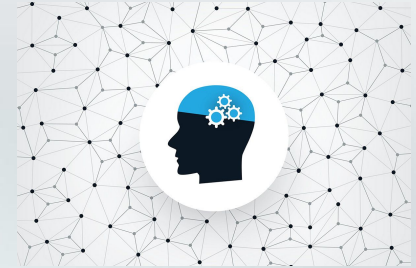


Secure Data Access

Real-life ISA 112 Implementation

“Unlocking the potential of your water and wastewater system through data democratization starts with secure data access.”

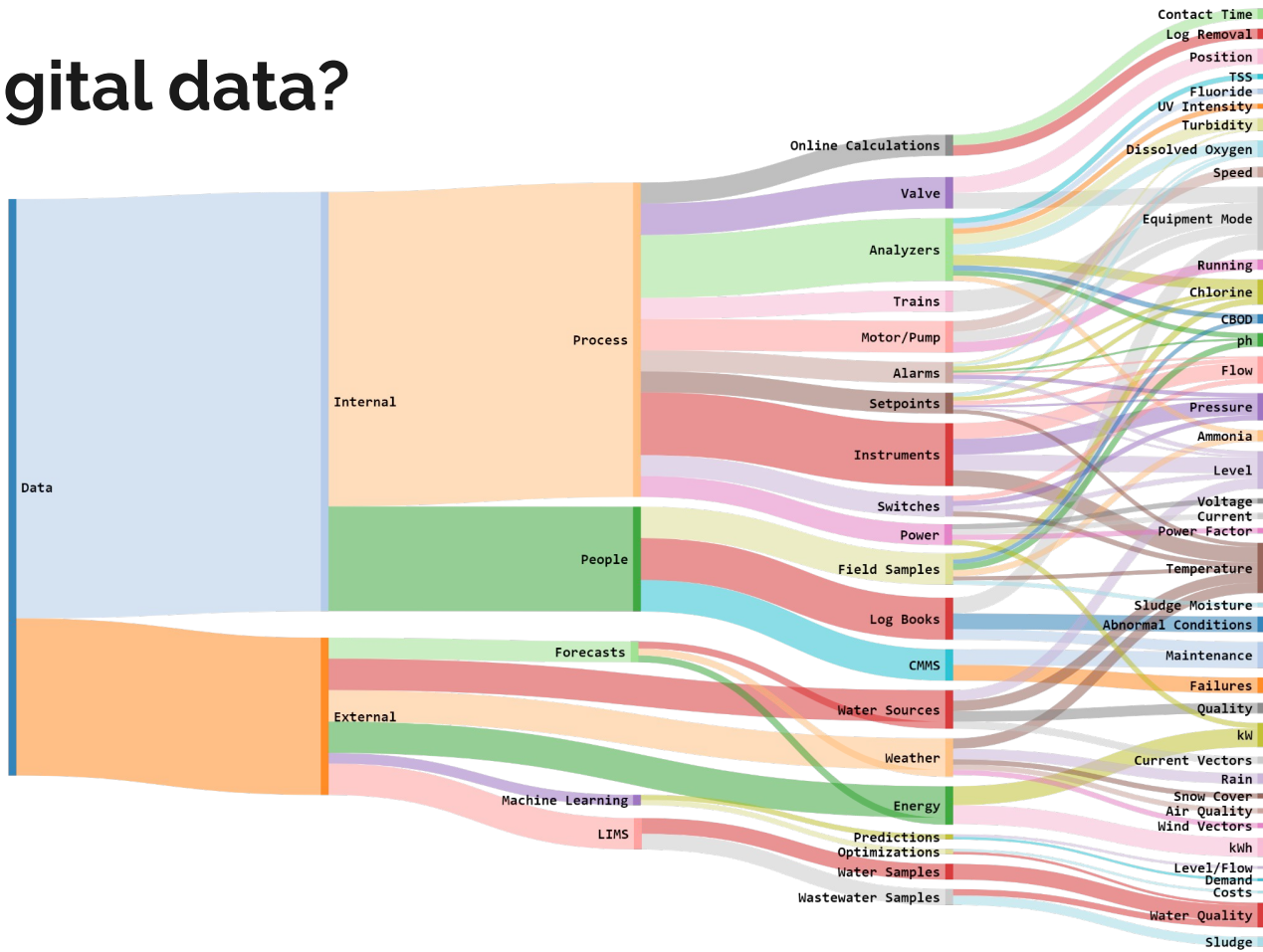




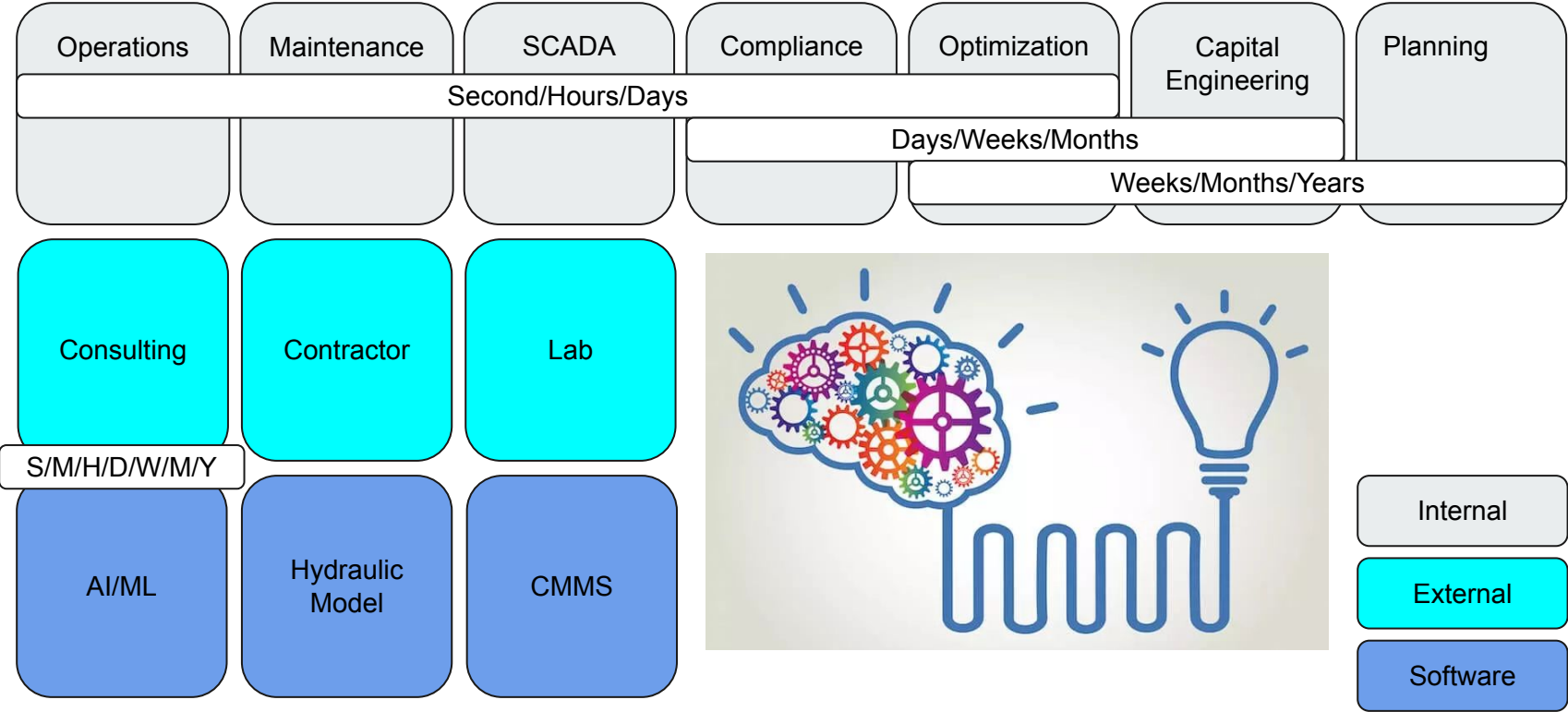
Data Democratization

“the ability for information in a digital format to be accessible to the average end user. The goal of data democratization is to allow non-specialists to be able to gather and analyze data without requiring outside help.”

