

netFIELD OS

Innovation between IT and OT

- Device On-Boarding to netFIELD.io
- LAN/WiFi/WAN settings
- Resource Monitoring
- Firewall settings (NAT, enable/disable incoming ports, port-forwarding)
- Network attached storage access (iSCSI Targets, NFS)
- Firmware update
- Private Key Infrastructure (Certificates)
- Logging
- Shell access
- Plugin support for the configuration of application container
- Remote Access to the local Device Manager UI, connected OT network devices or single services shared by devices connected to the OT network

The secure operating system for an intelligent edge

Hilscher netFIELD OS is a lean and secure operating system that makes it easy to program, deploy, connect edge devices. Hilscher netFIELD OS extends the Linux kernel with software libraries to securely connect operation technology like PLC, MES, Historians, Files or other on-premise systems with IT services like the netFIELD Cloud.

Our netFIELD OS lets you innovate faster embracing container technologies managed by the netFIELD Cloud platform point or locally at the edge.

The netFIELD OS core services include the support of hardware interfaces, the network environment, secure and system logging. In order to setting up the gateway configuration, the Device Manager is providing a web interface with user profiles for access control.

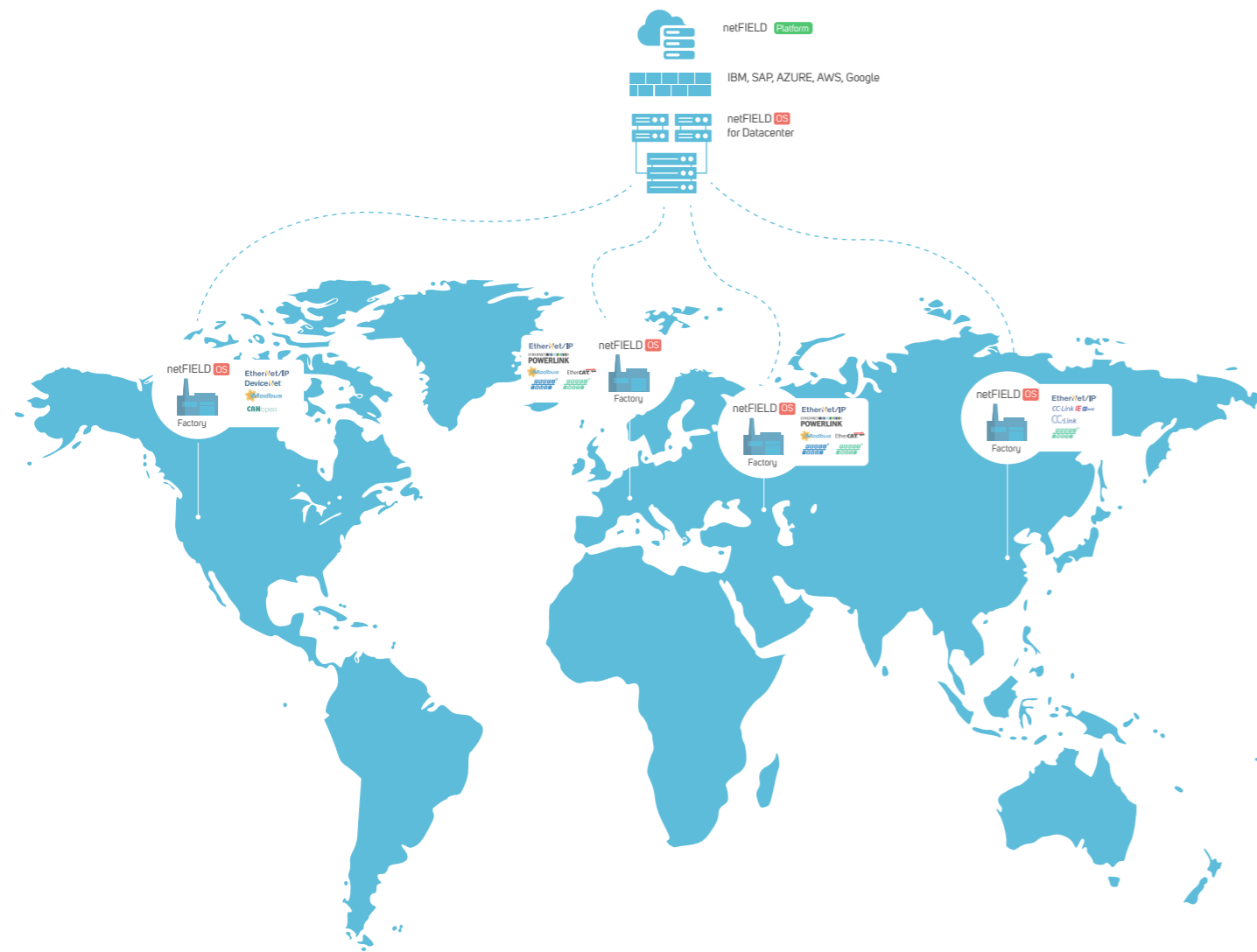
With the open plug-in mechanism, the functionality of the Device Manager can be extended with the help of containerized applications. The device manager can also be accessed from anywhere access function of the netFIELD cloud platform.



