

Energy Management System in Urban Context

Advanced Metering Infrastructure &
Smart Metering Management

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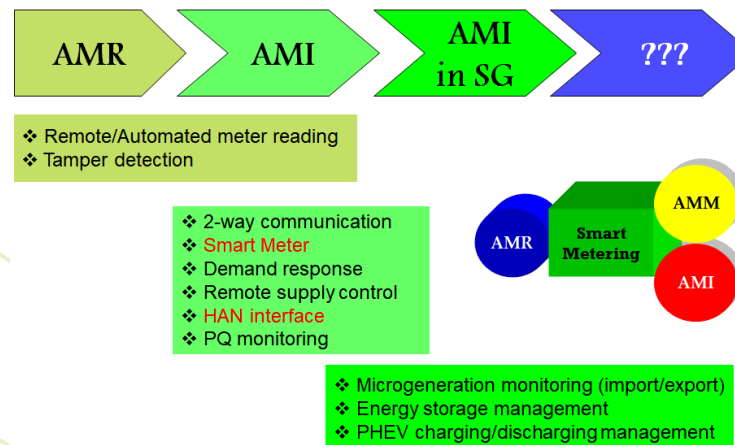
AMI Definition

Department of Primary Industries, Victoria, Australia

Advanced Metering Infrastructure (AMI) means the **infrastructure** associated with the installation and operation of **electricity metering** and **communications** including interval meters designed to transmit data to and receive data from a remote locality;

OFGEM, UK

Advanced Metering Management (AMM) describes metering arrangements that have **two way communications** between a meter and the data collector (**electricity**) or supplier (**gas**).



AMI Definition (Cont.)

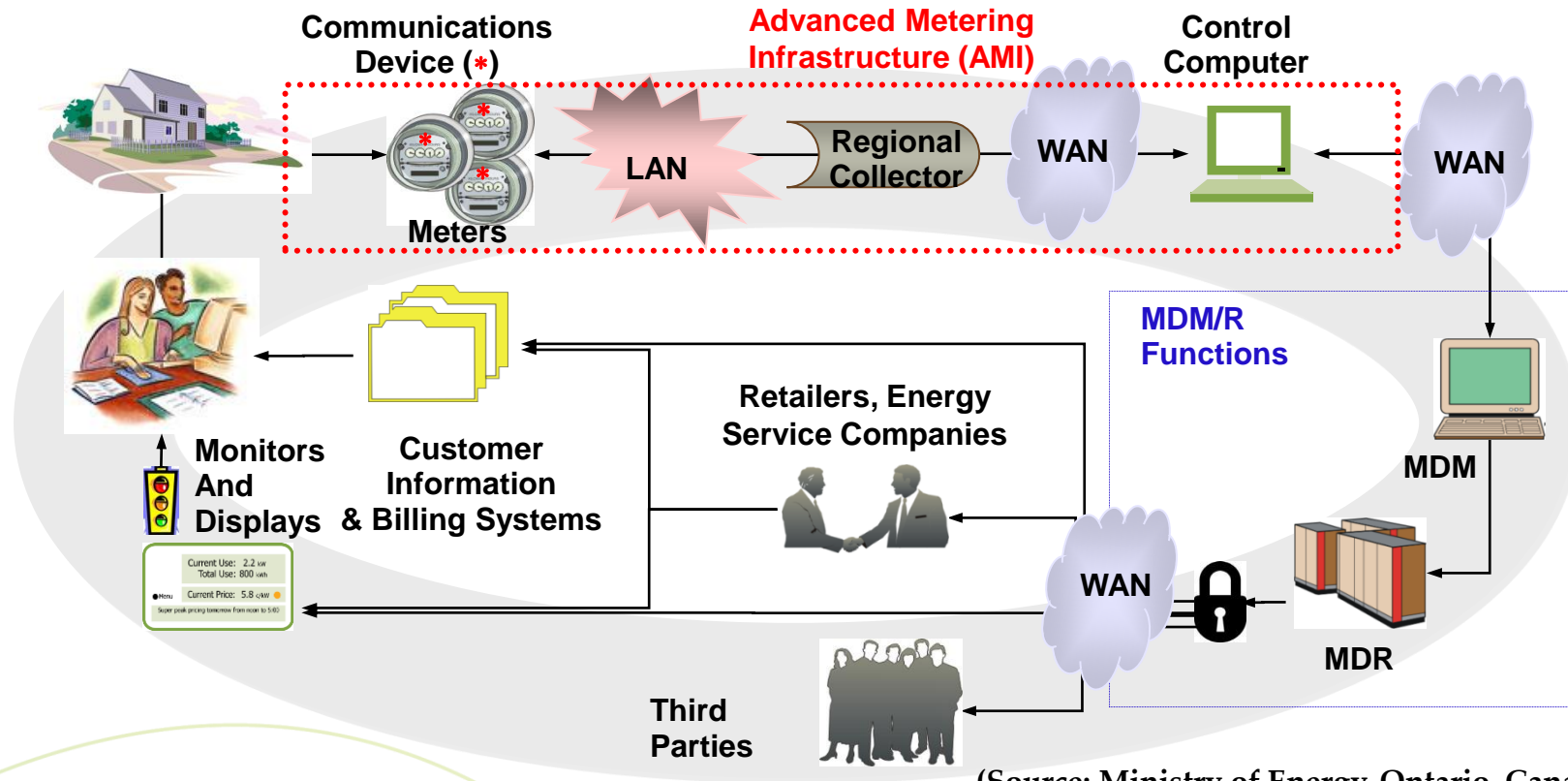
Federal Energy Regulatory Commission, USA

