

Smart Connected Expanding the Mobile Experience

Eric Wang
Mobile Segment Marketing

Ubiquitous Connectivity



ARM at the Heart of Your Smartphone

ARM TRUSTZONE
System Security

ARM ARTISAN
Physical IP

ARM MALI
Visual Technology

ARM CORTEX
Processor Technology

SIM
SecurCore® SC300™

Bluetooth
Cortex-M3
Cortex-M0

GPS
Cortex-M3
Cortex-M0

WiFi
Cortex-M4

Cellular Modem
Cortex®-R4
Cortex-R5
Cortex-R7

Apps Processor

Cortex-A7	Mali-400
Cortex-A15	Mali-T628
Cortex-A17	Mali-T760
Cortex-A53	Mali-T720
Cortex-A57	Mali-T760

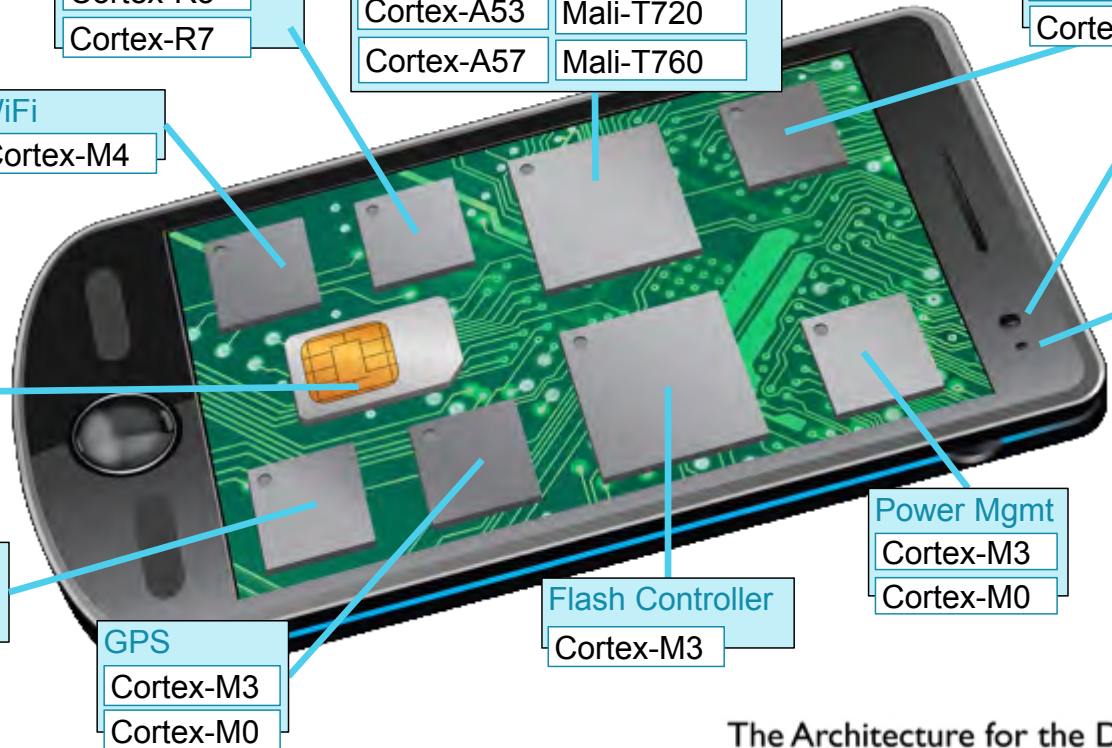
Touchscreen & Sensor Hub
Cortex-M0
Cortex-M3
Cortex-M4

Camera
Cortex-M3

Sensor Hub
Cortex-M0+

Power Mgmt
Cortex-M3
Cortex-M0

Flash Controller
Cortex-M3



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What Does \$50 Buy You?



