

An aerial night view of a city skyline with numerous skyscrapers and lights. Overlaid on the city is a complex network of glowing yellow and white lines that form arcs and connect various points across the scene, symbolizing a data or video distribution system. The sky is dark with some clouds, and the city lights create a vibrant contrast against the night.

Video **D**istribution **S**ystem

Smart City,
Powered by Cnix.
2022

Self Testing

How many people are monitoring video screens?

if more than a few people

How many video of CCTVs are responsible for each people?

if more than a few hundreds

How many CCTVs are installed?

if more than a few hundreds

Do you have AI cameras or AI systems to detect objects?

if "yes"



then you need Video Distribution System!

What is VDS?

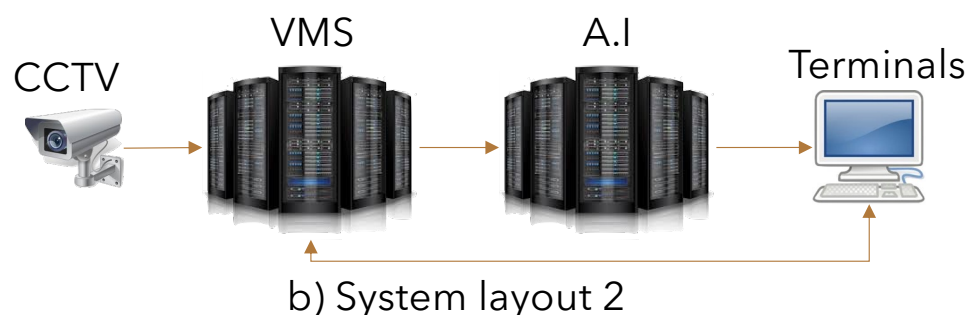
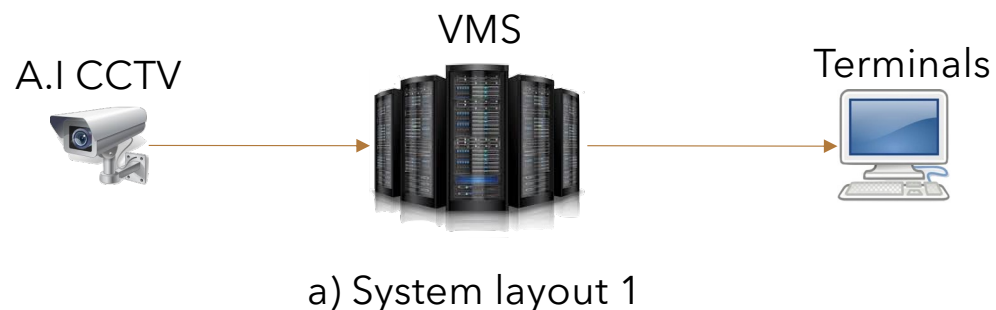
VDS(*Video Distribution System*) is the system that transmits scenes in which specified objects were detected to monitoring staffs who are charged. And the scenes transmission by VDS is done by user scenarios which are programmable in online and include various conditions such as Date, Time, Object Type, Interesting Theme, Interesting Area, Season, Priority and so on.

VDS will make your security system more effective and events lossless. It means that your security system can make cities or any territories safer regions than other security systems which don't have VDS.

What the contributions of VDS are :

- Operational Cost Down against increasing number of CCTVs seamless.
- Increasing efficiency of CCTVs and surveillance by making workload of monitoring staffs decrease and events distribution to responsible staff along to programmable scenario.
- Building ecosystem on which various and valuable front-end-services for smart city can be born by supporting Data Service Platform for events of objects.

System layout without VDS



If A.I based CCTVs were installed the system must be similar to a) System layout 1. Or if separated A.I system was installed instead of A.I based CCTVs the system must be similar to b) System layout 2.

In regardless of which system is running, A.I system would provide the function of "Object Detection" to make security systems more effective.

If the total number of installed CCTV cameras is over than a few thounds the system configuration of b) is more cost effective.

What is missed?



The number of monitors which are assigned to monitoring staffs is too many for people to focus on screens for their duty time. It means that security for specific area can be loosed.

What is algorithm for rotation of all CCTVs if the number of CCTV for each monitoring staff is over than 1,000? Does it make each monitoring staff to be able to catch all events from A.I based CCTVs or A.I system without loss?

What's the plan if someone is absent?

