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Green Box Controller (GBC) Upgrade Program:

From GBC's running Windows XP, Windows 7, Windows 10 Pro

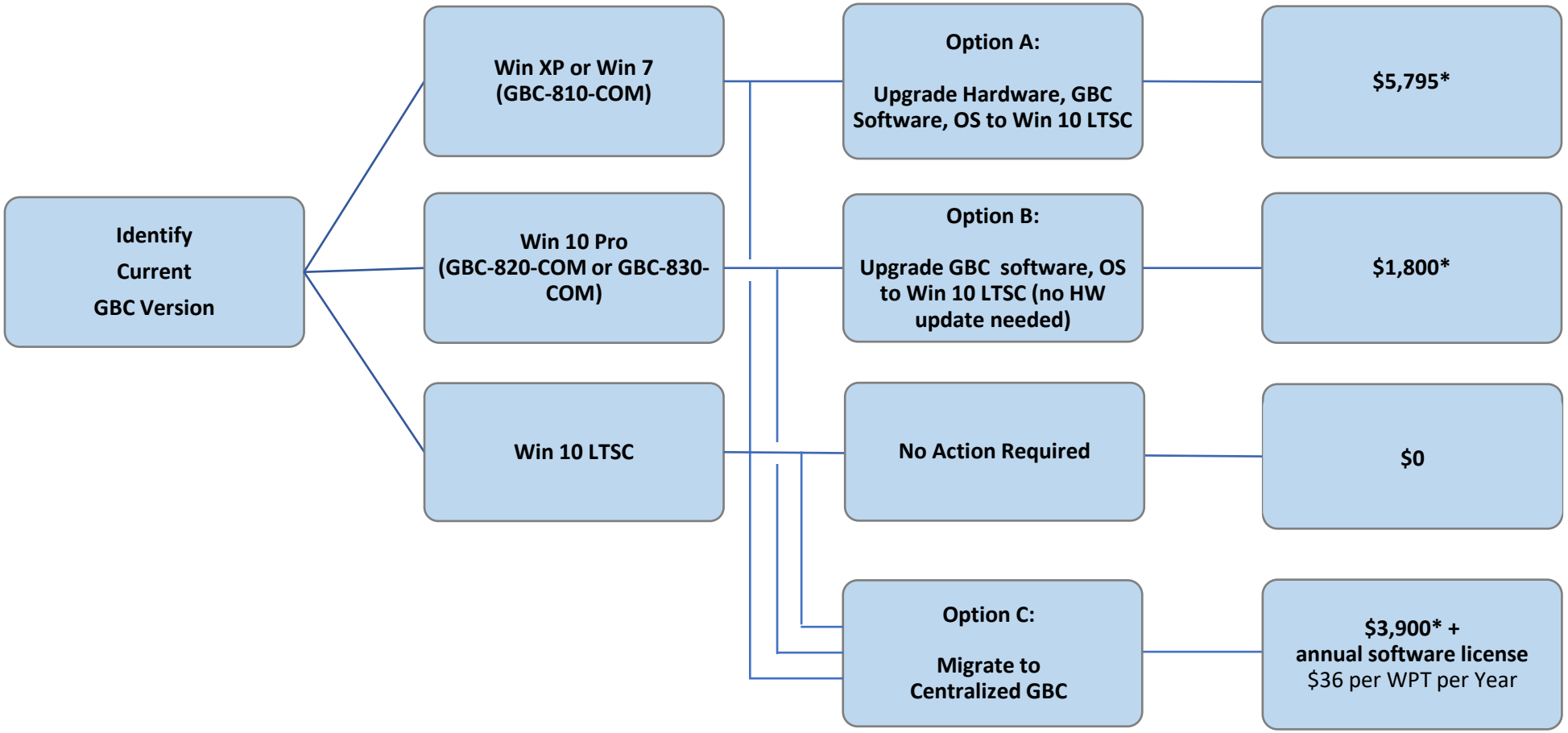
to Windows 10 IoT Enterprise LTSC

November 2025

GBC Upgrade Program: Background

- The Green Box Controller (GBC) was first introduced by Cypress Envirosystems in 2010, as the controller for the Wireless Pneumatic Thermostat system.
- The GBC uses the Microsoft Windows operating system. Over the years, different versions of the GBC used Windows XP, Windows 7, and Windows 10 Pro.
- Official Microsoft support for these legacy operating systems has ended (read here). GBC's still running them will not receive Microsoft security and support updates and face potential security vulnerabilities.
- The latest GBC uses Windows 10 IoT Enterprise LTSC, which Microsoft guarantees support until February 2032 (read here). Cypress Envirosystems offers an upgrade path for older GBC's to upgrade to the latest version.

