California Energy Commission – Efficiency Committee
Workshop on Enabling Technologies
June 19, 2008

Broadband Communications Overview

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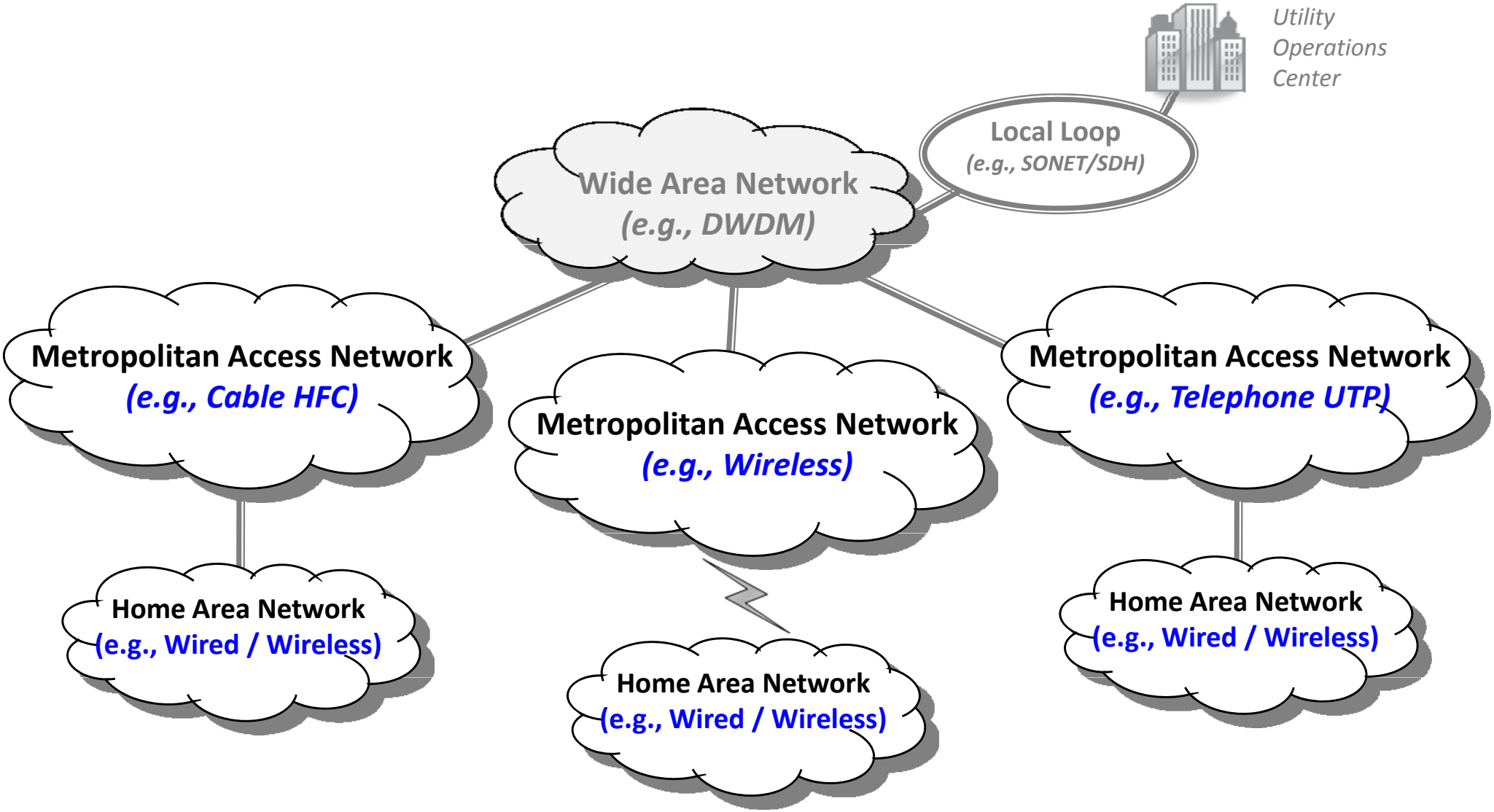
Two-way Broadband Technologies

Metropolitan & Home Area Networks



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Two-way Broadband Technologies

