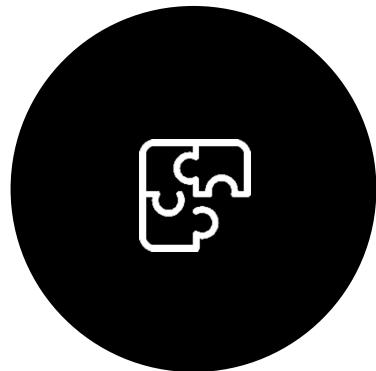




Capitalize On IoT Market  
Opportunities With **ARTIK**

# But There Are Multiple Obstacles to Overcome

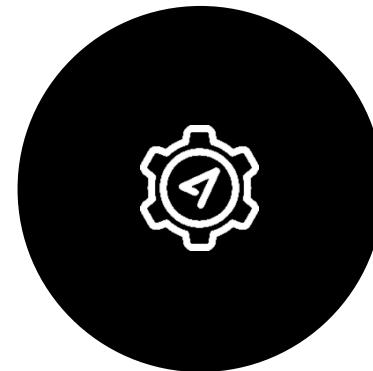
---



**Complexity**  
lots of moving parts



**Security**



**Heterogeneous**  
world of sensors, edge  
nodes, protocols, clouds



**Application  
Development Skills,  
Cost & Time**

# Introducing Samsung ARTIK: Complete End to End IoT Platform



## Ecosystem Partners to help extend our solution

- Speeds up the delivery of secure, interoperable, and intelligent IoT products and services
- Enables customers to focus on their differentiated application code



# ARTIK Module Portfolio

---

## ARTIK 0



Flexible  
Economical  
Tiny

Optimized for single-function things like door locks, lights and sensors

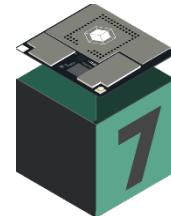
## ARTIK 5



Balanced Power  
Balanced Performance

Ideal balance of computing and storage for gateways or smart devices with modest video and processing requirements

## ARTIK 7



Powerful  
Secure  
Communicative

Great performance for high-end gateways with local processing and analytics to improve latency and responsiveness

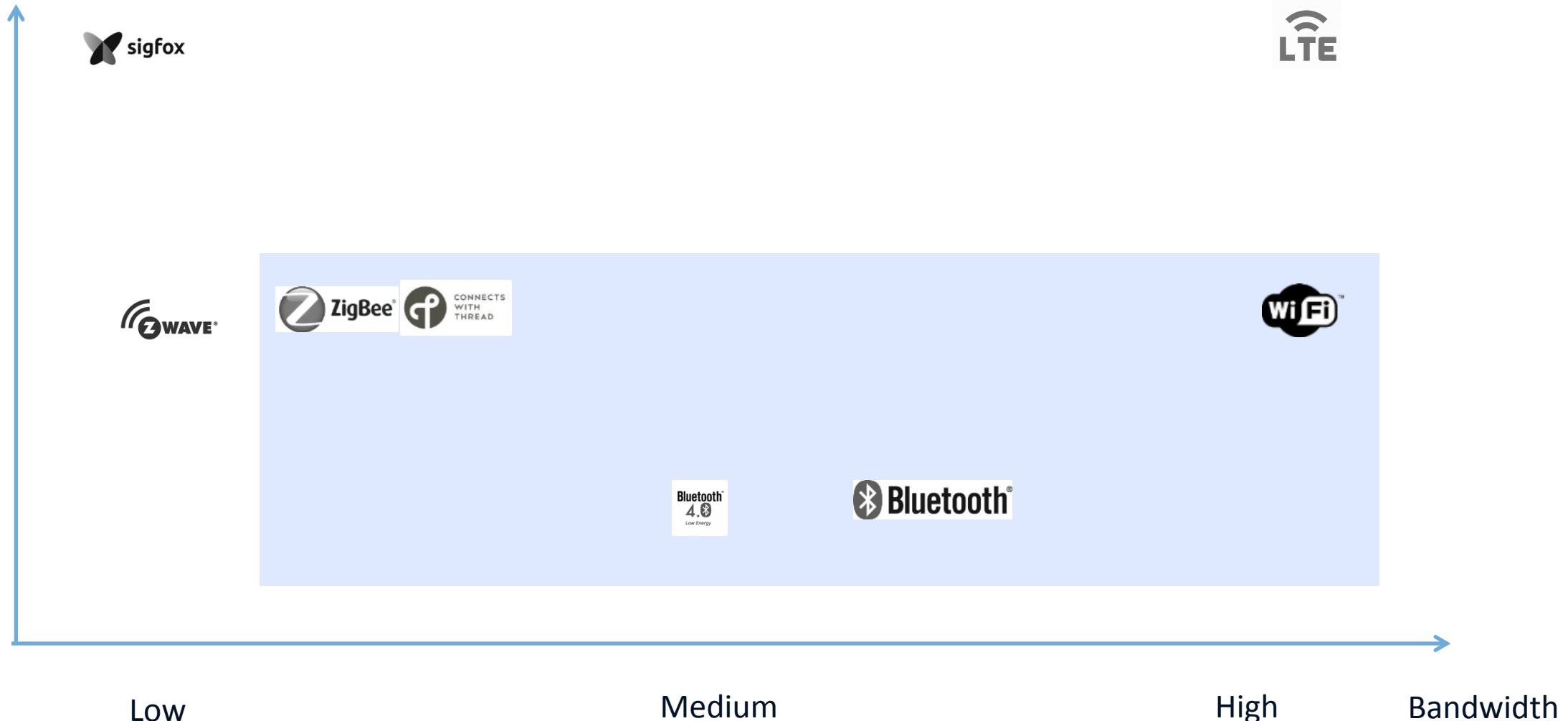


# ARTIK Module – Radio Protocol Comparison

Range

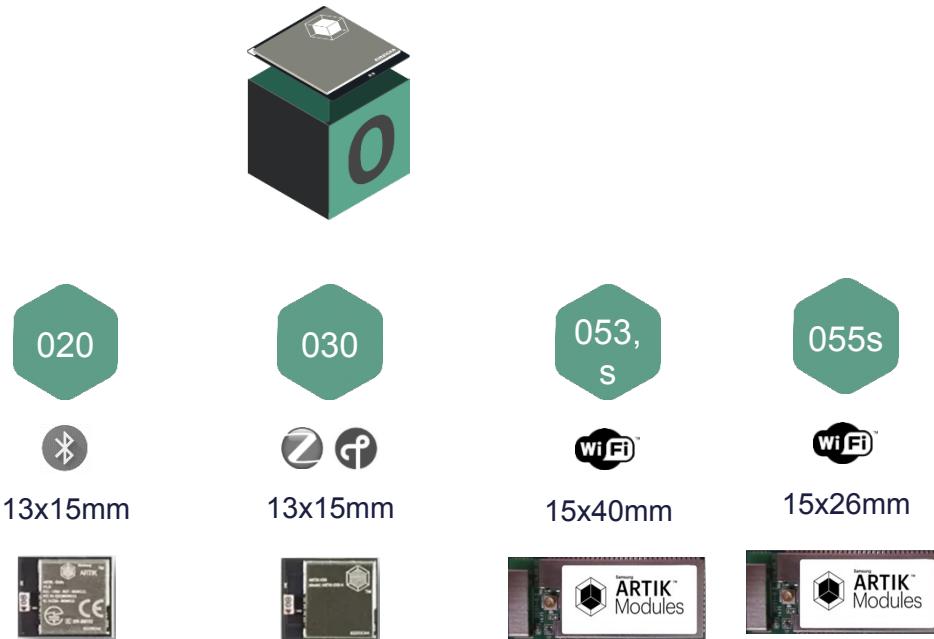
Long

Short



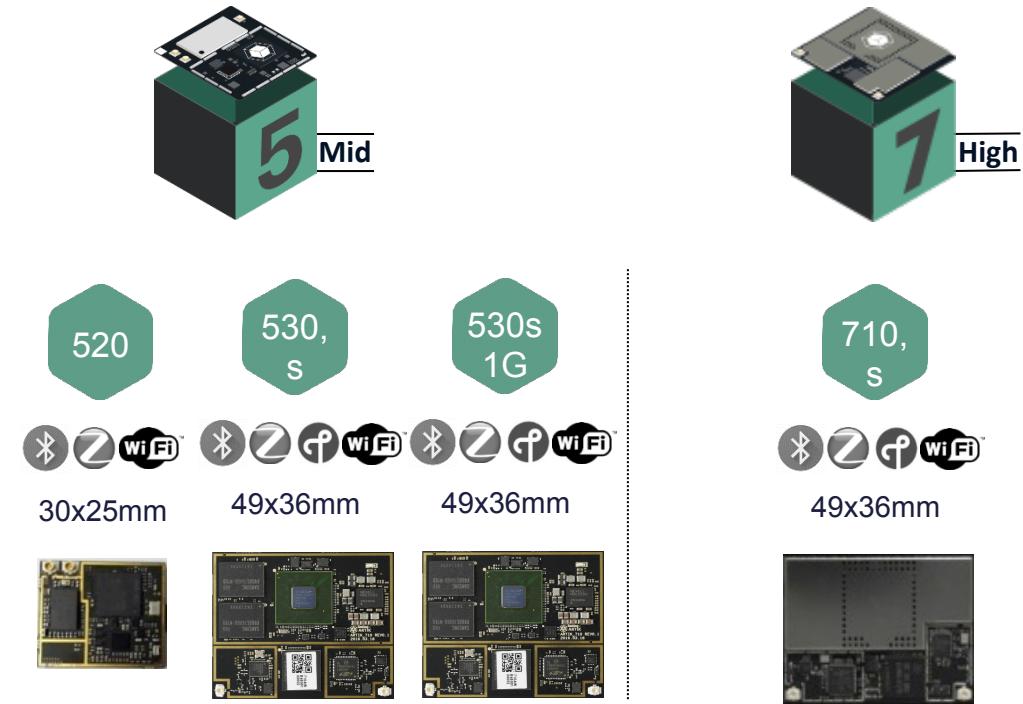
# ARTIK Module Portfolio – details

Battery-powered Devices, Edge Nodes, Sensors and Actuators



- Cortex-M, Cortex-R CPUs
- Single, Dual protocol radios
- Internal RAM/Flash

Hubs, Gateways



- Single, Dual, Quad, Octa core Cortex-A CPUs
- Multiple protocol radios
- Linux based platforms

