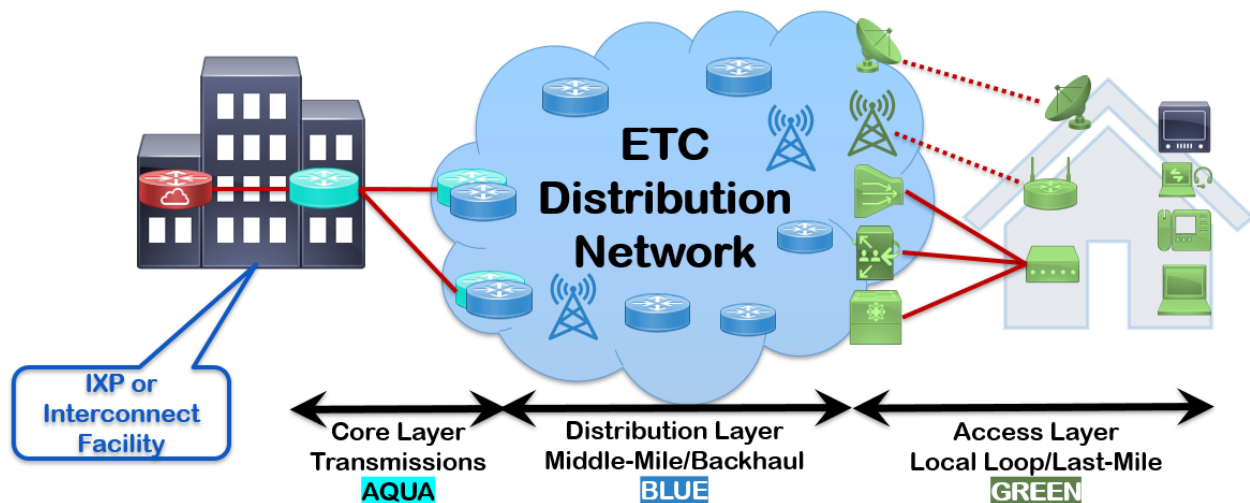


Network Categories

This data collection applies to the costs and estimated replacement costs¹ for *covered equipment or services* purchased with federal Universal Service Funds. These costs are to be maintained in accordance with generally accepted accounting principles.² Costs must be allocated across five categories: (1) Access layer equipment³; (2) Distribution layer equipment; (3) Core layer equipment; (4) Software; (5) Services.⁴



Access Layer Equipment—equipment associated with providing and controlling end-user access to the network over the “last-mile”, “local-loop”, or “to the home.”⁵

Customer premises equipment (CPE) is considered to be *covered equipment* if it is owned by the provider, including CPE that is in use and leased by the provider to end-user customers.

This category includes *access layer* equipment such as:

- Huawei optical line terminal equipment (OLT)
 - <https://carrier.huawei.com/en/products/fixed-network/access/OLT>

¹ Filers should explain how they determine their estimated costs of removing and replacing covered equipment and services in the Explanation box of the form. For a general discussion of replacement costs, see *Implementation of Section 19 of the Cable Television Consumer Prot. & Competition Act of 1992*, Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, CS Docket No. 94-48, First Report, 9 FCC Rcd 7442, 7544, para. 210 (1994).

² See 47 CFR §§ 32.1, 32.12.

³ See, generally, Cisco, The Hierarchical Network Design Model, https://www.cisco.com/web/learning/netacad/demos/CCNP1v30/ch1/1_1_1/index.html (last visited Feb. 14, 2020).

⁴ Several of the websites and products listed are shown in more than one of the network layers. For example, the “Huawei Metro WDN & OTN” can be used at Access, Distribution, or Core Layers as per Huawei website.

⁵ See, generally, 47 CFR §§ 32.2310, 32.2311, 32.2341.

- ZTE optical line terminal equipment (OLT)
 - <https://www.zte.com.cn/global/products/access/xpon>
- Huawei optical distribution network devices (ODN)
 - <https://carrier.huawei.com/en/products/fixed-network/access/ODN>
- Huawei multi-service access node and digital subscriber line access multiplexing equipment (MSAN & DSLAM)
 - <https://carrier.huawei.com/en/products/fixed-network/access/msan-dslam>
- ZTE MSAN (Copper Access)
 - <https://www.zte.com.cn/global/products/access/msan>
- ZTE LAN MDUs
 - <https://www.zte.com.cn/global/products/access/xpon/LAN-MDU>
- Huawei optical network units (ONU)
 - <https://carrier.huawei.com/en/products/fixed-network/access/ONU>
- Huawei site cabinets
 - <https://carrier.huawei.com/en/products/fixed-network/access/site>
- Home network and customer premises equipment (CPE)
 - <https://carrier.huawei.com/en/products/fixed-network/access/cpe>
- ZTE CPE
 - <https://www.zte.com.cn/global/products/access/cpe>
- ZTE Smart Home
 - <https://www.zte.com.cn/global/products/access/201901240914>
- Huawei cable coaxial media converters
 - <https://carrier.huawei.com/en/products/fixed-network/access/Cable-CMC>
- Huawei access wavelength-division multiplexing (WDM) and optical transport networking (OTN) equipment
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Access-WDM--OTN>
- Huawei WLAN
 - <https://e.huawei.com/en/products/enterprise-networking/wlan>
- Huawei Metro WDM & OTN – (can be deployed in the access, distribution or core of a network)
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Metro-WDM-OTN>
- Huawei Access WDM & OTN
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Access-WDM--OTN>

Distribution Layer Equipment—middle-mile, backhaul, or radio area network (RAN) equipment layered between the access and core layers of the network in which network traffic management policies are defined and enforced.⁶

⁶ See 47 CFR §§ 32.2230, 32.2231, 32.2232.

