



Status Workshop 2016

Lord Hotel & Conference Centre

Warsaw, May 23, 2016

Dieter Brunner

president IDIS-association

IDIS with G3 – the first 20 months

- The G3 Alliance
- The G3 Technology
- The G3 Certification



- IDIS summary and projects
- IDIS-G3 Conformance testing
- IDIS outlook – package 3
- IDIS Association - status

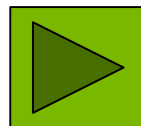


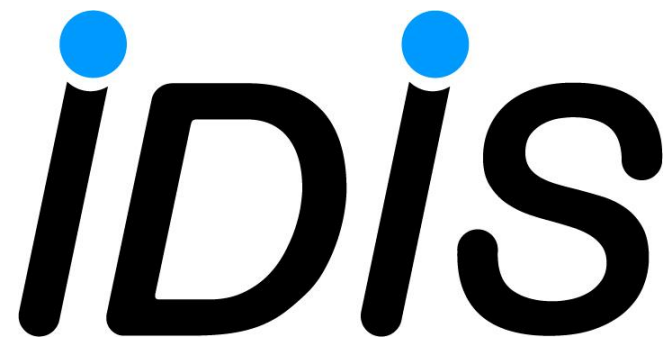
Marc Delandre

general secretary G3-PLC alliance

G3-PLC Alliance

Enabling the smartest grid...together



The logo for idIS features the lowercase letters 'i' and 'd' in a bold, italicized black font. Each of these letters has a solid blue circle positioned directly above it. The letters 'I' and 'S' are also in a bold, italicized black font but are not italicized like the 'i' and 'd'.

idIS

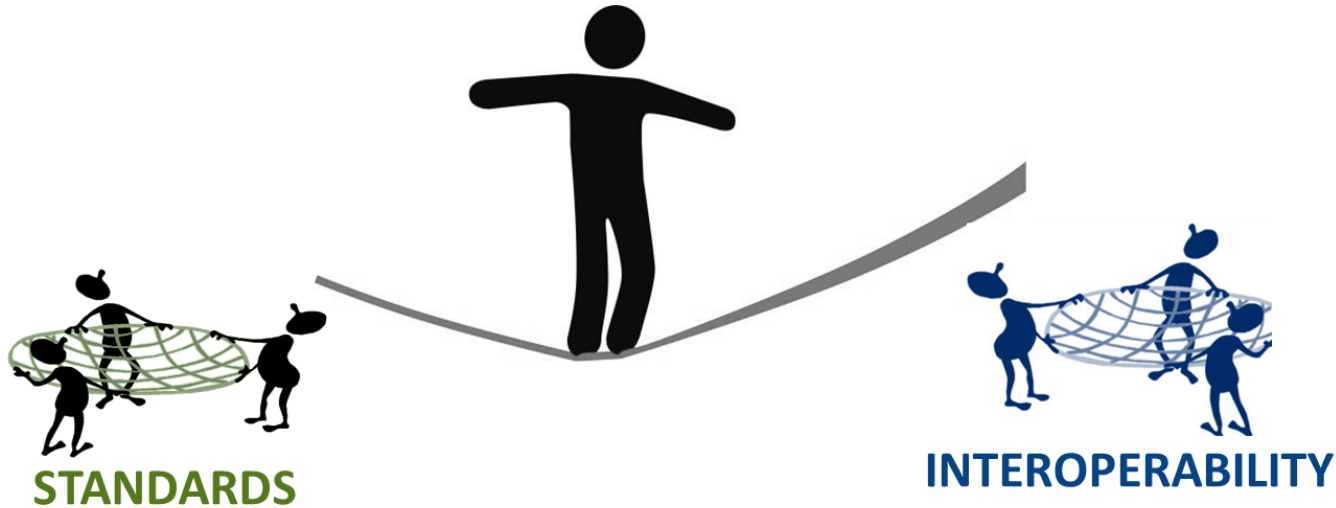
we close the gap

IDIS with G3 – the first 20 months

- The G3 Alliance
- The G3 Technology
- The G3 Certification
- **IDIS – consistent strategy**
- IDIS experience and learnings
- IDIS-G3 Certification
- IDIS Association – status/outlook

Smart meter rollout – a risky project

exchange the entire meter park



manufacturer lock-in

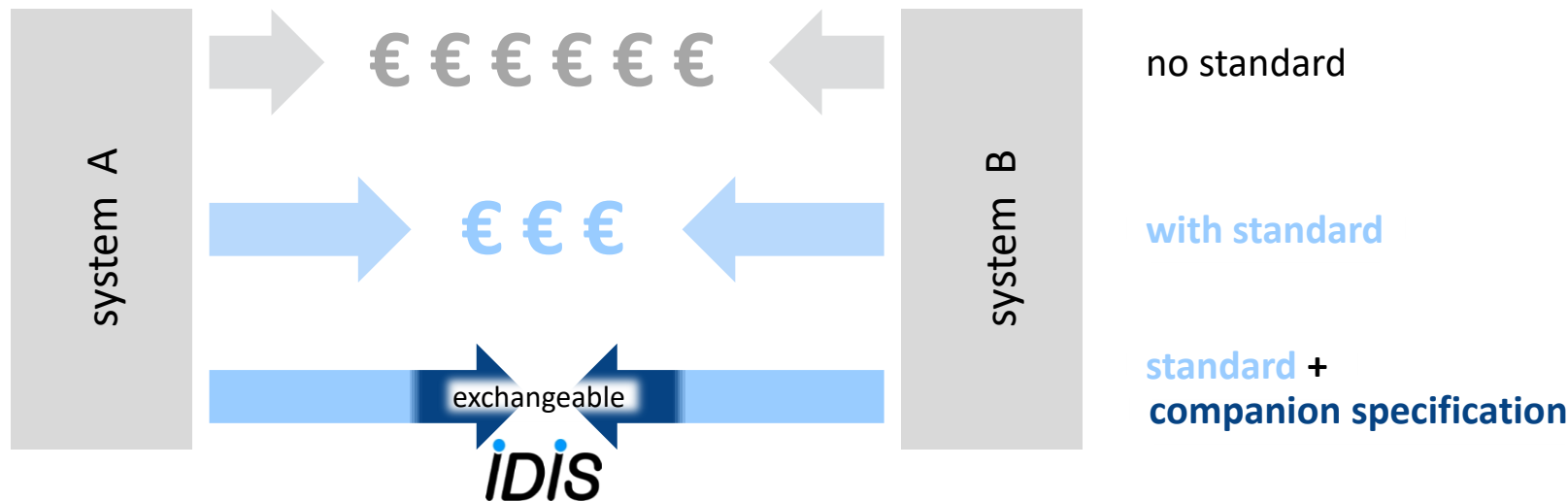
rocketing integration costs

- Open standardisation **processes**
- Open **specification**
- Transparency on **patents**

provided by the official standardisation organisations:



Interoperability – to minimize integration costs



Who provides INTEROPERABILITY ?

What is that - a companion specification ?

the standard



4.3.2 Register (class_id = 3, version = 0)

This IC allows modelling a process or a status value with its associated scaler and unit. "Register" objects know the nature of the process or status value. It is identified by the attribute *logical_name*.

Register	0...n	class_id = 3, version = 0			
Attributes	Data type	Min.	Max.	Def.	Short name
1. <i>logical_name</i> (static)	octet-string				x
2. value	CHOICE				x + 0x08
3. <i>scaler_unit</i> (static)	scal_unit_type				x + 0x10
Specific methods	m/o				
1. reset (data)	o				x + 0x28

Attribute description

logical_name Identifies the "Register" object instance. See clauses 6 and 7.

value Contains the current process or status value.

CHOICE

-- simple data types

null-data [0],
bit-string [4],
double-long [5],
double-long-unsigned [6],
octet-string [9],
visible-string [10],
utf8-string [12],
integer [15],
long [16],
unsigned [17],
long-unsigned [18],
long64 [20],
long64-unsigned [21],
...

The data type of the value depends on the instantiation defined by *logical_name* and possibly on the choice of the manufacturer. It has to be chosen so that, together with the *logical_name*, an unambiguous interpretation of the value is possible.