# ARTIK Modules Documentation

---

<https://www.artik.io/>

Datasheets

User-guides

Schematics

PCB layout

BOM

Firmware

Tools



# ARTIK Modules Documentation

<https://www.artik.io/>

- [Datasheets](#)
- [User-guides](#)
- [Schematics](#)
- [PCB layout](#)
- [BOM](#)
- [Firmware](#)
- [Tools](#)

Samsung ARTIK Internet x Secure | https://www.artik.io

**ARTIK™**

Overview Products Resources Partners Contact News

Log Out

Your fastest path to the Internet of Things

Samsung ARTIK™ is the integrated Smart IoT platform providing the fastest path to secure, interoperable, and intelligent IoT products and services.

Watch the video Learn more

Introducing ARTIK 530

Higher power, lower cost module for multimedia and gateway devices.

See the specs >

The ARTIK End-to-end IoT Platform

The Samsung ARTIK Smart IoT platform brings hardware modules and cloud services together with an ecosystem of tools and partners to speed up your time-to-market.

Modules

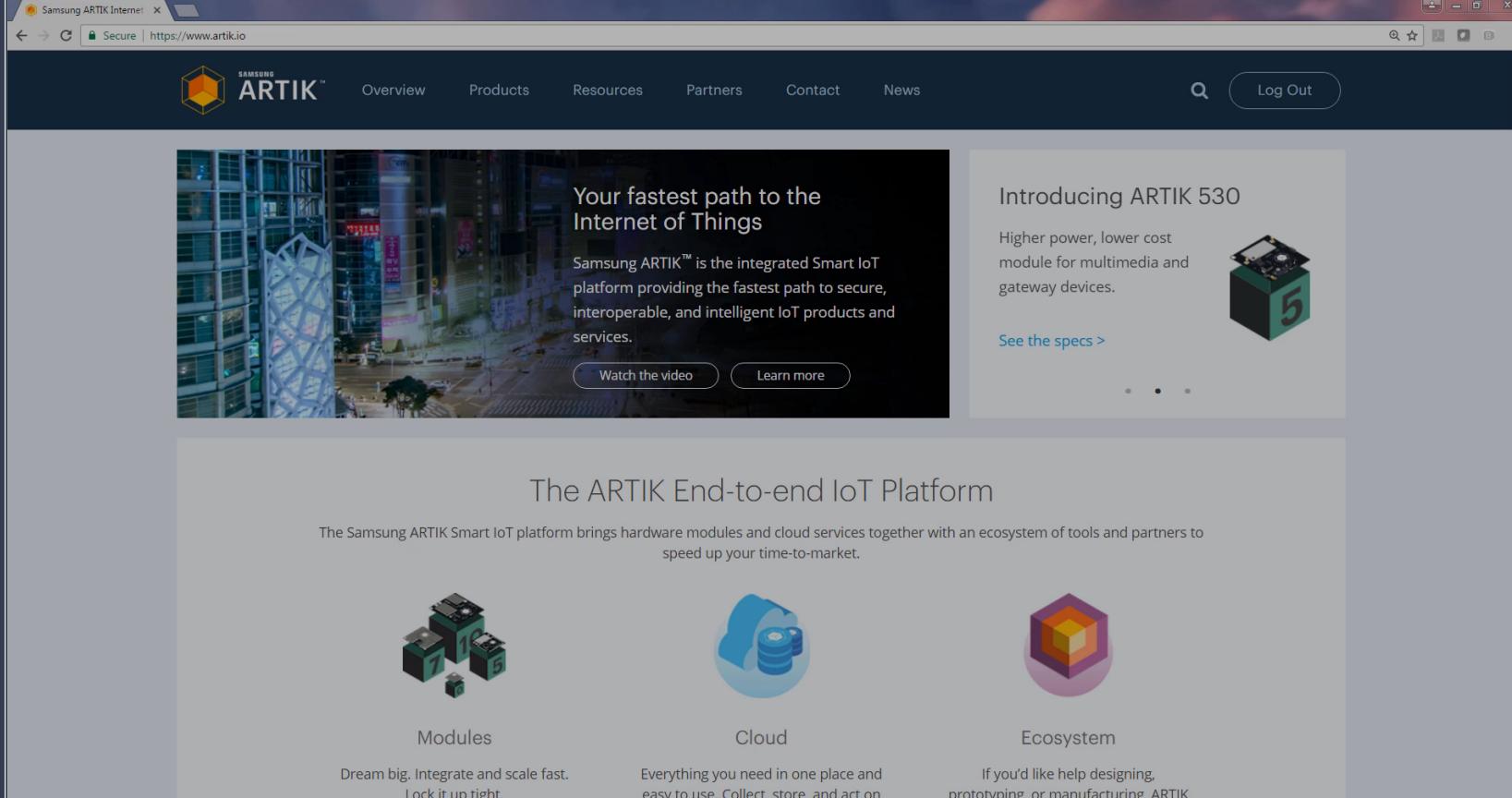
Dream big. Integrate and scale fast.  
Lock it up tight.  
Meet our family of flexible, pre-

Cloud

Everything you need in one place and easy to use. Collect, store, and act on any data from any device or cloud

Ecosystem

If you'd like help designing, prototyping, or manufacturing, ARTIK Partners can help make your IoT



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- User-guides
- Schematics
- PCB layout
- BOM
- Firmware
- Tools

The screenshot shows the Samsung ARTIK website homepage. The header features the ARTIK logo and navigation links for Overview, Products, Resources, Partners, Contact, and News. A search bar and a 'Log Out' button are also present. The main content area includes a banner with a cityscape background and the text "Your fastest path to the Internet of Things". It describes Samsung ARTIK™ as an integrated Smart IoT platform. Below the banner are sections for "The ARTIK End-to-end IoT Platform", "Modules", "Cloud", and "Ecosystem". Each section contains an icon and a brief description.

**Samsung ARTIK™**

Overview Products Resources Partners Contact News

Datasheets User-guides Schematics PCB layout BOM Firmware Tools

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Modules

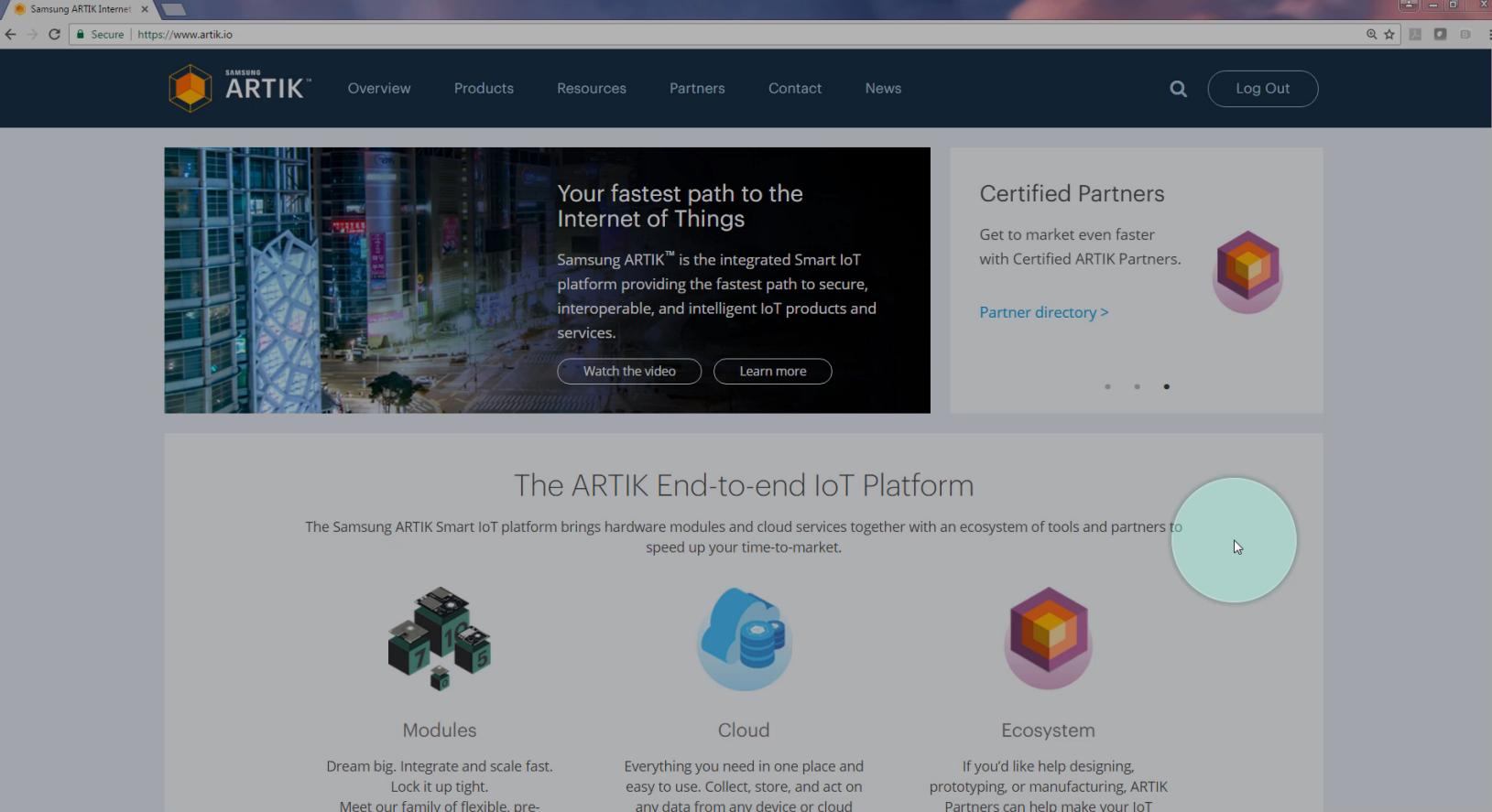
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# ARTIK Modules Documentation