GBC Upgrade Paths and Cost



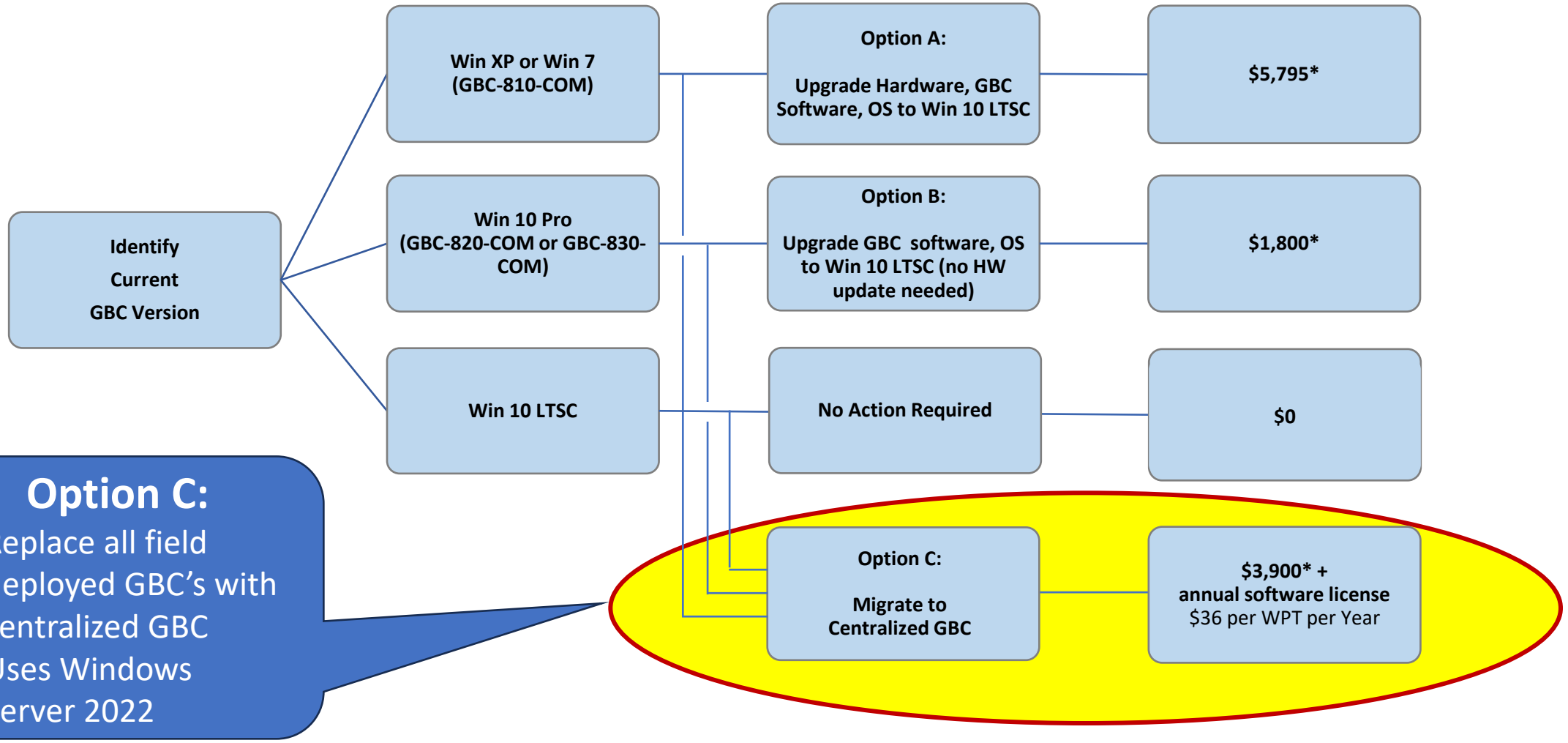
*Assumes auto-migration of existing database to new GBC. Additional $1,000 fee if manual database migration needed (original database corrupted, infected with malware, or otherwise unrecoverable). $1,000 manual migration is fee for up to 20 WPT. Fee for additional WPT's is $60 each.

Win10 LTSC Description from Microsoft

- Read Microsoft release here.
- LTSC: What is it, and when should it be used?
- The Long-Term Servicing Channel (LTSC) is designed for Windows 10 devices and use cases where the key requirement is that functionality and features don't change over time. Examples include medical systems (such as those used for MRI and CAT scans), industrial process controllers, and air traffic control devices. These devices share characteristics of embedded systems: they are typically designed for a specific purpose and are developed, tested, and certified before use. They are treated as a whole system and are, therefore, commonly "upgraded" by building and validating a new system, turning off the old device, and replacing it with the new, certified device.

- We designed the LTSC with these types of use cases in mind, offering the promise that we will support each LTSC release for 10 years--and that features, and functionality will not change over the course of that 10-year lifecycle.

GBC Upgrade Paths and Cost



Option C:

- Replace all field deployed GBC's with centralized GBC
- Uses Windows Server 2022

Option C: Combine all field GBC's into a Centralized GBC

In Field

WPT

LoRaWAN Wireless 915 MHz

Blue Box Gateway

Uses ports:
TCP 443
UDP 27500
TLS 1.3

Ethernet

WPT

Blue Box Gateway

Uses ports:
TCP 443
UDP 27500
TLS 1.3

Ethernet

In Data Center

Green Box Controller (GBC)

Ethernet

Uses ports:
TCP 443
UDP 27500
UDP 47808 (BACnet)
TLS 1.3

GBC Description:

Cypress provided GBC application software, installed on:

- VM, recommended hardware:
  64 GB memory
  4 CPU's
  500 GB storage
- OS: Windows 2022 Server
- SQL Server
- Maintained by Honeywell/EGH

Connection via BACnet/IP

BAS Controller

BAS Supervisor / Head end

Web Application Clients HTTPS using browser

Laptops

Smartphones/ Tablets

Building Control LAN

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Option C – Centralized GBC Additional Information

- User will provision a Windows Server 2022 in their data center using the user Windows image (may be a VM).
- Cypress will provide the GBC software to be installed on the user provided server.
- Cypress price is for software ONLY. User provides the hardware and Win Server2022 operating system.
- Benefits:
  - Centralized GBC can support up to 1,000 thermostats/devices
  - Server will be managed under user IT organization for backups, updates, security
  - Housed in secure data center
- Requirements:
  - Obtain approval to connect Blue Box Gateway to user network (in addition to GBC)
  - User must provide Win Server 2022 with acceptable performance specifications
- Please discuss with Cypress if you would like to consider this option.

Optional SMARTPneumatics Upgrade (Subscription)

- SMARTPneumatics is an AI fault detection service, available for GBC's upgraded to Win 10 Pro and Win 10 LTSC.
- SMARTPneumatics identifies common pneumatic system faults:
  - air leaks
  - calibration issues
  - stuck actuators
  - oil or water in air supply etc.
- Uses data stored on the GBC collected by Wireless Pneumatic Thermostats. Plots historical trends of pressure, temperature, setpoints etc.
- $18 per Wireless Pneumatic Thermostat (WPT) per Year subscription.
- Only available for full site (cannot select for certain WPT's).

