

10th
UCAAT

**User Conference on
Advanced Automated Testing**

Implementing Sustainability Through Network Automation and AI

bandarlogdev



Why Sustainability? Why Now?

A Challenging Network Environment

- Infrastructure gets more and more complex each day.
 - Consumer and Enterprise Network demands vs Resources.
 - Old infrastructure can no longer support the next-gen applications and services.
 - The future internet, and being Metaverse-ready.

The environmental impact of the technology and innovation.

- The New Approach. The road to a Sustainable World.
 - An Intelligent Network that can adapt.
 - Green and Energy efficient Network.
 - More Sustainable and environmentally friendly practices, standards.

Network automation

We are not new to automation practices.

- Test automation to Industrial Automation
 - Fixed or Flexible Task automaton
 - Robotics & PLCs.
 - Digital Twin Automation.

Network Automation.

- The Network Lifecycle == A programmable Network.
 - Network configuration, provisioning, and maintenance and operations
 - Service Optimization
 - Zero touch

Can automation help reach sustainability goals?

Infrastructure and Services Optimization through Network Automation

- Sustainability KPIs
- Integrating sustainability at the network design level.
- Resource Optimization
 - renewable resources.
 - Energy efficient & overall efficiency.
 - Cost reduction.

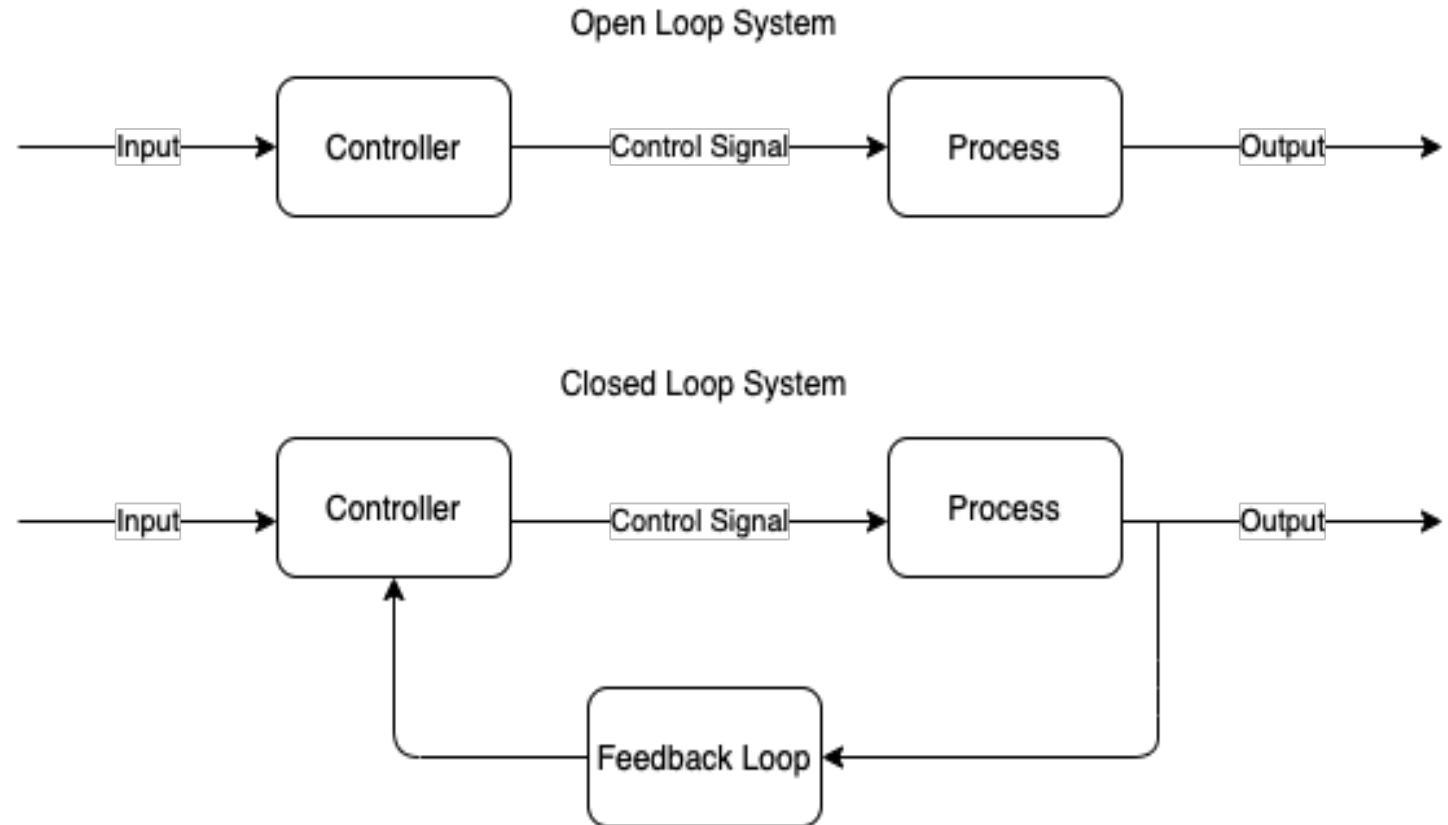
Does AI add value?

The Role of AI in Network Automation.

