PoE
A Case Study

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Introduction

- Santos Muro
- Business Development Manager
- Korenix UK
- 10 years within Industrial Ethernet

Outline

- What is PoE

- Advantages of PoE

- How does it work?

- Managed vs Unmanaged PoE

- PoE Boost

- Case Study 1: Rail Application

- Case Study 2: CCTV Application

- Case study 3: On-board Bus Application

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What is PoE

- Provides 48VDC power over your IP network to end devices
- IEEE standards driven
    - 802.3af-2003 15.4Watts per port max
    - 802.3at-2009 30 Watts per port max

Industrial Ethernet

Advantages of PoE

- Installation : No electrician, plug and play
- Resource reduction : Cable, switches, man-power
- On-going maintenance : IT Department can have total ownership
- Safety : low DC voltages with no open wiring

Industrial Ethernet

Why the need for more power?

- More power = More possibilities

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802.3af How does it work.

- Monitoring station
- PSE – Power sourcing equipment
- PD – Powered Device
- If the switch gives power, how   ho to give it to?

DATA & POWER

YES

Dynamic Powering

- Monitoring station
- PSE – Power sourcing equipment
- PD – Powered Device

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Managed vs Unmanaged

- Unmanaged
  - Lower cost
- Managed
  - PoE Scheduling
  - Automatic power reset on loss of device connectivity
  - Overheat protection
  - Forced Powering
  - Dynamic powering

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PoE Boost

- PoE runs on 48Vdc

- Wide range of 12-24Vdc applications
  - Road vehicles
    - Cars ~ 12Vdc
    - Buses ~ 24Vdc
  - Instrument panels
  - Solar cell batteries

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PoE Boost

- Current solution:
  - Current situation is supply DC-DC inverter to boost to 48Vdc and then feed PoE switch
  - Cost
  - Additional products to maintain
  - Space
- Ideal solution
  - Switch that runs on 12~24Vdc and still provides full PoE

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PoE Boost

- Fully 802.3af & 802.3at compliant
- Same switching functionality whether managed or unmanaged option

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Case Study 1
Rail Application

Case study 1: Rail Application

- Providing on-board Wi-Fi
- Powers the Wi-Fi Access points through PoE
- Reduce cabling
- 24Vdc input option in carriage
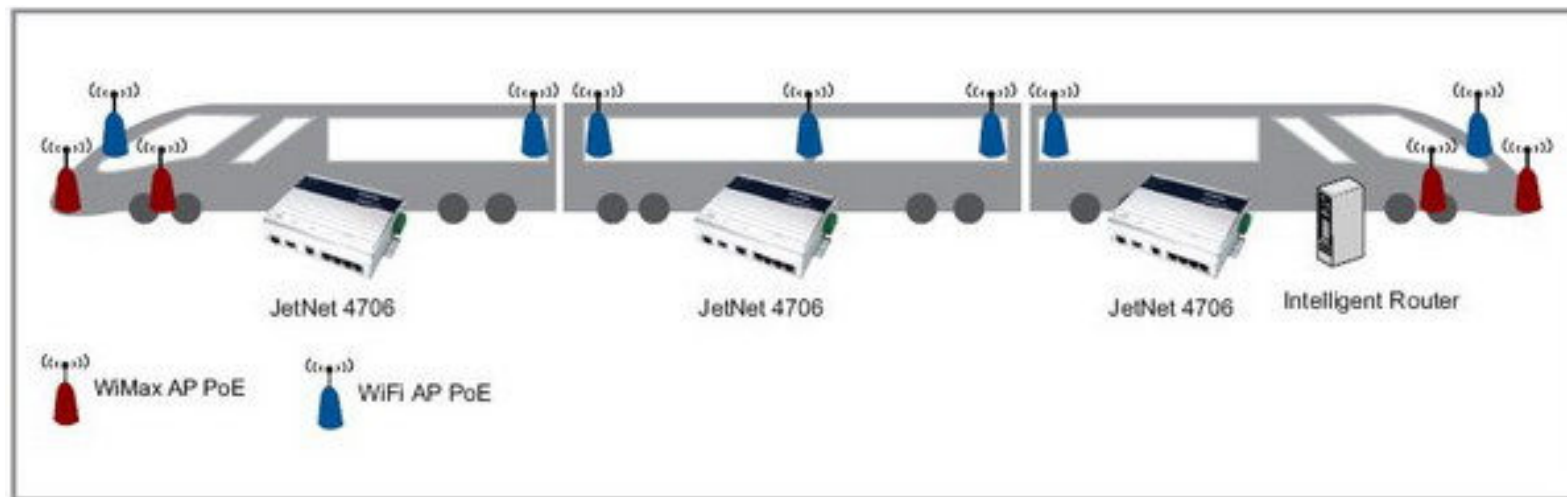
Rail Standards