When, instead of a "Data" object, a "Register" object is used, (with the *scaler_unit* attribute not used or with *scaler* = 0, *unit* = 255) then the data types allowed for the *value* attribute of the "Data" IC are allowed.

the companion specification



Active energy import (+A)

1 logical name	octet_string[6]
2 value	double_long_unsigned
3 scaler_unit	scal_unit_type
1 reset	

Interoperability – today's alternatives

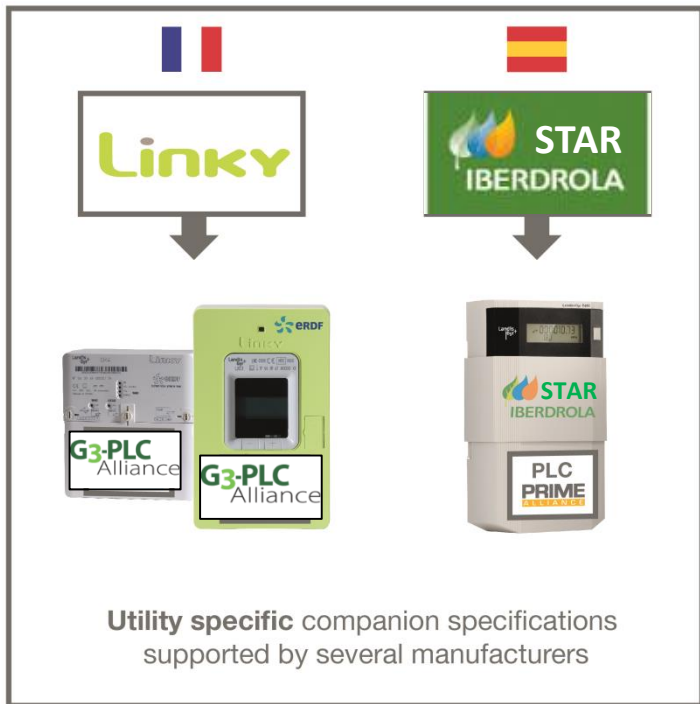


Diagram illustrating utility-specific companion specifications supported by several manufacturers:

- France (Linky):** Supported by G3-PLC Alliance and ERDF.
- Spain (STAR IBERDROLA):** Supported by PLC PRIME.

Utility specific companion specifications supported by several manufacturers

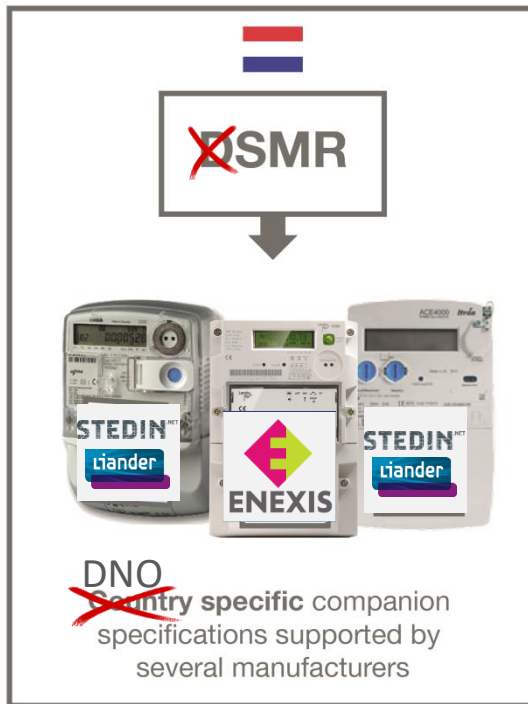


Diagram illustrating DNO country specific companion specifications supported by several manufacturers:

- Netherlands (DSMR):** Supported by STEDIN (Liander) and ENEXIS.

~~DNO~~ Country specific companion specifications supported by several manufacturers



Diagram illustrating universal companion specifications supported by several manufacturers:

- idIS:** Supported by idIS IPv4/6 and G3-PLC Alliance.

www.idis-association.com

Universal companion specifications supported by several manufacturers

Standards are necessary – but they are not sufficient.

Interoperability requires **addition effort**.

Interoperable meters need **markets** – large enough for **several suppliers**.

Standards are necessary – but they are not sufficient.

IEC 62056 series, DLMS/COSEM

Interoperability requires **addition effort**.

IDIS companion specifications + testing environment + commitment to provide meters

Interoperable meters need a **market** – large enough for **several suppliers**.

IDIS meters for the EMEA markets + market specific extensions possible

Standardisation organisation



- publishes and maintains standards;
- ensures that all stakeholders are involved;
- ensures that the standards are accessible by everybody;
- ensures that the standards do not contain *any hidden patents*.

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Standards User Association:



- acts as bridgehead to the market;
- supports the elaboration and the maintenance of the standard;
- provides *conformity tests*.

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Manufacturer/User Association:



- publishes and maintains Companion Specifications;
- specifies the transformation of the standards into interoperable products;
- provides *interoperability tests*.

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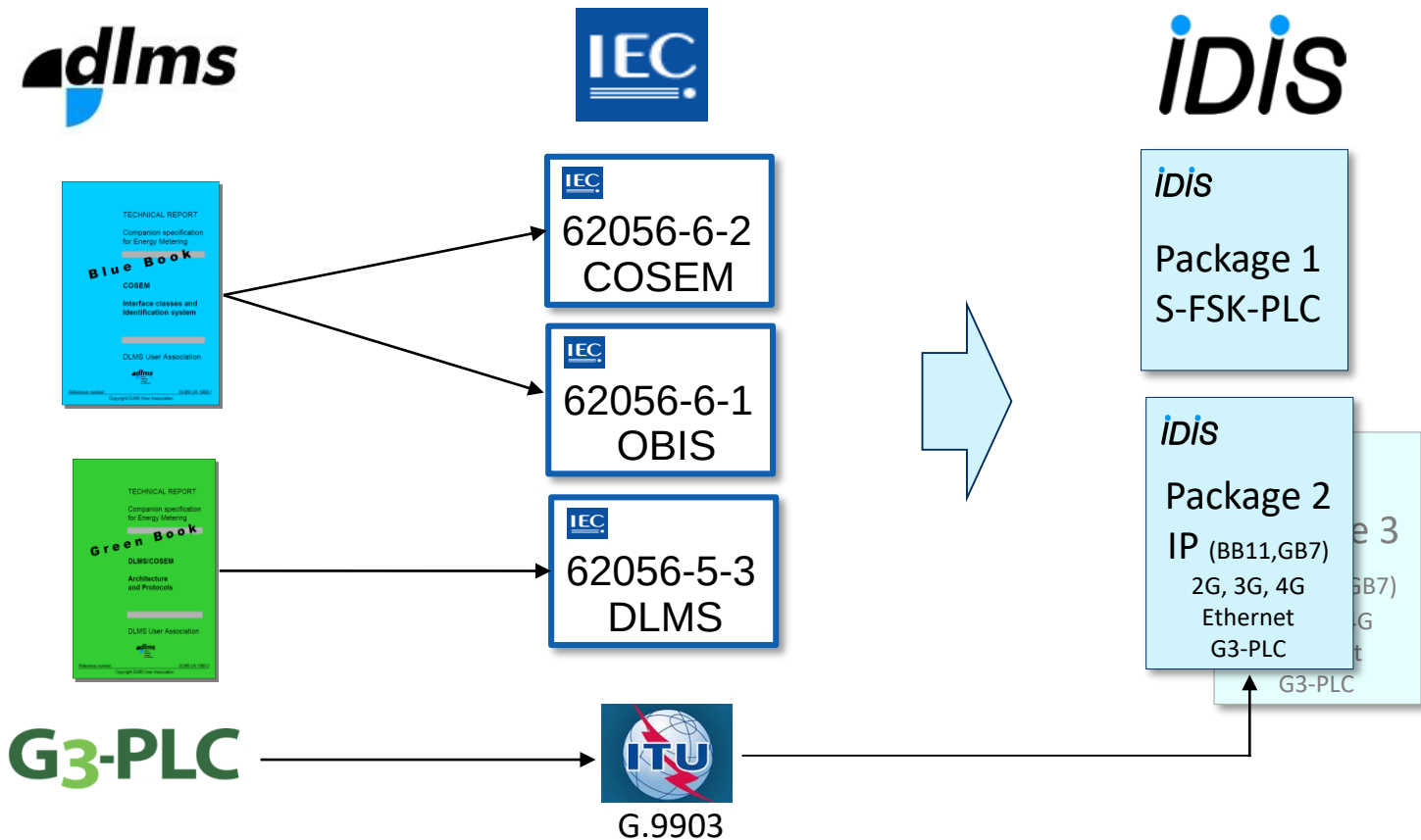


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Manufacturer/User Association:



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Project	System provider	meter providers
EKZ	Landis+Gyr	Landis+Gyr (40'000), Elster (5'000)
SIG Genf	Landis+Gyr	Landis+Gyr (50), Elster (25), Iskraemeco (25)
Eco Watt	Landis+Gyr	Landis+Gyr (7'100), Elster (6'700)
Vattenfall (Tauron) Poland	Landis+Gyr	Landis+Gyr (14'980), Iskraemeco, Itron (1'550)
Elektro Maribor	Landis+Gyr	Landis+Gyr (16'000), Iskraemeco (37'000)
Elektro Ljubljana	Landis+Gyr	Landis+Gyr (9'000), Iskraemeco (10'000)

Project	System provider	meter providers
Elektropriveda	Iskraemeco	Iskraemeco(62'000),Landis+Gyr (3'000), Itron (3'000)
Elektro Gorenjska	Iskraemeco	Iskraemeco (25'000),Landis+Gyr (3'000)
Kiptek	Iskraemeco	Iskraemeco (120'000), Itron (3'000)
DEWA	Itron	Landis+Gyr (10'000), Iskraemeco (21'000), Itron (10'000)

