

 netin

Table of contents

Welcome to **Netin**



Netin

OT and IIoT monitoring.



NetinDS

Monitoring and diagnosis system for OT infrastructures.



NetinHUB

OT and IIoT systems integration.



Network Intelligence

Services focused on our clients.



Roadmap

What we are working on.

What is Netin?

OT and IIoT **Monitoring**

“Netin is an ensemble of solutions oriented to the monitoring and diagnosis of OT infrastructures and modern systems of industrial automation.”

Network Intelligence Systems, better known as **Netin**, is a set of tools and systems to monitor and diagnose big OT infrastructures and modern systems of industrial automation.

Its integration with IIoT platforms, on the way to global digitalization, is one of its main foundations.

Netin is the perfect tool for the professionals of the area which makes easier the daily maintenance and operation tasks, detecting in advance potential risky situations to solve them in a more efficient way.

Its integration with IoT platforms and TI systems set up the appropriate ecosystem to have the necessary information in the right place and time.



Network Intelligence

NetinDS

Monitoring and diagnosis

Name	Nr	Cnt	Time	Event	Event type
Siemens SIMATIC NET SCALANCE X204 FW Version V05.05.01, SWP0169230	221	77	2883	Link up on port 4	Event 0
scalanceX204-2y(222)	236	78	2882	Link up on port 4	Event 0
10.10.50.124	238	78	191263	Link up on port 4	Event 0
255.255.255.0	240	78	197932	Link up on port 4	Event 0
10.10.50.1	257	79	2873	Link up on port 4	Event 0

Order number: 60K3 204 28010 2A43
Serial number: VPE0169230
FW Version: V 5.0.1

C-PLUG not present(2)
FM State not disabled(300)
IP Address 10.10.50.124

Admin status	Status	In bandwidth	Out bandwidth	In errors	Out errors	In discards	Out discards
up(1)	up(1)	0.000000000000	0.000000000000	0	0	0	0
up(1)	up(1)	0.000000000000	0.000000000000	0	0	0	0
up(1)	up(1)	0.000000000000	0.000000000000	0	0	0	0
up(1)	up(1)	0.000000000000	0.000000000000	0	0	0	0
up(1)	up(1)	0.000000000000	0.000000000000	0	0	0	0

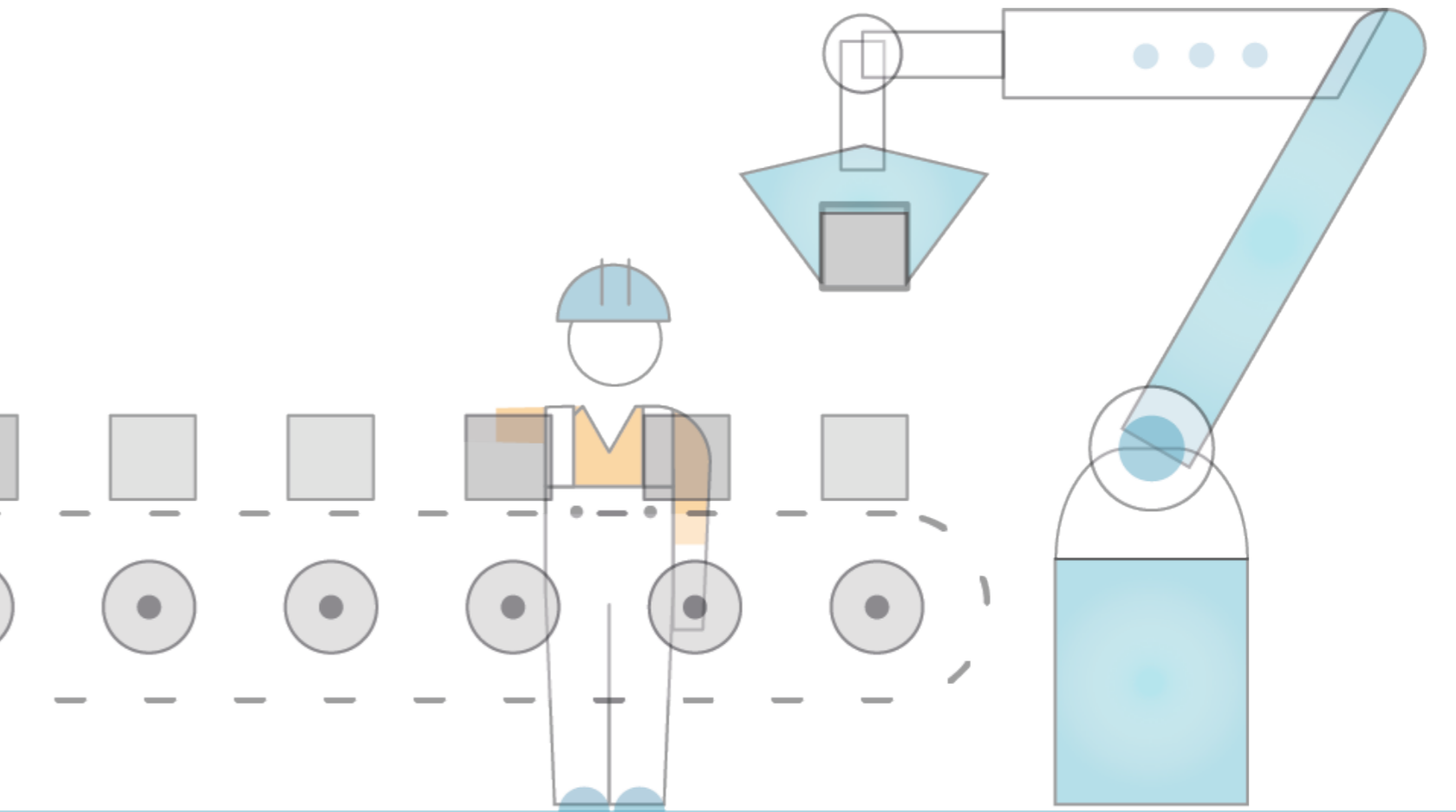
ViewSonic

The screenshot shows a network configuration interface with a tree view on the left and a detailed configuration panel on the right. The tree view includes sections for 'Network', 'Ports', and 'Services'. The configuration panel shows various settings for a selected device, including IP addresses, subnet masks, and other network parameters.

Introduction

Monitor your **industrial systems**

“NetinDS is a distributed system, by the use of agents, that allows you to monitor big OT infrastructures and modern systems of industrial automation.”



Netin Diagnostic System is a monitoring and diagnosis system for industrial facilities and OT infrastructures, which main goal is to provide, to the professionals of the area, the best tools to get a quick and easy diagnostic of their systems.

Designed and developed specially for the industry, **Netin DS** is based on the main supervision protocols of the IT field, as much as on the most well-known and extended OT standards.

With a complete pack of agents, **NetinDS** reach and integrate all your systems in the easiest way under an only tool to better improve the comprehension of your facilities' state.

The **NetinDS** interface let you access, right there where you need it, to all the monitoring information of your facilities, systems and devices.

Components

What is **NetinDS** made of?

NetinDS WebUI

Web responsive interface, based on HTML5 and CSS3, from which it is possible to get to all the system resources and configuration options.

- ✓ Microsoft Edge
- ✓ Google Chrome
- ✓ Mozilla Firefox

NetinDS Agent

With hardware and software versions, it captures and manages the information from the systems and devices.

- ✓ Linux & Windows x32/x64
- ✓ Local WebUI

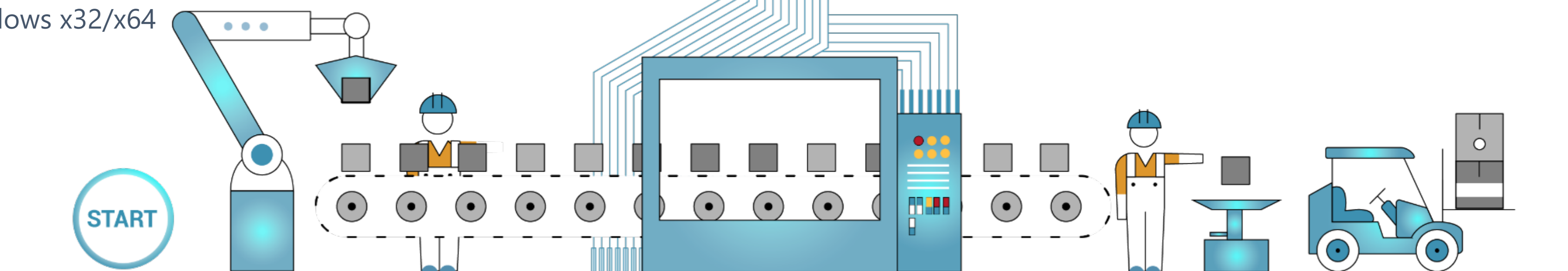


NetinDS Server

It is the core of NetinDS system, it develops all the tasks concerning agents' coordination, information storage, configuration management...

Server configuration for 200 Agents

- ✓ 32GB Memory RAM
- ✓ 240GB SSD + 1TB HDD
- ✓ 4-6 Cores CPU
- ✓ RHEL7.x



Architecture

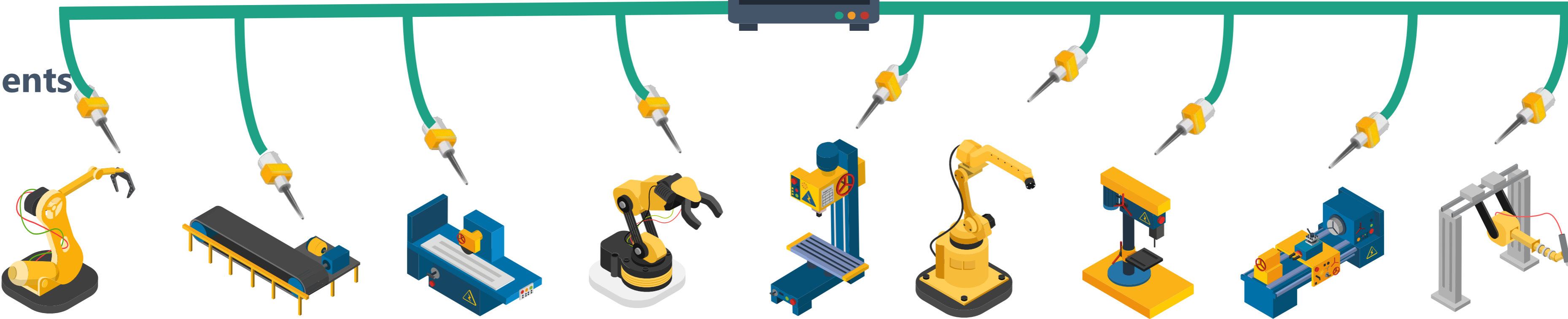
How is NetinDS?

NetinDS WebUI



NetinDS Server

NetinDS Agents



Features

How is **NetinDS**?



Monitoring

Monitoring and diagnosis in real time of the whole of the devices and systems that form your industrial facilities and OT infrastructures.



Auditing

Set up your own standard and check its achievement constantly with the auditing tools and the possibility to create user templates fully personalised.



Integration

Integrate all your industrial systems and devices under an only monitoring and diagnosis tool thanks to the application of industrial standards and the ones specially develop on our own.



Forensic analysis

Trace, analyse and find out the reasons of the problems in your industrial facilities in order to solve the events that caused them in the first place in a more efficient way.



Assets management

Get the most of your investments by making and checking automatically the stock of your whole industrial hardware package.

Netin Diagnostic System is always developing and evolving. Adding new and innovative functionalities and interfaces of communication and display. Increasing and improving the system capabilities and its use range. Being based on industrial and information technologies standards we take advantage of the Industrial Internet of Things power in an easy and intuitive way.



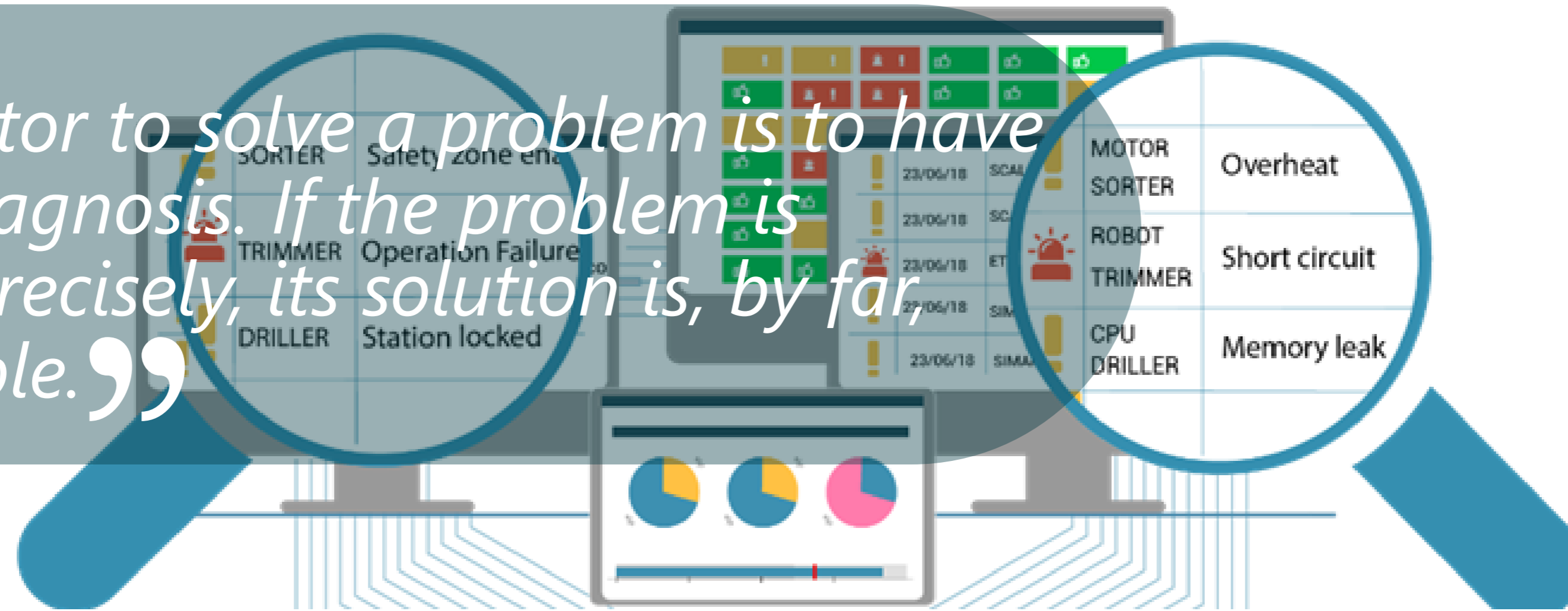
Netin DS

Monitoring

Introduction

Watching through the **industrial systems**

“The key factor to solve a problem is to have the right diagnosis. If the problem is identified precisely, its solution is, by far, more feasible.”



