

A hand is shown at the bottom of the frame, interacting with a glowing digital network overlay. The network consists of white lines connecting various circular nodes, some of which are illuminated with a bright blue light. The background is a dark blue gradient with a bokeh effect of light spots.

COMARCH

SOLUTION
SITE MANAGEMENT FOR ENTERPRISES

OVERVIEW

As enterprises grow and proliferate their assets, the needs and requirements for systems enabling more efficient control over tasks and facilities become crucial factors that stand to shape company's future efficiency and security. Who gets access to vital

installations? How is it granted? Which facilities are used and when? How to make sure tasks are performed efficiently? These are just some of the issues that Site Management solutions attempt to solve.



Site Management is designed as an end-to-end, comprehensive solution, comprising of several key elements. The system is modular by design and easily implementable; it combines FSM (Field Service

Management), IAM (Identity Access Management) as well as IoT (Internet of Things) elements. Taken together, they enable two types of Site Management: passive and active.

I / PASSIVE SITE MANAGEMENT

Passive Site Management is a combination of software and hardware components. It allows supervising access to the network location, brings in options to improve technicians' productivity and gives more insight into daily employee activities. Passive Site Management features three main elements: **Comarch FSM**, **Comarch Beacon**, and **Comarch IoT**.

Comarch FSM is a powerful scheduling, staffing and field workforce support system. The system vastly improves efficiency by automated task assignment and dispatching, route planning, duration estimates, smart resources allocation and performance standardization. Advanced reporting module allows analyzing employee data to boost efficiency and

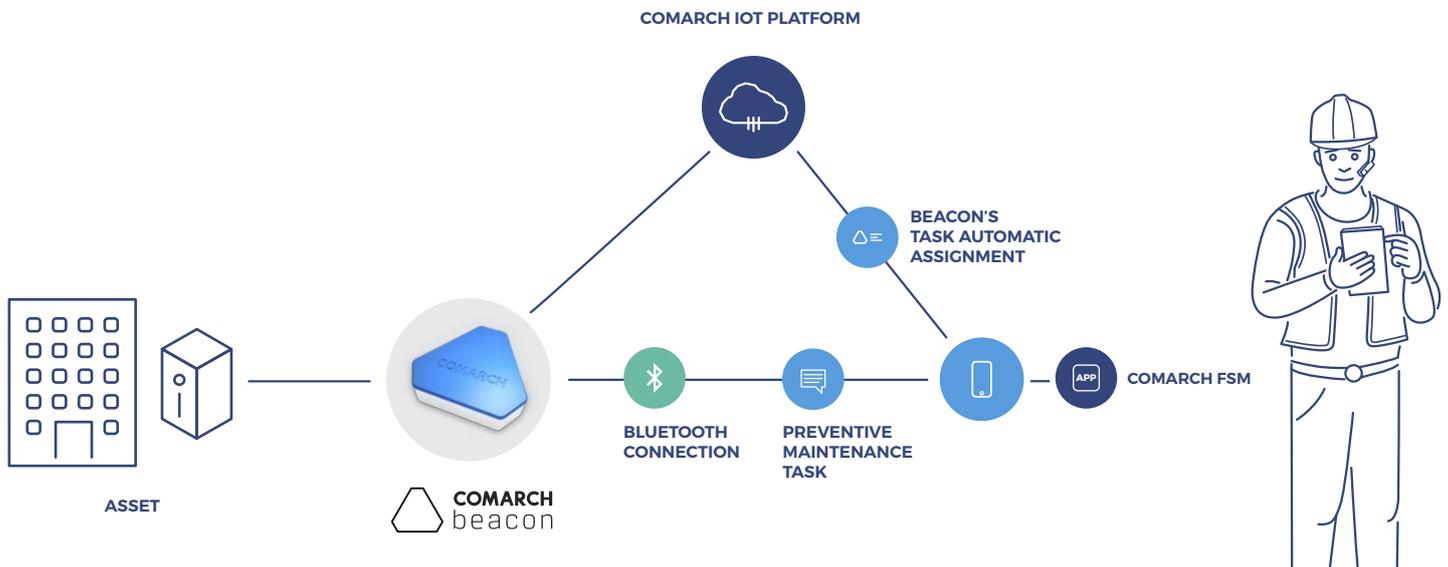
increase the reliability of workload forecasts. Field staff workers are equipped with FSM Mobile app, granting them access to relevant data and task tracking.

The hardware component enabling these functionalities is Comarch Beacon - a token-like device that acts as an enabler for the app alerts by continuously transmitting location-specific radio signals. Beacons can be easily placed wherever they are needed; paired with FSM Mobile and Comarch IoT, they can be used, for instance, to notify about nearby tasks, allow easy access to specification and location of objects through the app, access monitoring and measuring the time spent in the proximity of a particular beacon.

APPLICATION

The system is used to perform and schedule predictive maintenance. In one of the possible scenarios, technical field staff receives a notification on FSM Mobile regarding scheduled maintenance of hardware installed in a remote location. When the field worker enters the range of Comarch beacon with an active instance of FSM Mobile application, he is notified of the proximity of the object. The employee receives a "preventive maintenance" notification, after which the task is automatically assigned. Field staff can also display a detailed description of

the object and perform remote diagnostics with its result readily available in FSM Mobile. Moreover, an integrated Comarch IoT used for beacon management ensures that only authorized personnel is allowed to connect with the beacon, and the server is notified when and to whom the access is granted. It also provides the possibility to expand the service and integrate additional external sensors or devices that might help to both control the access and improve on-site device diagnostics.



