ARM®

Low-Power Leadership

# ARM for Telecom and Server Infrastructure Applications

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ARM

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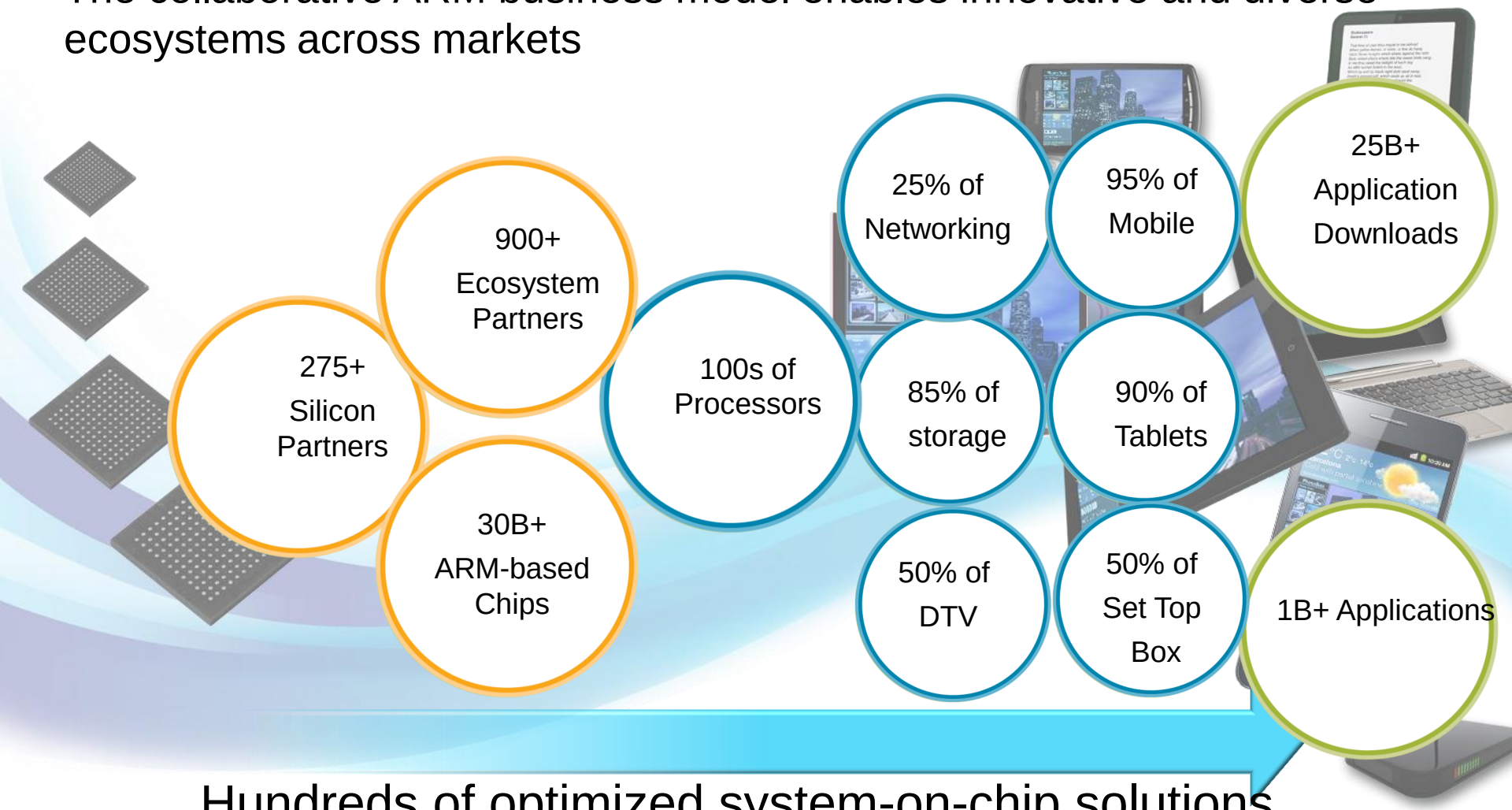
# Where Innovation Begins