Netin Diagnostic Sytmen join under an only tool the monitoring tasks of all the elements that form your OT infrastructure, your automation facilities, your machines, your plant...

This way it allows an easy access to the most important information of your systems, and at the same time, it simplify their diagnosis by, at a glance, checking the state of the different elements that form them.

The monitoring of your industrial network electronics, controllers, peripheric stations, industrial computers, robots... is organise in a way that improves the maintenance efficiency and reduces the downtimes when a problem occurs.

NetinDS is highly customizable by creating alarm events for any monitored variable and adding new ones by using different standards.



Monitoring

Fieldbuses **monitoring**

Fieldbuses are essential elements in the automation of complex industrial systems where it is usually necessary a distributed control system and a controller hierarchy.

One of the main goals of **Netin Diagnostic System** is to monitor the fieldbuses (standardised on **IEC 61158** and **IEC 61784**) and their integrated elements.

PROFINET, PROFIBUS, Modbus TCP/IP are some of the fieldbuses that can be monitored by **NetinDS**.

Knowing the fieldbuses' state and efficiency of an industrial systems is a key factor to detect potential incidents and quickly solve them, and so it is also a key factor for companies.

Monitoring

Network **monitoring**

Digitalization involve an increase on the number of devices connected to industrial networks, raising even more their importance in the productive processes of the industrial facilities and OT infrastructures.

Netin Diagnostic System watch with the better-known supervision protocols, in real time and in a cross way, your industrial networks by looking after the connected nodes and the network electronics.

This real-time supervision of the industrial facilities allows knowing, at all times, the state, efficiency and availability of your systems.

Some **NetinDS** functionalities are: bandwidth measuring, ports with errors and wrong networks configurations.

The screenshot displays the Netin Diagnostic System interface. At the top, there are navigation tabs for 'Alarmas', 'Inspección', and 'Redes'. The main area shows a network topology diagram for 'kbu2a12—bs-alkux' with various devices like SCALANCE X-200, S7-PC, PNPN_IOC, and EX245-PN. Below the diagram is an 'Alarmas' section with a table of active alarms.

Taller	Línea	Instalación	Celda	Nombre de dispositivo	Descripción	Tipo de dispositivo	Dirección IP
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs-allgka2	Siemens, SIMATIC NET, SCALANCE X202-2P IRT, 6GK5	SCALANCE X - 200	172.18.140.14
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs-allgku1	Siemens, SIMATIC S7, CPU319F-3 PN/DP, 6ES7 318-3FL01		172.18.140.10
Taller 1	PQ27	Autobastidor 2 completación	KBU2A15	Kbu2a15—bs-allgku1	Siemens, SIMATIC S7, CPU319F-3 PN/DP, 6ES7 318-3FL01		172.18.143.10
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs-allgka1	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23	ET200S	172.18.140.21
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—sv—ka1	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23	ET200S	172.18.140.30

Hora de inicio	Duración	Taller	Línea	Instalación	Celda	Nombre Disp.	Información	Texto de ayuda / información extra
10/11/2017 14:40:44	10:03:06	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs-allgka2	Potencia POF en el puerto 3: 2.0 dB	
29/11/2017 18:20:02	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs-allgka2	Potencia POF en el puerto 3: 2.4 dB	

Monitoring

Industrial devices and systems **monitoring**



NetinDS is a monitoring system highly customizable and configurable according to the specific needs of each facility or OT infrastructure. These features are especially important when coming to integrate, under an only monitoring and diagnosis system, structures so diverse as the ones we meet in industrial fields where is common to find different technologies from different manufactures join together to reach the highest efficiency and longest life cycle.

The **NetinDS** agents pack and its configuration possibilities, by devices profiles, allows it to adapt to the reality of new or old facilities, from different manufactures or even in different and faraway localizations. Each device can be configured with different profiles for the same equipment, use only one or several **NetinDS** standard protocols, or include, if necessary, custom-made protocols thanks to the integration tools as **Dzakar**.



Datapoints

NetinDS can monitor a huge number of different variables for each device. Every variable has a specific configuration which include from its logical address to the way its values are read. The ensemble of a variable and its configuration is known as "datapoint" in the Netin system.



User alarms

It is possible to configure a user alarm for each value read by **NetinDS**. Using logical expressions, that even allows the combination of several datapoints, user alarms can be triggered with different critique levels, performance modes and texts.



System logs

Syslog diagnostic buffer and PROFINET Logbook are some examples of the system logs that **NetinDS** collect and assimilate together with key information to make forensic analysis or solve incidents.



System alarms

They are the alarms that come straight from the system or the technology monitored (such as PROFINET). Each state, alarm or diagnosis is read and translated according to the standard.

Información general		Información PNIO	
Taller	Taller 1	Controlador PNIO	kbwaka1---bsallgkux
Línea	PQ27	Dominio MRP	mrpdomain-1
Instalación	Autobastidor 2 completacion	MRP Modo	Client
Celda	KBU2A12	Versión MRP	1
Nombre dispositivo	kbu2a12-----sv-----ka1	Tipo de dispositivo	1
Tipo dispositivo	ET200S	Real time class	2
Descripción	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23-0AB0 HW: V3.0.0, FW: V7.0.5, SN: S C-F6DS26432015		
Dirección IP	172.18.140.30		
Estado	Device OK		
Dirección MAC	28:63:36:34:1D:6C		
Referencia	6ES7 151-3BB23-0AB0		
Nº de serie	S C-H1AF21692016		
Versión Hardware	V.3		
Versión Software	7.0.5		

MODULE IN WARNING
True

POTENCIA POF
20dB

SHORTCIRCUIT
False

Id	Nombre	Link status	Admin st.	Port status	Mbits/s	Modo	Descripción	Equipo remoto	Puerto Remoto	MAC puerto remoto	Error ent.	Error sal.
802	port-001-0	Up	Up	0	100 Mb/s	Full Duplex	ap0					
802	port-002-0	Up	Up	0	100 Mb/s	Full Duplex	ap1					
802	port-001-0	Up	Up	0	100 Mb/s	Full Duplex	ap10	00-0e-8c-8d-18-75	port-001	00:0E:8C:8D:18:75		
802	port-002-0	Up	Up	0	100 Mb/s	Full Duplex	ap11					
802	port-003-0	Up	Up	0	100 Mb/s	Full Duplex	ap12					
802	port-004-0	Up	Up	0	100 Mb/s	Full Duplex	ap13					
802	port-001-0	Up	Up	0	100 Mb/s	Full Duplex	ap14	00-0e-8c-f0-64-12	port-004-00009	00:0E:8C:F0:64:12		

Diagnos	Slot	Nombre	Referencia	Información	Estado
	5	IM151-3 PN FO V7.0	6ES7 151-3BB23-0AB0	PROFINET IO device interface module IM 151-3 PN FO (ERTEC200) for ET 200S	Module OK
	6	PM-E DC24V	6ES7 138-4CA00-0AA0	Power module PM-E for electronic modules, DC24V, with diagnostics	Module OK
	2	4DI DC24V ST	6ES7 131-4BD00-0AA0	Digital input module DI 4xDC24V, Standard	Module OK
	3	4DI DC24V ST	6ES7 131-4CA00-0AA0	Digital input module DI 4xDC24V, Standard	Module OK
	4	PM-E DC24V	6ES7 132-4CA02-0AA0	Power module PM-E for electronic modules, DC24V, with diagnostic	Module OK
	5	4DO DC24V/0.5A ST	6ES7 132-4CA02-0AA0	Digital output module DO 4xDC24V/0.5A, Standard, supports isochrone mode	Module OK
	6	4DO DC24V/0.5A ST	6ES7 138-4CA00-0AA0	Digital output module DO 4xDC24V/0.5A, Standard, supports isochrone mode	Module OK

Monitoring

PROFINET I/O devices **monitoring**

- Advanced diagnosis**
NetinDS supervise all the PROFINET information about a device, analysing it according to its GDML file and independently from its controller.
- Modules diagnosis**
 Any alarm or diagnosis, as much from the header as from the its modules, is detected automatically and reported, allowing a fast diagnosis of the equipment.
- Configurations validation**
 Devices configuration failures (expected vs. real) or parameters configuration failures, as much from the modules as from the header, are diagnosed.
- PROFINET interface monitoring**
 It's monitored: the state of the PROFINET interfaces, including the communication with the Controller, the topology configuration, MRP redundancy state, etc.

Monitoring

SIMATIC CPU **monitoring**

✓ CPUs SIMATIC monitoring

NetinDS collects information from the programmable controllers, as main elements in the industrial facilities, to know their state at all times.

✓ CPU efficiency

Cycle time, memory activity level, number and type of connections used... by these parameters **NetinDS** helps you to monitor your CPUs efficiency.

✓ Diagnostic Buffer

NetinDS accesses and record the diagnostic buffer events from the SIMATIC CPUs. This information will become very important logs when coming to make the forensic analysis of the incidents.

✓ Communications state

NetinDS identifies automatically all the systems that access the SIMATIC CPUs, SCADA systems, HMI devices, OPC servers... allowing to know the communication load of each one.

The screenshot displays the SIMATIC CPU monitoring interface with the following components:

- Navigation:** Alarmas, Inspección, Redes, Estados, Configuración, Consultas.
- Path:** Taller 1 > PQ27 > Autobastidor 2 completación > KBU2A12 > kbu2a12-----sv-----ka1
- General Information Table:**

Información general	
Taller 1	
PQ27	
Autobastidor 2 completacion	
KBU2A12	
Dispositivo	kbu2a12-----sv-----ka1
Dispositivo	
Modelo	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23-0AB0 HW: V3.0.0, FW: V7.0.5, SN: S C-F6DS26432015
IP	172.18.140.10
MAC	00:1B:1B:E6:BB:73
MAC	00:1B:1B:E6:BB:4F
Hardware	
Software	
- Connections Table:**

Conexiones		
	Reservado	Usado
Máximas conexiones	32	
Recursos no usados	29	
OP	10	
Configurado	1	2
PG	1	1
S	0	0
- Device Status:** Device Ok
- Cycle Time Graph:**

Tiempo de ciclo	
Última medida más larga	31
Última medida más corta	21
- System State Indicators:**
 - CPU STATE: Run
 - BUS STATE: Ok
 - SYSTEM STATE: Ok
 - MEMORIA: 20%
 - TIEMPO DE CICLO: 20
- Memory Usage Pie Charts:**
 - Load Memory RAM + EPRON:** Total: 8388608. Libre: 6248182. Usado: 2140426.
 - Remain Memory, Data:** Total: 716800. Libre: 391892. Usado: 324908.
 - Work Memory:** Total: 262144. Libre: 124. Usado: 13.
- Diagnostic Buffer Table:**

Timestamp	ExtError	IntError	Evento	Clase	OB	Evento
2017/12/03 16:44:58:318	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:214	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:165	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:114	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:57:960	1		(0x00) Event Leaving	(0x03) Asynchronous errors	82	(0x3842) Module OK
2017/12/03 16:44:54:558	1		(0x00) Event entering	(0x03) Asynchronous errors	82	(0x3842) Module error
2017/12/03 16:44:13:041	1		(0x00) Event Leaving	(0x07) Event for fail-safe and fault		(0x78E5) FI/O device depassivate

armas Inspección Redes Estados Configuración Consult

PQ27 > Autobastidor 2 completación > KBU2A12 > kbu2a12----sv----ka1

General	Información PNIO
Taller 1	Controlador PNIO: kbwaka1---bsallgkux
PQ27	Dominio MRP: mrpdomain-1
Autobastidor 2 completacion	MRP Modo: Client
KBU2A12	Versión MRP: 1
kbu2a12---sv---ka1	Tipo de dispositivo: 0
SCALANCE X-200	Real time class: 2
Siemens, SIMATIC NET, SCALANCE X201-3P IRT, 6GK5 201-3BH00-2BA3 HW: Version 6, FW: Version V05.02.00	
172.18.139.221	
Device OK	
00:1B:1B:BA:6A:52	
6GK5 201-3BH00-2BA3	
VPF7144469	
V 6	
5.2.0	

C-PLUG	Present
POTENCIA POF	4dB
LINK DOWN	False
NO PEER DETECTED	False





Link st.	Mbits/s	Modo	Descripción	Equipo remoto	Prto. Remoto	Error Ent.	Desc.	%BW E.	%BW S.	Potencia POF (db)
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X	kbu2a1212340---vi-5ka1	port-002	16	0	0.19	0.18	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0	0.0	0.0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0	0.0	0.0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0	0.0	0.0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0	0.0	0.0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0	0.0	0.0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X	kbu2a123---k-1ka1	port-001	0	0	0.2	0.21	

Básico Avanzado

Timestamp	ExtError	IntError	Evento	Clase	OB	Evento
2017/12/03 16:44:58:318	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interf

Monitoring

Industrial network electronics **monitoring**

- 
Advanced industrial diagnosis
NetinDS combines the use of standard supervision protocols (SNMP) with the use of industrial protocols (PROFINET) to get all the information necessary from the industrial network electronics.
- 
Failures and bandwidth supervision
 Thanks to its configurable alarms system, **NetinDS** can notify you of any incident in the network, caused by a bandwidth excessive use or by discarded packets or error packets.
- 
Adaptable profiles
 Specific profiles can be created through the MIBs of each model, and complex user alarms relating several equipment variables, for example, optic fibre and link distance.
- 
Adaptable panels
 The monitoring panels of each profile can be configured in a customized way, making easier to adapt different equipment models with different attributes.

