

# Samsung ARTIK Workshop

Wei Xiao

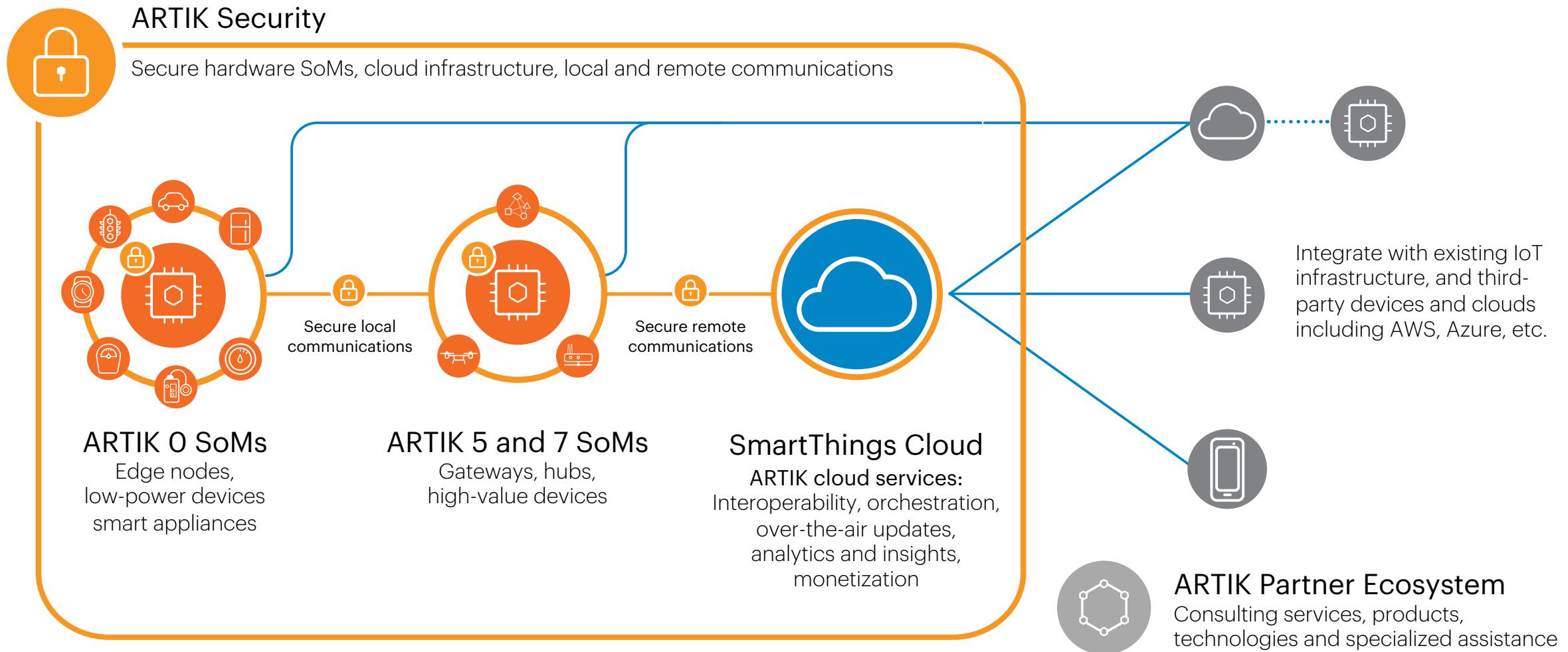
July 19, 2018



# Samsung ARTIK™ IoT Platform

## End-to-end integration...

...Open and  
interoperable



# Samsung ARTIK™ SoM families

s-modules

## ARTIK 0 SoMs

Edge nodes, battery-powered devices, intelligent appliances



020



030



053



055s

053s



15 x 12.9 x 2



15 x 12.9 x 2



15 x 40 x 3.9  
5-12 VDC



15 x 26 x 3.9  
3.3 VDC

## ARTIK 5 and 7 SoMs

Hubs and gateways



520



530



710



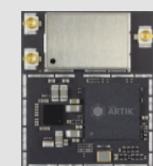
530s



530s 1GB



710s



30 x 25



36 x 49 x 3.4



36 x 49 x 3.4

- Single, dual Cortex-M, Cortex-R CPUs
- Bare Metal or Real-time OS
- Internal RAM / Flash

