AEMC Briefing

Review of International Communication Standards used to support Smart Meter Rollouts

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Phacelift

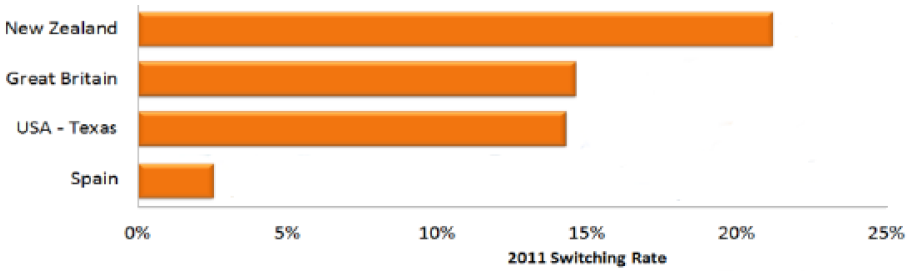
1. Request for Advice
2. Summary of International Jurisdictions
3. Questions

Request for Advice

- International developments on smart meter communication standards
  - Overview of which standards are commonly used internationally
  - Focus on jurisdictions where retailers and distributors are not the same party
- Assess whether the standards are:
  - Well developed?
  - Have the standards converged?
- Use in Australia
  - Practical implementation issues for adoption in Australia?
  - Consider who should be the custodian of the standard(s)
    - → Pros and cons

Summary of the International Rollouts

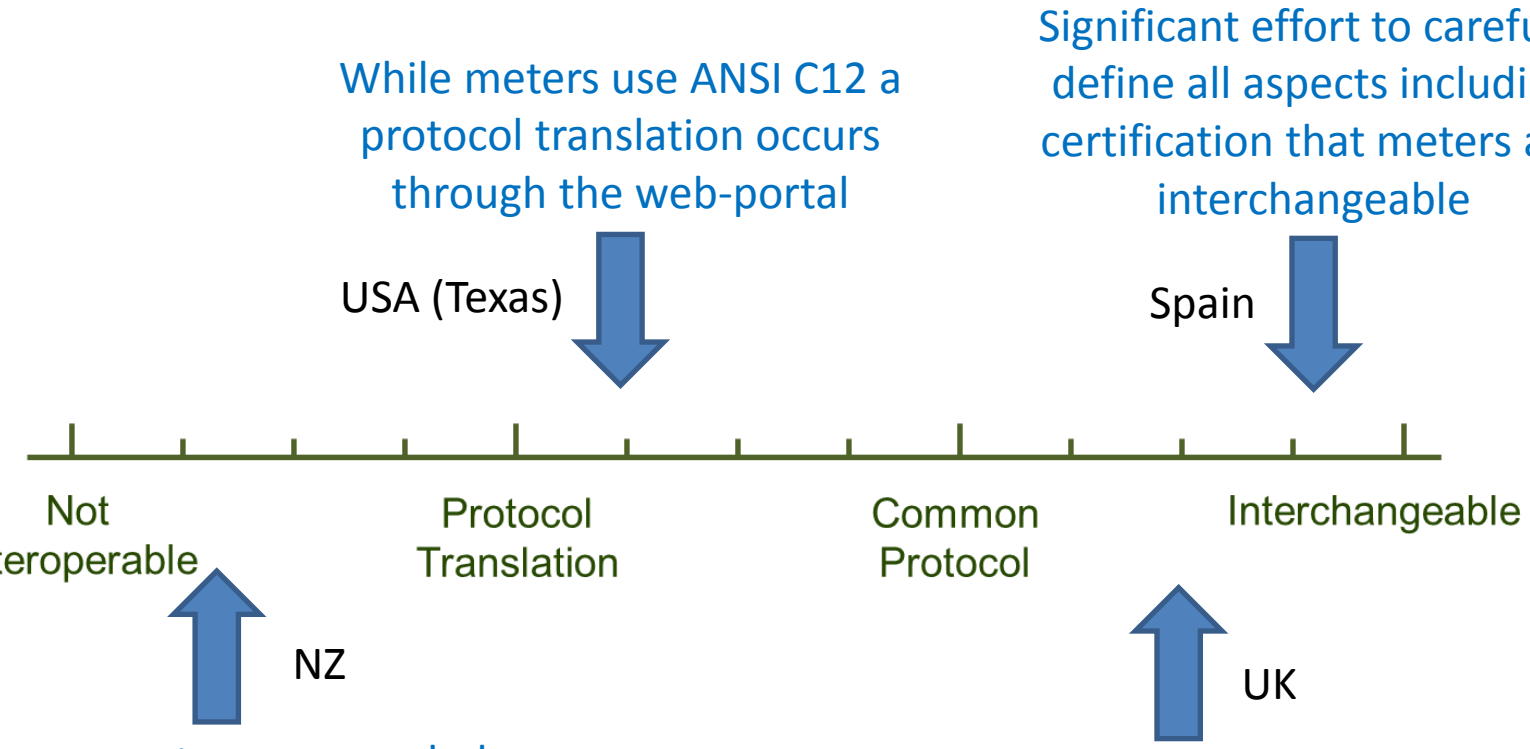
Jurisdiction	Meter Protocol	HAN Protocol	Comms
USA (Texas)	ANSI C12	Not Specified (Mainly ZigBee)	RF Mesh (predominantly)
UK	DLMS/COSEM	ZigBee SEP 1.2	Cellular, RF Mesh, Low Freq RF
New Zealand	Not Specified	Not Specified	Unspecified (Cellular popular)
Spain	DLMS/COSEM	Not Specified	PRIME PLC