Monitoring

Topology network **monitoring**

✓ Devices automatic detection

NetinDS uses industrial and standard protocols to detect and identify automatically all the devices that form the network and its topology.

✓ Devices grouping

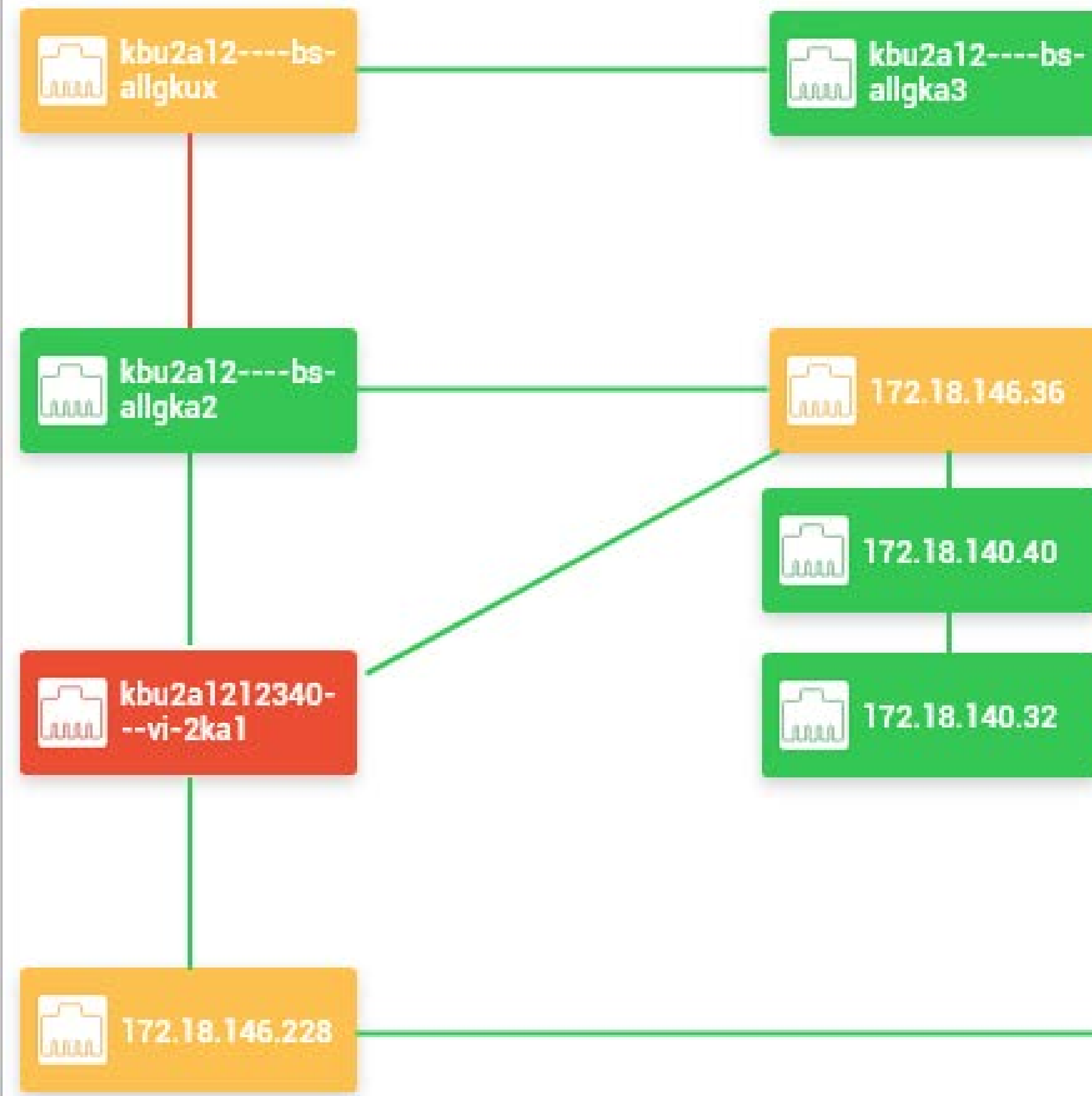
NetinDS allows grouping together different equipment according to the attributes chosen by the user: communications or control cabinets, hierarchy in the control structure... This way, the visualization in facilities with a large number of nodes is simplified.

✓ Advanced network topology

The topology view allows knowing, at a glance and in a graphic way, the network state. Besides, it's possible to upload a real image of the facilities to merge it into the topology and locate each equipment more easily and graphically.

✓ Contextual facilities view

Every topology node and link show the state of the devices and connections according to industrial standards, so it's possible to detect configuration failures in the topology for systems as PROFINET.



Grupos

Grupo 1

Grupo 2

Grupo 3

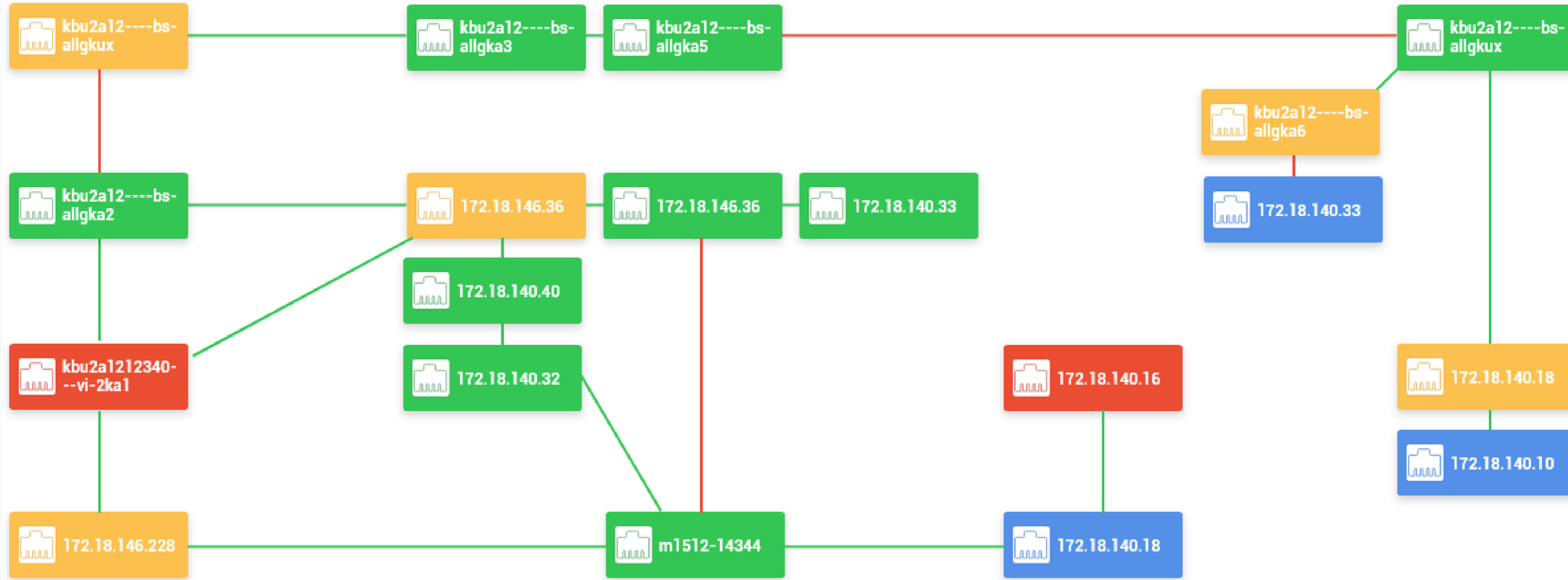
10.10.50.122

Nombre: scalance201xb3xb1xbmrp2e104

Tipo: SCALANCE X-200

10.10.50.126

AÑADIR GRUPO



Dispositivos

Puertos

Anillos

Logs

Básico

Avanzado

Exportar



Estado	Taller	Línea	Instalación	Celda	Nombre de dispositivo	Descripción	Tipo de dispositivo	Dirección IP	
Device Ok	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	kbu2a153243r06rs--ka1	Siemens, SIMATIC NET, SCALANCE X202-2P IRT, 6GK5	SCALANCE X-200	172.18.143.111	✔
Device Ok	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	kbu2a1422400r06rs--ka1	Siemens, SIMATIC NET, SCALANCE X201-3P IRT, 6GK5	SCALANCE X-200	172.18.142.111	✔

Monitoring

Network traffic **monitoring**



✓ Network in-depth analysis

NetinDS allows, by the packets' analysis, inspecting the network traffic in-depth and continuously. It improves the knowledge of the network and the detection of faults by using a TAP or pointing to the detection of non-wanted multicasts.

✓ Traffic statistics

Some examples of the possible statistics are: total traffic, traffic typology by protocol, redundancy protocols detection and BPDUs topologies changes, TCP traffic or UDP to a specific host or from specific sources.

✓ Alarms by traffic type and pcap file

It is possible to configure user alarms when any pattern defined is detected and to make sequential traffic recordings to improve the information sources for failures.

✓ Configurable filters

The system to register and analyse the traffic allows applying filters to perfectly adjust the aim of the captures, so that it becomes a highly helpful tool to solve incidents.

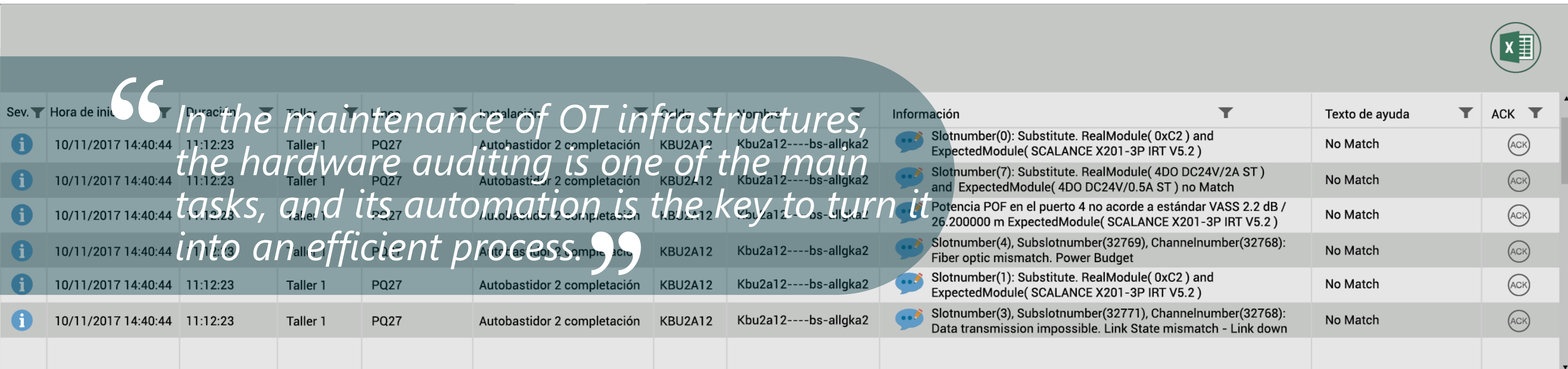
NetinDS

Auditing

Introduction

Audit by yourself according to **your own standards**

“In the maintenance of OT infrastructures, the hardware auditing is one of the main tasks, and its automation is the key to turn it into an efficient process.”



Sev.	Hora de inicio	Duración	Taller	Línea	Instalación	Estado	Nombre	Información	Texto de ayuda	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Slotnumber(0): Substitute. RealModule(0xC2) and ExpectedModule(SCALANCE X201-3P IRT V5.2)	No Match	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Slotnumber(7): Substitute. RealModule(4DO DC24V/2A ST) and ExpectedModule(4DO DC24V/0.5A ST) no Match	No Match	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Potencia POF en el puerto 4 no acorde a estándar VASS 2.2 dB / 26.200000 m ExpectedModule(SCALANCE X201-3P IRT V5.2)	No Match	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Slotnumber(4), Subslotnumber(32769), Channelnumber(32768): Fiber optic mismatch. Power Budget	No Match	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Slotnumber(1): Substitute. RealModule(0xC2) and ExpectedModule(SCALANCE X201-3P IRT V5.2)	No Match	ACK
i	10/11/2017 14:40:44	11:12:23	Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12----bs-allgka2	Slotnumber(3), Subslotnumber(32771), Channelnumber(32768): Data transmission impossible. Link State mismatch - Link down	No Match	ACK

It is possible, thanks to the information got by the **NetinDS** agents, to make automatic the process to audit the hardware configuration of the equipment and systems that form your facilities and OT infrastructures.

Firmware and hardware versions, specific devices references, configuration modes of interfaces and modules...

Applying your own validation standards, you will be able to check their compliance level, overtaking any incident and controlling your installed hardware depot efficiently.

Different validation profiles can be created for the same equipment type, so it will be possible to apply different rules in each facility easily.

Auditing

Apply your standard, **create your profiles**

Netin Diagnostic System allows adding new devices profiles created by the user based on the existing ones or making them from zero.

