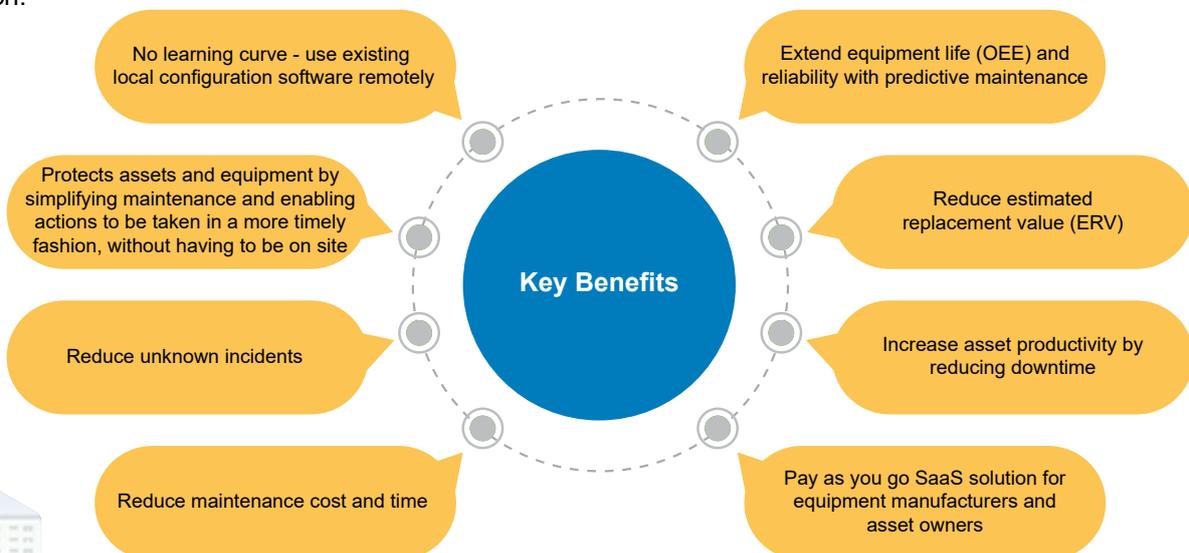# Kalki.io Remote Device Access

As industries automate, it typically involves multiple types of equipment from different manufacturers. Maintenance teams are challenged with knowledge and support of numerous tools for remote activities such as updating configurations, updating firmware and troubleshooting devices. A single solution that can access any equipment securely from anywhere at any time is an essential requirement for most industries with intelligent critical remote assets to streamline operations and improve efficiencies.

It is also essential for industrial automation equipment manufacturers to deliver comprehensive support to their customers. Timely accessibility to equipment experts onsite is often challenging given limited resources. This makes it critical for equipment manufacturers to enable remote connectivity and access to their field equipment with enterprise class cybersecurity to ensure the safety of the system and data. Retrofitting legacy equipment to enable remote maintenance is typically not a practical approach.

Kalki.io remote access service is a technology framework which can be leveraged by existing device engineering tools and communication networks to establish a secure connectivity with distributed assets. It is a centralized device management Software as a Service (SaaS) solution for devices/equipment deployed in the field at utility premises. It enables remote maintenance of field devices, which helps users to reduce engineering and integration time, costs and resources.

Asset owners' maintenance strategy has also been evolving from reactive → Planned → Proactive → Predictive maintenance over the last few years. In order to enable this migration, real time collection of asset health and operational data is critical. Remote monitoring of field equipment is an add-on function available in the kalki.io platform which can be used to monitor health and operational data. This data along with an add-on application built on the platform helps asset owners with preventive maintenance of their system.

