

# Azure IoT를 활용한 디바이스 관리

Hancom MDS 배정환



## 목차

---

- I. **IoT Device Management 개요**
- II. 기술 인프라 (Azure IoT Hub, Device Twin, Azure IoT DM)
- III. 적용 사례 및 계획, 비즈니스 모델

# POS, KIOSK, Signage IoT

I O T B U S I N E S S  
효 율 적 컨 텐 츠 관 리

## Device Monitoring

- 디바이스 관리 ( memory, Peri.. )
- 환경 데이터 ( 온/습도, CO2, 조도 )
- 다른 장비 컨트롤 ( IoT Gateway )

...

## Predictive Maintenance

- 환경 데이터를 통한 예측 시스템
- 공기질 개선 작업
- Peripherals 유지 보수

Abnormal Data Detection  
( Memory Leaking )

...

## AI Application

- 얼굴인식 = 적합한 콘텐츠
- 음성인식 ( 자연어 )

## LG전자, '사이니지 365 원격케어 상황실'로 글로벌 시장 공략

입력 2018-03-07 10:05  
수정 2018-03-07 10:05

### 7일 서울 가산동에 '사이니지 365 원격케어 상황실' 오픈

👤 오세성 기자

산업

#사이니지 #디스플레이  
#LG전자



### 주요뉴스

- 1 암호화폐 거래소 대표 긴급 체포...고객 돈 수백억...
- 2 '방탄소년단' DNA 입은 넷마블게임즈, '봄날' 온다
- 3 김동연 "군산·창원 진해 등 6곳 고용위기지역 지정"
- 4 당정 "최저임금인상에 따른 인건비 상승 분 납품..."
- 5 강자라는 이유로 '언더도그마'에 빠진 삼성... 이진...
- 6 실무회담에 남북정상 '북심' 윤건영-김창선... 회담...
- 7 "코스닥 벤처펀드 출시... 중소형주 수급 개선"
- 8 삼성·SK하이닉스, 중국 생산 반도체 '트럼프 관세'...
- 9 "북한 외무성 국장, EU관료와 비핵화 논의"
- 10 엔리히·히데키에... 조종익이... 한국... 한국...

# POS, KIOSK, Signage IoT

I O T B U S I N E S S  
효율적 콘텐츠 관리



운영 비용 감소

## Device Monitoring

- 디바이스 관리 ( memory, Peri.. )
- 환경 데이터 (온/습도, CO2, 조도)
- 다른 장비 컨트롤 ( IoT Gateway )
- 펌웨어 업데이트 ( MSI, Appx ... )
- 팩토리 리셋, 알람

시스템 정보, 업데이트 제어, 시간

## Predictive Maintenance





- 환경 데이터를 통한 예측 시스템
- 공기질 개선 작업
- Peripherals 유지 보수
- Abnormal Data Detection ( Memory Leaking )
- ...

## AI Application

- 얼굴인식 = 적합한 콘텐츠
- 음성인식 (자연어)
- IoT Edge ( Cognitive Service )
- Windows ML

# IoT +

**PC** REVIEWS ▾ BEST PICKS ▾ HOW-TO ▾ NEWS ▾ TIPS ▾ BUSINESS ▾ EXPLORE ▾ SHOP ▾


+ SUBSCRIBE    








**TRENDING:** #CambridgeAnalytica #BestTaxSoftware #1CoolThing #MarchMadness #Uber

Reviews | Software | Small Business | **Cloud Services**

## The Best Mobile Device Management (MDM) Solutions of 2018

Today's IT administrators need to keep track of an ever-growing amount of mobile devices that inhabit their networks. We test eight tools that can help admins know what resources their employees' mobile devices are accessing, as well as locate, lock, and potentially wipe lost devices.

 By Paul Ferrill January 8, 2018 4:00PM EST

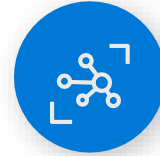
       285 SHARES

Product	ManageEngine Mobile Device Manager Plus	VMware AirWatch	SOTI MobiControl	Citrix XenMobile	IBM MaaS360	Microsoft Intune	AppTec360 Enterprise Mobility Management	Baramundi Management Suite
Lowest Price	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT
Editors' Rating	●●●●○	●●●●● EDITORS' CHOICE	●●●●● EDITORS' CHOICE	●●●●○	●●●●○	●●●●○	●●●●○	●●●●○