Galaxy S5 Smart Cover
Phone not included

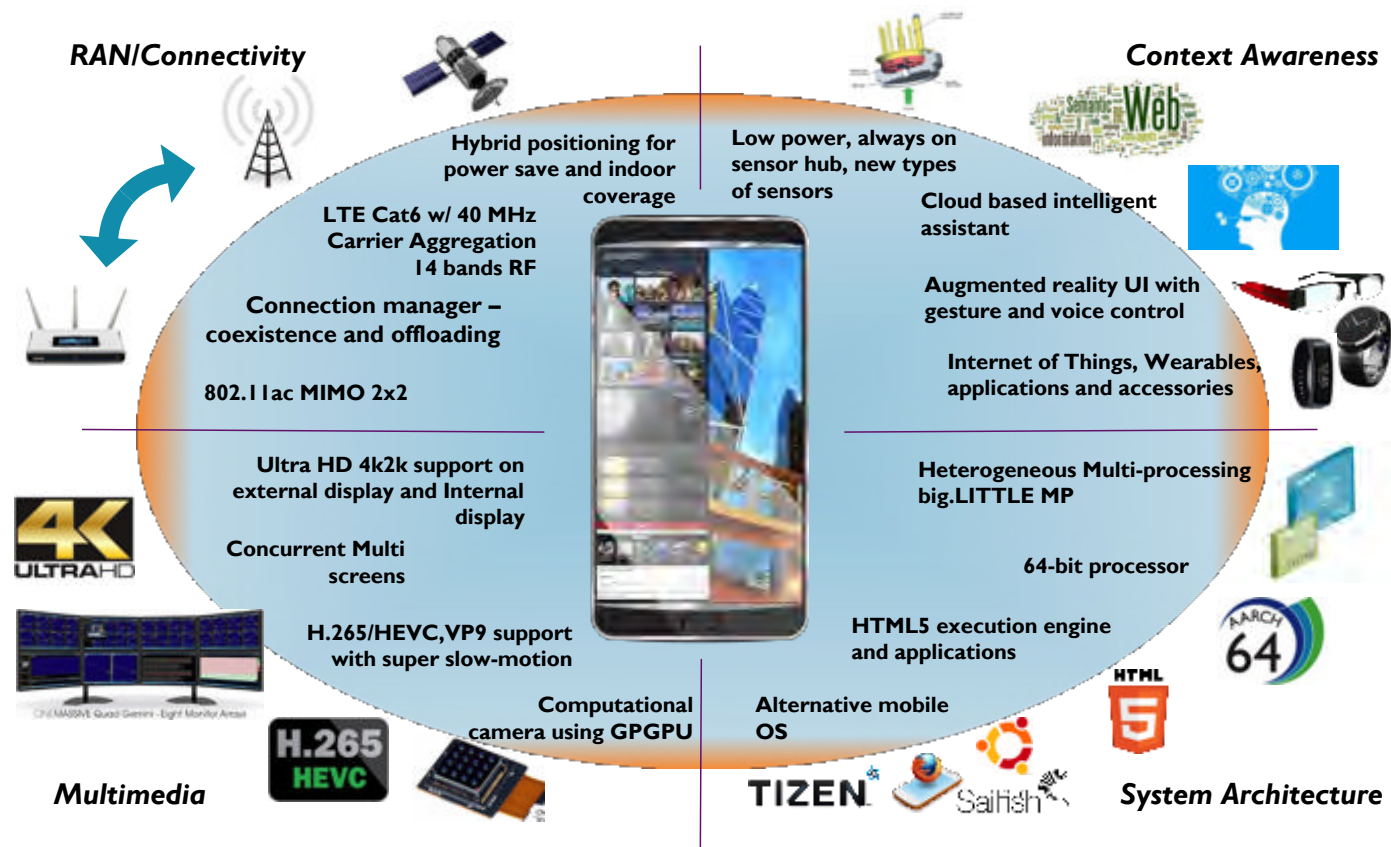


Coolpad 7231
3G HSPA
2x Cortex®-A7
Mali™- 400
2013E



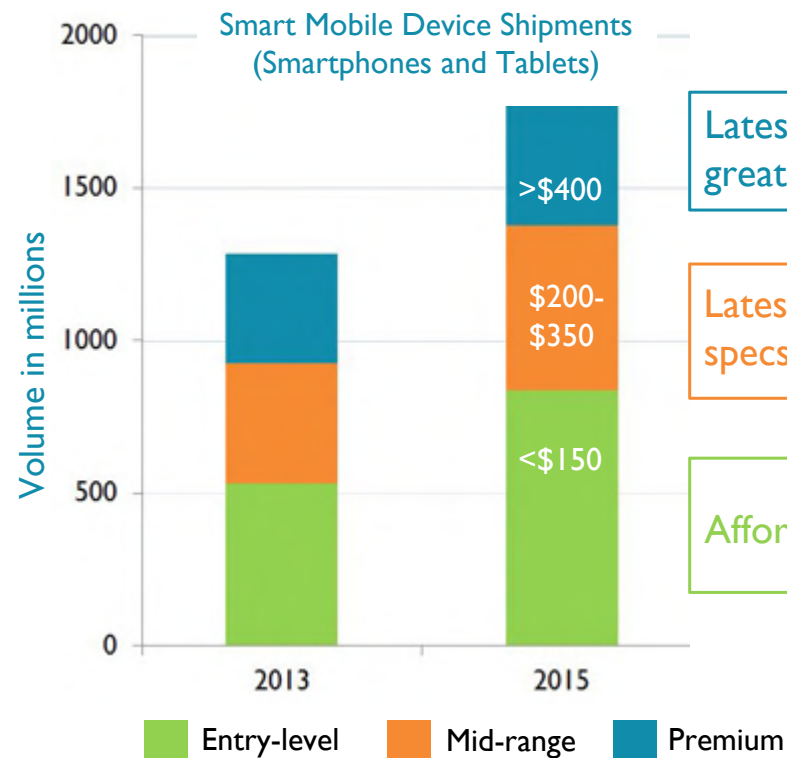
Lenovo A320T
TD-LTE/TD-SCDMA/GSM
4xCortex-A7 Mali-400MP2
2014E

How High Can You Go?