The **full measurement and collection system**. Full measurement and collection system includes customer meters, communication networks and data management system.

Ministry of Energy, Ontario, Canada

It includes the **meter, AMCD, LAN, AMRC, AMCC, WAN** and **related hardware, software and connectivity** required for a fully functioning system that complies with this Specification. With some technologies, an AMI does not include AMRCs. **An AMI does not include the MDM/R.**

AMI Configuration

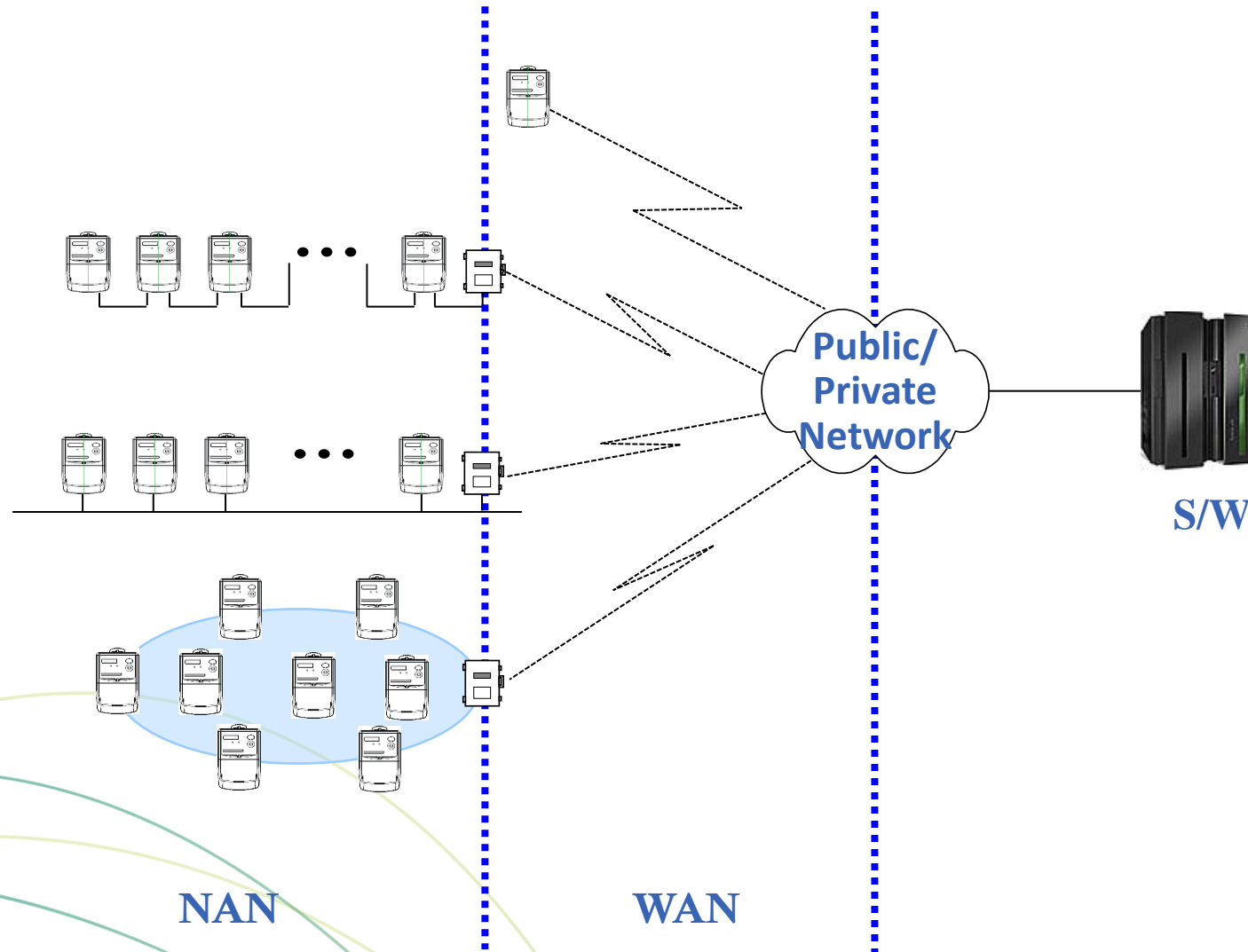


(Source: Ministry of Energy, Ontario, Canada)

Main Components

Meter

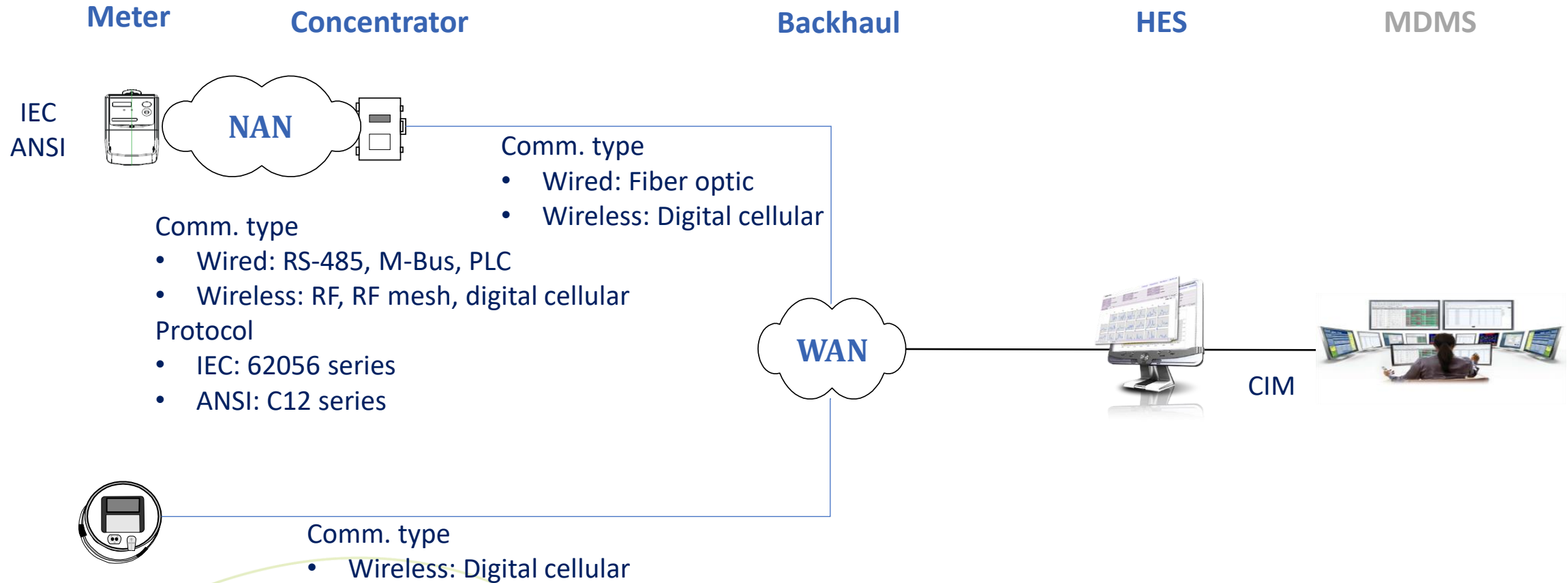
- Metrology
- Measurement
- Event/Alarm
- Configuration