What is the digital data?



Who are the users?



Where do they want access?



When do they want it?

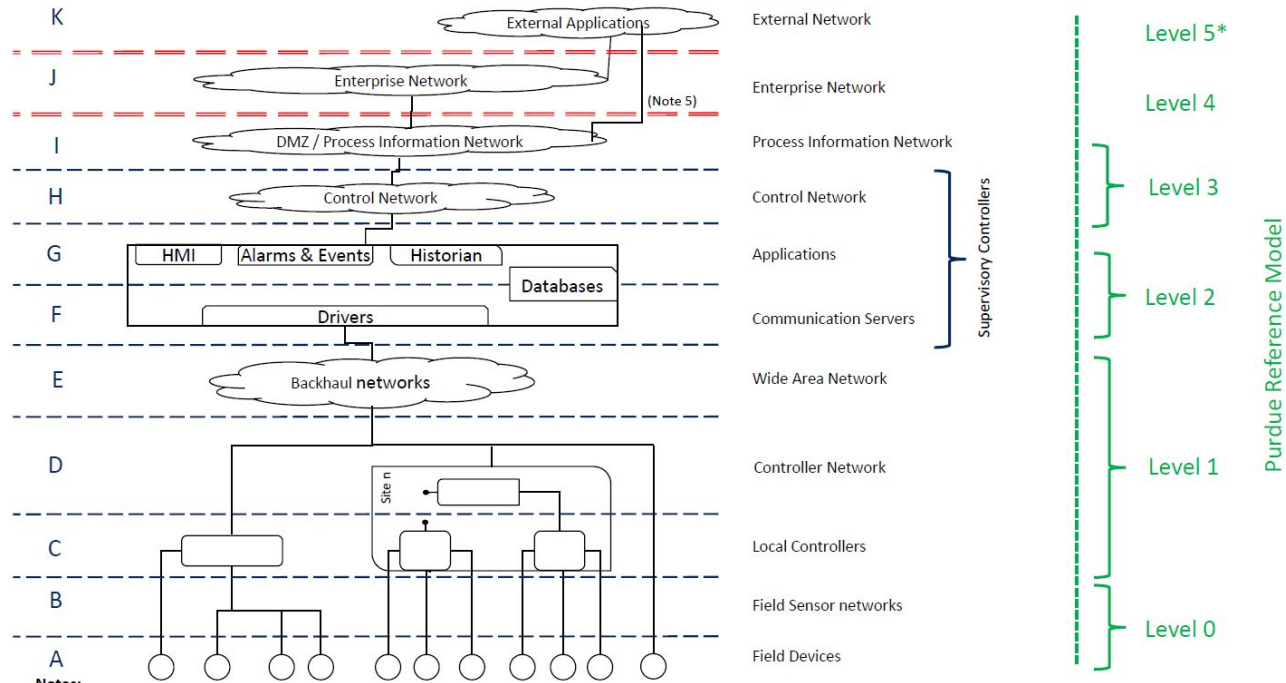


Recap

- easy to use
- for anyone
- anywhere
- immediately



SCADA System Architecture Model



Notes:

- 1 Letters are used to avoid potential conflict with ISA-95 and other "Layer" models.
 - 2 Routers and Firewalls between layers are not shown.
 - 3 Other system-specific servers, applications, and workstations are not shown.
 - 4 Communications for any remote-hosted external applications (Cloud) with lower levels must be done using extreme care.
 - 5 The use of direct-connections for remote applications is strongly discouraged. Refer to ISA/IEC-62443 for guidance on an appropriate zone/conduit implementation.
- * We show a Purdue Level 5. The true Purdue Model only has levels 0-4 because it did not anticipate external applications.

SCADA System Zone and Conduit

Zone: is a perimeter that encapsulates and segments a set of related assets that have a common set of security requirements

Conduits: are the pathways for zones that require interconnectivity. They are the network connections that allow SCADA traffic to flow between the zones in a defined and controlled manner. The traffic flows between the zones should be based on the minimum required traffic necessary for the operation of the SCADA system as fundamental design principle

Rules:

IT Assets and OT Assets should be in different zones and a DMZ zone created for common data access by both enterprise and plant users

Assets or devices that are temporary should be assigned to a different zone.

Wireless communication, if necessary, should be assigned to a different zone.

Remote user or authorized vendor access, if necessary, should be assigned to a different zone.

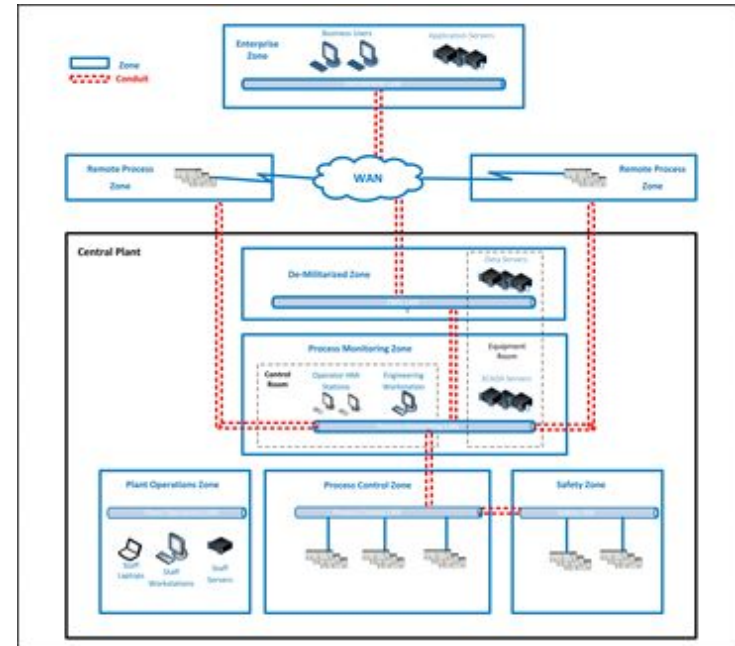
Safety Systems (SIS) should be assigned to a different zone.

Production process areas can be assigned to a single zone or to different zones depending on their common set of security requirements.