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ARM Offers Targeted Solutions For All Markets



Mixture of ARM and Gartner Estimates, CAGR figures based on 2013

Latest features,
greatest specs

Latest features, flexible
specs to fit a budget

Affordability

70-100 mm2

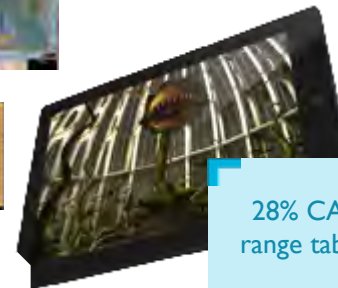


4% CAGR for
premium
smartphones till
2018



50-70 mm2

28% CAGR for mid
range tablets till 2018



25-40 mm2

17% CAGR for
sub-\$150
smartphones
till 2018

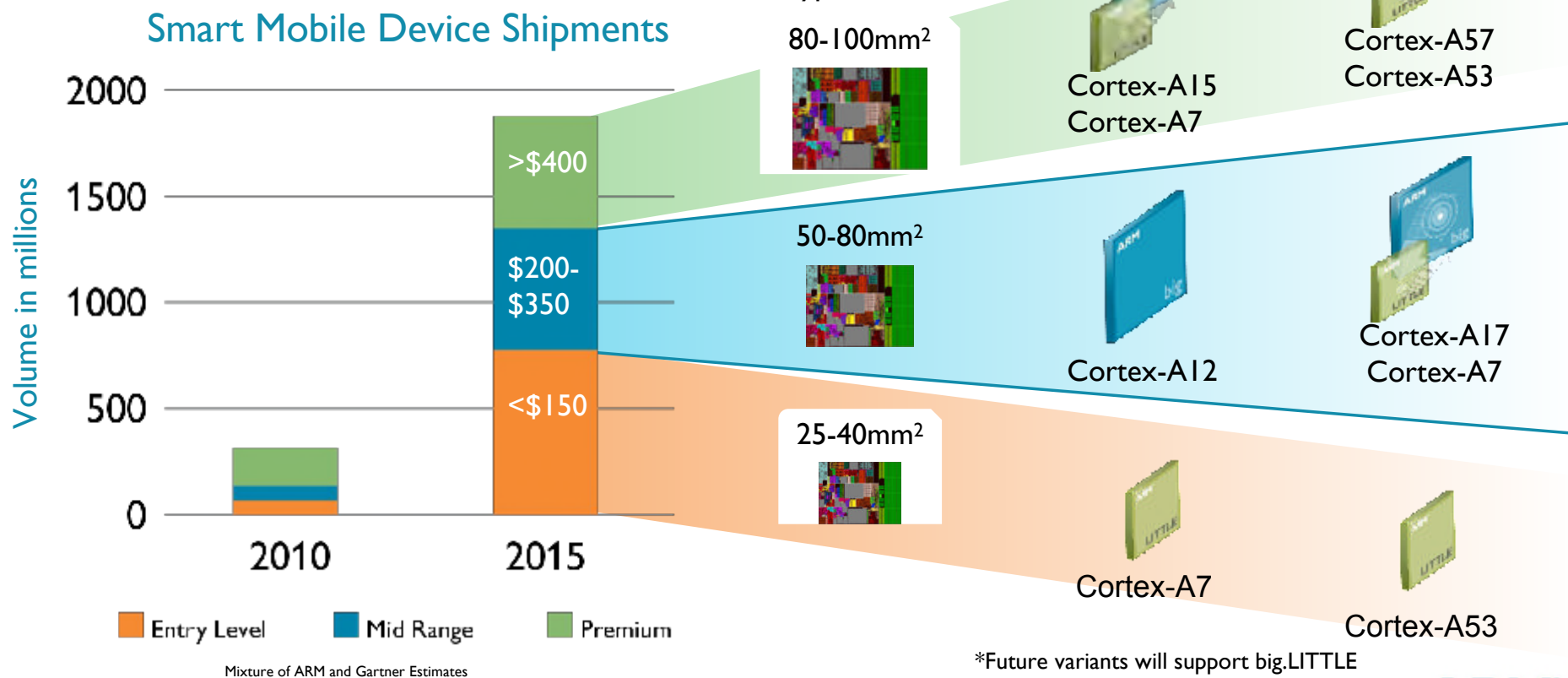


All Mobile Markets in 2015

- Over 1.5 billion devices
- Wearables coming from all industries

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Driving Market Change



*Future variants will support big.LITTLE

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User Experience Demands: Desktop-class Apps for Mobile

- ARMv8-A enabling desktop-class applications on mobile devices
- New categories of applications
 - 'Unlimited' memory addressing
 - Faster number crunching and better gaming
 - Lower power consumption
- Enhanced user interaction
 - Gesture and voice recognition
- Enables OEMs to innovate across a broad range of computing platforms