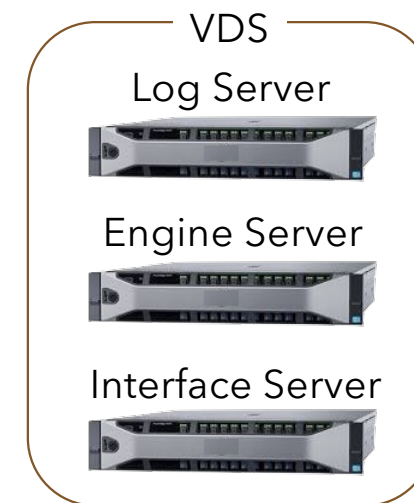
System Layout with VDS



c) System layout 3

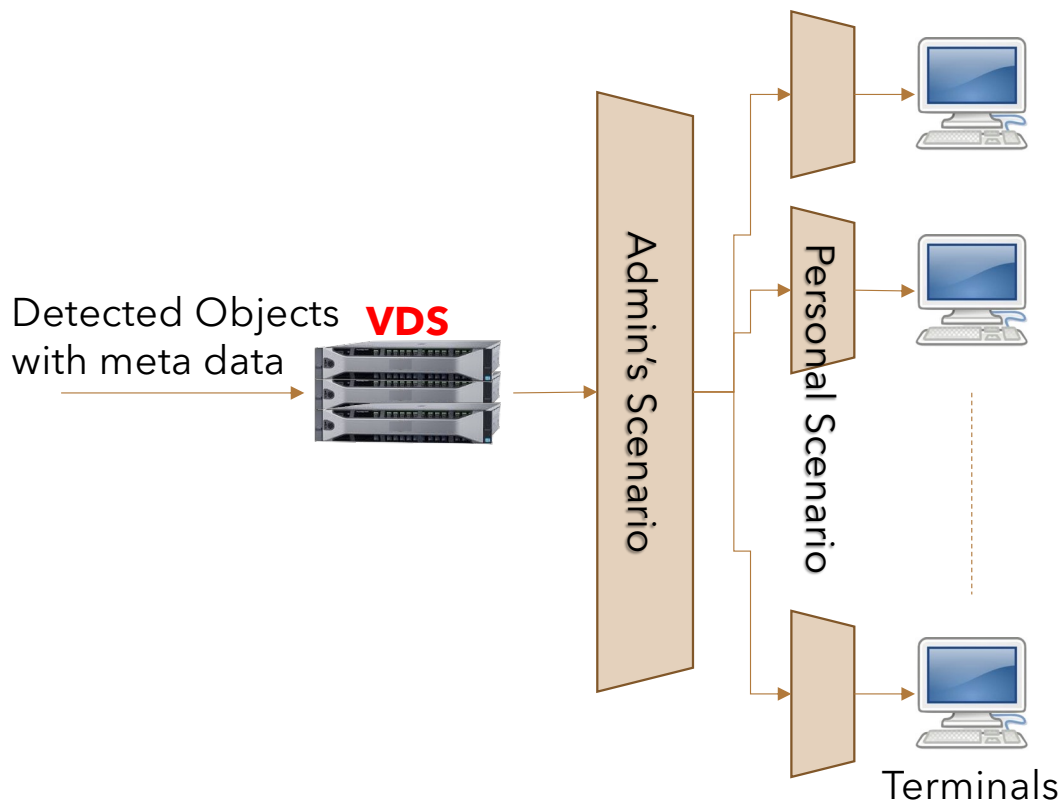


d) System layout 4



VDS is composed of Log Server, Engine Server and Interface Server.

How does VDS work?



The basic idea of VDS is to make the workload of monitoring staffs lighter by implementing the concept of scenario which can be programmable by users. It makes the work of monitoring more efficient by automatization of CCTV selection, which has detected required objects.

VDS provides various options that user's scenario can describe in detail how each terminal should work such as priority, season, interesting area, interesting theme, date, location and so on.

If user A downloaded the scenario of user B when user B is absent, then the user A can monitor CCTVs of user B and CCTVs of user A at same time.

What is Scenario?

Scenario is a kind of user's program by which specified events of objects that are matched to predefined conditions such as interesting theme, interesting area, date and season will be transmitted to assigned monitoring staff during specified time interval. There are two kind of scenario. The one which is called admin's scenario is for admin and the other which is called personal scenario is for each monitoring staff. The personal scenario has higher priority than admin's scenario. This concept gives the following additional major functions to the security systems.

- It makes the workload of monitoring staff reduced by filtering out the screens of CCTV in which there is no any interesting situations that are programmed in scenario.
- It can automatize the selection of CCTVs that monitoring staffs should surveil in their duty time.
- It makes monitoring staff to be able to focus on more important situation in screens of CCTV by assigning different priorities on different situations.
- Single CCTV can be shared and surveilled by multiple monitoring staffs who have different personal scenario each other at same time.
- It wouldn't miss any evnts of programmed situations in the scenario even though the screen of responsible CCTV are not shown in terminal currently.

