

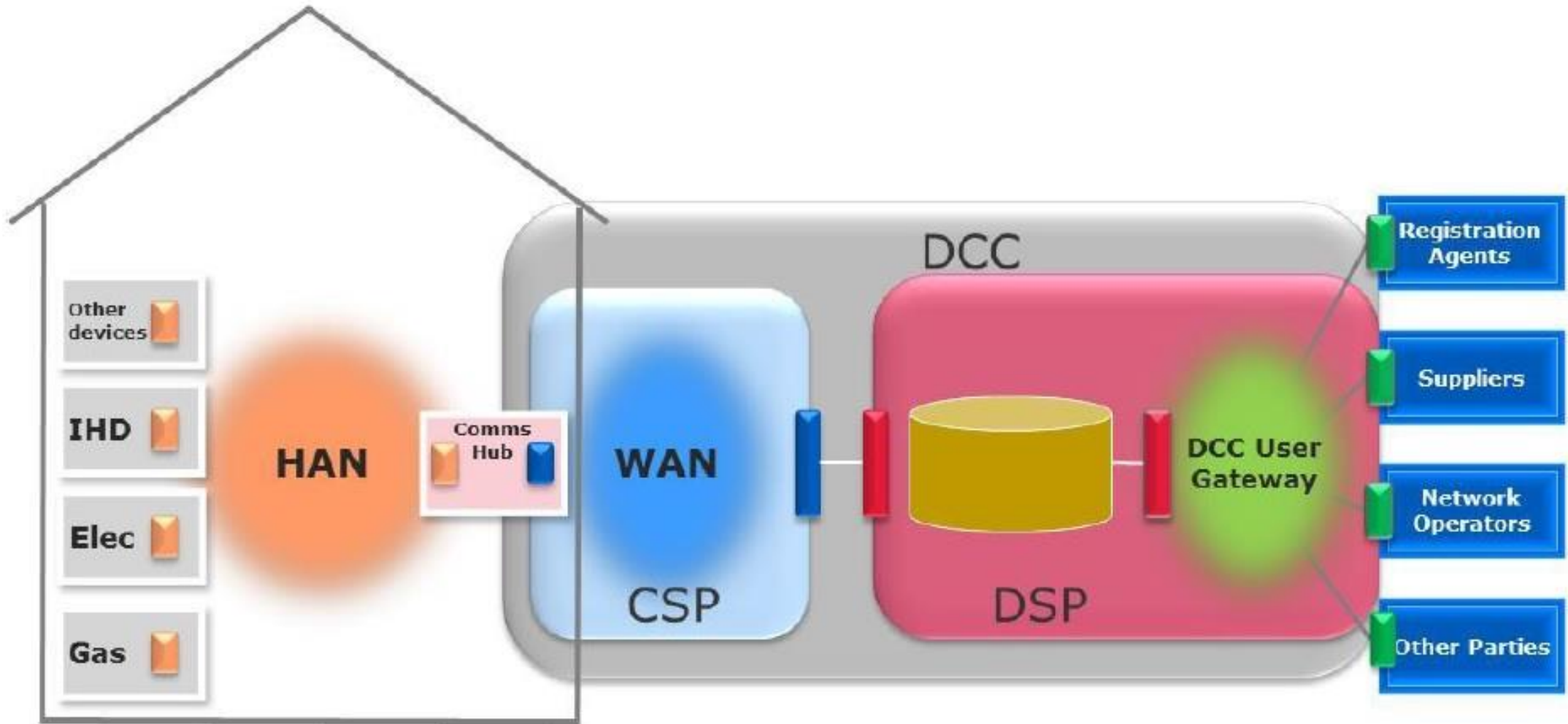
# The Home Area Network & CADs

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# The Home Area Network – Scope – 10 Minutes

