

NW TECS IoT

Smart Energy Solution for Smart Cities

Smart Electricity Meter IoT Solution
based on LoRaWAN

Introduction

A leader of Low-Power Wide Area Networks (LPWAN) for the Internet of Things, with over 50 public network providers and thousands of enterprises using the ThingPark Wireless platform all over the world.

Mission : Digital Twin Made Commonplace

Actility believes in a radically more efficient and sustainable world through ubiquitous digital-twin technology. We want to spark this transition and become the leading global mediation platform between cloud apps & physical world by 2023.

LPWAN technology is a perfect vehicle for global leadership in its unlicensed version : we first make it the “**Wifi of IoT**” and then upgrade from connectivity to mediation.

Actility at a glance

Company founded
2008



Headquarters
Paris
France



Actility
Connecting with intelligence

PROFILE



110

Employees – 60 % of R&D and product development



100 M€+

funding raised
Orange, Cisco, Bosch, Swisscom, Creadev, Foxconn, Inmarsat etc.



20.000+

LoRaWAN gateways connected on Actility-supplied networks

PRODUCT & SERVICES PORTFOLIO

Deploy



- ✓ LoRaWAN network server
- ✓ Professional Services & radio planning
- ✓ Carrier-grade OSS/BSS for gateway & device management
- ✓ Join servers for easy device activation

Scale



- ✓ Key Management System for enhanced **security** & large scale **device activation**
- ✓ Firmware-over-the-air update for devices
- ✓ **Ecosystem** marketplaces and Partner programs

Enrich



- ✓ Geolocation services using combinations of technologies : LoRa network location or AGPS
- ✓ Access to Roaming hub for easy device roaming
- ✓ Fully integrated end-to-end solutions marketplace to **accelerate go-to-market**