- Dual, Quad, octa-core Cortex-A CPUs
- Linux based platforms
- Hardware Secure Element,
- Edge Node Manager, Mobile Apps

# Samsung ARTIK™ Edge-node Portfolio

	<b>020</b>	<b>030</b>	<b>053</b>	<b>053s</b>	<b>055s</b>
<b>Processor</b>	Cortex M4 @ 40MHz	Cortex M4 @ 40MHz	Cortex R4 @ 320MHz	Cortex R4 @ 320MHz	Cortex R4 @ 320MHz
<b>Memory</b>	RAM	32 KB	32 KB	1.4 MB	1.4 MB
	Flash	256 KB	256 KB	8 MB	8 MB
<b>Connectivity</b>	BLE 4.2	ZigBee / Thread	Wi-Fi 802.11 b/g/n	Wi-Fi 802.11 b/g/n	Wi-Fi 802.11 b/g/n
Per device unique key & certificate			✓	✓	✓
Key stored in HW secure element			✓	✓	✓
<b>Security</b>	PKI infrastructure		✓	✓	✓
	KMS, secure boot, secure JTAG			✓	✓
Secure OS, Security Lib APIs, Secure Storage				✓	✓
<b>Operating Voltage</b>	3.3V	3.3V	5-12V	5-12V	3.3V
<b>Temperature Range</b>	-40° to 85°C Ambient	-40° to 85°C Ambient	-20° to 85°C Tcase	-20° to 85°C Tcase	-20° to 85°C Tcase
<b>Size (mm)</b>	15 x 12.9 x 2	15 x 12.9 x 2	15 x 40 x 3.9	15 x 40 x 3.9	15 x 26 x 3.9
<b>Availability</b>	Samples			Mid Sept	Mid Sept
	Production	Now	Now	Now	Nov. 30 <sup>th</sup> 2017
					Nov. 30 <sup>th</sup> 2017