The collaborative ARM business model enables innovative and diverse ecosystems across markets




Hundreds of optimized system-on-chip solutions

# ARM Strength in Partnership

Most vibrant ecosystem

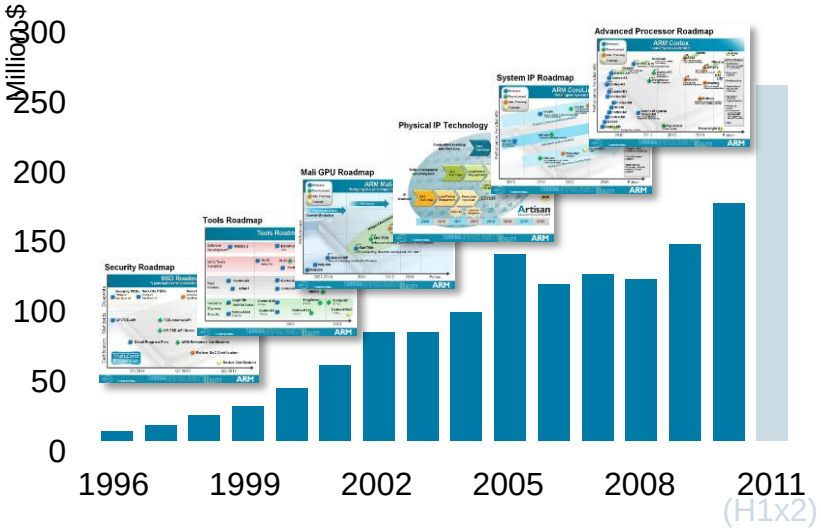
True multi-vendor sourcing strategy

Joint Investment for success

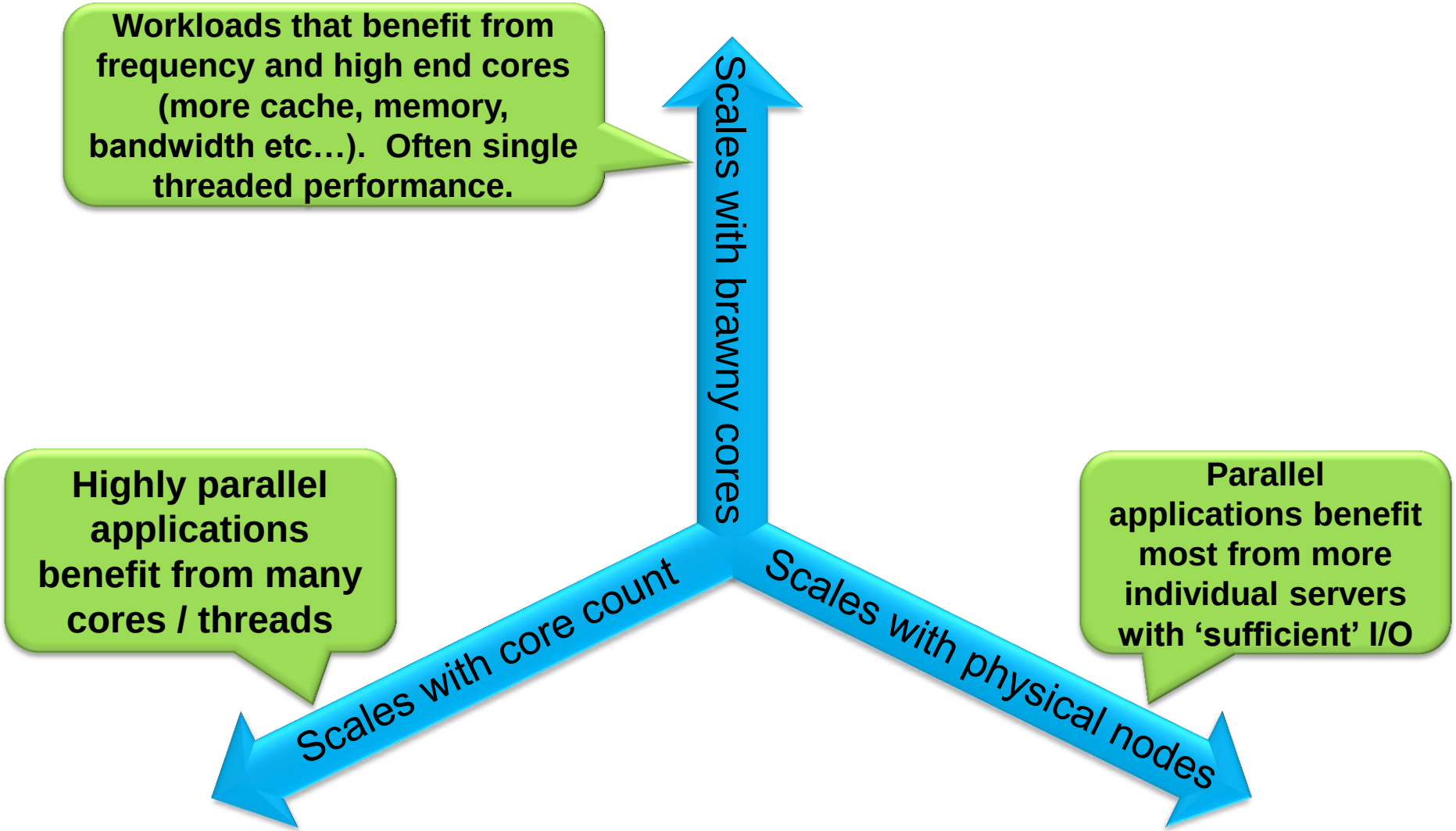
CPU/GPU – ARM

Application Expertise – Partners

Leverage Software Investment across markets

# Server SoC's – One Size Doesn't Fit All



# Server SoC's – One Size Doesn't Fit All

Workloads that benefit from frequency and high end cores (more cache, memory, bandwidth etc…). Often single threaded performance.