MARKETS

Public operators



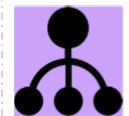
55+ large scale operators

Enterprise networks



130+ Enterprise Networks

Channel Partners

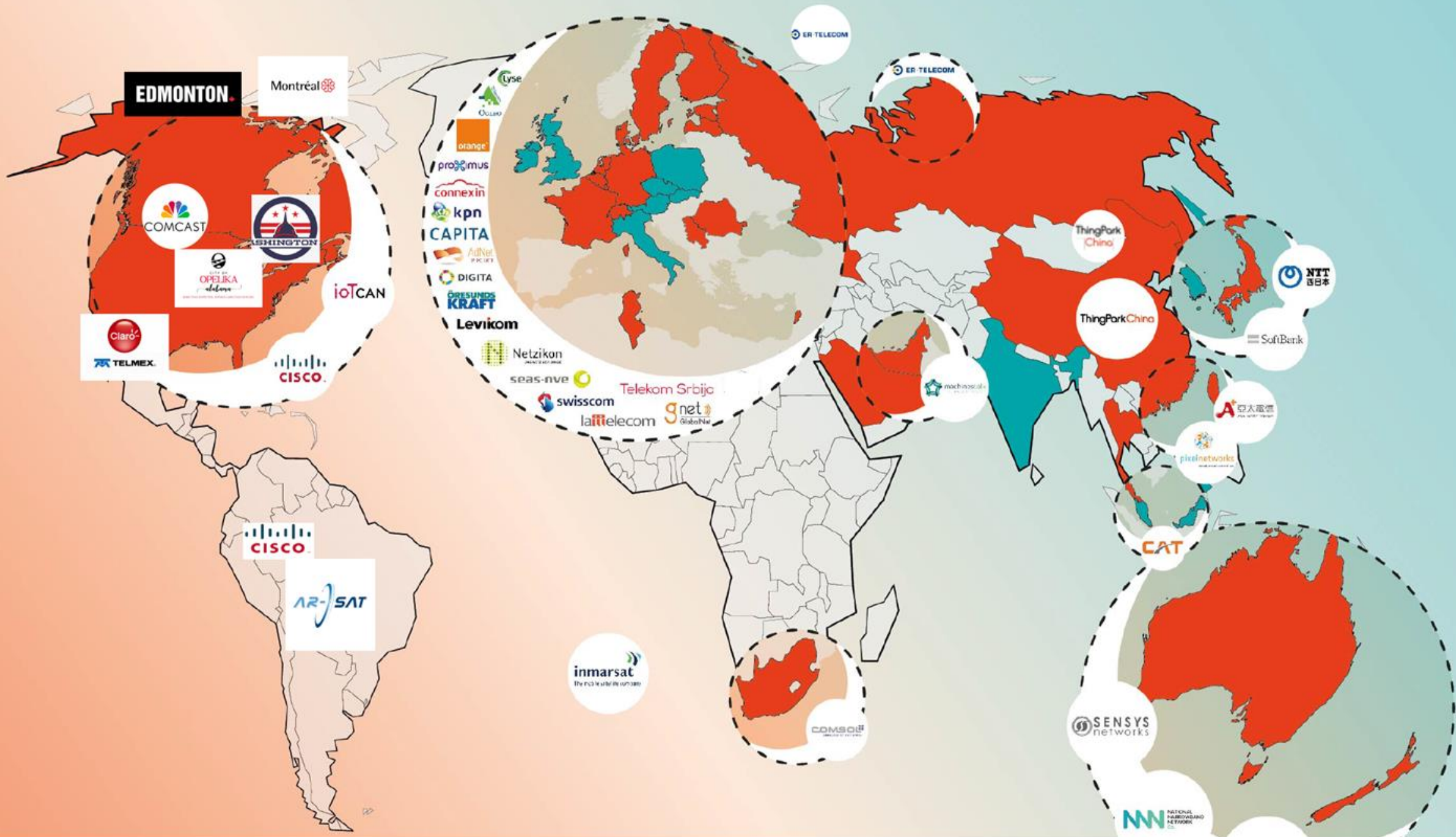


100 % Indirect GTM strategy

Solution Partners



Partner Program for Eco –systems from validation to distribution



Activity is at the heart of an ever-growing global partner ecosystem

Application Platforms



Communication Service Providers