Remote production process(es) should be assigned to different zones

Process Monitoring Zone for displaying process graphics, points, alarms, and supervisory control should be assigned a different zone

Plant operations computers and servers that are not related to process control should be in a separate zone





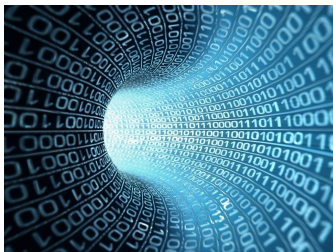
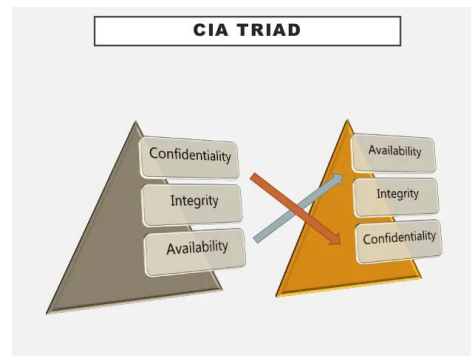
Securing your data with Neptune Cluster

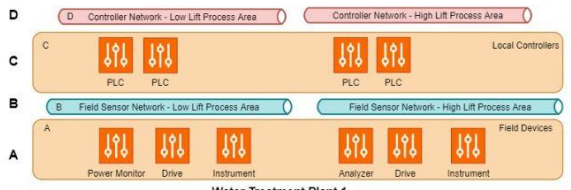
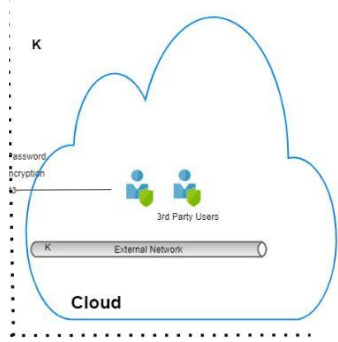


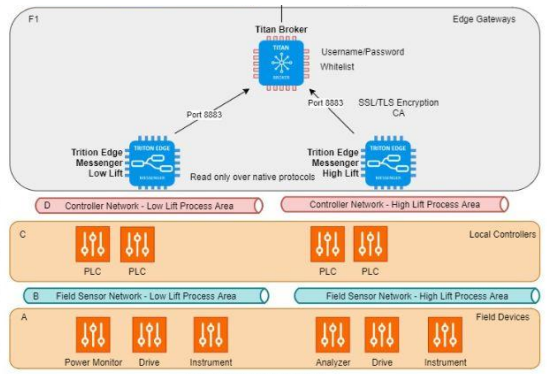
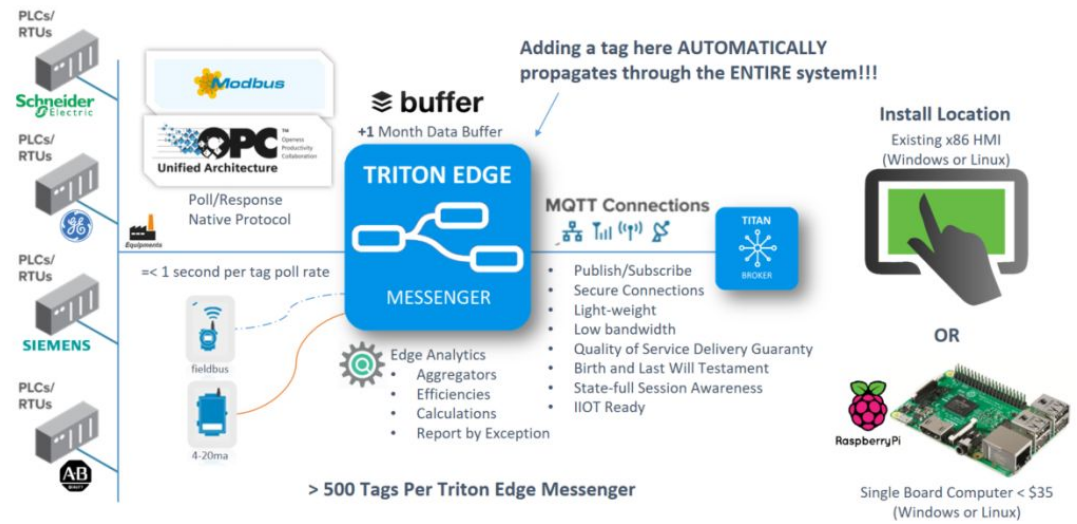
IT
Data and the flow
of digital information

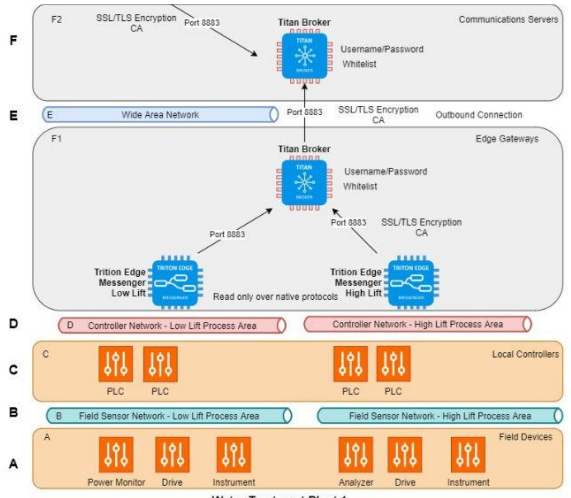
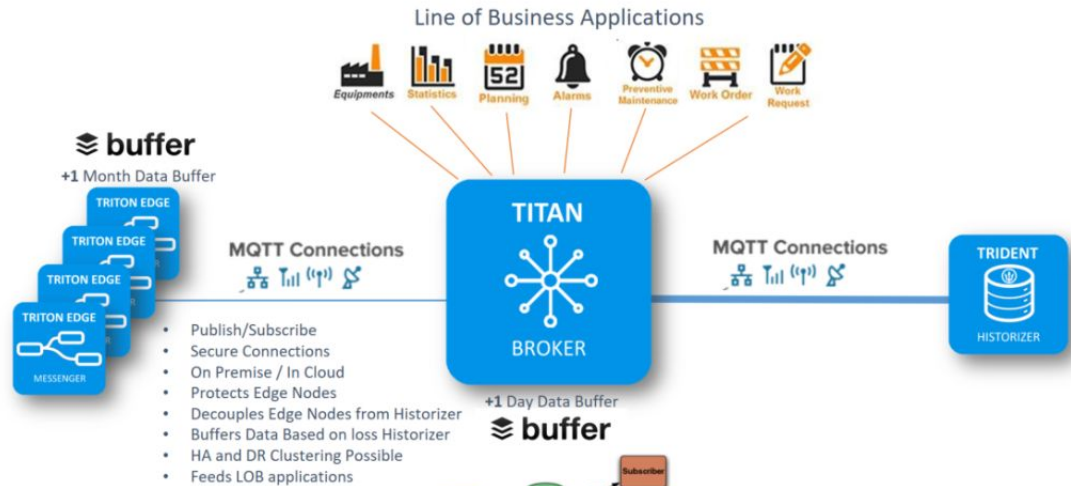