<https://www.artik.io/>

The screenshot shows the Samsung ARTIK website interface. On the left, a vertical sidebar lists several documentation categories: Datasheets, User-guides, Schematics, PCB layout, BOM (which is highlighted with a green background), Firmware, and Tools. The main content area features a banner with the text "Your fastest path to the Internet of Things" and a description of the Samsung ARTIK platform. Below the banner, there's a section titled "The ARTIK End-to-end IoT Platform" with three main components: "Modules" (represented by a stack of green cubes), "Cloud" (represented by a blue cloud icon), and "Ecosystem" (represented by a purple hexagon icon). A mouse cursor is hovering over the "Ecosystem" section. The top navigation bar includes links for Overview, Products, Resources, Partners, Contact, News, a search icon, and a "Log Out" button.

# ARTIK Modules Documentation

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Samsung ARTIK Internet  https://www.artik.io

Overview Products Resources Partners Contact News

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[Watch the video](#) [Learn more](#)

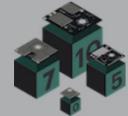
**Certified Partners**

Get to market even faster with Certified ARTIK Partners.

[Partner directory >](#)

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The screenshot shows the Samsung ARTIK website homepage. On the left, there is a vertical sidebar with links: Datasheets, User-guides, Schematics, PCB layout, BOM, Firmware, and Tools. The Tools link is highlighted with a green background. The main content area features the Samsung ARTIK logo at the top. Below it is a banner with the text "Your fastest path to the Internet of Things" and a subtext about Samsung ARTIK being an integrated Smart IoT platform. There are "Watch the video" and "Learn more" buttons. To the right of the banner is a section titled "Smart Lighting eBook" with a brief description and a "Learn more >" button. Further down, there's a section titled "The ARTIK End-to-end IoT Platform" with three main components: "Modules" (represented by a stack of green cubes), "Cloud" (represented by a blue cloud icon), and "Ecosystem" (represented by a hexagonal icon). Each component has a brief description and a "Learn more" button.

# ARTIK Module Features – Processor/MCU

Feature	020/030	053 / 055s	530 / 530s	530s1G	710 / 710s
Cores	1	1	4	4	8
Processor	ARM Cortex M4 @ 40 MHz	ARM Cortex R4 @ 320 MHz	A9 @ 1.2 GHz	A9 @ 1.2 GHz	A53 @ 1.5 GHz
RAM	32 KB	1.3 MB	512 MB	1 GB	1 GB
Flash	256 KB	8 MB	4 GB	4 GB	4 GB

# ARTIK Module Features – Processor/MCU

Similarities			Differences			
Feature	053, s	055, s	Feature	053	053s	055s
Cores	1	1	Dimensions	15mm x 40mm x 3mm	15mm x 40mm x 3mm	15mm x 26mm x 3mm
Processor	ARM Cortex R4 @ 320 MHz	ARM Cortex R4 @ 320 MHz	Power Supply	5V-12V DC	5V-12V DC	3.3V DC
RAM	128 KB	128 KB	Security	-	Secure boot JTAG protection	Secure boot JTAG protection
Flash	8 MB	8 MB	Applications	Light receptacles	Refrigerators, Dishwashers, AC, Light receptacles	Smoke detectors, thermostats, Energy monitors, Irrigation systems

# ARTIK Module Features – Processor/MCU

	<b>Feature</b>	<b>ARTIK 020</b>	<b>ARTIK 030</b>	<b>ARTIK 053</b>	<b>ARTIK 530</b>	<b>ARTIK 710</b>	
Peripherals	I2C	2	2	2	3	3	
	SPI	2	2	2	2	2	
	GPIO	25	25	29	107	108	
	UART	2	2	4	3	3	
	USB	-	-	-	Device and host mode	Device and host mode	
	ADC	Up to 31 channels	Up to 31 channels	4	6	6	
	PWM	4	4	5	2	2	
	Wi-Fi	-	-	✓	✓	✓	
	BT / BLE	✓	-	-	✓	✓	
	Zigbee / Thread	-	✓	-	✓	✓	
Multimedia	HDMI	-	-	-	1080p @ 60fps	1080p @ 60fps	
	MIPI CSI / DSI	-	-	-	✓	✓	
	LVDS	-	-	-	720p @ 60fps	720p @ 60fps	
	I2S	1	1	-	2	2	

# ARTIK Module Features – Processor/MCU

Datasheet

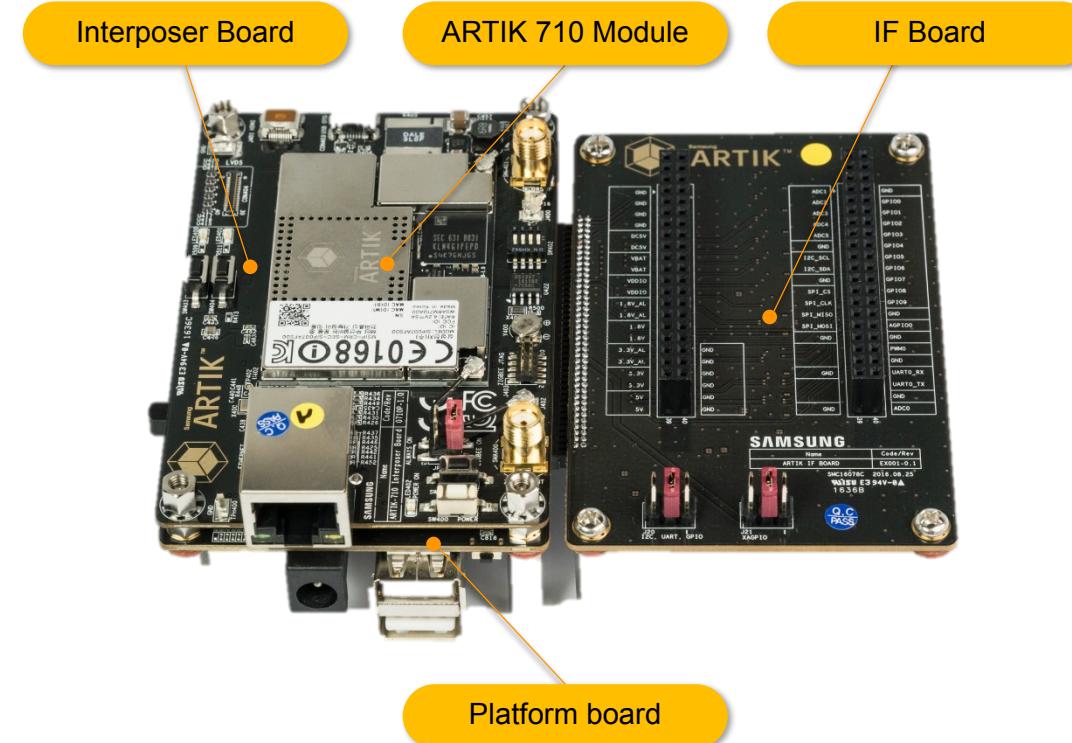
Feature	ARTIK 020	ARTIK 030	ARTIK 053		ARTIK 530	
Peripherals	I2C	2	2	2	3	
	SPI	2	2	2	2	
	GPIO	25	25	29	107	108
	UART	2	2	4	3	3
	USB	-	-	-	Device and host mode	Device and host mode
	ADC	Up to 31 channels	Up to 31 channels	4	6	6
	PWM	4	4	5	2	2
	Wi-Fi	-	-	✓	✓	✓
	BT / BLE	✓	-	-	✓	✓
	Zigbee / Thread	-	✓	-	✓	✓
Multimedia	HDMI	-	-	-	1080p @ 60fps	1080p @ 60fps
	MIPI CSI / DSI	-	-	-	✓	✓
	LVDS	-	-	-	720p @ 60fps	720p @ 60fps
	I2S	1	1	-	2	2

