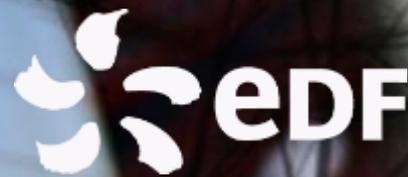


# Smart Grid Device Management System

by



TODAY'S TOPIC

# SMART GRID DEVICE MANAGEMENT SYSTEM

AN INTEROPERABLE SYSTEM  
THAT MANAGES REMOTELY  
SMART GRID DEVICES

# THE FUTURE DISTRIBUTION NETWORK

## SMART GRID DEVELOPMENTS IN FRANCE



**29**  
Smart  
Control  
rooms



Smart O&M

**2300**  
Smart  
primary  
substations



**100k**  
Smart MV  
reclosers



**300k**  
Smart  
secondary  
substations



**35M** Smart  
Meters by 2022



**10k DER**  
with innovative  
grid  
connection  
solutions



**7M**  
Charge points  
by 2030



**>1M**  
Smart  
EVSE

# CHALLENGES TO ADDRESS:

MANAGE THE INCREASING NUMBER OF SMART GRID DEVICES BEING DEPLOYED ON THE FIELD WITH A VERY HIGH LEVEL OF CYBERSECURITY

## + 400 000 SMART GRID DEVICES



## CYBERSECURITY



Security  
Operating Centre

DSO  
Control  
Center

DSO  
O&M  
Office

≈ 40 GW OF DER WILL BE  
CONNECTED TO THE  
FRENCH MV AND LV  
NETWORKS BY 2025

≈ 100 000

≈ 300 000

≈ 10 000

20 kV MV Network (Switch, recloser)