- High Temperature + 60°C
- EN 50155 – On-board
- EN 50121 – Track-side
- Vibration & Shock resistance
- EMC & EMI emissions
- High input voltage changes

Industrial Ethernet
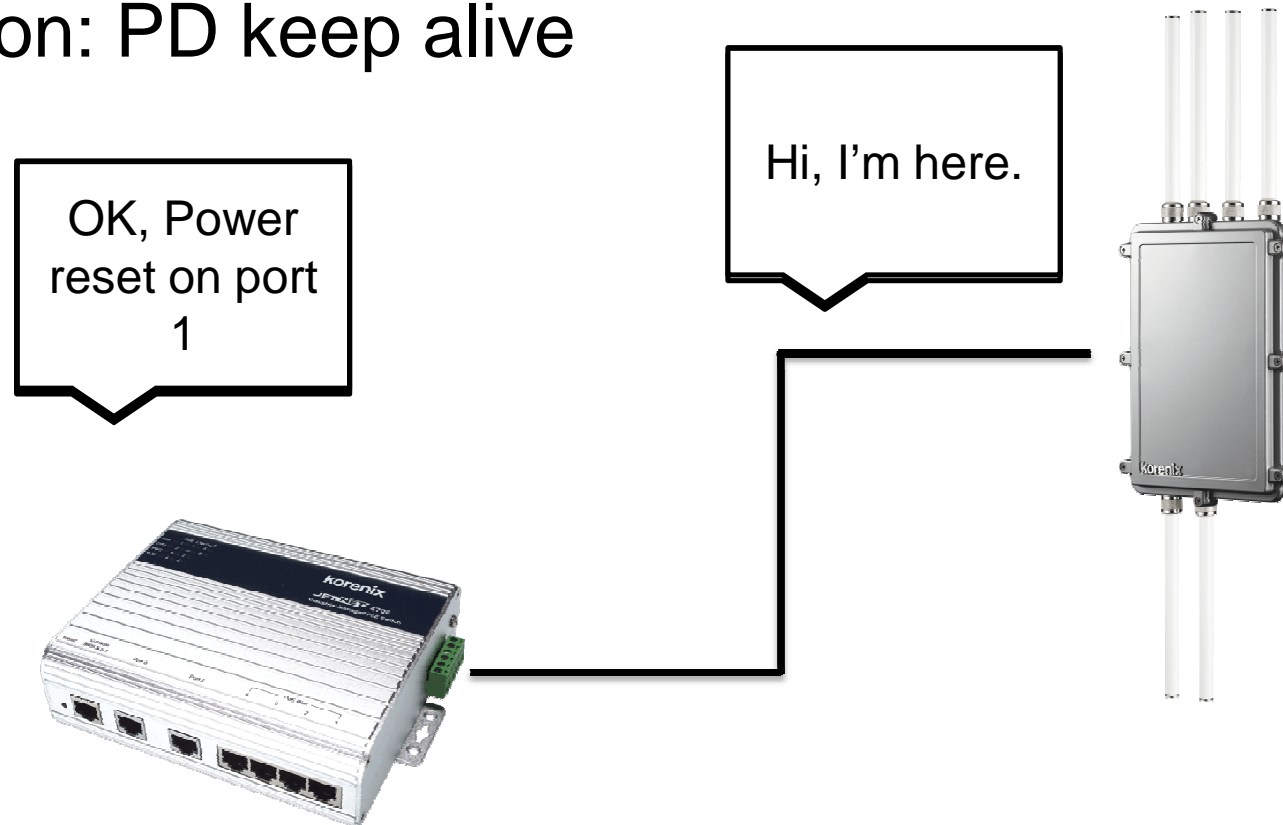
Rail Application

- Problem: Access Points keep dropping off the network, train is travelling around country how do you get an engineer to fix it?

