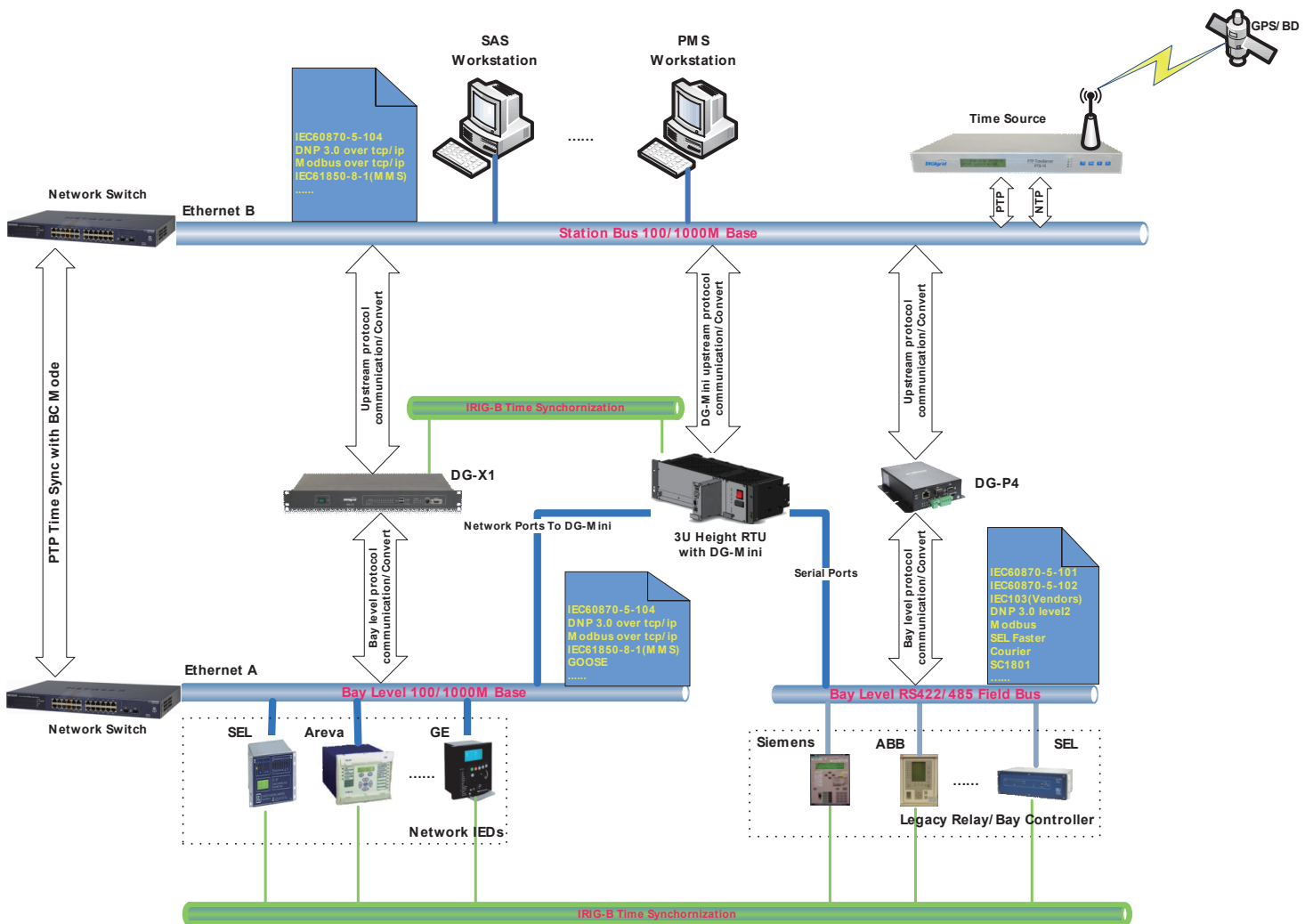# Smart Solution in Automation and Integration for Smart Grid