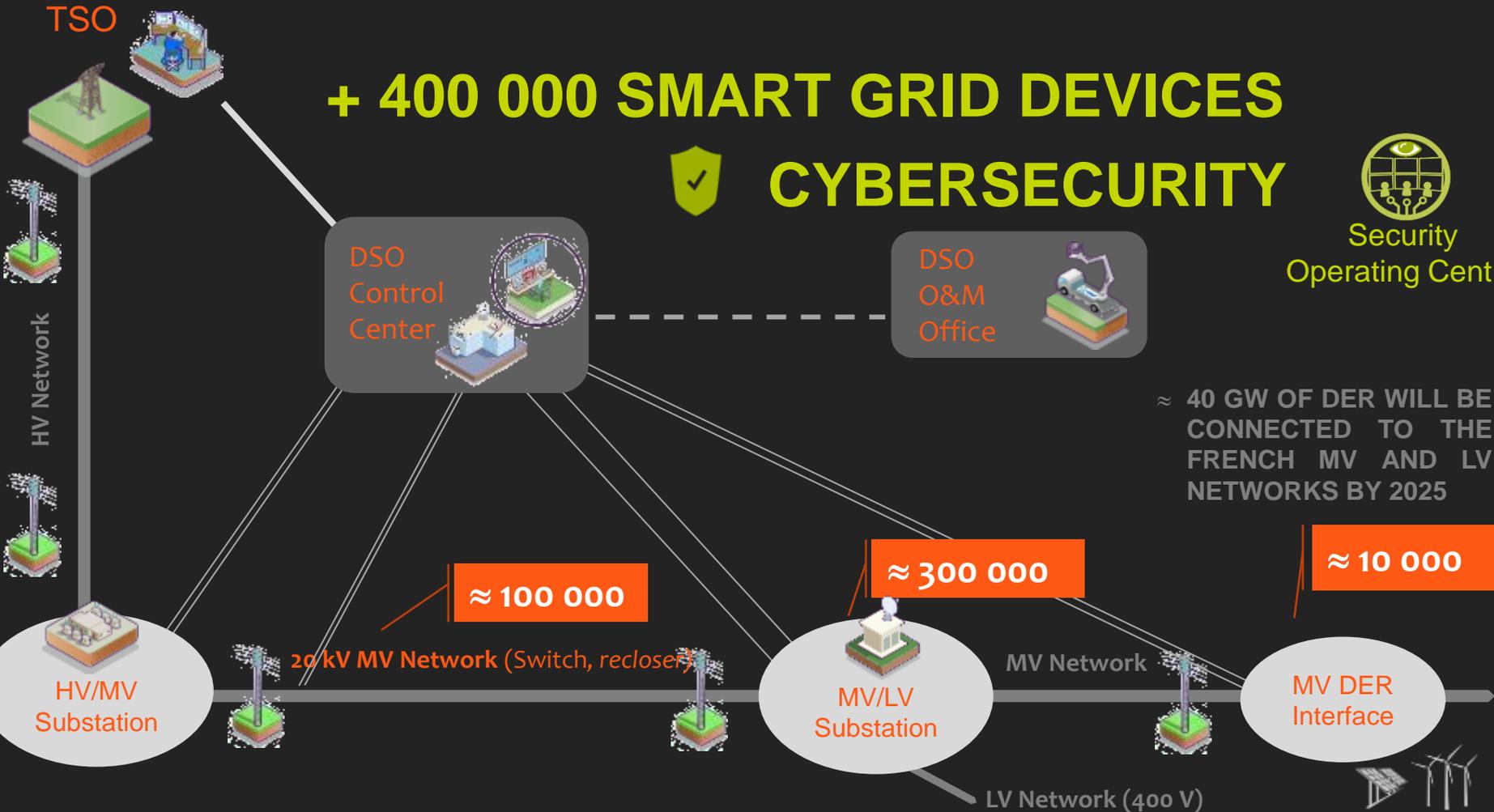
MV Network

HV/MV  
Substation

MV/LV  
Substation

MV DER  
Interface

LV Network (400 V)





# MAIN REQUIREMENTS ?

- An **Interoperable** solution



Smart Grid Core Standards  
(CIM, 61850, 62351)

