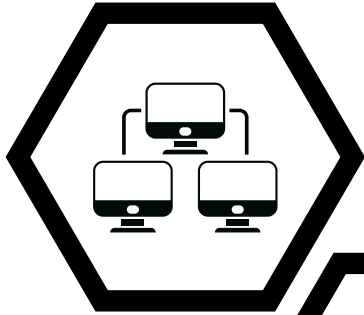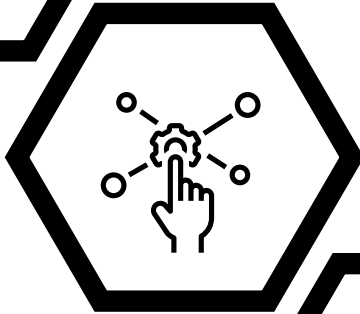# Technology Convergence, Silos & Inventory

What does technology convergence mean?

IT Systems are used for data centric computing. They are the business support systems that allow you to easily communicate, track, and analyze data.

OT Systems monitor events, processes, and devices. They change the physical environment and allow the user to make operational adjustments.
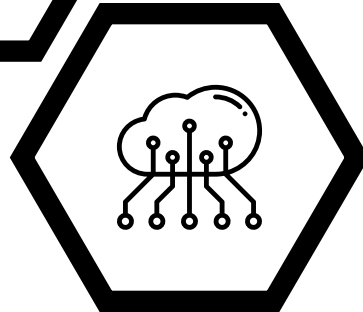
Convergence is the ability to grapple with both worlds and combine the capability of computers, electromechanical devices, manufacturing systems, and capitalize on the massive amounts of data available.

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Silos:
An isolated grouping, department, etc., that functions apart from others especially in a way seen as hindering communication and cooperation.

Departmental
IT vs DPW

Operators of OT systems and the IT teams are often coming at the same problem from a different place. They often even seem to speak different languages.

Technology
Passive vs Active

Active scans against the world. Protocols and how the systems communicate. Legacy life cycle as opposed to 3-year rip and replaces.

Security
Locked vs Open

We all want to be more secure, but OT integrators prioritize function and operation over security, and assign admin privileges to people who might not need them.

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Automated Inventory: Level 0 - 4

Level 4 to 3

Critical Issues #	
1	26 of 44 scanned devices contains 348 devices with duplicate BACnet instance number
2	38 of 44 scanned device(s) are discontinued.
3	41 of 44 scanned devices use an operating system
4	34 of 44 scanned device(s) have patch related issues.

Firmware Status Level 3

Inventory: Supervisory Information	
Firmware Version	**Number of Engines**
	2
8.0.0.0446	6
9.0.0.4256	25
9.0.1.5320	4
9.0.3.7679	7

Detailed Level 3

Device Name	IP Address	IP Subnet Mask	MAC Address	Model Name	Firmware	Integrations	Controllers	Repository	BACnet ID
Bldg 1234	12.3.45.67	255.255.255.0	00:01:1D:00:50:12	MS-NAE3510-1	9.0.0.4256	0:BACNET IP 1:MSTP	6 0	12.345.67.89	3040100
Bldg 5678	12.3.45.68	255.255.255.0	00:01:1D:00:50:13	MS-NAE5510-1	9.0.3.7679	0:BACNET IP 1:MSTP 2:MSTP	17 32 23	12.345.67.89	3017300
Bldg A-1234	12.3.45.69	255.255.255.0	00:01:1D:00:50:14	MS-NAE5520-1	9.0.0.4256	1:N2 2:MSTP 3:LON INTEGRATION	1 45 5	12.345.67.89	3015200

Level 2 & 1

Controller Name	Controller Description	Extended Label	Model Name	Firmware	App Info	Physical Points	Mapped Points	Equipment	General Information	Integrations
Device-530005	DAIKIN MasterStation III No 530005	Device-530005	D-BACS BACnet Gateway	NA	BACNET DEVICE	28	130	Other	Third Party Device	0:BACNET IP
Bldg CEP 12 Kw Meter	Veris H81xx Energy Meter with H818	Kw Meter	H8186-CB	NA	BACNET DEVICE	22	23	Power Meter	Third Party Device	1:MSTP
CEP 135_AHU	AHU Controller	CEP 135_AHU	MS-FAC2611-0	6.2.0.1054	FIELD DEVICE	13	62	AHU		1:MSTP
Chiller Panel OCSX YCAL L	York Chiller	Device-999945	YCAL	NA	BACNET DEVICE	80	90	Other		1:MSTP
Bldg 1280 Trane Rooftop 1	Trane AHU	Trane Rooftop 1	LON	NA	LON CONTROLLER	20	30	Other	Third Party Device	3:LON INTEGRATION
Chem Lab Fume Hood RM 1	Fume Hood	Device-2870039	ProtoNode	NA	BACNET DEVICE	8	8	Other	Third Party Device	0:BACNET IP

Level 0

Supervisory Device Name	Controller Name	Controller Extended Label	Point Name	Point Type	Description	Object Category
Bldg B-99	Doas 1 Device-770001	Doas 1 Device-770001	Fire Alarm	BV	Fire stat alarm	HVAC
Bldg B-99	Doas 1 Device-770001	Doas 1 Device-770001	Outside Air Humidity	AV	Outside Air Humidity	HVAC
Bldg B-99	Doas 1 Device-770001	Doas 1 Device-770001	Unit start/stop command	BV	Unit start/stop command (read/write)	HVAC
Bldg CEP-1	BldgCEP-1 Kw Meter	Kw Meter	BldgCEP-1 Kw Meter.Volts_AN	AI	Volts_AN	General
Bldg CEP-1	BldgCEP-1 Kw Meter	Kw Meter	BldgCEP-1 Kw Meter.Current_C	AI	Current_C	General
Bldg CEP-1	BldgCEP-1 Kw Meter	Kw Meter	BldgCEP-1 Kw Meter.KVAR_Total	AI	KVAR_Total	General

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What can we do now?

Have a conversation with those in charge of your ICS, FRCS, and OT technology stacks.

Emphasize a cross functional team approach. One that includes IT, Operations, Safety & Management.

Develop a plan to get an accurate inventory list. Automated is preferred.

Create and perform cross-training of systems. Ask your FRCS vendor for support.

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