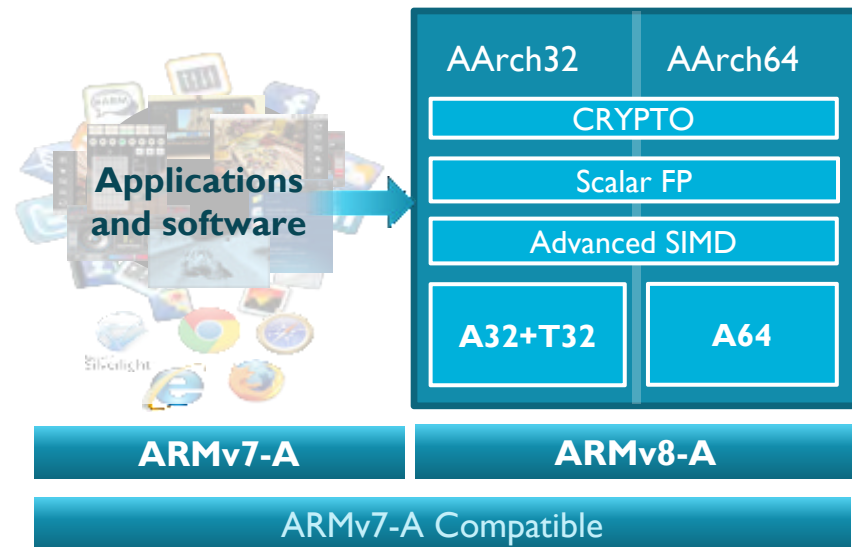
ARMv8-A Instruction Set Enhancements

■ AArch32

- ARMv8-A is 100% compatible with software for 32-bit ARMv7-A
- Cryptography support across 32-bit

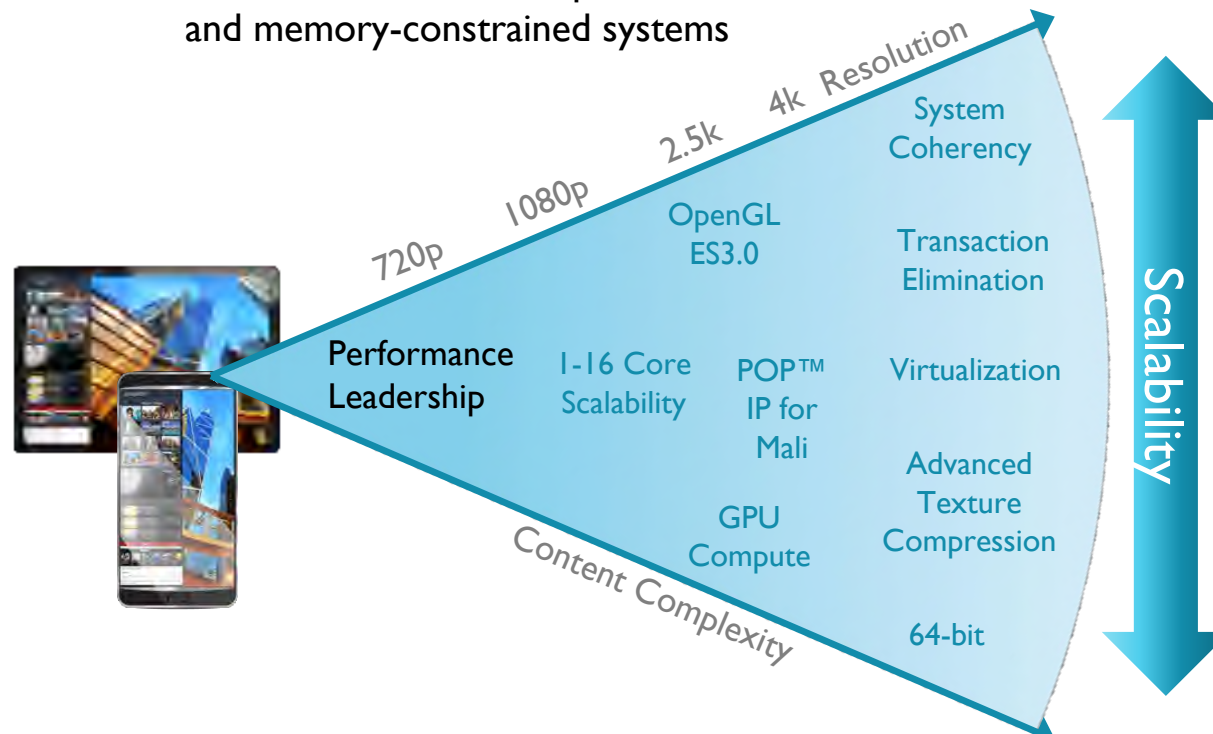
■ AArch64

- Introduces 64-bit support
- Faster data manipulation
- Improved support for virtualization
- Better support for multi-threaded software