Energy & Utilities



Industrial IoT Solution Providers



System Integrators

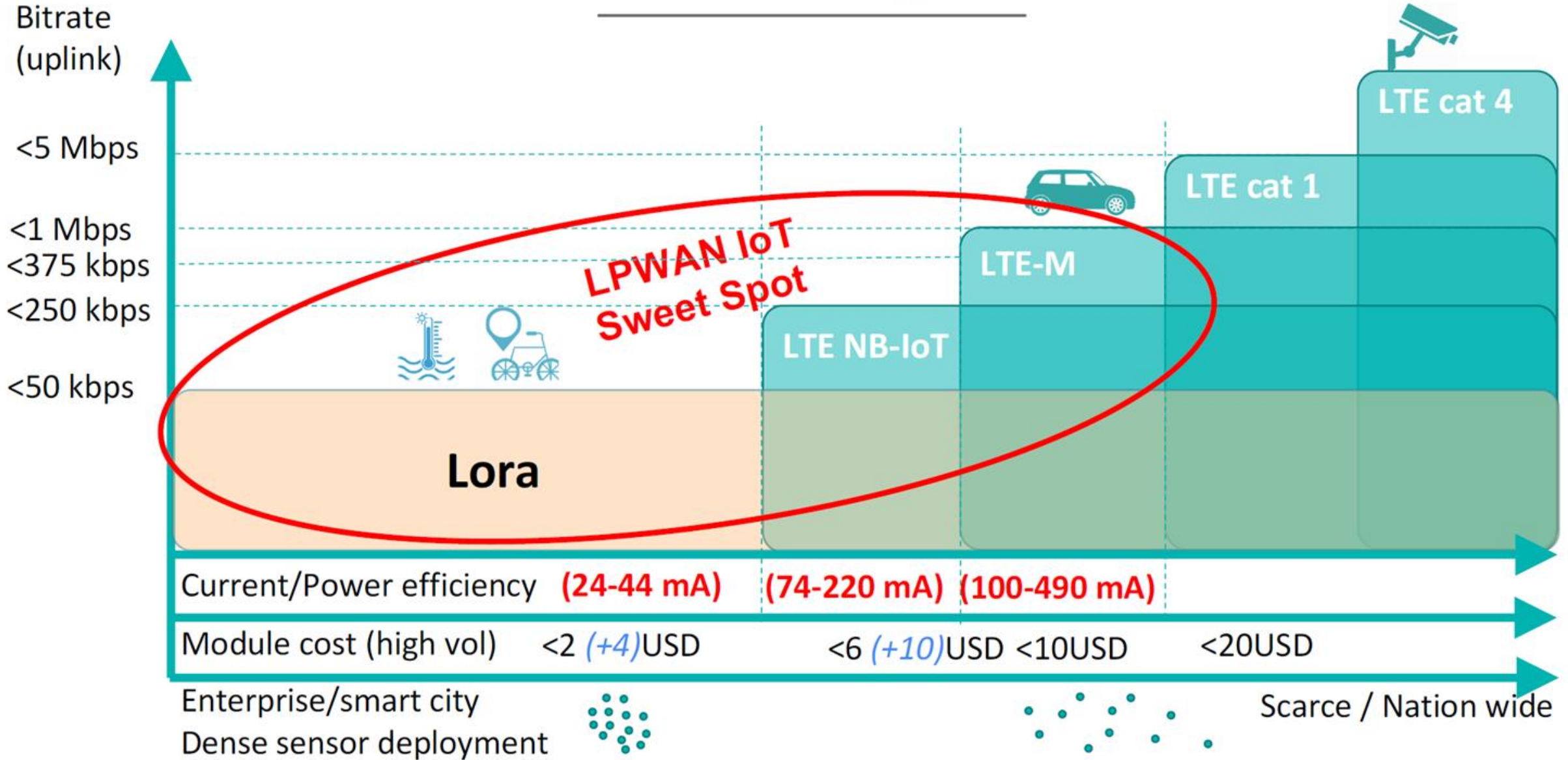


Ecosystem Partners

- 1000 Registered developers
- 100 Solution partners
- 155 Marketplace products



LPWA Market Segmentation

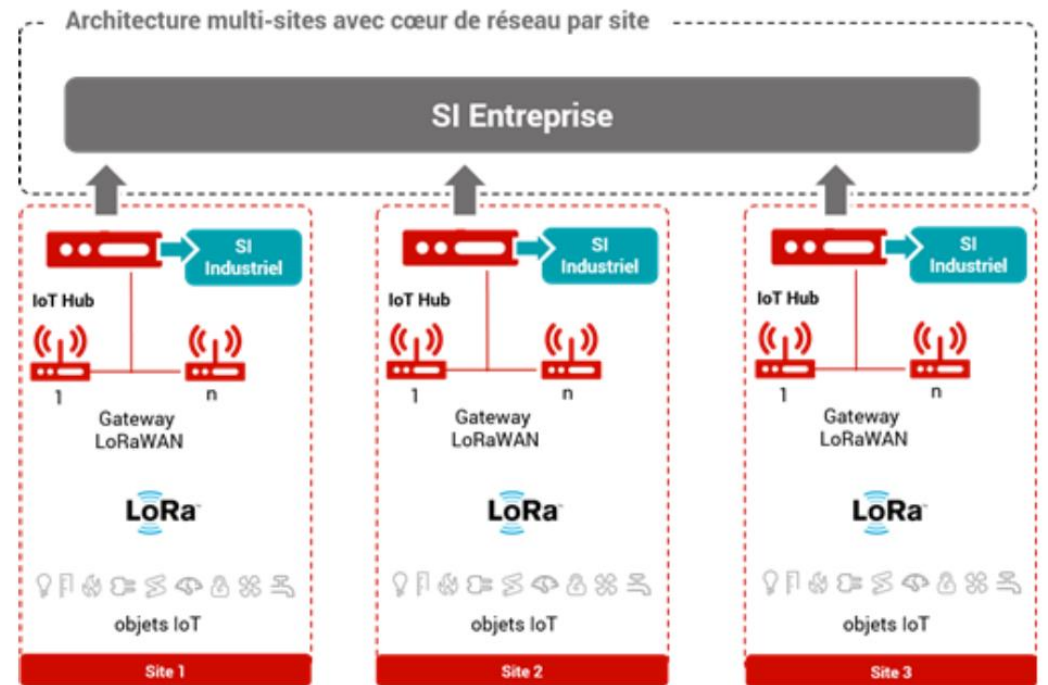
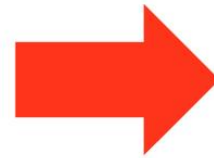
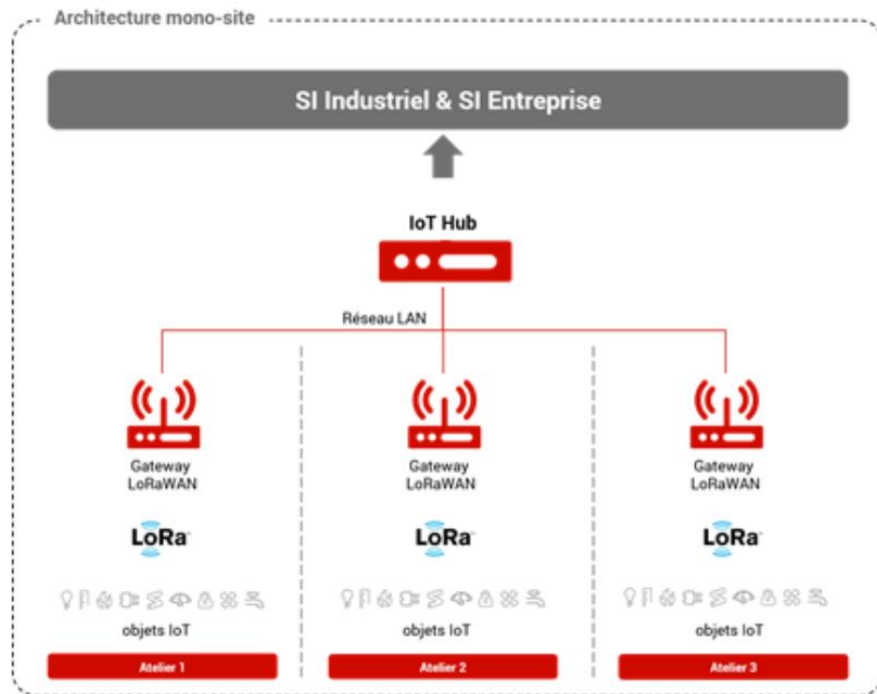


For LPWA solutions (LoRa and NB1), battery for 10yr @ 4USD/2Ah, 10msg/day is shown.