## 목차

---

- I. IoT Device Management 개요
- II. 기술 인프라 (Azure IoT Hub, Device Twin, Azure IoT DM)**
- III. 적용 사례 및 계획, 비즈니스 모델



다수의 장치와의 양방향 통신



강력한 보안 모델



관리 기능



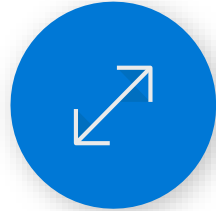
다양한 장치 지원 및 개발도구





## 양방향 통신

- 수백만개의 장치 연결
- 다국어, 오픈 소스 SDKs 제공
- 다양한 프로토콜 지원: HTTPS/AMQPS/MQTT
- Telemetry 정보 전송
- Commands 수신
- 장치 관리 : Device Twins Queries & Jobs



## 대규모 확장 및 통합

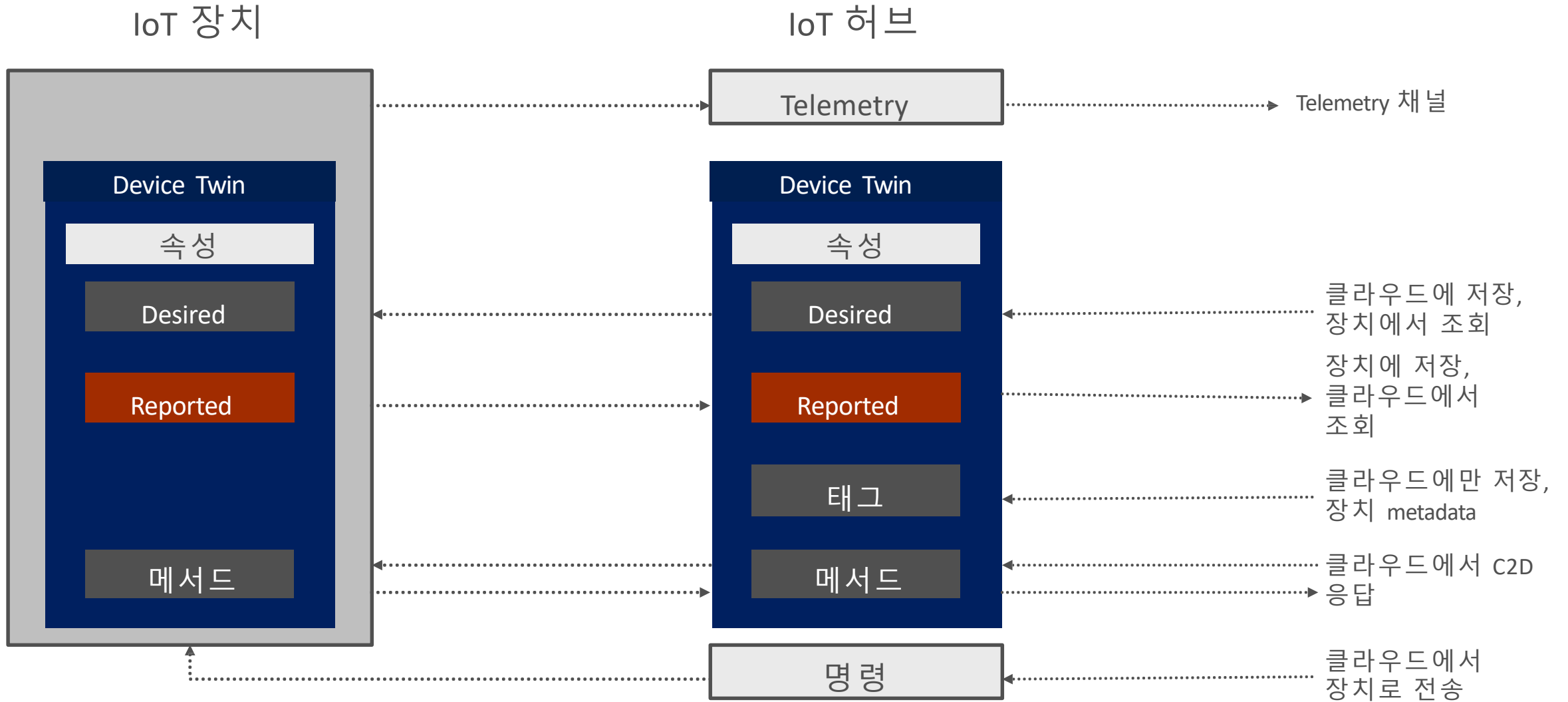
- 수 억 개의 메시지 처리
- 확장의 유연성
- 사전정보에 의한 메시지의 라우팅
- 파일 업로드
- WebSockets & Multiplexing 지원
- Azure Monitor
- Azure Resource Health
- 손쉬운 구성/구현 관리기능 제공
- Failover(Preview)

