Video Analytic Platform for CCTV Security

Midway Report

Team

- Investigators:
  - –Matthew Dailey, AIT
    Video analytics, software engineering
  - –Mongkol Ekpanyapong, AIT
    Embedded systems, high-performance computing, networking
  - –Supakorn Siddhichai, NECTEC
    Image processing, video surveillance systems

- Engineers:

–Lakindu Boteja, AIT
–Anjana Tissera, AIT
–Jednipat Moonrinta, AIT

- Consultants:

–Nikom Suvonvorm, PSU
Open VMS development
–Commercial VMS consultants (not yet needed)

Cameras everywhere

Too Much Data

GRAFFITI DETECTION
OBJECT DETECTION IN A CROWD
OITERING
Detectio
Identificati
FACIAL DETECTION IN A CROWD
Convergen
SLIP & FALL
TODAY'S COUNT=2648
Enter Video Analytics

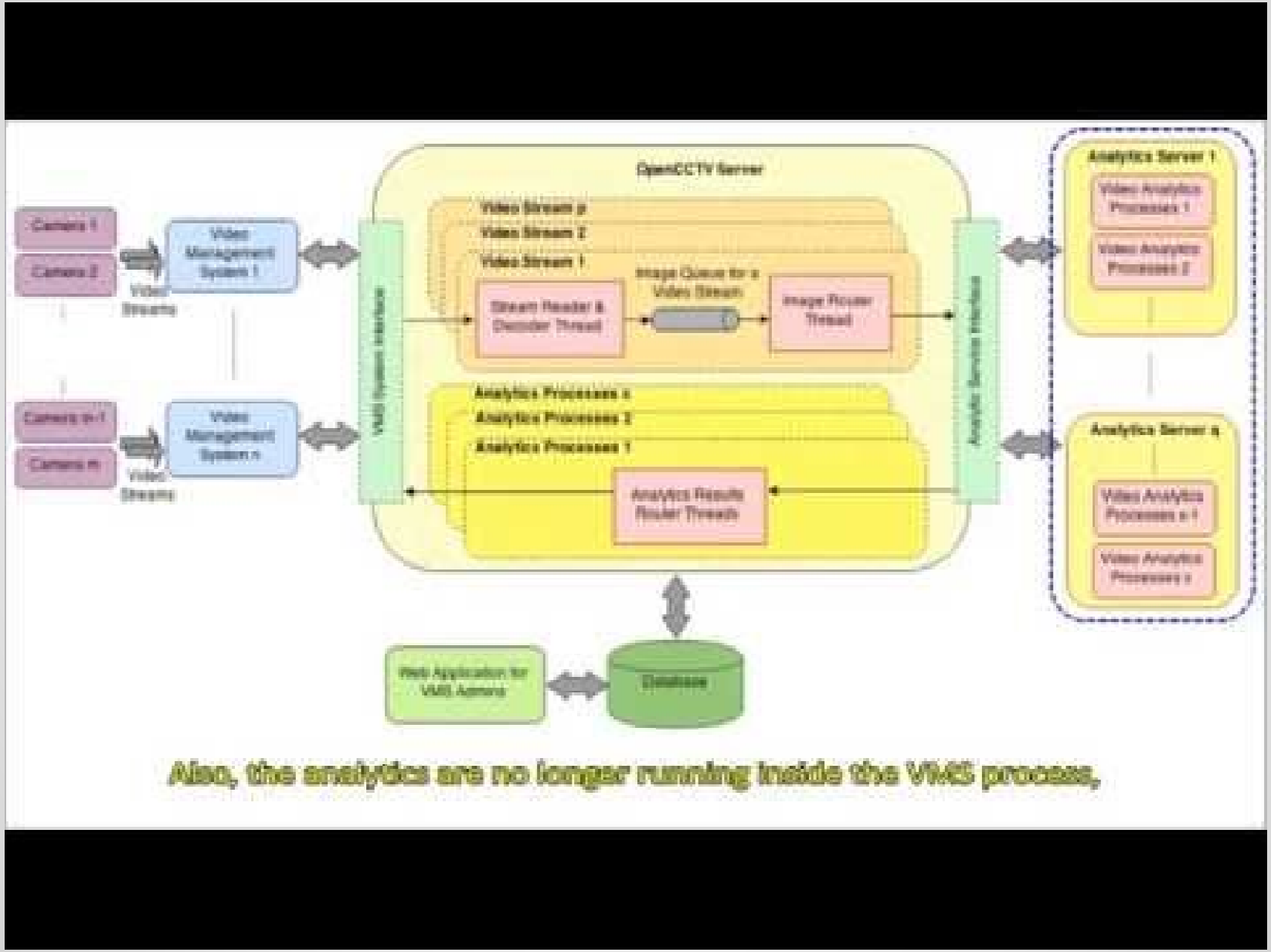
VMS Proliferation

- To manage video storage and analysis for multiple cameras, we use a Video Management System (VMS):
  - –Digital video recording
  - –Live visual monitoring
  - –Analytics

