INVENTION DISCLOSURE

Invention Title: Security Camera Provisioning and Processing on a Cable Network

Invention Summary:
This document defines the procedures for provisioning security cameras that are added to a cable network.

Invention Description:
The procedures and message flows necessary to add a camera for security monitoring to a DOCSIS network are defined in this document. The process applies the same message sequence employed by a CM for provisioning in the DOCSIS network. Where any conflict arise between a CM requirement and one in this document, the requirement in this document takes precedence.

A camera upon completion of link-layer establishment must follow the DHCP provisioning procedures defined in the Data-Over-Cable Service Interface Specifications, DOCSIS 3.0 MAC and Upper Layer Protocols Interface Specification CM-SP-MULPIv3.0-I23-131120 for an IPv4 and IPv6 address using the Dual-Stack Provisioning Mode defined in section 10. The configuration file that is defined in the TFTP steps must include all of the biometric template that has changed since the last request for configuration informaiton, which may include the entire set of all templates or some subset of items depending upon a reboot or new device versus an update.

As it is highly likely that this communication trasfer should be secure from non-authorized access. The camera should follow the Secure Provision, Public Key Infrastructure (PKI) and Baseline Privacy Interface Plus (BPI+) procedures defined in the Data-Over-Cable Service Interface Specifications, DOCSIS 3.0 Security Specification CM-SP-SECv3.0-I15-130808.

The attached document provides the state diagram for the systems operations along with sequence diagrams for the automatic detection and human verified operations of a security camera.

Invention Commercial value/customers:
Allows provisioning and management support for leased cameras to be added to the cable network that are offered by an MSO.
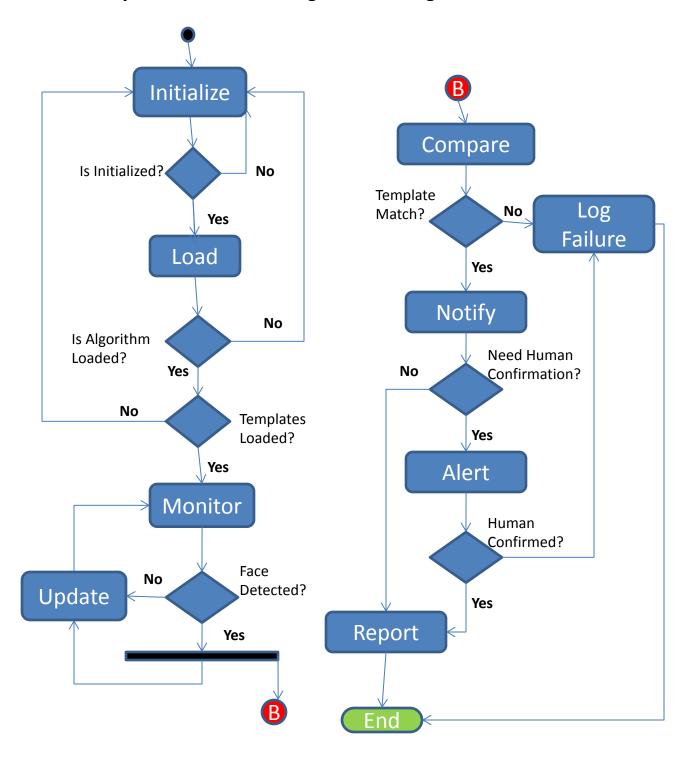
Provides secure method of delivering algorithms, biometric templates and reporting to a customer premise through the cable network.
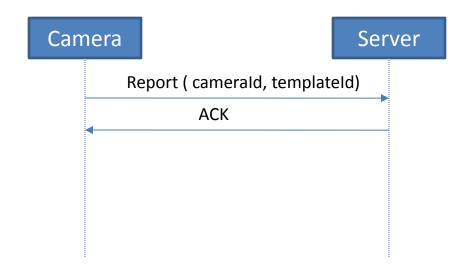
Invention differences:
Extends existing procedures and practices of leased equipment that might be offered by an MSO for variety of service deployments.

Reuses the industry's BSS/OSS systems to accommodate facial recognition in business and residential systems.

Security Camera Provisioning & Processing State Machine

Initialize

Is Initialized? — No

Yes

Load

Is Algorithm Loaded? — No

Yes

No — Templates Loaded?

Yes

Monitor

Update — No — Face Detected?

Yes

B

Compare

Template Match? — No

Yes

Log Failure

Notify

Need Human Confirmation? — No

Yes

Alert

Human Confirmed?

Yes

Report

End

Automated Detection Sequence Diagram

Camera → **Server**: Report (cameraId, templateId)

Server → **Camera**: ACK

Human Confirmation Sequence Diagram

Camera → **Display**: Candidates (cameraId, list of templateIds)

Display → **Camera**: GetImages(list of templateIds)

Camera → **Display**: ImagesACK(list of images)

Display → **Camera**: Report (cameraId, templateId)

Camera → **Display**: ACK

Display → **Camera**: ACK