# Samsung ARTIK™ Gateway Portfolio

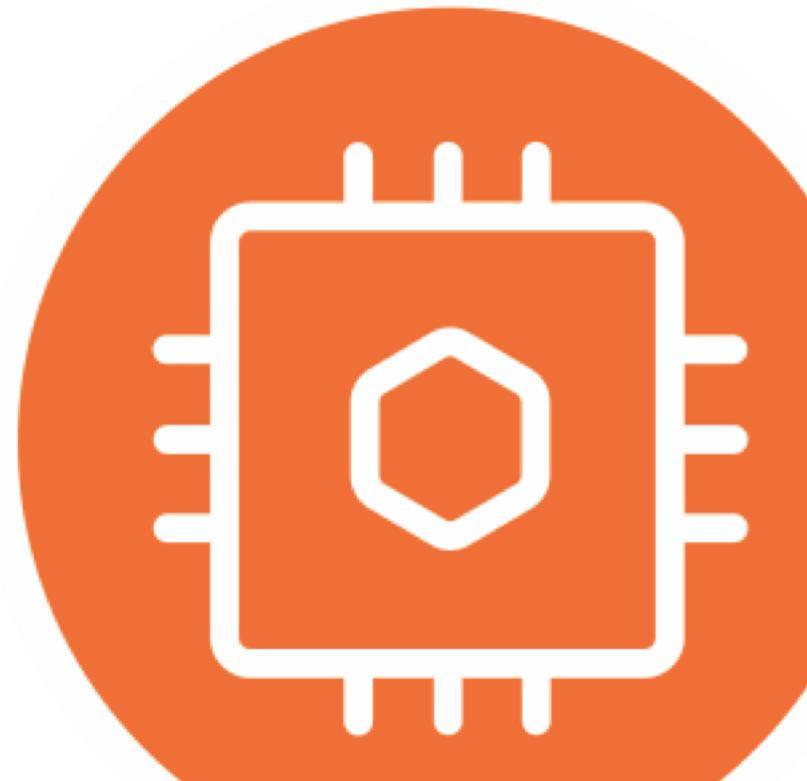
	<b>520</b>	<b>530</b>	<b>710</b>	<b>530s</b>	<b>710s</b>
<b>Processor</b>	CPU	Dual Cortex-A7 @ 1.0 GHz	Quad Cortex-A9 @ 1.2 GHz	Octa Cortex-A53 @ 1.4 GHz	Quad Cortex-A9 @ 1.2 GHz
	GPU	3D graphics accelerator	3D graphics accelerator	3D graphics accelerator	3D graphics accelerator
<b>Memory</b>	RAM	512 MB	512 MB	1 GB	512 MB/1 GB
	Flash	4 GB	4 GB	4 GB	4 GB
<b>Connectivity</b>	Wi-Fi	802.11 b/g/n/ac	802.11 b/g/n	802.11 a/b/g/n	802.11 b/g/n
	Bluetooth	4.x	4.x	4.x	4.x
	Zigbee, Thread	✓	✓	✓	✓
	Ethernet		1 channel (10/100/1000 x1)	1 channel (10/100/1000 x1)	1 channel (10/100/1000 x1)
	CAN				
<b>Temperature Range (T<sub>J</sub>)</b>	-25° to 85° C	-25° to 85° C	0° to 70° C	-25° to 85° C	0° to 70° C
<b>Size (mm)</b>	30 x 25 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4	36 x 49 x 3.4
<b>Availability</b>	Samples			End Sept	Mid-Oct
	Production	Now	Now	Now	Nov. 30, 2017
					Nov. 30, 2017

# Samsung ARTIK™ Modules

## Create intelligent, connected devices

Production-ready, secure edge nodes and system-on-modules tightly integrated with ARTIK cloud interoperability and serviceability services

- Scalable production volumes
- Pre-certified wireless functionality and protocols
- Pre-integrated, fully-tested OS and middleware
- Integrated hardware and software security (s-versions)