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Wireless Pneumatic Thermostat (WPT) Upgrade Program:

WPT 1st generation
(2.4 GHz) to

WPT 2nd generation
(900 MHz LoRaWAN)

November 2025

WPT Upgrade Program: Background

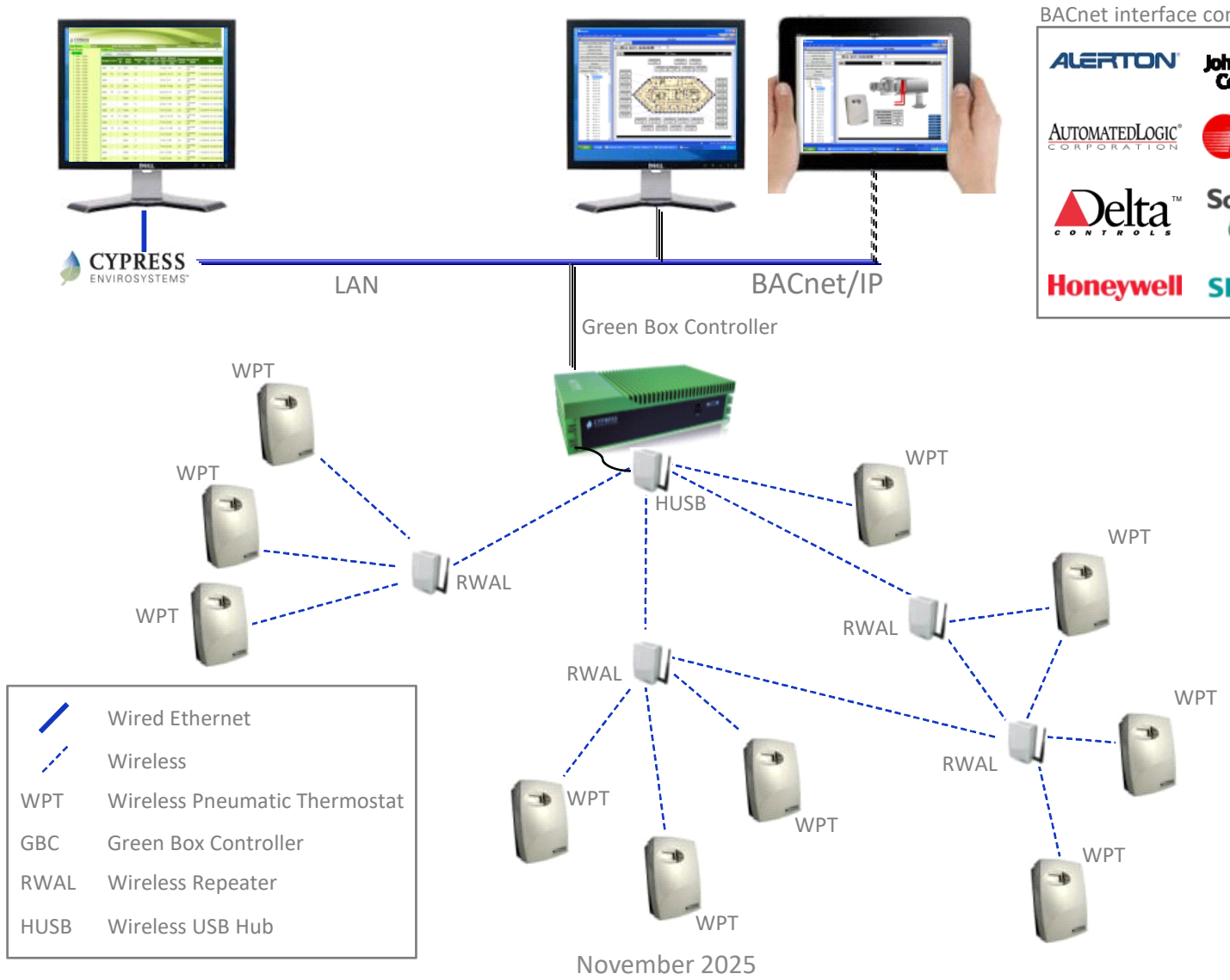
- WPT 1st Generation was introduced in 2010. It was the first patented non-invasive pneumatic upgrade technology available.
- WPT 2nd Generation was introduced in 2020. It incorporates many customer requested improvements.
- Support for WPT 1st Generation will end beginning of 2026.
- For users of WPT 1st Generation, Cypress has developed an upgrade path for continued seamless support.

Benefits of WPT 2nd Gen vs. 1st Gen

- **New wireless radio and network, longer range**
- **New microcontroller**
- **New battery, longer life**

1. Longer wireless range, over 2x the distance - do not need repeaters. One Hub can serve typically 3 floors and up to 100 thermostats
2. Improved wireless security - encrypted and highly secure LoRaWAN protocol
3. Longer battery life (20% longer life)
4. Automatic calibration – continuous, no need for manual calibration.
5. Compatibility with SMARTPneumatics fault detection analytics - allow "AI" detection of leaks, calibration problems, stuck actuators etc.
6. Supports Discharge Air Temperature sensors
7. Supports occupancy, light level sensors

WPT Architecture – 1st Generation



BACnet interface compatible with:

ALERTON · Johnson Controls · AUTOMATEDLOGIC CORPORATION · TRANE · Delta CONTROLS · Schneider Electric · Honeywell · SIEMENS