NB1 power use per 3GPP report R1 156006, 5Wh for 10yr, 1 msg/2h scenario

Enabling Industrial Architecture

Architecture evolve overtime with limited effort and no impact on end-user applications.



Sample Implementation

TOULOUSE (FR – 2019) FIRST BIG PROJECT WITH LoRaWAN



Sample Implementation



Engie, third global electric utility company, was looking for an IOT platform to propose new services all around the world.

Before

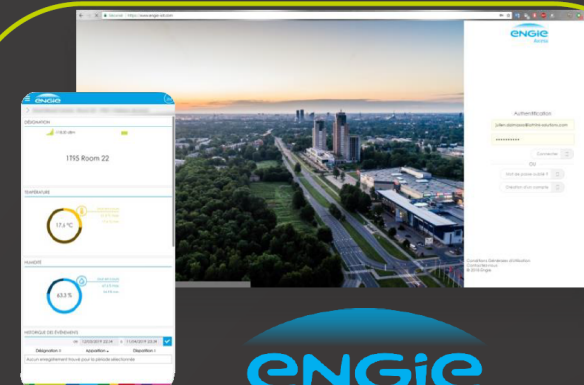


Many different use cases



- Difficulties to connect different devices and BMS
- Many type of connectivity to manage
- Too many vertical platforms
- 2 to 24 months to deploy a project

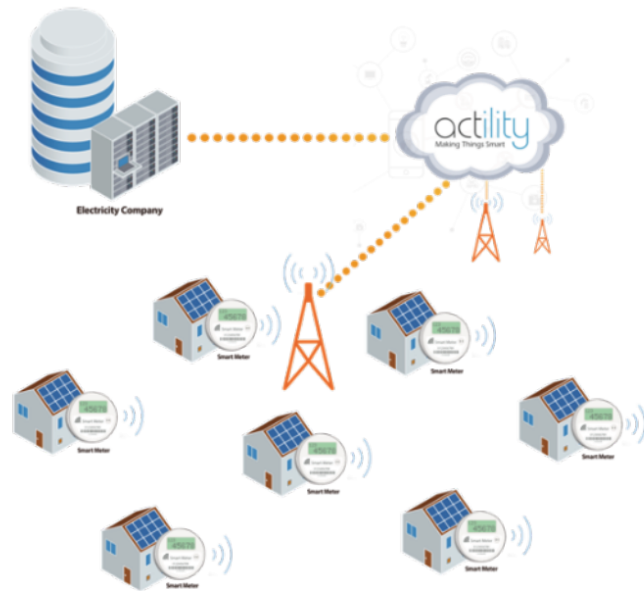
2 days training



ENGIE
www.engie-iot.com

- Connected 15,000 different devices and machines
- Hundreds of users in Europe and Asia
- Connect on many type of connectivity
- Made hundreds of customized use cases
- Deploy project in less than 5 days
- Have their own white label web and mobile platform

Utilities : Smart metering



Key challenge :

Deploy an easy-to-install network of smart meters with bidirectional capabilities for remote data gathering

Key characteristics of vertical market:

- Market driven by consumption optimization, infrastructure deployment & heavy ROI considerations

Current vertical pain points :

- ✓ Metering infrastructure needs heavy deployment of local repeaters and installation
- ✓ With existing technologies water and gas meter battery life is low
- ✓ Need to send employees to manually read consumption in some cases
- ✓ Need to be able to remotely manage meters & subscription

Key benefits :

- ✓ LoRaWAN brings low-cost long-range communication & real-time analytics
- ✓ Pre-integrated meters with LoRa modules or retro fit existing meters with LoRa WAN sensors e.g. pulse detector.
- ✓ 2-way communication allows utilities to better manage subscriber management (eg. taking action if subscriber is not paying the bills)
- ✓ Real time data feeds into customer dashboard allowing for energy consumption optimization

Device partners :

