#IoT=Smartwatches

Ian Ferguson  
VP Corporate Marketing and Strategic Alliances  
ian.Ferguson@arm.com  
@fergie_arm
Applicability of ARM for Server Workloads

<table>
<thead>
<tr>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 - 16 core ARMv8</td>
<td>16 - 96 core ARMv8</td>
<td>&gt;48 core ARMv8</td>
<td></td>
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</tbody>
</table>

**Immediate Targets**
- Storage
- Web-Tier
- Cloud/XaaS

**3-5 year Targets**
- Big Data Scale Out / Offline Analytics
- High Performance Analytics
- NFV Programs underway
- HPC
- Initial HPC Programs Underway
- Telco Management
- Workstation + VDI
- OLTP

**Expected To Pull This In**
- Traditional Enterprise Server
- 4 year + Targets

**3-5 year Targets**
- HPC
- Initial HPC Programs Underway

**Immediate Targets**
- OLTP
- Telco Management
ARM-based chips for more efficient servers

HiSilicon D02 Server

Shipping in 2015

….More 64-bit solutions on the horizon
The Connected Fridge is Back……

CES: Would you pay $5,000 for a Samsung smart fridge?

By Aalia Shaheed · Published January 06, 2016 · Foxnews.com

If you’re the type of person that needs technology to permeate almost every aspect of their life, then Samsung has just the thing for you – if you’ve got $5,000 burning a hole in your pocket.

The show stealer of the technology giant’s CES press conference Tuesday was
Our View On IoT

Consumer
Value: Customer/Citizen Experience, Customization, Lifestyle
Security focused on identity and data usage/privacy

Commercial
Value: Resource savings, employee productivity, logistics, marketing efficacy
Limited regulation, entrenched standards

Industrial
Value: Productivity, asset utilization, innovation/revenue
Security AND safety
Industry driven regulations
Government regulations

Home Automation
Retail Insights
Wearables
Vending
Digital Signage

Activity Monitoring
Telemedicine
Lighting
Traffic Cameras

Robotics
Smart Meter
Medical Devices
Smart Parking
Traffic Cameras

Manufacturing
Farming
Logistics
Mining
Utilities
Transportation

ARMS
Big Data Starts with Little Data
When Is A Light Not A Light……

- 180,000+ in street lights across the UK
- 700k opportunity in Sao Paolo alone

radio architecture
3G modem provides connection to the cloud
more than 500 ZigBee nodes per coordinator
secure, self-healing mesh

Longer term. the lightpole will become a gateway……
The Cloud Has To Come to the Data....

Cellular virtualization

IoT gateway

Packet Flows

Storage Acceleration

Workload optimized data center

Compute
Reaching the next billion....
One Size Does Not fit All:

**Heart Sounds**: Using low cost smartphones to remotely monitor cardiac signals with accuracy of electronic stethoscope. Trialing in South Africa.

**X2 Biosystems**: Impact Sensing Skin Patches

**Kanega Watch**: SmartWatch for seniors that requires no smartphone.
IoT Security Foundation with TrustZone

- Example use cases:
  - Protection of critical assets
  - Safe crypto implementations
  - Secure remote firmware update
  - Firmware IP protection
  - Secure debug

Isolates trusted software, data and hardware

Enables device integrity and system recovery
## Broad Software and Tool Ecosystem for IoT

<table>
<thead>
<tr>
<th>Java</th>
<th>WR Helix</th>
</tr>
</thead>
<tbody>
<tr>
<td>IoT Cloud Services</td>
<td>Microsoft</td>
</tr>
<tr>
<td>(AWS, Xively, Parse</td>
<td>Linaro (Linux)</td>
</tr>
<tr>
<td>etc.)</td>
<td></td>
</tr>
<tr>
<td>3rd Party RTOS</td>
<td>IoTivity</td>
</tr>
<tr>
<td>Brillo/Weave</td>
<td>Yocto</td>
</tr>
<tr>
<td>Android</td>
<td>Ubuntu JuJu</td>
</tr>
</tbody>
</table>

- Broad ecosystem support across OS, RTOS and languages
- Cloud connectivity services with all major cloud providers
- Open source community support
Security Foundation for IoT

Lifecycle Security
- mbed Device Server

Communication Security
- Encryption, Authentication, OTA updates
  - mbed TLS, TrustZone CryptoCell

Device Integrity
- Secure Identity, Software Identity, Isolation, Tamper Detection
  - TrustZone, mbed OS, TrustZone CryptoCell, SecurCore
3 Personal Beliefs Of Hot Areas in 2020
Computer Vision/AR
Agriculture

[Diagram showing a network setup with subGHz wireless mesh network and access points connected to a cloud through 3G/2G network.]
Reason For Nervousness?

Hospital Supercomputer In Boston Predicts Death With Almost 96% Confidence

The Huffington Post UK | By Nitya Rajan

Posted: 14/09/2015 16:57 BST | Updated: 14/09/2015 16:59 BST
Summary

- The growth in several consumer areas are slowing but innovation is alive and well elsewhere

- Infrastructure must be upgraded
  - Bringing the cloud to the data

- Customization is key