- **Metropolitan Access Service Network (MAN)**
  - **3G Cellular Wireless (Mobile)**
    - ✓ **GSM – UMTS/HSPA** ***(3GPP)***
    - ✓ **CDMA – 1xEV-DO** ***(Qualcomm, 3GPP2)***
  - **4G Cellular Wireless (Mobile & Fixed)**
    - ✓ **WiMAX** ***(IEEE 802.16 , WiMAX Forum)***
    - ✓ **LTE** ***(3GPP – Standard Ratification expected Q4'08)***
  - **Wired / Fiber (Fixed)**
    - ✓ **Cable DOCSIS** ***(CableLabs, ITU-T)***
    - ✓ **xDSL** ***(Broadband Forum)***
    - ✓ **Ethernet** ***(IEEE 802.3)***

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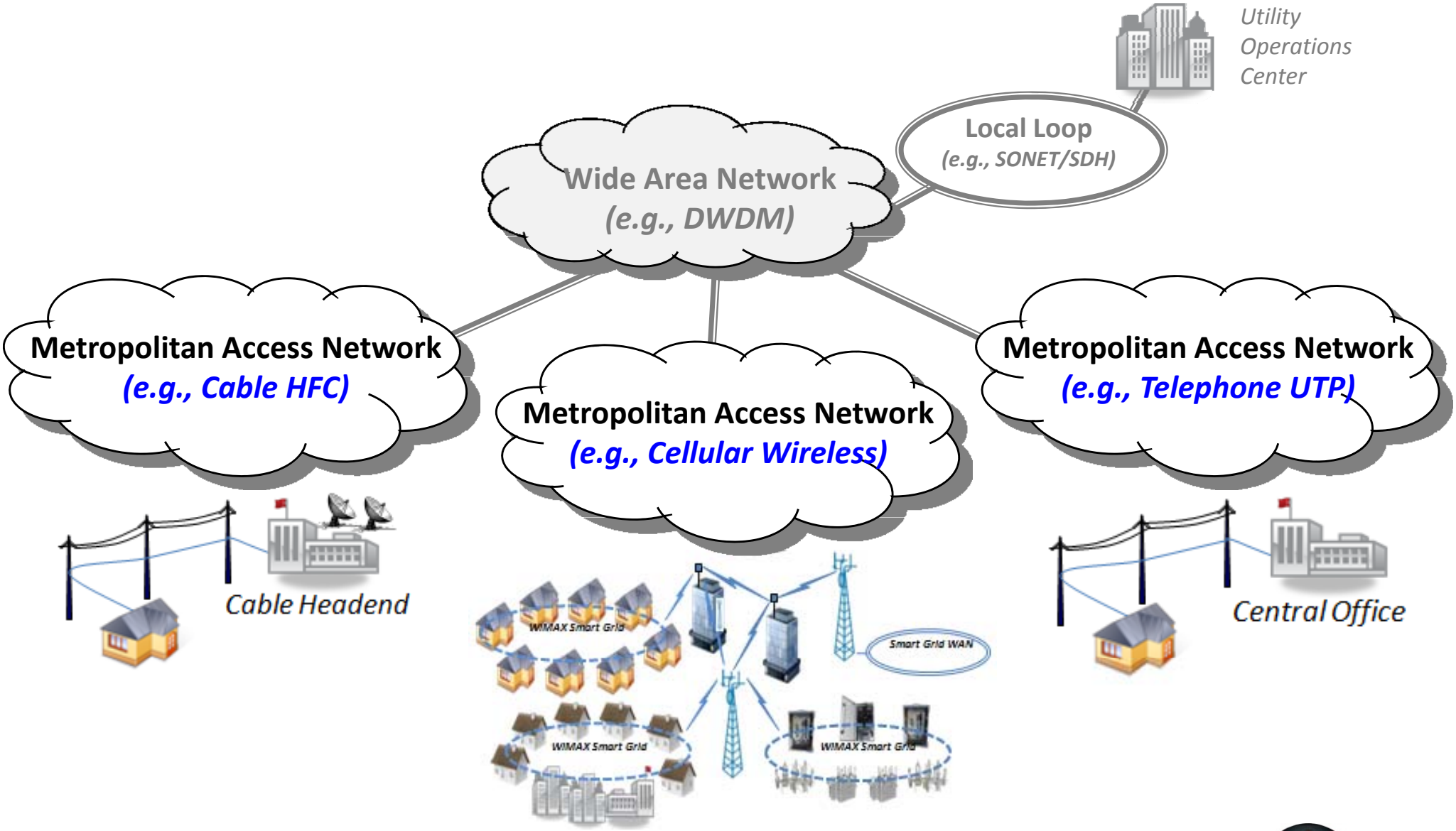
Two-way Broadband Technologies