II / ACTIVE SITE MANAGEMENT

Active Site Management components comprise additional systems and hardware that help ensure physical and logical security of the enterprise. These elements are **Comarch IAM, tPro Mobile** and **IAM Endpoint**.

Comarch IAM is an overarching Identity Access Management system that provides advanced methods for user's authentication, authorization, and management. It offers top of the line elliptic curves cryptographic methods to secure access to servers, applications, and devices. Together with IAM

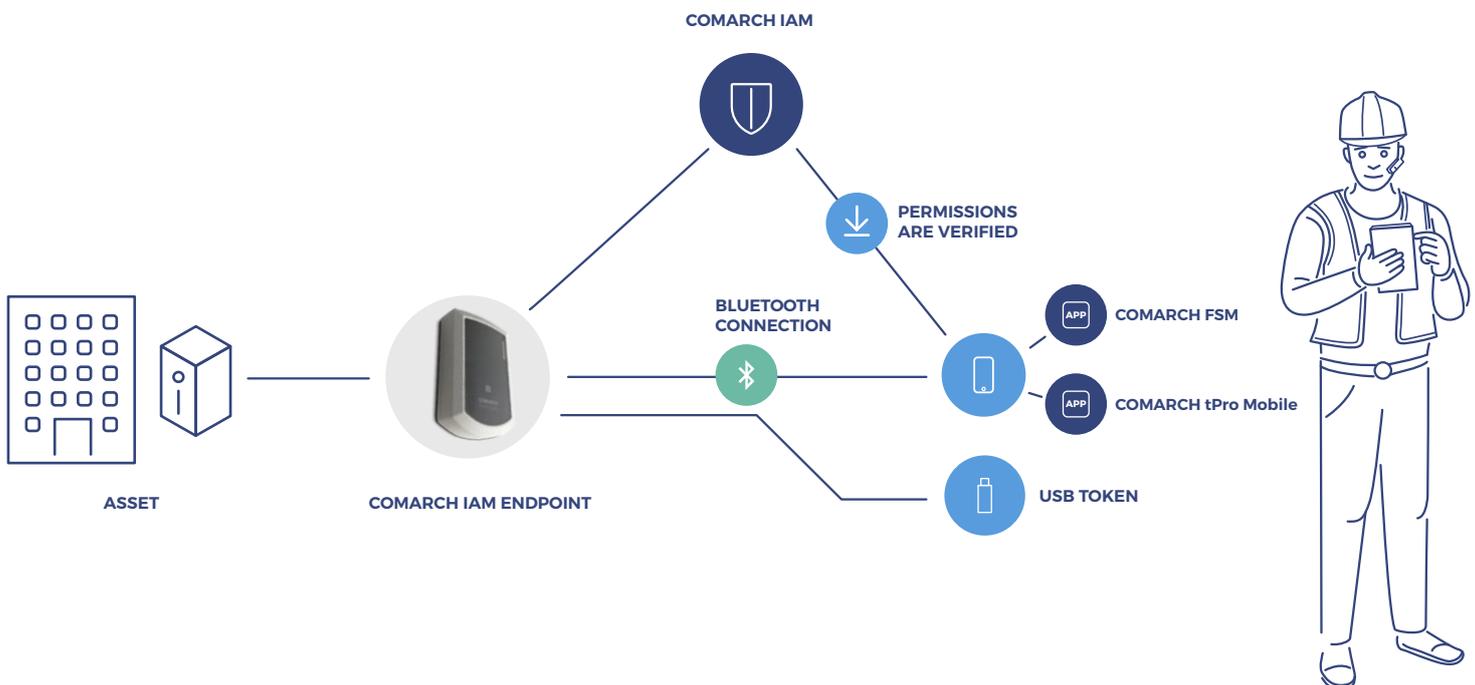
Endpoint, the system is used to bar or grant access to physical locations.

IAM Endpoint is a device that serves as a terminal of the system sending data from the monitored area to the IAM Server. Its inputs are connected to a set of access detectors (motion, temperature and humidity detectors), while its outputs are set to control electric locks and trigger systems. The entry authentication in IAM Endpoint protected facility is performed by tPro Mobile, installed on a device with an instance of FSM Mobile.

APPLICATION

In this use demonstration, active Site Management system was implemented to secure the access to a switching station. IAM Endpoint's input is connected to motion and reed sensors, which detect the tampering attempts and movement in the secured area. IAM endpoint continuously collects data from its inputs and sends it to Comarch IAM. All communication between IAM Endpoint and Comarch IAM is secured by elliptic curve cryptography (ECC). When Comarch IAM identifies

a security breach based on the signals coming from IAM Endpoint, it performs one or more pre-defined actions, such as setting off the alarm, notifying the security or cutting off the electricity. The authorized staff can enter the location by using a software-based tPro Mobile. Comarch IAM is integrated with Comarch FSM, allowing easy real-time changes to access conditions and security breach responses as well as adjustments to authorized personnel lists.



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ABOUT COMARCH

Since 1993, Comarch's specialist telco solutions business unit has worked with some of the biggest telecoms companies in the world to transform their business operations. Our industry-recognised telco OSS and BSS solutions help telecoms companies streamline their business processes and simplify their systems to increase business efficiency and revenue, as well as to improve the customer experience and help telcos bring innovative services to market. Comarch's telco solutions customers include Telefónica, Deutsche Telekom, Vodafone, KPN and Orange.

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