ARTIK™

The Ultimate Platform Solution for IoT

2015. 9. 17
MyungKoo Kang (VP)
Samsung Electronics
Future Changes from IoT

Privacy in the Web

Security in SmartGrill

A LONG TIME AGO SOME FOLKS WERE WORRIED ABOUT THE PRIVACY IN THE WEB

WHAT WAS "THE WEB"?

'I'VE HEARD IT WAS A PREDECESSOR OF FACEBOOK

WHAT'S PRIVACY?

THE FUTURE OF THE WEB

www.ITworld.com

This new SMART GRILL is a little too smart.

It won't even let me open it.

He's trying to cook!

DANGER! Call 911!

Get out of here!
**IoT Market Forecast**

**Global IoT Economic Value Forecasts**

- IoT market size to reach $2 Trillion by 2020 and $6 Trillion by 2025
- Connected devices (things) to hit 32 Billion by 2020
- IoT data growth to over 4.4 ZB

**Emerging BIG market size and growth of IoT**

Source: IDC, Gartner, McKinsey & Company
Challenges for IoT

- **Scaling**
  - Fragmentation
  - One size does not fit all

- **Power**
  - Battery life
  - Battery size

- **Compatibility**
  - Billions of devices. Diverse networks
  - Emerging standards

- **Security/Privacy**
  - 70% Internet traffic unencrypted

- **Data**
  - Massive quantity. Analytics
  - Cloud solutions

- **Development**
  - Limited tools, eco-system support

- **Time to Market**
  - Limited tools, eco-system support

- **Vendor Reliability**
  - Fast production ramp
  - Mass production
## ARTIK – Key Differentiations

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Complete Module Lineup</strong></td>
<td>Pre-certified modules with processors, memory, connectivity and sensors</td>
</tr>
<tr>
<td></td>
<td>Best power, form factor and performance</td>
</tr>
<tr>
<td></td>
<td>Software compatibility across the family</td>
</tr>
<tr>
<td><strong>Leveraging Samsung Scale &amp; Quality Manufacturing</strong></td>
<td>Samsung chips (memory, AP etc.)</td>
</tr>
<tr>
<td></td>
<td>Unique packaging technology (ePoP)</td>
</tr>
<tr>
<td></td>
<td>Utilize Samsung manufacturing expertise and brand</td>
</tr>
<tr>
<td><strong>Best in class end-to-end security and privacy</strong></td>
<td>Embedded, hardware-based secure element</td>
</tr>
<tr>
<td></td>
<td>Trusted Execution Environment</td>
</tr>
<tr>
<td><strong>Hybrid cloud solution</strong></td>
<td>Local and distributed cloud intelligence</td>
</tr>
<tr>
<td></td>
<td>Data storage and analytics</td>
</tr>
<tr>
<td><strong>Ecosystem</strong></td>
<td>Strong developer community</td>
</tr>
<tr>
<td></td>
<td>Best in class partners across the value chain</td>
</tr>
</tbody>
</table>
ARTIK Product Family

**ARTIK 1**
- 12mm x 12mm
- 250MHz Dual Core
- HW Secure Element
- 9-axis Accelerometer

**ARTIK 5**
- 25mm x 29mm
- 1GHz Dual Core
- HW Secure Element
- 512MB LPDDR3, 4GB NAND

**ARTIK 10**
- 29mm x 39mm
- 1.3GHz Octa Core
- HW Secure Element
- 2GB LPDDR3, 16GB NAND
Potential Applications of ARTIK

1. **ARTIK 10**
   - High Quality Video App.
   - Local Cloud
   - Smart TV
   - Drones

2. **ARTIK 5**
   - Smart Watches
   - Camera
   - Home Appliances
   - Home Hubs

3. **ARTIK 1**
   - Agriculture
   - Smart Lighting
   - Supply Chain
   - Wearable Bands
   - Smoke Sensors
   - Door Lock
   - Leak Detection
## ARTIK Differentiated - Production Ready Hardware

### One Stop Shopping Solutions

<table>
<thead>
<tr>
<th>Manufacturing Expertise</th>
<th>Pre-certified Integrated Module</th>
<th>Broad Range of Connectivity</th>
<th>Increased Developer Productivity</th>
</tr>
</thead>
</table>

![Components Image](image1)

![Connectivity Logos](image2)
ARTIK Differentiated – Open & Advanced Software

Essential features provided on top of Open Source SW Stack

- Advanced Security
- Local & Open Cloud
- Open Source
- Software Development Kits
Software Stack

ARTIK 1

- Network: CoAP, MQTT
- Device FW: Actuator, Sensor
- Data Store: Database, File System
- RTOS (Nucleus)
- BLE

ARTIK 5

- Network: HTTP, CoAP, MQTT
- IoT Hub Framework: openHAB
- Data Store: Maria DB, Influx DB
- JAVA VM
- Linux OS (Yocto, Fedora)
- Ethernet, Wi-Fi, BLE, ZigBee, ZWave

ARTIK 10

- Network: CoAP, MQTT
- Device FW: Actuator, Sensor
- Data Store: Database, File System
- RTOS (Nucleus)
- BLE
ARTIK Differentiated – End-to-End Security Solution

Proven security technologies
Combining hardware and software security

- Application Security
  - Easy to use Secure Pairing & Anomaly Detection

- Platform Security
  - Trusted Execution Environment (Secure OS)
  - Secure Boot

- Hardware Security
  - ARM ‘TRUSTZONE’

Secure Element
ARTIK Differentiated – Open Cloud

Connect devices to be analyzed and visualized anytime, anywhere

Home Owner
• User determines “opt-in” for each device
• Devices talk to each other, work together via Open Cloud

Open Cloud
• Data broker
• Rules engine
• Analytics
• Open API links to any 3rd party open cloud

Home Service Provider
• Receive, analyze, process data and Service devices from entire ecosystem

Samsung Open Cloud
Powered by SAMI

Commercial Home Service Provider

Nest

Honeywell

Open API
ARTIK Differentiated – The IoT Enabler

Mass Production Ready HW Module Platform
with world’s smallest, low power module

Turnkey SW solution
with local intelligence

Best in class end to end security solution
through an embedded, secure element and trusted execution environment