This category includes *distribution layer* equipment such as:

- Huawei Routers
 - <https://carrier.huawei.com/en/products/fixed-network/data-communication/router>
- Huawei Switches
 - <https://carrier.huawei.com/en/products/fixed-network/data-communication/switches>
- Huawei Network security equipment
 - <https://carrier.huawei.com/en/products/fixed-network/data-communication/Security>
- Huawei Metro WDN & OTN – (can be deployed in the access, distribution or core of a network)
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Metro-WDM-OTN>
- Huawei Microwave
 - <https://carrier.huawei.com/en/products/wireless-network/microwave>
- Huawei Antennas
 - <https://carrier.huawei.com/en/products/antenna>
- Huawei Wireless Network
 - <https://carrier.huawei.com/en/products/wireless-network>
- ZTE LAN MDUs
 - <https://www.zte.com.cn/global/products/access/xpon/LAN-MDU>
- ZTE Bearer
 - <https://www.zte.com.cn/global/products/bearer>
- ZTE Wireless
 - <https://www.zte.com.cn/global/products/wireless>
- ZTE 5G
 - <https://www.zte.com.cn/global/products/wireless/201903111104>
- ZTE LTE FDD
 - <https://www.zte.com.cn/global/products/wireless/201903111103>
- ZTE LTE TDD
 - <https://www.zte.com.cn/global/products/wireless/201903151440>
- ZTE GSM&UMTS
 - <https://www.zte.com.cn/global/products/wireless/201903111101>
- ZTE Small Cell
 - <https://www.zte.com.cn/global/products/wireless/201903111105>
- ZTE Shelter Tower
 - <https://www.zte.com.cn/global/products/wireless/201903151442>

Core Layer Equipment—backbone infrastructure that provides for fast routing of traffic with minimal processing and interconnection to other networks.⁷

This category includes *core layer* equipment such as:

- Huawei Backbone wave-division multiplexing / optical transport networking equipment
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Backbone-WDM-OTN>
- Huawei See “Transmission Network” (Backbone WDM & OTN)
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Backbone-WDM-OTN>
- Huawei Metro WDM & OTN – (can be deployed in the access, distribution or core of a network)
 - <https://carrier.huawei.com/en/products/fixed-network/transmission/Metro-WDM-OTN>
- Huawei Microwave
 - <https://carrier.huawei.com/en/products/wireless-network/microwave>
- Huawei Antennas
 - <https://carrier.huawei.com/en/products/antenna>
- ZTE RAN Core
 - https://www.zte.com.cn/global/products/core_network
- ZTE Cloud Core
 - <https://www.zte.com.cn/global/products/201904031549>
- ZTE Cloud Computing
 - <https://www.zte.com.cn/global/products/201903111056>
- ZTE Fiber Infrastructure Network
 - <https://www.zte.com.cn/global/products/access/xpon/201707241446>
- ZTE Optical Transmission
 - https://www.zte.com.cn/global/products/bearer/optical_transmission
- ZTE Data Transmission
 - https://www.zte.com.cn/global/products/bearer/data_communication
- ZTE Microwave
 - <https://www.zte.com.cn/global/products/bearer/microwave>

Software—for conceiving, specifying, designing, programming, testing, maintenance and developing equipment applications, components or systems that are continuously used.⁸

This category includes *software* such as:

- Huawei iManager U2000

⁷ See 47 CFR §§ 32.2210, 32.2211, 32.2212.

⁸ See 47 CFR § 32.2690.

- <https://carrier.huawei.com/en/products/fixed-network/single-oss/imanager-u2000>
- Huawei iMaster NCE-Super
 - <https://carrier.huawei.com/en/products/fixed-network/nce/NCE-Super>
- Huawei iMaster NCE (IP Domain)
 - <https://carrier.huawei.com/en/products/fixed-network/nce/NCE-IP>
- Huawei iMaster NCE (Transport Domain)
 - <https://carrier.huawei.com/en/products/fixed-network/nce/NCE-T>
- Huawei iMaster NCE (Access Domain)
 - <https://carrier.huawei.com/en/products/fixed-network/nce/NCE-FAN>
- Huawei Agile Controller-DCN
 - <https://carrier.huawei.com/en/products/fixed-network/nce/Agile%20Controller-DCN>
- Huawei Agile Controller-Campus
 - <https://carrier.huawei.com/en/products/fixed-network/nce/Agile%20Controller-Campus>
- ZTE NetNumen U31
 - <https://www.zte.com.cn/global/products/wireless/201903111102>

Services—for design, implementation, installation, testing, or other costs and/or fees paid to deploy Huawei or ZTE equipment and/or systems.⁹

⁹ See 47 CFR § 32.6110.