OT
Operation of physical processes
and the machinery used
to carry them out

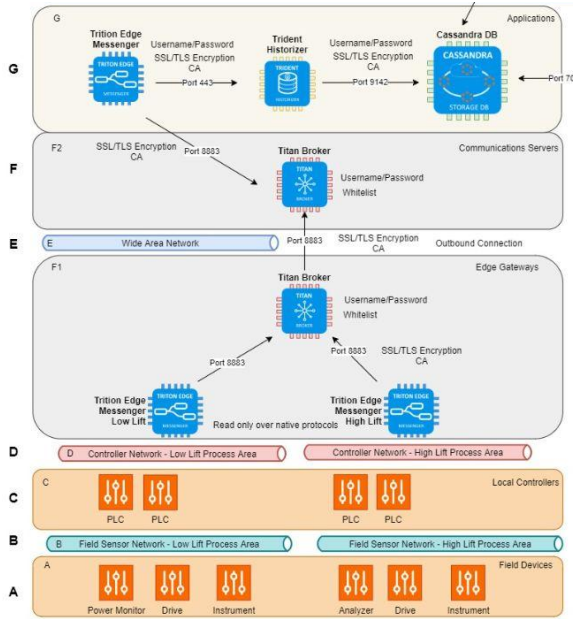


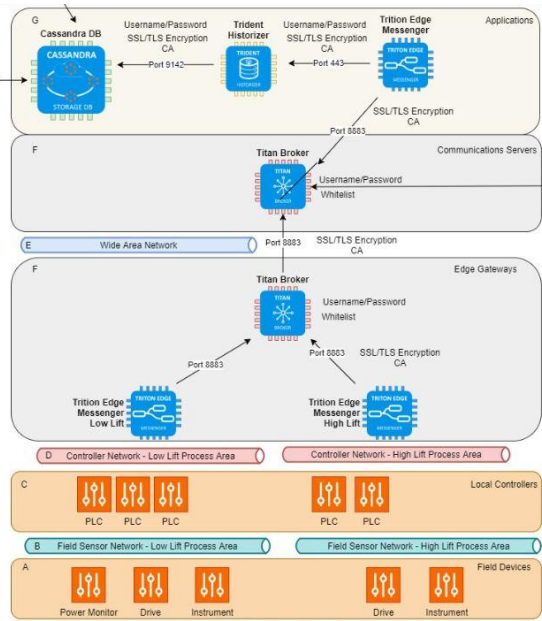
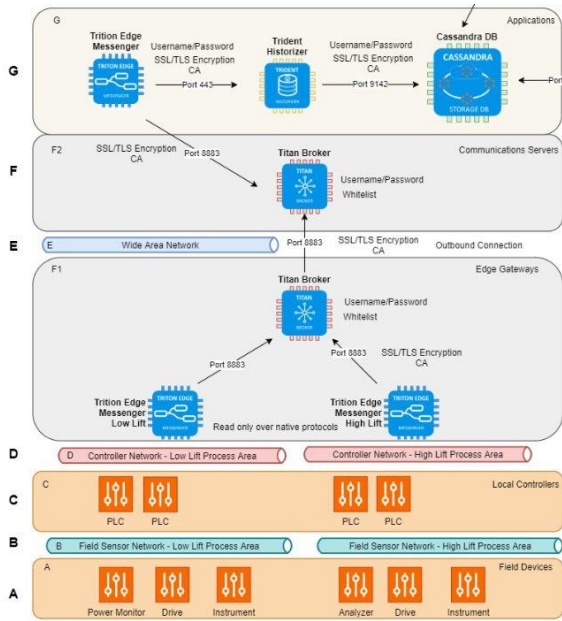