# Samsung ARTIK™ cloud services on SmartThings Cloud

## Connect devices, connect clouds, and put them to work

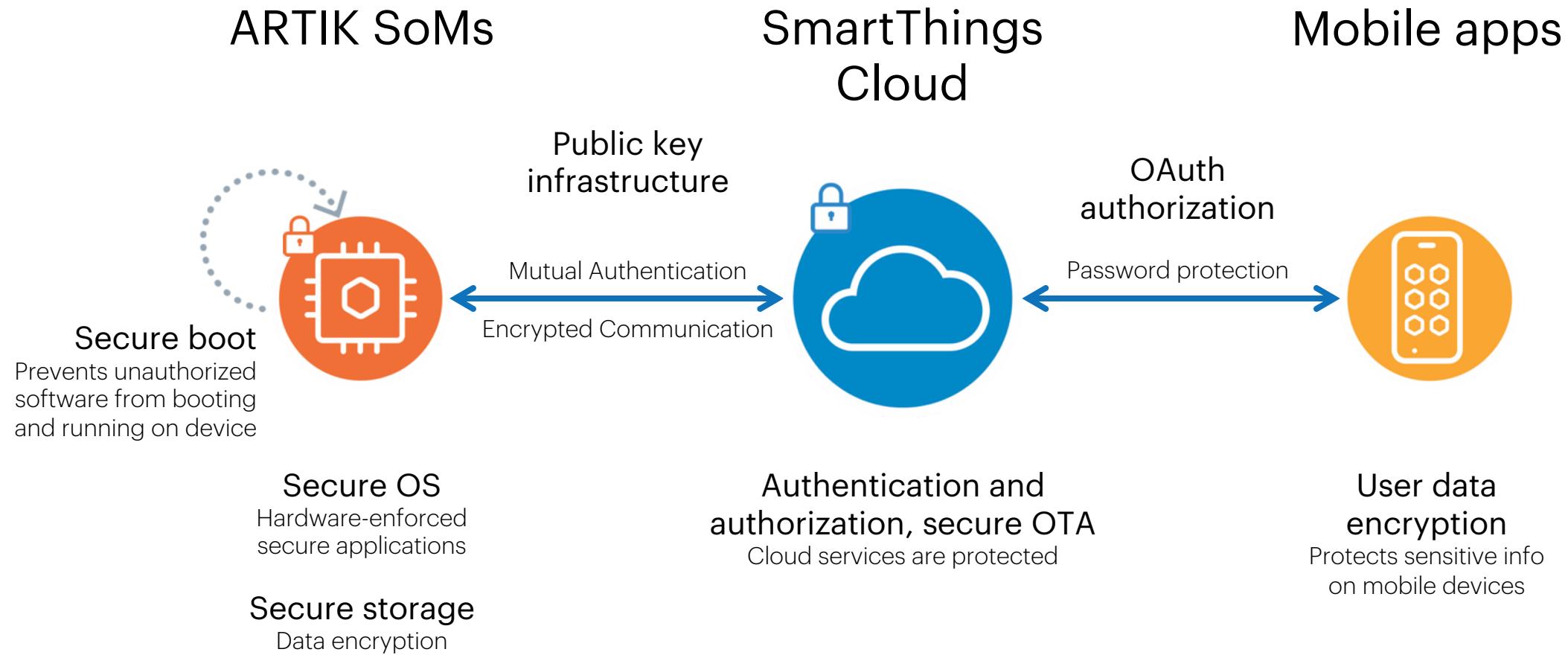
Serviceability features and unparalleled interoperability for ARTIK modules and third-party devices and clouds

- Interoperability: Data Normalization; Cloud Connectors;
- Device Management: Provisioning, and over-the-air updates
- Sophisticated orchestration engine to define one-to-many or many-to-many actions between connected devices and data sources
- Security & Privacy Management