- A **Scalable** solution

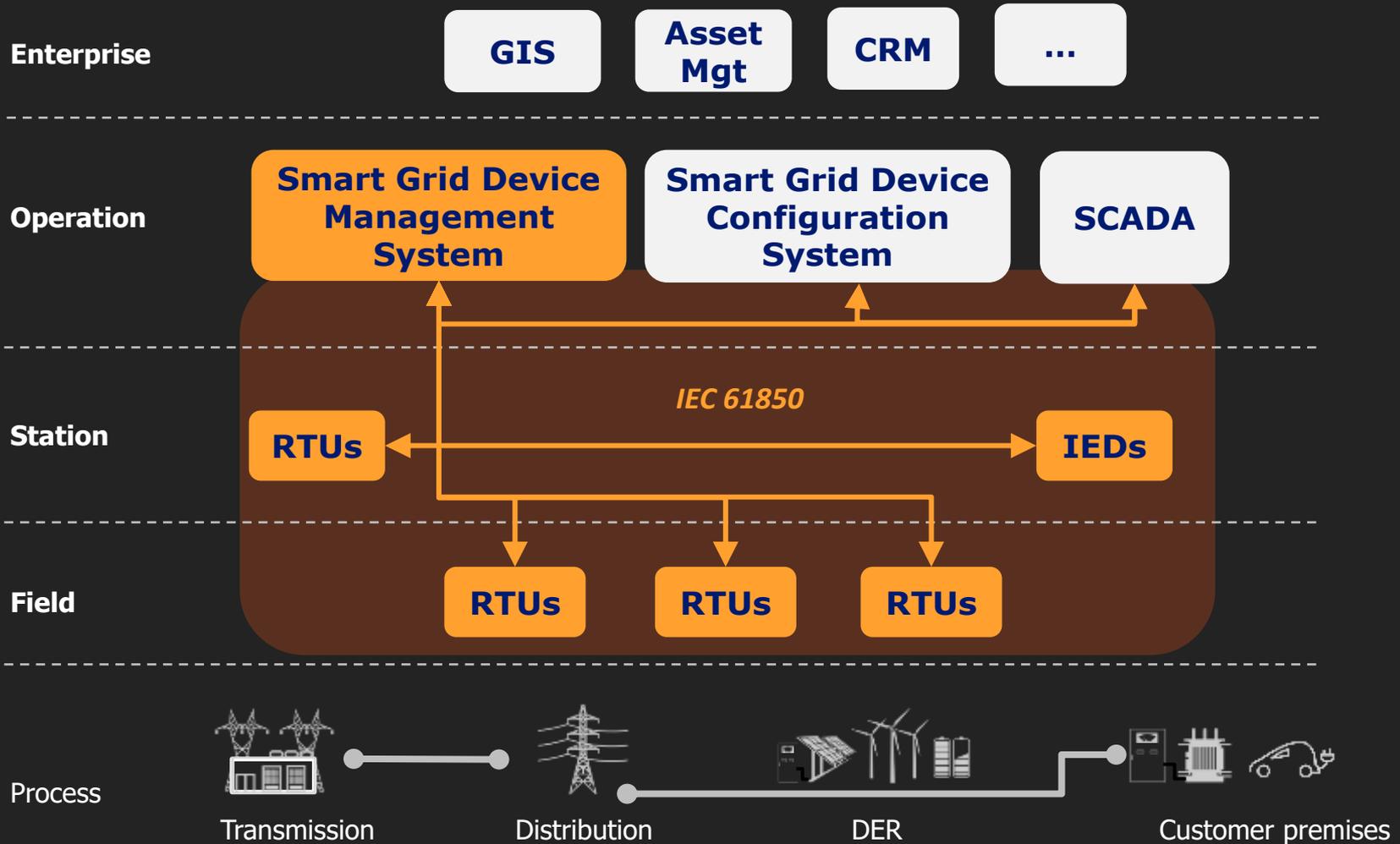


*+ new Smart Grid functions*

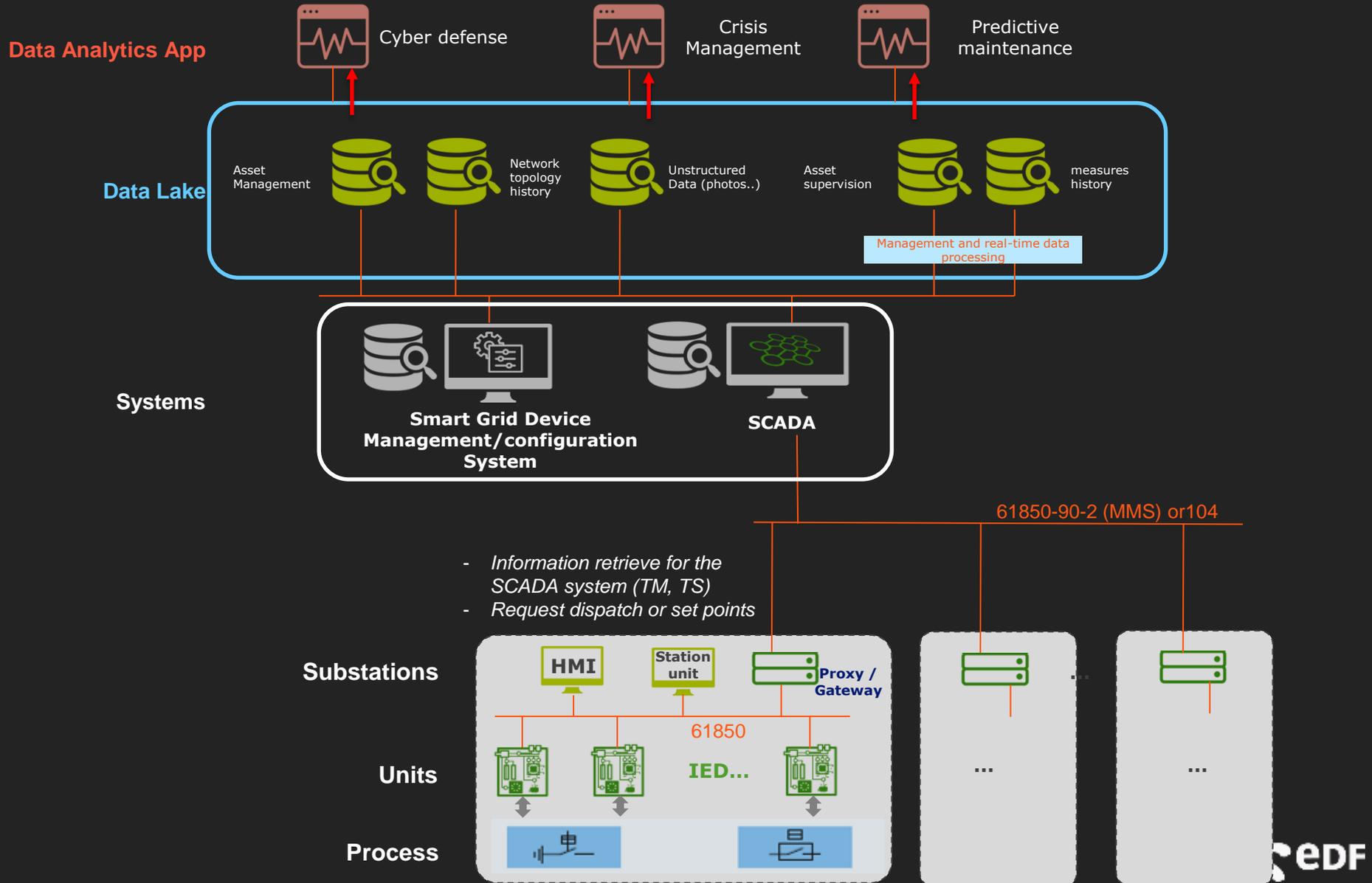
- A **Cybersecured** solution



# SMART GRID DEVICE MANAGEMENT SYSTEM IS ONE PIECE OF A BIGGER PUZZLE...