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Rail Application

- Solution: PD keep alive

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Case Study 2
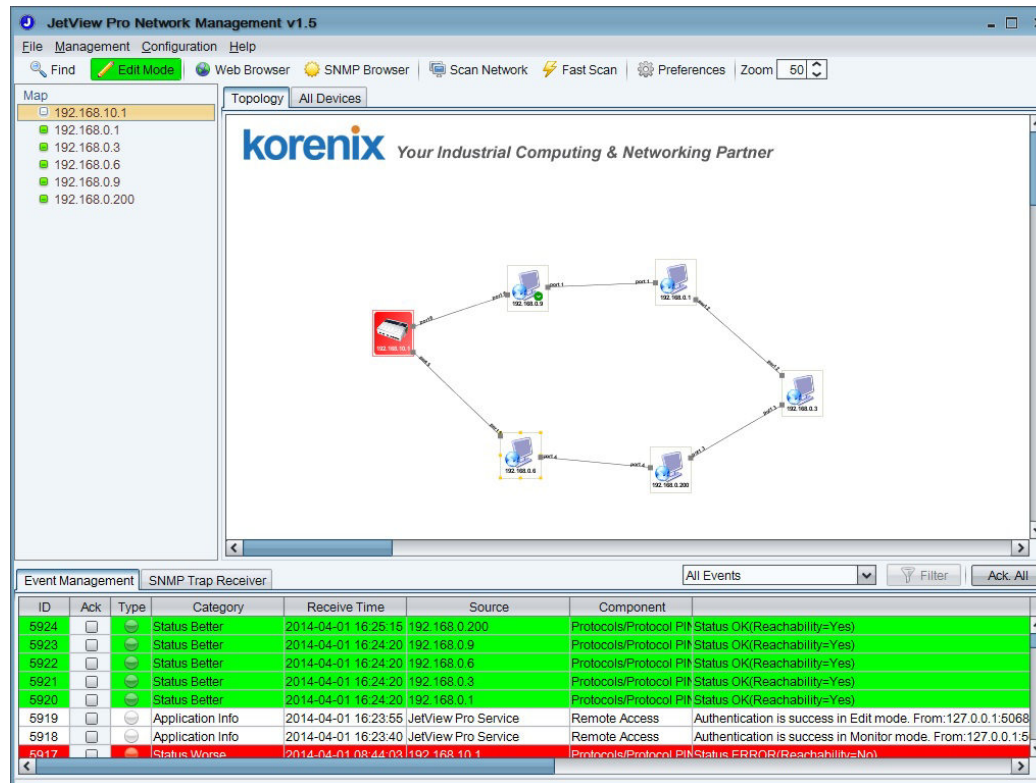# CCTV Surveillance System

Case Study 2: CCTV Application

- 5710G Perimeter with Axis high powered cameras

- Advanced PoE 802.at – 30Watts
- Sub-second ring topology recovery
- PoE management features
  - PD Keep-alive
  - MSR - RSTP
- SNMP monitoring and reporting
- IGMP multicast management