November 2025

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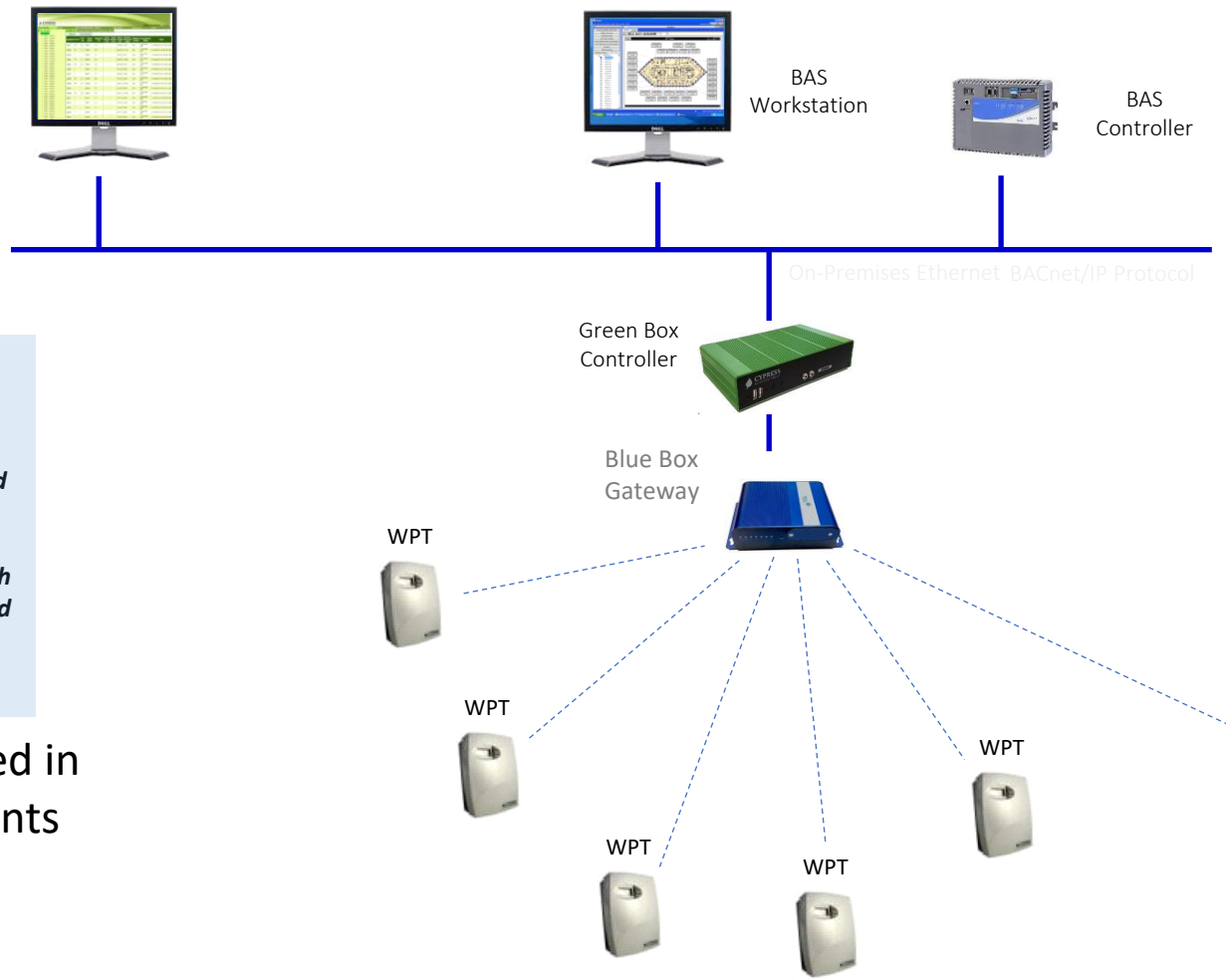
WPT Architecture – 2nd Generation



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NIST National Institute of Standards and Technology

Cypress solution tested by US Federal Government GSA IT Security to comply with NIST 800-53. Approved for use in all Federal buildings.