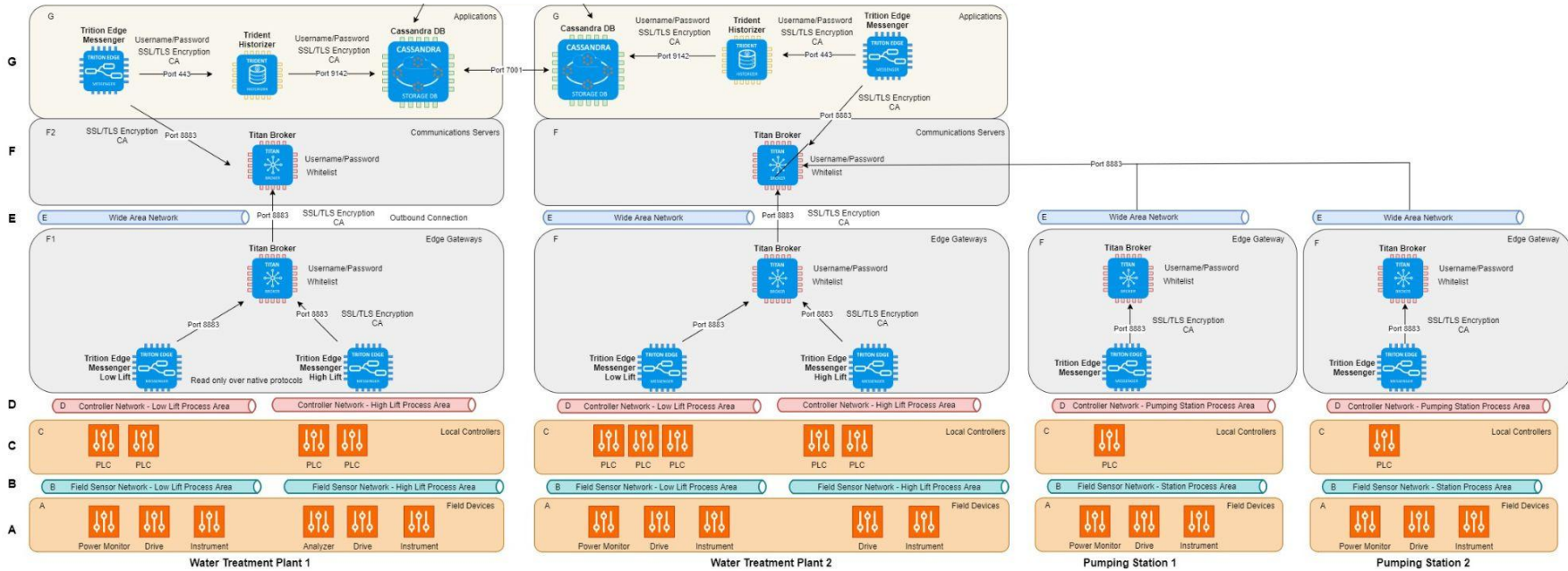


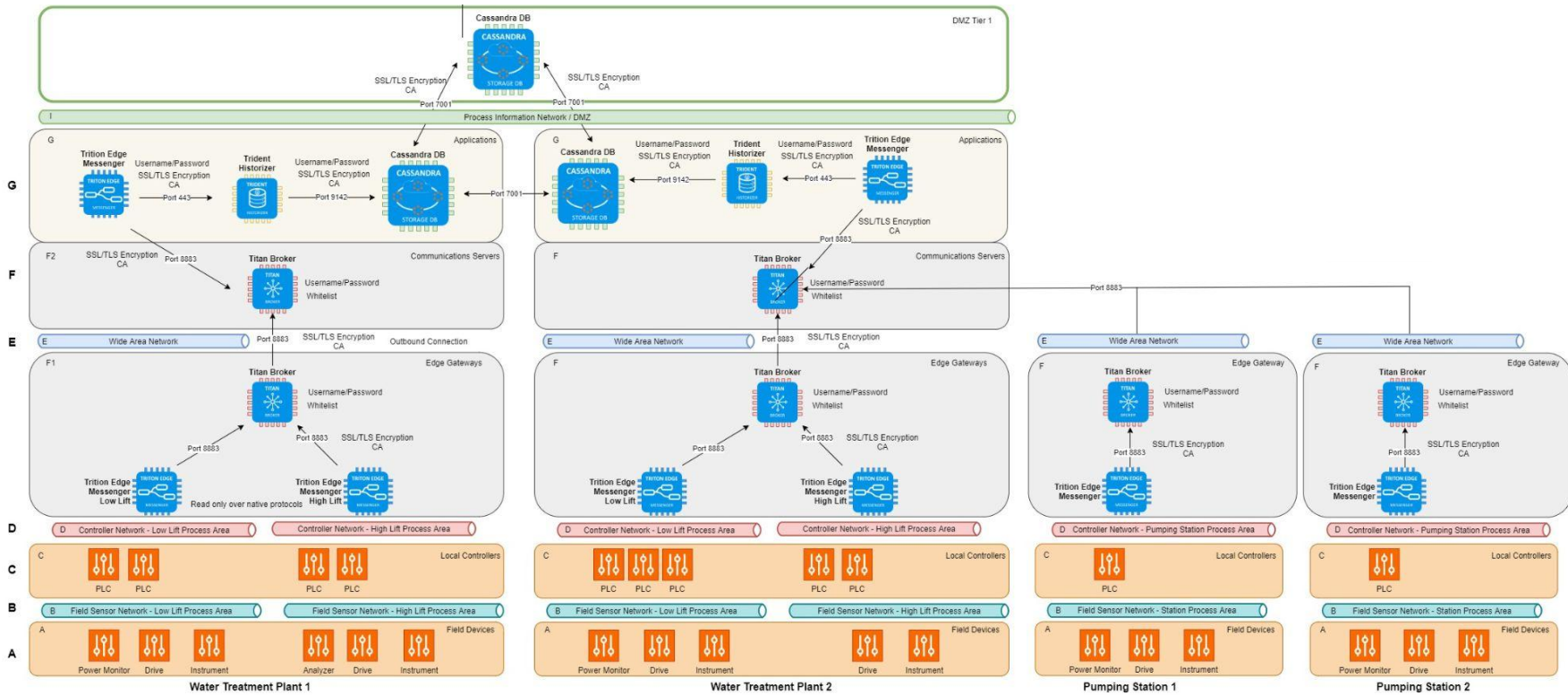


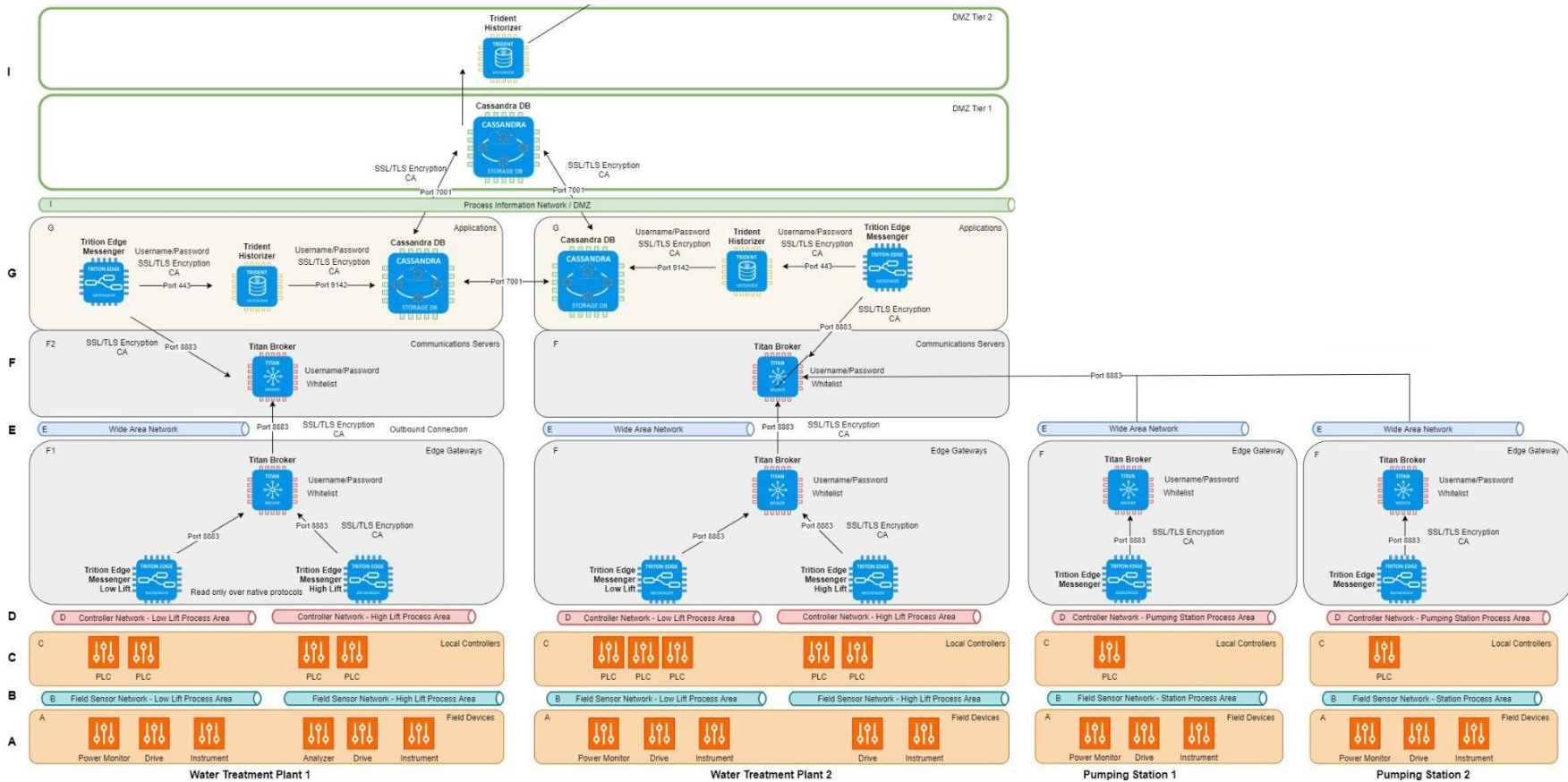
Water Treatment Plant 1