S/W

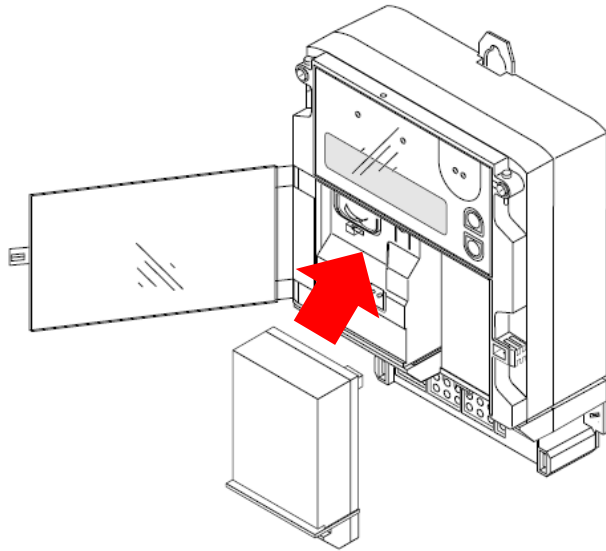
- Collection
- Processing
- Presentation
- Storage
- Integration

Components and Standards



Smart Meter & Communication Module

IEC meter



Easy to install CM after meter installation
Easy to replace CM

ANSI meter



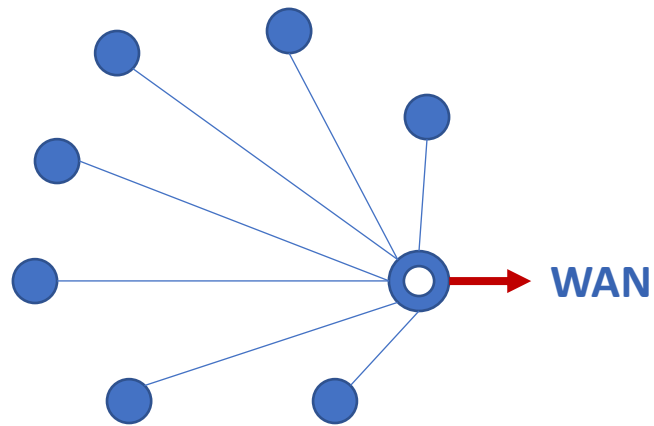
Install CM before meter installation
Hard to replace CM