Figures from World Energy Retail Market Rankings 2012 vaasaETT

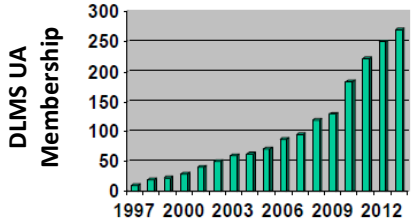
All the selected jurisdictions have retail contestability

Assessment of level of Interoperability



Maturity of the Standards

- ANSI C12
  - The USA was an early adopter of protocol standards
  - It has been steadily enhanced and now supports IP connectivity
  - C12.22 defines a physical interface between the meter and comms
- DLMS/COSEM
  - DLMS User Association membership has grown steadily
  - The suite of standards is now very comprehensive
  - Certification testing has always been an important feature of the standard

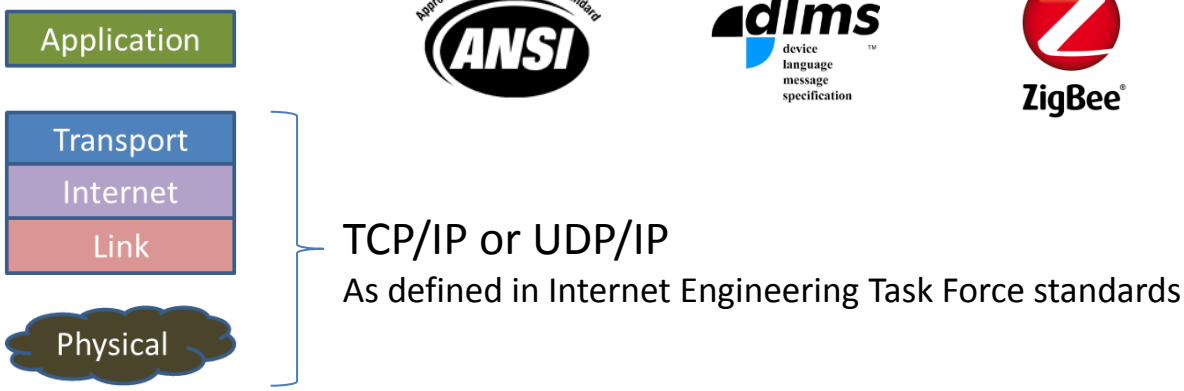


- ZigBee
  - ZigBee Alliance has recently approved Smart Energy Profile 2
  - ZigBee SEP globally adopted in Smart Meter rollouts