# ARTIK Module & Development Board – Hub & High-end applications



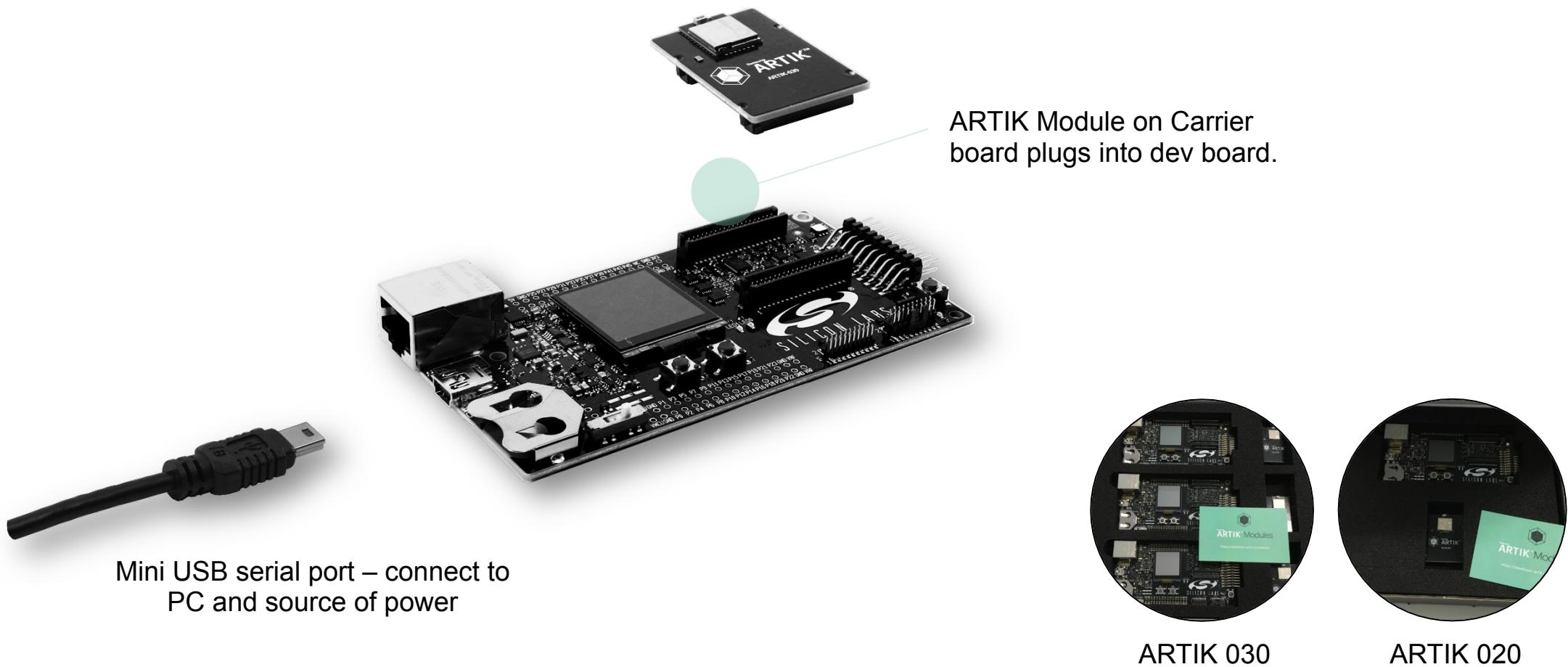
**ARTIK 710, 530, 530S1G and 530s**  
development environment and kit are  
identical.

- Same platform board
- IF, sensor and other accessory boards



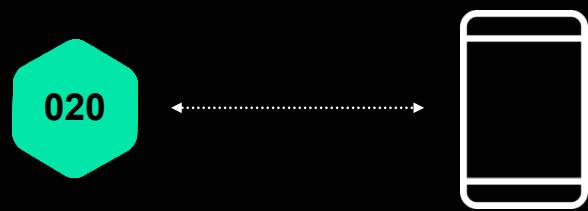
# ARTIK Module & Development Board – Edge Node 030 & 020