Different words for CM

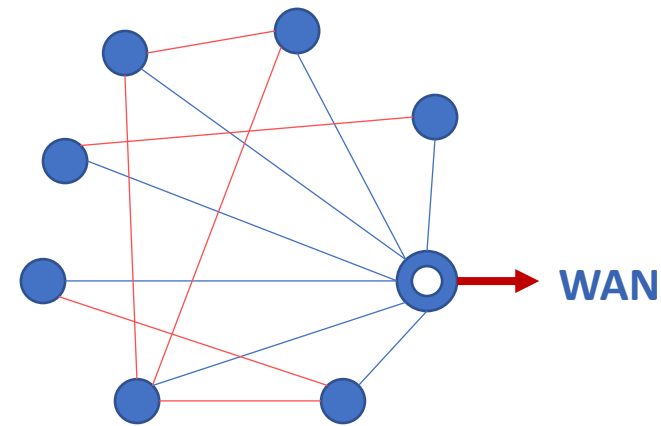
- NIC
- MIU

RF vs RF mesh

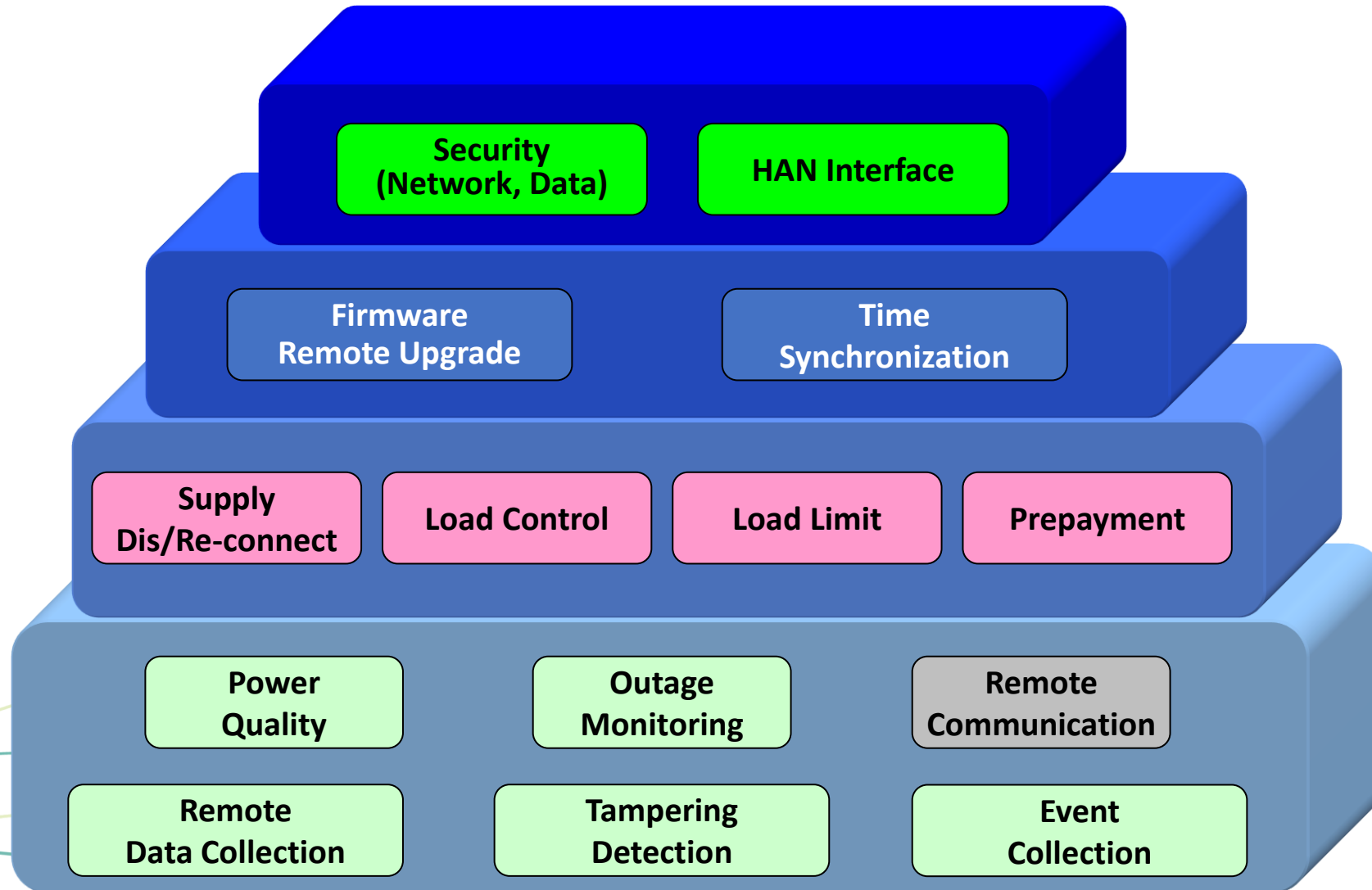
RF



RF mesh



AMI Key Functions



Why AMI?

Different view

Utility

- Revenue protection
 - Tamper detection
 - Eliminate bribery
 - Reduce complain and settlement efforts
- Load balancing
- Customer satisfaction
 - Fast outage detection
 - Power quality improvement
- ...