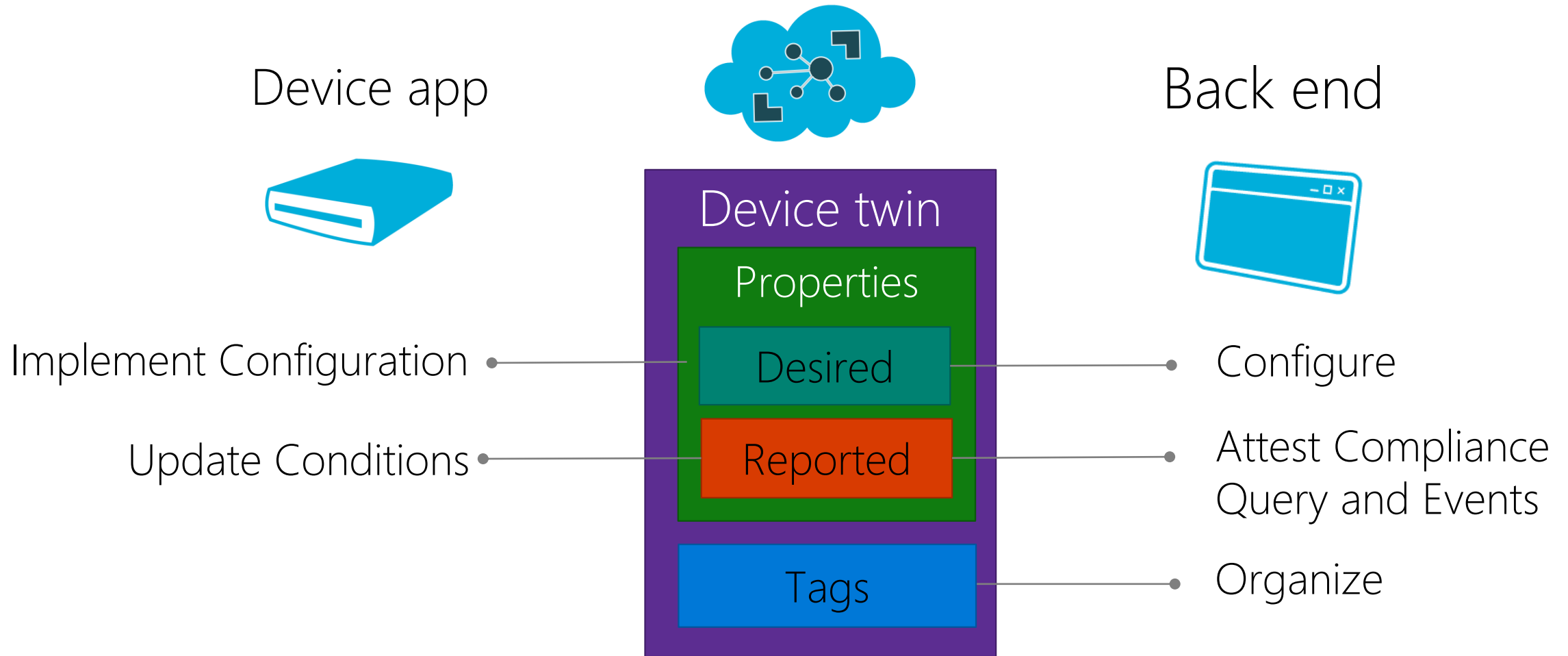


## End-To-End 보안

- 개별 장치 별 인증
- 개별 장치 별 활성화/비활성화
- TLS 보안
- X.509 지원
- IP 화이트리스트/블랙리스트 관리
- 공유 액세스 정책
- 펌웨어 / 소프트웨어 업데이트

# Azure IoT Hub 커뮤니케이션 아키텍처





## Managing Windows IoT Devices through Azure IoT Hub

### Overview

Device Management (DM) allows operators to remotely configure and monitor very high volumes of IoT devices simultaneously.