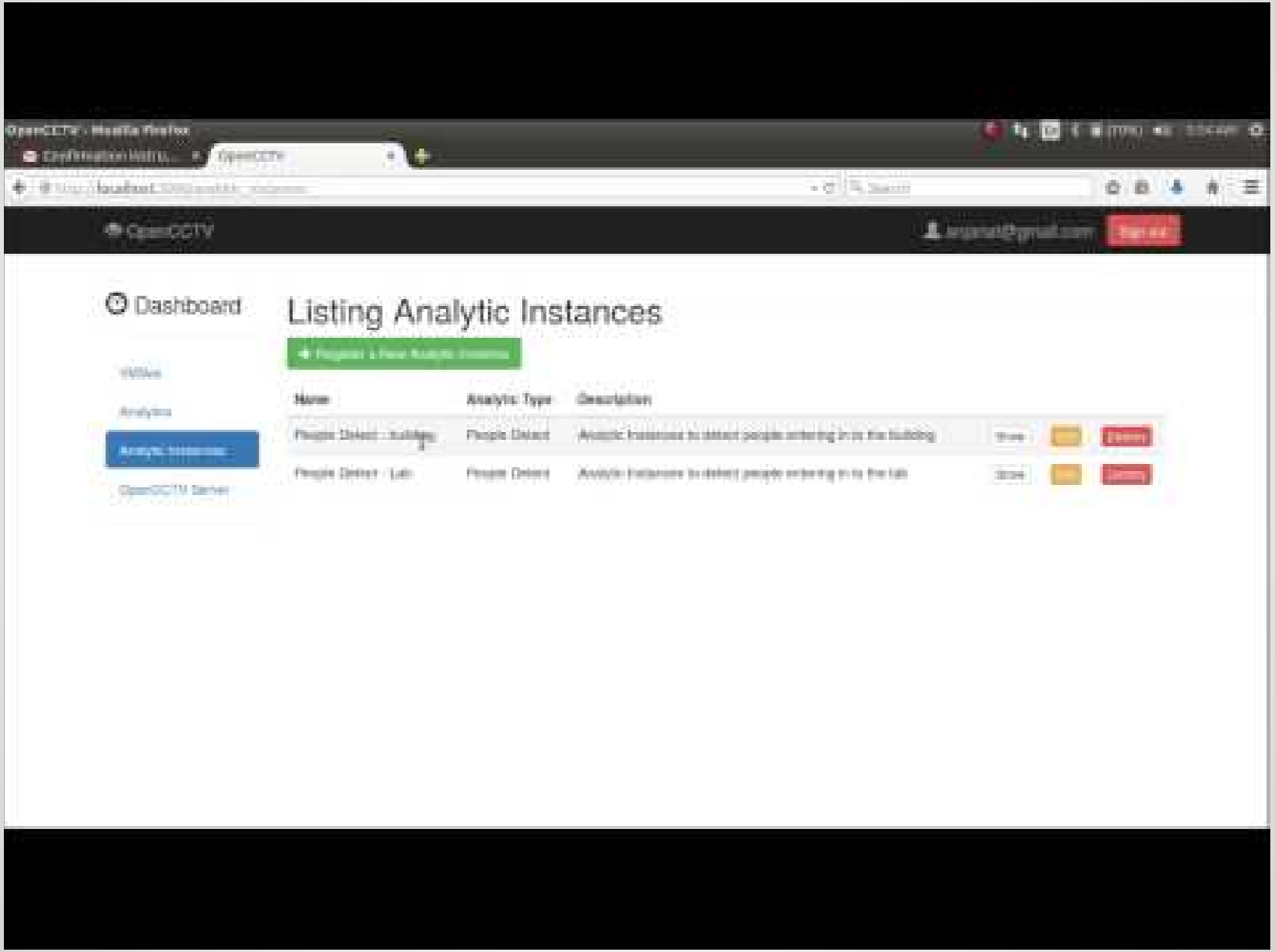
The Open Platform Company

- VMSs work well. What is the problem?
  - –Separate networks are connected to different VMSs
  - –Your VMS may not support the analytic you want.
  - – You may want to apply one analytic to many video streams across different (nationwide?) VMSs and consolidate the results.

Solution: OpenCCTV Design



Solution: OpenCCTV Demo



Original Objectives

- Design and develop Video Analytics Open Platform for CCTV integrating with four existing VMS such as Milestone, OpenVSS, Zoneminder, etc.
- Test the platform with Video Analytics systems such as AIT Video Analytics and NECTEC Video Analytics
- Design standard analytics/VMS connector APIs for the platform
- Develop custom connectors for each VMS

Original R&D Plan

- Supported VMS (4 systems)
  - OpenVSS
  - Zonemider
  - Milestone
  - Teleste

Original R&D Plan

- Supported Video Analytics (3 systems)
  - V-Watch
  - AIT abnormally detection
  - NECTEC analytics software (License Plate Recognition)

Original R&D Plan

- Main deliverables:
  - At 6 months: 1 VMS (Milestone), 1 Analytics (AIT/NECTEC V-Watch), integrated, up and running, testing
  - At 12 months: complete system
- Data sources:
  - V-Watch: Din Daeng, Taling Chan, PTT-PL
  - Abnormal behavior detection: Cameras at AIT
  - License plate recognition: NECTEC database

Original Project Timeframe

Goal	Months				
	1	2-4	5-6	7-9	10-12
1 Develop AnalyticsConnect system	X	X	X	X	
2.1 Study Milestone connector API 2.2 Develop Milestone connector plugin	X	 X			
3 Integration testing		X	X	X	X
4.1 Study other VMS connector APIs 4.2 Develop other VMS connector plugins		X	X	 X	
5 Acceptance testing			X	X	X

Project Status

6-month goals are achieved:

- OpenCCTV core 80%
- Milestone connector 100%
- ZoneMinder connector 50%
- Abstract analytics connector 80%
- AIT analytics for smoke detection, pedestrian detection 100%

OpenCCTV project is open for all:

- Source code at github.com
- Home page on Google+
- Videos on YouTube

Remaining work:

- OpenVSS, Mirasys (?) connectors
- More analytics
- Real-world testing