---

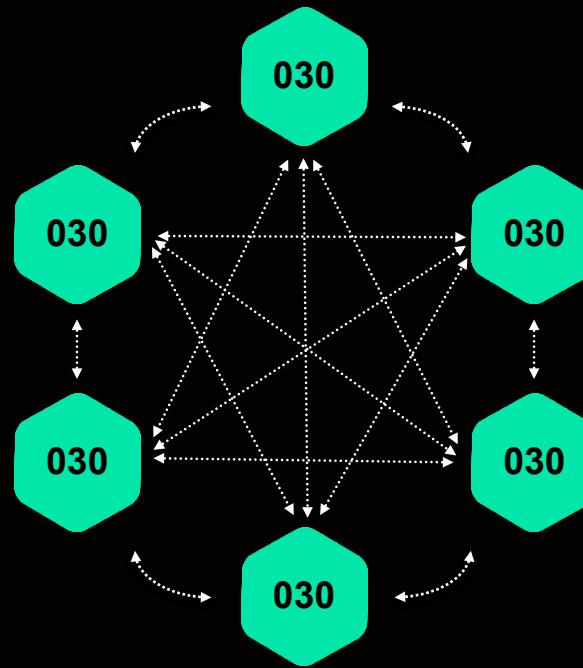


# 020 vs. 030

---

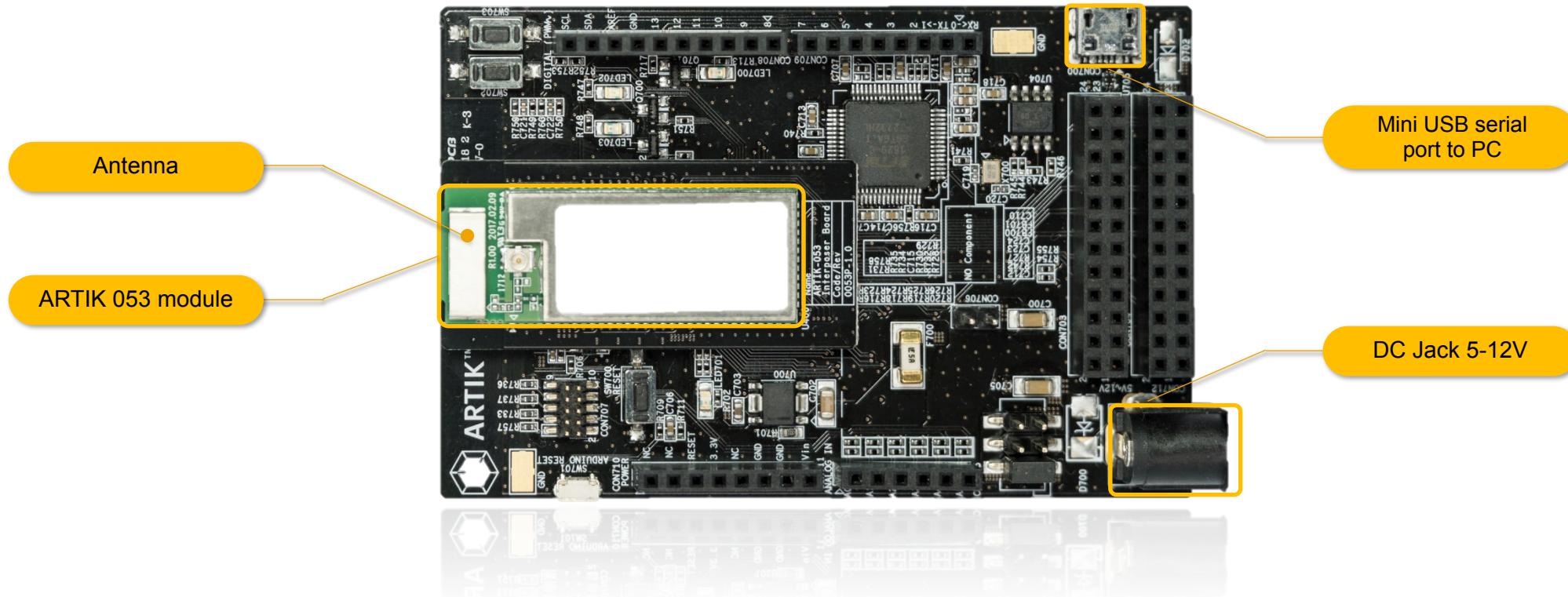


BLE

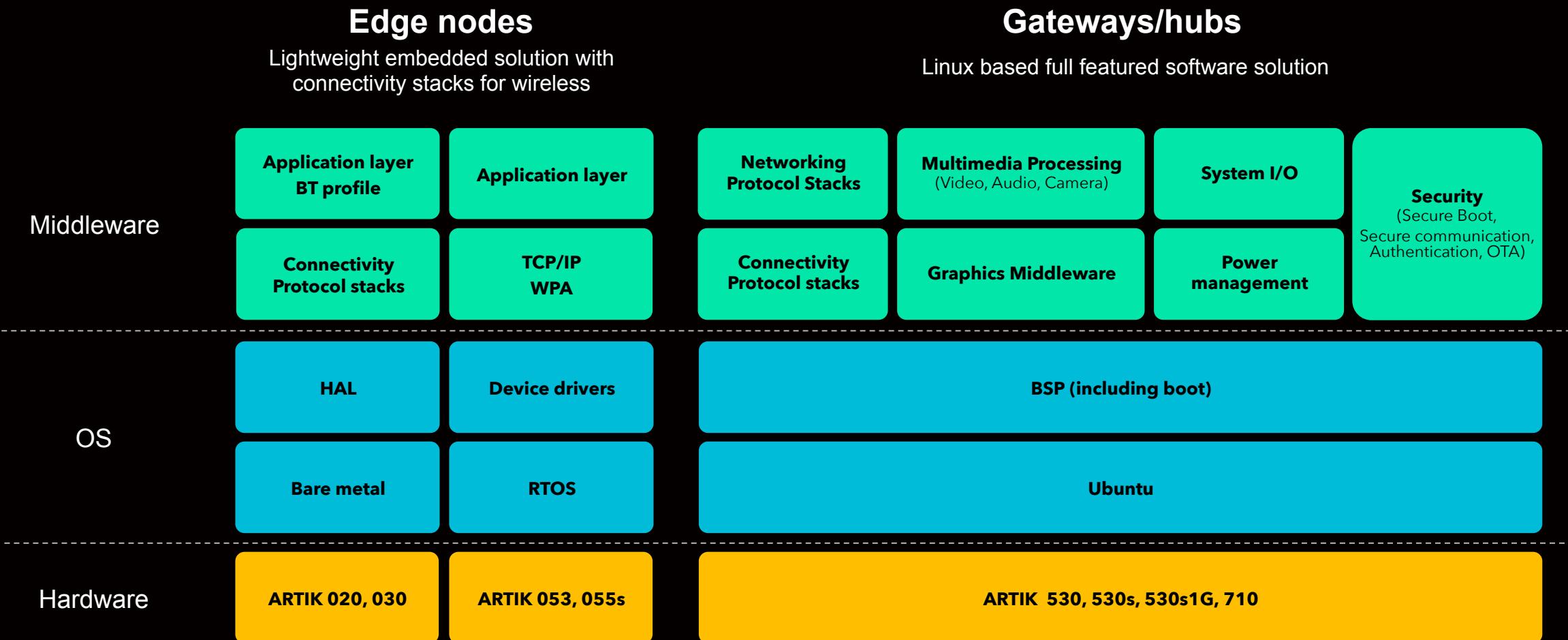


MESH

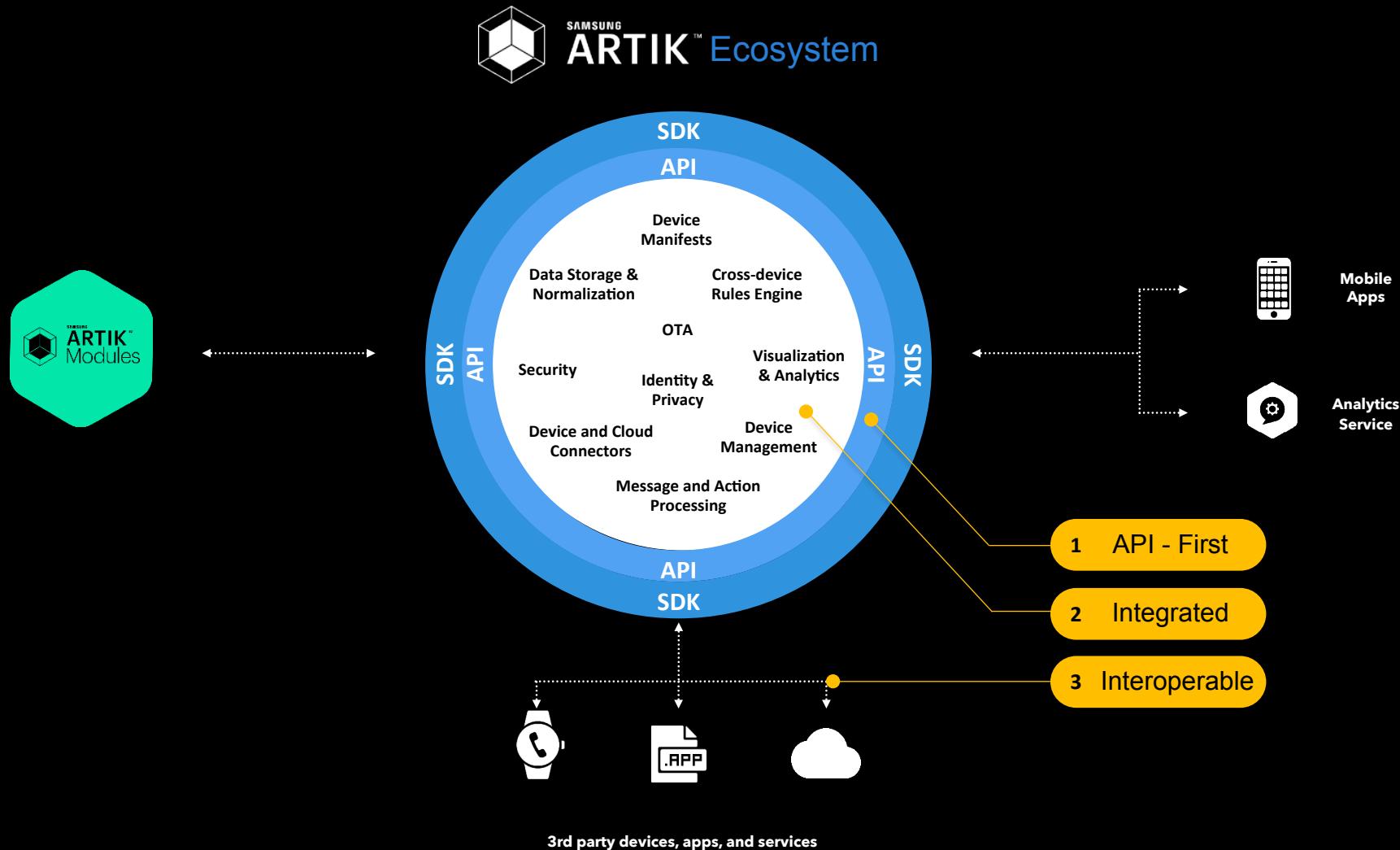
# ARTIK Module & Development Board – Edge Node 053



# Reduce Development Time with Integrated + Tested Embedded OS & Middleware



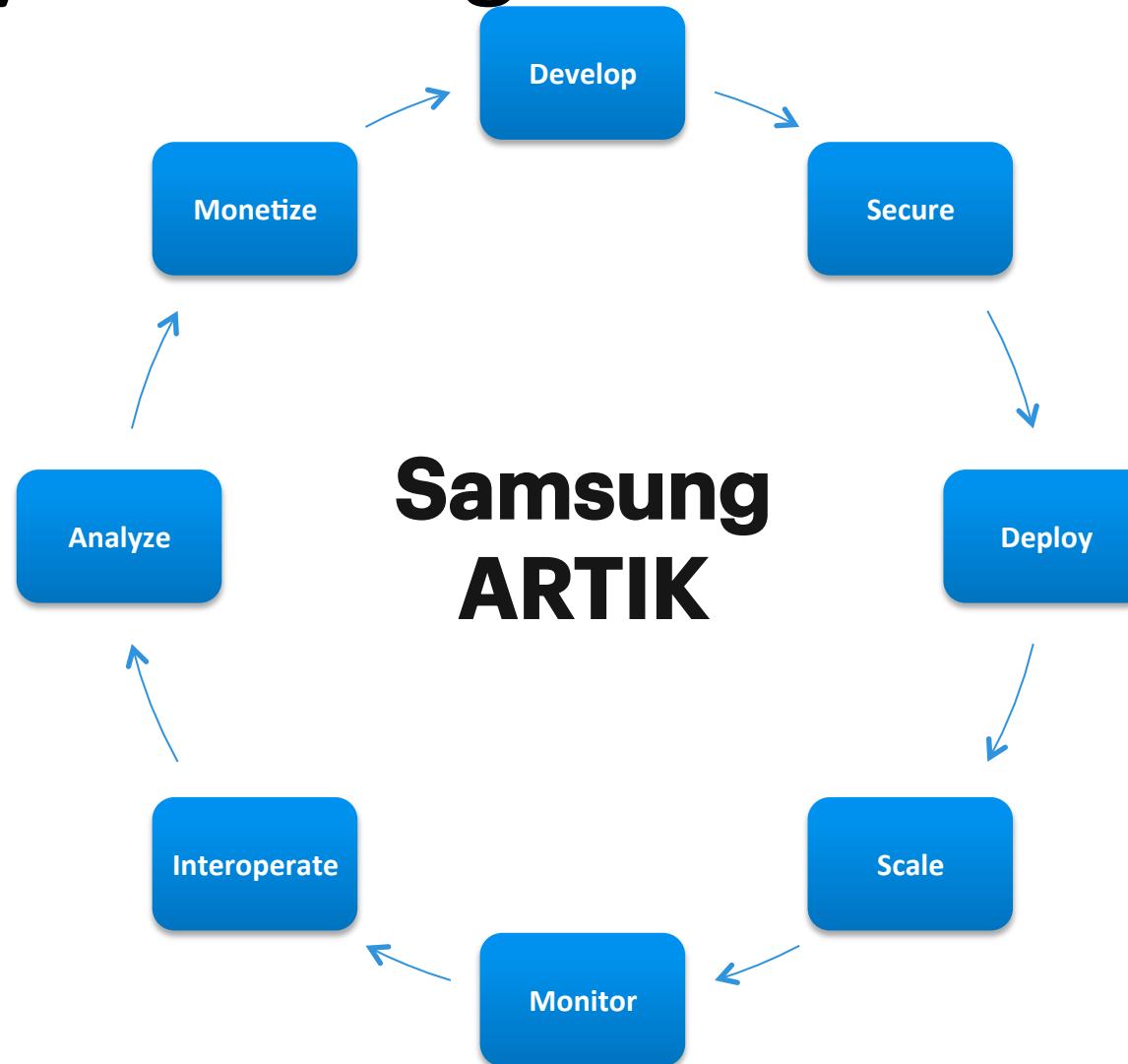
# ARTIK Cloud: API-first, Integrated, Interoperable IOT platform