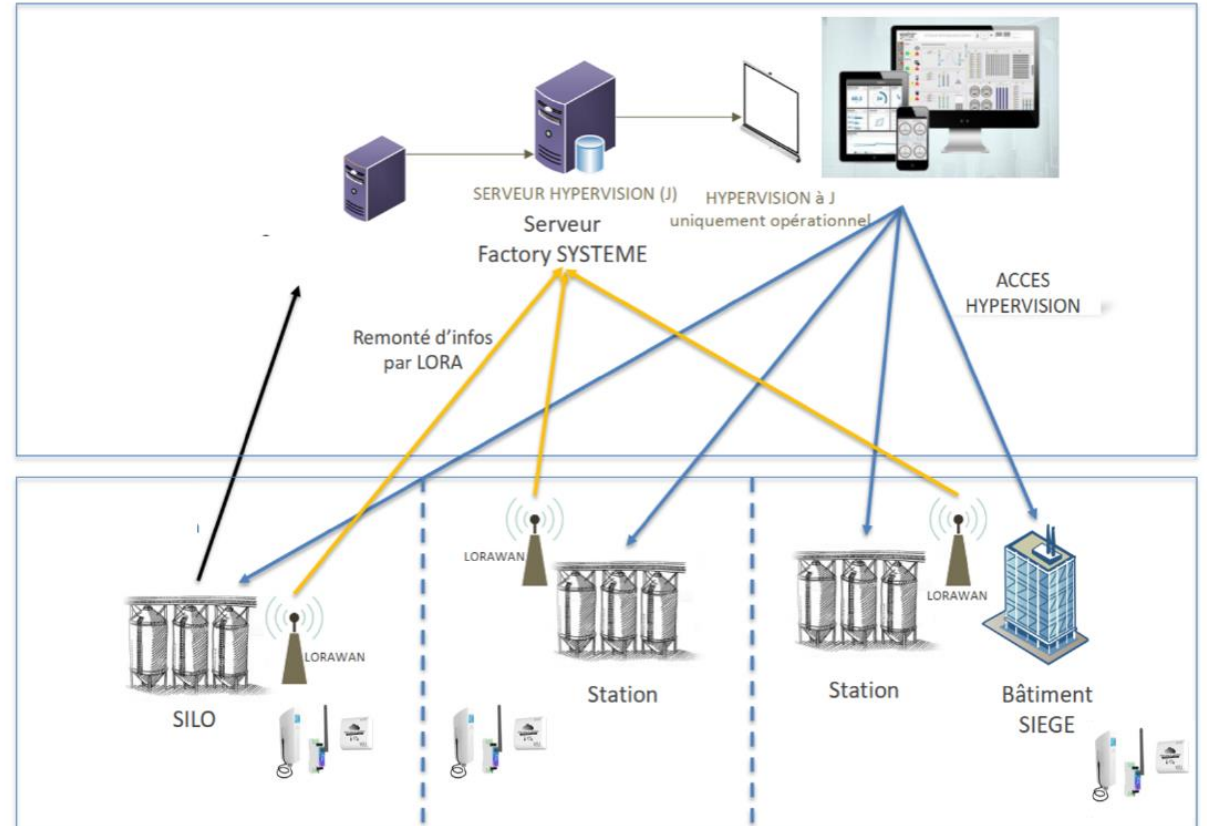


Actility

Muti Site monitoring

Benefits :

- Unified multi-sites architecture
- Central management
- Easy to install



Implementation - Gateways

- LoRaWAN coverage extremely good given the site dimension
- 5 Gateways installed for capacity and redundancy purpose



Cisco router in a cabinet

Actility



Cisco LoRa gateway

Cabinet with router



Cisco LoRa gateway

End to End Read Meters, Track Defects Remotely

- Electricity Monitoring 📡

Protect and secure your electrical meter installation, follow your consumption in real-time according to your usages and detect damages or faults. IoT Suite allows you to save money, improve safety and control gas expenses.

Uses:

- Remote meter reading at regular intervals
- Detect fraud and leaks
- Monitor consumption in real time
- Manage consumption peaks
- Monitor the operating status of meters
- Anticipate and optimize technical interventions

Features:

- View meters on a map
- Set up alerts based on customizable thresholds
- Receive notifications when thresholds are exceeded, or consumption is abnormal
- Follow data in real time
- Record consumption data in the past



