

# MQTT Server Deployments in OT Environments

December 6th, 2023

# Presenters

**Arlen Nipper**  
President and CTO



**Nathan Davenport**  
Director of Sales Engineering



# What do we mean by OT Environments

**IIoT - Industrial - Oil/gas, solar, water & wastewater, manufacturing, etc.**

**Not IoT - garage door, connected cars, Alexa, etc.**



# MQTT - Myth versus Reality

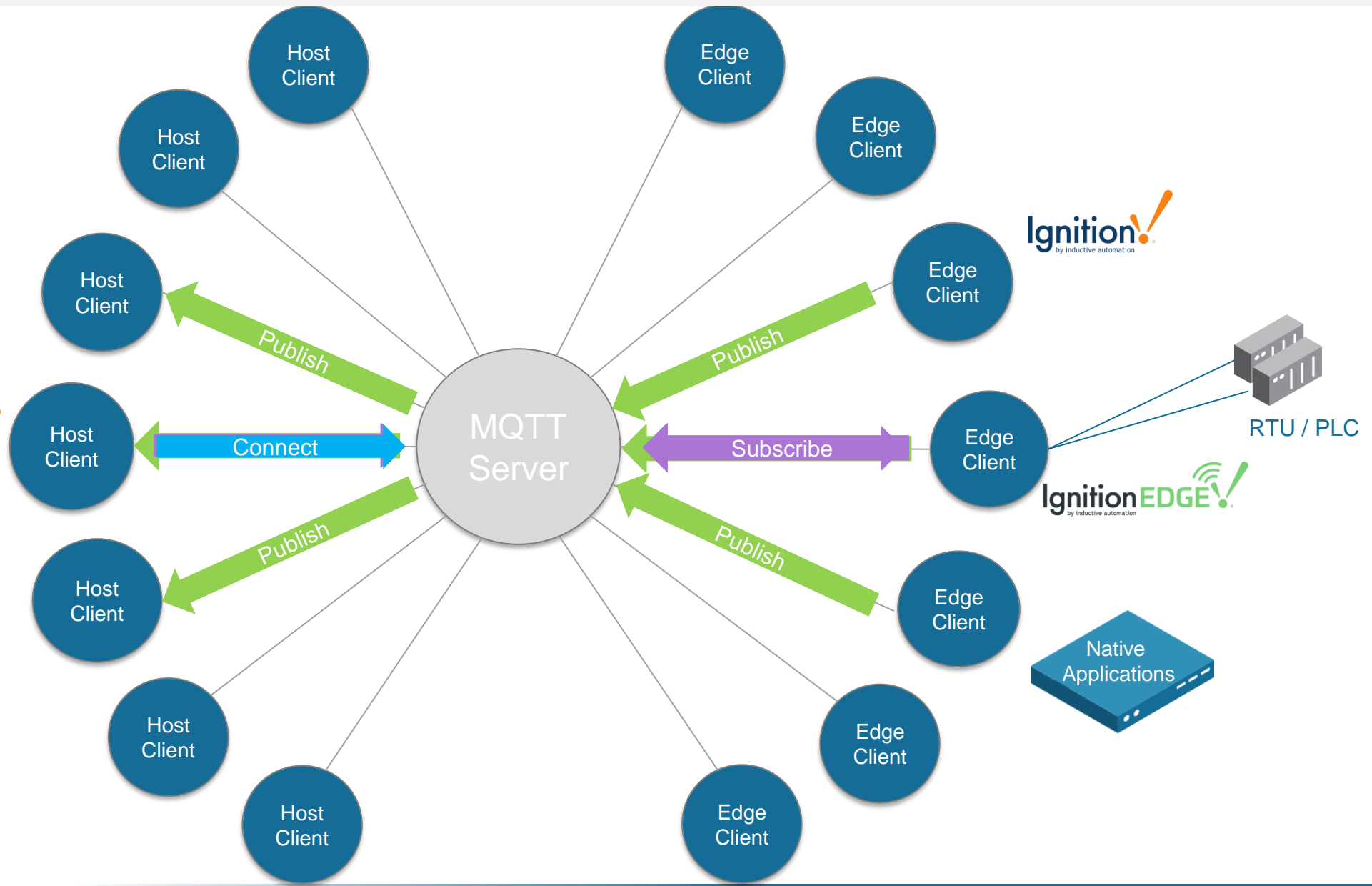
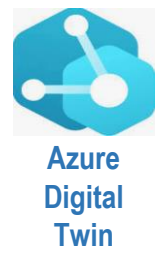
## Myth

