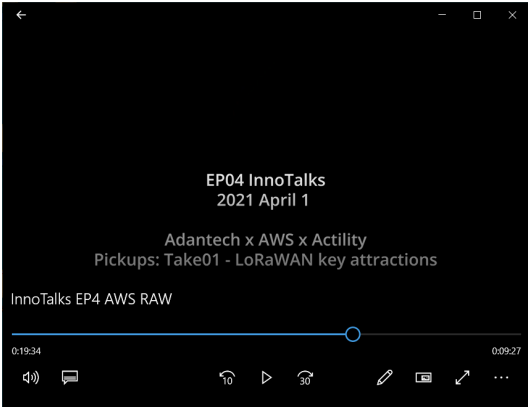


Session 4: Advantech x AWS x Activity Extending IoT's reach with LoRaWAN

Key messages

- * LoRaWAN is a technology perfectly matching the technical constraints of the smart industry
- * LoRaWAN as a rich and mature ecosystem of solutions addressing smart factory business challenges, starting with predictive maintenance (our solution)
- * ThingPark & AWS accelerate digitalization of the factory and OT/IT convergence with a dependable connectivity solution smoothly connected to AWS IoT Cloud platform.

No.	Section	On-screen Texts	Talking Points or Script	Assumed Scene
	<Opening Animation> Video Title (Video Subtitle)		 https://youtu.be/-a2faEHS0AQ	(Design TBD)  <i>Enabling an Intelligent Planet</i>

	Introduction	Mike Fahrion, CTO, IIoT Solutions, Advantech	00:05 Part 1 – Introduction Host Opening (Context): IIoT challenges, connecting distributed assets, collecting data and insights that improve business continuity, cost reduction, safety, operational efficiency. LoRaWAN has emerged as a leading wireless technology to address those challenges.	 Mike Fahrion  Slide 1
				1. Oliver 2. Mike
			Insert InnoTalks Logo Mike Fahrion, CTO, IIoT Solutions, Advantech Guest Introductions: Olivier Hersent, CEO & CTO, Actility Mike Rohrmoser, IoT Edge Devices & Solutions, AWS Mimic this graphic	 Mike Fahrion, CTO, IIoT Solutions, Advantech Olivier Hersent, CEO & CTO Actility Mike Rohrmoser, IoT Edge Devices & Solutions, AWS  Mike Fahrion, CTO of IIoT Solutions, Advantech North America Prithpal Khajuria, Global Segment Leader of Smart Infrastructure, Intel

00:53

Part 2 – Talking Points

- Host - LoRaWAN the right technology for IIoT ? Olivier, can you give us an overview of the difficulties of the Industrial IoT and how LoRaWAN technology addresses those challenges?

Cut to Olivier - SLIDE 04_01:09

- Olivier response: Problem statement, limitations of current technology

FULL SLIDE 04_01:15

- Olivier response: Benefits of LoRaWAN and ecosystem

Olivier discusses slide_04



name

Industrial IoT: the high-level challenges

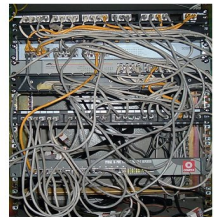
- Retrofit**
Wiring costs and delays are a major hurdle for most IIoT projects
- Power**
Most meters and I/Os to monitor are not powered
- Legacy**
The vast majority of legacy digital interfaces were designed for wired serial communication (RS485, ModBus®...)



aws Activity ADANTECH

Industrial IoT: the high-level challenges

-  **Retrofit**
Wiring costs and delays are a major hurdle for most IIoT projects
-  **Power**
Most meters and I/Os to monitor are not powered
-  **Legacy**
The vast majority of legacy digital interfaces were designed for wired serial communication (RS485, ModBus®...)