Metropolitan Area Networks (MAN)



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Two-way Broadband Technologies

- **Home Area or Local Area Networks (HAN or LAN)**
  - **Wireless (Mobile)**
    - ✓ **WiFi** ***(IEEE 802.11)***
  - **Wired / Fiber**
    - ✓ **Ethernet** ***(IEEE 802.3)***
    - ✓ **HomePlug** ***(HomePlug Powerline Alliance , IEEE P1901)***

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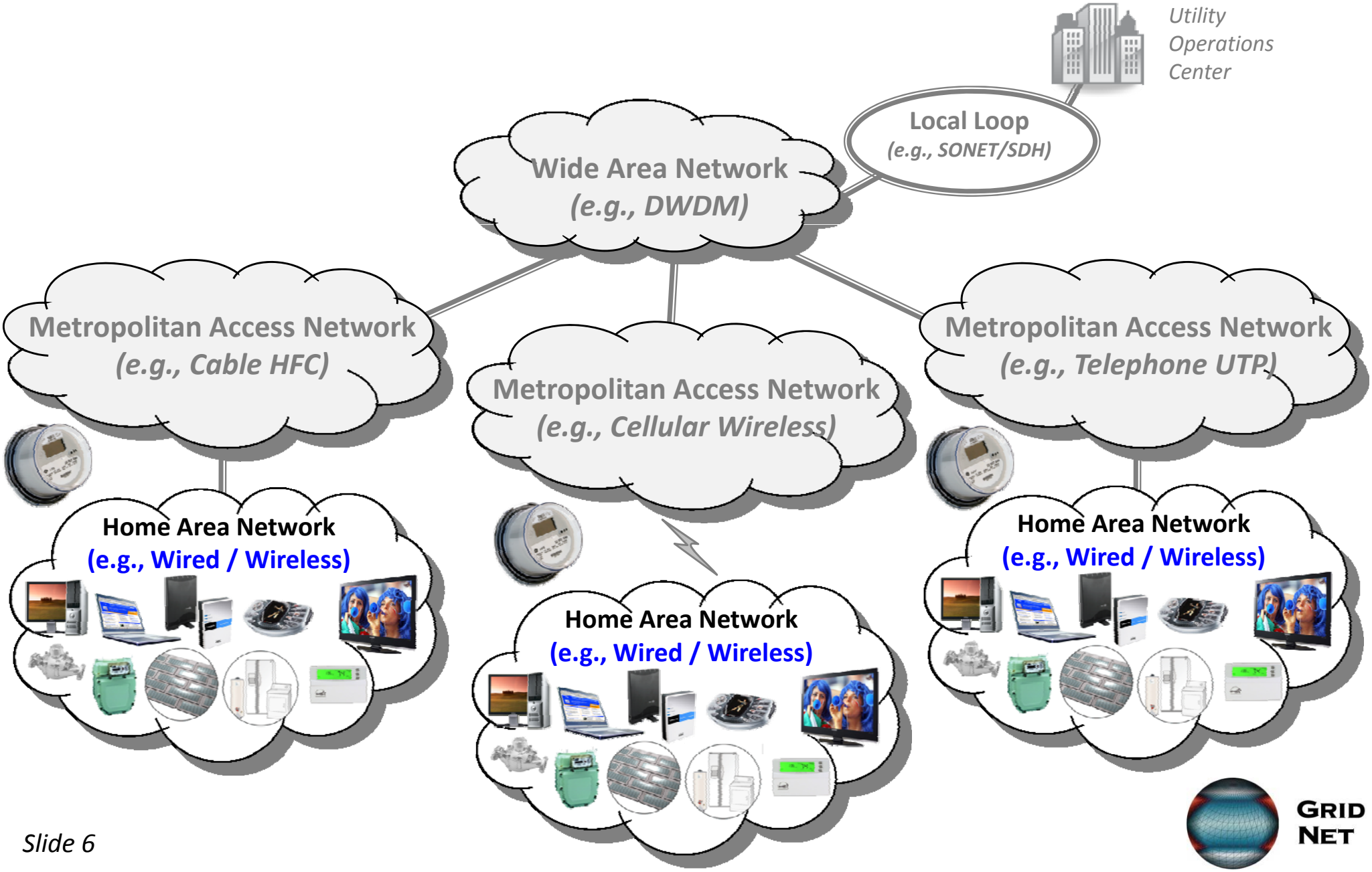
Two-way Broadband Technologies