Each variable (datapoint) declared in a profile can include a validation rule to check that the datapoint value is in our standard. NetinDS allows creating rules by applying RegEx (Regular Expressions) to, for example:

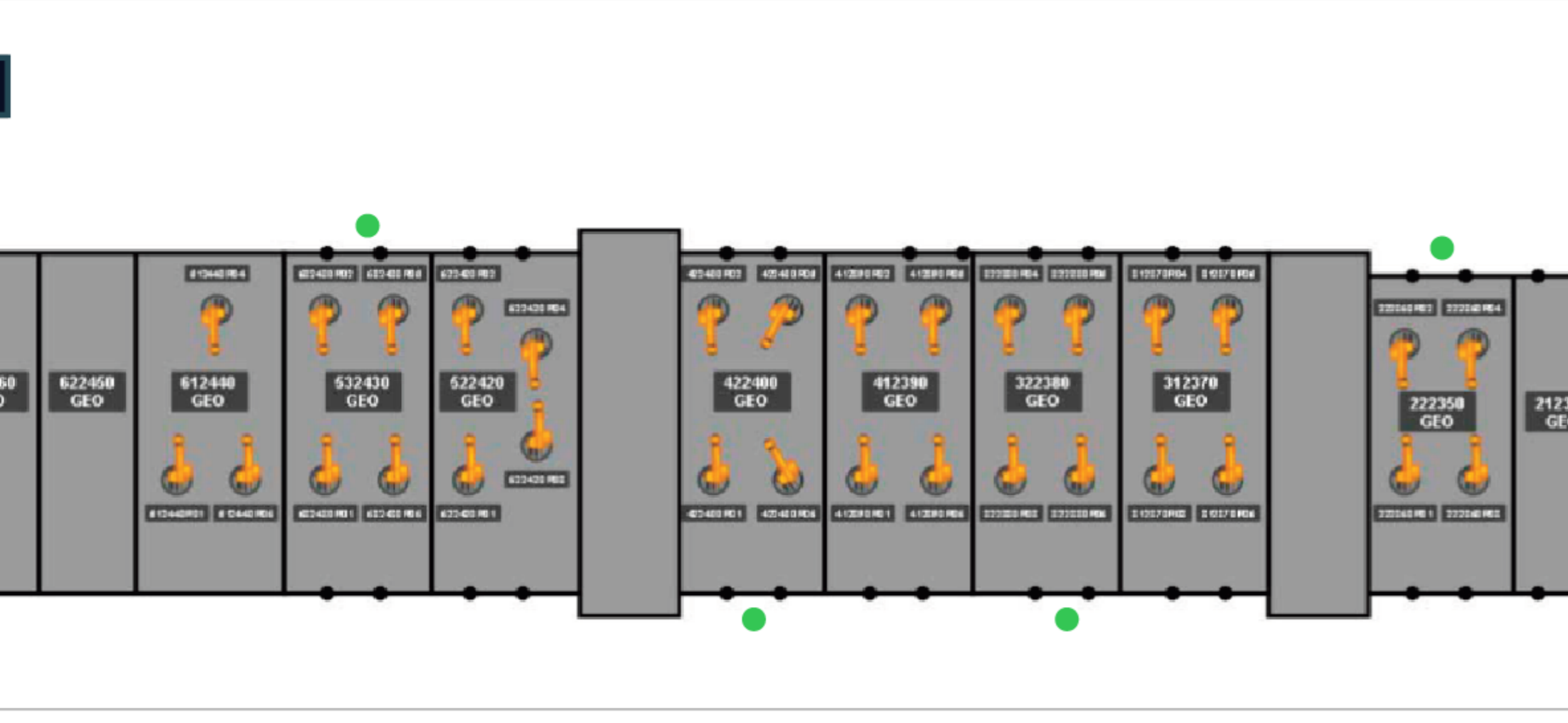
- Check that the equipment reference is in the released equipment list:

```
/\b6GK5201-3BH00-2BA3|\b6GK5202-2BH00-2BA3|\b6GK5204-0BA00-2BA3/g
```

- Check that a firmware version is in between the released versions for that product:

```
/\b5.4.*|\b5.5.*|\b5.6.*g
```

```
"type": "object",
"title": "Device template",
"description": "Device template definition",
"version": "0.0.0",
"definitions": {
  "commonConfig": {
    "$id": "/definitions/commonConfig",
    "type": "object",
    "title": "Datapoint common config",
    "description": "Datapoint common config object allows to",
    "properties": {
      "datapointId": {
        "$id": "/definitions/commonConfig/properties/datapointId",
        "type": "string",
        "title": "Datapoint identification",
        "description": "Identification string for the datapoint",
        "default": "",
        "examples": [
          "packetsError"
        ]
      },
      "alias": {
        "$id": "/definitions/commonConfig/properties/alias",
        "type": "string",
        "title": "Alias",
        "description": "Alias name for the datapoint, use"
      }
    }
  }
}
```



Link st.	Mbits/s	Modo	Descripción	Equipo remoto	Prto. Remoto	Error Ent.	Desc.	%BW E.	%BW
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1	kbu2a1212340--vi-5ka1	port-002	4.62	4.62	0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a1222350r02rs-ka1	port-004	8.32	8.33	0	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P2	kbu2a1222350r04rs-ka1	port-004	0.91	0.90	17.40	2
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a122-----i-2ka2	port-003	0	1	0.49	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a1222350r02rs-ka1	port-004	16	0	0.49	
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a123-----k-1ka1	port-001	0.34	0.35	0.19	

Auditing

Keep your auditing process **always active**

With the **NetinDS** user alarms system you can create more complex rules to audit your systems and devices in real time. Any failure or incident in the application of your policies will be notify at the very moment. For example:

- Checking the plastic fibre power (POF) according to the cable length:

```
{
  "expressions": [
    {
      "expresion": "device[portInfo.*.powerPOFBudget].rawValue < 2.5",
      "symbol": "pwBud"
    },
    {
      "expresión": "device[portInfo.*.cableLength].rawValue > 40",
      "symbol": "cblLength"
    }
  ],
  "logic": "pwBud && cblLength"
}
```

The critique level can be configured to trigger a high priority alarm just in case the rule breaking can cause serious problems.

Auditing

Create your own **knowledge database**

With **NetinDS** it is possible to create your own knowledge database by integrating a customized Wiki. This feature improves users' comprehension of the events and alarms detected, influencing directly in the incidents resolution time.

The Wiki entries, written in Markdown standard, can attach tags and equipment types in order to the **NetinDS WebUI** interface allows the user to analyse the articles associated to the events or alarms occurred.

You can create your own standard applying specific rules in your templates and document it in the **NetinDS** Wiki, that way you will achieve a fast application of the standard by joining, in the same tool, the auditing process and solving actions.

The screenshot displays the NetinDS WebUI interface. At the top, there's a header with the IP address '172.18.140.221'. Below it, a table lists event details:

1222350r02rs--ka1
ANCE X-200
8.140.221
a
usable
encia POF en el puerto 4: 1.8 dB
can decide whether or not the redundant power supply is monitored. can choose the port's physical properties
encia POF (dB)

Below the table is a detailed view of an event:

Duración	Información
0:03:06	Potencia POF en el puerto 3: 2.0 dB
1:12:23	Potencia POF en el puerto 3: 2.4 dB
06:36:12	Dispositivo en fallo
06:36:12	Potencia POF en el puerto 4: 4.4 dB

At the bottom right of the table, it says '1 - 7 of 7 items'. To the right of the table is a sidebar with 'Posibles Soluciones' (Possible Solutions) containing two entries:

- Dispositivo no presente**
Autor: Jhonny Ferreira
Description: No hay conexión o mala conexión del dispositivo y verificar la configuración de comunicación del dispositivo
- Dispositivo no presente**
Autor: Jhonny Ferreira
Description: El dispositivo está...

Below the sidebar is a 'Gráfico de alarma' (Alarm Graph) showing a line chart with data points for 'Lunes', 'Martes', and 'Miércoles'. The y-axis ranges from 0 to 12. The values are approximately 2 for Monday, 6 for Tuesday, and 7 for Wednesday.



Netin DS

Integration

Introduction

One tool, **all the diagnosis**

“One of the main goals of Network Intelligence is to integrate new systems and devices by using market standards or specialized drivers.”

Netin Diagnostic System collects the information and diagnoses the devices and systems that form the industrial facilities using drivers for the different protocols and standards.

SNMP, S7 Protocol, OPC UA Client, PROFINET Supervisor, Modbus TCP... are some of the protocols supported by the **NetinDS** agents.

Network Intelligence constantly works to incorporate new interfaces by getting agreements with the main trademarks in the sector, to improve the **NetinDS** diagnosis ability.

At the same time, it is possible to integrate user drivers or custom-made drivers thanks to **Dzakar**, the **NetinDS drivers'** development API.

Integration

Create your **own drivers**

Industrial systems are very diverse systems where different technologies from different manufacturers can be mixed to get the highest efficiency in the production process.

This feature, although there are already standards, makes sometimes necessary to develop a custom-made driver which allows integrating the whole bunch of the facility characteristics.

To get this goal, **NetinDS** has a development API to integrate the custom drivers, known as **Dzakar**.

Dzakar allows creating complete drivers with the same functionalities as the native **NetinDS** drivers:

- Integrated and personalised configuration for the **NetinDS** templates system.
- Integration of Datapoints, Alarms & Events, Historical Datapoints...
- Automatic integration in agents and centralized checking of versions.

```
Intelligence S.L.
*
=====
package es.netin.dzakar.api.interfaces;

import es.netin.dzakar.model.data.Alarm;
import org.junit.Test;

/**
 * @ingroup
 * @{
 * @class HandlersTest
 * @brief
 * @details
 * @note
 */
public class HandlersTest {

    @Test
    public void alarmHandlerMustRejectOnNull() {
        AlarmHandler ah = new AlarmHandler() {
            @Override
            public void process(Alarm alarm) {

            }
        };

        ah.handle(null);
    }

    @Test
    public void alarmHandlerMustRejectOnEmptyString() {
        AlarmHandler ah = new AlarmHandler() {
```

Integration

Connect **your devices**

OPC UA Client



- Certified OPC UA v1.02 compliant.
- Data Access client subscription..
- Event client subscription.
- Method client subscription.
- Certified security support.

OPC UA Client to connect your SCADA and control systems.

PROFINET Supervisor



- Autodetection of equipment by DCP.
- Access to information devices.
- Access to configuration data.
- Access to the diagnosis buffer (logbook).
- GSDML import.

Complete access to all the information of one of the most extended fieldbuses..

PROFIBUS



- Access to devices states.
- Bus data.
- Bus statistics.
- Access to tension levels.
- Oscilloscope function.

Quality monitoring of all your PROFIBUS networks from NetinDS.

Integration

Connect **your devices**

SNMP

SNMP

V1, V2C, V3.
Traps support.
MIB import.
MIB compilation.
PING basic test.

Diagnose your network electronics with the SNMP standard.

SIMATIC S7



Access to diagnostic buffer.
Access to reading memory (DB, M, Z...)
Blocks details (FB, FC, DB...).
Access to CPU state.
Access to CPU identifying data.

Integrate your SIMATIC controllers' diagnosis to get a full view..

Modbus



TCP/IP and UDP networks use.
Standard function codes.
Access to files and diagnosis.
Big data types, bits and strings.
Application protocol specification.

Integrate your MODBUS devices in the monitoring and diagnosis system.



NetinDS

Forensic analysis

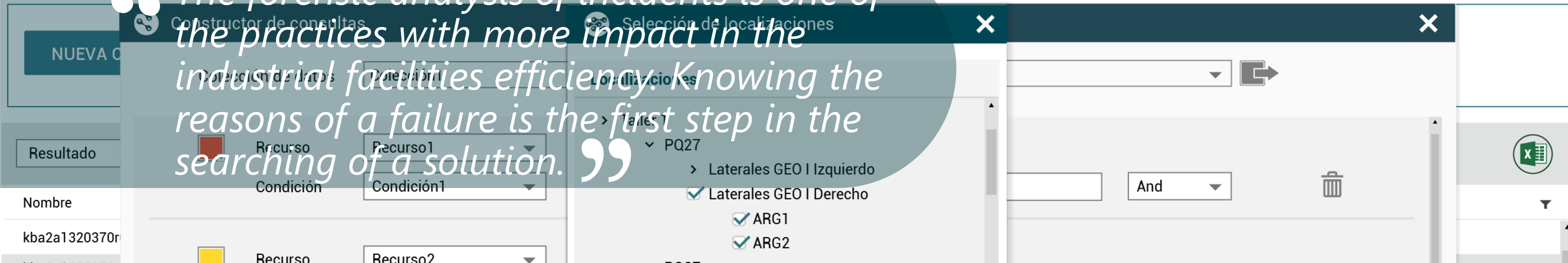
Introduction

Know the reasons of **your problems**

Constructor de consultas

Se puede configurar el agente importando un archivo de configuración o rellenando los siguientes campos.

“The forensic analysis of incidents is one of the practices with more impact in the industrial facilities efficiency. Knowing the reasons of a failure is the first step in the searching of a solution.”