- Not bidirectional i.e. can't send commands
- All data resides in the MQTT Server
- MQTT Servers are at the forefront of your system
- MQTT Servers are for the Cloud only

## Reality

- MQTT is Bidirectional
- MQTT Servers are not for storage of data
- MQTT Servers should be a pervasive technology and just work
- Cloud is great, but on prem MQTT Server are very important

# Anatomy of an MQTT Infrastructure



# MQTT Server Security

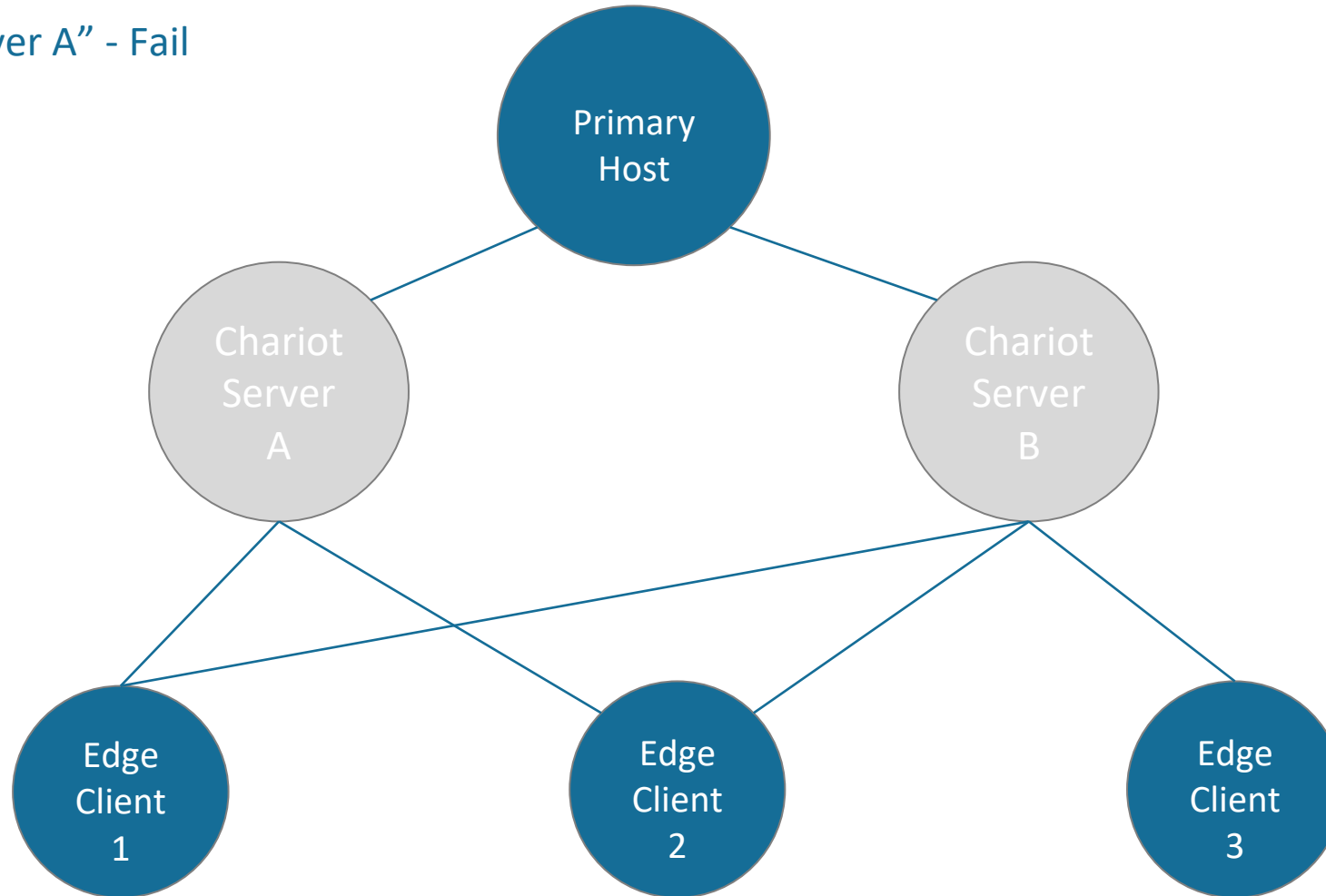
## Zero Trust Security

- Remote Originated Connection
- Client-Side Certificate Support
- Always use TLS
- MQTT Authentication using Username and Password
  - Do not allow anonymous connections
- MQTT Server Access Control List (ACL)
  - What is an ACL? – It enables what a client can publish and subscribe on the MQTT Server
  - Set up on the MQTT Server per each client
  - Can Limit Functionality such as Read Only or Ingest
  - Can Limit Access to specific sites based on topic notation. Example is to only subscribe data from one facility