The development work in the UK highlights that DLMS/COSEM and ZigBee will work together

Convergence of the Standards

- Recent versions of the standards support the Internet Layers Model and can be transmitted over communication networks supporting Internet Protocol (IP)
  - ANSI C12.22
  - DLMS/COSEM
  - ZigBee SEP 2.x



Suitability for adoption in Australia

- ANSI C12
  - Predominantly used in the USA
  - Meters not suitable for use in Australia (plug in base)
  - Certification testing is offered

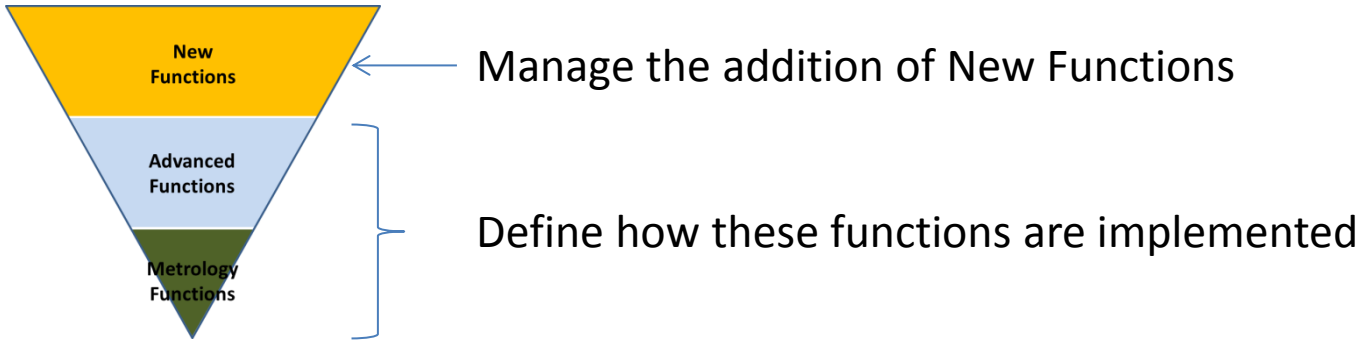
- DLMS/COSEM
  - Has already been deployed in Australia
  - Meters typically similar to those used in Australia (bottom connect, etc)
  - Fully supports certification testing of devices

- ZigBee SEP
  - SEP 1.0 selected as the HAN standard by Victorian AMI
  - SEP 2.x selected as the HAN standard by the SMI FS
  - Fully supports certification testing of devices

DiUS
PowerVu IHD

Companion Specification

- End-to-end interoperability starts with the selection of an application protocol
- To achieve interoperability ambiguities should be removed
  - e.g. different approaches used to implement same functionality
  - Required minimum set of functionality
- Suggests the need to develop a Companion Specification



Custodian of the "standard"