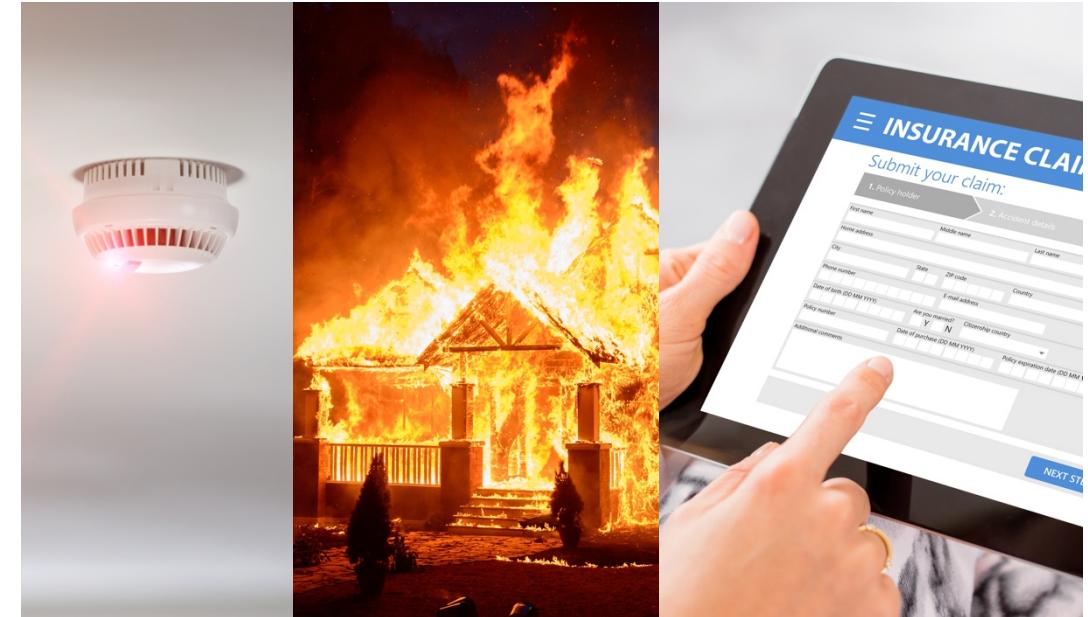


# Samsung ARTIK™ End-to-end Platform Security

## Protection for you and your customers



# Customer Use Cases



**Legrand:** Global residential and commercial digital building infrastructure

**Challenge:** Transform product line to meet new connected digital mkt requirements.  
Fast time to mkt. Interoperability.

**Products:** ARTIK Ox, ARTIK 5/7 secure system-on-modules, ARTIK cloud services

**Why ARTIK?** Reduced product development time. Built-in software eliminated internal dev skills roadblock. Security allows them to meet new customer reqs. Interoperability expands switch capabilities, helped them get POC with Marriott "Room of the Future".

**NDA Customer:** Wholesale provider of reinsurance, insurance and risk transfer

**Challenge:** Reduce risk (and associated costs), improve access to customer data, reduce costs to service customers.

**Products:** ARTIK cloud services, ARTIK 710s secure system-on-module gateway solution

**Why ARTIK?** Secure gateway controls provides remote access to onsite data. Secure cloud services provide interoperability and integration of data between multiple sources including devices on site, cloud enabled services and client operations while maintaining customer privacy.

# Seeed Eagleye 530s



- Powered by the Samsung ARTIK™ 530s module, Raspberry-Pi form factor
- Incorporates ARTIK 530s 1GB SoM, a Quad Core Cortex® A9 running @ 1.2 GHz.
- Includes 40 pin GPIO and accessory interface.
- Support for Micro SD, Ethernet 10/100/1000, Wi-Fi 802.11 a/b/g/n, Bluetooth BLE 4.2 802.15.4, and ZigBee/Thread.
- Supports full HDMI, MIPI camera interface, video, and audio media.

# Shoreline iCast2 Modbus Solution

## ARTIK 05x

- ARTIK 05x Module
- Wi-Fi 2.4GHz, BLE 5.0 including 802.15.4 Radio and Thread SW stack
- Analog I/O, GPIO, I2C etc.
- Isolated RS485 serial port
- Supports ARTIK Cloud, PTC ThingWorx, AWS IoT



# Voice-enabled switch

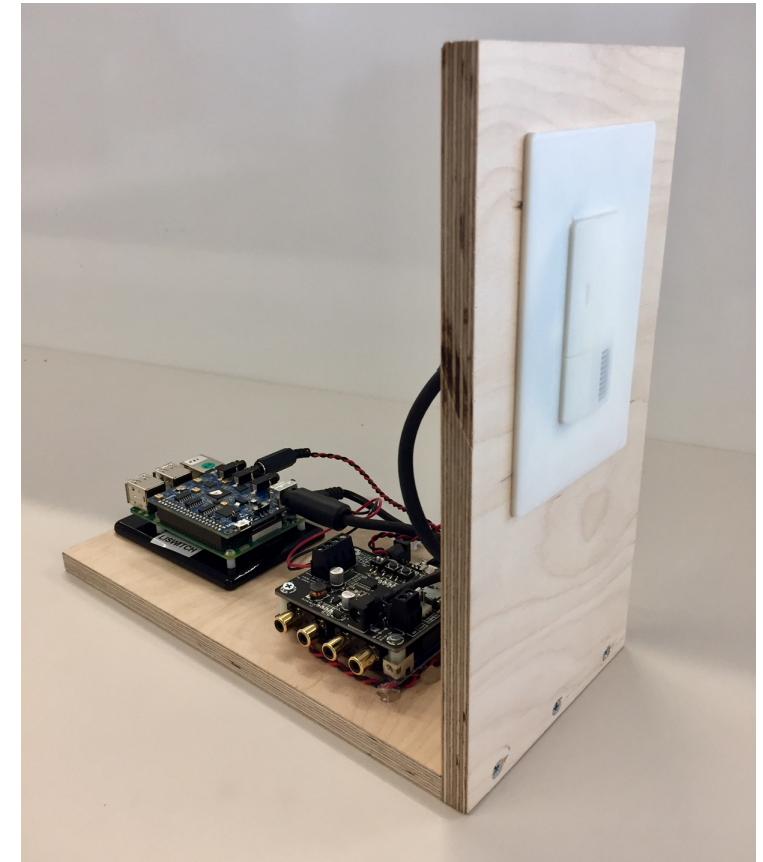
## ARTIK 05x, ARTIK 530 SoMs and AVS Gateway