# SMART GRID DEVICE MANAGEMENT SYSTEM BETWEEN THE PROCESS AND THE DATA ANALYTICS



# FUNCTIONAL SCOPE

SMART GRID  
DEVICE  
MANAGEMENT  
SYSTEM



ADMINISTER RTU



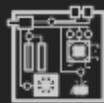
CONFIGURE RTU



RTU 1

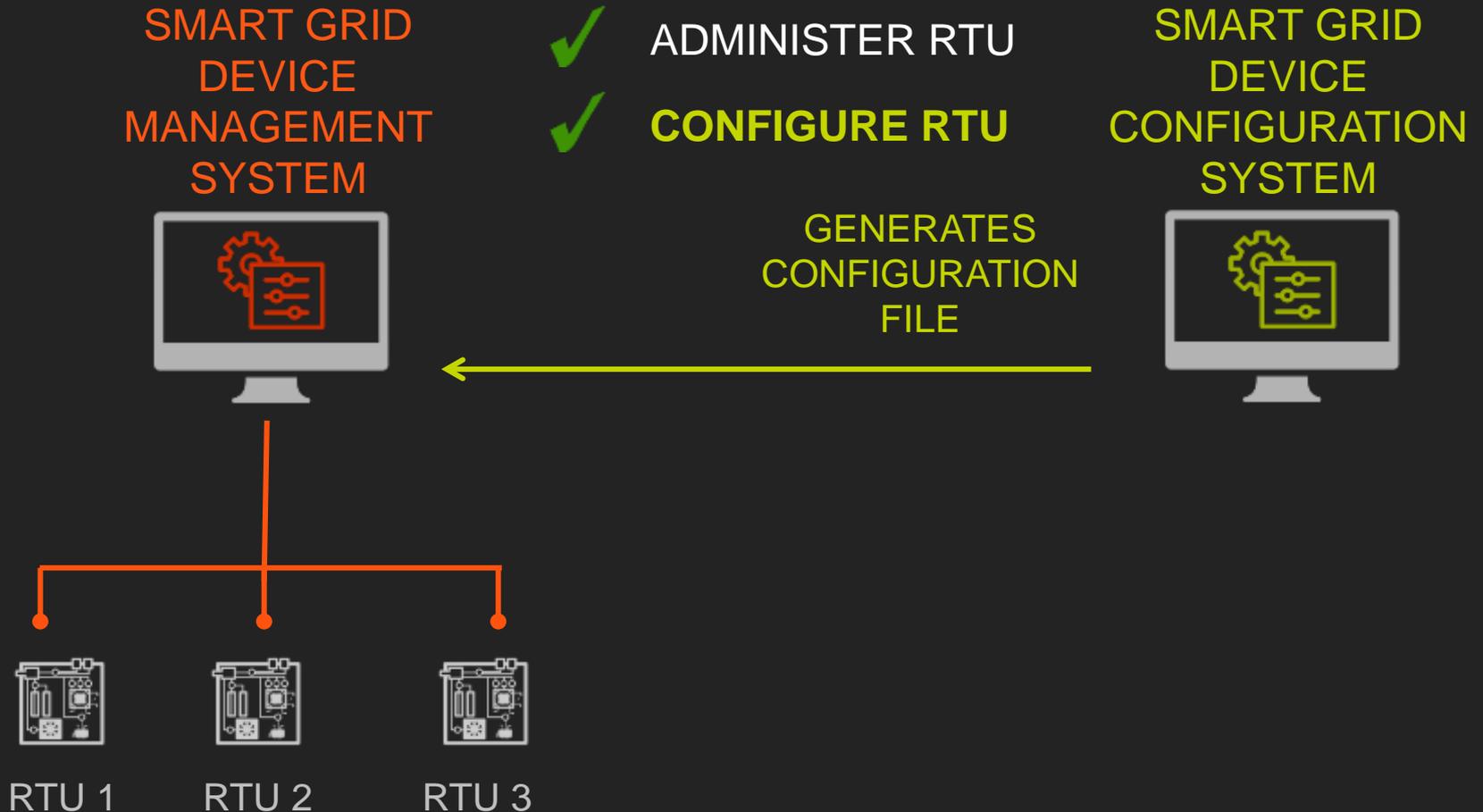


RTU 2



RTU 3

# FUNCTIONAL SCOPE



# FUNCTIONAL SCOPE

SMART GRID  
DEVICE  
MANAGEMENT  
SYSTEM



ADMINISTER RTU

**CONFIGURE RTU**

SMART GRID  
DEVICE  
CONFIGURATION  
SYSTEM



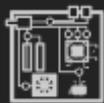
GENERATES  
CONFIGURATION  
FILE



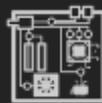
PUSH THE  
CONFIGURATION  
FILE INTO THE RTU