How does it works

Secured connection

Collect

IoT, GTB/GTC/M2M

Connect

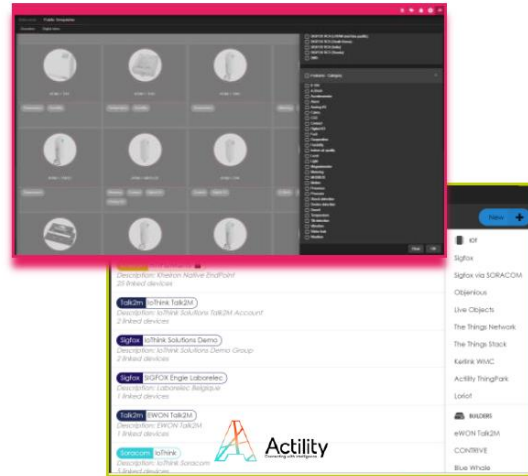
Flow agregator

Monitor, Control, Analyse

Agnostic Platform, Dashboards, reports, alerts, Analysis

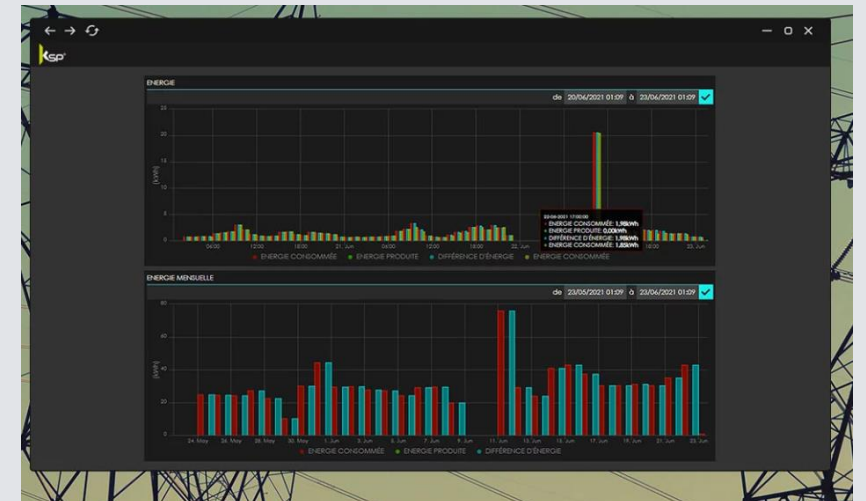
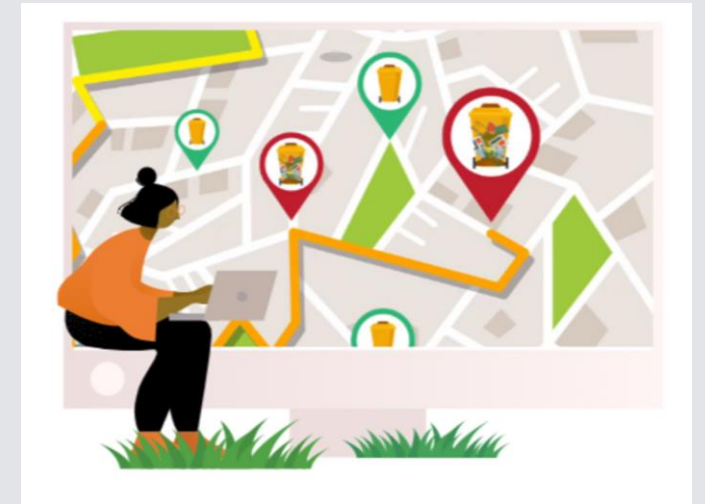


LoRaWAN

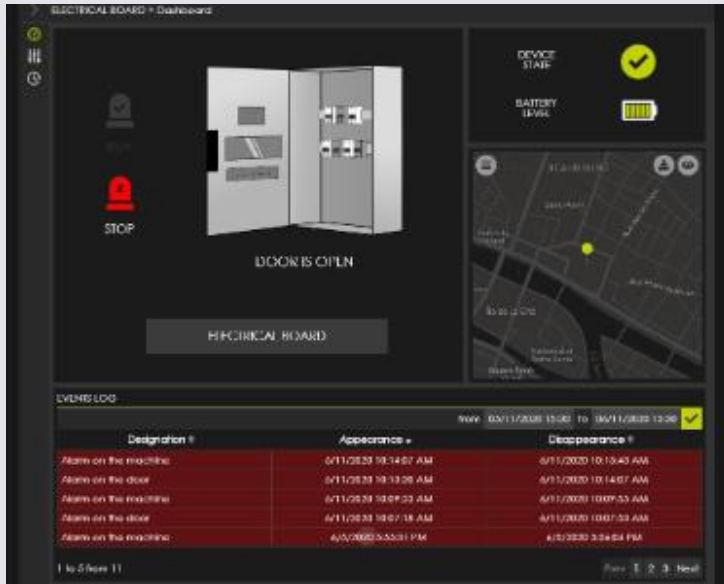


INTEGRATION (System, IT)