# Failover, Redundancy & Scale

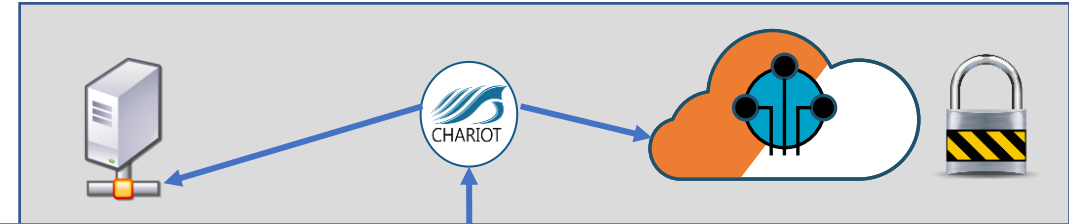
Primary Host to "Server A" - Fail  
"Server A" - Fail



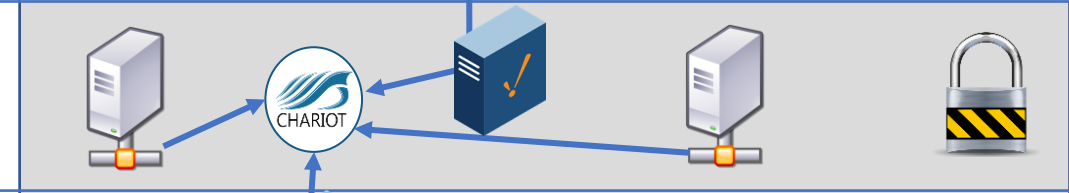
Keep it Simple

# Security - ISA 95 Architecture with MQTT & Sparkplug

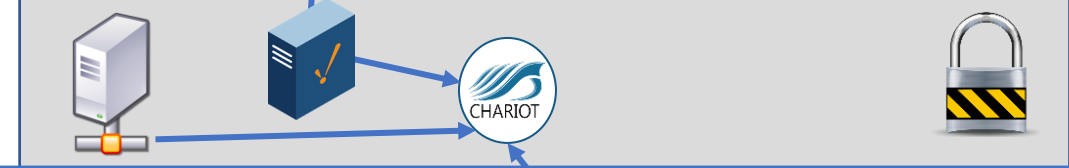
L5 Cloud – AI, Predictive Maintenance



L4 Business Planning - ERP/SAP



L3.5 DMZ Zone



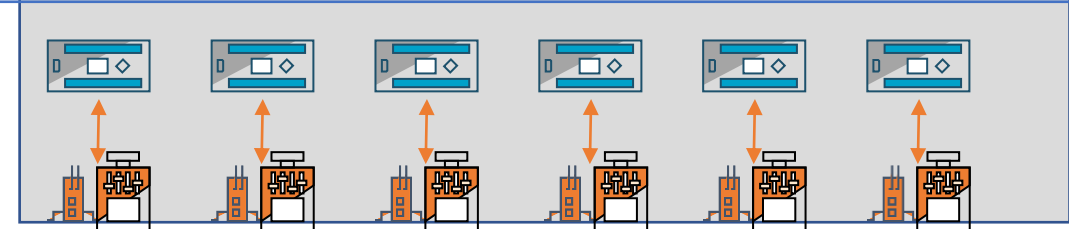
L3 SCADA & Operations



L2 Control/PLC/RTUS/Etc.



L1 Sensors/Actuators





# Demonstration



# Why Chariot is Great for OT Environments

- Easy Configuration
- Easy to Manage
- Sparkplug & MQTT Tooling
- Leverages 25 years of MQTT Experience  
in Mission Critical Real Time Systems



**Now 15% off if ordered in December!**

**Download It.**

Q

**Do It.**  
&

A

**Today!**


Contact Cirrus Link Sales for a one-on-one Demo/Project Discussion

[sales@cirrus-link.com](mailto:sales@cirrus-link.com)

844-924-7798

# Thank You

[sales@cirrus-link.com](mailto:sales@cirrus-link.com)

 844-924-7798