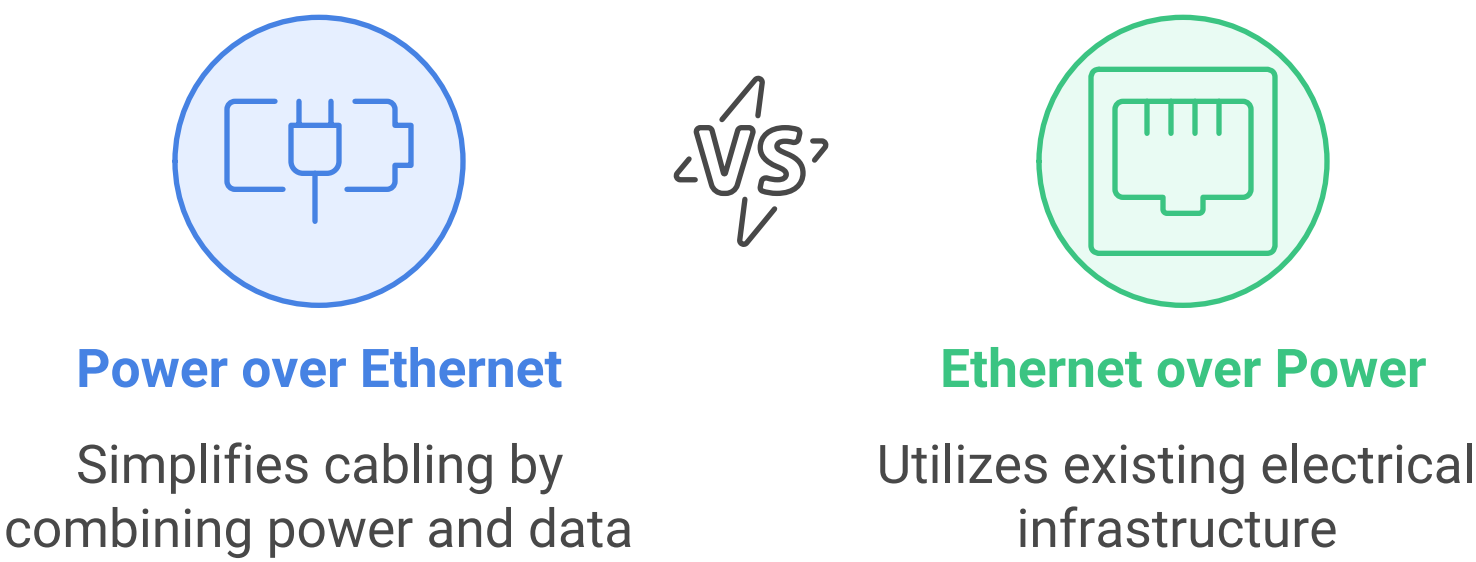


⚡ Power over Ethernet and Ethernet over Power

This document provides an overview of Power over Ethernet (PoE) and Ethernet over Power, explaining their functionalities, common applications, and relevant standards. PoE allows devices to receive power and data through a single Ethernet cable, while Ethernet over Power utilizes existing electrical outlets for internet connectivity.