# Platform Capabilities

# IoT Lifecycle Management

ARTIK makes it **easy** to manage  
the entire IoT lifecycle  
from things  
to **secure** and **interoperable**  
IoT products and solutions



# Many ready to use cloud capabilities

## Data Management

Device APIs & SDKs  
HTTPS/REST & Websockets  
MQTT & CoAP  
Diverse Data Collection  
Data Normalization  
Data Storage

## Cloud Federation

Device Manifests  
Device Discovery  
Cloud to Cloud  
Built-in Cloud Connectors  
Ready 3<sup>rd</sup> party device apps  
Orchestration Engine

## Security & Privacy

API Security  
OWASP Top 10  
Authentication  
Authorization  
Accounting  
Identity & Permissions

## Fleet Mgmt & OTA

Device Mirror  
LWM2M  
Device Presence  
Device, Server Properties  
OTA Updates  
Device Tasks

## Developer Tools

Easy to use APIs & Tools  
10 SDKs  
Developer Portal  
API-first  
Auto-update APIs  
Device Simulator

## Analytics & Visualization

Aggregations  
Data Visualization  
Fleet Analytics  
Real Time Data Access  
AWS Kinesis Stream  
Subscribe & Notify

## User Mgmt

Accounts  
Google login  
Samsung, Naver login  
Role based access  
Device Sharing  
Admin APIs

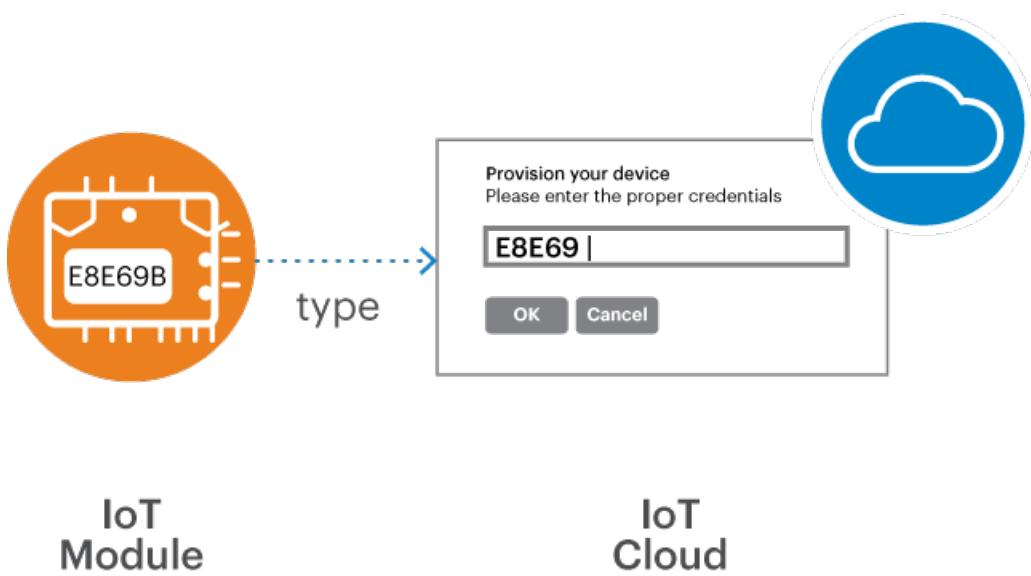
## Cloud Operations

24x7 Monitoring  
Scalability  
High availability  
Resiliency  
Automated testing  
Disaster Recovery