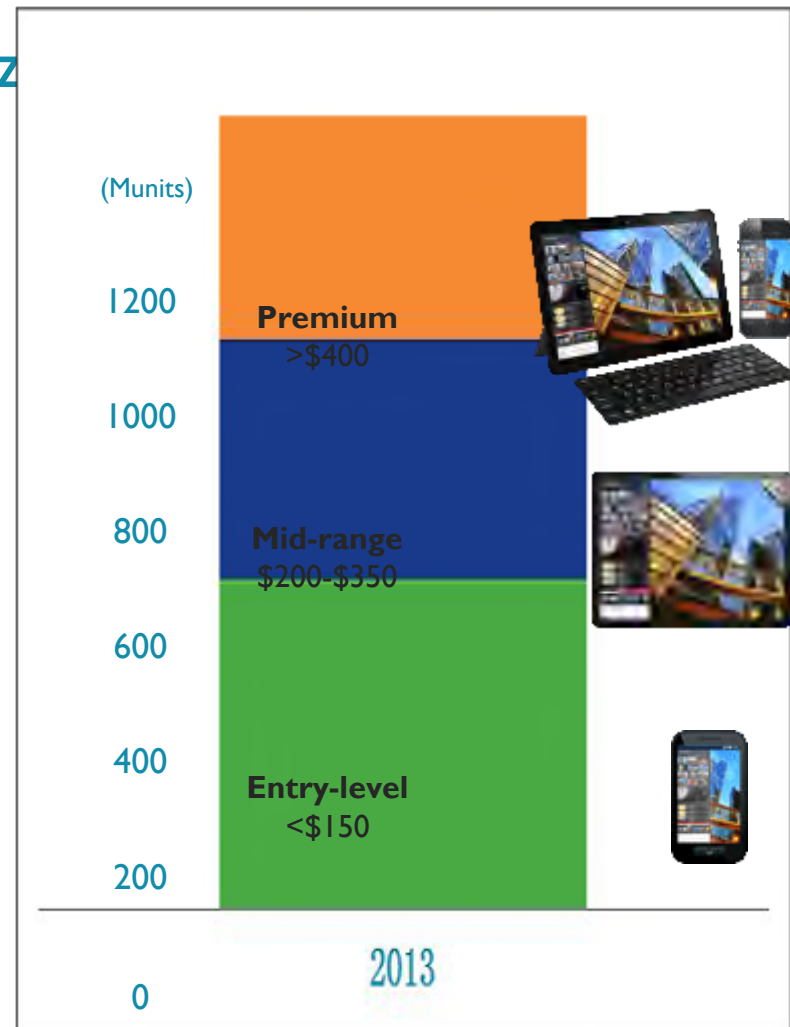
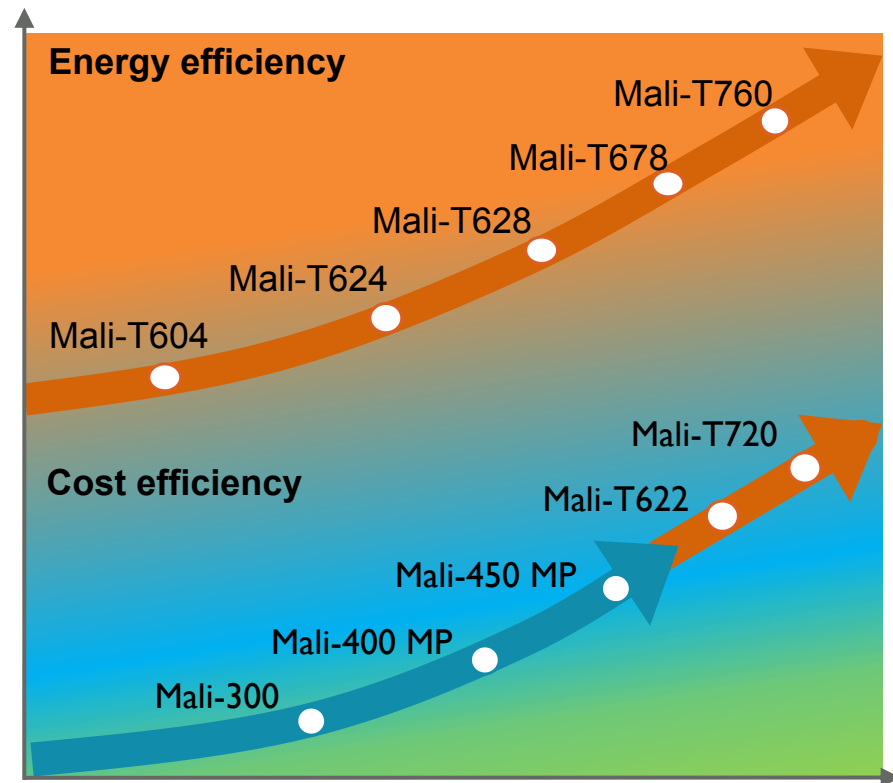
Bridging The Graphics Canyon

Mali GPUs bridge the gap between increasing content complexity and screen resolution on power and memory-constrained systems