Application of IDIS security

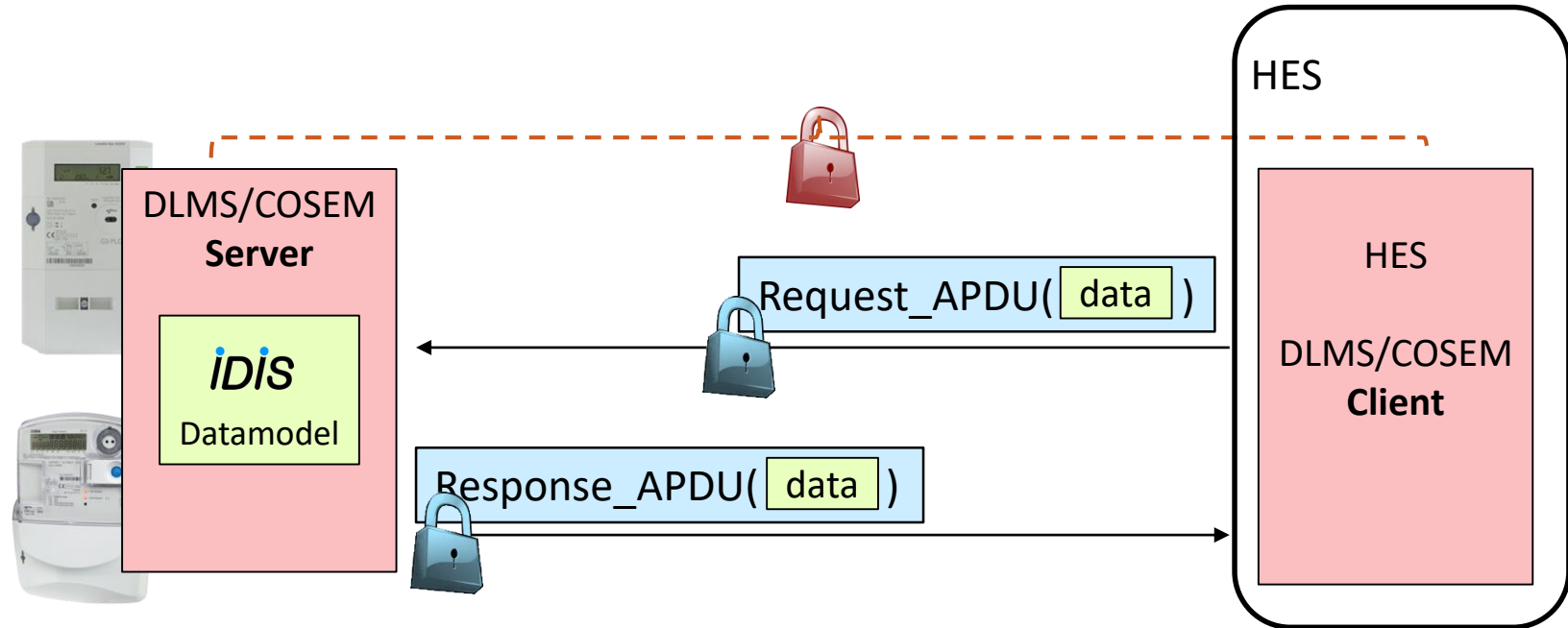
IDIS uses two security levels



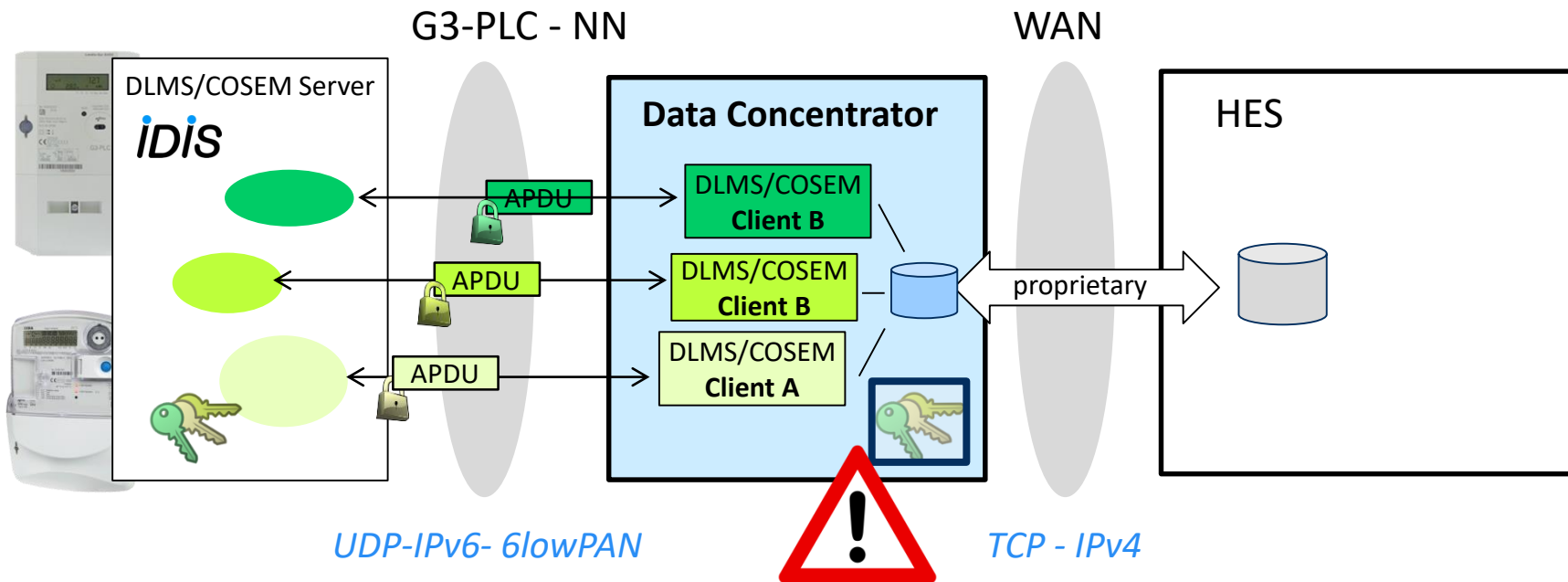
1. Client-Server authentication



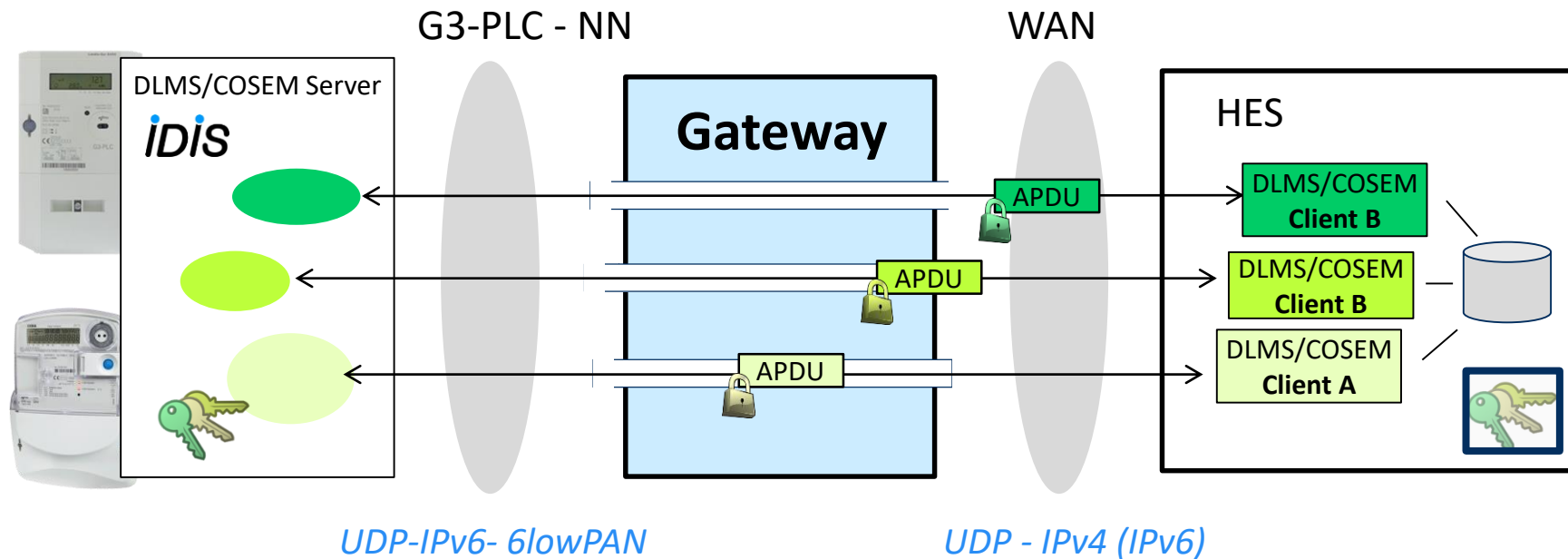
2. protected **data** as contents of the **protected pdu**



