

# SECURING PROPERTY MANAGEMENT SYSTEMS

## Cybersecurity for the Hospitality Sector

The National Cybersecurity Center of Excellence (NCCoE) is helping hospitality organizations implement stronger security measures within and around their property management system (PMS) through collaborative efforts with industry and the Information Technology (IT) community, including vendors of cybersecurity solutions. This fact sheet provides an overview of the *Securing Property Management Systems* project description, including background and challenge, goals, and potential benefits. If you would like to propose an alternative architecture or know of products that might be applicable to the challenge of securing e-commerce transactions, please contact us at [hospitality-nccoe@nist.gov](mailto:hospitality-nccoe@nist.gov).

### BACKGROUND

Hospitality organizations rely on PMS for daily tasks, planning, and record keeping. As the operations hub, the PMS interfaces with several services and components within a hotel's IT system, such as Point-of-Sale (POS) systems, door locks, Wi-Fi networks, and other guest service applications. Adding to the complexity of connections, external business partners' components and services are also typically connected to the PMS, such as on-premise spas or restaurants, online travel agents, and customer relationship management partners or applications (on-premise or cloud-based).

### CHALLENGE

The numerous connections to and users of the PMS could provide a broad surface for attack by malicious actors. Improving the security of the PMS can help protect the business from network intrusions that might lead to data breaches and from fraudulent transactions being charged to guests.

### GOALS

This NCCoE project will focus on securing the PMS through network segmentation, point-to-point encryption, data tokenization, multifactor authentication for remote and partner access, network and user behavior analytics, and business-only usage restrictions.

This project aims to help hospitality organizations implement stronger security measures within and around the PMS. The process includes identifying common hotel IT infrastructures and PMS-POS configurations, systems, and components that typically integrate or interface with both applications. The project will also identify interactions between hoteliers and third-party service provider (SP) systems (e.g., online booking or customer relationship marketing partners), security-mitigation technologies, and ultimately provide an example implementation.

### BENEFITS

The potential business benefits explored by this project include:

- ensure only personnel with a business need are able to access the property management system
- provide accountability for all transactions on the PMS
- reduce the risk of a network intrusion compromising the PMS and preserving core operations if a breach occurs
- limit exposure of the PMS to incidents in systems that interface with the PMS
- reduce financial costs and reputation risk associated with network breaches
- improve guest confidence in the systems that provide the convenience and comfort they seek

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The National Cybersecurity Center of Excellence (NCCoE), a part of the National Institute of Standards and Technology (NIST), is a collaborative hub where industry organizations, government agencies, and academic institutions work together to address businesses' most pressing cybersecurity challenges. Through this collaboration, the NCCoE develops modular, easily adaptable example cybersecurity solutions demonstrating how to apply standards and best practices using commercially available technology.

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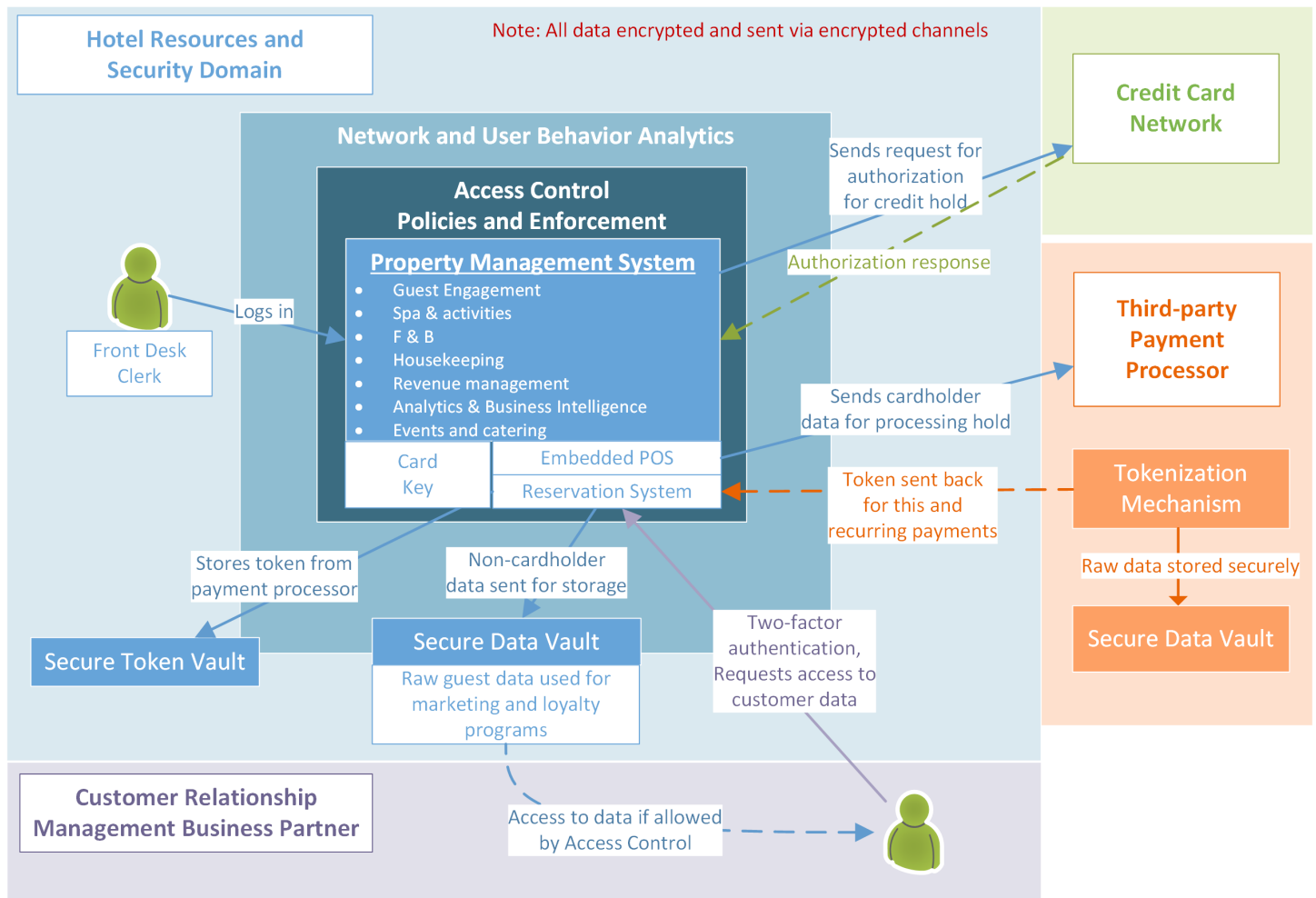
**CONTACT US**  
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301-975-0200

## COMPONENTS

To better secure the PMS, an example solution may include, but is not limited to, the following components:

- PMS and POS system(s)
- Point to point encryption (P2PE)
- data tokenization
- multifactor authentication mechanism
- access control platform
- network and user behavior analytics
- network segmentation and micro-segmentation
- data logging
- data storage
- virtualization

## HIGH-LEVEL ARCHITECTURE



### DOWNLOAD THE PROJECT DESCRIPTION

For more information about this project, visit:  
<https://nccoe.nist.gov/projects/use-cases/securing-property-management-systems>

### HOW TO PARTICIPATE

We are always seeking collaborators, insights, and expertise from businesses, the public, and technology vendors. If you are interested in contributing or collaborating on this project to enhance the nation's hospitality security, please contact us at [hospitality-nccoe@nist.gov](mailto:hospitality-nccoe@nist.gov).