Smart switch based on ARTIK 05x and ARTIK 530 for AVS connectivity. Voice detection done on Synaptics DSP.

**Use case:** Smart Home, Smart Building, Smart Hotel

**Hardware:** ARTIK05x, ARTIK 530, DSP

**Software:** Alexa Voice Service on 530, 05x sensor logic, control logic on 05x, ARTIK Cloud connectivity via 05x



# Smart appliances and edge analytics

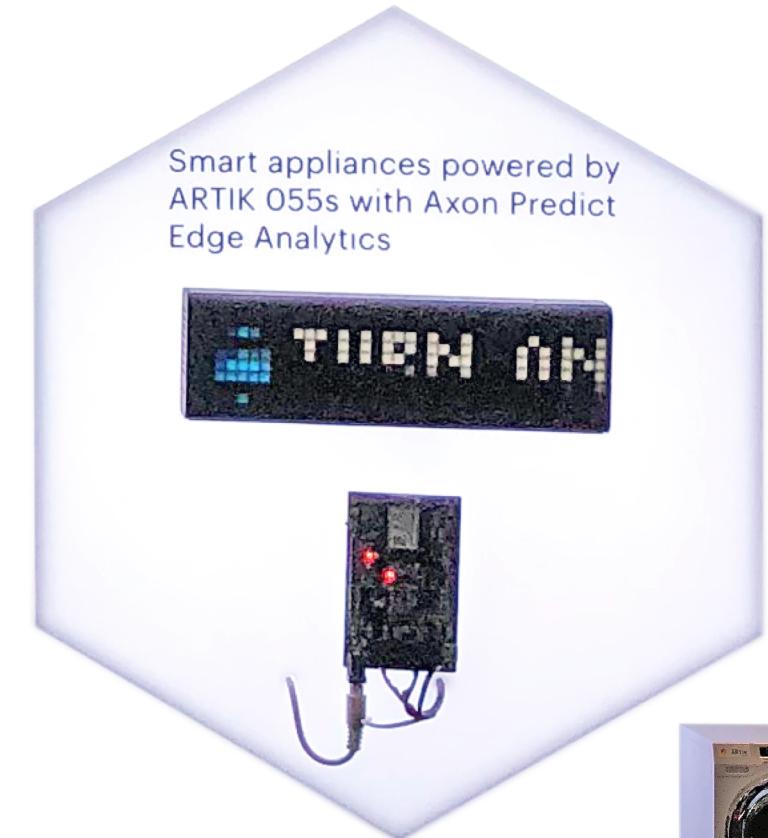
## ARTIK 055s SoM and Axon Predict Edge Analytics

ARTIK 055s-powered smart washer with edge analytics for detergent level check, predictive maintenance, etc. Washer can be controlled by a mobile app or voice. Alerts show on LaMetrics display.