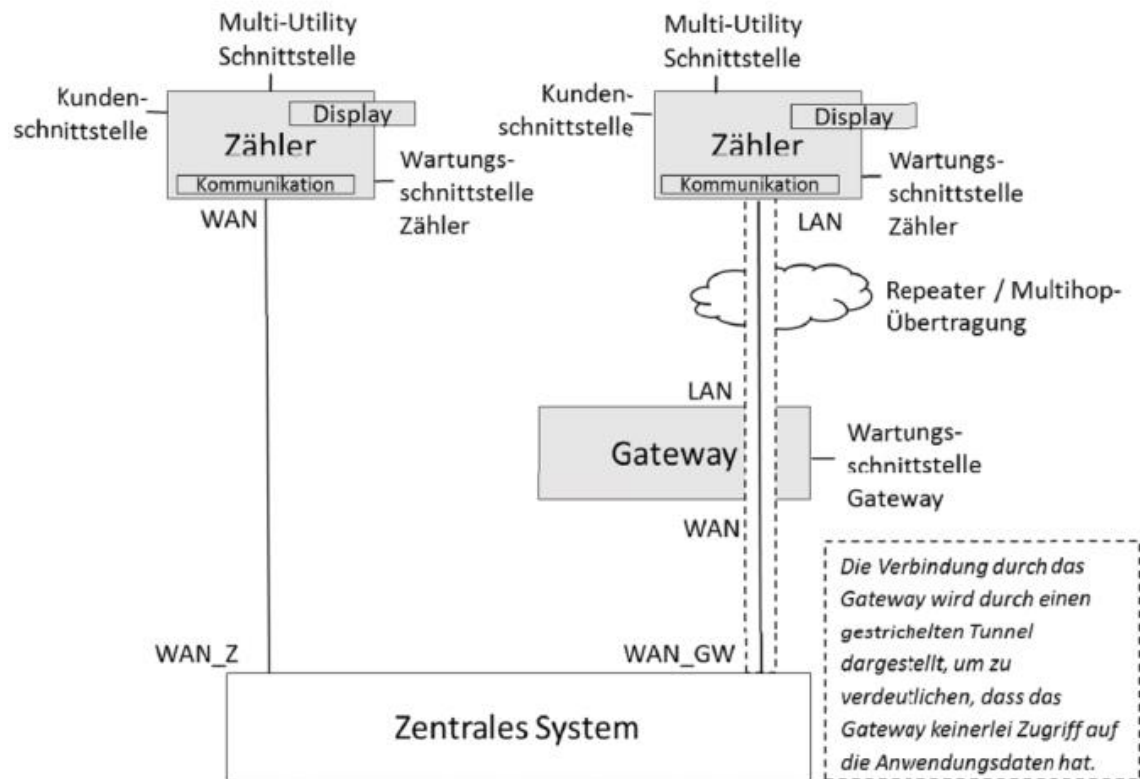
1. The Data Concentrator approach



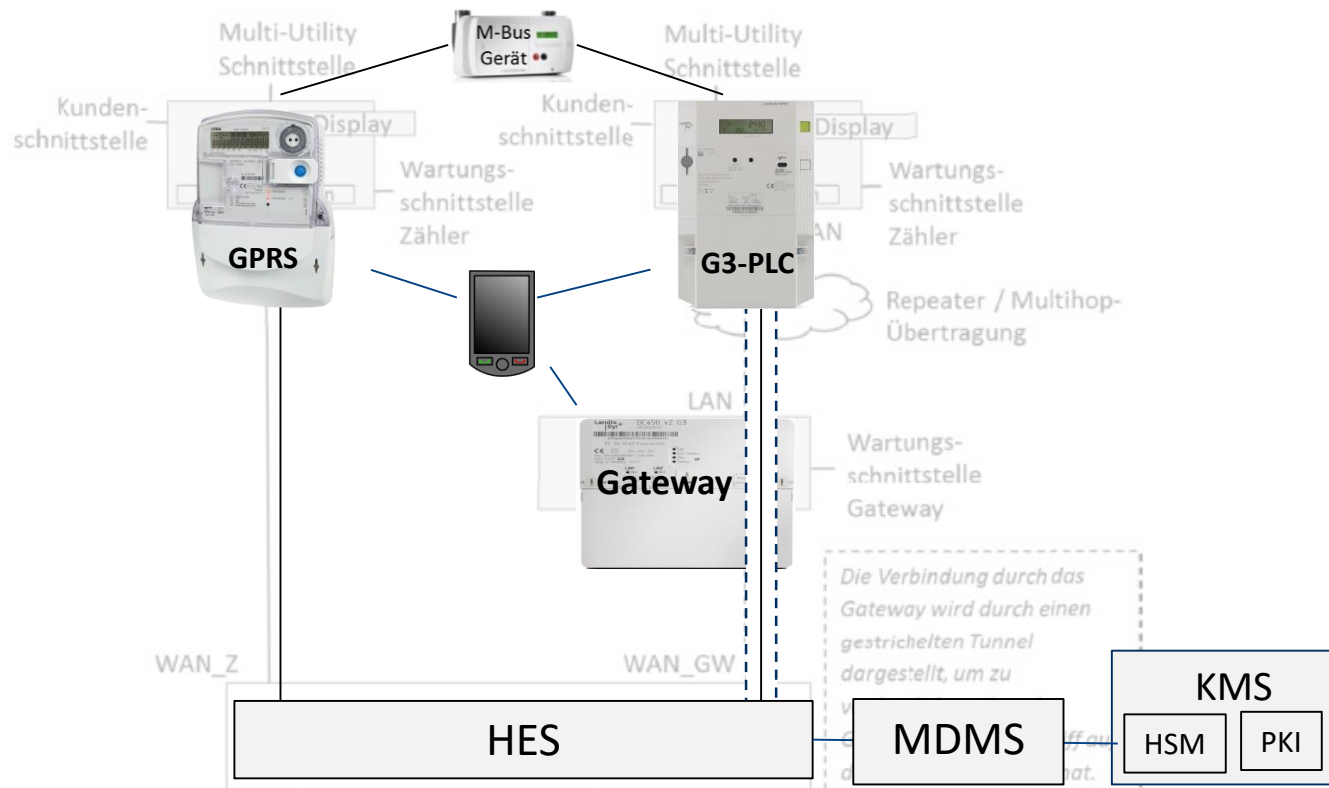
2. The Gateway Approach



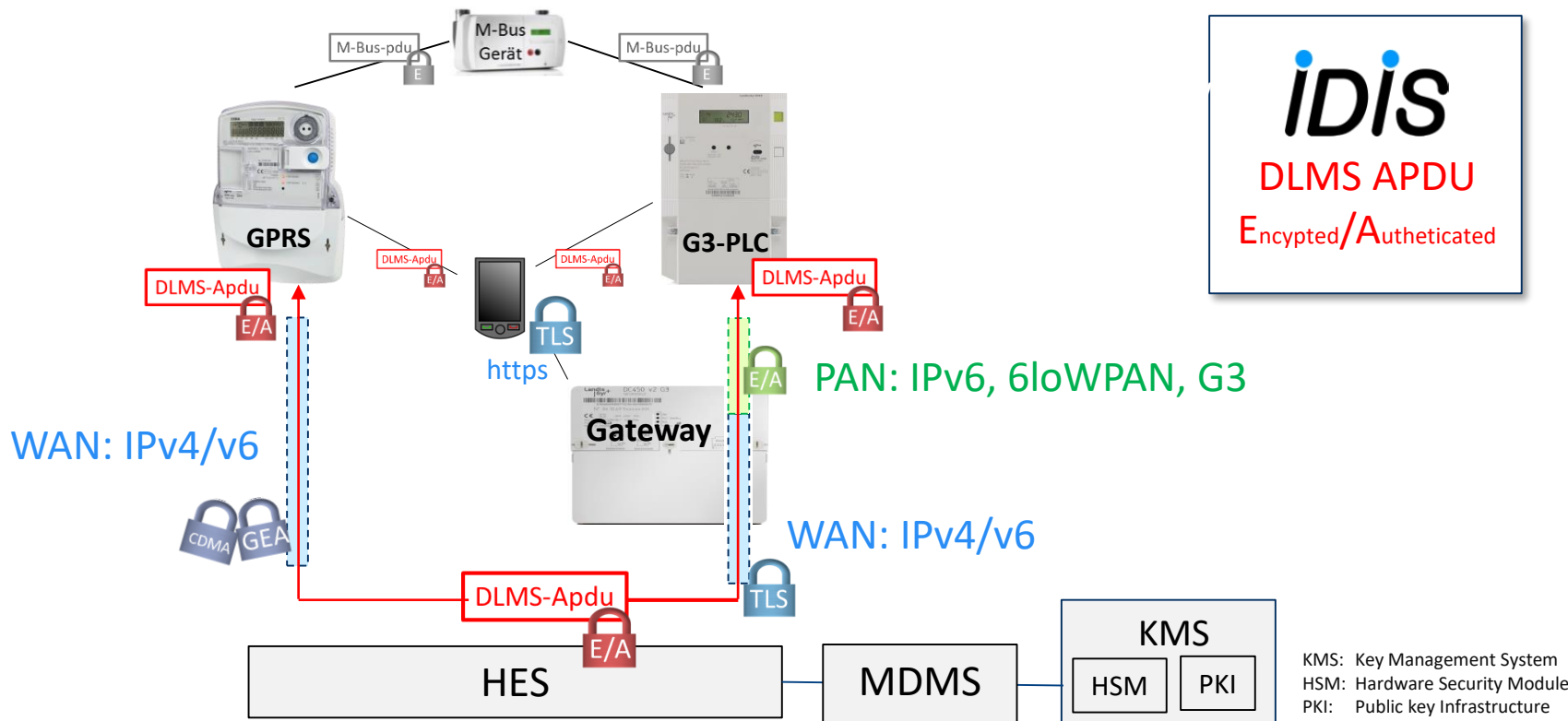
Example: IDIS end-to-end security for Austria