Example 1 - Priority



e) Scene 1



f) Scene 2

In the picture of e), if you wait the event of person detection in daytime during which usually expected rare pedestrians, your effort may be in vain.

In the picture of f), if you wait the event of car detection in lunch time it may be in vain, too.

The scenario will solve out these operational inefficiency by specifying a kind of events, time interval, location and other options in the scenario. For example, it will be better to assign high priority on car related events in case of picture e) and assign high priority on human related events such as violence, fallen people and so on in case of picture f).

Example 2 – Sharing CCTV



g) Scene 3

This example shows how to share CCTVs with multiple monitoring staffs. Let's imagine that a CCTV camera views complexed location such as the picture of g).

If the user of Terminal A has the scenario which assigns the high priority on car related events from CCTV A and the user of Terminal B has the scenario which assigns the high priority on human related events from CCTV A in same time, then this CCTV A becomes to be shared by tow users at same time but provides different events from each other for same location.

This makes monitoring staffs to be able to focus on their assigned missions without being disturbed by non-assigned objects.

Example 3 – Surveillance without events loss



How many CCTVs are assigned to one monitoring staff in your system? If your security system is responsible for one city, then it must be over than a few hunfreds. It would be around 1,000.

What's the maximum number of screens that one monitoring staff can view at same time? It must be around 60 if 4 monitors were installed for each monitoring staffs.

What's the important function in this case is if they can be provided events from CCTVs which are not being surveiled by monitoring staffs.

VDS makes them not to miss these events from hidden CCTVs if they are assigned in scenario.

Application Examples

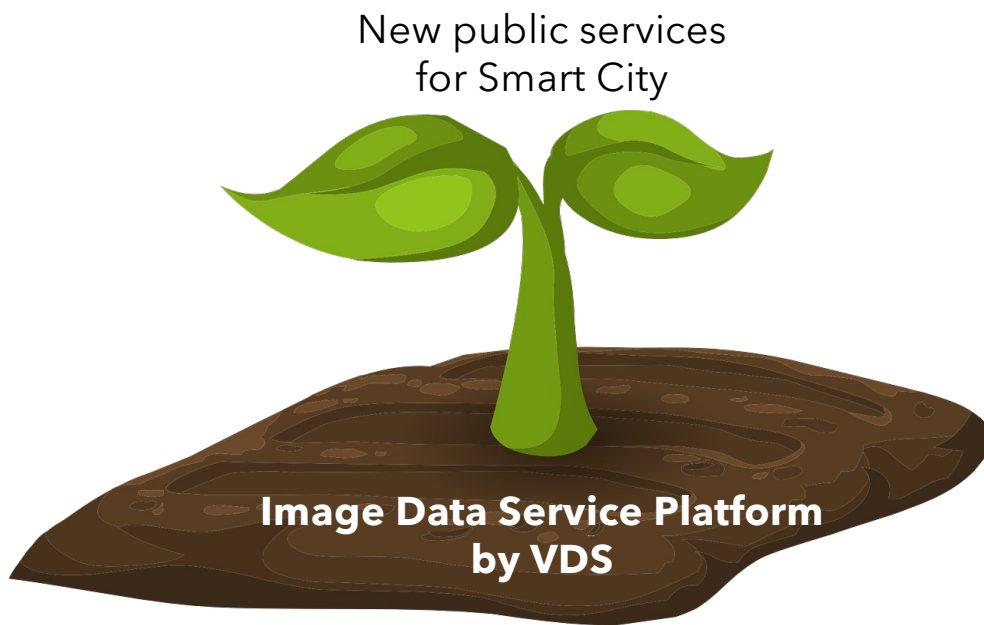


화성시
Hwaseong



VDS was installed and is running at cities of Paju and Hwaseong in South Korea. In case of Hwaseong, the total number of CCTVs which send videos based on A.I system and served by VDS reaches up to 12,000. And total number of CCTVs in the city of Paju which are connected to VDS is up to 4,000. Both cities of Hwaseong and Paju are still adding new CCTVs which will use the service of VDS for building of smart city.

What's the value of VDS?



The actual value of VDS is to give a birth of various front-end-services to build a smart city including safety. They are naturally induced from image data service platform which is constructed by VDS because customers can get inspired for new services of smart city by being able to see directly and get easily events of various objects that are analyzed by A.I based cameras and systems.

Actually, staffs of Hwaseong city already created and has operated new services for upgrading their smart city, which is based on data from image data service platform of VDS and make plans of new public services for people.

For Smart City

People would imagine something when they become to see and use data which have never been shown before. This is starting point to build Smart City.

VDS is one of options that you can choose as an Event Data Service Platform for your Smart City because it provides ecosystem on which various and valuable front-end public services can be born.

Thank you.....!