Smart Platform



Cloud Dashboards



Smart Energy / Utilities Solution – innovated

- Next-generation smart-solutions for utilities management and safety.
- **Cost-effective** smart sensors and solutions for utility companies and developers.
- The **smart meters or pulse meters collect data via Wireless technology and sends it our or a third party platform.**
- View meters on a map
- Set up alerts based on customizable thresholds
- Receive notifications when thresholds are exceeded, or consumption is abnormal
- Follow data in real time
- Record consumption data in the past

This means

- Cost reduction in collecting data
- Accurate information
- Report faults instantly
- Production automatic recording
- Consumption by tariff slots
- Consumer offloading
- Failure detection, power outages
- Manage fleet of legacy counters



PULSE METERS

USE CASE : ELECTRICITY



Features:

- ✓ Monitor the meter index of different meters
- ✓ Monitor water or electricity consumption: energy savings
- ✓ Available in ATEX version



For:

- Industries, Building,
- Residential homes, Property management



- **Definition of thresholds**
- **Alerts, emails, SMS and mobile application**
- **Real time level display**
- **Generation of periodic reports**
- **Global view of all sensors on a map**

Benefits

Uses :

- Remote meter reading at regular intervals
 - Detect fraud and leaks
 - Monitor consumption in real time
 - Manage consumption peaks
 - Monitor the operating status of meters
 - Anticipate and optimize technical interventions
- **FLEXIBILITY**
 - **We'll tailor the solution to your needs.**
 - Open API - compatible with any third party platform
 - Tailormade solutions, no matter how niche.

The Solution

We're creating the **simplest, cost effective**, and most **versatile** sensor-solution for energy and utility management in the market today. Versatility and flexibility are important to us. The solution isn't uniform, it's a dynamic system designed to be altered and expanded upon. That's why we're happy to tailor solutions to your needs, read about our flexibility.

Smart Energy Meter Measurement

Accurately measures consumption , available in pulse meter and smart meter. It sends data through LoRa, WiFi and GSM to either our Smart Platform or a third-party platform.

Battery

- Lasts up to 8 years of uninterrupted service - dependent on rate of transmission
- Non-rechargeable lithium battery

Range

LoRa: 20-30km

Environmental specifics

Casing: IP67

Operational temperature range: -20 to +60 degrees Celcius

Remote device management

Some configurables:

1. Measurement intervals
2. Fire alarm threshold
3. Back ground sampling (increasing battery life)
4. Alert configuration

Electricity Consumption – Smart energy Infrastructure

Applications – Smart energy solutions

Protect and secure your electrical installation, follow your consumption in real-time according to your usages and detect damages or faults.

For

- Buildings
- Property managers
- Facility managers
- Industries
- Cities

Benefits

- Production automatic recording
- Consumption by tariff slots
- Consumer offloading
- Reduction of penalties
- Failure detection, power outages
- Manage fleet of legacy counters



Example : Electricity consumption



Photovoltaics – Smart energy solutions

Smart Grid Capability

Applications – Smart energy

Photovoltaic power generation is a global stake for the ecology and electrical energy savings. Manage your energy production and save money.

For

- Buildings
- Property managers
- Facility managers
- Industries
- Cities

Benefits

- Production automatic recording
- Fault detection
- Diagnosis of breakdowns
- Revenue optimization
- Avoid on-site visits
- Manage a fleet of facilities



Example : PV Energy Production

Predictive Maintenance

Predictive Intelligence Solution - Embedded artificial intelligence

Turnkey solution to monitor machines 24/7

The device is equipped with a motion sensor to measure the vibrations along the X, Y and Z axes. It can identify faults via the vibration Fourier transform, which shows the vibratory signature.

When in operation, after learning: The device measures the equipment vibration periodically without sending a message. If all goes well, he sends a report every 6 hours with the summary of the measurements of this period.

In the event of a vibration anomaly, it sends an alert immediately. Some machines have several operating modes. It can learn these different modes of operation through artificial intelligence and identify them later, or even adapt to their changes.

Enables Industrial end customers to increase performance, safety and decrease machines shutdowns and work accidents.

Activity

Copyright ©Activity - Confidential

Just drop me on your machine and I'll start immediately to monitor his condition. It's as simple as that..

Technical data
Dimensions: 76 x 79 x 23 mm (fixing ears included)
Weight: 75g
Operating temperature: - 30 ° to + 70 °C



OBSERVER
Bob is intimately tied to the equipment. To watch, it captures only vital data that reveal his health.



SMART
It will then apply its analysis algorithms to turn data into accurate information to keep your equipment running well.



MAKING SENSE
In case of drift or unexpected problem, it will alert you directly to your smartphone, which will allow you to act and reduce downtime.



SIMPLE
Bob is really simple to install, just put it on your machine, no wiring or configuration needed.



AUTONOMOUS
Bob will operate for several years without recharging (battery included).



CONNECTED
BOB communicates using the standard LoRa® protocol: perfectly adapted to IoT, to long-distance communication with very low power consumption.



