IoT (Internet of Things) Glossary

1) **Analytics:** Software systems that analyze the data generated by IoT devices. The analysis can be used for a variety of scenarios, such as predictive maintenance.

2) **Application Layer:** This includes the protocols and interfaces that devices use to identify and communicate with each other.

3) **Cloud:** Internet-based computing that provides shared computer processing resources and data (e.g., computer networks, servers, storage, applications and services) to computers and other devices on demand and can be rapidly provisioned and released with minimal management effort.

4) **Commission(ing):** The process of assuring that all systems and components of a project or solution are designed, installed, tested, operated, and maintained according to the operational requirements of the project owner or final client.
    a. **Note:** A commissioning process may be applied not only to new projects but also to existing units and systems subject to expansion, renovation or revamping.
    b. **Note:** See also Decommission(ing)

5) **Communication Protocols**: A system of rules that allow two or more entities of a communications system to transmit information via any kind of variation of a physical quantity. They have 7 layers and the focus is usually on two functions, the network and the application.
    - **Network Layers:** The network (layers 1-6) defines the physical properties and how data is transferred. (An everyday example of a network layer is the telephone network which include cell phones, land lines, VoIP as network layers.)
        - Common networks for IoT include:
            - IP standards - Ethernet, Wi-Fi, Cellular, Long range RF networks such as SigFox, and Thread.
            - Other non IP networks examples include the serial network RS-485 (used for BACnet MS/TP).
        - These layers require a language (application) to communicate before they can be leveraged.
    - **Application Layer:** The application layer is the language on the network. (An everyday example of Application Layer for telephones is French / English / Spanish.)
        - Common Applications for IoT include:
            - BACnet, KNX, Zigbee, Dot Dot Dot, Weave and IoTivity.)
                - BACnet for example can run on RS-485, Wi-Fi, Ethernet, and Thread.

6) **Connected Device:** Device connected to a network where features and functionality are enhanced via the connection: e.g. tablet, smart phones, WAPs, Intelligent LED light, etc...

7) **Dashboard:** Displays information about the IoT ecosystem to users and enables them to control their IoT ecosystem.

8) **Data Storage:** Where data from IoT devices is stored.

9) **Decommission(ing)**: A formal process to remove something from an active status.
    a. **Note:** See also Commission(ing)

10) **Edge (An IoT Philosophy):** The migration of computing applications, data, and services away from centralized nodes to the logical extremes of a network, enabling analytics and knowledge generation to occur at the source of the data.

11) **Eliot:** Eliot" is the Legrand global IoT program that encompasses our ambition, guides our cloud strategy, drives our products, and fosters our partnerships in the IoT space.
    a. **Note:** This name was chosen because it combines two important words: **El**ectricity, stemming from our strong 100+ year history as a global electrical manufacturer and The **I**nternet **o**f **T**hings.

12) **Federated Identity (Login):** The means of linking a person's electronic identity and attributes, stored across multiple distinct identity management systems. (Such as single sign-on (SSO), in which a user's single authentication ticket, or token, is trusted across multiple IT systems or even organizations. SSO is a subset of federated identity management, as it relates only to authentication and is understood on the level of technical interoperability.

13) **Fog (An IoT Architecture):** An architecture approach that uses a collaborative multitude of end-user clients or near-user edge devices to carry out a substantial amount of temporary storage, communication, control, configuration, measurement and management.

14) **Gateway (An IoT Enabler)**: An IoT gateway is a device that enables machine-to-machine communication by connecting appliances in the home, workplace or smart city to networks.

15) **Information Access Management (IAM):** The security discipline that enables the right individuals to access the right resources at the right times for the right reasons.

16) **Intelligent LED Lighting:** Refers to lighting that has automated or mechanical abilities beyond those of traditional lighting, utilizing DC power and control delivered through partial or complete Ethernet based structured cabling, for improved efficiency and tailored user experience.

17) **IoT:** The Internet of Things is a network of uniquely identifiable endpoints (or "things") that contain embedded technology to sense, collect, communicate and, exchange data locally or with external environments, without human interaction affecting our daily life.

18) **IoT Enabler:** Combination of network Infrastructure & active devices to support IoT environment: e.g. PoE, WAPs, gateways, edge devices, etc…

19) **IoT Protocol:** Protocols Include Network and Application layers (All 7 layers)
    b. Examples include: IoTivity, Zigbee, KNX, ZWave, BACnet MS/TP, EnOcean, Echelon, KNX-IP.
        i. **Note:** Applications can run on different networks to form a protocol.
        ii. **Note:** Primary benefit of IP and Iotivity is no translation required (eg. English to Spanish), because the application layer is the same.
        iii. **Note:** Some solutions today use a **gateway** to translate the application layer and the network layer.
        iv. **Note**: Application translation requires driver development which requires constant updating.

20) **IP Convergence:** IP Convergence refers to the capability of the Internet to act as a single foundation for various functions that traditionally had their own platforms.

21) **Network Layer:** Responsible for transmitting the data collected by the physical layer to different devices.

22) **Networks:** The internet communication layer that enables the entity to communicate with their device, and sometimes enables devices to communicate with each other.

23) **Physical Layer:** The hardware that makes an IoT device, including sensors and networking gear.

24) **Power & Data Convergence:** The consolidation and delivery of power and data over a single infrastructure, usually over category cabling.
    - ***NOTE:*** In the early 2000's Telephony began its migration towards Internet Protocol (IP) infrastructure, and Security which followed in the late 2000's. Today we are awaiting the High Voltage Electrical and Low Voltage Communication's eminent migration.
    - ***NOTE:*** IP convergence isn't limited to voice and data. It includes video services as well (e.g. IP Cameras…)

25) **Power Over Ethernet (PoE): Power over Ethernet** or **PoE** consists of several standardized systems which enable transferring data and power through a single Ethernet cable, from a power source equipment (PSE) to several low voltage powered devices (PD), such as cameras, VoIP phones, Wi-Fi routers, VoIP phones and others.

a. ***NOTE: Power over HDBaseT (PoH)*** *is a version of PoE specifically for multimedia applications, enabling up to 10.2 Gbps of uncompressed video and audio, 100BaseT Ethernet, control signals and power to all share the same cable, across distances up to 100 m, using RJ45 connectors.*

26) **Remotes:** Enabling entities that connect to and control IoT devices using a dashboard, such as a mobile application. They include smartphones, tablets, PCs, smartwatches, connected TVs, and non-traditional remotes.

27) **Trade Convergence:** A landscape where two industrial/commercial trades through technology and environment changes cause legacy deployments to migrate towards non-traditional deployments.

28) **True IoT Device**: A connected device with sensing and logic that must have a connection to the network to be functional: e.g. Intelligent LED lighting, Occupancy Sensor, Environmental sensors (NEST), etc…