Scales with brawny cores

ARMv8 Architecture

Cortex-A15

Cortex-A9

Highly parallel applications benefit from many cores / threads

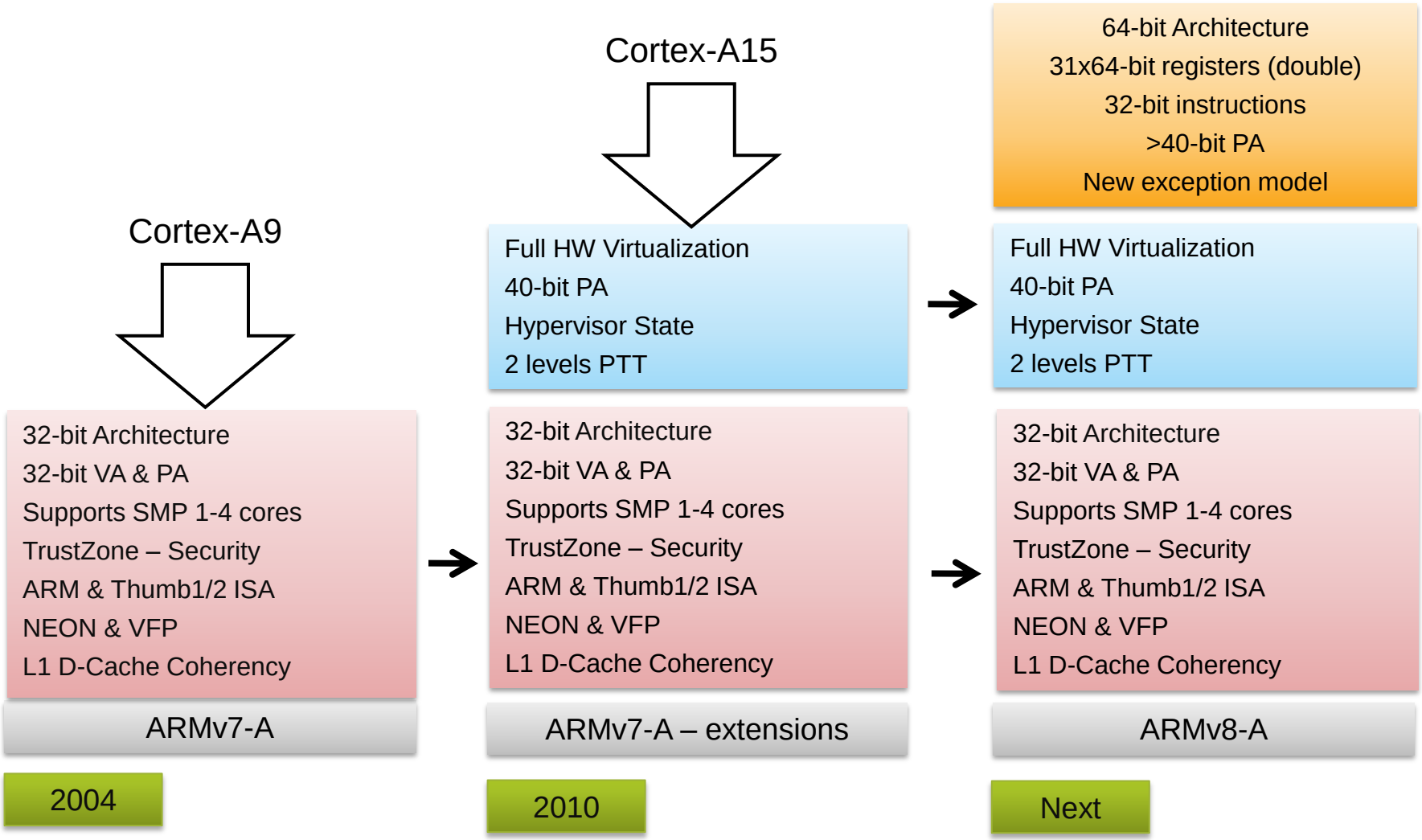
Scales with core count

Scales with physical nodes

CCI-400

Next Generation Fabric

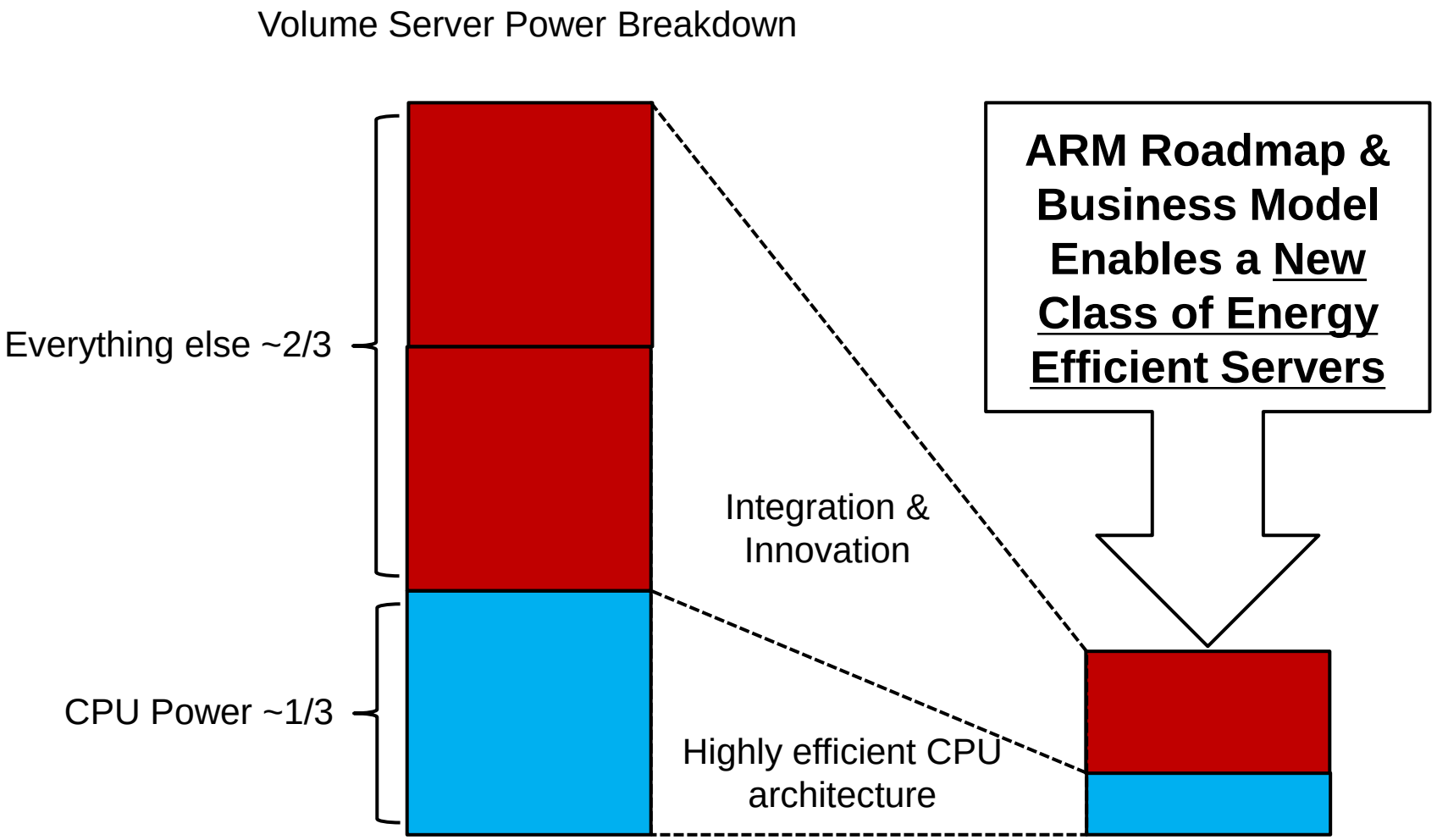
# Architecture: Progression Details



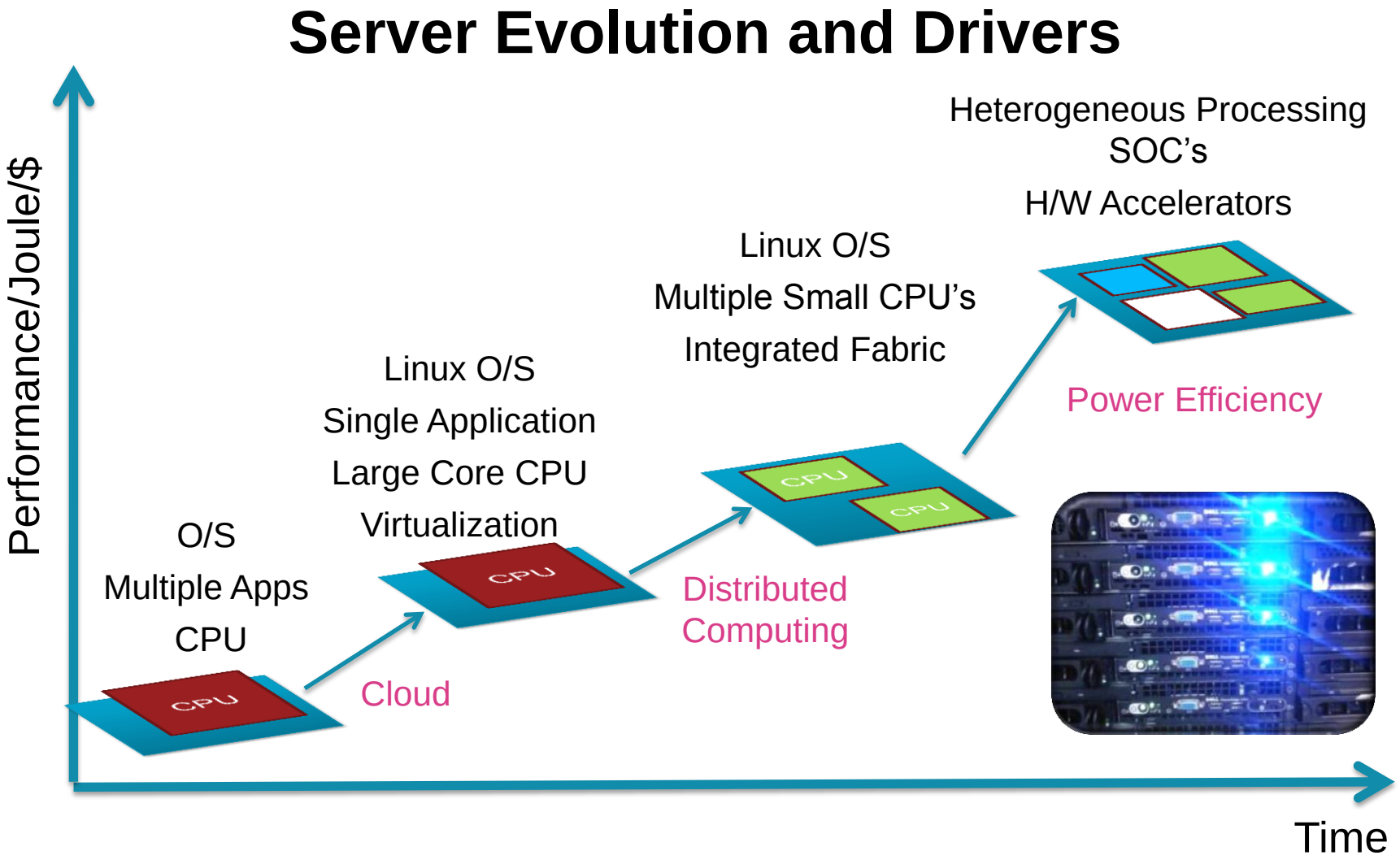
# Why ARM Servers and Why Now?

| Contributing Factor | Trend in Data Center Arena |
|---|---|
| Economic & environmental motivation to switch from traditional approaches |  |
| Modest barrier to entry for new solutions – prevalence of open source in scale out deployments | Eucalyptus, php, MEMCACHED, JAVA, openstack, hadoop, MySQL, Apache HTTP Server |
| Opportunity for innovation | Diversification of server workloads mean one size does not fit all |

# Opportunity: Re-architect Efficient Servers



# Servers Will Mimic Mobile SOC Evolution



# ARM Server Market Will Grow Over Time

Web Tier servers are a $14-$16 billion dollar market.