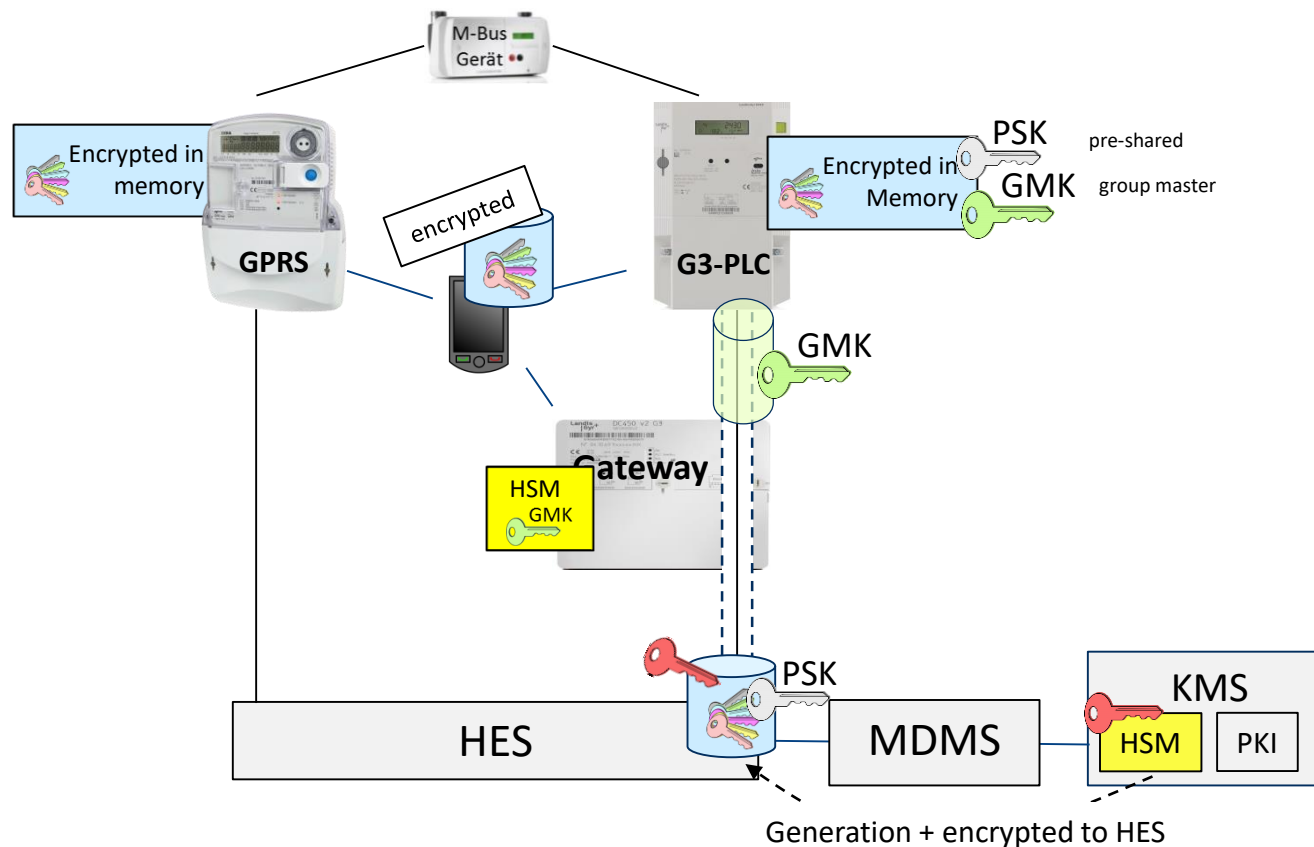
Example: IDIS end-to-end security for Austria



IDIS end-to-end security + G3 Security



Keys used in G3 and IDIS



Security Mechanisms used in IDIS package 2

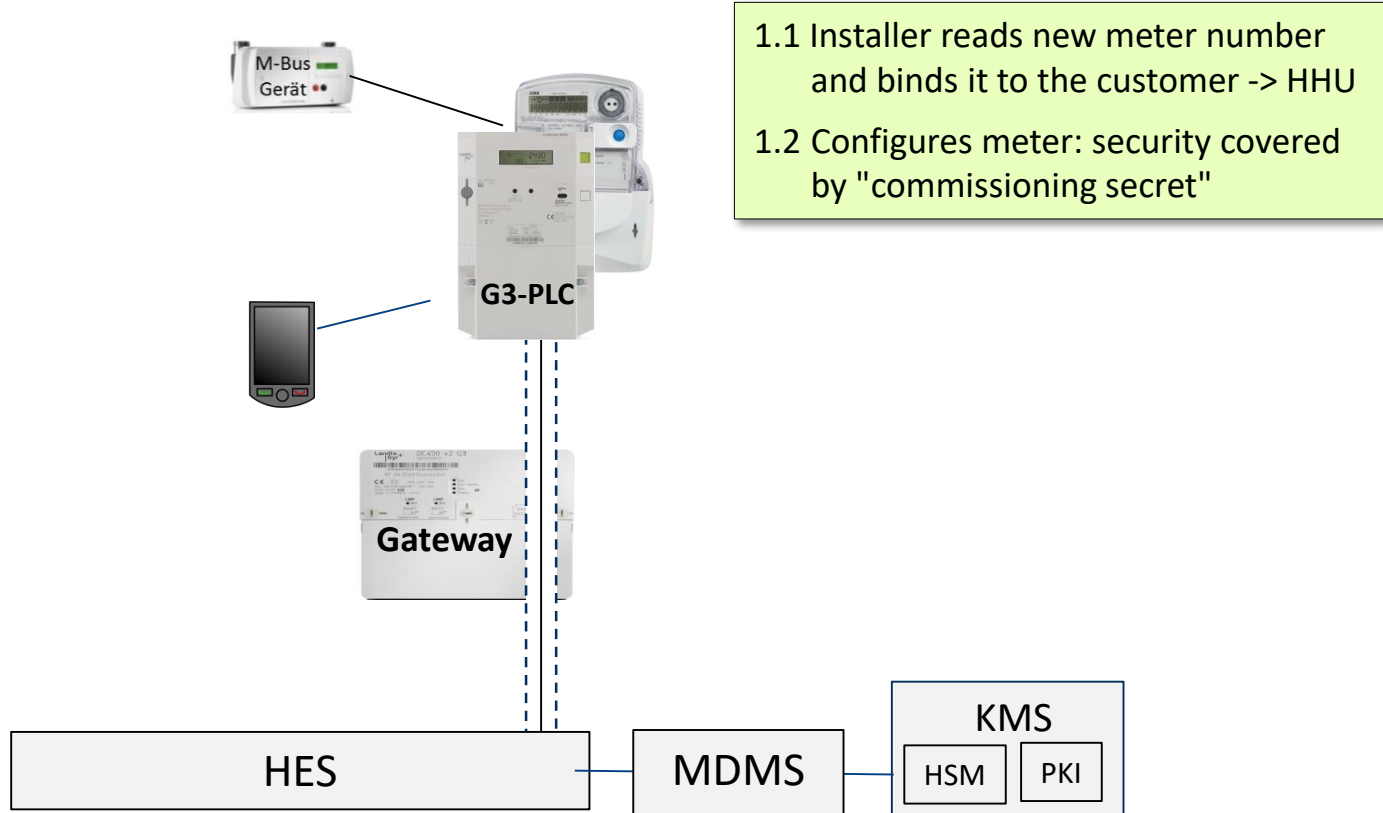
DLMS/COSEM Security Suites (IEC62056-5-3)