Industrial Ethernet
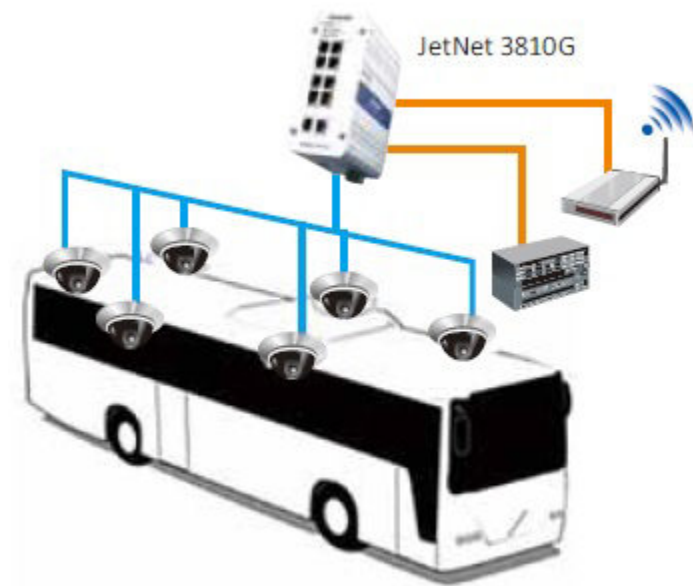
CCTV Application

- SNMP Monitoring system

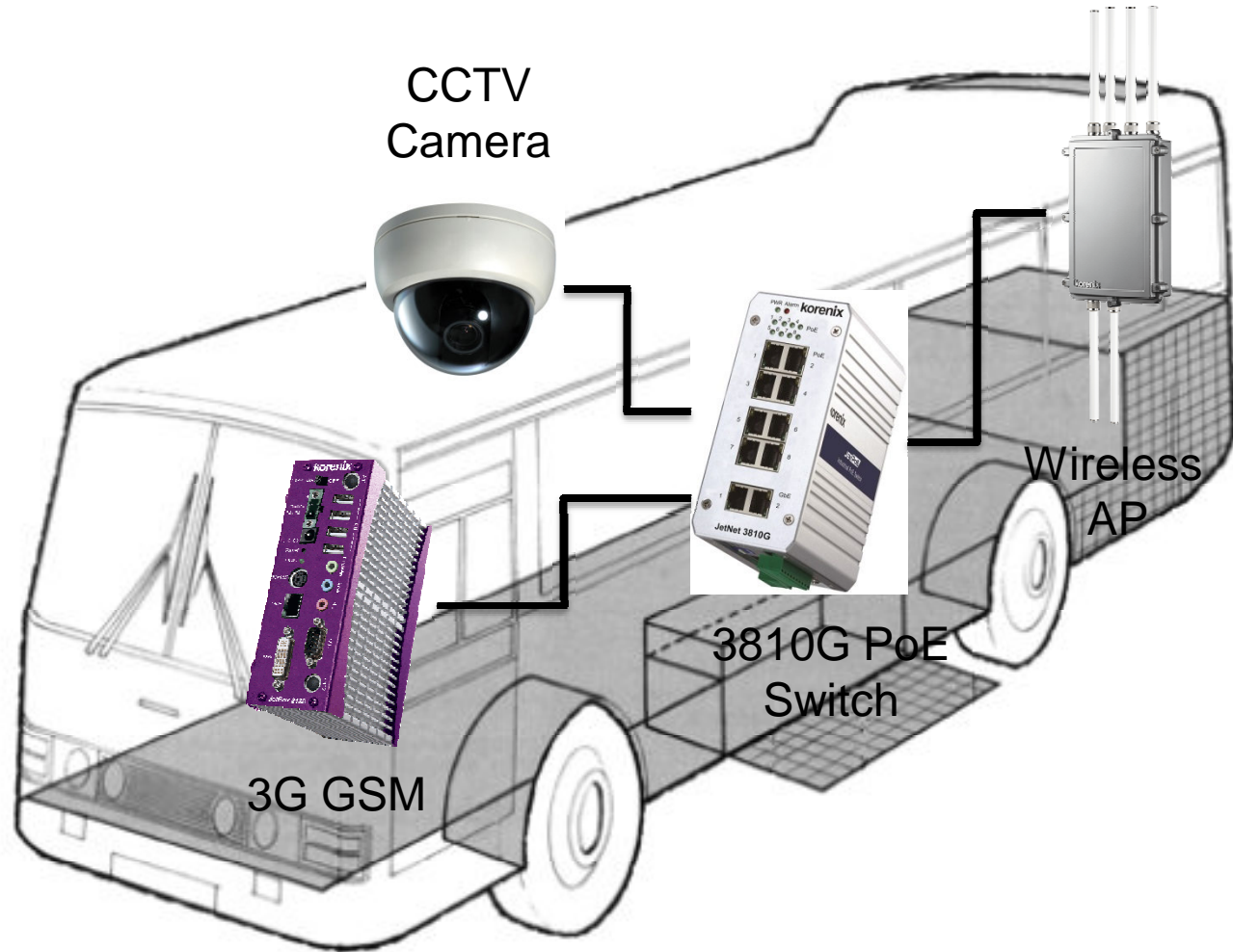# Case Study 3
On-board Bus Application

Case Study 3: On-board Bus Application

- Application: Give free on-board Wi-Fi to passengers

- Problem: Powering units from on-board 24Vdc, Gigabit uplink & e-Mark standard approved

JetNet 3810G

Industrial Ethernet

Bus Application

CCTV Camera

Wireless AP

3810G PoE Switch

3G GSM

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Thank you
Any Questions?

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