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Orlando Ramirez

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## AUTOMATIC MOLECULAR LICENSING THROUGH TRUSTED PEERS

AUTHOR:  
Orlando Ramirez

### ABSTRACT

Smart licensing is changing paradigms in a manner that allows enterprise entities to centrally organize license and devices in a simple and flexible way. However, it is often difficult to deploy this ecosystem because the configuration on enterprise endpoint devices is manual, connection-dependent, and often involves constant data exchanges for reporting. As a result, it is difficult for enterprise entities to manage/maintain reliable information about the licensing usage. Presented herein is a molecular licensing system, which addresses such issues by providing a centralized system that automates the configuration, registration, and validation of reports, which can be provided by endpoints to the smart licensing ecosystem through the use of trusted peers.

### DETAILED DESCRIPTION

A smart licensing deployment typically involves "online" and "offline" deployment operations. For example, online deployment operations are typically connection-dependent, involving operations among elements of a smart licensing system and an account for an enterprise entity that is often located in the cloud. Such operations can involve direct, proxy, and/or satellite (on-premise) operations. In contrast, offline deployment operations typically involve manual intervention to facilitate an exchange of data between endpoint devices and the cloud-based account for an enterprise entity.

A current issue that is often encountered by enterprise entities utilizing smart licensing solutions involves the reliability of information related to licenses. For example, many times it is unclear what licenses and/or how many licenses are in use for an enterprise at a given time. Information reliability issues can be caused by many factors, such as endpoint devices not being configured correctly, endpoint devices not being registered with a licensing manager, endpoint devices being registered with a licensing manager but not reporting information to the manager, endpoint devices registering with a licensing manager initially, but later losing the registration, and/or system connectivity issues (e.g., satellites losing cloud connectivity and/or not being synced). Thus, in many cases, issues

can be related to manual activities that have not been carried out correctly and/or connection issues among elements of a smart licensing ecosystem.

In accordance with techniques of this proposal, such issues can be addressed by providing an integrated and molecular solution that provides enterprise entities with the ability to ensure the visibility of licenses being utilized within their networks, thereby ensuring that every license is effectively reported as it is used. Such a solution may be facilitated by providing a centralized system that avoids the issues noted above (e.g., human intervention issues, connection dependent issues, access difficulties, etc.).

In particular, a molecular licensing system is proposed herein through which a centralized system automates the configuration, registration, and validation of reporting by the endpoint devices to the smart licensing ecosystem through the use of trusted peers. Such a molecular licensing system provides for the ability to create and build a standardized configuration, as appropriate for each endpoint device or endpoint device type that may be implemented within an enterprise network. Utilizing the system, the configuration can be pushed to endpoint devices through trusted peers, and the system can monitor whether the registration of each endpoint device remains stable such that the reporting of licenses/registrations is correctly maintained over time. Figure 1, below, illustrates example details of an architecture through which the molecular licensing system can be implemented.

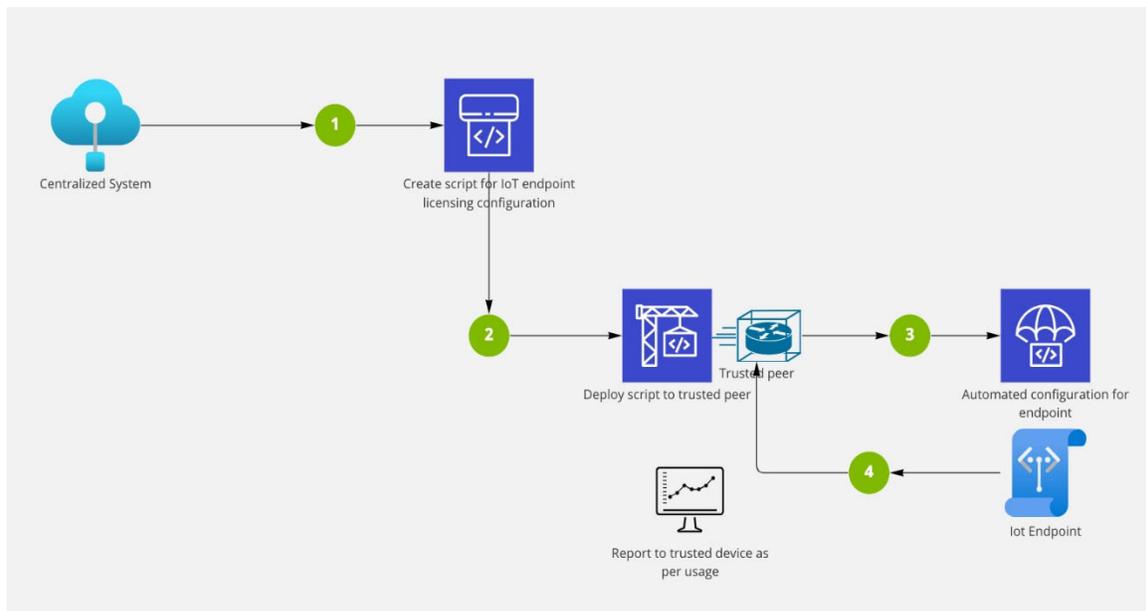


Figure 1: Molecular Licensing System Architecture

Consider an example workflow utilizing the molecular licensing system architecture, as illustrated in Figure 1, above. To begin, the central system can request to add an endpoint device to the smart licensing ecosystem. For example, based on a modeling/type of a given endpoint device/device characteristics, the system can create and build an appropriate configuration for an endpoint device. Next, the configuration is pushed to a trusted peer deployed on-premise for an enterprise entity. Next, the trusted peer can push the configuration to the endpoint device (e.g., configure, register, etc.). Thereafter, the trusted peer can extract the state of the device registration and monitor license usage of the device. It should be noted that the smart licensing configuration should be standard (at the code level) for endpoint devices, given the different types of devices that can be present in a deployment.

Accordingly, this solution advantageously minimizes the amount of human intervention in a smart licensing ecosystem and also addresses potential connectivity issues related to access difficulties that are often present in different operating environments. Through continued monitoring of endpoint devices, the molecular licensing system as described herein can provide for the ability to validate actual license usage in a given deployment and can also, in some instances, suggest the need for new licenses and/or amend unused configurations in order to avoid false positives with regard to potential license issues.