Security Suite Id	Suite name	Authenticated encryption	Digital signature	Key agreement	Hash	Key transport	Compression
0	AES-GCM-128	AES-GCM-128	–	–	–	AES key wrap 128 bit	–
1	ECDH-ECDSA-AES-GCM-128-SHA-256	AES-GCM-128	ECDSA with P-256	ECDH with P-256	SHA-256	AES key wrap 128 bit	V.44
2	ECDH-ECDSA-AES-GCM-256-SHA-384	AES-GCM-256			SHA-384	AES key wrap 256 bit	V.44
All other	reserved						

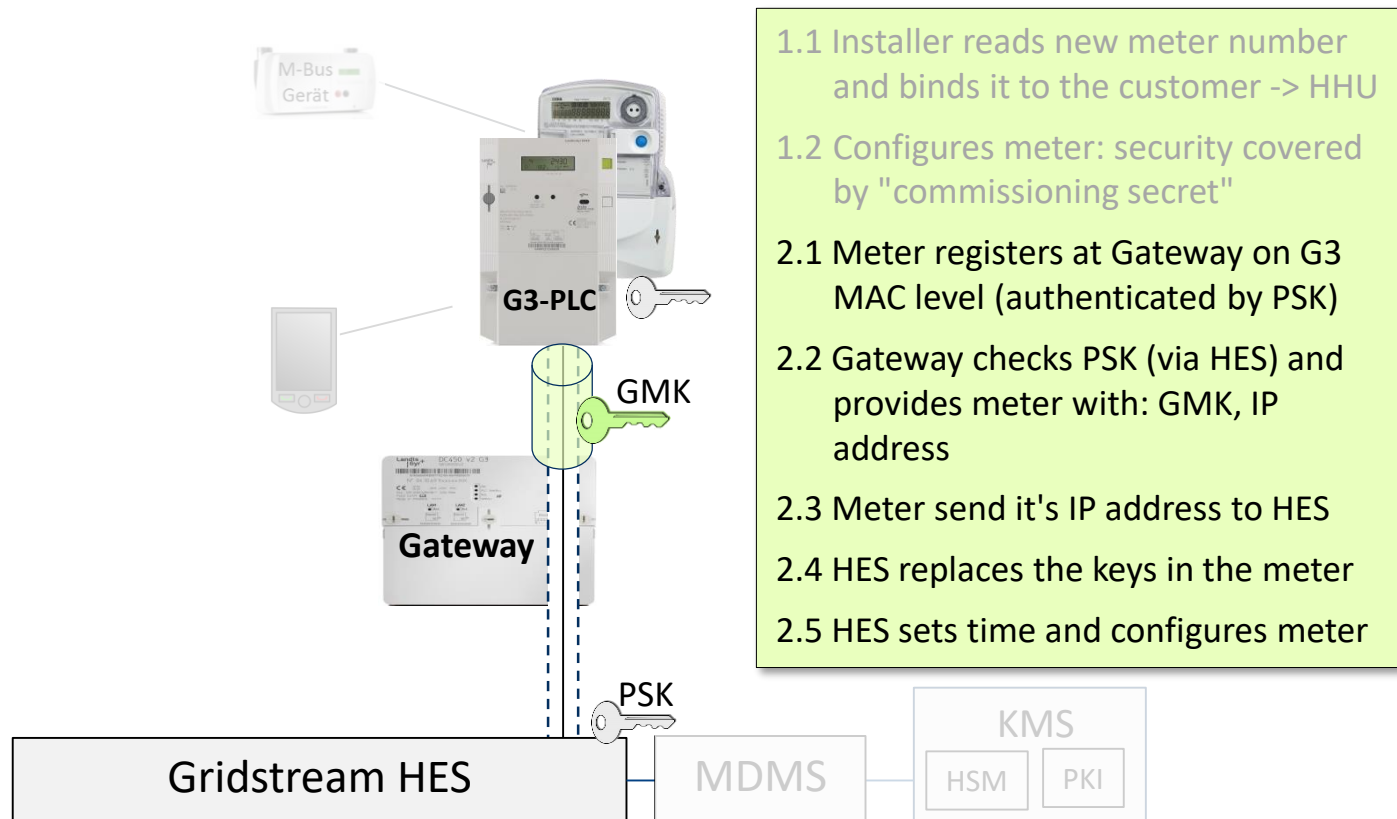
digital signature:
for FW-Upgrade

Application of IDIS meter registration

Standardised installation process for G3-PLC meter -1



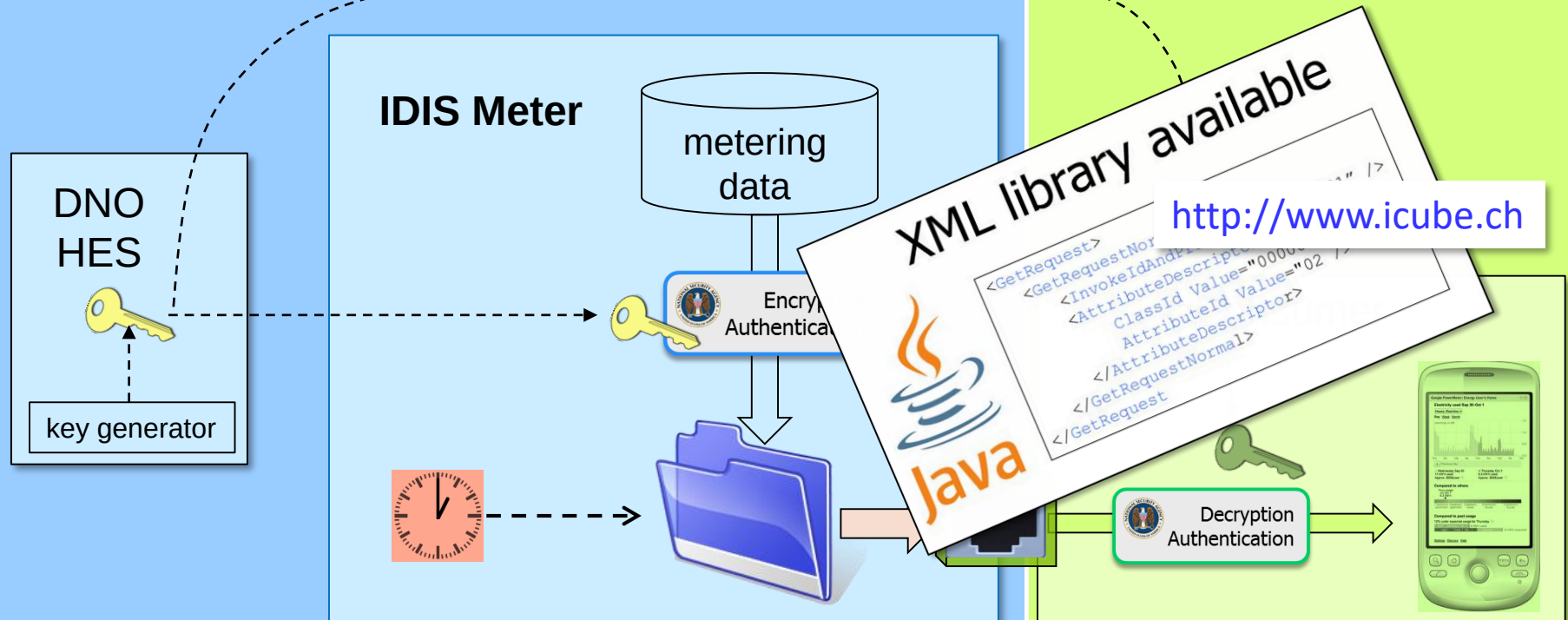
Standardised installation process for G3-PLC meter -2



Universal Consumer Interface

responsibility of DNO

responsibility of consumer



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... shows that the meter conforms to the IEC 62056 standards.



DLMS User Association

PRODUCTS AND SERVICES

INFORMATION

ORGANIZATION

DOCUMENTATION

CONFORMANCE

FAQ - ANSWERS

NEWS

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► Conformance

► List of compliant equipment

CONFORMANCE

[CONFORMANCE TEST PLANS](#)

[COSEM OBJECT DEFINITIONS](#)

[CONFORMANCE TEST TOOL \(CTT\)](#)

[CONFORMANCE ASSESSMENT PROCESS](#)

[CONFORMANCE TESTING TIPS AND TRICKS](#)

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LIST OF COMPLIANT EQUIPMENT

List of DLMS/COSEM compliant equipment

Company is the name of the manufacturer or vendor of the equipment tested.