DG gateway devices are Industrial grade yet multipurpose family of communication gateways that integrate modern communication technology with robust embedded design to provide high reliability, high stability and low power consumption features. It is capable of protocol conversion, data concentration and data processing. It is easy to configure and manage in any complicated system across the network.
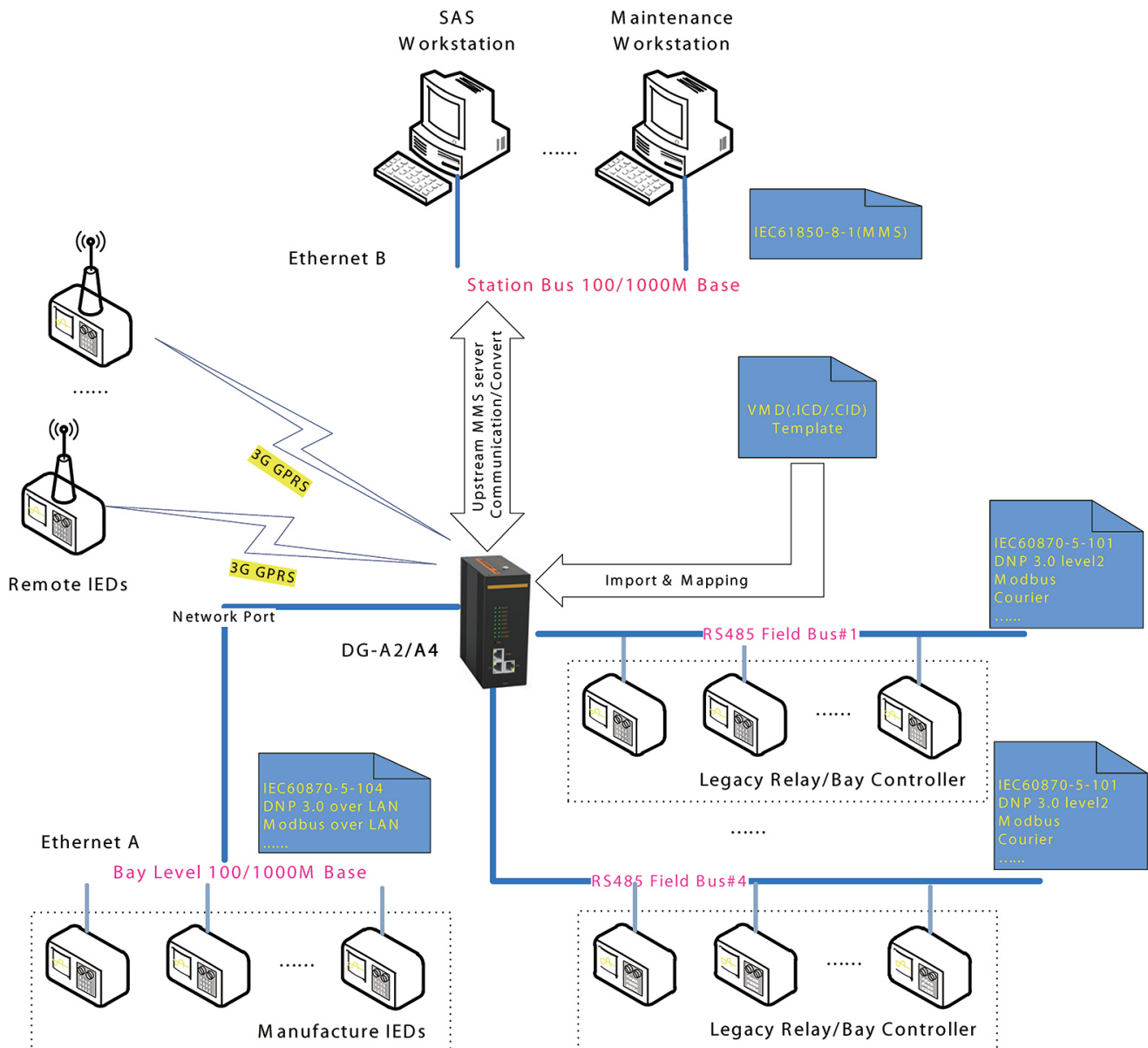
Protocol Conversion by Store-and-Deliver