**Use case:** Smart home appliances

**Hardware:** ARTIK 055s WiFi module, washer with weight sensor, water level sensor etc., mobile device, LaMetrics display (optional)

**Software:** SmartThings Cloud cloud connector, rules engine; Android mobile app; AXON Predict Analytics



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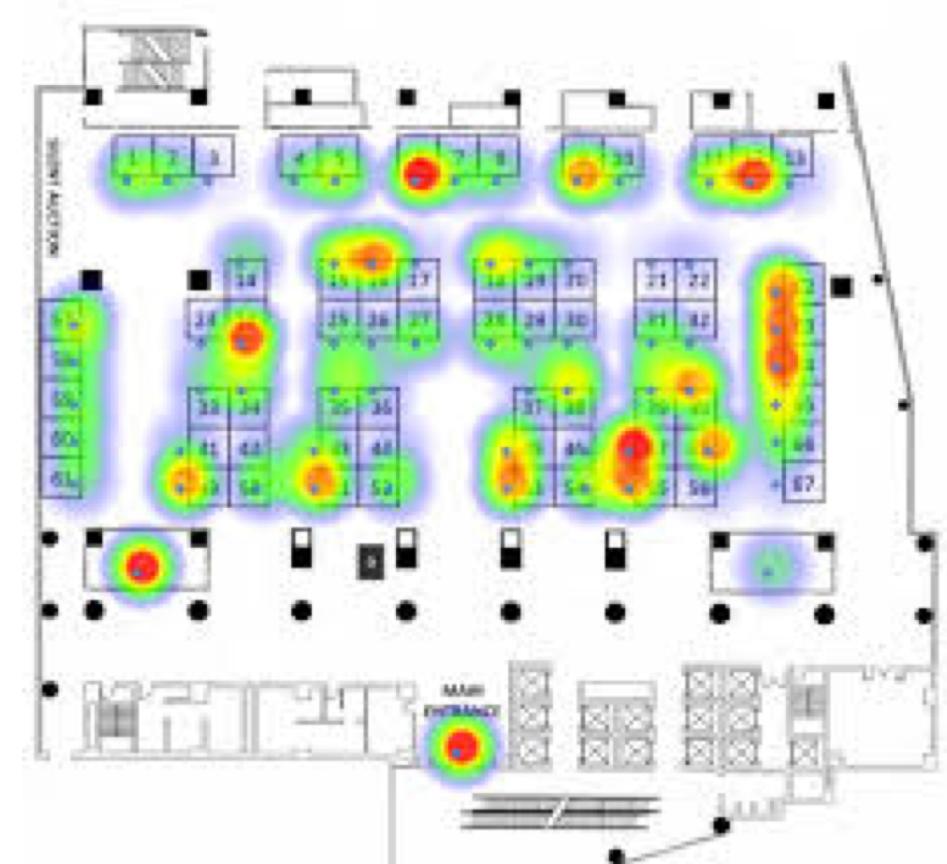
# Location based service ARTIK 05x

Leverage 05x WiFi connectivity for location based service.

**Use case:** Smart Building, Smart Campus

**Hardware:** ARTIK05x

**Software:** Comtech Location APIs, ARTIK Cloud Service



# Samsung ARTIK™

## Helpful web resources

Web Documentation	<a href="https://developer.artik.io/documentation/">https://developer.artik.io/documentation/</a>
Document Library	<a href="https://www.artik.io/library/">https://www.artik.io/library/</a>
Forums	<a href="https://developer.artik.io/forums/">https://developer.artik.io/forums/</a>
Blog	<a href="https://www.artik.io/blog/">https://www.artik.io/blog/</a>
File Tickets	<a href="https://support.artik.io">https://support.artik.io</a>
Github Repository	<a href="https://github.com/SamsungARTIK">https://github.com/SamsungARTIK</a>
YouTube Channel	<a href="https://www.youtube.com/channel/UC4rolvSm8ikmnymdbznNJw">https://www.youtube.com/channel/UC4rolvSm8ikmnymdbznNJw</a>
Twitter	<a href="https://twitter.com/SamsungIoT">https://twitter.com/SamsungIoT</a>
LinkedIn	<a href="https://www.linkedin.com/showcase/15212782/">https://www.linkedin.com/showcase/15212782/</a>

Workshop Github page

<https://github.com/SamsungARTIK/Training>

SSID: ARTIK2 or ARTIK2-5G

PWD: artik123



# Q & A