Cut to Olivier - SLIDE 05_01:32

Olivier discusses slide_5

FULL SLIDE 05_01:38

Olivier discusses slide_5

SLIDE 06_02:25

Olivier discusses slide_06



name

Wireless connectivity choices before LoRaWAN®



Wired
Costs & delays: only for high-end & core systems



WiFi
2.4GHz has poor wall penetration & coverage + no support for macro-diversity. Suitable only for fixed powered sensors under WiFi coverage (indoor office areas)



Legacy sub-GHz RF (e.g. wMbus)
Limited ecosystem, metering centric. Older generation RF layer with fixed datarate, lack of macro diversity, limited sensitivity which makes it hard to avoid dead-spots. Limited adoption also means higher prices.



Mesh (WirelessHART)
Suitable for fixed indoor assets only: meshed networks relay positions are engineered to reach fixed devices



Wireless connectivity choices before LoRaWAN®



Wired
Costs & delays: only for high-end & core systems



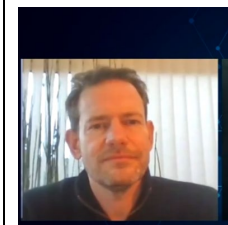
WiFi
2.4GHz has poor wall penetration & coverage + no support for macro-diversity. Suitable only for fixed powered sensors under WiFi coverage (indoor office areas)



Legacy sub-GHz RF (e.g. wMbus)
Limited ecosystem, metering centric. Older generation RF layer with fixed datarate, lack of macro diversity, limited sensitivity which makes it hard to avoid dead-spots. Limited adoption also means higher prices.



Mesh (WirelessHART)
Suitable for fixed indoor assets only: meshed networks relay positions are engineered to reach fixed devices

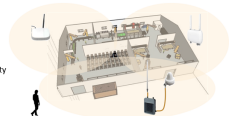


name



Versatile & robust connectivity designed for Industrial IoT

- Low Power and Long Range
- Macro-diversity increases reliability, essential to industrial grade RF connectivity
- Seamless, automated collaboration of antennas
Eliminate dead spots by easy addition on inexpensive picocells
- Mass ecosystem, any use case available. Horizontal network for all use cases decreases marginal costs.
1000+ references in LoRa Alliance ecosystem & ThingPark market.



It's OPEN. The LoRa Alliance controls the standard, there is no vendor lock-in which is key for long term assets. Public-private network collaboration is also quite unique in the LoRaWAN® ecosystem.



FULL SLIDE 06_02:32

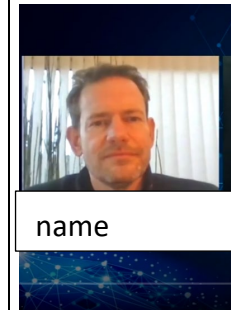
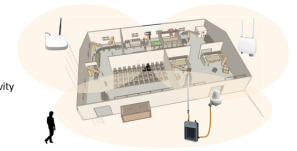
Olivier discusses slide_06

_SLIDE 07_0:03:42



Versatile & robust connectivity
designed for Industrial IoT

- Low Power and Long Range
- Macro-diversity increases reliability, essential to industrial grade RF connectivity
- Seamless automated collaboration of antennas
Eliminate dead spots by easy addition on inexpensive picocells
- Mass ecosystem, any use case available. Horizontal network for all use cases decreases marginal costs.
1000+ references in LoRa Alliance ecosystem & ThingPark market.
- Its OPEN. The LoRa Alliance controls the standard, there is no vendor lock-in which is key for long terms assets. Public-private network collaboration is also quite unique in the LoRaWAN ecosystem.



name

LoRaWAN in IIoT: easy retrofit

Wiring

- costs \$6 to \$8 per running foot
- takes time
- is costly to maintain & troubleshoot

Augment your PLC with wireless sensing

- Any LoRaWAN data point can be re-injected as Modbus-TCP frame to any existing PLC.
- Systems with existing Modbus control port can be connected via ModBus-LoRaWAN Wireless protocol bridges
- Over 1500 devices in

ThingParkMarket
by Activity
<https://market.thingpark.com/>



FULL SLIDE 07_0:03:53

LoRaWAN in IIoT: easy retrofit

Wiring

- costs \$6 to \$8 per running foot
- takes time
- is costly to maintain & troubleshoot