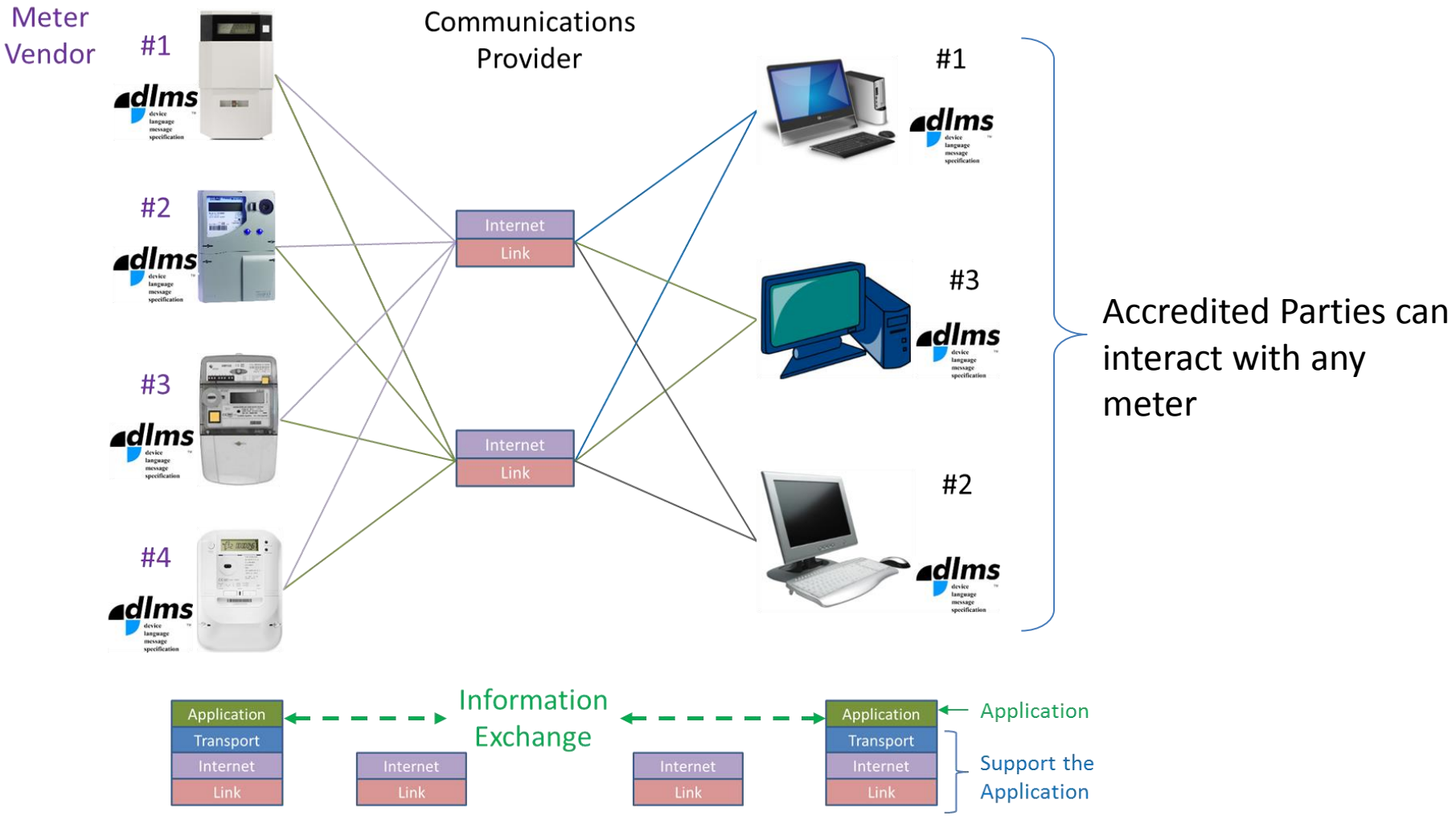
- Australian specifications can refer to International Standards
  - Implies the direct use of International Standards
- The custodian will be required to manage (any) Companion Specification
- This will require the facilitation of a joint industry working group
  - "It is essential that this Companion Specification should be developed by a joint effort of manufacturers and utilities and other stakeholders"
    – OPEN Meter Project

Suggested Options for the Custodian

Association	Pros	Cons
Standards Australia		Companion Specification is not a “standard” Cost to develop the “standard” Limited knowledge of smart metering
Australian Energy Market Operator (AEMO)	Good knowledge of metering and the NEM	May not be a suitable party (*)
National Measurement Institute (NMI)	Knowledge of metering and certification testing Used to working in highly technical areas	

(*) Were AEMO selected to provide meter access (via an enhanced B2B Gateway) they would no longer be a neutral party