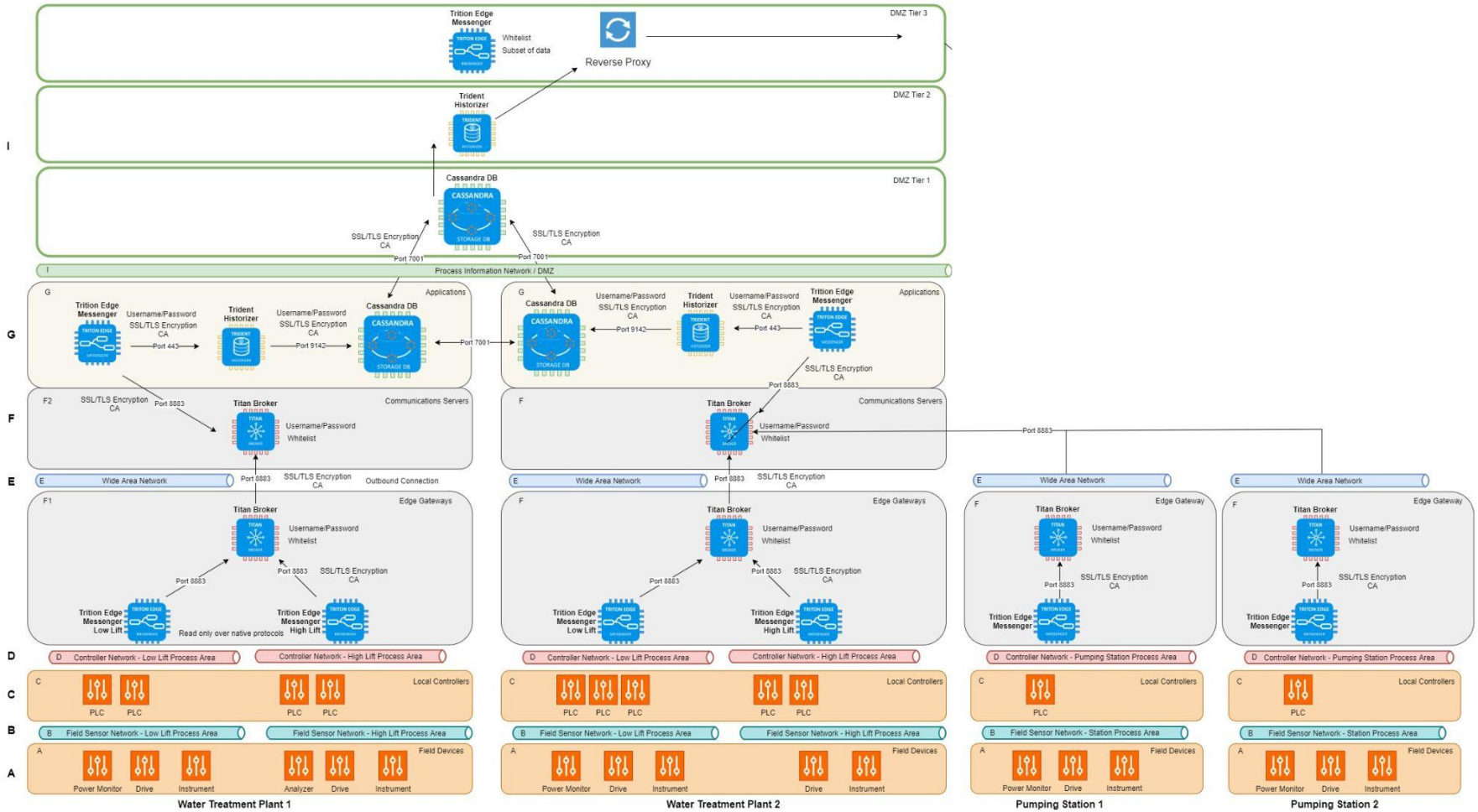










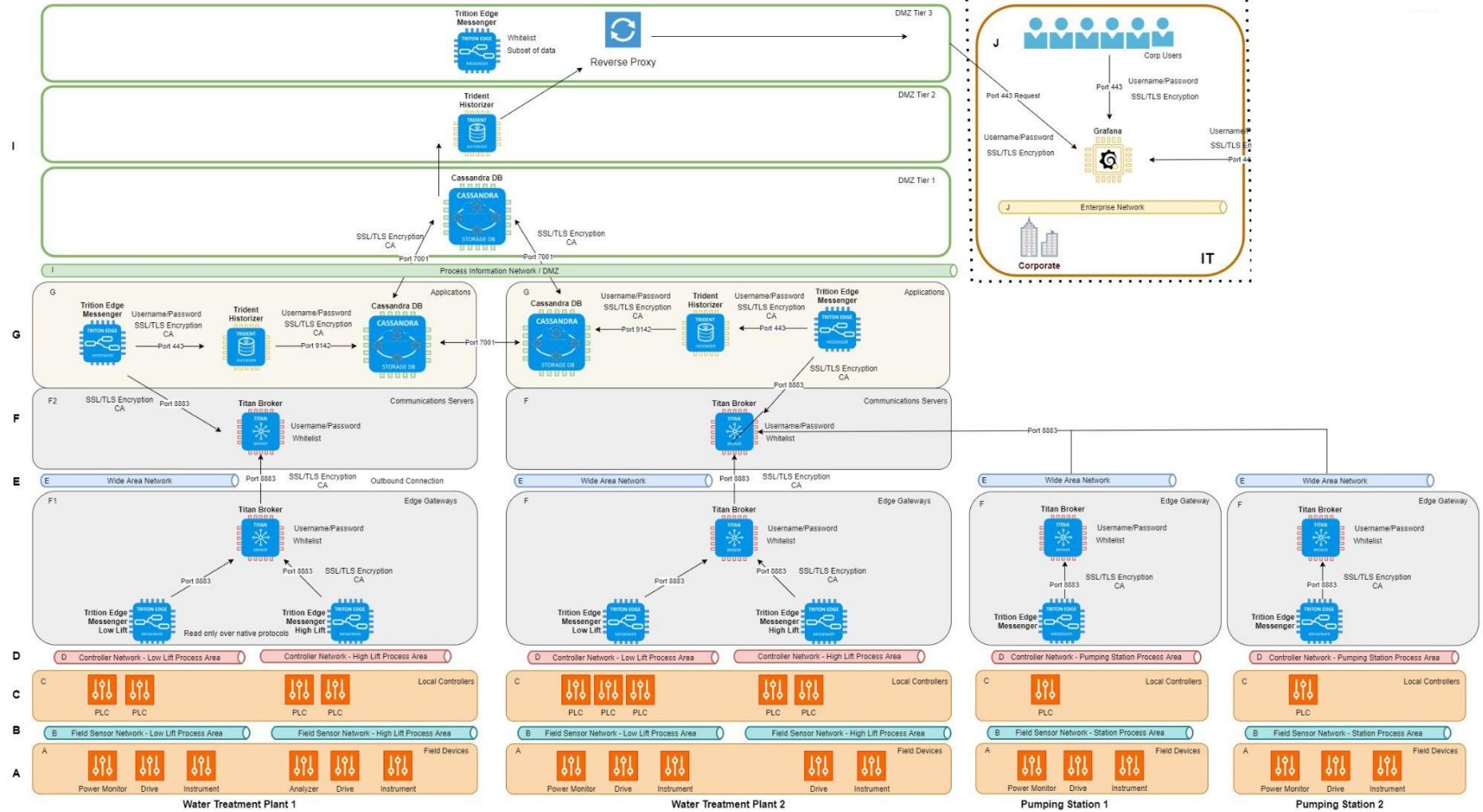


Water Treatment Plant 1

Water Treatment Plant 2

Pumping Station 1