Augment your PLC with wireless sensing

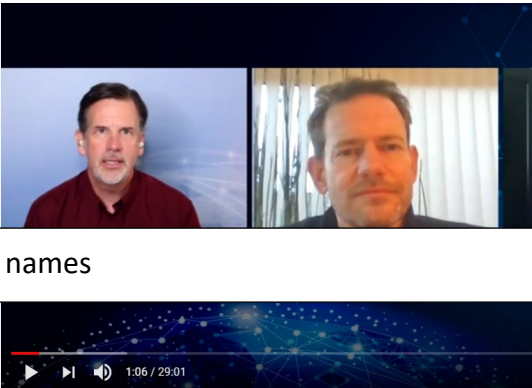
- Any LoRaWAN data point can be re-injected as Modbus-TCP frame to any existing PLC.
- Systems with existing Modbus control port can be connected via ModBus-LoRaWAN Wireless protocol bridges
- Over 1500 devices in

ThingParkMarket
by Activity
<https://market.thingpark.com/>



04:19

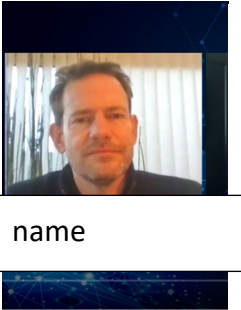
- Host – Olivier, Actility’s ThingPark provides the backbone for LoRaWAN networks for the Industrial IoT. Can you describe how ThingPark fits into the LoRaWAN ecosystem?



names

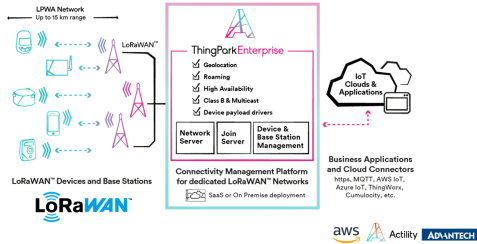
SLIDE 09_ 0:04:32

- Olivier response: Key capabilities of the stack, including on-prem deployment. How ThingPark integrates with AWS IoT & GreenGrass



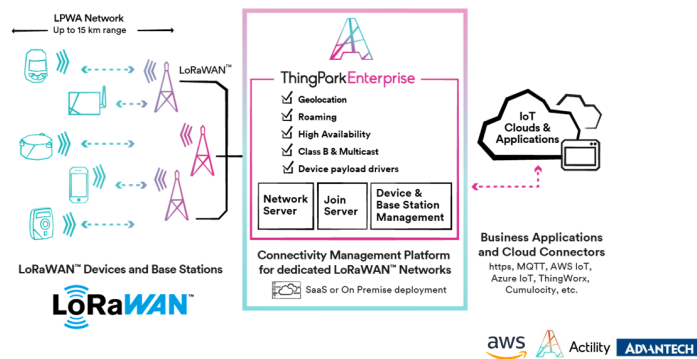
name

ThingPark Enterprise powers industrial grade LoRaWAN™ Networks



FULL SLIDE 9_0:04:38

ThingPark Enterprise powers industrial grade LoRaWAN™ Networks



SLIDE 10_05:27

Industrial IoT requires multiple deployment options

ThingPark offers various deployment models...

	1 - SaaS	2 - On Premise
Activity Data Center	ThingPark Enterprise	ThingPark Enterprise
Customer Site or Private Cloud	ThingPark Enterprise	ThingPark Enterprise
High Availability	Standard	Optional

...including private cloud deployments

ThingPark supports key gateway vendors

ThingPark can be deployed worldwide

aws Activity ADANTECH

SLIDE 11_0:05:49

Industrial IOT requires smooth integration with IoT applications

ThingPark Enterprise offers a growing libraries of built-in connectors and drivers

Build solutions quicker

Fully leverage ThingPark ecosystem of sensors.

More than 150 models from market-leading device manufacturers

Ready to connect to major IoT platforms

aws Activity ADANTECH

0:06:18

- Host - AWS IoT provides the foundation for building industrial applications. Can you give us an overview of the AWS IoT services that typically come into play for Industrial IoT applications?
- Mike R response: Data ingestion, device mgmt., security, analytics. SiteWise. Customer case



Name graphic

0:09:28

For the wise spotlight video, I would specify the video clip from 1:56 to 2:05 (video only, not audio) to play while I'm talking about predictive maintenance at 9:28.