Same network used in nuclear power plants

Legend

- Wired Ethernet
- LoRaWAN Wireless
- WPT — Wireless Pneumatic Thermostat

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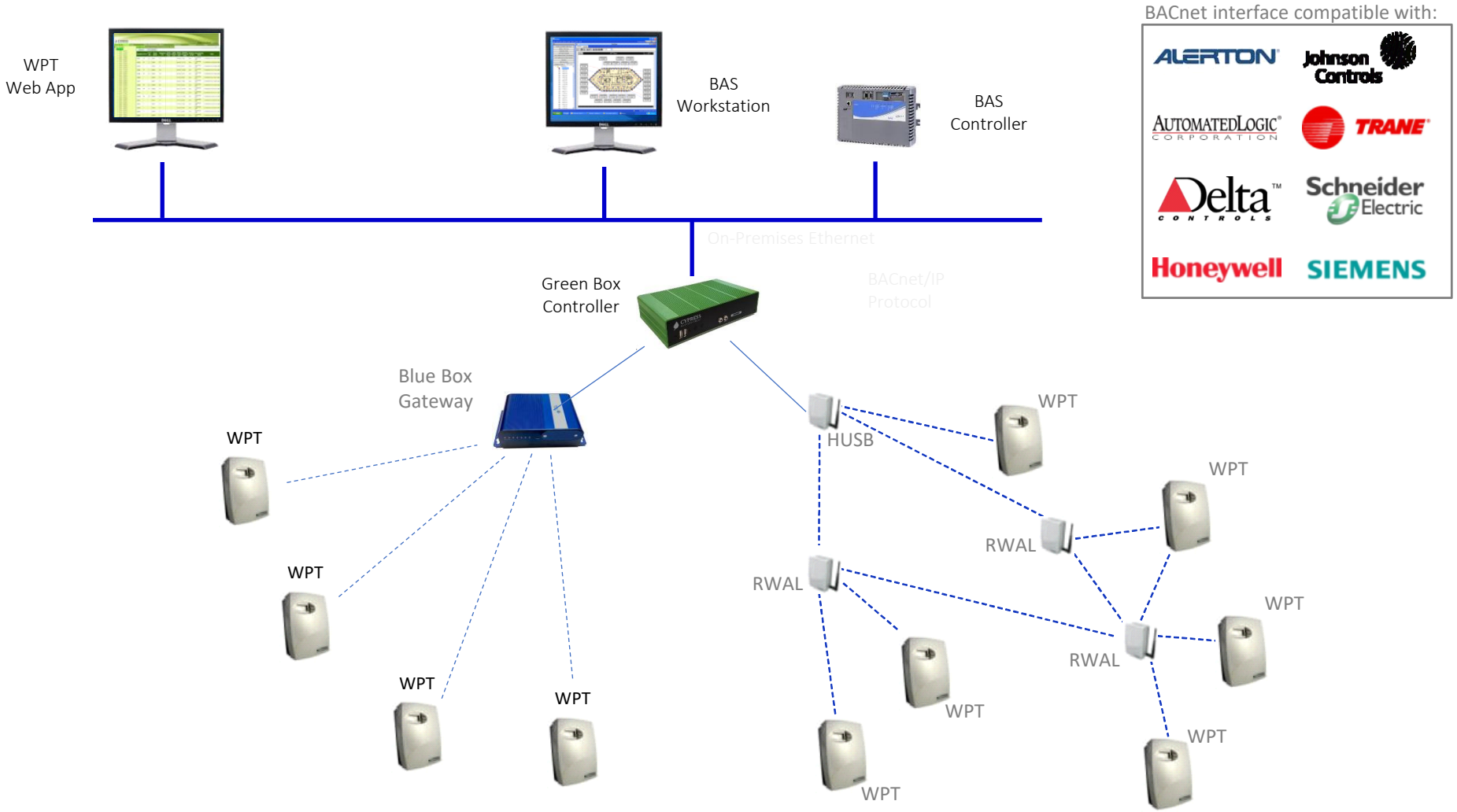
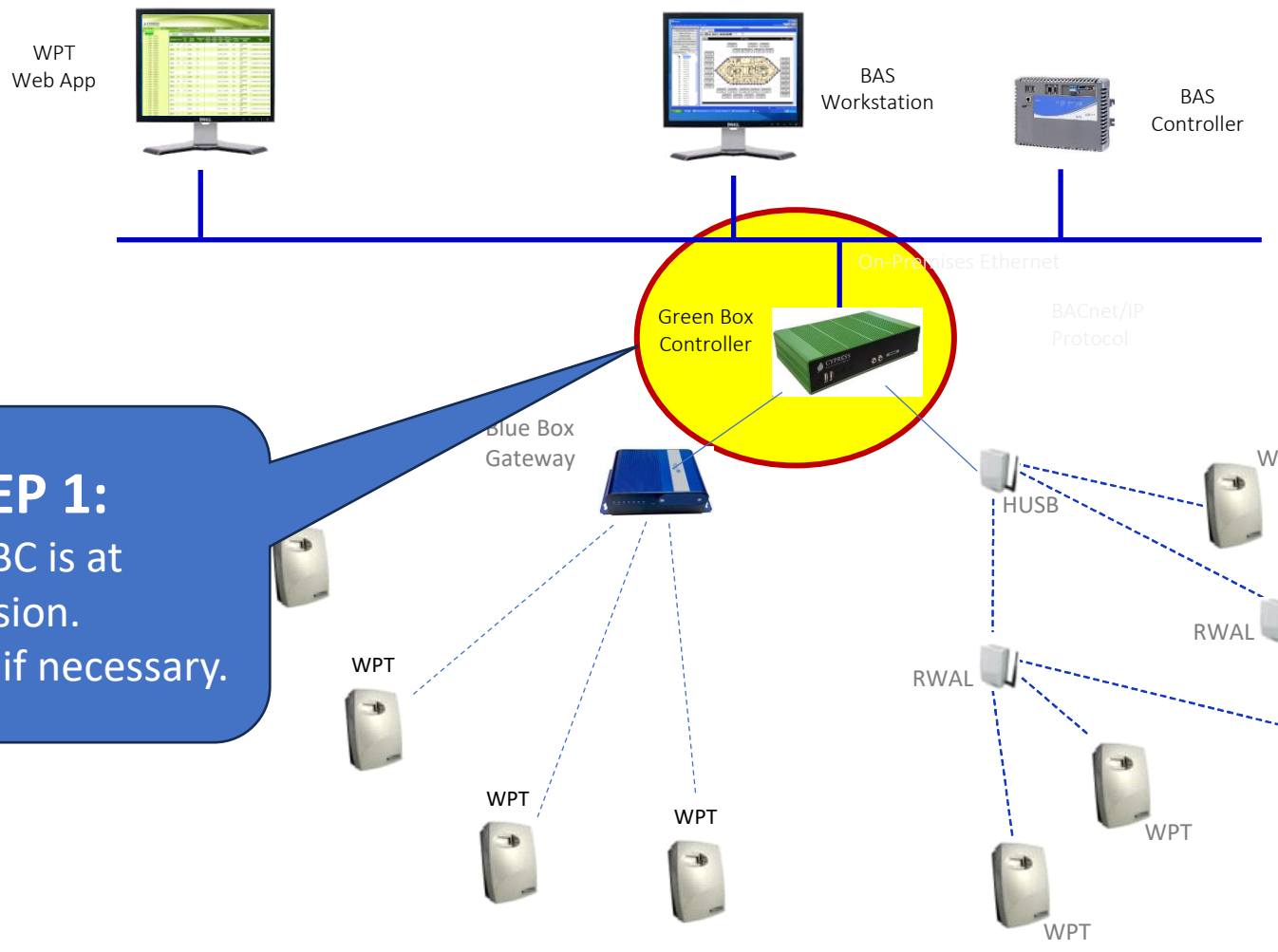
Continuing Support and Maintenance of 1st Gen

- Starting in 2026, only 2nd generation models will be available for WPT replacement or additions.
- If users of WPT 1st Generation need to replace faulty WPT's, or need to add new WPT's, they will use WPT 2nd Generation models.
- Cypress Envirosystems has enabled backward compatibility with 1st generation using a hybrid wireless architecture.