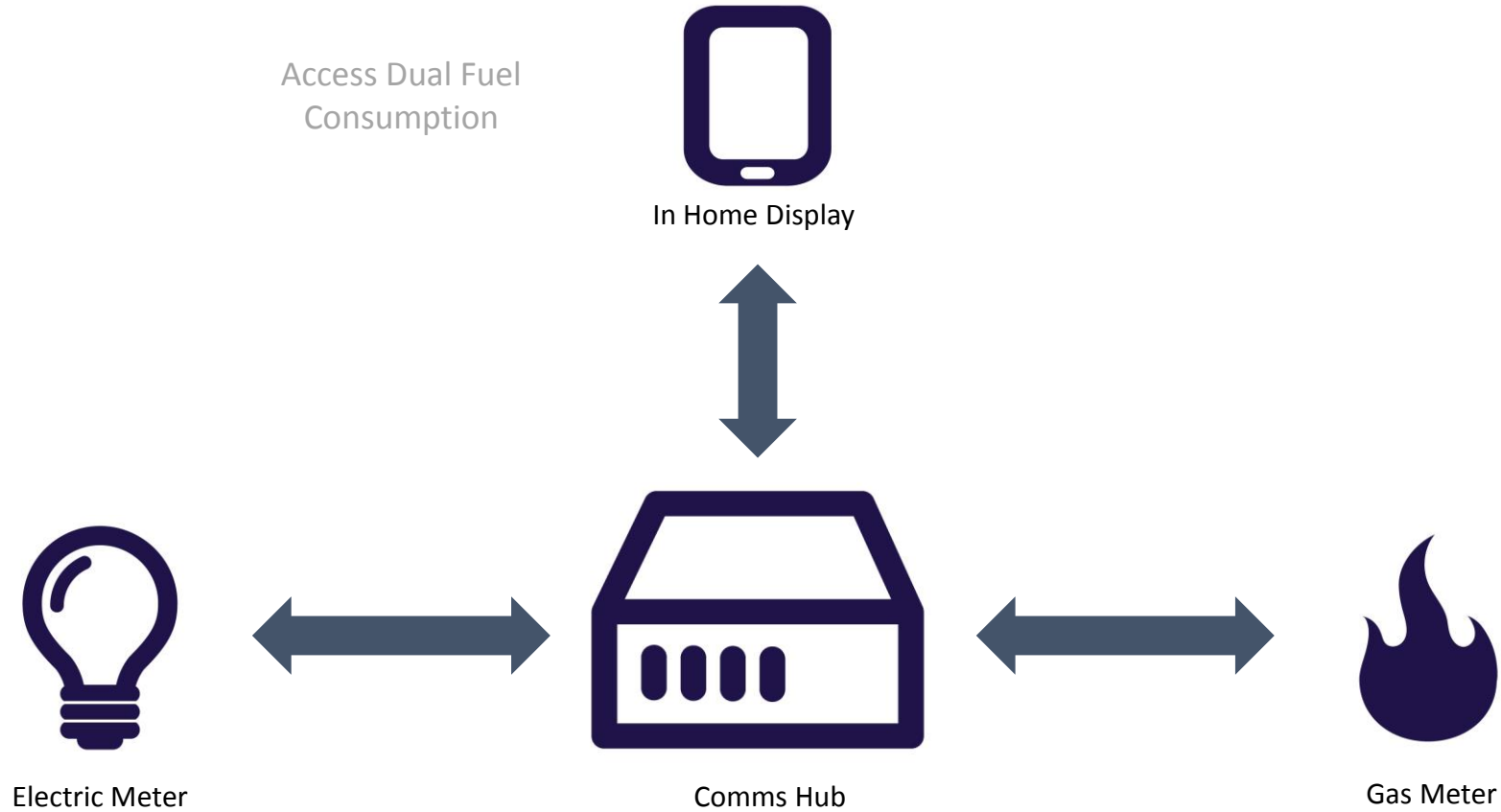
- An **very high level** outline of HAN connectivity under SMETS 1 and 2 – what consumer devices can be connected?
- What is the quality of data that can be accessed via the HAN and how can this be used?
- What are the suppliers and others doing in terms of developing smart home tech that integrates with the HAN or sits alongside it?
- What are the possible benefits of this tech for vulnerable households and what stands in the way of realising those benefits? - e.g. issues of access to the tech for vulnerable groups?