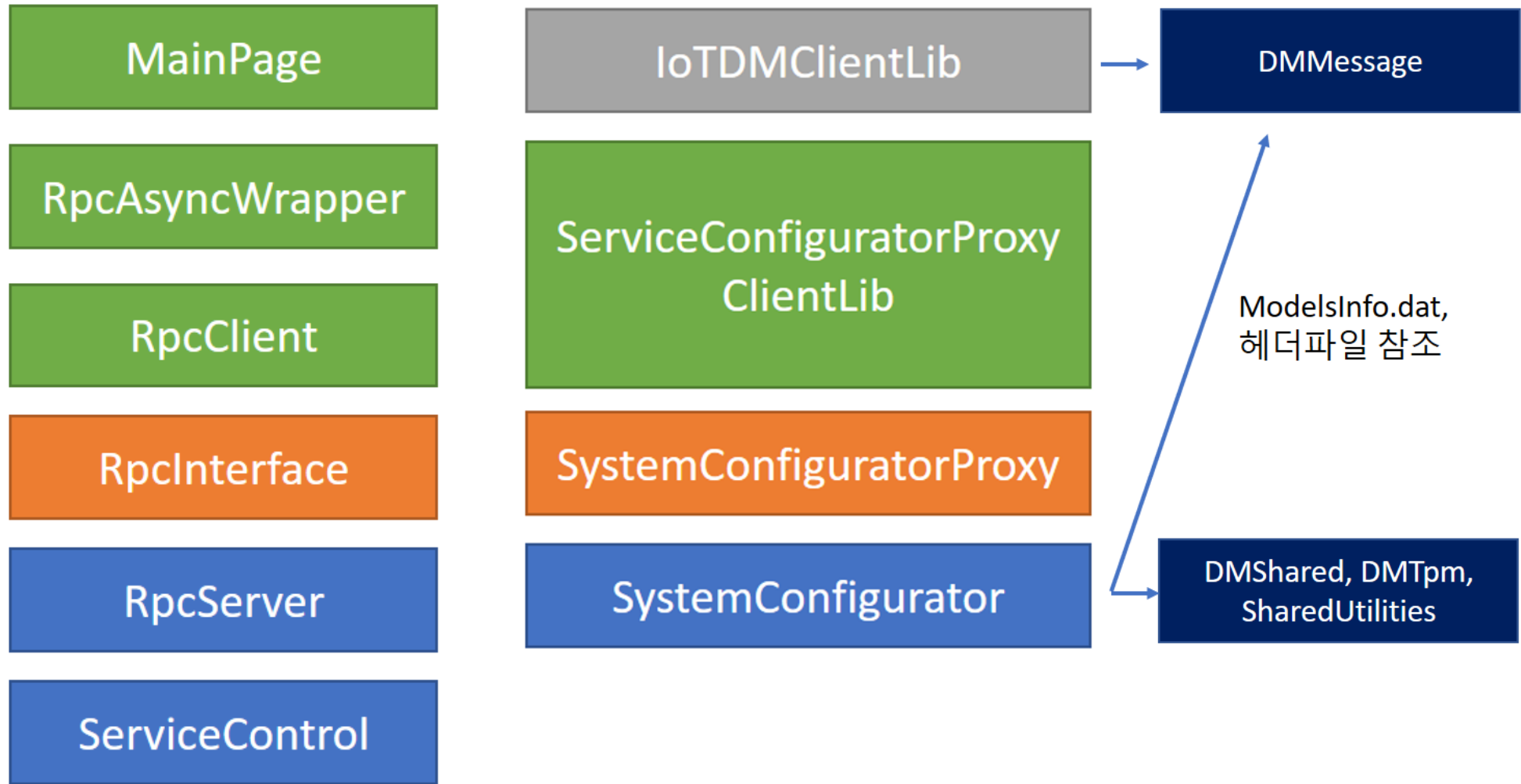
Configuration for the devices can be pushed to devices, whether the target devices are online or offline. If the device is offline it will pick up the new configuration when it reconnects. Device operators can also retrieve the status of each device, including whether device configuration updates have been successfully applied or not.

