

# Arm Pelion Digital Security Transforms the Humble Door Lock

January, 2020

Case Study

## Company snapshot

Name: **Movtek**

Industry: **Connected Spaces &  
Access Control**

Size: **+60 employees**

HQ: **China**

Founded: **2013**

- ✦ Trusted device provisioning and communication for physical security
- ✦ Professional Services complemented finite internal resources and accelerated time-to-market
- ✦ Streamlined implementation and ongoing management processes

**When Movtek looked to develop a solution that would deliver a frictionless and secure solution for hoteliers, landlords and tenants alike, they turned to Arm in order to deliver a more feature-rich concept to market sooner.**

## Opportunity

Movtek's product innovation team of two Software Engineers, a Hardware Engineer and a Mechanical Engineer were deft at creating solutions for smart spaces but understandably lacked the necessary experience to concern themselves with low-level drivers and a deep understanding of the technical specifications required to build a secure IoT deployment. Which is why they utilized Arm's expertise as a catalyst to complement their existing team.

## Solution

Movtek's TL8 smart building ecosystem consists of door locks, gateways, presence sensors, and an SOS button for use in residential and commercial deployments. Smart locks allow hotels to remain secure by updating passcodes remotely upon checkout. The ecosystem can also streamline processes for landlords offering longer tenancy periods by offering frictionless invoicing and remote meter readings.

Pre-integrated communications modules - both Wi-Fi and NB-IoT, the emerging low-power radio technology specifically developed to enable a wide range of constrained devices - offered powerful communications flexibility.

---

'The resource offered by Arm's Field Application Engineers made up at least 60% of the project's resource, while their best practice approach to a secure IoT ecosystem allowed us to develop a more mature and secure solution far sooner.'

**Armong Lau- Chief Executive, Movtek**



'The ability to remotely manage an estate of locks is essential for our clients, especially remotely located Airbnb operators who may not be able to physically interact with a lock. This frictionless experience combined with a secure lifecycle is helping us build confidence with adopters of the technology sooner than envisioned.'

**Armong Lau- Chief Executive, Movtek**

Together, these delivered seamless access to existing coverage whilst also enabling the product range to transition to emerging technology, all without wasting time and resources on protocol stack porting. Movtek's agile team of five relied upon the insights offered by Arm's Field application Engineers to specify the ideal MPU, and relied on Arm's Command Line and Manifest Tools to reduce development time and help focus on their ideal solution rather than low-level drivers.

Easy installation is a key motivator in early smart lock adoption, which involves battery-powered devices circumventing the cost and complication of routing power cables to individual doors. This, in turn, creates a headache for landlords and hoteliers who have to spend time replacing batteries, sometimes in remote locations. Thankfully, Arm's Cortex M4 MPU's low power consumption was key to ensuring two tiny CR123A batteries could run for a full year without replacement.

### Security Locked Down

A physically secure device can be easily compromised if it's not digitally secure. Which is why Movtek looked to the Pelion IoT platform to secure their devices not just from chip to cloud, but also through their entire life cycle.

Secure factory provisioning meant that Movtek can configure thousands of locks with unique cryptographic identities and the ability to connect with the Pelion Device Management Platform before they leave the factory. Each device is assigned a unique signature proving their source, and public key identity information that ensures all device interactions and the data gathered is fully trusted.

Once in the field, locks are encrypted by TLS communication, and firmware updates deliver additional functionality and security patches in response to evolving threats.

### Next Steps

The flexibility in communication has meant that individual end-users can utilize available WiFi and NB-IoT networks. Additionally, Movtek will utilize Pelion Connectivity Management's Connectivity-as-a-Service (CaaS) to deliver 3G connected locks that can offer security without an established network. Arm's managed IoT connectivity service, comprising of more than 600 networks empowers Movtek to target larger, multinational hoteliers and landlords regardless of where in the world their accommodation is located.

To learn more about Arm Pelion Device Management, visit <https://www.pelion.com/iot-device-management/>