# The Home Area Network Ecosystem – “HAN”



# Communications Hubs – What They Do

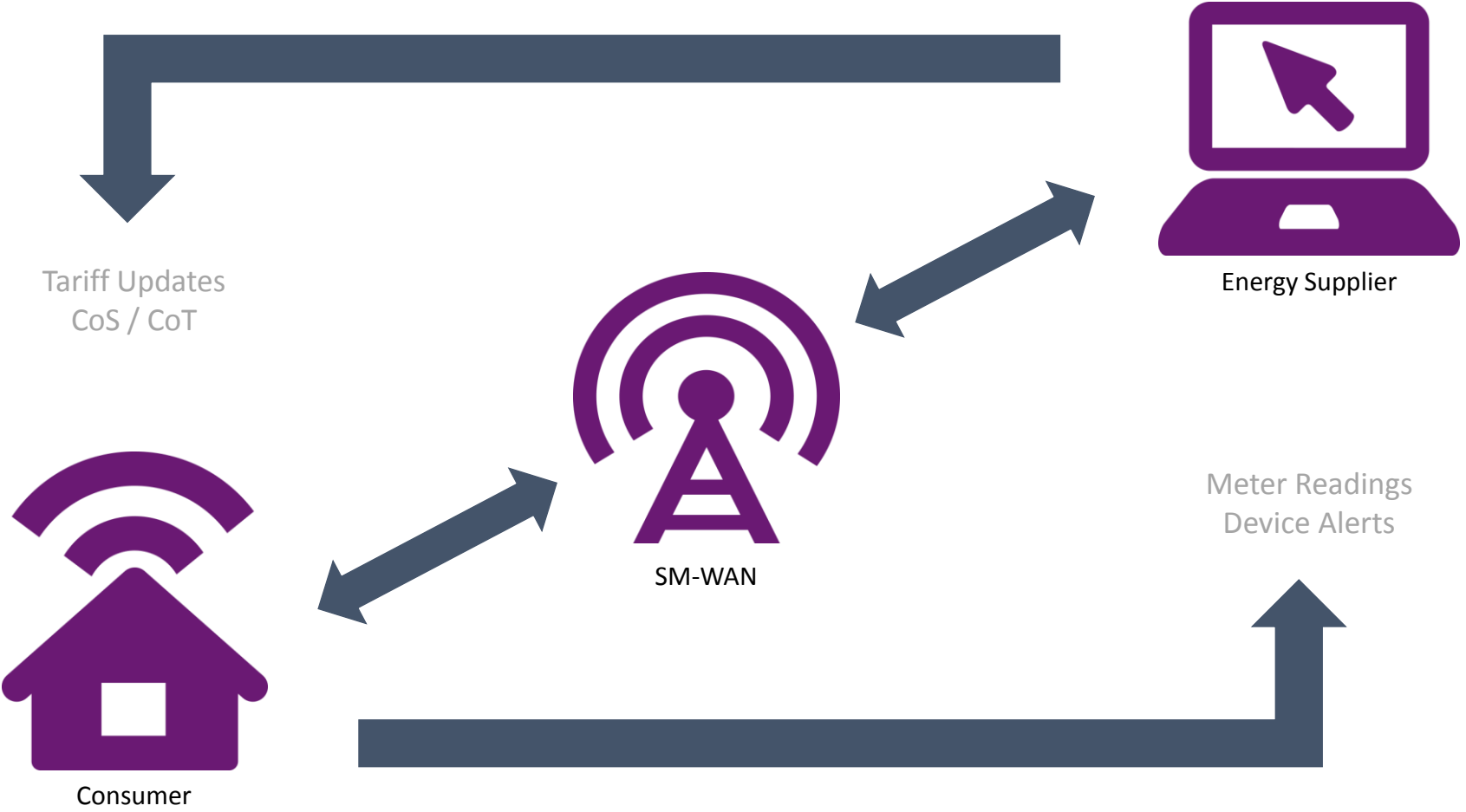
*Comms Hubs allow Smart Metering Devices to interact*



*\*Illustrative smart metering devices*

# Communications Hubs – What They Do

*Comms Hubs allow Energy Suppliers to communicate with their customers' Smart Metering devices*



# The HAN Ecosystem - Background

- HAN Connectivity – Energy Supplier led Smart Metering rollout
  - SMETS1 – Commercially driven, mandatory minima for large Energy Suppliers
  - SMETS2 – Regulatory driven, mandatory for all Energy Suppliers, uses DCC Systems
- The Smart Metering Home Area Network (HAN)
  - Supported by a Communications Hub on the Meter Board of all premises
  - Comms Hub allows devices to communicate via the HAN, and can talk to the DCC central systems via a wireless Smart Metering WAN
- Typical HAN Devices – connected to the Comms Hub
  - Gas Smart Metering Equipment (GSME)
  - Electricity Smart Metering Equipment (ESME)
  - In Home Display (IHD) and/or Pre Payment metering Interface Device (PPMID)
  - Consumer Access Device (CAD)
  - HAN Connected Auxiliary Load Controller Switch (HCALCS)