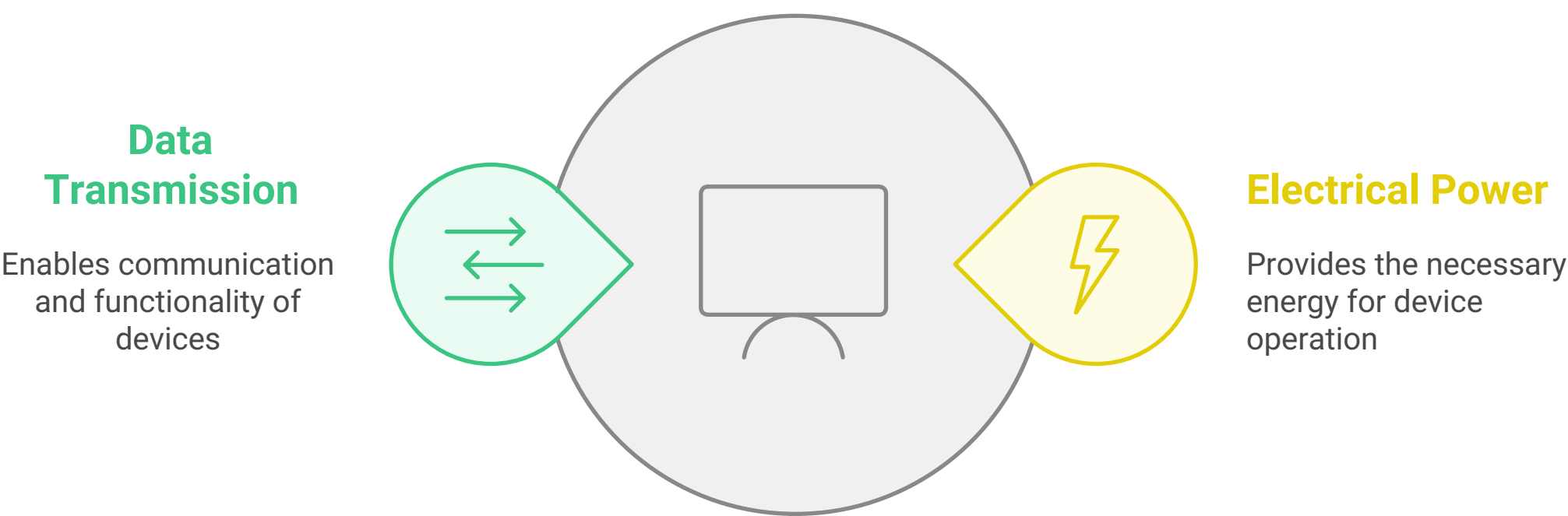
Power over Ethernet and Ethernet over Power



🔌 What is Power over Ethernet (PoE)?

Power over Ethernet (PoE) is a technology that enables the transmission of electrical power along with data through standard Ethernet cables. This capability allows devices to operate without the need for separate power sources, extending up to 100 meters (approximately 330 feet).