Metropolitan & Home Area Networks



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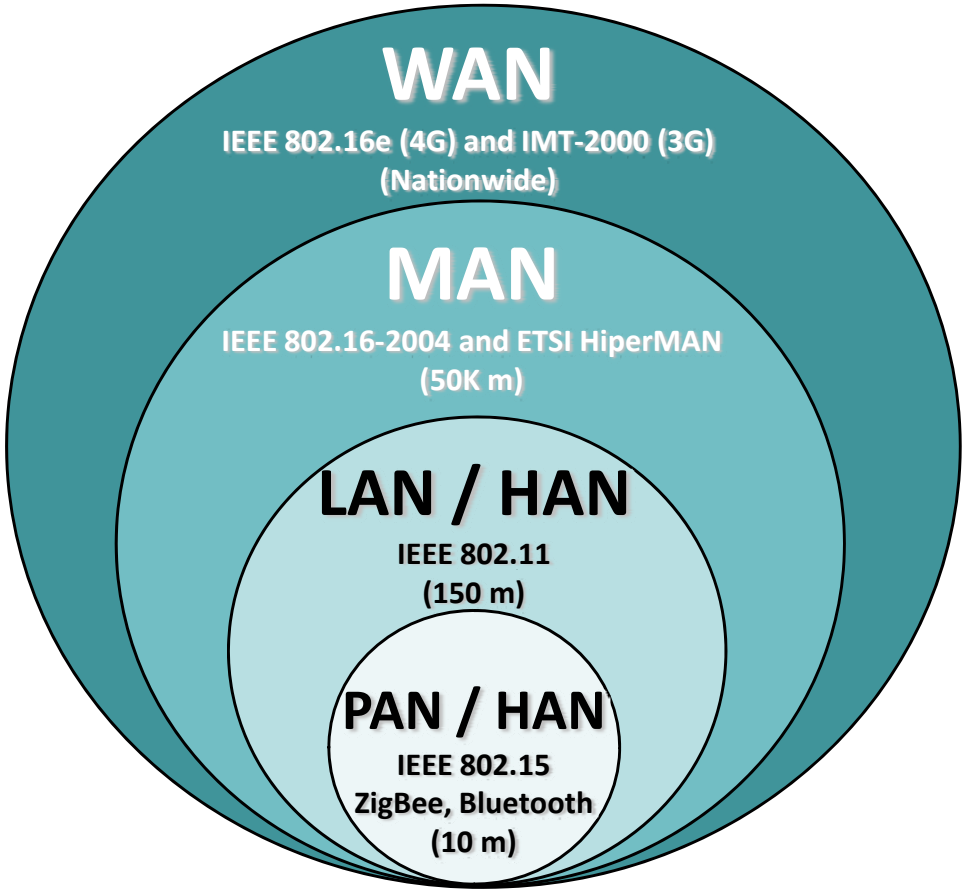
Wireless Broadband

What are the Various Network Segments?

- IEEE 802.16.e (WiMAX) and IMT-2000 (3G – CDMA, GSM) - high power, long range wireless for mobile & fixed point networks
- IEEE 802.16-2004 (WiMAX) - high power, long range wireless for fixed point networks (harmonized with HiperMAN & WiBRO)
- IEEE 802.11 (WiFi) - high-power, short range wireless for mobile & fixed point networks (designed for wireless ethernet)
- IEEE 802.15 (PAN) - low-power, short-range wireless (designed to provide a replacement for the serial cable)



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Thank You

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