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netFIELD OS

The heart of central or decentral managed IIoT devices



Überschrift zur Grafik

Grafik

netFIELD OS Datacenter

While netFIELD OS is used to run natively on a hardware device, netFIELD OS Datacenter is running in a virtualization environment. Since the software architecture of netFIELD OS is the same, the user will not recognize, whether OS and the Device Manager is running natively on a hardware device or virtualized as a guest on a hypervisor.

Advantages

- Hardware resources of the Host system can be shared with guest systems as required
 - CPU cores
 - RAM
 - Network Interfaces
 - Persistent Storage
- High Availability / Reliability Strategies
- Hardware independancy of guest applications (netFIELD OS)
- Access to remote storage systems via NFS or iSCSI including RAID n redundancy
- Contribution to Green IT

Typical scenarios for netFIELD OS Datacenter

- In a distributed scenario with multiple machines and/or locations a central instance of the netFIELD OS should be the interface to the netFIELD Cloud.

In this case a central running netFIELD App Platform Connector or another cloud connector (to connect Azure, AWS, or Google) may be the interface between the enterprise network of the customer and one or more cloud providers.

The MQTT Broker can also run in this virtualized environment to receive aggregated or raw data from distributed edge devices on the machine sites.

The performance is scalable and depends from the number of datapoints as well as from the customer requirements in which time periods the data should be proceeded.

Additionally a database can store, aggregate and forward the received data as required to an IT System, the netFIELD Cloud platform or to another preferred cloud provider.

A local dashboard (e.g. provided by Node-RED) may offer an overview about the machine park condition.

- The hardware featureset of the netFIELD Edge devices does not meet the requirement of the use case.

For example the Advanced Vector Extensions are required for an Application Container using KI (e.g. Tensorflow). In this case the virtual edge appliance can be used without additional effort for testing.



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Characteristics

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Docker Technology	netFIELD OS based edge devices can run every application build on the Docker technology.
Application Deployment	Applications can be served centrally by using the netFIELD Cloud or locally by using any accessible Docker Registry.
netFIELD OS Datacenter	The scalable virtual edge appliance is running as a guest OS in VMware or KVM host environments.
Firmware Update	The netFIELD OS can be updated for functional or security reasons locally or remote by using the netFIELD Cloud.
netFIELD Extension	Every device running a Debian or Ubuntu OS can be extended with the required services to connect to netFIELD Cloud for application deployment and remote access.
Internet Connectivity	Internet proxies in enterprise networks can be a hurdle to connect devices to the internet. The netFIELD OS is supporting proxy settings for such LAN infrastructures. The proxy configuration covers the connectivity of the operating system, the Docker framework and application containers with the internet.
OT Network Protection	Edge devices with netFIELD OS can protect the OT network using the integrated firewall. This allows IT and OT networks to be isolated, e.g. using the NAT functionality.
WiFi Connectivity	netFIELD Edge devices with WiFi support can be connected to Enterprise and Personal WPA protected networks.
Application Container UI Plugins	Custom application containers can add a user friendly UI to the local Device Manager for setting up the application container.



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