Key Benefits

- No learning curve - use existing local configuration software remotely
- Protects assets and equipment by simplifying maintenance and enabling actions to be taken in a more timely fashion, without having to be on site
- Reduce unknown incidents
- Reduce maintenance cost and time
- Extend equipment life (OEE) and reliability with predictive maintenance
- Reduce estimated replacement value (ERV)
- Increase asset productivity by reducing downtime
- Pay as you go SaaS solution for equipment manufacturers and asset owners
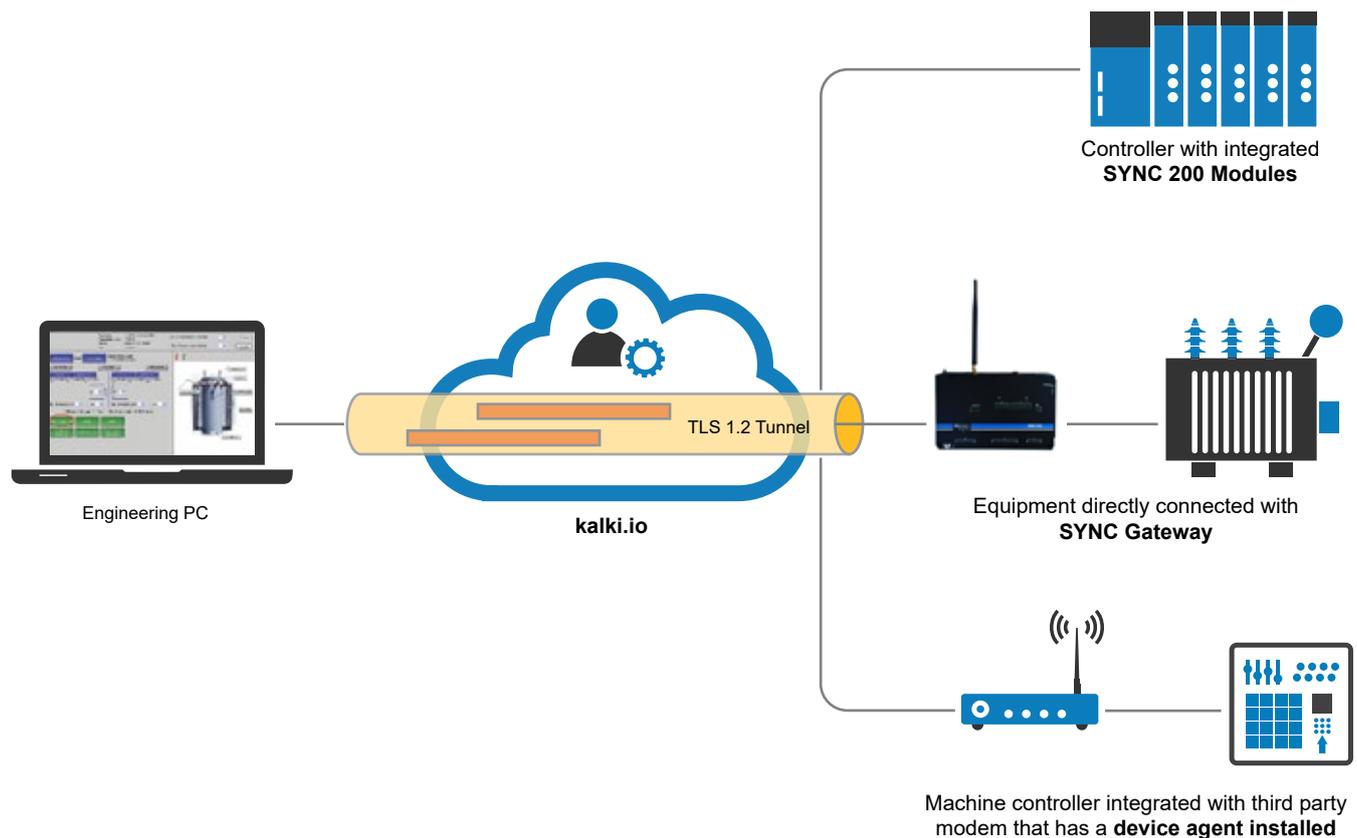
Powered by **Kalkitech**

SOLUTION

Remote Engineering Connector software pack installed in the engineering PC creates a secure TLS 1.2 tunnel to the kalki.io device management service. Kalki.io validates user privileges and permissions with the requested device before forwarding it to the designated device. Vendor tools installed in the engineering PC can make use of this tunnel and create a connection with field devices. User privilege validation ensures that devices cannot be accessed by unauthorized users.