RTU 1

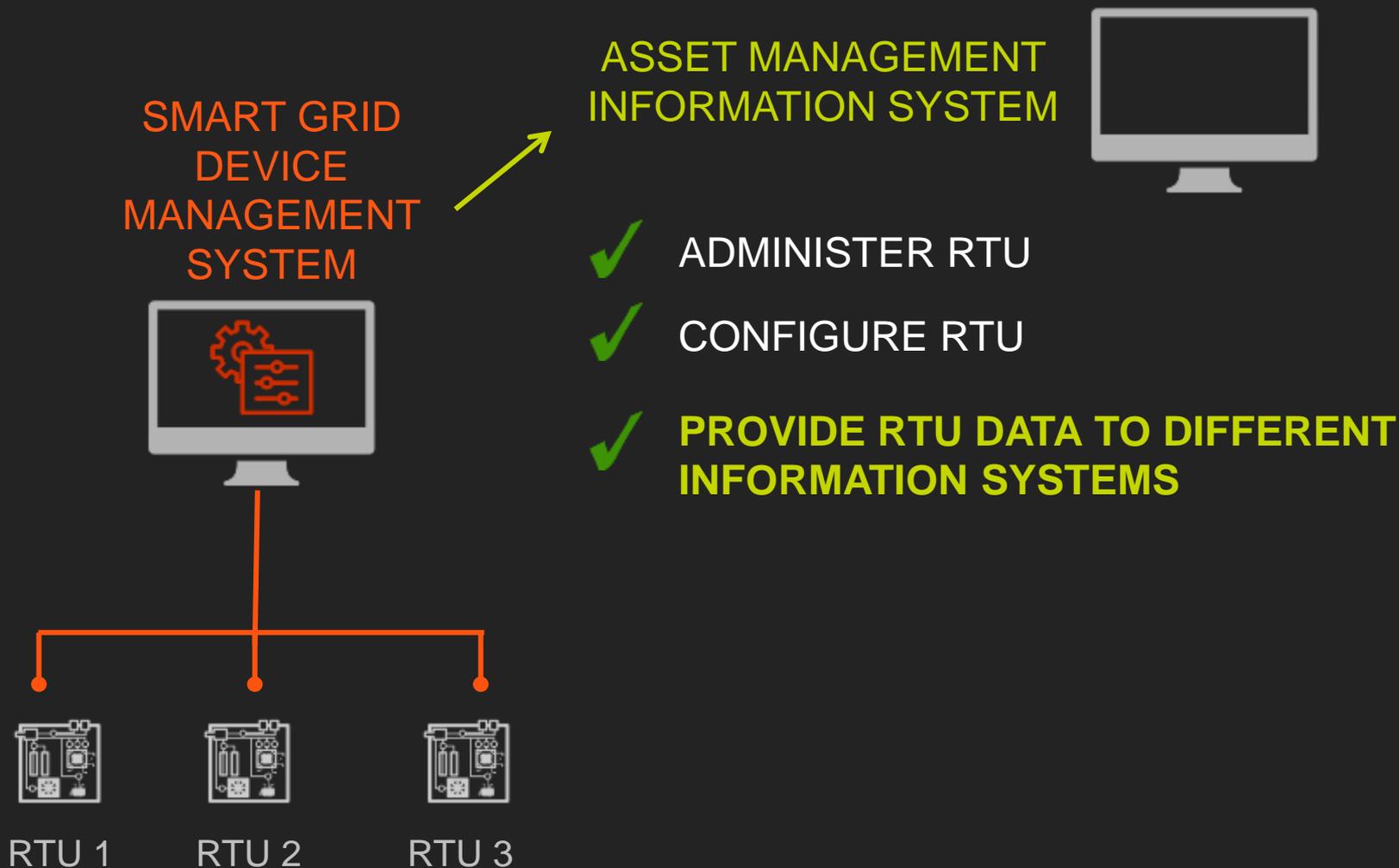


RTU 2

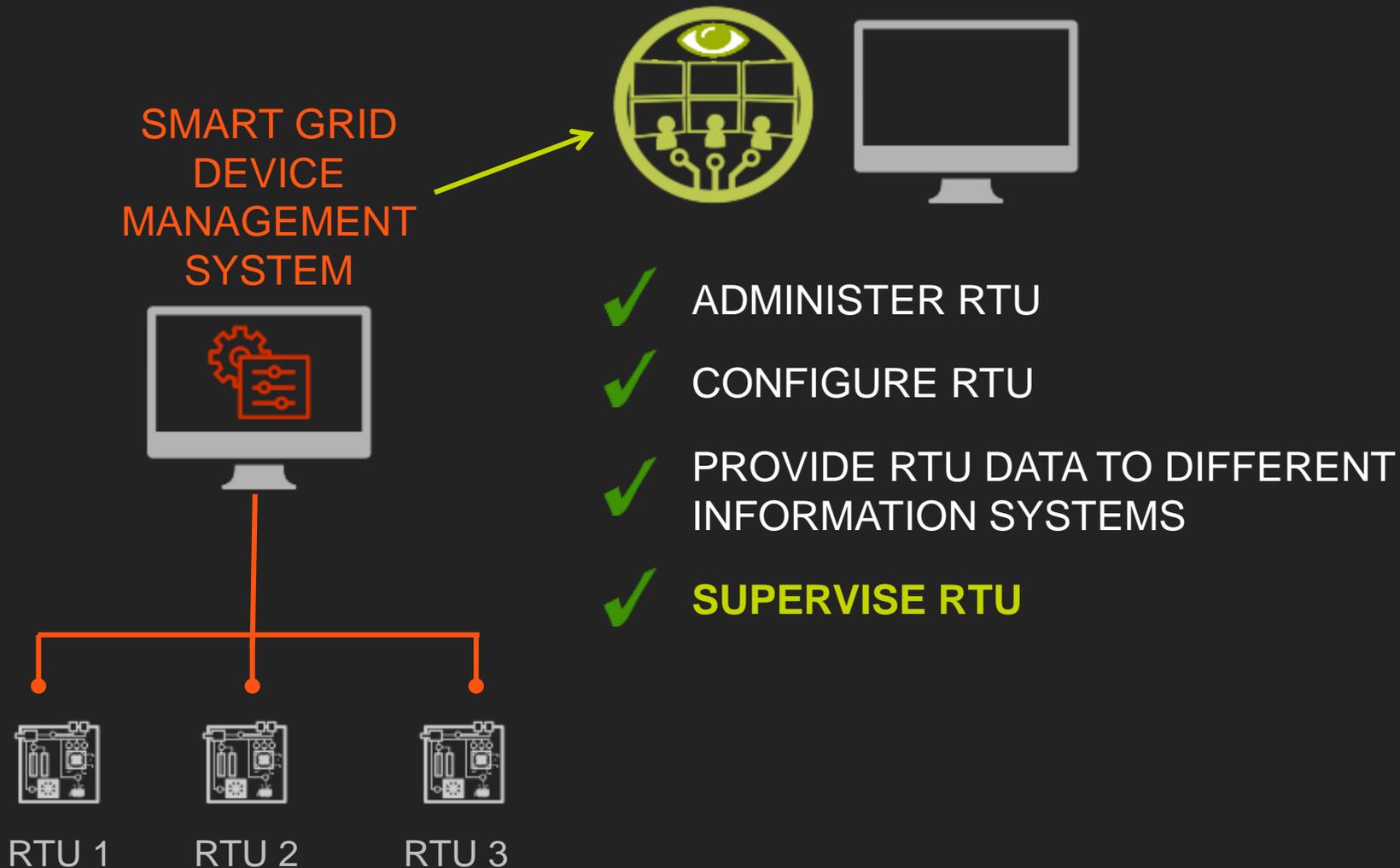


RTU 3

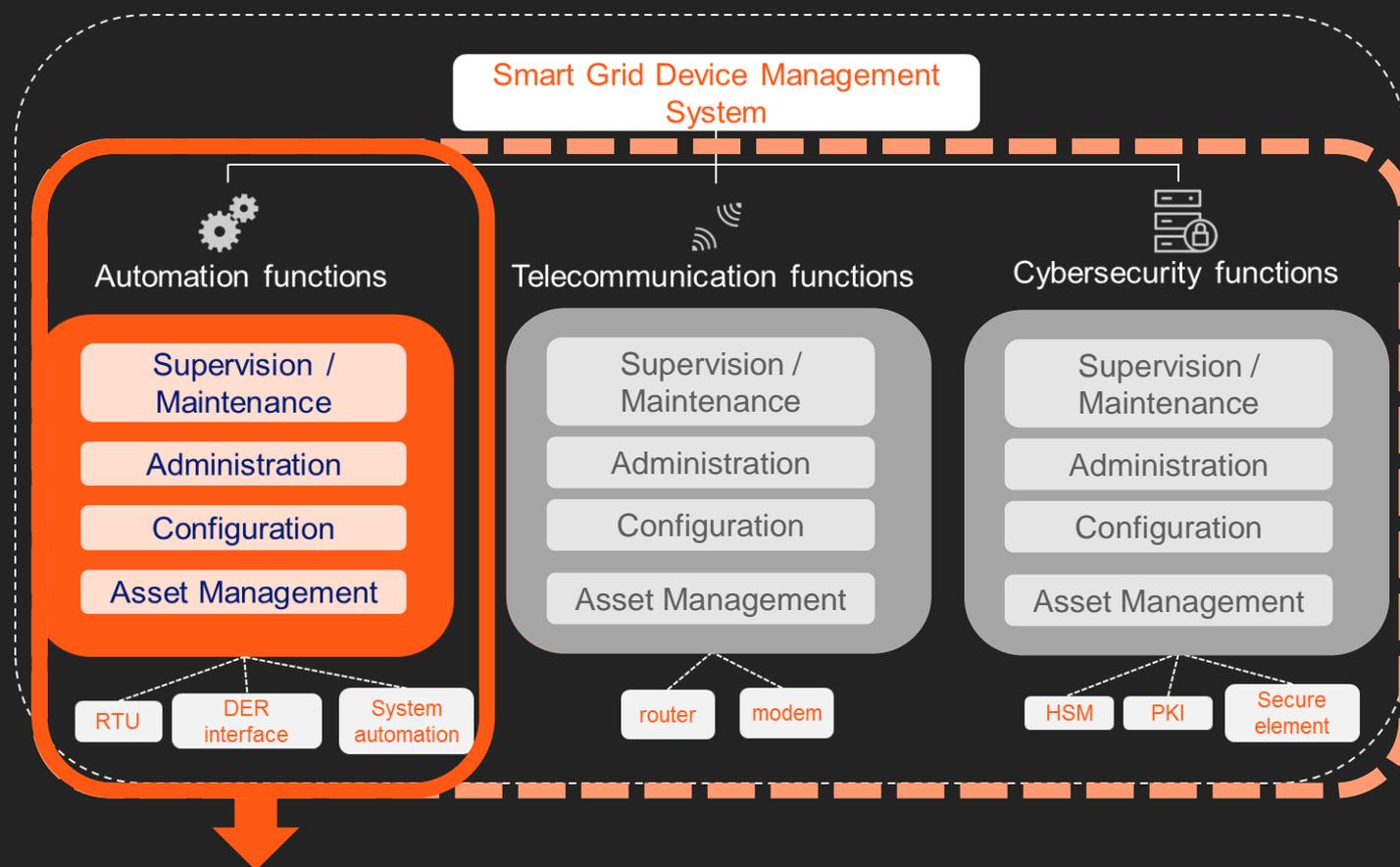
# FUNCTIONAL SCOPE



# FUNCTIONAL SCOPE



# MANAGEMENT FUNCTIONS TO BE STANDARDIZED



Need to **standardize** in coordination with the IEC 61850 standard - **IEC Task Force SM**, hosted in the **WG17** of the IEC TC57

# IED LIFE CYCLE AND USE CASES IDENTIFIED BY THE IEC TASK FORCE SM

## Configuration Use Cases

- Update configuration files
- Set online configuration parameters