Hybrid 1st and 2nd Generation Architecture



Hybrid 1st and 2nd Generation Architecture



BACnet interface compatible with:

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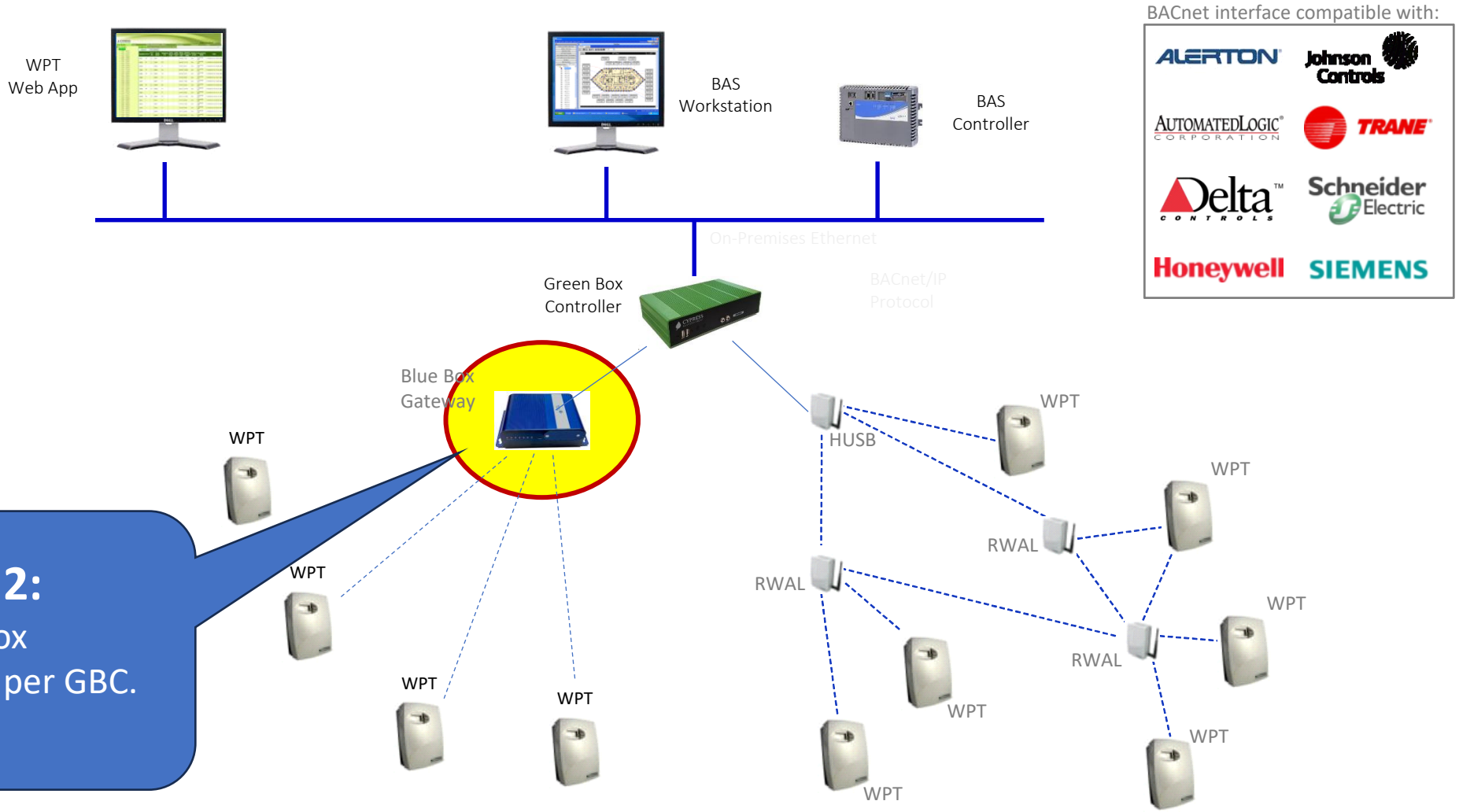
STEP 1:

- Ensure GBC is at latest version.
- Upgrade if necessary.

