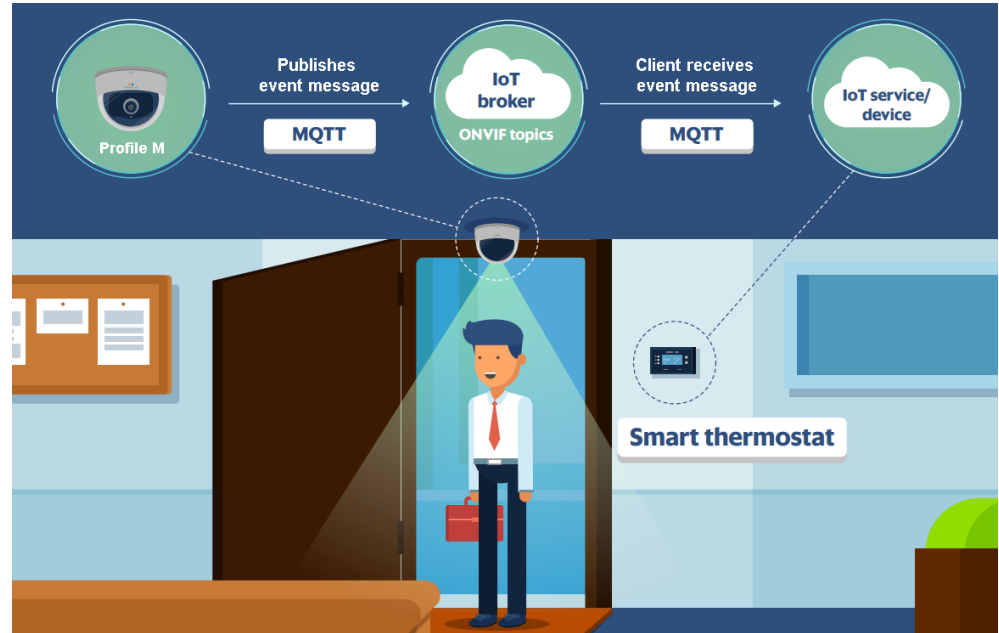Data in stream: XML events (e.g. motion alarm)

< Conditional interface: MQTT event >
Data in stream: JSON formatted events (e.g. motion alarm)

ONVIF Profile M – For IoT Systems

- Sends JSON event over MQTT – transport method used often by IoT applications

- Use case
  - Room temperature control

Profile M feature list compared with Profile T

Profile M vs. Profile T feature list

Feature	Profile M		Profile T	
	Device	Client	Device	Client
1. Metadata streaming	M	M	M	C
2. Media profile for metadata streaming out of the box	M	M	-	-
3. Metadata configuration	M	O	M	C
4. Supported metadata	M	M	-	-
5. Image sending within metadata stream	C	C	-	-
6. Video streaming	C	C	M	M
7. Media profile for video streaming ready out of the box	C	C	M	M
8. Event service (e.g. pull-point)	C	C	M	M
9. Event handling using MQTT	C	C	-	-
10. Analytics module | Analytics module configuration | Analytics profile configuration	M | M | M	C | O | C	-	-
11. Rule / Rules configuration	C	C	-	-
12. Face recognition rule, License plate recognition rule, Line crossing counter rule	C	C	-	-
13. Object classication	C	C	-	-
14. System settings (e.g. factory default, set date and time)	C	C	M	C
15. Device discovery	O	M	M	M
16. Network configuration	-	-	M	M
17. Media transport: RTP/UDP/RTSP/HTTP/TCP	M	M	M	M

How to know what features are supported by a conformant product

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Information on DoC (Declaration of Conformance)

onvif.org/conformant-products/

Product name	Device	G M S T	Firmware	Approval date

01

Application type: Device | Product name: Product name

Model: Product name

Related products: Not Applicable
ⓘ Related Products have not been individually tested.

Test date: Date | Firmware version: Firmware

Profiles: G M S T | Category: Fixed Camera

⬇ FeatureList | ⬇ DoC | ⬇ Interface Guide

Onvif Driving IP-based physical security through global standardization

Declaration of Conformance – Device

Profile M features:

General:
    Network Configuration: Yes
Streaming:
    HTTPS Streaming: NO
    Video Streaming: Yes
        H264: Yes
        H265: Yes
Image Sending:
    Sending Image Reference: Yes
    Sending Embedded Image: NO
Event Handling:
    Pull Points: Yes
    MQTT: NO
Analytics:
    Analytics Modules Configuration: Yes
    Analytics Rules: Yes
        Rule Configuration: Yes
        Face Recognition Rule: NO
        License Plate Recognition Rule: NO
        Line Crossing Counter Rule: NO
    Object Classification: Yes
    Human Face Metadata: Yes
    Human Body Metadata: Yes
    Vehicle Metadata: Yes
    License Plate Metadata: NO
    Geo Location Metadata: Yes

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Use of test tool

- Open test tool, which shows Profile M's list of mandatory and conditional features

- Connect tool to device's IP address and click on "Refresh Features" for Output of results

Thank you

For more information, visit **www.onvif.org**

Contact us at **https://help.onvif.org**