The advantage of selecting common Applications



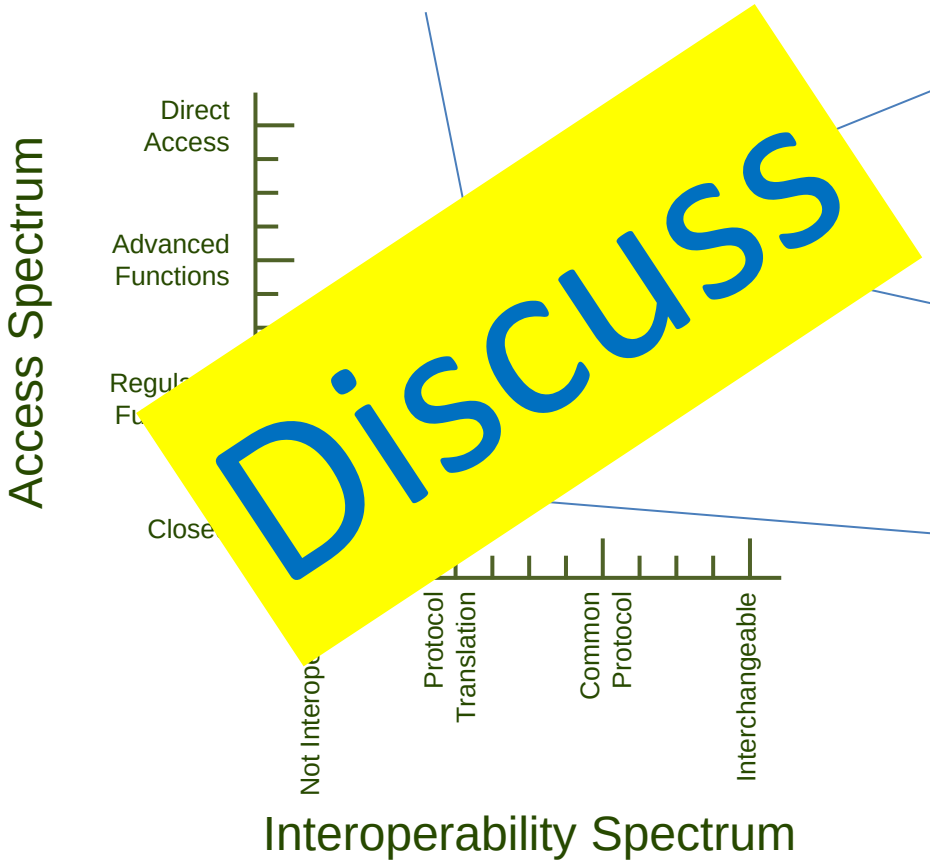
International SMI Rollouts

Texas
Protocol translation in web-portal controls Accredited Party access to meters

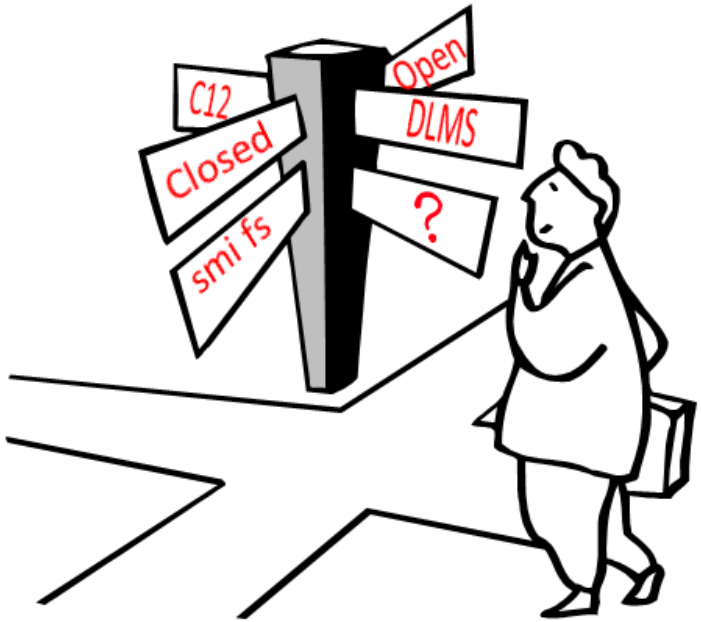
UK
Common protocol with contestable meter provision (allows Advanced Functions). Suspect Data Services Provider may limit direct access to meters