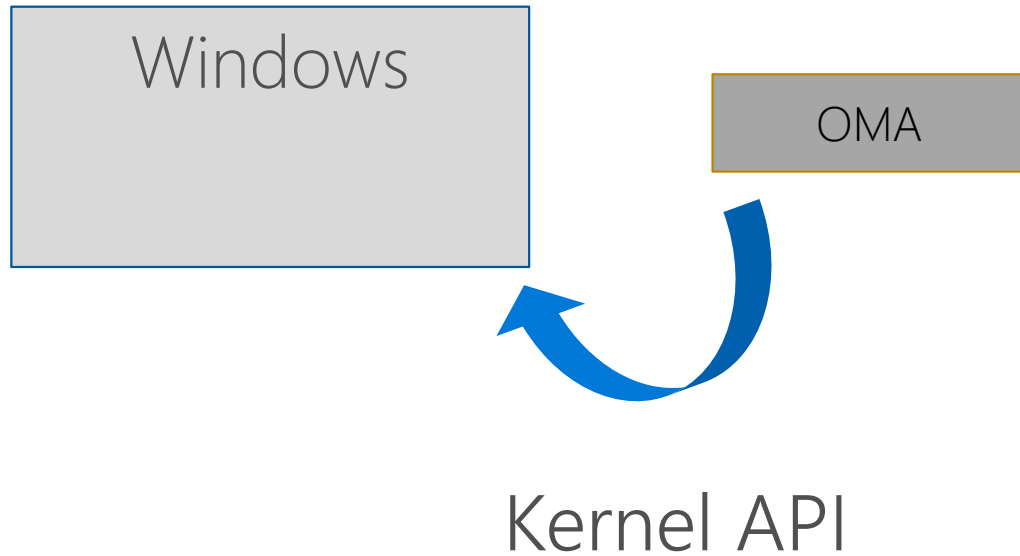
Enabling these features for IoT devices requires a central, robust, and reliable mechanism to store and to deploy the configuration data to the target devices, and monitor device status - at scale.

A complete solution requires the following:

- **A Robust/Scalable Cloud Service** to store the desired and reported states of the various devices.
  - [Azure IoT Hub](#) and [Azure Device Management](#) offer a highly scalable and efficient cloud service for managing millions of devices.
- **A Client** that runs on the device and can apply the desired configuration and report the state of the device.
  - The *Windows IoT Azure DM Client* (an open source SDK + runtime), in conjunction with Azure IoT Hub, can apply and report on a large set of common, sometimes critical, Windows configurations.
- **A Portal or an Application** that will be used by the operator to configure and query the devices remotely.
  - This must be customized for devices by the device OEM or operator. As part of this solution, we also provide an open source data model and implementation for easier interaction with the IoT Hub storage and the Windows IoT

# RPC connection to the NT service

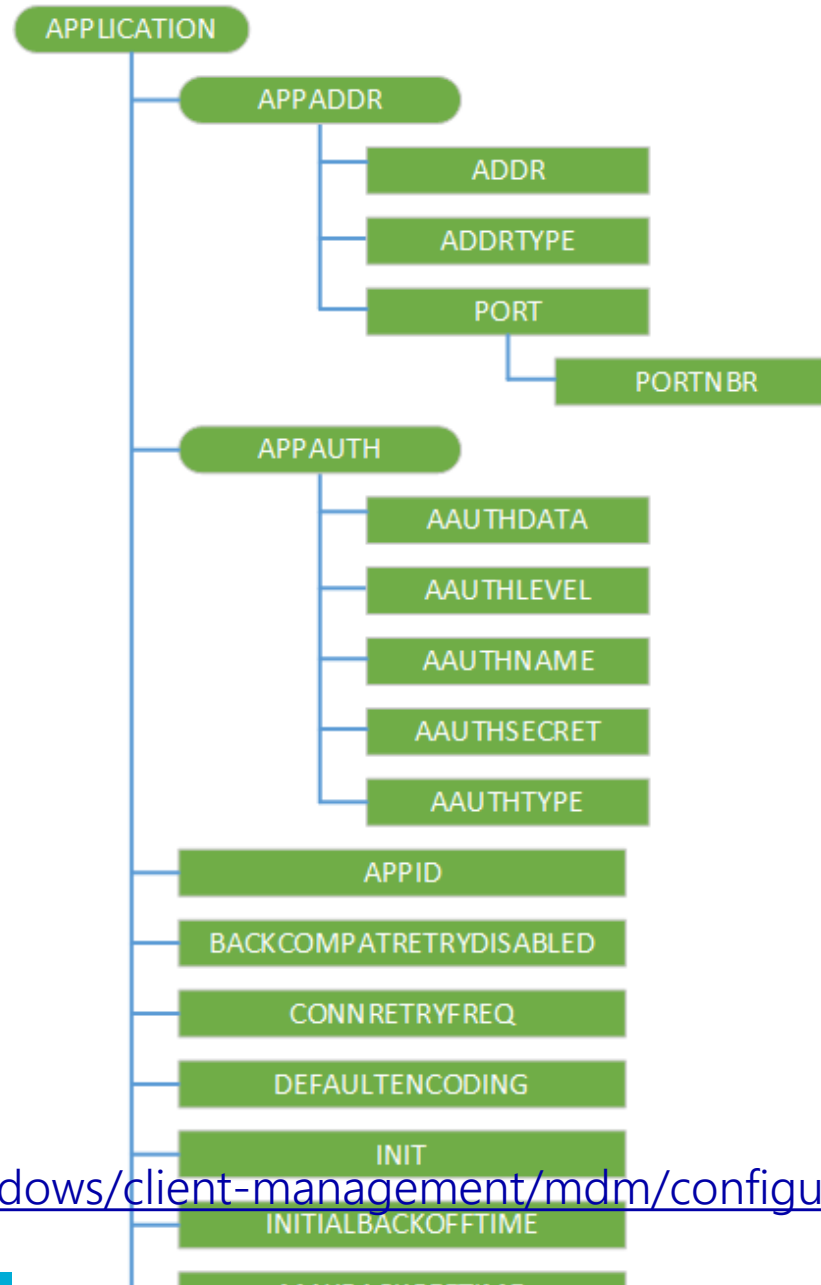




```
<SyncML xmlns="SYNCML:SYNCML1.1">
  <SyncBody>
    <Delete>
      <CmdID>12345</CmdID>
      <Item>
        <Target>
          <LocURI>./Device/Vendor/MSFT/Enterpr:
        </Target>
      </Item>
    </Delete>
    <Final/>
  </SyncBody>
</SyncML>
```