- Gen-AI, Core AI, Wrapper AI.
- Disaggregation of Network -
 - White box and Open Sources
 - Cloud Computing and NFV
- Core and Edge AI implementation.
 - Distributed Architecture and Content Delivery Network.

Closed Loop Automation.

- Controller & Process Automaton
- Implementing Feedback loop using AI :
 - Predictive insights, maintenance
 - Faults & Anomaly Detection.
 - Security & Monitoring.
 - System training through logs.
 - Testing & diagnostics
 - New Services & Policy Integrations.

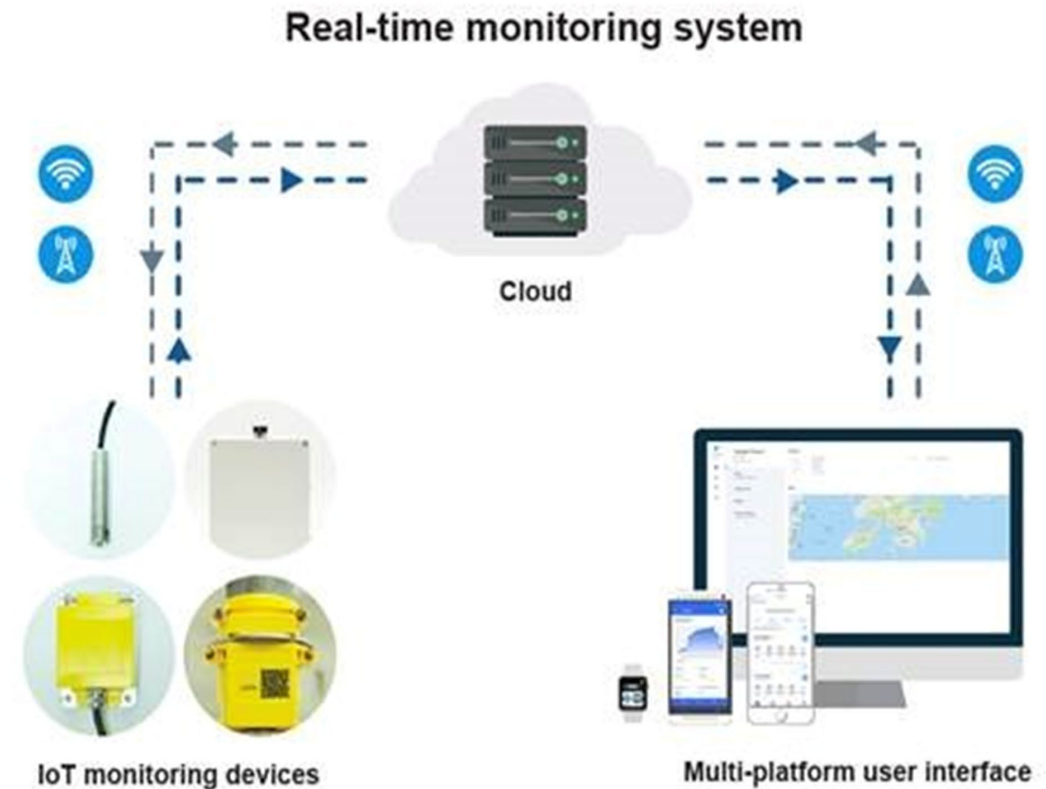


Using Network Automation w/ AI at Construction sites

Construction Site Networks.

- IoT sensors & applications.
- Security
- intra-site logistics and task scheduling system

Smart Building / Structure Networks. Design & Installation.



AI enabled Private 5G network on A Construction Site

Construction Wearables Occupational Safety Monitoring

- IoT sensors
- 5G Private Network
- Overlay network using Blockchain technology to manage devices in the network.



Using Network Automation with AI in Construction



Automated, connected mobile machines

- Automated digging
- Automated tool change
- Detection "as built" condition



- Automated driving
- Environment recognition



- Automated processes



- Remote Control



Vertical Integration via OPC UA



5G machine and construction site connectivity

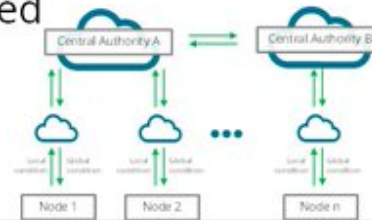
- Mult-Connectivity modul: WiFi, 5G, 4G, BLE...



- Construction Site Networks: WiFi, 5G Campus

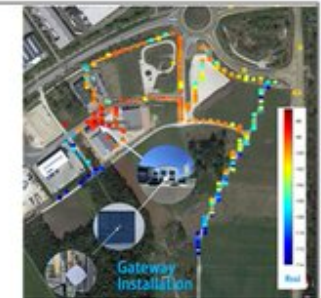


- Distributed Cloud Services



Processes and solutions for the digital construction site

- Tracking & Tracing of Material via LPWAN



- Process optimization and progress prediction using simulation and machine data (e.g. with ISO 15143-3 data via OPC UA)



- AR-based driver assistance: Visualization via HoloLens



Achieving digital sustainability : Its an Long Open road.

The innovation in Technology and its advancement in past years have made it possible to bring together various stakeholders in the business ecosystems. It is not easier to connect standards & regulatory bodies to manufacturers to suppliers and to the consumers. With Automation and AI this connection is realized in real-time hence building an ecosystem that is not only operationally efficient but capable and highly adaptable.

Thank you