# Quick and secure device onboarding

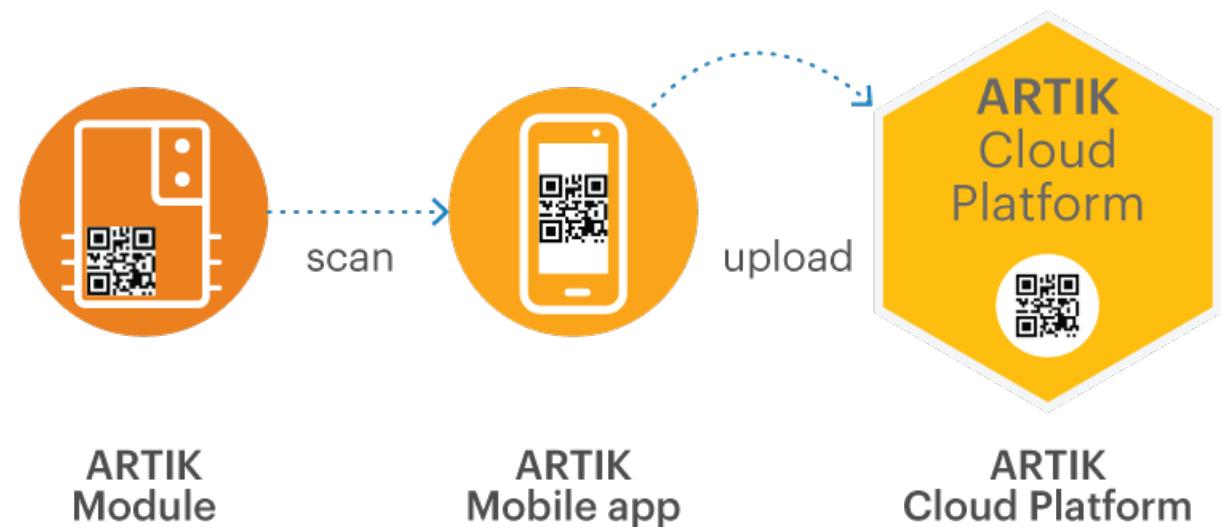
## Typical IoT module onboarding

Manually type ID into Web form

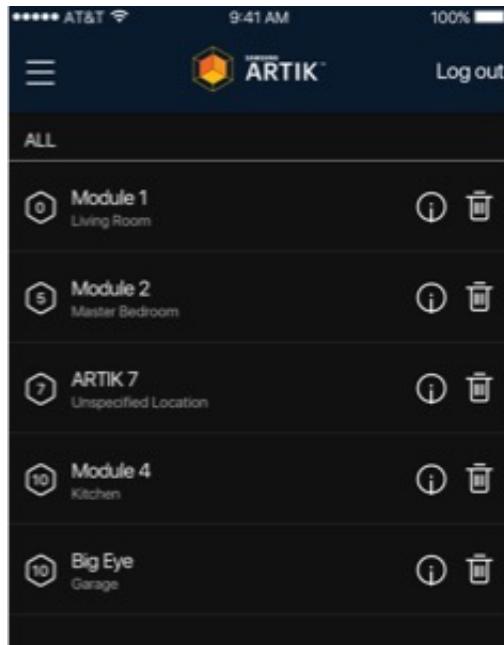


## ARTIK Module onboarding

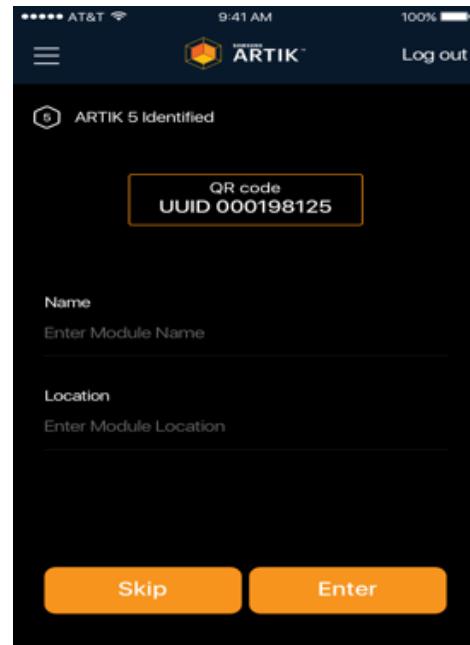
Scan QR code, auto uploaded



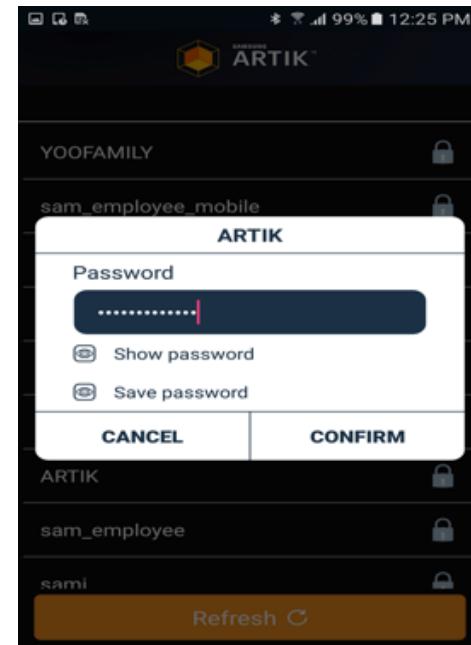
# Few easy steps



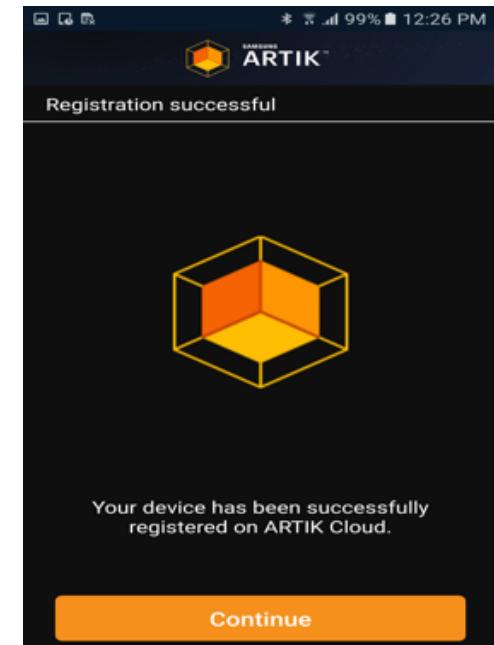
Launch



Identify

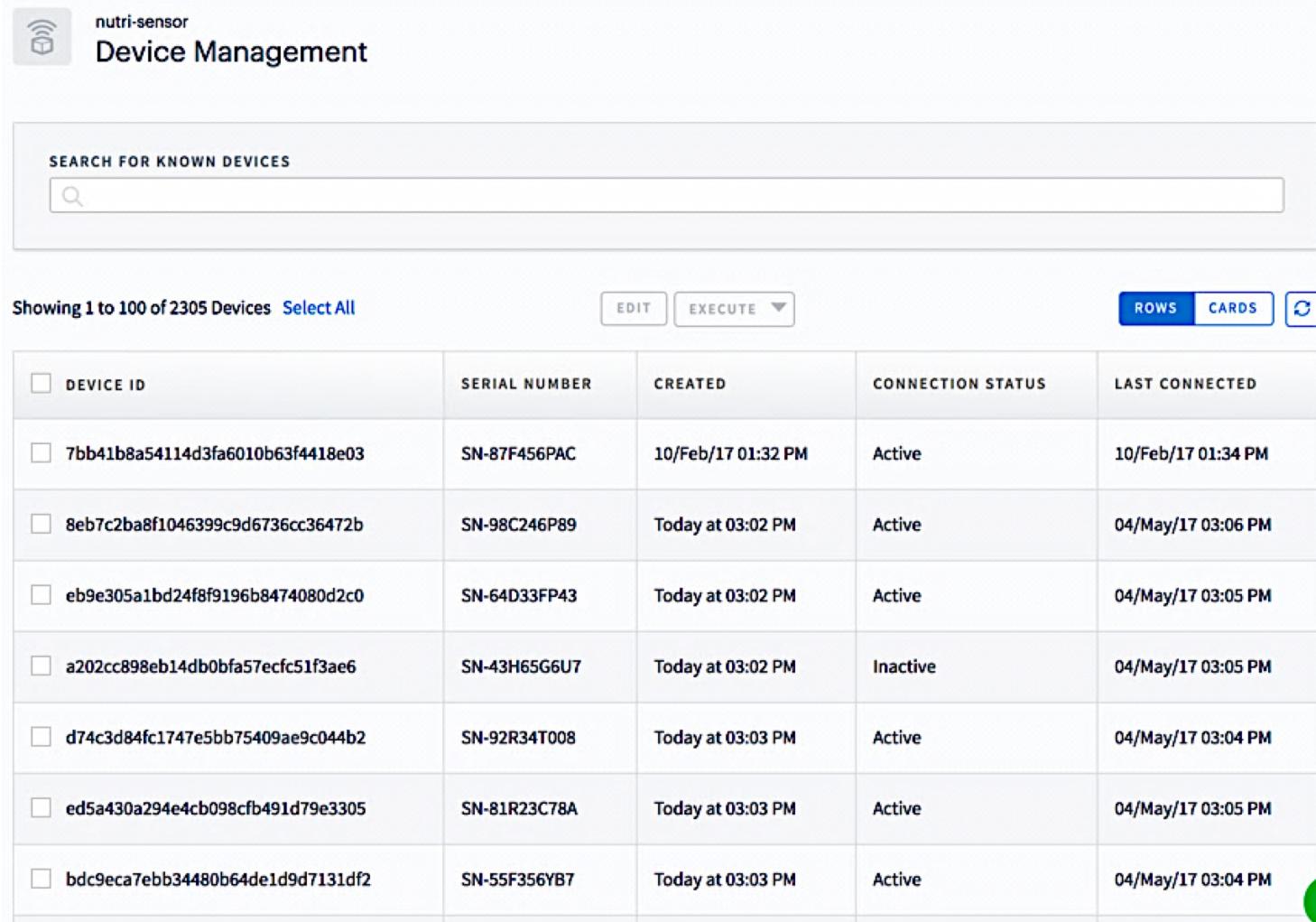


Credentials



Control!

# Fleet and OTA management – edge and gateways



The screenshot shows a web-based device management interface. At the top left is a logo for a 'nutri-sensor' device, followed by the text 'Device Management'. Below this is a search bar labeled 'SEARCH FOR KNOWN DEVICES' with a magnifying glass icon. Underneath the search bar, it says 'Showing 1 to 100 of 2305 Devices' and there is a link 'Select All'. To the right of the search bar are buttons for 'EDIT', 'EXECUTE ▾', 'ROWS' (which is selected), 'CARDS', and a refresh icon. A table below lists 10 devices from a total of 2305. The columns are: DEVICE ID, SERIAL NUMBER, CREATED, CONNECTION STATUS, and LAST CONNECTED. The data in the table is as follows:

DEVICE ID	SERIAL NUMBER	CREATED	CONNECTION STATUS	LAST CONNECTED
7bb41b8a54114d3fa6010b63f4418e03	SN-87F456PAC	10/Feb/17 01:32 PM	Active	10/Feb/17 01:34 PM
8eb7c2ba8f1046399c9d6736cc36472b	SN-98C246P89	Today at 03:02 PM	Active	04/May/17 03:06 PM
eb9e305a1bd24f8f9196b8474080d2c0	SN-64D33FP43	Today at 03:02 PM	Active	04/May/17 03:05 PM
a202cc898eb14db0bfa57ecfc51f3ae6	SN-43H65G6U7	Today at 03:02 PM	Inactive	04/May/17 03:05 PM
d74c3d84fc1747e5bb75409ae9c044b2	SN-92R34T008	Today at 03:03 PM	Active	04/May/17 03:04 PM
ed5a430a294e4cb098cfb491d79e3305	SN-81R23C78A	Today at 03:03 PM	Active	04/May/17 03:05 PM
bdc9eca7ebb34480b64de1d9d7131df2	SN-55F356YB7	Today at 03:03 PM	Active	04/May/17 03:04 PM

- **LWM2M support**
- **Device Presence**
- **Server Properties**
- **Device Properties**
- **Device Tasks**
- **OTA updates**