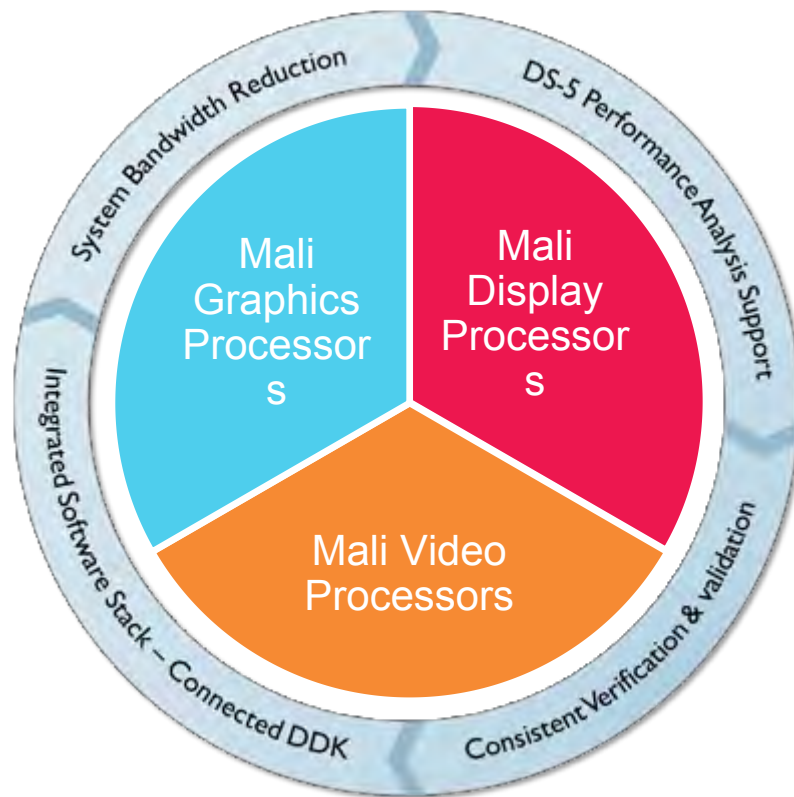


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The Mobile Revolution – One Size



ARM Announces New Suite of Integrated Media IP



Mali-T860 GPU

Best performance for lowest energy consumption

Mali-T830 GPU

Maximal performance from minimal silicon area

Mali-T820 GPU

Best performance from smallest possible silicon area

Mali-V550

codec, including HEVC, for both encode and decode on a single core

Mali-DP550

processor interface and support for 7 layer composition

TrustZone® in 3 Steps

1. Define secure hardware architecture

- Two separate domains: normal and secure
- Extends across system
 - Processor, display, keypad, memory, clock, radios

2. Implement in silicon system on chip (SoC)

- Enforcing secure/normal separation physically

3. Combine SoC with Trusted OS

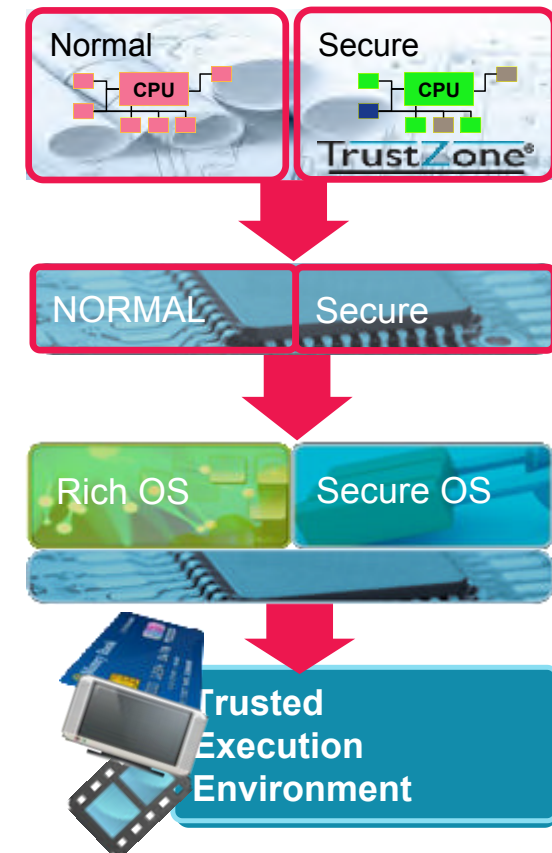
- Separate but connected to main operating system

Result:

A Trusted Execution Environment (TEE)

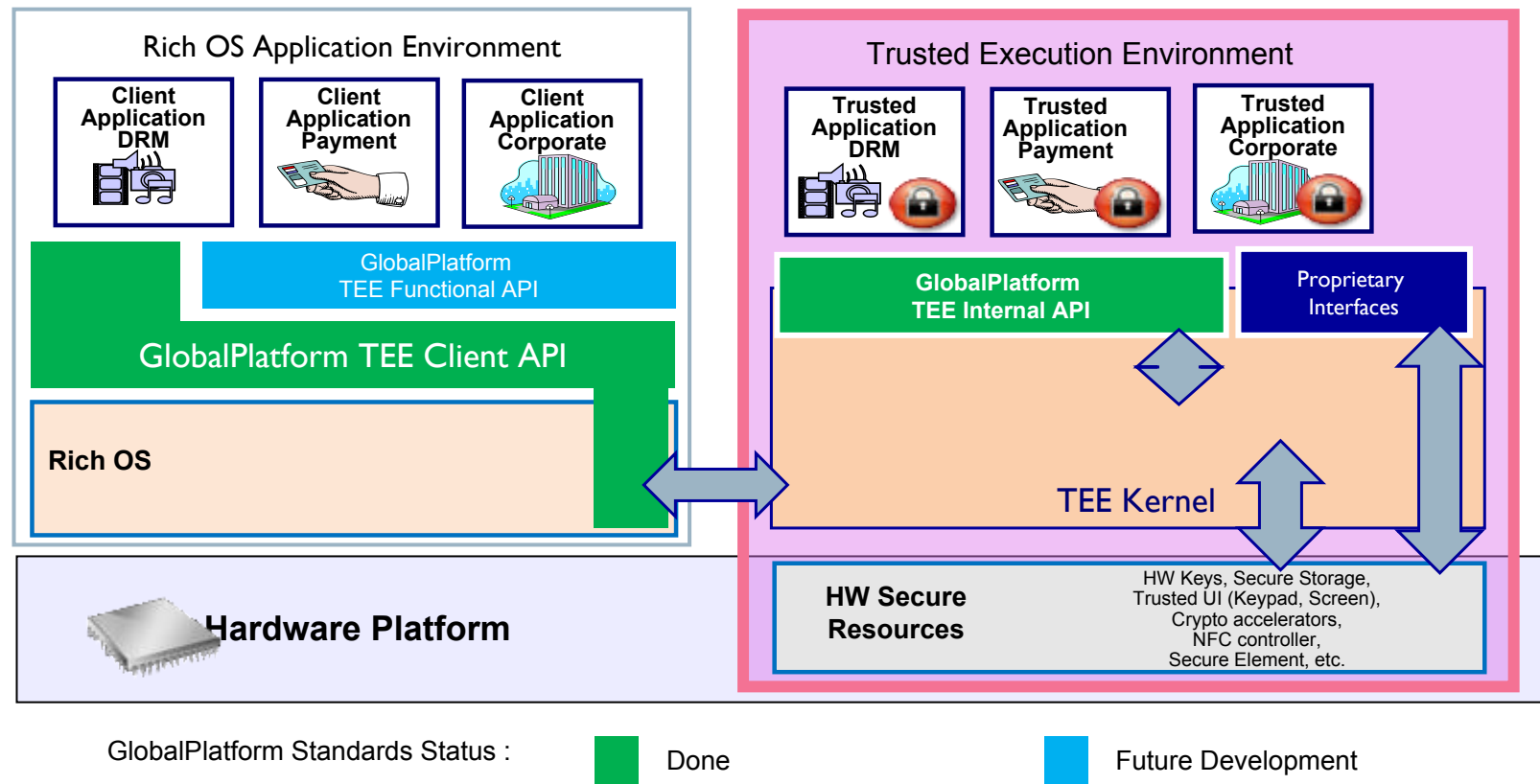
- Ready to develop and deploy trusted services