Windows 10 디바이스를 제어하기 위한 속성

Windows 유지보수 관련 서비스를 최대한 이용



- 지원 플랫폼

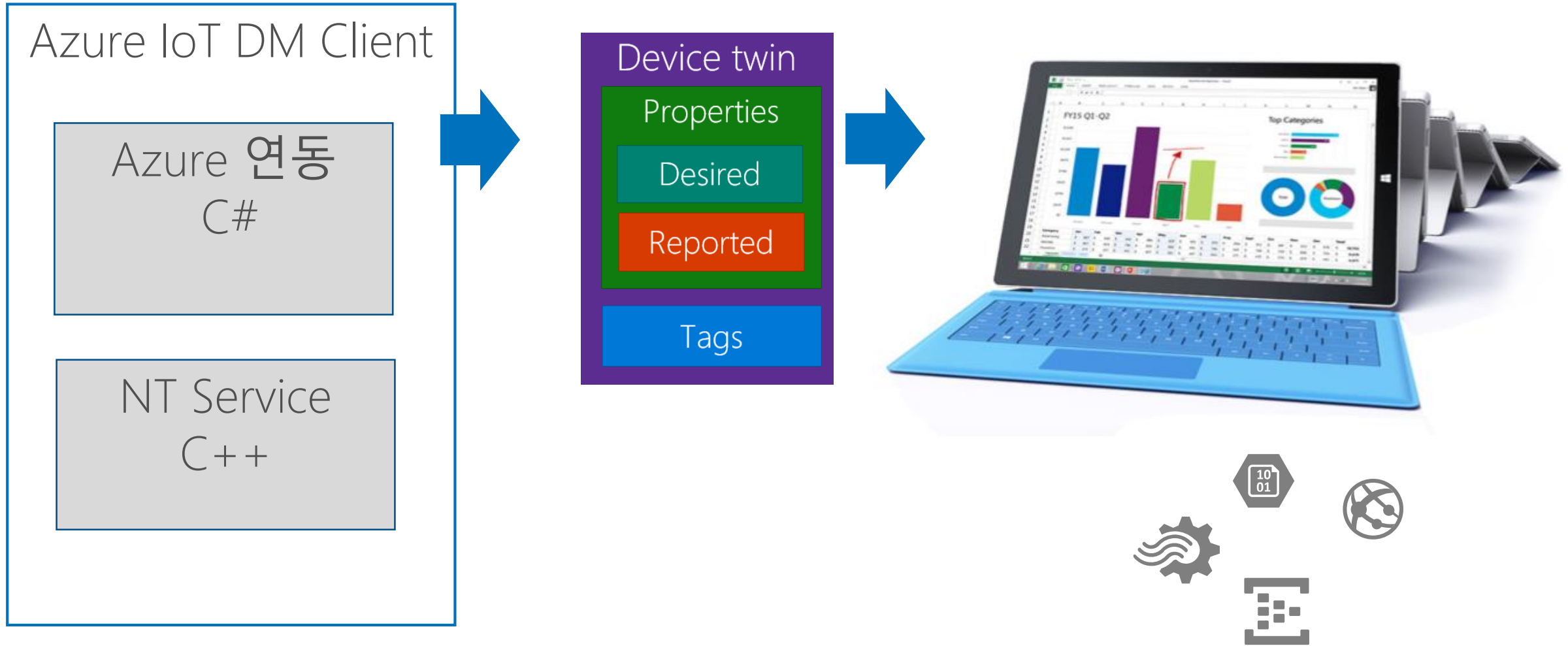
- ✓ Windows 10 ( 1703 이상 )
- ✓ Windows Mobile, IoT Core 이상 동일 커널 제품군
- ✓ Embedded Mode 적용