Hybrid 1st and 2nd Generation Architecture



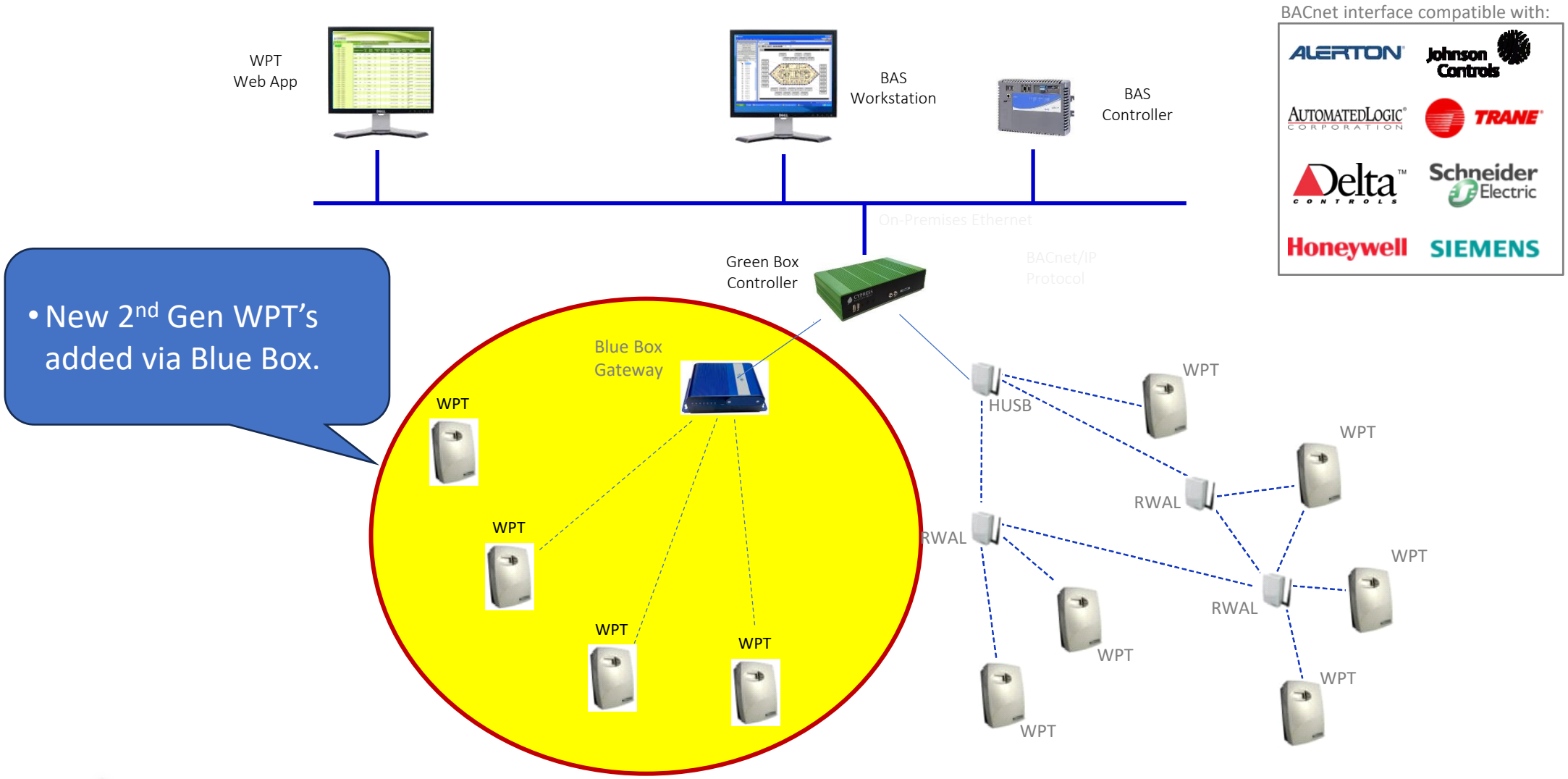
BACnet interface compatible with:

ALERTON · Johnson Controls · AUTOMATEDLOGIC CORPORATION · TRANE · Delta CONTROLS · Schneider Electric · Honeywell · SIEMENS

STEP 2:

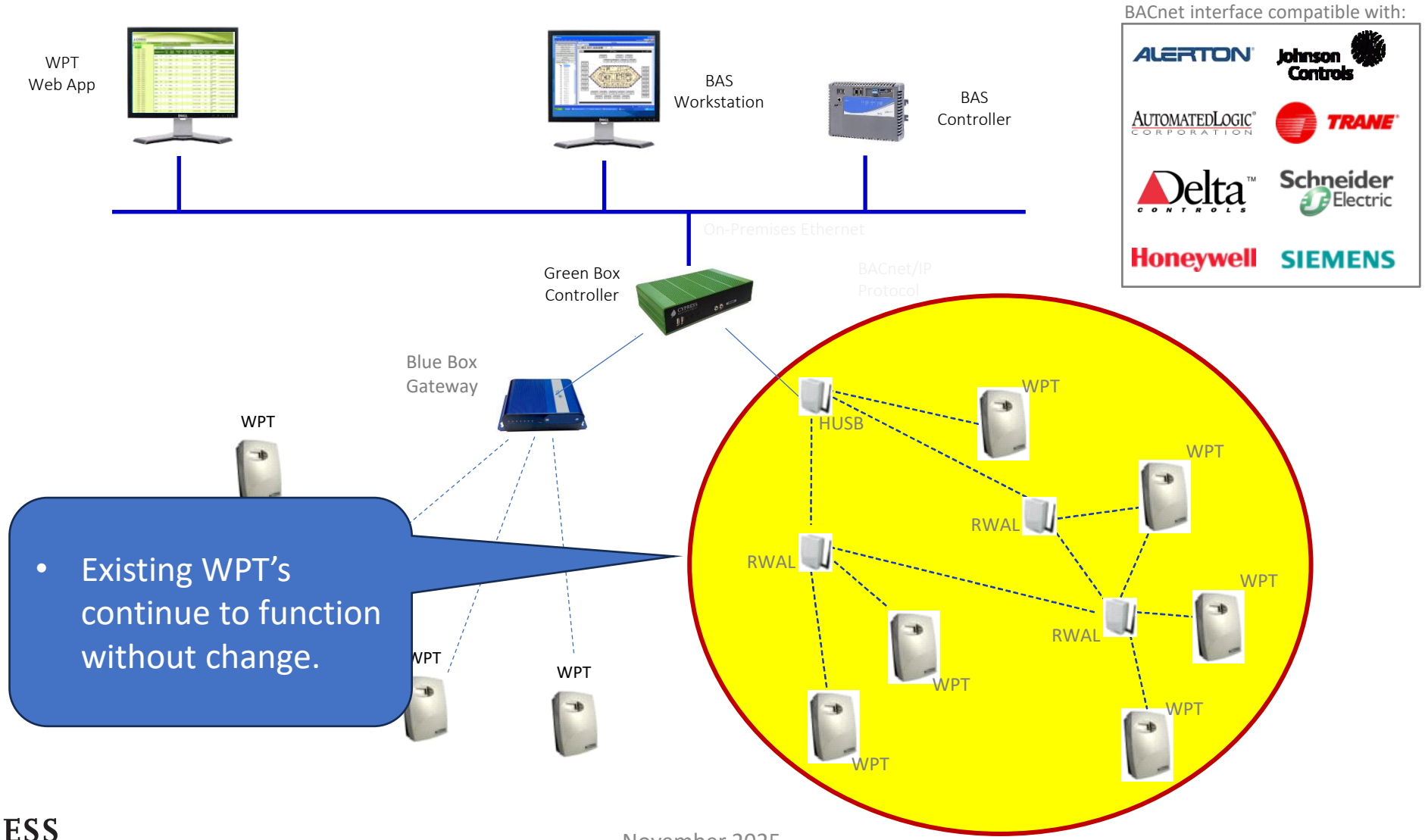
- Attach Blue Box Gateway, one per GBC.
- $1,800 each