Pumping Station 2

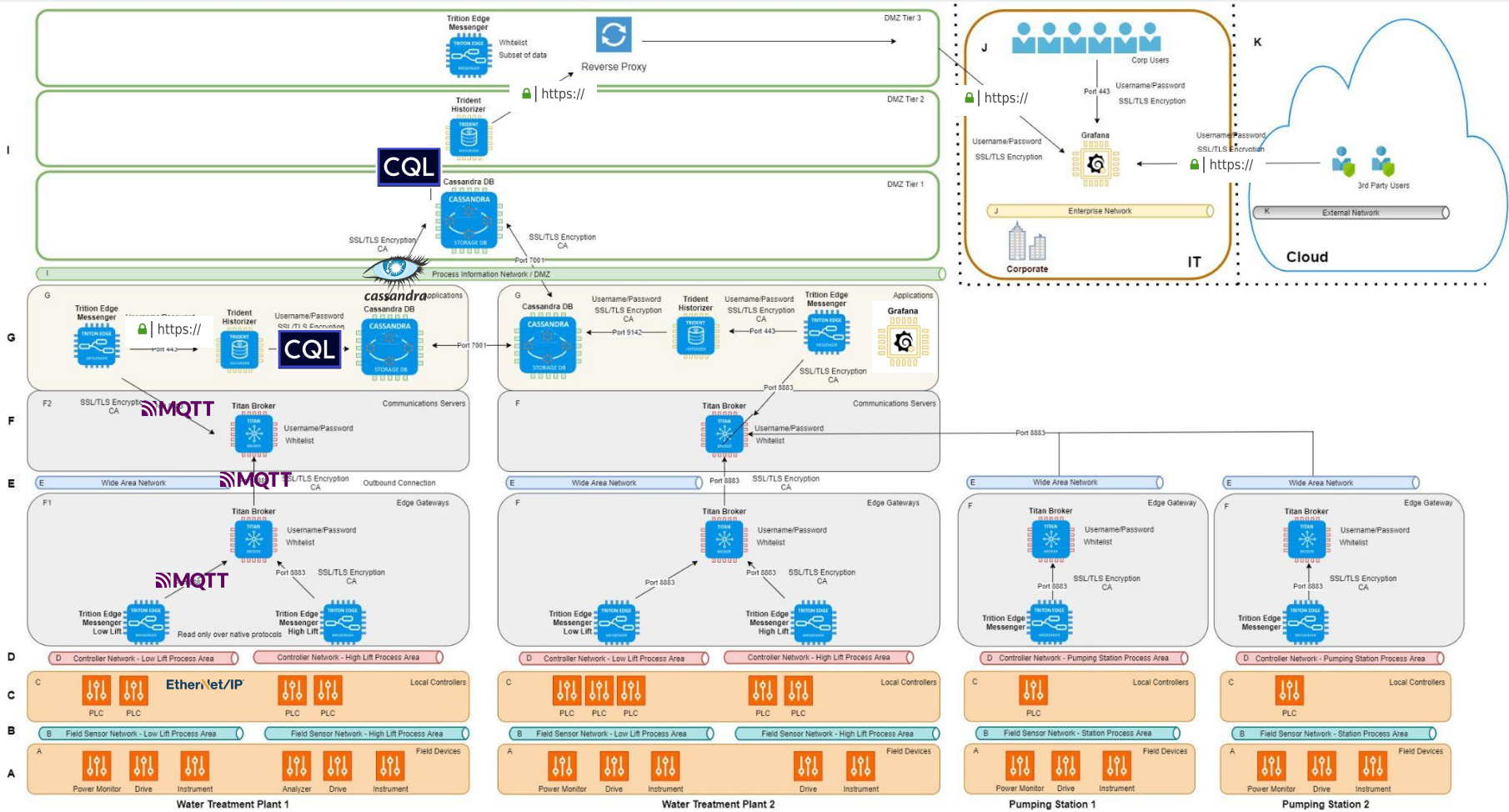


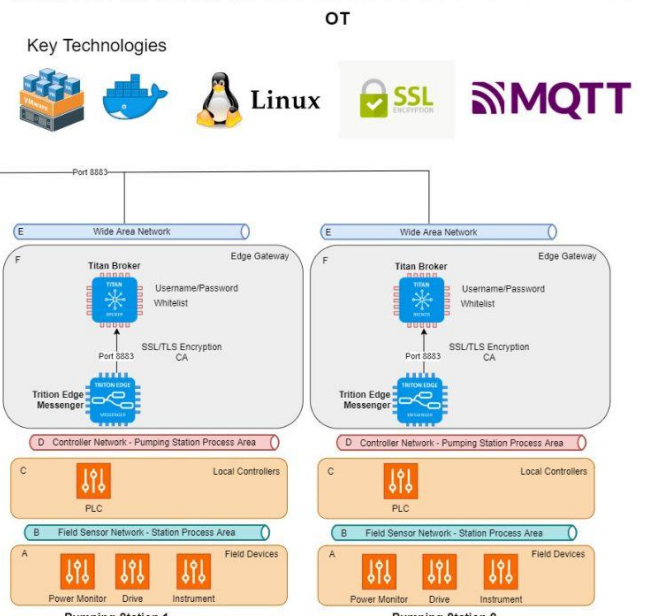
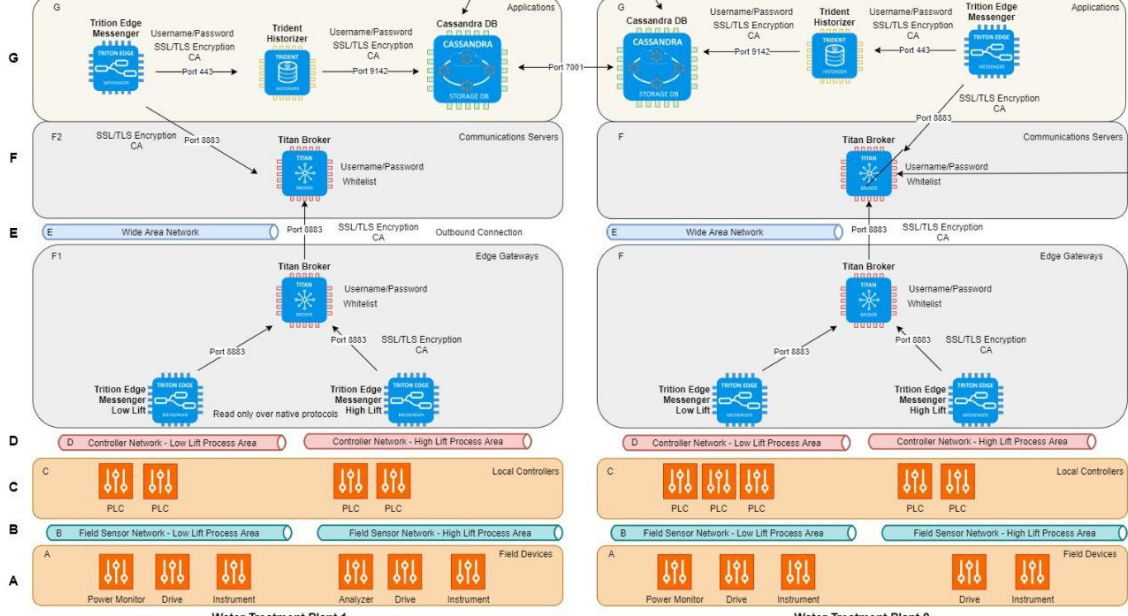
Water Treatment Plant 1