- 구성

- ✓ OMA 기반 CSP 컨트롤
- ✓ Azure IoT Hub Device Twins 사용 동기화
- ✓ TPM or X.509 지원 시 DPS 로 디바이스 인증
- ✓ Azure IoT Solutions 기반 대시 보드 연동



- ✓ CPU, Memory, Disk
- ✓ OS Version, Serial No., BIOS Info, Mac address
- ✓ Appx Installation
- ✓ MSI Installation
- ✓ Windows Update Policy
- ✓ Reboot
- ✓ Factory Reset ( OS 포팅 작업 필요 )
- ✓ Time Settings
- ✓ OS License 확인



# Demo

## 목차

---

- I. IoT Device Management 개요
- II. 기술 인프라 (Azure IoT Hub, Device Twin, Azure IoT DM)
- III. 적용 사례 및 계획, 비즈니스 모델

# 적용 사례: Azure IoT DM for Kiosk

- Device management for Kiosk POS
- Telemetry data(The current state of the peripheral) collection using Azure IoT Solutions
- Identify the device's current location on the map
- Failure detection (Dashboard and SMS Alarm) and maintenance for Kiosk POS
- HW/SW info, Reboot, SW update, and license activation, Change time zone
- Register information of kiosk, company, user

The screenshot shows the 'ADMINISTRATOR' dashboard. On the left is a sidebar with icons for Dashboard, Devices, Kiosk, and Admin. The main area features a map of a city with several location markers. To the right of the map, there are three summary boxes: 'Total Devices' (1), 'Normal Devices' (0), and 'Abnormal Devices' (0). Below these is an 'Alarm History' table with columns for Local Time, Device ID, Rule Output, and Value.

LOCAL TIME	DEVICE ID	RULE OUTPUT	VALUE
06/11/2018 9:27:35 PM	KioskDevice_8120	AlarmScanner	1.00
06/11/2018 9:27:35 PM	KioskDevice_8120	AlarmReader	1.00
06/11/2018 9:27:35 PM	KioskDevice_8120	AlarmBillCoin	2.00
06/11/2018 9:27:35 PM	KioskDevice_8120	AlarmApple	6.00
06/11/2018 9:27:05 PM	KioskDevice_8120	AlarmScanner	1.00
06/11/2018 9:27:05 PM	KioskDevice_8120	AlarmReader	2.00

At the bottom, there is a dropdown menu labeled 'Device to View:' with 'KioskDevice\_8120' selected.

The screenshot shows the 'KioskDevice\_8120' details page. It has a sidebar on the left with icons for Dashboard, Devices, Kiosk, and Admin. The main area is divided into several sections: 'HW Status', 'Spec', 'Log History', and 'Patch Job'. The 'Spec' section lists various hardware and software details, including Model (GB-B515-6200), OS Version (Windows 10 Enterprise), Admin, Pager No, Company, Company Addr, Company Tel, Status (Running), and a list of peripherals: PRINTER, IC READER, SCANNER, BILL COIN, and NFC READER, each with a green status indicator. The 'Patch Job' section shows 'APPLICATION' with a green status indicator. A 3D rendering of the kiosk device is shown on the right side of the page.