DG gateways provide very flexible internal data processing method during protocol communication.
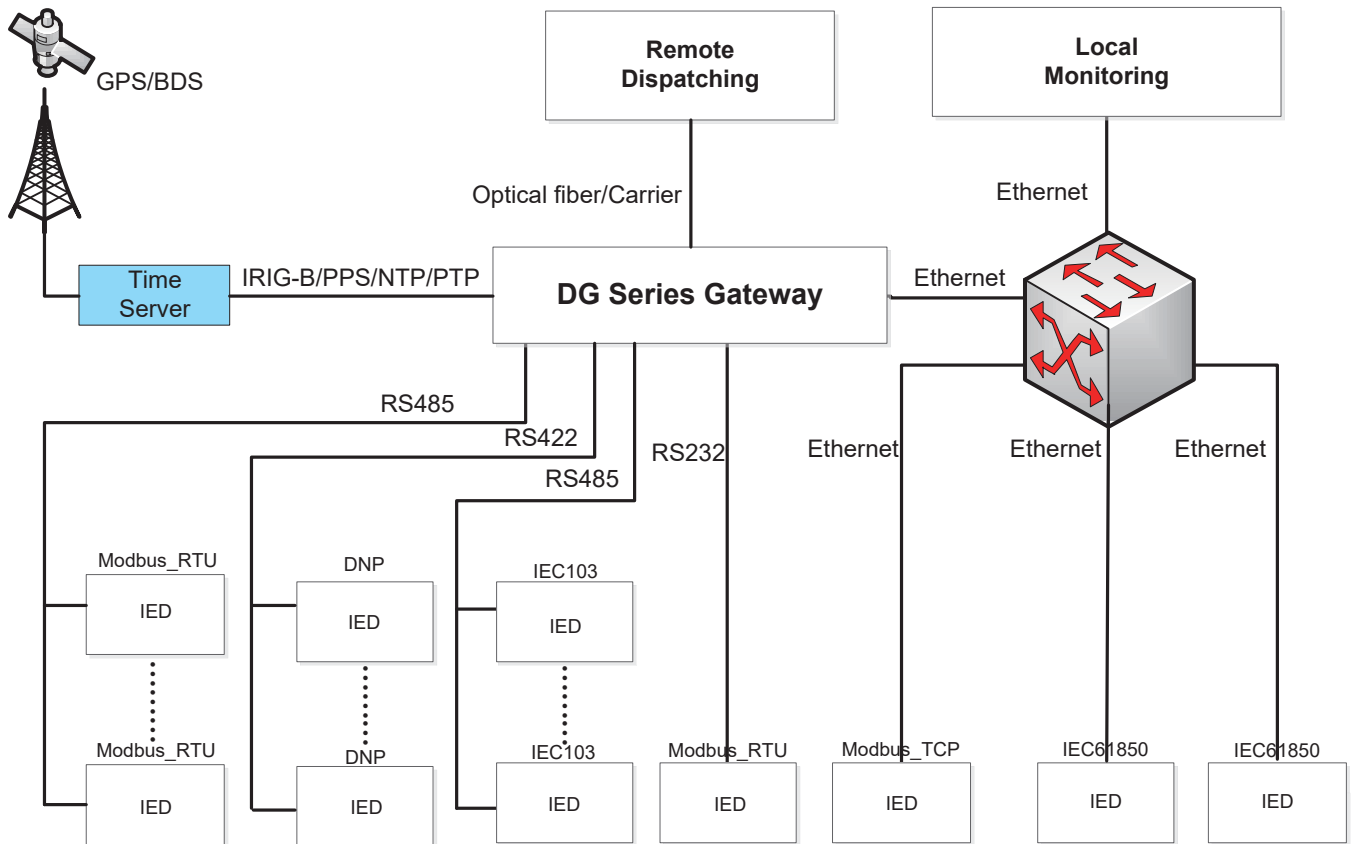
IEC 61850 communication bridge

DG gateways are designed in conformance to IEC61850 standards. It can be deployed to be an intelligent proxy unit to collect data using both - serial ports and Ethernet ports. By importing any pre-defined IEC 61850 SCL (.icd/.cid) template file and mapping the data to internal VMD model with the configuration tool - ICE, the unit can be viewed as the standard IEC 61850 virtual IED (eg. Logical IEC 61850 IED) from its Master side.

SAS Workstation

Maintenance Workstation

IEC61850-8-1(MMS)

Ethernet B

Station Bus 100/1000M Base

Upstream MMS server Communication/Convert

VMD(.ICD/.CID) Template

3G GPRS

3G GPRS

Remote IEDs

Import & Mapping

IEC60870-5-101
DNP 3.0 level2
Modbus
Courier
......

Network Port

DG-A2/A4

RS485 Field Bus#1

Legacy Relay/Bay Controller

IEC60870-5-104
DNP 3.0 over LAN
Modbus over LAN
......

IEC60870-5-101
DNP 3.0 level2
Modbus
Courier
......

Ethernet A

Bay Level 100/1000M Base

......

RS485 Field Bus#4

Manufacture IEDs

Legacy Relay/Bay Controller

>> Substation Automation

Besides collection of various data points from IEDs, DG gateways can also be time synchronized to a time server through IRIG-B, NTP etc. time formats. This validates monitoring of real-time data.

Advanced Task

When using advanced task in DG gateway, Engineer can program on-line with E-script language which is provided with the ICE configuration toolset to implement even complex operation. Such as logical calculation, accumulation, strategy control, batch processing control etc.