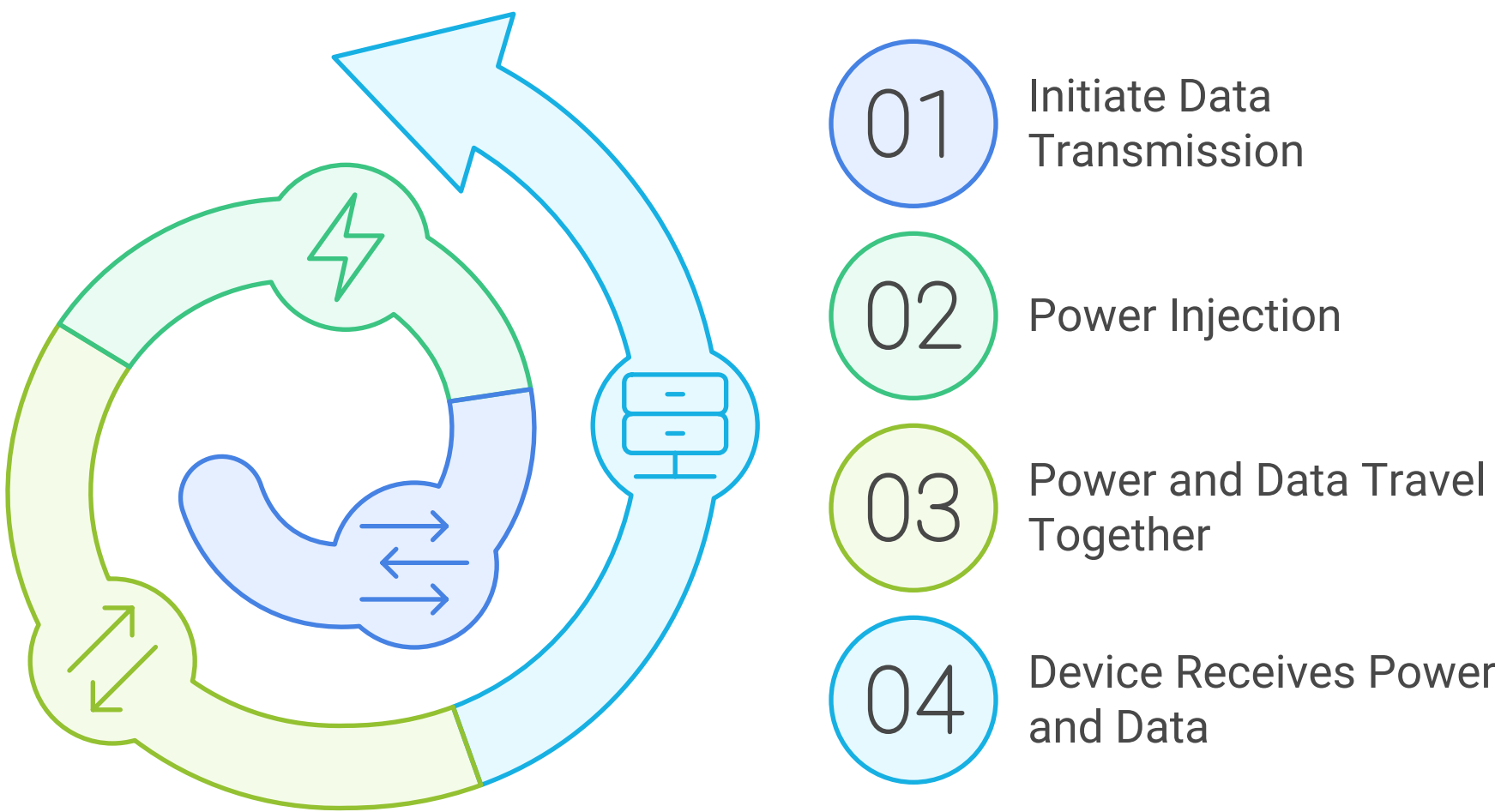
Power and Data Transmission via PoE



📄 ? How Does It Work?

PoE works by sending power through the same cables that transmit data. This dual functionality simplifies installations and reduces the clutter of wires, making it an efficient solution for powering devices in various settings.