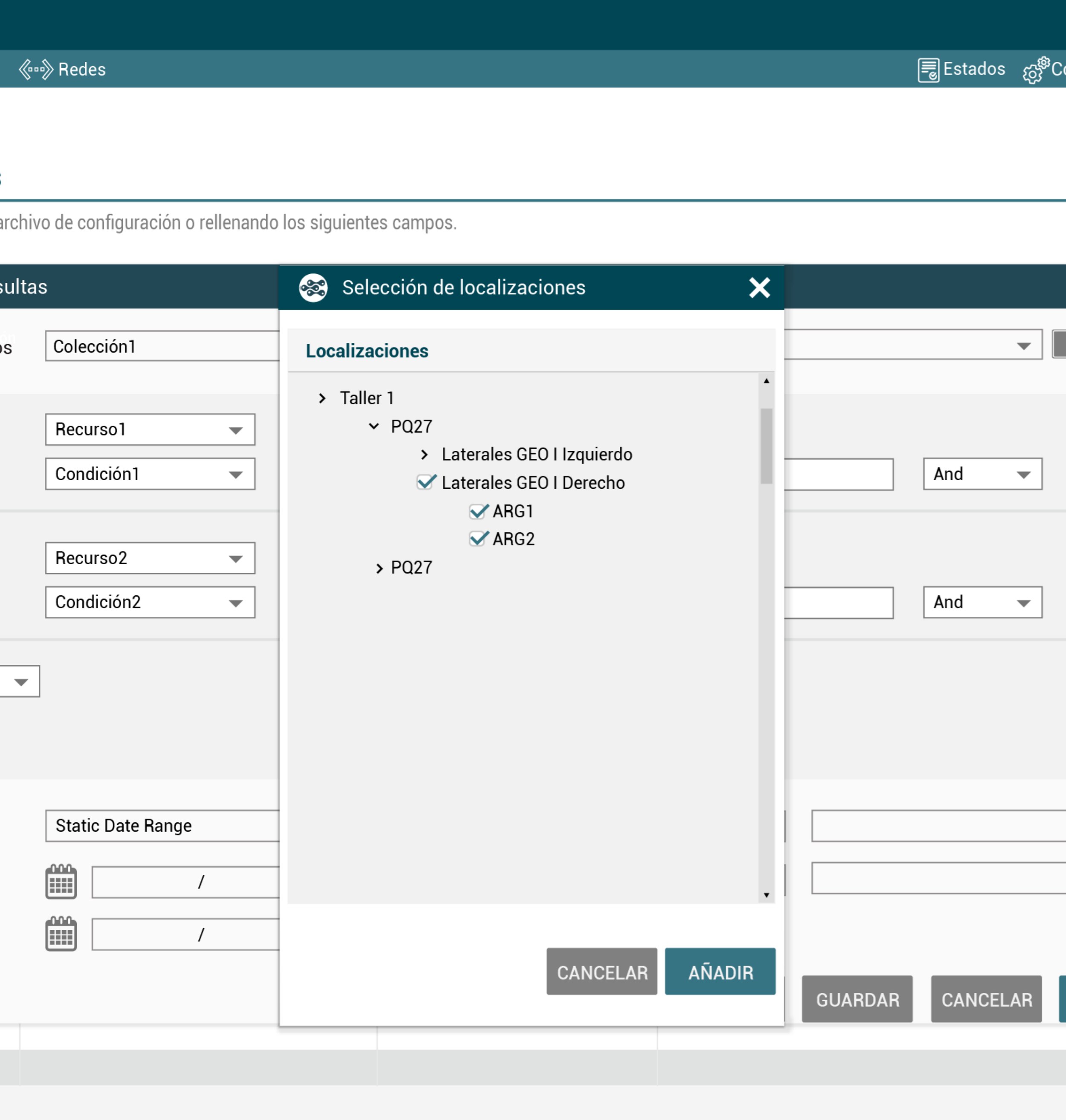


Incidents forensic analysis is one of the most powerful tools to get the highest efficiency in industrial facilities, as it allows identifying and solving the problems underlying reasons.

Some of the events resources that **NetinDS** can register are: controllers events logs (Diagnostic Buffer), SNMP Traps, Syslogs, user alarms...

NetinDS allows you to connect records and alarms from different devices, ordering them by time and setting up hierarchy links according to topologies or master-slave relations.

It's possible to add new records with the integration tools and APIs, and new resources to make easier the **problems solving**.



Forensic analysis

Know the causes to set **solutions**

NetinDS has a powerful search engine that allows you to look into all the occurred events in your facilities: user's alarms, system alarms, logs... to find an incident's cause.

The historical events forensic analysis by logs auditing is one of the most efficiency practices. If your OT system or industrial facility has any problem, **NetinDS** will tell you the cause, but even more important is to know what exactly happened.

You can make searches based on an IP, an equipment, an event... **NetinDS** correlates the information so it isn't necessary to make complex searches, but anyway you can make custom ones to find the information you need.



Netin DS

Assets management

Introduction

Trace and manage your **OT stock**

Gestión de activos

“The efficient management of the hardware that forms the industrial facilities and OT infrastructures is a key factor to guarantee their efficiency and maintenance.”



Tipos de equipos

Buscar

- ET200s
- ET200sp
- ET200m
- ET200mp
- Scalance X100
- Scalance X200

Nombre	Nº Serie	Version SW	Version HW	Nº Pedido	Fecha instalación	Localización
kba2a1320372---vi-1ka1	D3064914	1.0.1	V 19	68BB-L-456-GI92-BMW1	12/6/2018 13:36:04	Taller1/PQ27/Mascaron/KBA2A13
kba2a121-----i-2pb1	S C-F8AN24062015	1.0.1	V 1	56AB-L-456-GI92-BMW1	21/2/2016 16:42:00	Taller1/PQ27/Mascaron/KBA2A12
kba2a1220340---is-1ka1	VPF3003635	3.0.1	V 1	66BB-L-362-GI92-BMW1	01/3/2018 09:30:15	Taller1/PQ27/Mascaron/KBA2A12
kba2a13-----sv-----ka1	S C-F1US50442015	7.0.5	V 3	66BB-L-502-GI92-BMW1	12/8/2015 18:05:41	Taller1/PQ27/Mascaron/KBA2A13
kba2a12-----sv-----ka1	S C-F6DJ71462015	7.0.5	V 3	57BB-L-456-GI92-BMW1	19/8/2010 14:28:01	Taller1/PQ27/Mascaron/KBA2A12

Netin Diagnostic System helps you to have a clear and full view of all your hardware assets of your OT infrastructure, so that you can get the highest profit of your investment.

NetinDS allows you to automatically detect and order the assets of your facilities according to your organizational structure.

You will know references, serial numbers and identifying data of all the elements that form your facilities, even of the modules, to get the highest granularity.

It is also possible a unified and automated management of your facilities IP addressing with the **NetinDS IPAM module**.

Assets management

IP addressing **management**

Gestión de activi

Tipos de equipos

Buscar

- ET200s
- ET200sp
- ET200m
- ET200mp
- Scalance X100
- Scalance X200
- Scalance X200IRT
- Scalance X400

Grupos

- Grupo 1
- Grupo 2
- Grupo 3

Devices profiles

Automatically identify the equipment that form your industrial systems by creating configurable profiles.

Versions management

Firmware and hardware versions, serial numbers, references... efficiently manage your devices stock.

Modular equipment management

NetinDS allows you to identify the modules that form your devices. For example, peripheral equipment I/O modules.

<input type="checkbox"/>	kba2a1220340---is-1ka1	VPF3003635	3.0.1	V 1	66BB-L-362-GI92-BMW1	01/3/2018 09:30:15	Taller1/PQ27/Mascaron/KBA2A12
<input type="checkbox"/>	kba2a13-----sv-----ka1	S C-F1US50442015	7.0.5	V 3	66BB-L-502-GI92-BMW1	12/8/2015 18:05:41	Taller1/PQ27/Mascaron/KBA2A13
<input type="checkbox"/>	kba2a12-----sv-----ka1	S C-F6DJ71462015	7.0.5	V 3	57BB-L-456-GI92-BMW1	19/8/2010 14:28:01	Taller1/PQ27/Mascaron/KBA2A12
<input type="checkbox"/>	kba2a1610430rb1vi-1ka1	002032594598SMC	3.1.4	V 3	18BC-L-456-GI92-BMW1	12/6/2018 13:36:04	Taller1/PQ27/Mascaron/KBA2A16
<input type="checkbox"/>	kba2a1620440rb1vi-1ka1	002032498939SMC	3.1.4	V 3	06BB-L-456-GI92-BMW1	28/2/2018 12:51:06	Taller1/PQ27/Mascaron/KBA2A16
<input type="checkbox"/>	kba2a1610440---lm-1ka3	S C-FOA532212015	3.0.1	V 4	15AB-L-456-GI92-BMW1	04/6/2014 08:37:10	Taller1/PQ27/Mascaron/KBA2A16
<input type="checkbox"/>	kba2a1610440---lm-1ka5	S C-FOA533972015	3.0.1	V 4	61BA-L-456-GI92-BMW1	11/6/2016 16:37:15	Taller1/PQ27/Mascaron/KBA2A16
<input type="checkbox"/>	kba2a142-----i--2pb1	S C-F8AN23982015	1.0.1	V 3	61BB-L-456-GI92-BMW1	02/3/2018 19:03:02	Taller1/PQ27/Mascaron/KBA2A14
<input type="checkbox"/>	kba2a152-----i--2pb1	S C-F8AN24132015	1.0.1	V 3	65BB-L-456-GI92-BMW1	13/5/2017 13:36:28	Taller1/PQ27/Mascaron/KBA2A15
<input type="checkbox"/>	kba2a1430400rb3ae-3tm1	1627825	1.4.1	V 10	66AA-L-456-GI92-BMW1	12/11/2014 10:48:01	Taller1/PQ27/Mascaron/KBA2A14
<input type="checkbox"/>	kba2a1430400rb4ae-2tm1	1189604	1.4.0	V 10	68AB-L-456-GI92-BMW1	09/9/2018 09:10:21	Taller1/PQ27/Mascaron/KBA2A14
<input type="checkbox"/>	kba2a1230350rb2ae-1tm1	1190336	1.4.0	V 10	66BC-L-456-GI93-BMW1	12/8/2018 10:28:46	Taller1/PQ27/Mascaron/KBA2A12
<input type="checkbox"/>	kba2a1410380r03ms-1ka1	A02F775A	3.25.3	V 4	10BB-L-456-GI92-BMW3	22/6/2016 17:01:15	Taller1/PQ27/Mascaron/KBA2A14
<input type="checkbox"/>	kba2a1610430r02-1ka1	A026BF59	3.20.4	V 1	16CC-L-456-GI92-BMW1	12/9/2017 08:01:53	Taller1/PQ27/Mascaron/KBA2A16

Assets management

IP addressing **management**

Automated searches

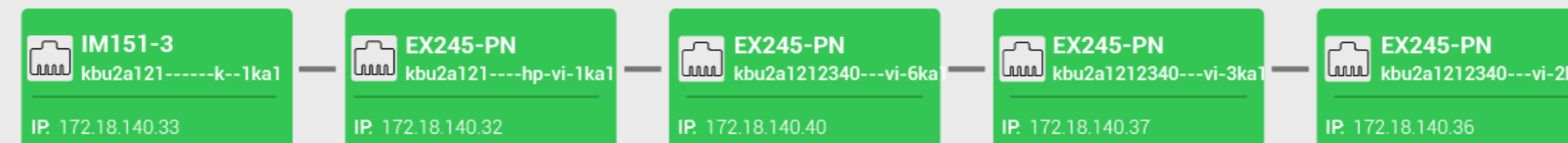
Subnetworks and IP addresses can be detected with the **NetinDS** agents active scanning to always know how they are being used.

Conflict detection

Detect conflicts in the addressing and configure the ranges repetition in different locations (OEM).

Addressing reports

Make, in a quick and easy way, reports about the IP addressing state of your facilities.



Dispositivos		Puertos		Anillos		Logs		IPAM	
									REGISTRAR
Estado	Nombre	Dirección IP	Dirección Mac	Interfaz de red	VLAN / IDVLAN Nombre	Última respuesta	Tipo		
<input type="checkbox"/> Usado	ET200s	10.10.10.1	00:22:1e:9b:6a:c2	eth0	Maintenance	15/2/2018 11:17:25	Manual		
<input type="checkbox"/> Usado	ET200s	10.10.10.2	10:49:FF:3a:6c:6d	eth1	Maintenance	10/2/2017 10:06:21	Automático		
<input type="checkbox"/> Libre	kba2a121-----i--2pb1	172.18.110.66	28:63:36:3A:2F:34	eth0	Maintenance	21/2/2016 16:42:00	Manual		
<input type="checkbox"/> Usado	kba2a1220340---is-1ka1	172.18.110.54	00:1B:1B:BE:C1:FB	eth1	Maintenance	01/3/2018 09:30:15	Manual		
<input type="checkbox"/> Usado	kba2a121-----i--2pb1	172.18.110.66	28:63:36:3A:2F:34	eth2	Maintenance	12/8/2015 18:05:41	Automático		

Netin DS

Web UI

Introduction

A window to **NetinDS**

“*The NetinDS web interface allows the users to configurate the display panel for each kind of device, adapting it to their needs easily.*”



Netin Diagnostic System has a responsive web interface, based on HTML5 and CSS3, from which it is possible to access all the system resources and configuration options.

NetinDS structures the navigation in a hierarchy of localizations configure by the user. Each localization match with a facility, a production unit, an area... adapting the navigation to the structure.

These localizations allow including metadata, facilities' additional data (geolocations, tags...) and images, all of them very useful to navigate visually and to search basing on extra information.

The Grid system allows the users to configure the way they want to see each device information and highlight the most important data.