Product is the commercial name, type and revision identifying the equipment

Note:

CTT 3.0 is a new platform and it is not a free upgrade: the licence has to be purchased again. (please see the document [The DLMS/COSEM](#)

Company	Product	Date	Reg. No.	Tool vers.	Test laboratory
calinmeter co.,ltd.	CA168	04 April 2016	1641	3.0	SHENZHEN_CALINMETER_CO_LTD_CHINA
Iskraemeco d.d.	MT880-T1	08 April 2016	1642	3.0	ISKRAEMECO d.d.
DZG Metering GmbH	E3016-SE	08 April 2016	1643	2.7	Reallin
XJ Metering Co.,Ltd	DDZY566-M/KP	12 April 2016	1644	2.5	XJ_Metering_Co_Ltd_Xuchang_Henan_China
SECURE METERS LTD.	E3Dxxx	14 April 2016	1645	2.7	Yadav Measurements Pvt. Ltd, India
calinmeter co.,ltd.	CA368	19 April 2016	1646	3.0	SHENZHEN_CALINMETER_CO_LTD_CHINA
Qingdao Topscomm Communication Co.,Ltd	DDSK1710-Z	12 May 2016	1647	3.0	20160108_Qingdao_Topscomm_Communication_Co_Ltd_CHINA
SHENZHEN STAR INSTRUMENT CO., LTD	DDSY23IIIA	17 May 2016	1648	2.7	Shenzhen_Star
SHENZHEN STAR INSTRUMENT CO., LTD	DTS27A	17 May 2016	1649	2.7	Shenzhen_Star
SHENZHEN STAR	DTSY23A	17 May	1650	2.7	Shenzhen_Star

Certification No. 1642

This is to certify that the metering equipment identified as:

 Type: MT880-T1
 Mgmt. Logical Device Name: SAP = 1 is "49524B3126313022333583037303939" (ISK1510235807099)
 Manufactured by: Iskraemeco d.d.

has successfully passed the DLMS/COSEM Conformance test, under the following conditions:

- CTT version: CTT 3.0 standard edition, 64bits (103)
- Licensed to: ISKRAEMECO d.d. (25.2.2003)
- COSEM object definitions file version: Object_def_v2.9_released_GKVV141201.dat
- Media identifier(s): Abstract, Electricity

Test	Comm. profile & opening mode	Application context	Security suite	Date and time	Test Result hex value
Test 1 optical	HDLC	LONG_NAMES, LONG_NAMES_WITH_CIPHERING	0	01-APR-2016 11:23:33	PH0EPEHVGAGV0P0F79364084F8FA08A24F30B69 6A7F4100FC3769AC27
Test 2 RS-485	HDLC	LONG_NAMES, LONG_NAMES_WITH_CIPHERING	0	01-APR-2016 13:05:51	25F7EDAF30F00041AFB433094600EFD0C44AE031 0DB5408BC1AD01D8A021

 The authenticity of the test report(s) has been verified by the DLMS User Association and the metering equipment identified above is listed on its web site at: www.dlms.com

With this, the manufacturer is entitled to display the DLMS/COSEM Compliant mark – shown below – on its product duly identified and on its product literature.



The test reports are filed by the DLMS UA. Copies are available from the manufacturer.

This Certificate is only valid for the functions successfully tested; see the Summary. The test has been executed on one specimen of the product, as identified by the Management Logical Device Name reported. Results may not be applicable for other test specimens.

 Date: Zug, the 8th April 2016


 Gyöző Kmety
 President

Certification No. 1642
Summary of features tested for Test 2

This section provides an overview of the features tested, aggregated over all logical devices and Application Associations in one test session. Full information is available in the Test Result.

 * Identification *

```

Identification = {
  Manufacturer = "\Iskraemeco d.d."
  FLAGid = "\ISK"
  Type = "\MT880-T1"
  IUTisModule = FALSE
  SerialNr = "\35807099"
  Comment = "\This is a comment"
  Comment = "\This is another comment"
}
    
```

 * Summary *

TYPE	TOTAL	SKIPPED	INAPPLICABLE	INCONCLUSIVE	PASSED	FAILED
HDLC	26	0	4	0	22	0
APPL	80	0	16	0	64	0
COSEM	18715	0	18	24	18673	0
SYMSEC	74	0	11	6	57	0

Communication profile: HDLC

Application context names: LONG_NAMES, LONG_NAMES_WITH_CIPHERING

 Security mechanisms: NO_SECURITY, LOW_LEVEL_SECURITY
 HIGH_LEVEL_SECURITY_GMAC

 ACSE and xDLMS features: ACTION, GET, MULTIPLE_REFERENCES, RLRL_RLRE
 SELECTIVE_ACCESS
 SERVICE_SPECIFIC_BLOCK_TRANSFER, SET

 Security features: ACTIVATE_SECURITY_POLICY, KEY_TRANSFER
 SERVICE_SPECIFIC_GLO_CIPHERING

Logical device(s) found:

 SAP = 1 is "49524B3126313022333583037303939"
 (ISK1510235807099)

 COSEM classes tested: 1, 3, 4, 5, 6, 7(1), 8, 9, 11, 15(1), 17, 19, 19(1), 20
 21, 22, 23(1), 40, 64, 70

COSEM classes found but not tested: (none)



... Shows that the meter is interoperable according to the IDIS.

```
Manufacturer = {
  Name = '\Landis+Gyr'
  ThreeLettersId
}
DeviceUnderTest =
  IDISDeviceType
  IDISFunctionType
  SerialNr = 1152
}
```

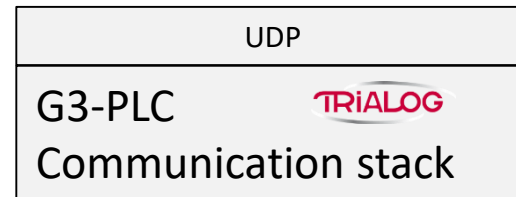
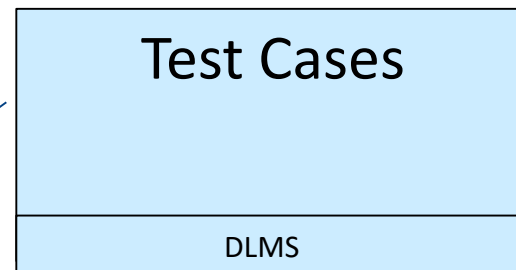
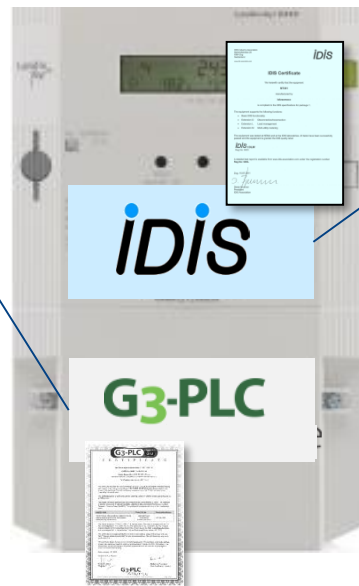
```
*****
* Summary *
*****
```

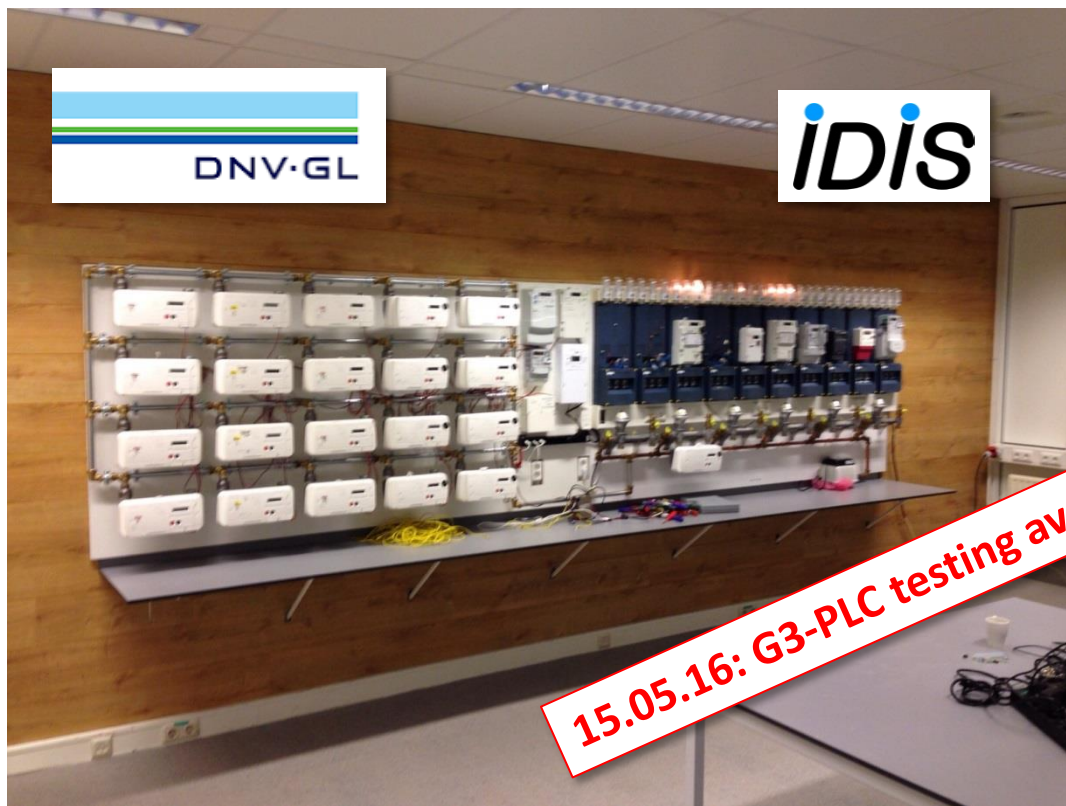
```
PASSED
FAILED
DISABLED
INAPPROPRIATE
INAPPROPRIATE
```

```
MechanismName =
HIGH_LEVEL_SECURITY_GMAC//ENC
RITY
Policy = NO_SECURITY//AUTHENTICATION
Password = '
}
PreEst
//ENCRIPTION//NO_SECURITY
SecurityElements
y, used when making tunneled accesses.
SecurityElements = {
Public = {
  ContextName = LONG_NAMES
  MechanismName = LOWEST_LEVEL_SECURITY
  Policy = NO_SECURITY
}
Management = {
```

MANUFACTURERS: know what they are expecting
USERS: know what has been achieved

IDIS G3-PLC conformance testing





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Who invested into the IDIS specifications ?