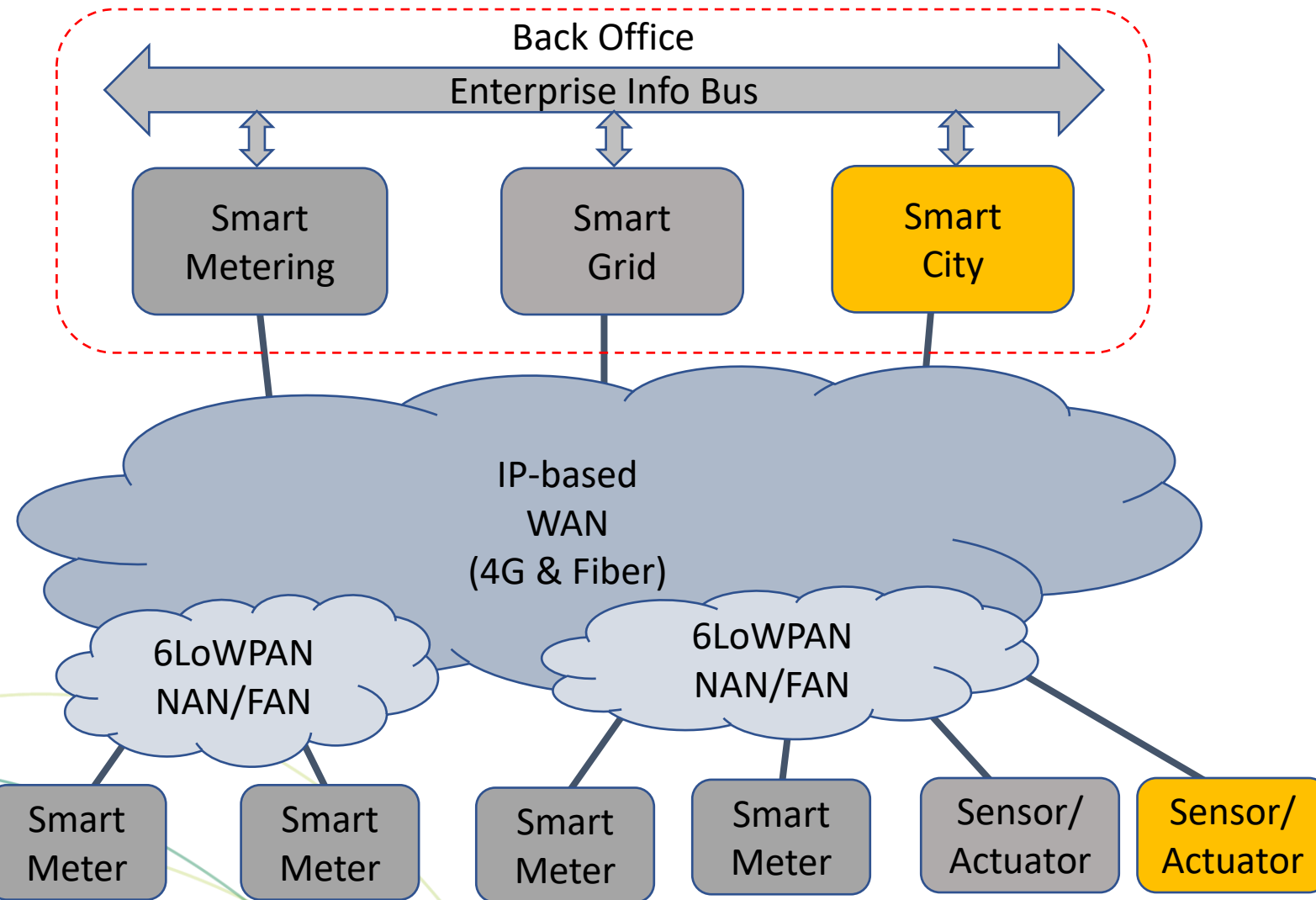


Customer

- Pay as I go
- Fast outage resolution
- Good power quality



Smart Metering, Smart Grid & Smart City



AMI Projects funded by ADB

No.	Country	Employer	Loan No.	Bid Closing	# of Meters	Status
1	Pakistan	IESCO*	3328	Jan. 11. 2018	≈ 875,000	Awarded but not contracted yet
2	Nepal	NEA**	3542	Feb. 15. 2018	98,000	Unknown
3	Pakistan	LESCO*	3328	Nov. 04. 2019	≈ 1,716,000	Under evaluation
4	Sri Lanka	CEB	3483/3484	Mar. 22. 2021	15,378	Under evaluation
5	Bangladesh	BREB ⁺	3350	Aug. 10. 2017	1,000,000	Completed. SPPM

Note

* Scope includes MDMS, Billing, CIS, MWM.

** Scope includes MDMS.

⁺ This project is not AMI but Smart PrePayment Metering system.



THANK YOU!