Power over Ethernet Process

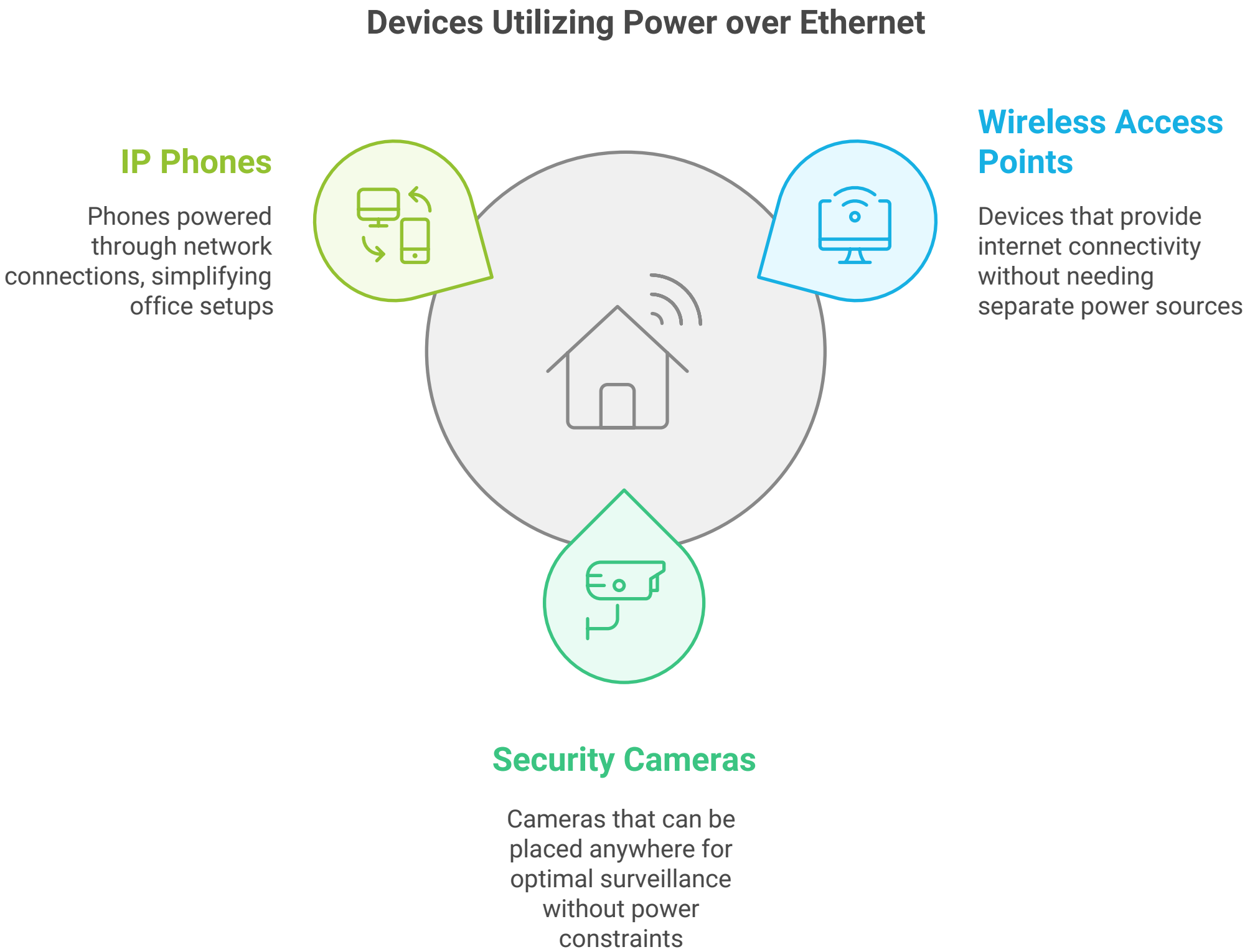




Common Devices Using PoE

Several devices commonly utilize PoE for their power needs, including:

- **Wireless Access Points:** These devices benefit from PoE as they can be installed in locations without nearby power outlets.
- **Security Cameras:** PoE allows for flexible placement of cameras, ensuring they can be positioned optimally for surveillance without worrying about power sources.
- **IP Phones:** These phones can be powered directly through their network connection, simplifying office setups.

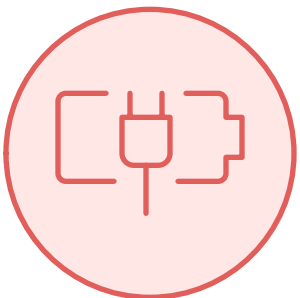


IEEE Standards Explained Simply

The Institute of Electrical and Electronics Engineers (IEEE) has established several standards for PoE, each catering to different power requirements:

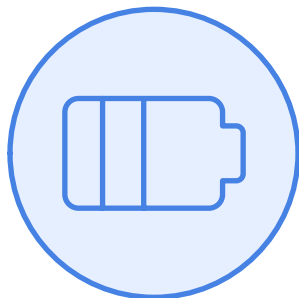
- **802.3af:** Provides a small amount of power, suitable for devices that require less energy.
- **802.3at (PoE+):** Offers more power for devices that need a bit more than the basic standard.
- **802.3bt (PoE++):** Delivers high power for more demanding equipment, accommodating a wider range of devices.

Choose the appropriate IEEE standard for your device's power needs.