**All Tech better together**

- ✓ Embedded 기능 추가
- ✓ UWF (Universal Write Filter)
- ✓ Shell Launcher
- ✓ Assigned Access
- ✓ Bitlocker
- ✓ AppLocker
- ✓ Windows Defender
- ✓ ... etc

## ✓ SaaS 모델

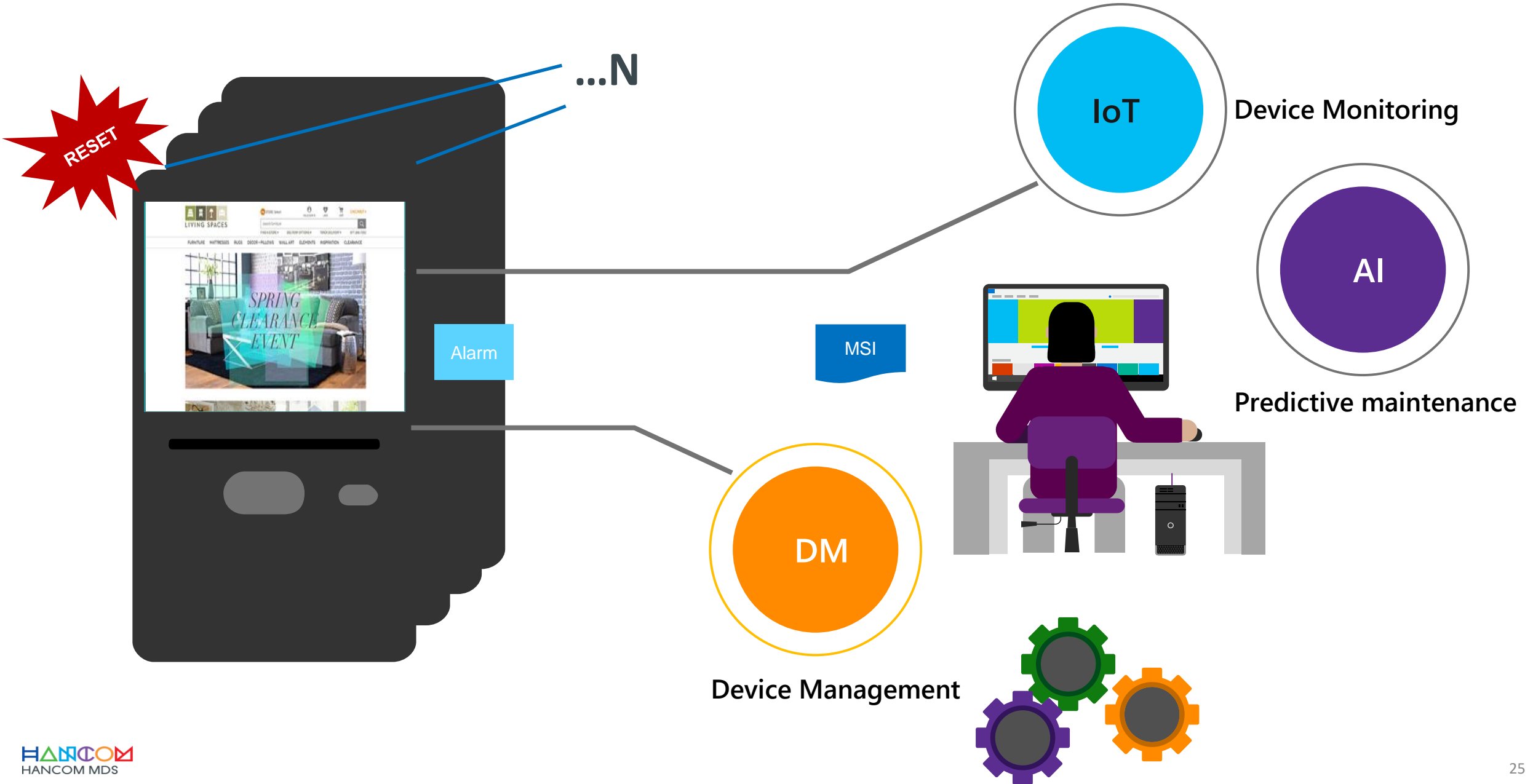
- Azure 기반의 파일럿 프로젝트
- Azure 파트너와 협업하여 대시보드까지 제공
- SI 비용

## ✓ PaaS 모델

- Azure 기반으로 자사가 프로젝트 개발 시
- 자사 솔루션으로 개발할 수 있도록 기술 개발 가이드 제공
- 트레이닝, 자료 공유



# Azure IoT Device Management 시나리오 절차



Q & A

# Thank you

(주)한컴MDS [www.hancommds.com](http://www.hancommds.com)

ES사업부 SE팀 배정환 주임 031-627-3074/010-4144-2827 [junghwan@hancommds.com](mailto:junghwan@hancommds.com)

본사 13493 경기도 성남시 분당구 대왕판교로 644번길 49 한컴타워 3,4층 031-627-3000

연구소 13487 경기도 성남시 분당구 판교로 228번길 17 판교세븐벤처밸리 2단지 1동 9층 031-600-5000