# Video

Easy Onboarding and Device Management

<https://youtu.be/fCwx9JfD79E>

# End to End Security

---

# Why should we worry about Security?

## Mirai DDoS

IoT devices with weak passwords used as bots to launch DDoS attack



**Electronic door lock**  
Guest code used to create other unauthorized codes

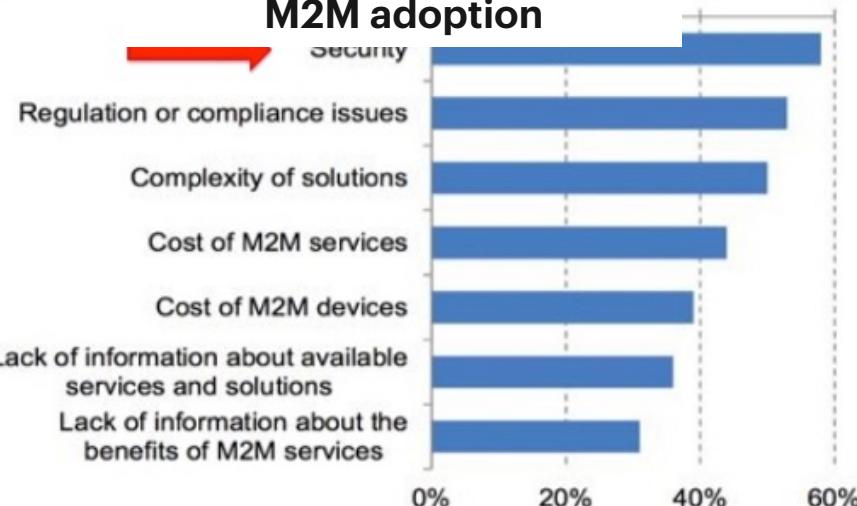


**European Hotel**  
Controlled locks electronically



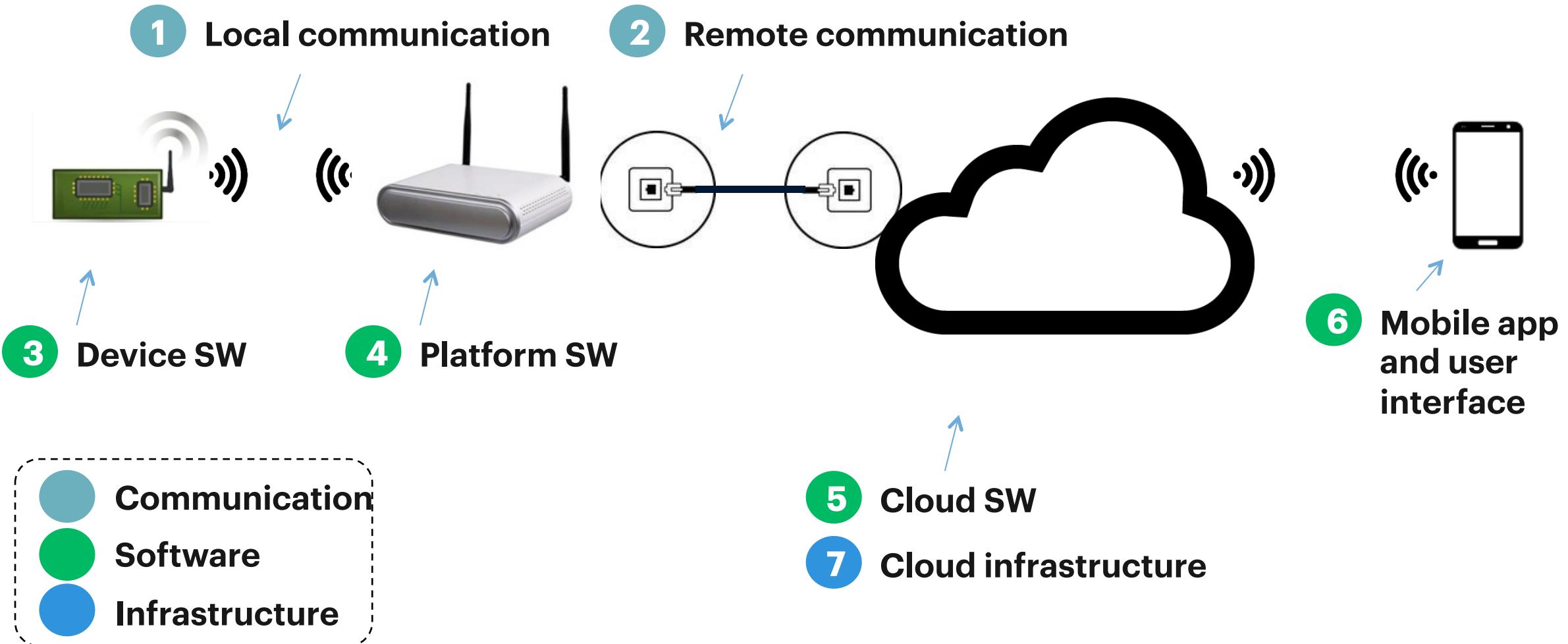
Barriers

Security is one of the biggest barriers to IoT & M2M adoption

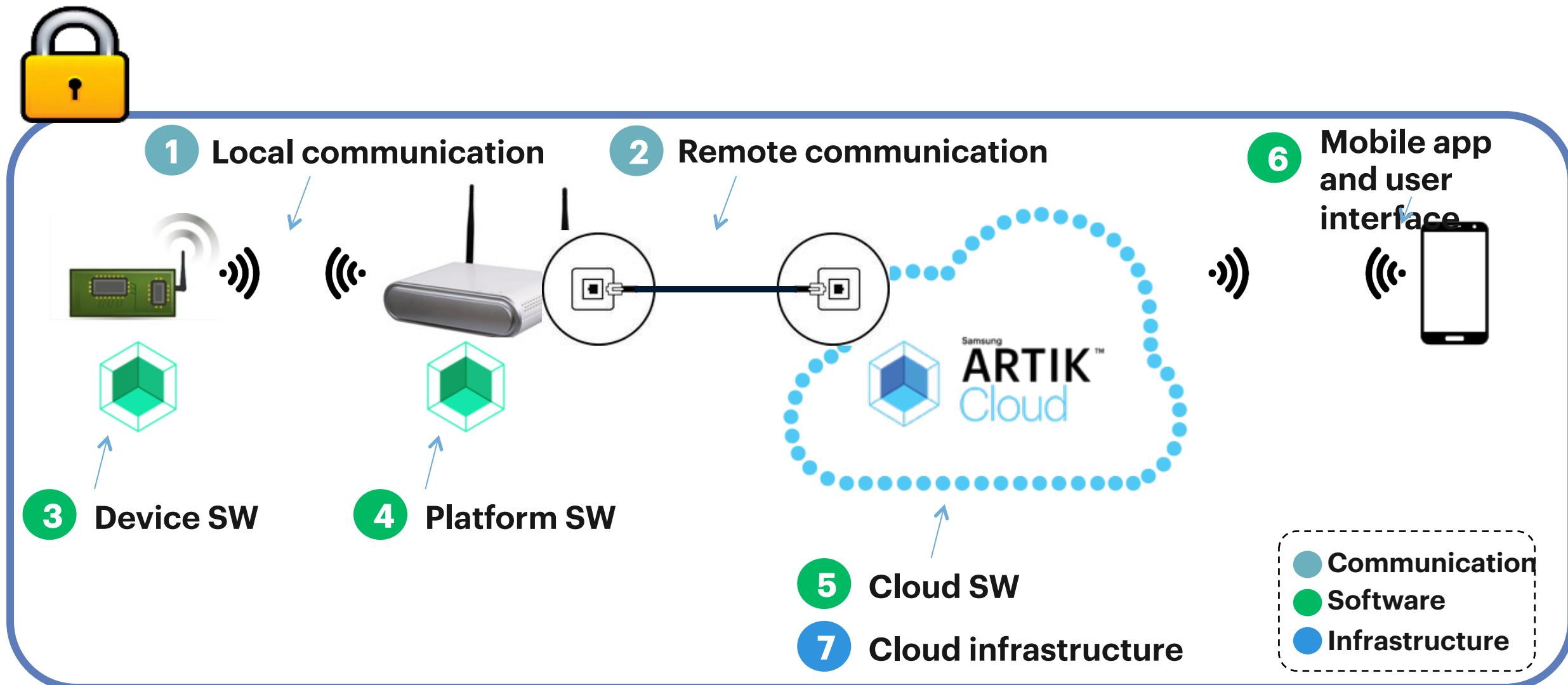


Source: Infonetics

# Where is IoT getting attacked?

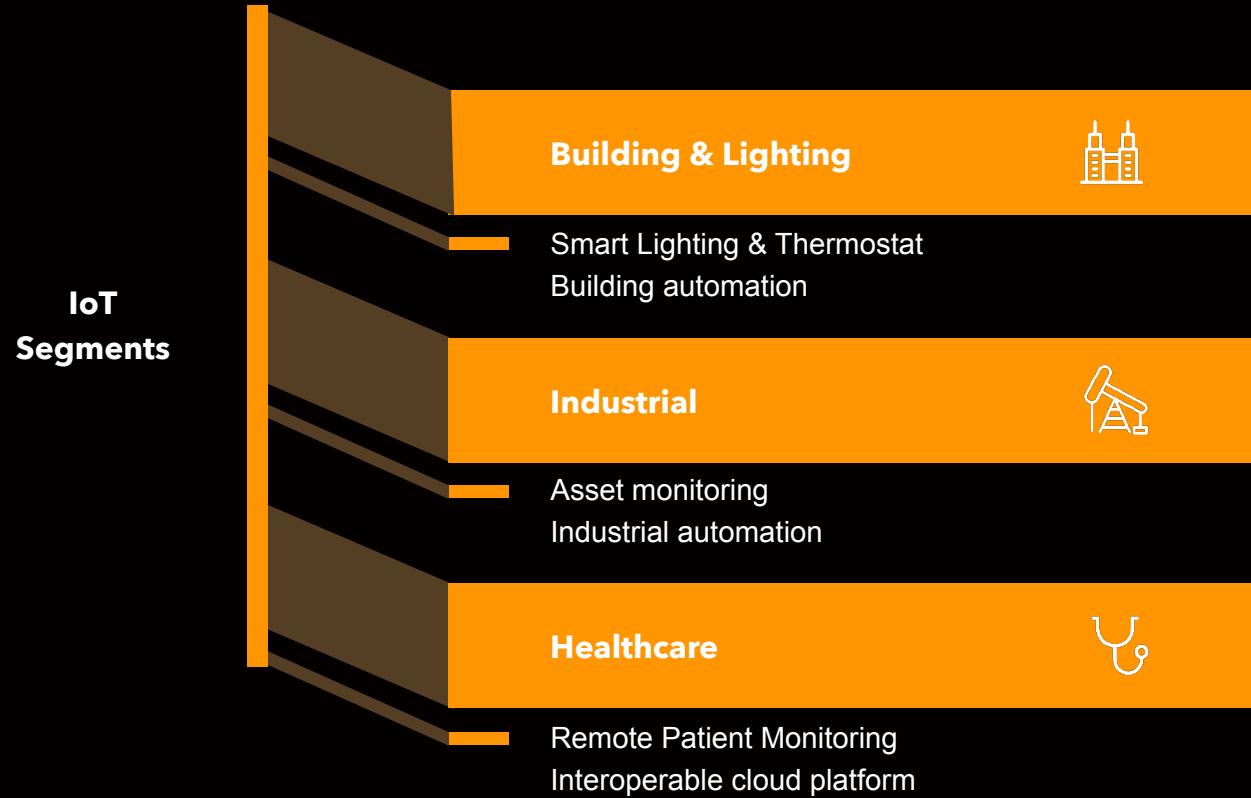


# End to end security



# Applications You Can Build with ARTIK

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# Demo

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- Link: [ARTIK 530 demo – https://www.youtube.com/playlist?list=PLsKI4ECvb5B3OG749xgU2OVjSfBeHGEeg](https://www.youtube.com/playlist?list=PLsKI4ECvb5B3OG749xgU2OVjSfBeHGEeg)

# ARTIK Provides the Fastest Path to Secure and Interoperable IoT Products and Services

---



**Complete end-to-end platform from onboarding to OTA**



**Easy to use development environment for rapid deployment**



**Interoperable with any device or cloud**



**Security designed into every part of the solution**

# Thank You

# End-to-end Enterprise Level Security