The Web Tier of Internet data centers account for $6-$8 billion

## Identified Target Workloads

Web Serving

Search

Scalable Cloud

Traditional Database

Social Media

Distributed Database

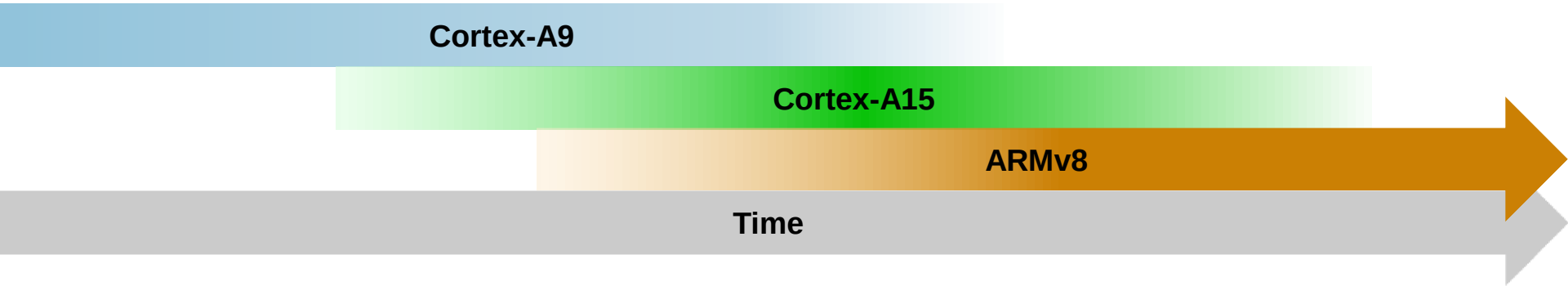
Compute

IT Infrastructure

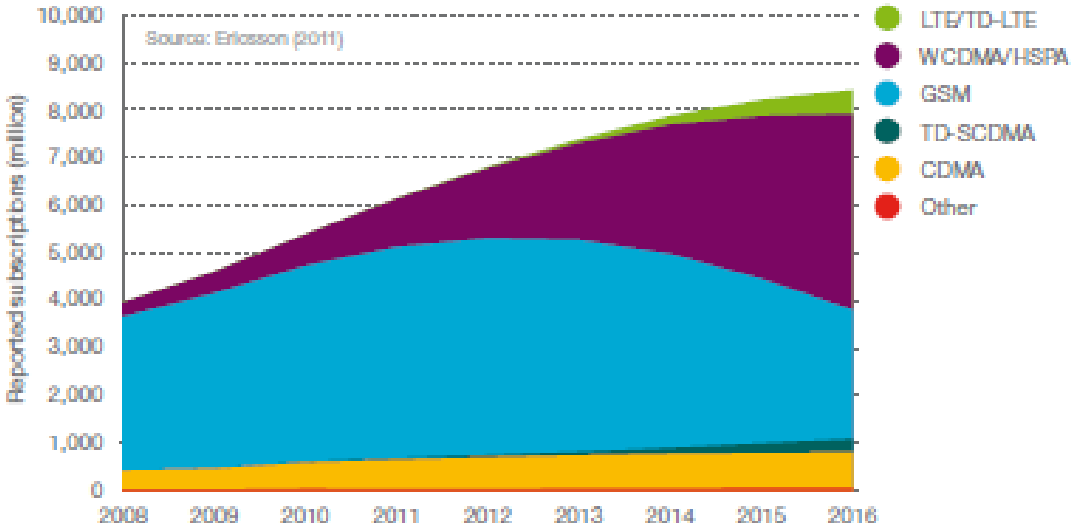
Online Gaming

Business Logic

Offline Analytics



# RAN Evolution




Network evolution challenges

- LTE topology: IP backhaul & flatter net
- Multiple RATs with intelligent antennas
- Higher frequencies
- Better QoS through local services
- Power consumption

Trend: large & small cells in heterogeneous networks

- Benefit: Increased QoE with better edge-of-cell capacity
- Proposition: scaleable C-progammable power efficient HW & SW BST platforms

Trend: Cloud RAN (C-RAN)

- Benefit: Centralised macro BST with fibre link to intelligent antennas
- Proposition: power efficient server, signalling and control macro BST platforms

Trend: RAN IT functionality

- Benefit: Reducing backhaul traffic & improving QoE through distributed caching and open-API cloud apps
- Proposition: energy efficient server platforms

# Summary: ARM Advantages for Intelligent Networks