Spain
Interchangeable Meters but tight standards likely to limit Advanced Functions

New Zealand
No evidence of Smart Meter functionality being made available to Accredited Parties

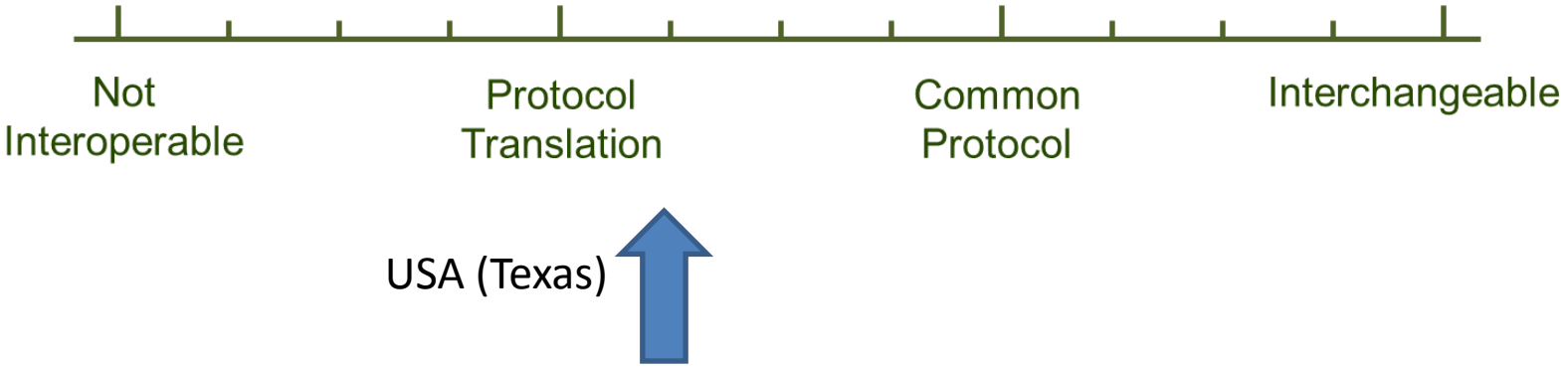


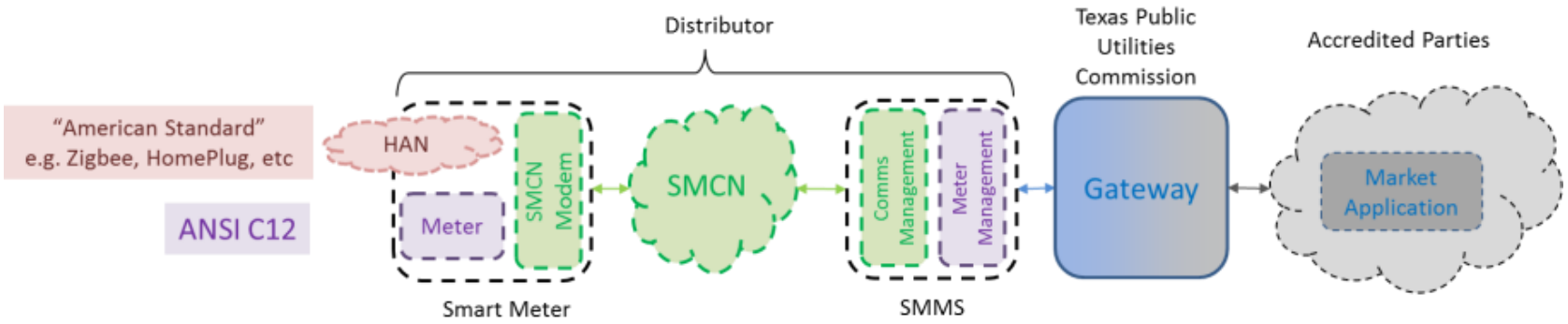
Questions



Appendix

Assessment of level of Interoperability





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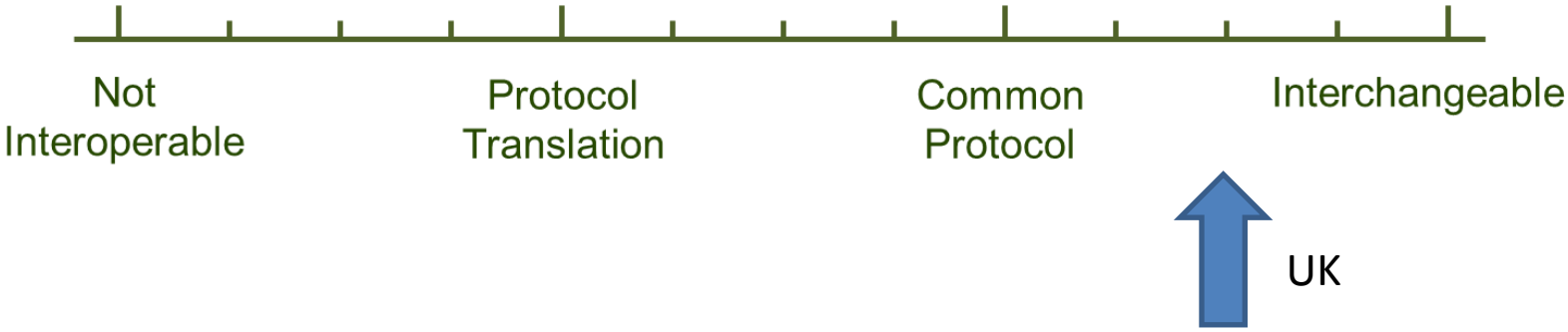