Netin WebUI

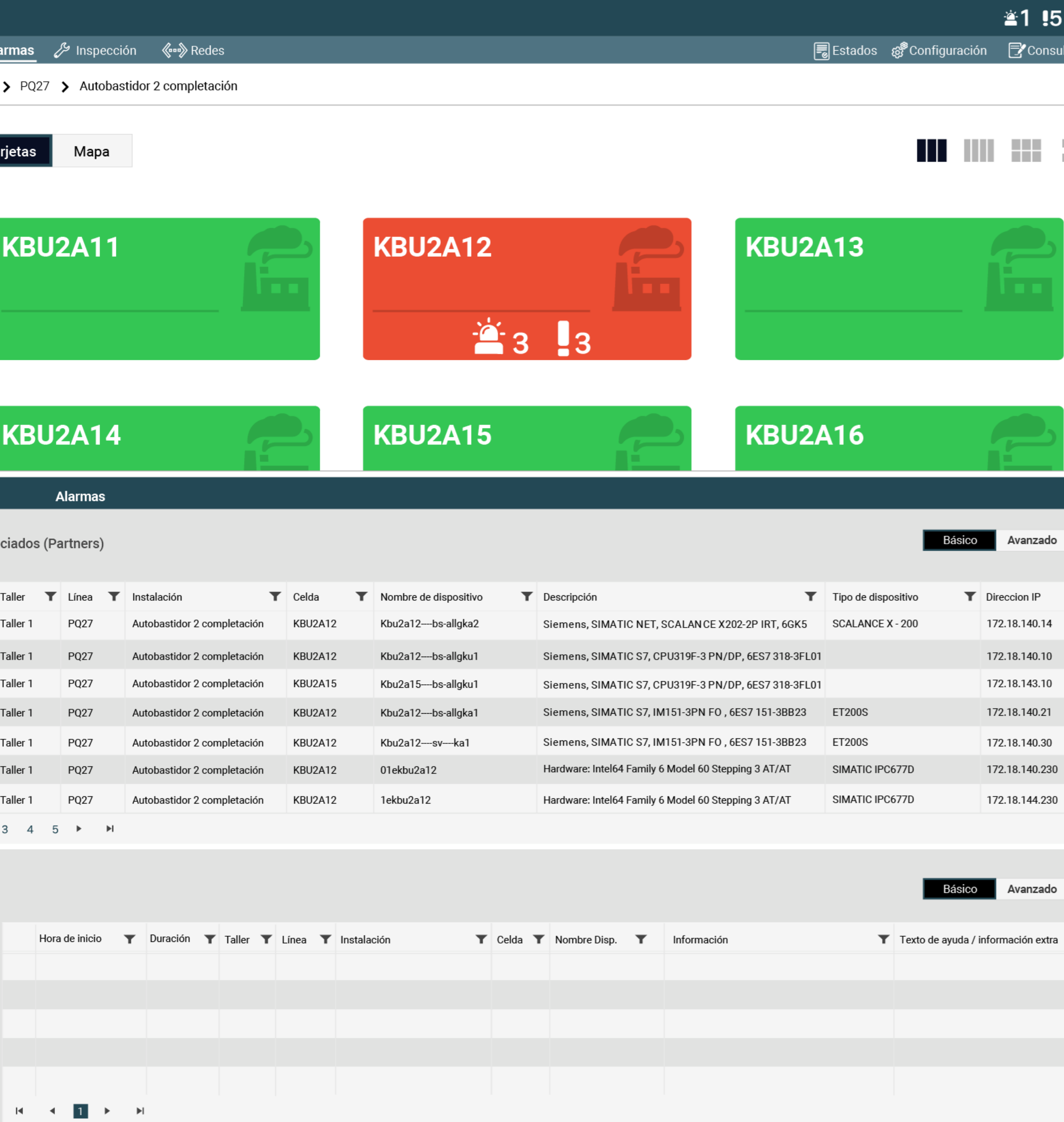
Localizations **hierarchy**

NetinDS is ordered in a localizations hierarchy system to allow the users to manage the monitoring activities in the same way they manage their facilities.

An only **NetinDS** agent can monitor equipment from different localizations. This flexibility allows organising the monitoring architecture (agents' position and configuration) independently from the administrative organization.

Every localization in **NetinDS** can have useful metadata to make searches and organise the information, images to visually navigate through the application, and GPS coordinates used by the **NetinHUB** apps to navigate to the facilities.

The screenshot displays the Netin WebUI interface. At the top right, there are notification icons for 107 alerts and 430 items. The main navigation bar includes 'Inspección', 'Redes', 'Estados', 'Históricos', and 'Configuración'. The current page is titled 'Localizaciones' and shows a 'Wiki' dropdown menu. The main content area is divided into four columns representing hierarchy levels: 'Nivel 2', 'Nivel 3', and 'Nivel 4'. 'Nivel 2' contains 'B-307-Stratoilner' and 'LC-1943-Constellation'. 'Nivel 3' contains 'Left-Front-Side', 'Left-Rear-Side', 'Right-Rear-Side', and 'Right-Front-Side'. 'Nivel 4' contains 'Transfer', 'Hydraulic-Pre', 'Cooling', 'Rolling', 'Cutting', and 'Furnace'. Each level has a search input field and a '+', '-', edit, and delete icon.



Netin WebUI

Hierarchical **states display**

The facilities hierarchy structure allows **NetinDS** to group the information of alarms and states to show the situation of all the facilities, not only the conditions of devices and systems in an isolated way.

This display mode by localization hierarchy, in accordance with the industrial facilities reality, makes easier integrate the use of **NetinDS** as a monitoring tool in your control centre or in your maintenance processes, because it reflects the current state of your productive processes and services.

The hierarchical display has two displays options: informative cards and graphically by uploading navigable images of your facilities.

Netin WebUI

Alarms and events display

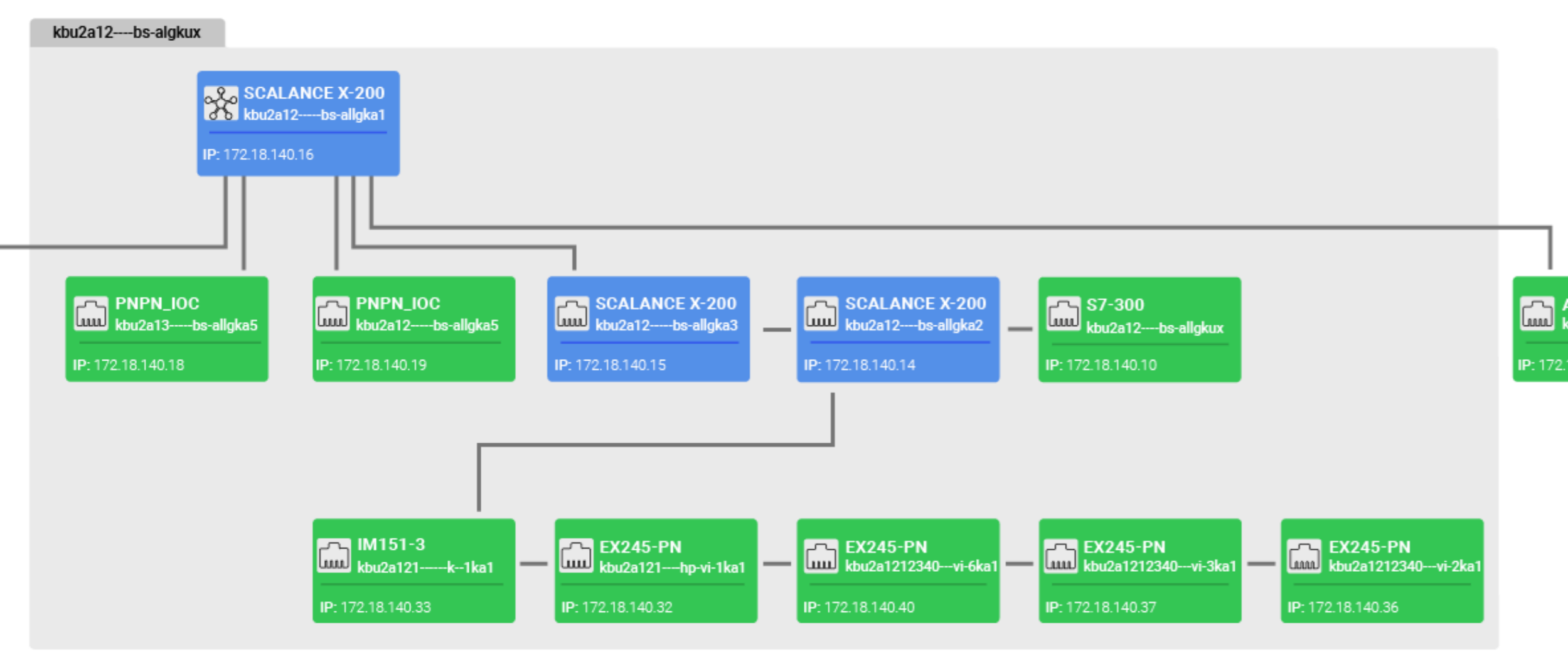
NetinDS organises alarms and notifications in different levels according to their severity, for example, an alarm triggered because of a failure in the observance of the user's standard can be categorised as "informative" and an alarm which stops the production can be categorised as "emergency".

The **NetinDS** navigation is design to change, in a quick and easy way, from the display of different alarms types by role or process, to manage the solution of a problem or verify the observance of a specific facility.

The alarms system catalogues every event according to its origin (the device that caused it). The different devices are related among them because of the hierarchy inside the fieldbus (Controller/Device – Master/Slave) or the network topology. **NetinDS** knows these relations and navigates in an intelligent way between partners.

The screenshot displays the Netin WebUI interface. At the top, there are navigation tabs for 'Armas', 'Inspección', and 'Redes'. The main content area shows a network topology map with various nodes and connections. Below the map, there is a table titled 'Alarmas' with columns for 'Taller', 'Línea', 'Instalación', 'Celda', 'Nombre de dispositivo', 'Descripción', 'Tipo de dispositivo', and 'Direccion IP'. The table contains several rows of alarm data. Below the table, there is a pagination control and a 'Básico' / 'Avanzado' toggle. At the bottom, there is another table with columns for 'Hora de inicio', 'Duración', 'Taller', 'Línea', 'Instalación', 'Celda', 'Nombre Disp.', 'Información', and 'Texto de ayuda / información extra'.

Taller	Línea	Instalación	Celda	Nombre de dispositivo	Descripción	Tipo de dispositivo	Direccion IP
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs—allgka2	Siemens, SIMATIC NET, SCALANCE X202-2P IRT, 6GK5	SCALANCE X - 200	172.18.140.14
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs—allgku1	Siemens, SIMATIC S7, CPU319F-3 PN/DP, 6ES7 318-3FL01		172.18.140.10
Taller 1	PQ27	Autobastidor 2 completación	KBU2A15	Kbu2a15—bs—allgku1	Siemens, SIMATIC S7, CPU319F-3 PN/DP, 6ES7 318-3FL01		172.18.143.10
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—bs—allgka1	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23	ET200S	172.18.140.21
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	Kbu2a12—sv—ka1	Siemens, SIMATIC S7, IM151-3PN FO , 6ES7 151-3BB23	ET200S	172.18.140.30
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	01ekbu2a12	Hardware: Intel64 Family 6 Model 60 Stepping 3 AT/AT	SIMATIC IPC677D	172.18.140.230
Taller 1	PQ27	Autobastidor 2 completación	KBU2A12	1ekbu2a12	Hardware: Intel64 Family 6 Model 60 Stepping 3 AT/AT	SIMATIC IPC677D	172.18.144.230



Anillos Logs

Link st.	Mbits/s	Modo	Descripción	Equipo remoto	Prto. Remoto	Error Ent.	Desc.	%BW E.	%BW S.
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1	kbu2a1212340---vi-5ka1	port-002	0	0	0.99	0.99
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a1222350r02rs-ka1	port-004	0	0	1.08	1.08
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P2	kbu2a1222350r04rs-ka1	port-004	0	0	1.08	1.08
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a122-----i-2ka2	port-003	0	0	1.16	1.16
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a1222350r02rs-ka1	port-004	0	0	1.16	1.16
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a123-----k-1ka1	port-001	0	0	1.84	1.59
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X1 P4	kbu2a123-----k-1ka1	port-002	0	0	1.43	2.16

Netin WebUI

Monitor all the equipment **in your network**

The alarms and devices in **NetinDS** can be catalogued by "facilities", so it is possible to discern for each localization which alarms belong to the communications infrastructure or to the industrial network.

NetinDS has a specific display mode for the industrial network electronics which allows in an easy way:

- Identifying malfunctions or deviations in the network interfaces behaviour: excessive bandwidth, error packets, discarded packets...
- Identifying the main links of the localization to focus on them and their visualization: uplink ports, industrial rings ports...
- Displaying records produce by network equipment, such as Syslog or traps.

Netin WebUI

Visualise all the relevant information **from your devices**

In industrial sectors every device, system or technology are designed to develop a particular function in a very efficiency and specific way, so its monitoring must be specific, too.

With the customizable **NetinDS** templates it is possible to integrate in an only display and monitoring tool all the relevant information of an equipment.

This way, for example, for a SIMATIC CPU it is possible to integrate in the same template information from the network interfaces by the SNMP protocol and from the PROFINET driver Supervisor, besides all the state and behaviour information of the CPU from the SIMATIC S7 interface.

The screenshot displays the Netin WebUI interface for a SIMATIC S7 CPU. The top navigation bar includes 'Alarmas', 'Inspección', 'Redes', 'Estados', 'Configuración', and 'Consultas'. The breadcrumb trail shows: 'Taller 1 > PQ27 > Autobastidor 2 completación > KBU2A12 > kbu2a12-----sv----ka1'.

Information General (Información general):

- Taller 1
- PQ27
- Autobastidor 2 completación
- KBU2A12
- Dispositivo: kbu2a12-----sv----ka1
- Dispositivo: Siemens, SIMATIC S7, IM151-3PN FO, 6ES7 151-3BB23-0AB0, HW: V3.0.0, FW: V7.0.5, SN: S C-F6DS26432015
- IP: 172.18.140.10
- MAC: 00:1B:1B:E6:BB:73
- MAC: 00:1B:1B:E6:BB:4F
- Hardware
- Software

Connections (Conexiones):

	Reservado	Usado
Máximas conexiones	32	
Recursos no usados	29	
OP	10	
Configurado	1	2
PG	1	1
S	0	0

Time Cycle (Tiempo de ciclo):

Bar chart showing cycle time distribution. The x-axis ranges from 0 to 80. The 'Última medida más larga' is 31 and the 'Última medida más corta' is 21.

System Status (Right Panel):

- CPU STATE: Run
- BUS STATE: Ok
- SYSTEM STATE: Ok
- MEMORIA: 20%
- TIEMPO DE CICLO: 20

Memory Information (Información de la memoria):

- Load Memory RAM + EPROM:** Total: 8388608. Libre: 6248182. Usado: 2140426.
- Remain Memory, Data:** Total: 716800. Libre: 391892. Usado: 324908.
- Work Memory:** Total: 262144. Libre: 124. Usado: 13.