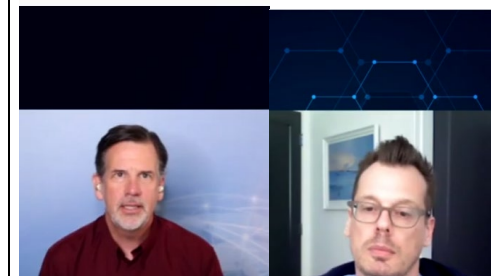
- Mike

WISE-2410 spotlight (video)



0:09:28

- Host – a very common industrial use case centers is predictive maintenance. Advantech's WISE-2410 is a battery powered, LoRaWAN enabled vibration sensor. Mike, can you walk us through the architecture and integration of that IoT sensor with AWS Sitewise?
- Mike R response - architecture, benefits, retrofitting "smart industry" features into brownfield assets, Sitewise, .)



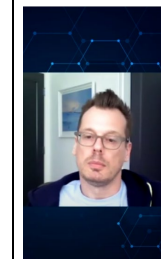
Name graphic

Slide 14_0:10:02

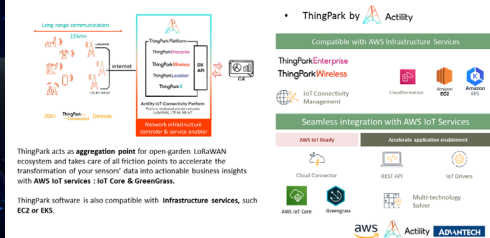
FULL SLIDE 14_0:10:17

I think we're missing a chunk of video. We did a "supplement" on this one because our first pass came up short on time (20 min or so), so we went back and did a new closing section. It starts at 19:44 to 26:00 in this raw vid <https://www.youtube.com/watch?v=-a2faEHS0AQ>. Use this instead of the original close. Actility Slide 7 should be inserted around 22:45.

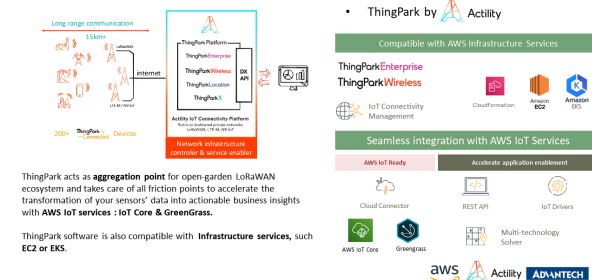
- Mike



Activity solution with AWS



Activity solution with AWS



InnoTalks EP4 AWS RAW

Unlisted

9 views Mar 31, 2021

0 likes 0 comments SHARE SAVE ...

Jeff Tseng

SUBSCRIBE

			0:22:45	LoRaWAN in IIoT: easy retrofit Wiring - costs \$6 to \$8 per running foot - takes time - is costly to maintain & troubleshoot Augment your PLC with wireless sensing - Any LoRaWAN data point can be re-injected as Modbus-TCP frame to any existing PLC. - Systems with existing Modbus control port can be connected via ModBus-LoRaWAN Wireless protocol bridges - Over 1500 devices in ThingParkMarket by Activity https://market.thingpark.com/  aws Activity ADVANTECH
			Closing Host – summary/close	

MF – other notes

A peer (Cathic) left AWS, went to Semtech. He had launched the service LNS. Have qualified gateways. Mike still owns that catalog and qualification. When Cathic left Mike picked up the LoraWAN network server. Coopitition with Activity in LNS.

From webinar – most questions were about LoRA vs others, suitability to industrial. Packets received by multiple gateways. “microdiversity”

Overall integration – “feeling that it’s a nightmare” - different binary formats. Addressing this – AWS talk to a use case for industrial. Would be good to talk through what a machine builder process to go through.

Greengrass solves the cloud dependency. Instead of IoT Core – sitewise. Touch on value add of greengrass in contrast to sitewise (cloud)

LoRA is maturing – Partners – ecosystem – resolving the challenges