Field equipment can connect with kalki.io using an external gateway or embedded connectivity offerings from Kalkitech. SYNC Gateways and RTUs connected with the field equipment using serial/Ethernet link can be used by asset owners and equipment manufacturers as external gateways to enable connectivity with the central system. See list of devices supported in the table below. Equipment manufacturers also have the option to directly connect with kalki.io without using an external gateway. Interface card hardware or a software stack (device agent – see definition below) can be embedded inside the equipment along with a cellular modem to achieve this functionality. See embedded options below.

PKI infrastructure available in the kalki.io device management service authenticates each user and device. This enables secure remote PC connectivity with field equipment for configuration, debugging and firmware updates.

Controller with integrated
SYNC 200 Modules

TLS 1.2 Tunnel

Engineering PC

kalki.io

Equipment directly connected with
SYNC Gateway

Machine controller integrated with third party
modem that has a **device agent installed**

GATEWAYS FOR EQUIPMENT MANUFACTURERS

SYNCConnect
is a software gateway ideal for edge devices. It simplifies and accelerates the collection, aggregation and protocol conversion of field device data from many vendors.

SYNC 2100
are compact and rugged remote terminal units used for applications that control and monitor the distribution grid.

SYNC 1800
are cellular gateways that can be used for remote monitoring and control of any assets*.

* Available for specific regions only

SYNC 2000
Secure Substation Gateways support +40 utility protocols with many to many protocol conversions of telemetry data.

SYNC 3000
is a rugged communication and computing platform with data concentration built with IEC 61131 based user logic programing to provide engineering flexibility for data computation.
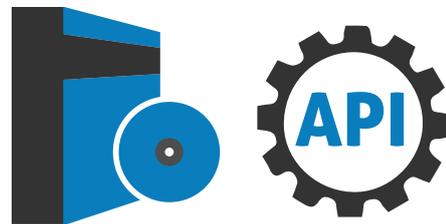
EMBEDDED OPTIONS FOR EQUIPMENT MANUFACTURERS

Hardware Interface

SYNC 200 are embedded system on module (SOM) boards which can be directly plugged into field equipment/ devices to enable it with multiple protocols without changing the core hardware.

Software Interface

kalki.io Device Agents provide an interface definition for securely connecting any grid devices with kalki.io.

KEY FEATURES

- Use Ethernet or cellular connectivity
- Does not require static IP SIM cards
- Automatic registration of equipment
- Secure TLS 1.2 tunnel from configuration PC and equipment
- Vendor and protocol agnostic solution

- SMS or email-based notification and alerts
- RBAC ensuring authorized access to equipment/devices
- Hierarchy based configuration and access settings
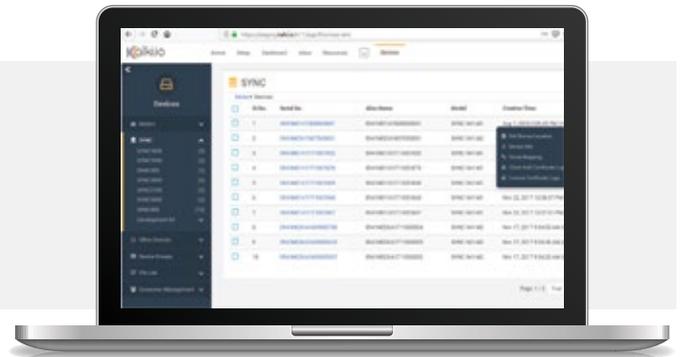- Customized equipment/device groups
- Private deployment option available

SIGN UP AND EXPLORE KALKI.IO

Sign up and Explore

www.kalki.io
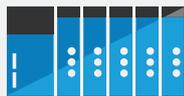
APPLICATIONS

Inverter & UPS

Generator Set

Industrial PLC & Machines

Wind Turbine Controller

Building Automation

Telecom Base Stations