Buffer Log (Registro de búffer):

Timestamp	ExtError	IntError	Evento	Clase	OB	Evento
2017/12/03 16:44:58:318	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:214	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:165	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:58:114	1		(0x00) Event Leaving	(0x03) Asynchronous errors	83	(0x3858) PROFINET IO interface
2017/12/03 16:44:57:960	1		(0x00) Event Leaving	(0x03) Asynchronous errors	82	(0x3842) Module OK
2017/12/03 16:44:54:558	1		(0x00) Event entering	(0x03) Asynchronous errors	82	(0x3842) Module error
2017/12/03 16:44:13:041	1		(0x00) Event Leaving	(0x07) Event for fail-safe and fault		(0x78E5) FI/O device depassivate

Redes Estados

AGREGAR, MODIFICAR WIDGETS DEL DISPOSITIVO PERSONALIZACIÓN FINALIZADA

plantilla

Información general		Información PNIO	
Taller 1		Controlador PNIO	
PQ27		Dominio MRP	mrpdomain-1
Autobastidor 2 completacion		MRP Modo	Client
KBU2A12		Versión MRP	1
positivo kbu2a12---sv---ka1		Tipo de dispositivo	0
ivo SIMATIC IPC677D		Real time class	2
172.18.135.230	Device OK		
F89557007			
ware 7.0.5			

Link st.	Mbits/s	Modo	Descripción	Equipo remoto	Prto. Remoto	Error Ent.	Desc.
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X	kbu2a1212340---vi-5ka1	port-002	16	0
Up	100.00	Full Duplex	Siemens, SIMATIC NET, Ethernet Port, X			0	0

Netin WebUI

Design your own **display**

All this information from an only equipment is visualised in the “device panel”.

The device panel is design to be configurable by using customizable widgets to represent the information as you wish.

It is possible to create several devices panels for an equipment, so all the information is accessible and can be organise in the way more convenient for you, by roles or information types.

All the widgets are responsive designed for a right visualization in different sizes devices.



Netin HUB

OT and IIoT integration

Introduction

Integrate NetinDS with your **OT and IoT systems**



“NetinHUB allows you to integrate its OT diagnosis platform in your ecosystem, making easy and richer the access to its functionalities.”

NetinHUB is the addon that allows you to integrate and connect **NetinDS** with the world, making easier the information exchange and adding new functionalities to your monitoring and diagnosis system.

The **NetinHUB integration features** include: integration with document management systems, wearable devices, IoT platforms...

One of its main advantages is the **integration with SCADA** system by market standards, so it is possible to match SCADA alarms and events with the technical incidents detected by **NetinDS**.

With **NetinHUB** is also possible to **add events and information resources** to improve incident solving by making easier the documentation access or notifying more quickly to the qualified staff.



Sharepoint

Make easier the accessibility to manuals and documentation with the integration of **NetinHUB** and Microsoft Sharepoint, one of the most important ECM systems.



EPLAN

Get further in you auditing processes importing from EPLAN all your facilities information.



SIEMENS

ELK Stack

Integrate all your logs in the same platform and apply deviations detection techniques with Machine Learning thanks to the Elasticsearch functionalities.



SAP

Escalate your **NetinDS** alarms or auditing events by creating working orders in your SAP system easily and automatically with **NetinHUB**.



WinCC OA

Connect one of the most powerful SCADA systems of the sector to your **NetinDS** system and take advantage of all the possibilities of your information thanks to **NetinHUB**.

Integration

Systems **integration**

NetinHUB connects **NetinDS** with all your systems, allowing the information flow and its crossed use. Take advantage of all the possibilities of your information by sending it right there where, when and how you need it thanks to an open system which is compatible with the main market standards.

Integration

Systems **integration**



IoT Button

With the integration of AWS IoT Button devices in the NetinHUB system, it is possible for the user to report events in an easy way with a simple button tap.



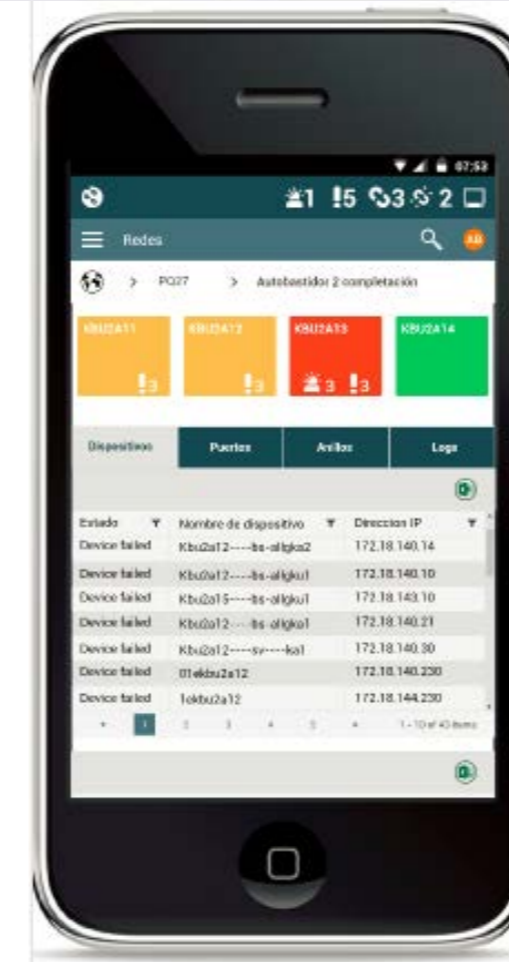
Wearables

With the **NetinHUB** apps for wearable devices, it is possible to receive the information right there where the users need it. Wear on your wrist all the information of your facilities.



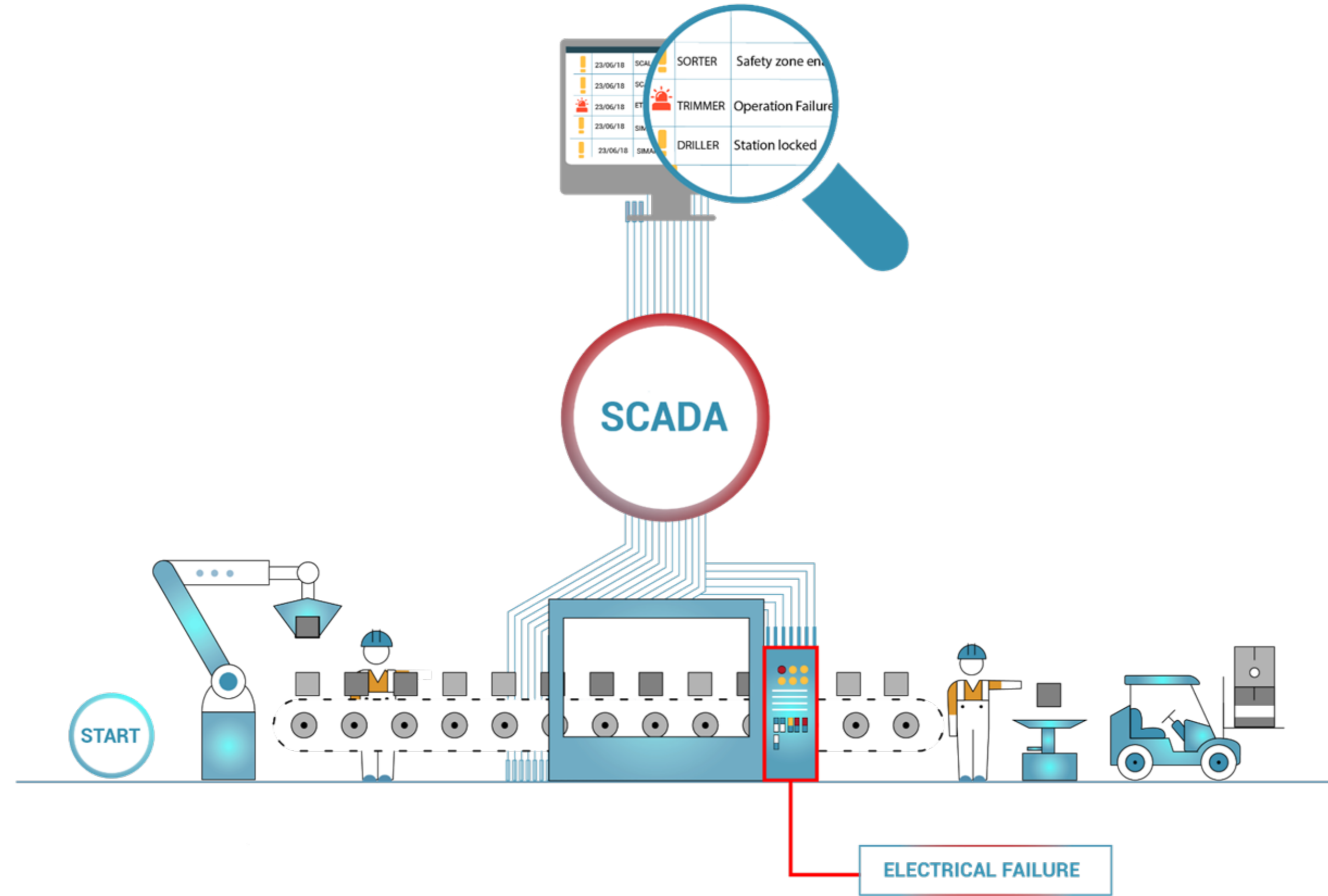
SIGFOX

Integration of one of the most important IoT platforms of the industrial scene, with the possibility of adding events or alarms detected by equipment with SIGFOX standard.



Smartphone

NetinHUB allows you, from your smartphone device, to access and interact with the most relevant information about the state of your industrial facilities, OT systems and field devices.