# The HAN Ecosystem – Data & Granularity

- Consumption Data – accessible to the Energy Supplier
  - “Profile data” from the Electricity Meter & Gas Meter
  - Energy Supplier can access half hourly consumption profile - consent
  - Communications Hub collects this data and makes it available to the DCC
  - DCC connects to the Communications Hub in each home via the Smart Metering Wide Area Network (SM-WAN)
- Consumption Data – accessible to the consumer
  - Electricity consumption – 10 second granularity
  - Gas consumption – 30 minute granularity
  - Visually via an IHD / PPMID or via a Consumer Access Device (CAD)

# The HAN Ecosystem – what is really “Smart”?

- Presenting HAN Data passively (not really “Smart”?)
  - In Home Display & Pre Payment Metering Interface Device
  - Shows consumption, graphical representation, but no actions are taken
  - Consumer must engage with the device, make decisions, and then act
- Using HAN data proactively (perhaps “Smart”?)
  - Gather data via a Consumer Access Device
  - Use a Home Hub, Gateway, or other device to actively change energy consumption patterns
  - Smart Thermostat, automatic control of high consumption White Goods
  - Time of Use Tariffs (ToU)
  - Sensors - providing additional information to augment the Smart decisions



# The HAN Ecosystem – In Home Tech

- The minimum mandated HAN devices are not really that Smart
  - Energy Consumption Data is presented in easy to understand format on IHD
  - For many, this is sufficient albeit very basic information
  - For others, especially vulnerable consumers, the information is overwhelming and does not offer more real control than existing pre-payment
- Non-mandated HAN devices & systems offer more
  - Smart Home Hubs, sensors for damp, CO2, draft detection, etc
  - Additional consumer cost for these devices, either directly or via the tariff / contract
  - SMETS2 still offers less than SMETS1 for vulnerable customers but this will change
  - In home technology uses an embedded CAD to get consumption data from the HAN

# The HAN Ecosystem – Benefits to Vulnerable

- Vend Codes can be entered & managed on a portable PPMID, not at the Meter itself and no need to go to a shop (noted that some SMETS1 solutions already offer this)
- Phone / Tablet / Web – IHD derogation (provide something to the consumer which offers the same benefits as an IHD and better suits their needs – such as a phone application etc)
- Energy Services – managing Energy on behalf of those who cannot; it is possible to remotely monitor comfort levels in a premises but now there is a “standard” way to gather profiled energy consumption information, and link this to actions / alerts for intervention
- Energy Services and “proactive” smart devices require Smart Technology and in-home systems which are outside of the DCC Systems – an Energy Supplier is not mandated to provide more than an IHD or equivalent – genuinely vulnerable consumers will often require much more
- Other Smart Devices & In-Home Systems take energy consumption information from the HAN using a CAD and use this data to make decisions; the HAN doesn’t actually “do” anything more
- Unlimited options and possibilities exist to provide energy management and care services to the vulnerable but the HAN itself does nothing more than provide Energy Consumption data in a standard way to commercially available systems and devices which have a CAD link

# The HAN Ecosystem – Barriers to Benefits 1

- SMETS2 is currently less flexible than SMETS1 and will remain so for some time, so currently vulnerable customers are likely to get better “Smart” services from Energy Suppliers when using the current generation Smart Metering devices, until the SMETS2 rollout gets underway and refinements are developed – slow process
- SMETS2 becomes mandatory to install for Energy Suppliers during 2018 but the SMETS2 systems will need a bedding-in period which will likely take all of 2018 during which time SMETS1 will be phased out and longer be permitted
- SMETS1 Smart Meters and IHDs usually have to be replaced if a consumer changes supplier – SMETS2 devices, once installed, are more likely to remain usable and offer Smart experience when a consumer changes supplier
- Many vulnerable consumers don’t know what to do with the information they see on the IHD or cannot sufficiently interact with the IHD – they need real “Smart” systems which are proactive

# The HAN Ecosystem – Barriers to Benefits 2

- CADs for SMETS1 systems are slightly different to CADs for SMETS2 systems; widespread deployment of in-home energy management technology for vulnerable households will be easier when SMETS2 is mature and there is a common interface to the HAN, regardless of which Energy Supplier installed the Smart Metering Systems in the premises
- Change and thus innovation is often slow in the DECC / BEIS designed governance of the Smart Energy Code and DCC Systems because so many parties are dependent upon the central DCC systems. Innovation to help the vulnerable will in the meantime take place outside of the HAN - but will use information which is made available in a standard way by the HAN via a CAD
- The HAN and DCC Communications Hub offers access to a very secure UK wide network which is intended to cover over 99% of premises – there are opportunities to exploit this system for the safe and secure transmission of private information from systems supporting vulnerable households including health monitoring etc.