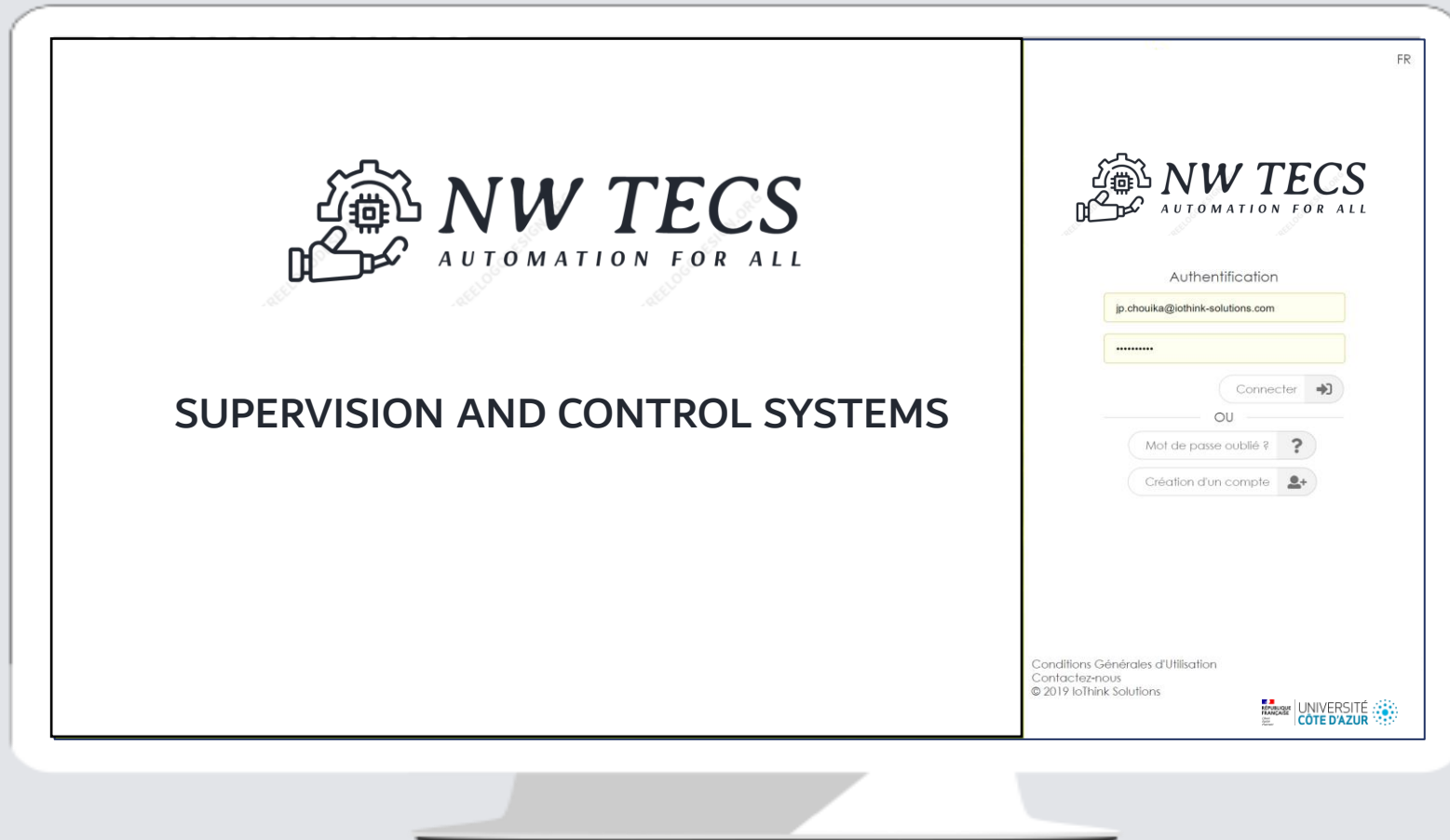
SECURED
Your production data are safe with BOB ! It retains them and sends only encrypted reports, resulting of its analysis, to the cloud.



INDUSTRIAL
Bob is very robust (IP68) and designed for industrial use cases.

Your dedicated supervision portal

- A platform dedicated to your image and customizable
- Web & Mobile
- Domain name, Logo, Graphic charter, Email addresses, Terms of Use, Notifications
- Simplified and autonomous management of user accounts
- Unlimited user creation



The platform for Everyone

Accessibility and simplicity are the keys to making change easy.

We don't want to overwhelm customers with statistics, nor upper management with the day to day operations.

The platform gives the right information to the right people. We do this through different platform components .

Contact Us

www.nwtecs.com

info@nwtecs.com