802.3bt

Best for high-power devices



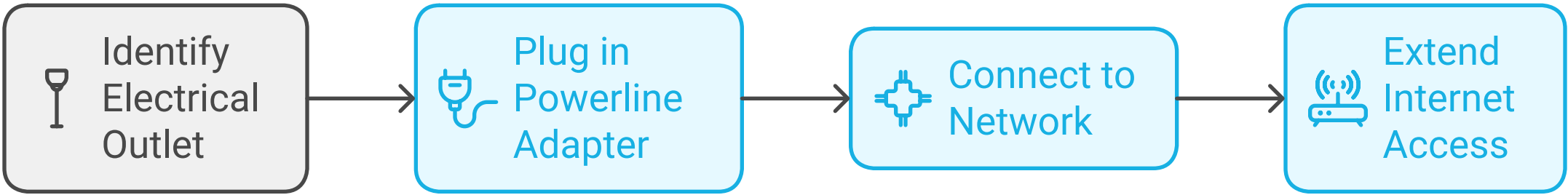
802.3at

Ideal for moderate-power devices



Ethernet over Power

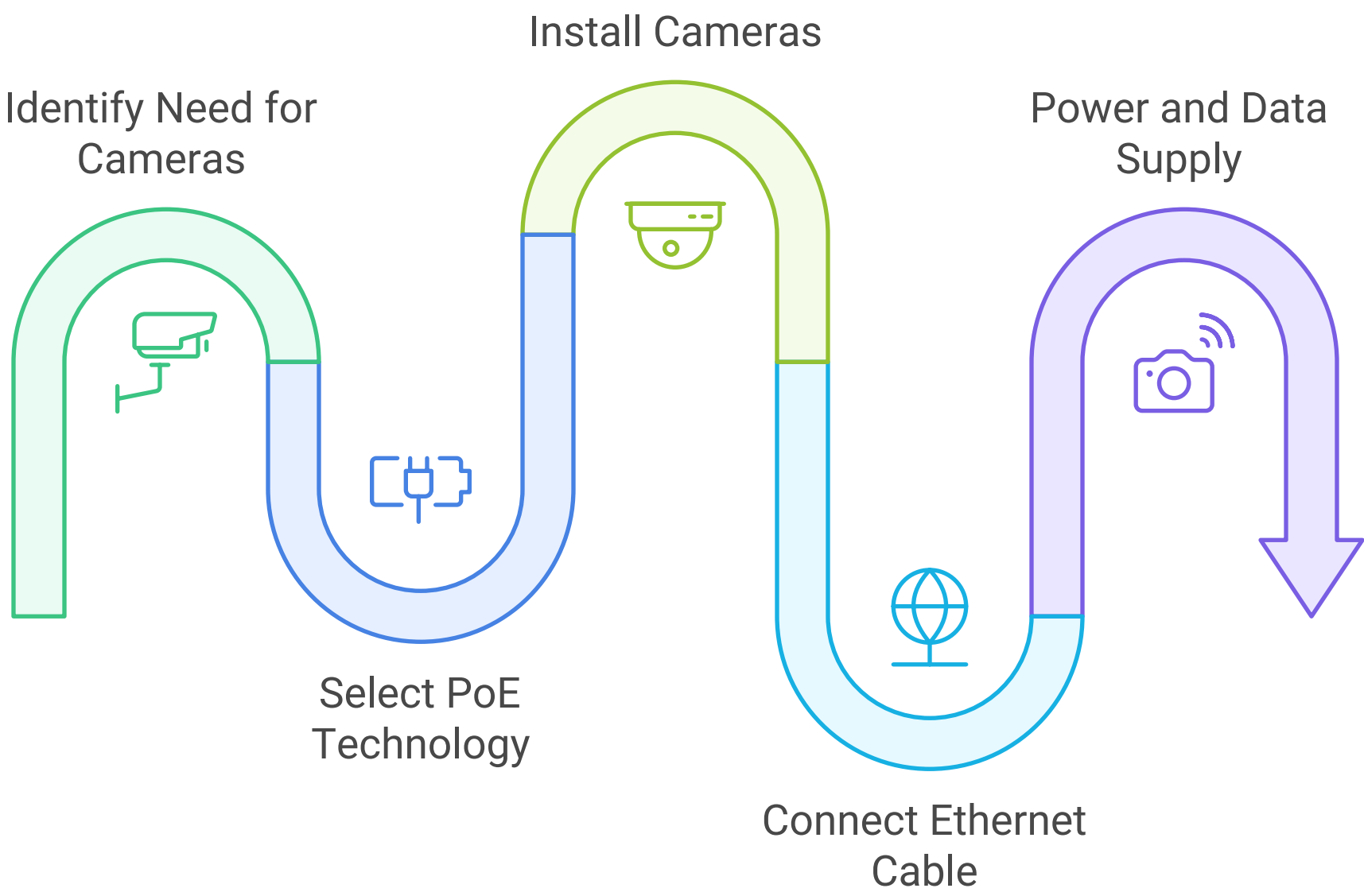
Ethernet over Power, also known as powerline networking, allows users to connect devices to the internet using standard electrical outlets. This eliminates the need for data cables, making it a convenient option for extending network access throughout a building.



Example

Consider a scenario where security cameras need to be installed in a park. With PoE, these cameras can be placed far from power outlets, as they can function solely on the Ethernet cable that supplies both power and data.

Installing Security Cameras with PoE






Recap of Key Points

- PoE enables remote powering of devices using the same network cables that carry data.
- It is versatile, supporting various power needs through different standard ratings.
- Ethernet over Power facilitates networking using existing electrical lines, simplifying the setup of connections wherever there is an outlet.

Which technology to use for network and power integration?

Power over Ethernet
Enables remote powering and data transmission through the same cable, suitable for devices like IP cameras and VoIP phones.



Ethernet over Power
Utilizes existing electrical lines for networking, simplifying connections where outlets are available.