Hybrid 1st and 2nd Generation Architecture

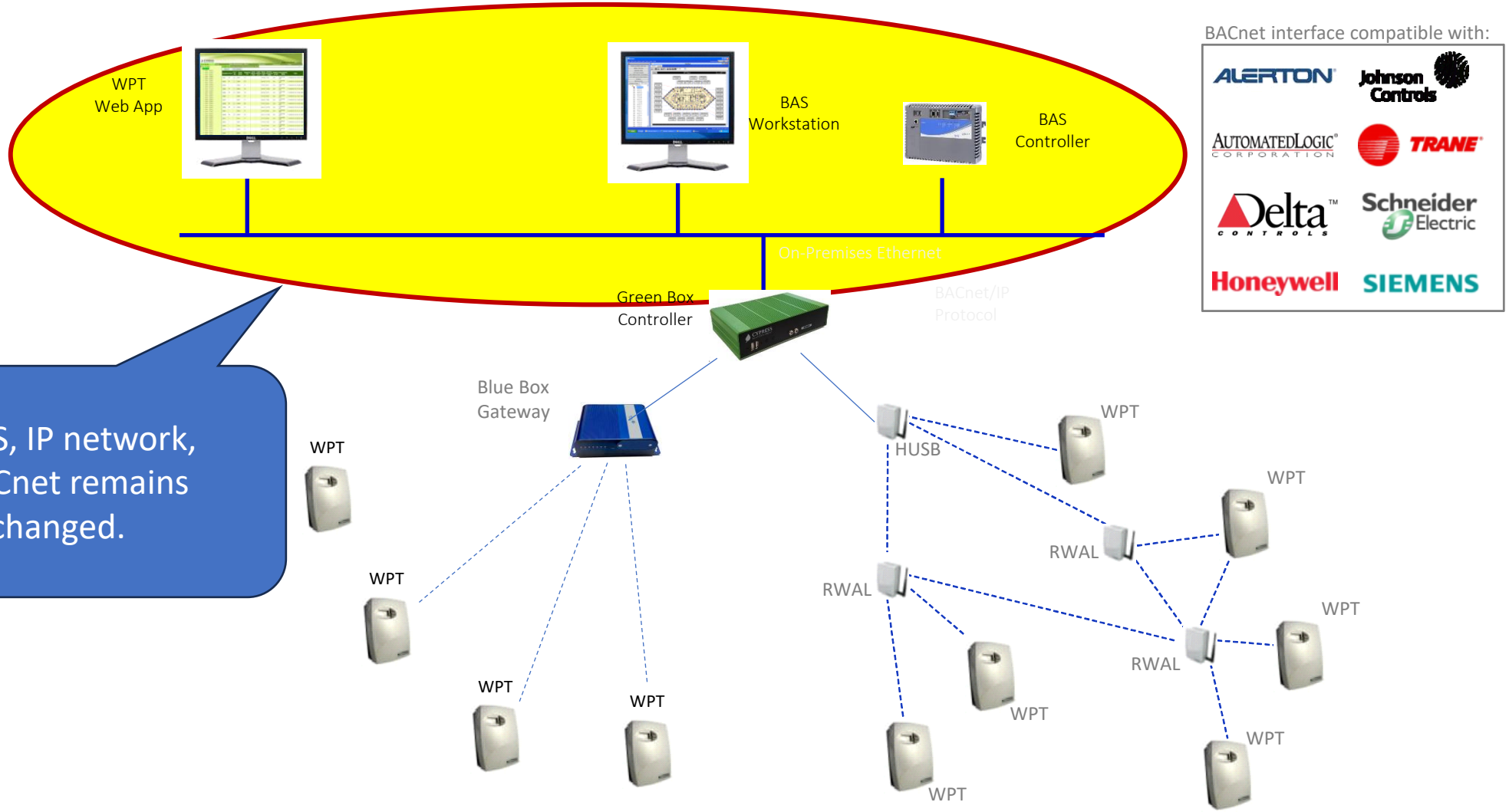


- New 2nd Gen WPT's added via Blue Box.

Hybrid 1st and 2nd Generation Architecture



Hybrid 1st and 2nd Generation Architecture



BACnet interface compatible with:

ALERTON · Johnson Controls · AUTOMATEDLOGIC CORPORATION · TRANE · Delta CONTROLS · Schneider Electric · Honeywell · SIEMENS

- BAS, IP network, BACnet remains unchanged.

WPT Upgrade Program - Summary

- Hybrid migration path allows 1st Generation and 2nd Generation WPT's to co-exist with common GBC.
- No disruption to existing WPT's, no changes to BAS, BACnet, building network configuration.
- Adding new 2nd Generation WPT's will require:
  - Update of GBC to latest version (see GBC Upgrade Program)
  - Addition of Blue Box Gateway ($1,800 per GBC)