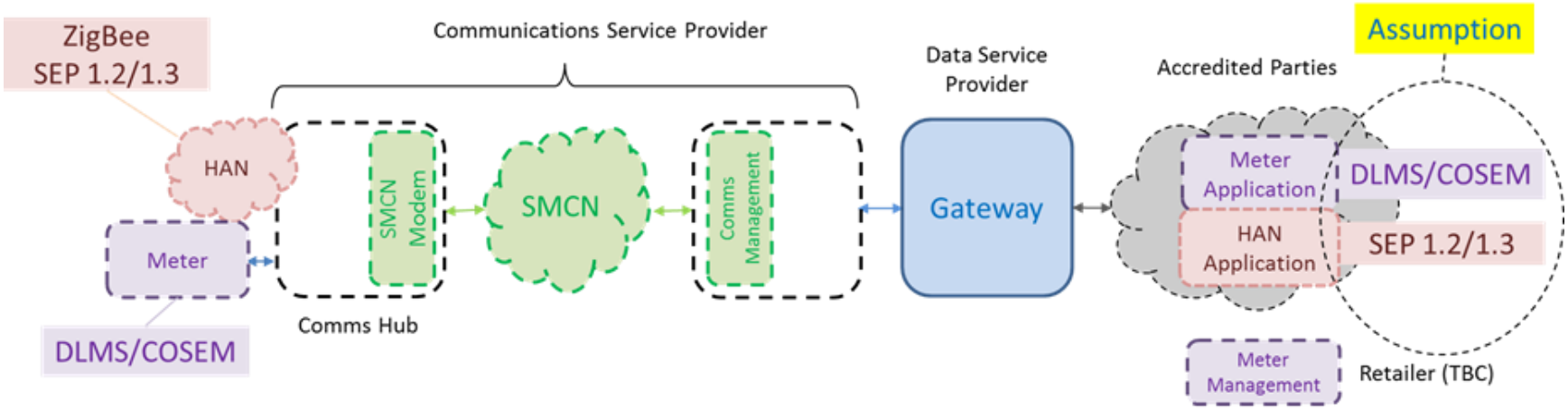

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