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GlobalPlatform Defining TEE Standards

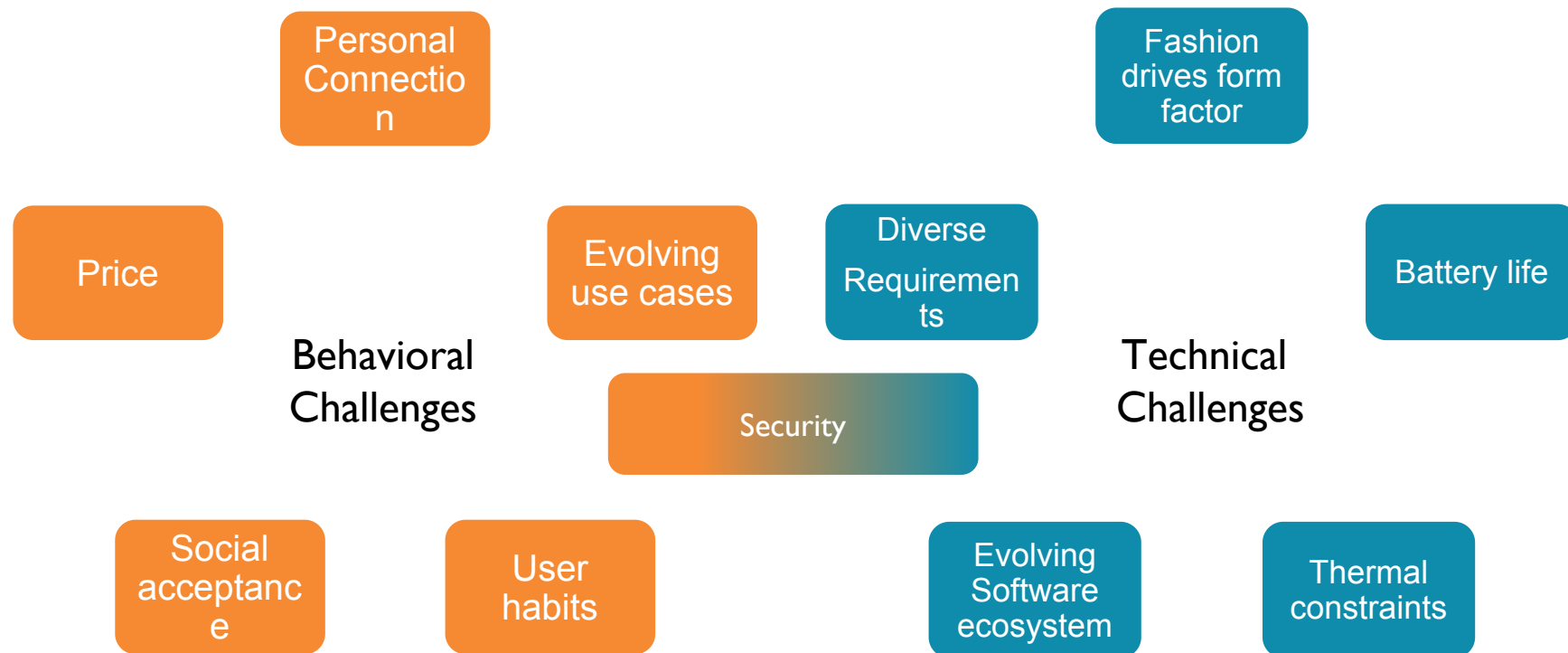


ARM® Technology Driving Innovation in the Wearable Market



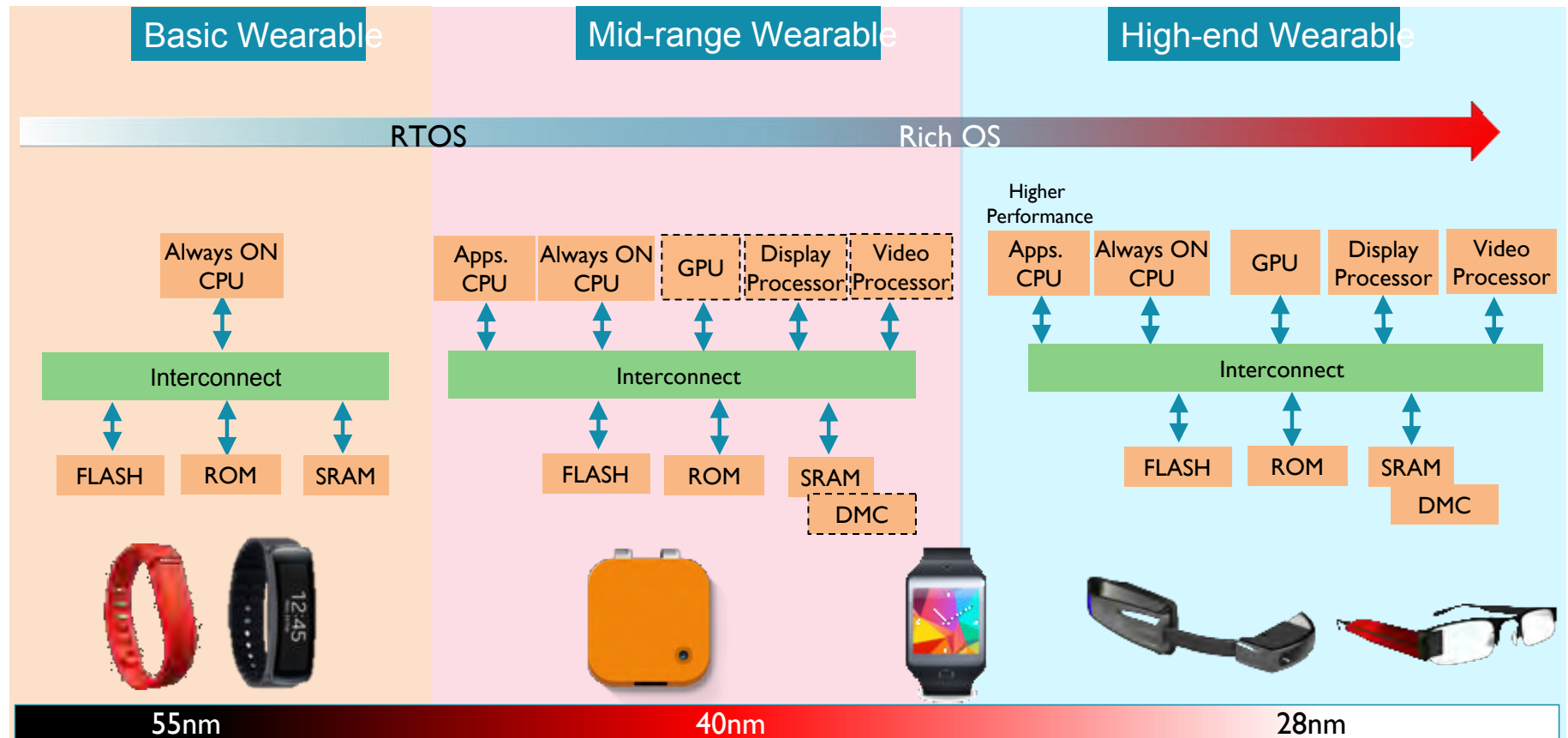
Wearables - An Extremely Diverse Market

Challenges in Wearables Market



Use cases still evolving for wearable devices

Wearable Systems Architecture



Continued Rapid Change

HSPA+ > LTE > LTE+

40 > 28 > 20 > 16nm

802.11 > .11n > .11ac > .11ad

LPDDR2 > LPDDR3 > TSV

OpenGL ES2.0 > 3.0 > GPU Compute

SMP > big.LITTLE > System Coherency

big.LITTLE and 64-bit: Delivering performance and efficiency in new process

Mali:
Market leading GPU efficiency & GPGPU capabilities

TrustZone:
Security becoming a base line feature

Cortex-R:
Delivering the real-time performance and power for LTE+ and 802.11ac

POPs
Best in class libraries for leading edge processes, delivering optimised power & performance



Summary-Key Mobile Trends

- Hyper segmentation in smartphones and tablets
 - Price points range from \$20 to \$600+
- ARMv8 with 64-bit support will enable higher memory capacities
 - 4GB at high end, 1GB at lower price points
- High-end features driving bandwidth
 - 4K screen support
 - 4K video support
 - Rapid increase in GPU and CPU performance
- LTE/64bits/Security
- Wearables presents new opportunities and challenges