- Synchronising configuration update along a feeder/in the same substation

## Asset Management Use Cases

- Introducing a new component
- Replacement of an existing component
- Store and provide asset information on an IED
- Decommissioning

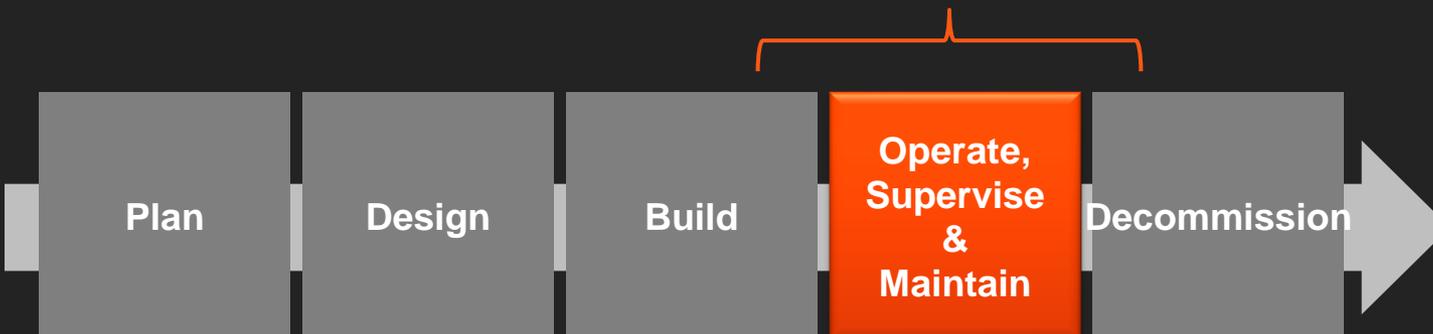
## Administration Use Cases

- Update IED Firmware
- IED files upload management

## Supervision & Maintenance Use Cases

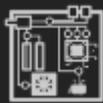
- Manage logs,
- Retrieve disturbance measure files from an IED
- Restart an IED

## Smart Grid Device Management



# THE SMART GRID DEVICE MANAGEMENT SYSTEM : A DESIGN TO MANAGE DIFFERENT TYPES OF FUNCTIONS

## SMART GRID DEVICE MANAGEMENT SYSTEM



RTU



- ✓ Automation functions
- ✓ Telecommunication functions
- ✓ Cybersecurity functions

The Smart Grid Device Management System will address different types of functions in a consistent and uniform way.

- *Automation functions*
- *Telecommunication functions*
- *Cybersecurity functions*

These functions may be integrated in one or several RTUs