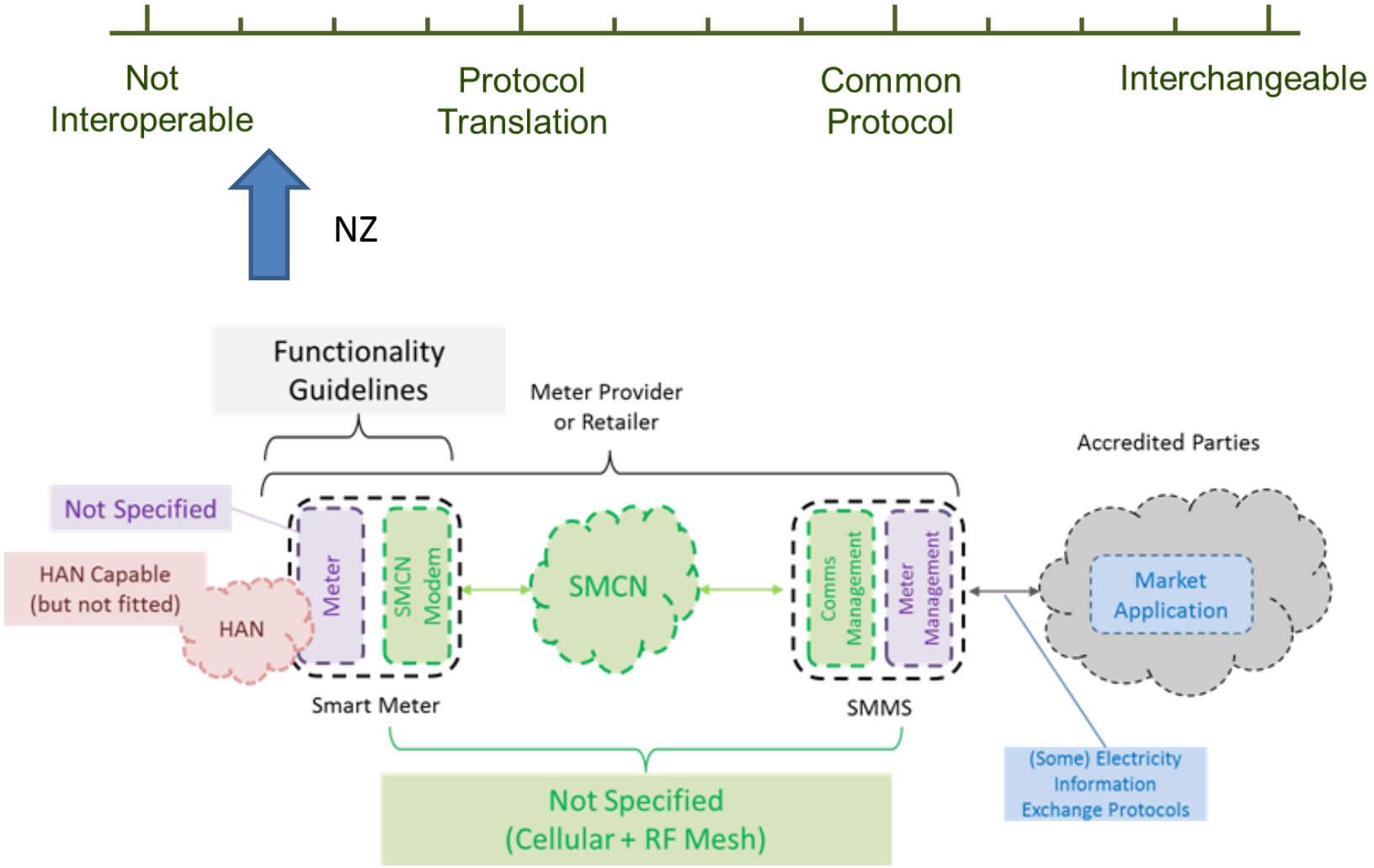

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