9 Utilities:

Austria(3), Belgium(3), Netherlands(1), Poland(1), Switzerland(1)

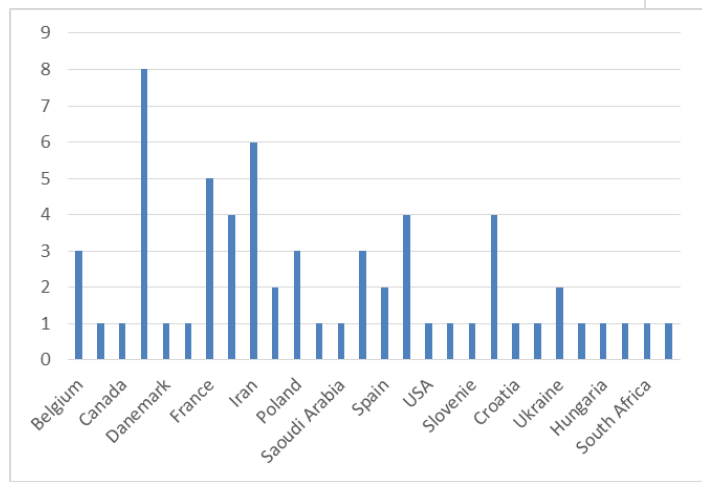
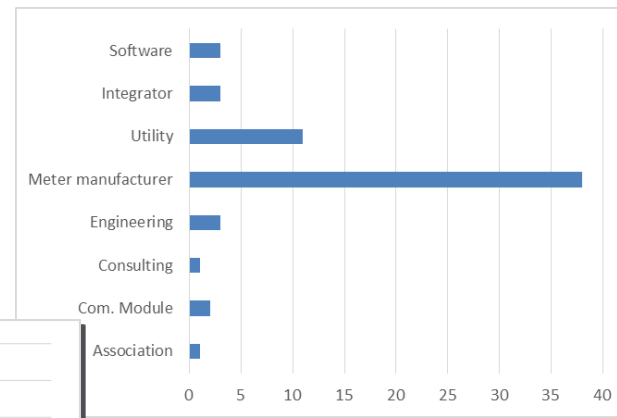
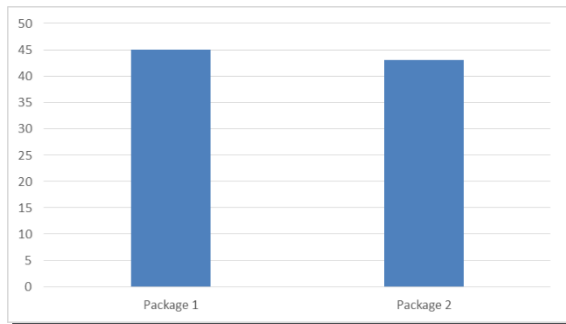
25 Meter Manufacturers:

Bosnia(1), Bulgaria(1), China(5), Egypt(1), UK(1), France(1), Germany(3), Iran(2), Russia(1), Serbia(2), Slovenia(1), SA(1), Spain(1), Switzerland(1), Turkey(1), Ukraine(1), USA(1)

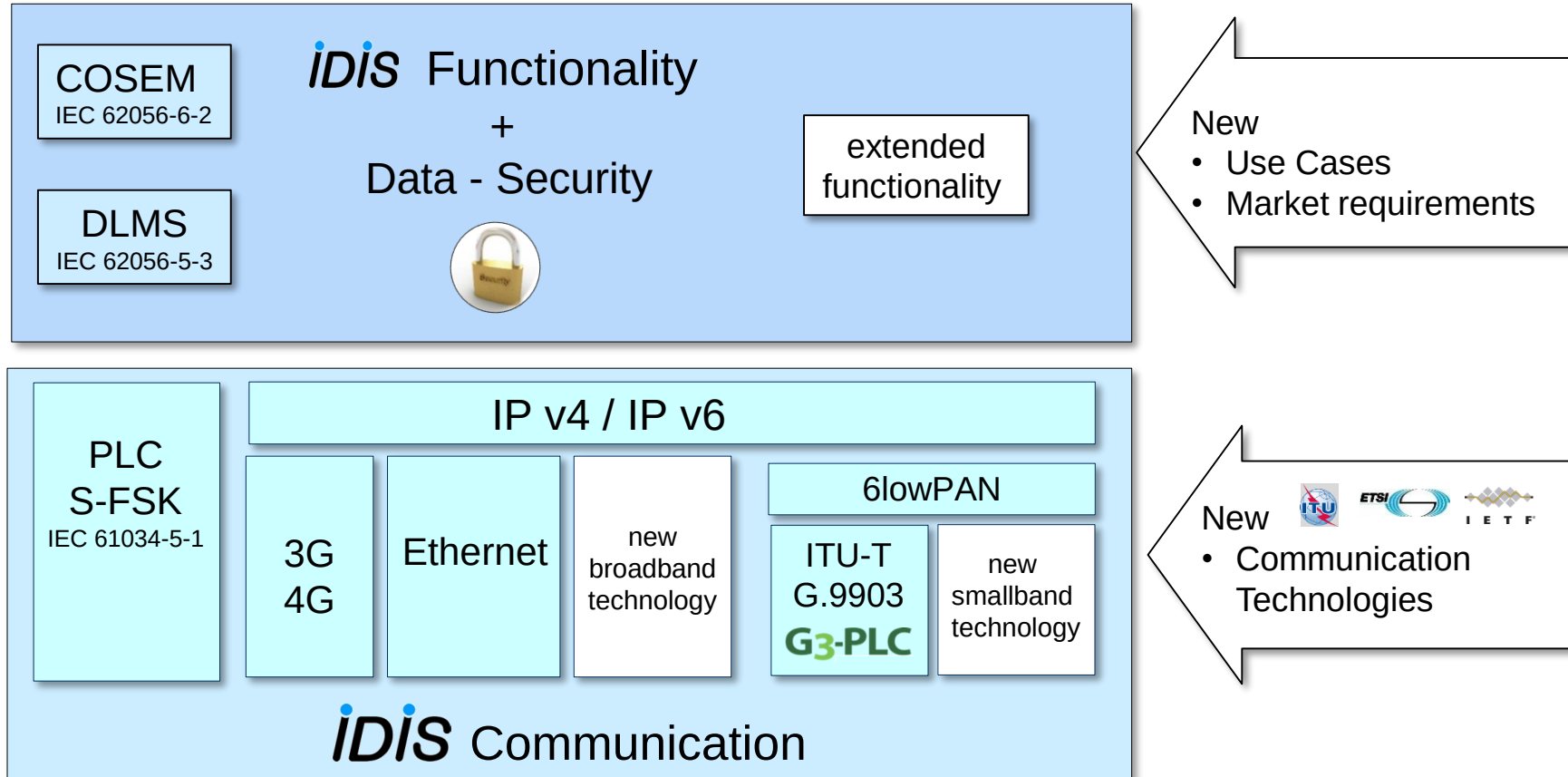
7 System/Service Providers:

Austria(1), France(2), Germany(1), Iran(1), Spain(1), Switzerland(1)

IDIS Association – status May 2016







Conformance Testing

G3-PLC, Internet, ...

Market Requirements

Austria, Belgium, ...

Cooperations

M-Bus organisations, ...



Package 3
extended functionality

BB12,GB8
IP
2G, 3G, 4G
Ethernet
G3-PLC

**BACKWARDS COMPATIBLE
WITH PACKAGE 2**

release planned: October 2016



iDiS

Package 1
S-FSK-PLC

iDiS

Package 2

IP (BB11,GB7)
2G, 3G, 4G
Ethernet
G3-PLC

iDiS

Package 3

IP (BB11,GB7)
2G, 3G, 4G
Ethernet

extended functionality

- enabling/disabling functionalities (opt in/out)
- Extended communication supervision
- More support for M-bus devices (wired, wireless)
- ...



thank you for your attention