Integration

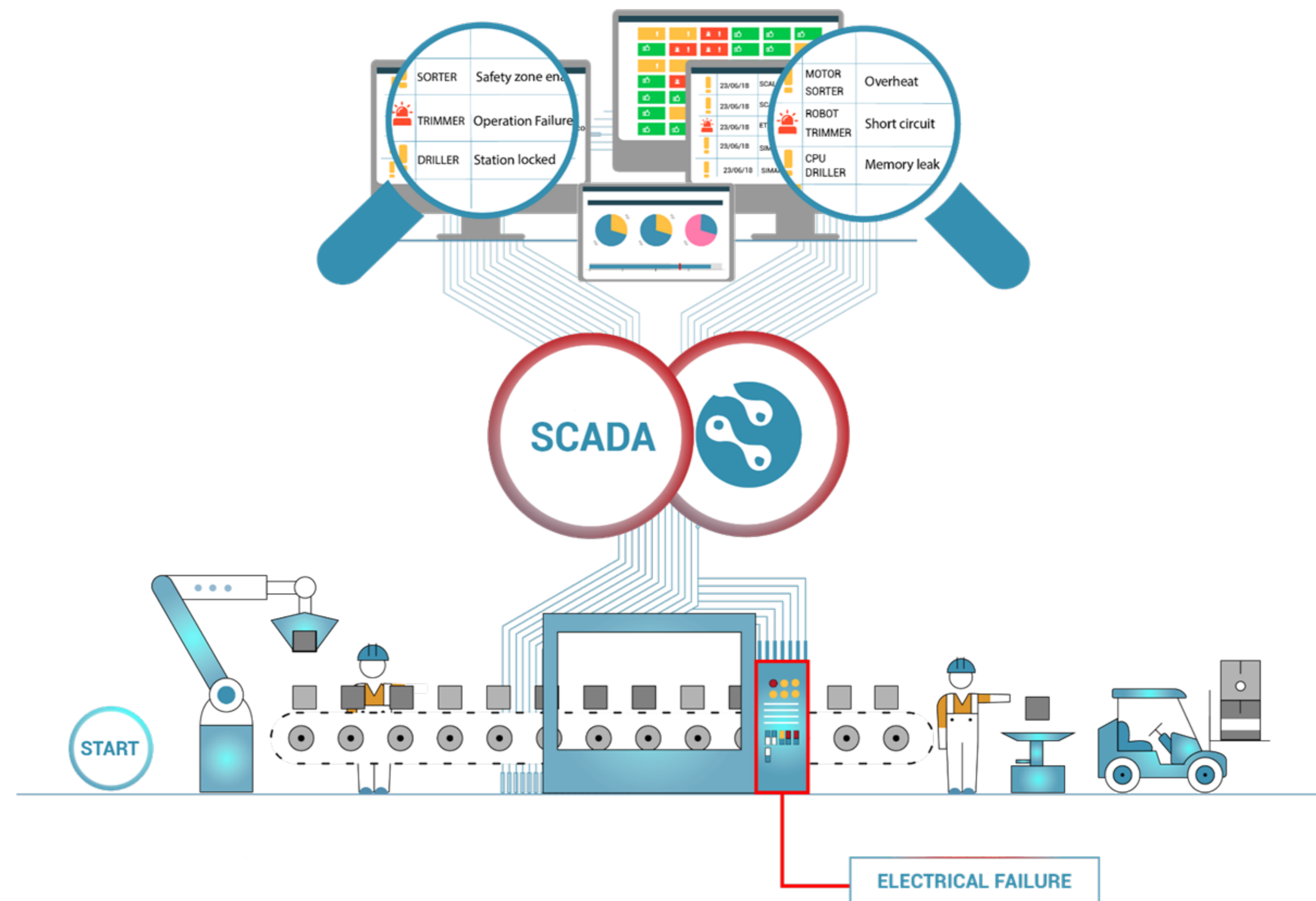
SCADA systems **integration**

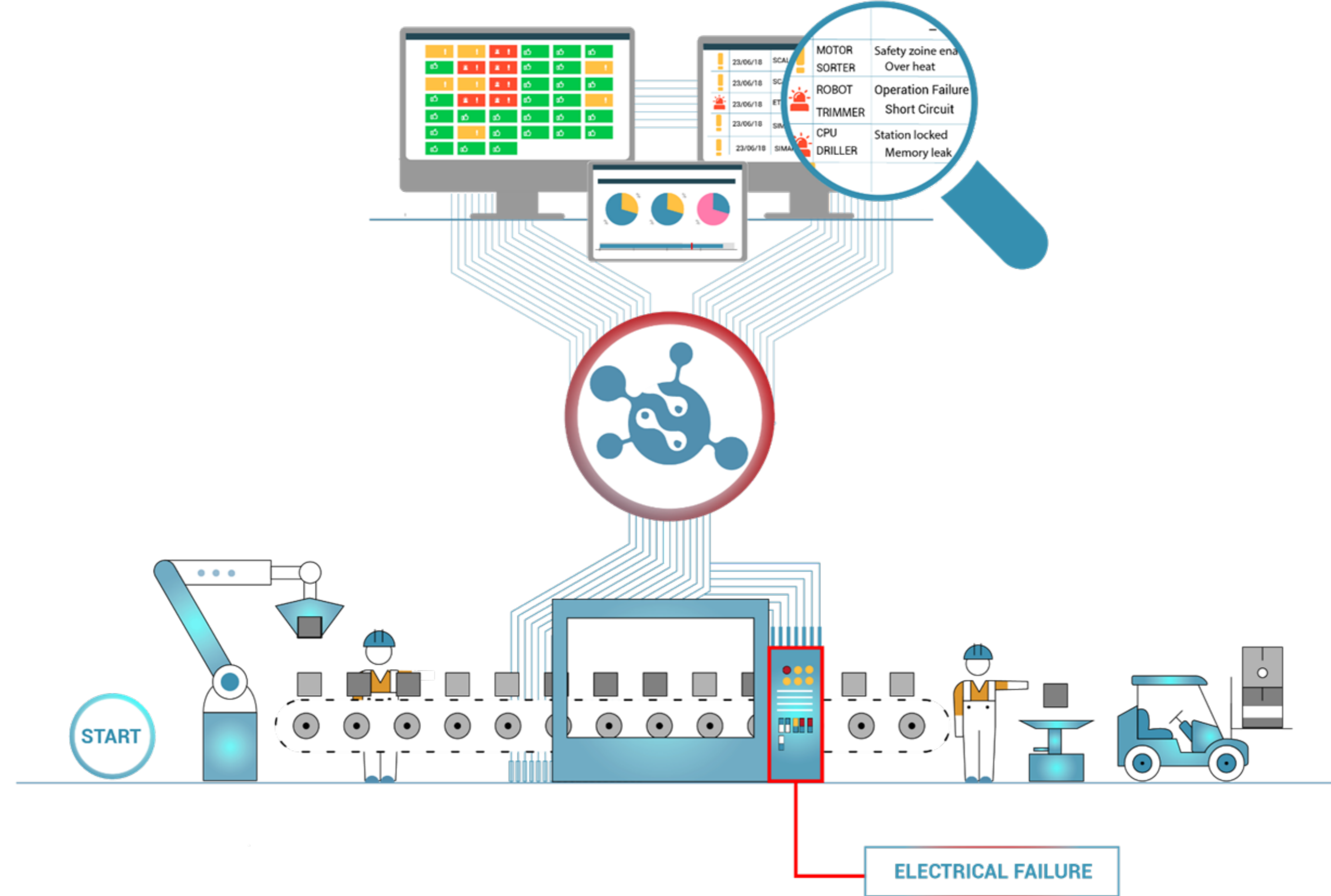
One of the most important functionalities of NetinHUB is the possibility of integration with SCADA systems. The SCADA systems monitor the state of operations and systems from a production perspective. When a failure occurs its consequences are shown, i.e., how the productive capacities of the monitored facility are affected. This information, although very important, is not always enough to know the cause.

Integration

SCADA systems **integration**

The information about the state of the automation and operation systems that **NetinDS** supplies, allows knowing the origin of the problems quickly. The industrial facilities integrate day by day a higher number of intelligent devices in order to improve their processes. An efficient diagnostic is more and more important.





Integration

SCADA systems **integration**

NetinHUB allows merging and automating, in an only common point, all the different information sources that are operating in the industrial facilities. In this way, it is possible to link the process events present in the SCADA systems with the advanced diagnosis information that **NetinDS** supplies.

Integration

Connect **NetinDS** thanks to its **RESTful API interface**

NetinHUB has a complete application programming interface (API) defined on a RESTful architecture that allows the access to all the **NetinDS** resources in an easy and standardised way.

Through this interface, it is possible to integrate third party tools so much to consume information from **NetinDS**, as to add new alarms sources.

With this interface you can access to:

- Devices data in an organized way (localizations).
- Alarms and events.
- Historical data.
- States of services, agents and artefacts.
- States of devices connected by NetinHUB.
- Interface to create events and customizable alarms.

The screenshot displays a REST API documentation interface with the following endpoints:

- GET /locations/**: Returns localization tree
- POST /locations/**: Add a location to database
- POST /devices/**: Register a watch
- GET /devices/**: Returns all devices

Below the endpoints, there is a section for the **GET /devices/** endpoint:

- Retrieves all devices from the db**
- Parameters**: No parameters
- Responses**: Response content type is set to **application/json**
- Code**: 200
- Description**: Status OK
- Example Value**:

```
[
  {
    "serialNumber": "string",
    "key": "string",
    "info": {},
    "status": {},
    "lastPoll": 0,
    "configDate": 0,
    "registered": true,
    "active": true,
    "config": {}
  }
]
```



Integration

Wear **NetinHUB** on your wrist

With the **NetinHUB Smartwatch** applications, it is possible to connect smartwatches to your monitoring systems without an associated mobile terminal. This way, it makes easier to send the information quickly to whom really needs it.

The **NetinHUB** system divides all the information in different "channels" (localizations) that are assigned to the smartwatches, so each watch will only receive the information that concern it.

At the same time, **NetinHUB** system can filter the alarms marking which ones should be forward to the smartwatches.

It is possible to create alarms straight from the smartwatches using the voice recognition functionality, so each user can decide the alarm description text that will appear in the system when creating it.

NetinHUB Smartwatch also has a system to escalate alarms that allows assigning different roles to the different application users.



Netin

Network Intelligence

Introduction

Added value for **our clients**

“*Network Intelligence walks along with you in your projects offering specialised services and support to both clients and partners.*”

In order to guarantee the success, **Network Intelligence** offers specialised services and walks along with their clients while developing their integration projects and implementing their **NetinDS** and **NetinHUB** systems.

Training for partners and clients to become experts in the implementation and use of **NetinDS** and **NetinHUB** systems.

Specialised consulting in the diagnosis and monitoring of industrial and OT infrastructures, and in the processes for implementing a monitoring system, always with the best specialised partners.

Experienced support that allows you to solve any incident quickly, facilitates the integration of new systems, and helps you to get all the possibilities of **NetinDS** and **NetinHUB**.



Network Intelligence

Your way to **success**

Network Intelligence offers services of advanced consulting for your integration projects of the **Netin** systems in your industrial facilities and OT infrastructures.

We walk along with you through all the stages of your project hand in hand with our partners and with the only goal of guaranteeing your success.

We establish a relationship which allows us to understand all your challenges and all the technical and business problems that you try to solve with the **Netin** systems, and we work together with our clients to plan and develop recommendations to get their objectives.

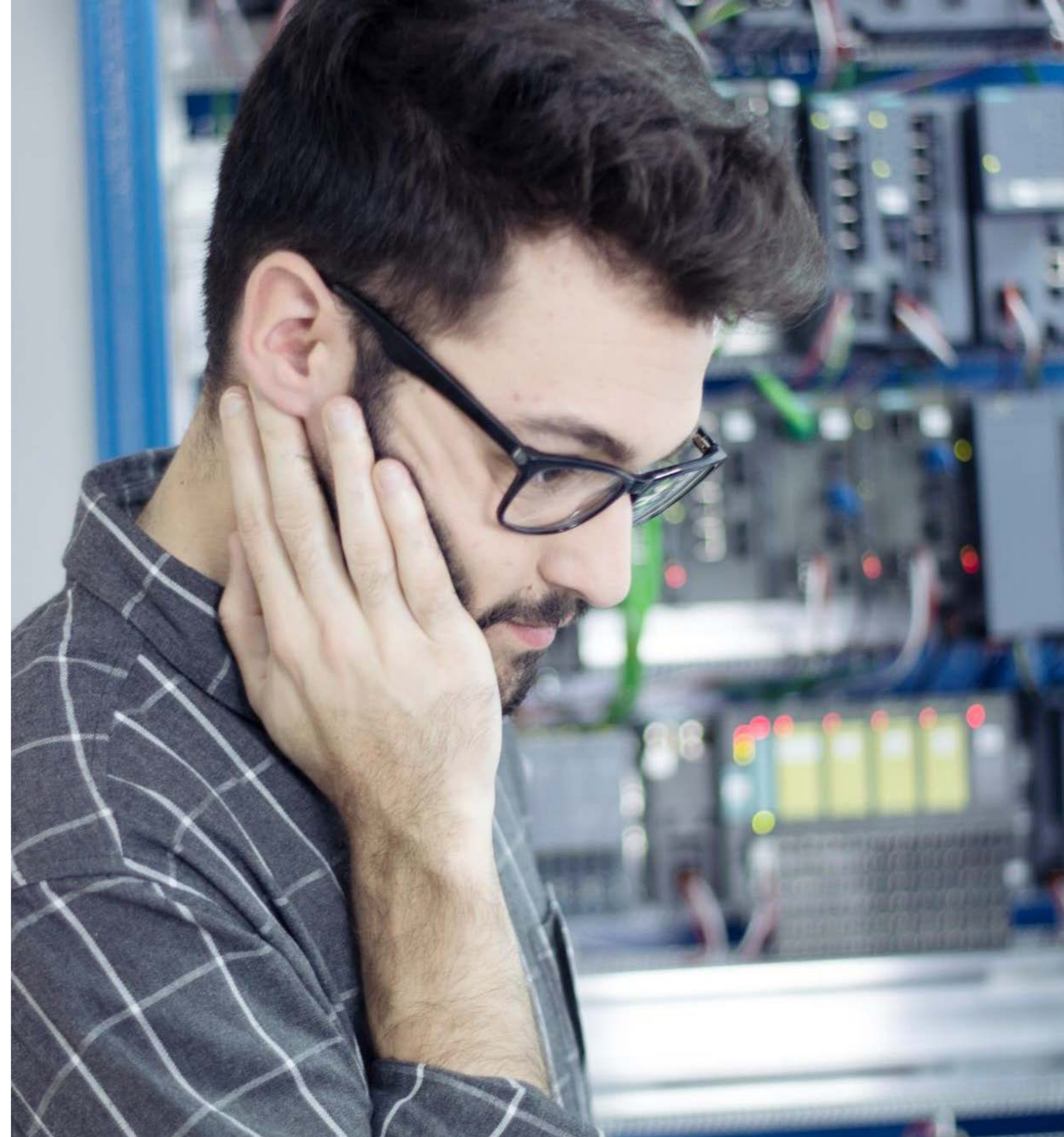
Network Intelligence

Be a **Netin partner**

Network Intelligence gives training, both classroom-based and on-line distance learning, that allows you to improve your knowledge of the **Netin** tools and take advantage of all their possibilities.

These trainings are directed to:

- **NetinDS** and **NetinHUB** users.
- Operating and maintenance staff of **NetinDS** and **NetinHUB** platforms.
- Specialised integrator staff of **NetinDS** and **NetinHUB**.
- Developers who use any **NetinDS** or **NetinHUB** APIs.





Network Intelligence

Specialised support for **clients**

You can access to the **Network Intelligent** specialised support with the GOLD and PLATINUM subscriptions, or on the free access forums.

We guide and help you solving your configuration problems, installation, implementation... or with any other incident during the your **NetinDS** and **NetinHUB** systems installation.

Access to a professional and dedicated support to guarantee your investments and to focus on your objectives.

	GOLD	PLATINUM
Coverage	Working hours	24/7/365
Response time	Critical: 4 h L2: 1 day L3: 2 days	Critical: 1 h L2: 4 h L3: 1 day
# incidents	unlimited	unlimited
# contacts	2	6
Access	Web and phone	Web and phone
Emergency patches	No	Yes



Network Intelligence

Do you want to be in **Netin?**

If you are a manufacturer of devices and systems and would like to incorporate them to **NetinDS** or **NetinHUB**, please contact us.

Network Intelligence will help you to develop your own communications driver, or to solve your queries about how to create and distribute your equipment profiles and systems by using native drivers. For that, we have the best and most experienced professionals about the **NetinDS** and **NetinHUB** tools.



Netin

Roadmap

Roadmap

Current and future **NetinDS developments**



SIMATIC RFID (Driver)

Integration driver to diagnose this kind of devices and their efficiency in the reading process.



UR Robotics (Driver)

Integration driver to diagnoses this kind of devices.



SIMATIC S7 (mejora)

Improvement of the S7 driver by adding new CPU models (S7-1200/S7-1500) and new functionalities.



MQTT Devices

Increasing NetinDS functionality to add MQTT devices in a native way.



SQL (Driver)

Integration driver to add the functionality to read databases where logs and states are stored.



Template Config Tool

Developing a visual interface to configurate devices templates.



Curves data support

Adding a new kind of data, "curves", that allows registering in a native way sampled values curves.



New Widgets

Increasing the available configuration widgets portfolio to design templates.



Phoenix Contact CPU

Developing of a CPU diagnosis interface for Phoenix Contact trademark.

Roadmap

Current and future **NetinHUB developments**



iOS Smartwach

Developing a new app for Apple smartwatch devices.



Legato Sapiens

Developing of an integration interface for the Gefasoft MES Legato Sapiens system.



Mindsphere

Integration of NetinHUB and NetinDS with the Siemens Mindsphere system.



Kibana ML

Integration of the Kibana deviations detection events in NetinHUB.



Email and SMS

Integration of NetinHUB with an email and SMS notification system.



External Queries

Integration of database displays and external systems by building external queries.



Cloud services

Adapting NetinHUB and NetinDS to run as cloud-based services.



Apps configuration

Improving the configuration options of the wearable devices apps.



Slack and Teams

Integration with the chat and working systems Slack and Microsoft Teams.

The logo icon consists of a white circle containing a stylized network diagram with three nodes and connecting lines.

netin

www.netin.es