Water Treatment Plant 2

Pumping Station 1

Pumping Station 2





Key Technologies

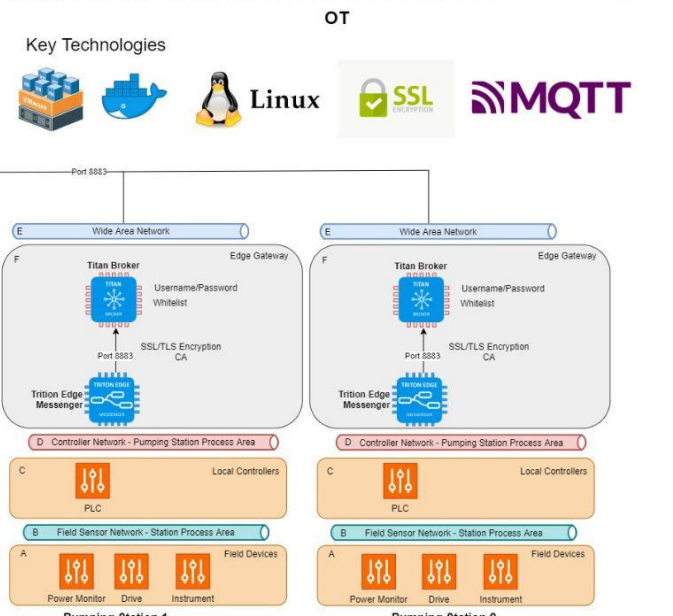
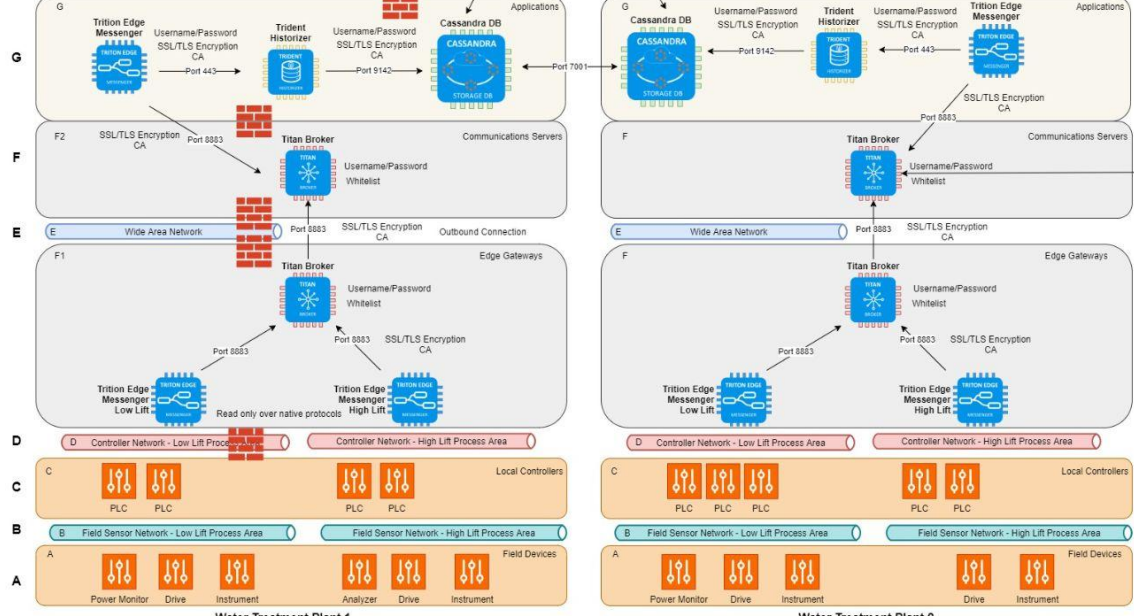
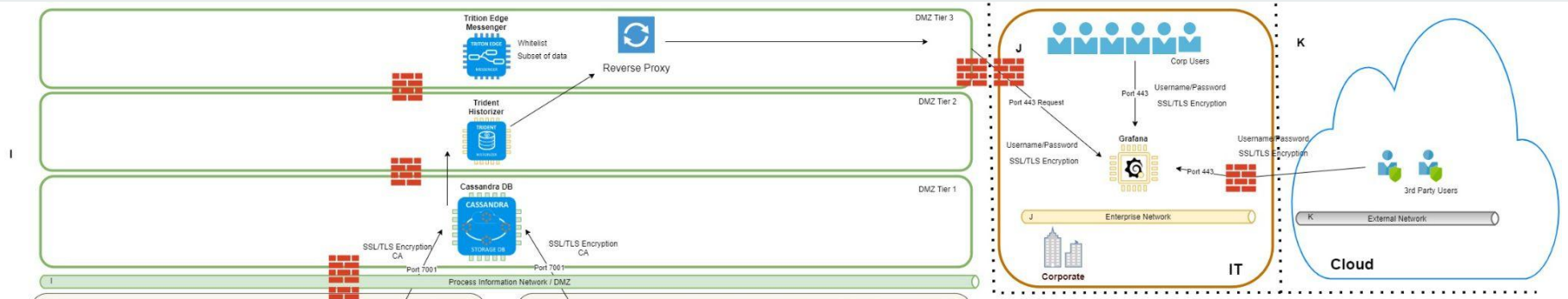


Water Treatment Plant 1

Water Treatment Plant 2

Pumping Station 1

Pumping Station 2



Key Technologies



OT

What are the issues?

1

Data in silos



2

Limited access



3

Cost



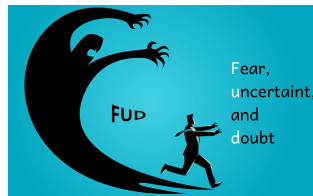
4

Poor tooling



5

FUD



6

Security



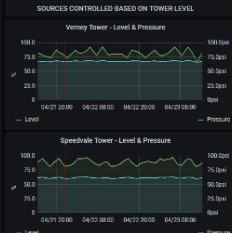
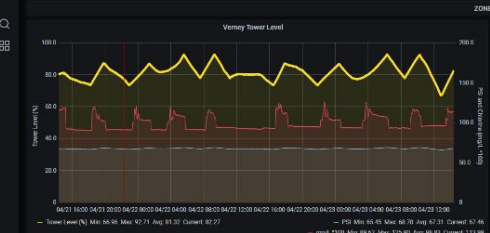
Neptune Cluster

How to Unleash the data!

- Remove cost as barrier to entry
- Rapidly deployed
- Minimal Hardware Footprint
- Fast data retrieval
- Horizontally Scalable
- Lightweight and robust communication protocol
- Designed from ground up for Time Series Data - second to years
- Secure - through software layers, authentication, and encryption
- Architecture flexibility improves security/redundancy/resilience

WHO LET THE
DOG^s OUT?





Neptune Cluster - Secure Data Access

