BOSTON, MA
JUNE 23-26, 2015

Developing RHEL for 64-bit ARM: Platform standardization for customer success

Yan Fisher – Senior Principal Product Marketing Manager, Red Hat, Inc.
Jon Masters – Chief ARM Architect, Red Hat, Inc.
June 24, 2015

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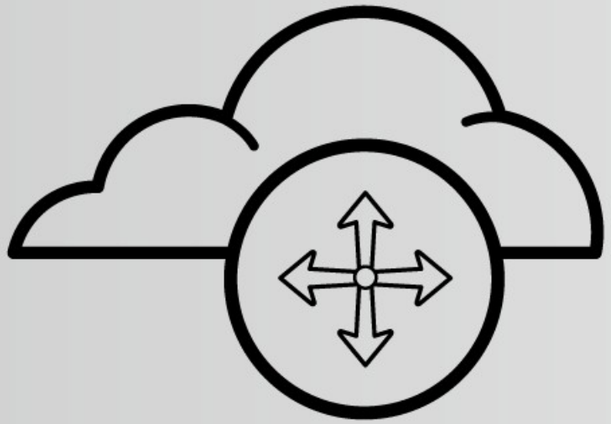
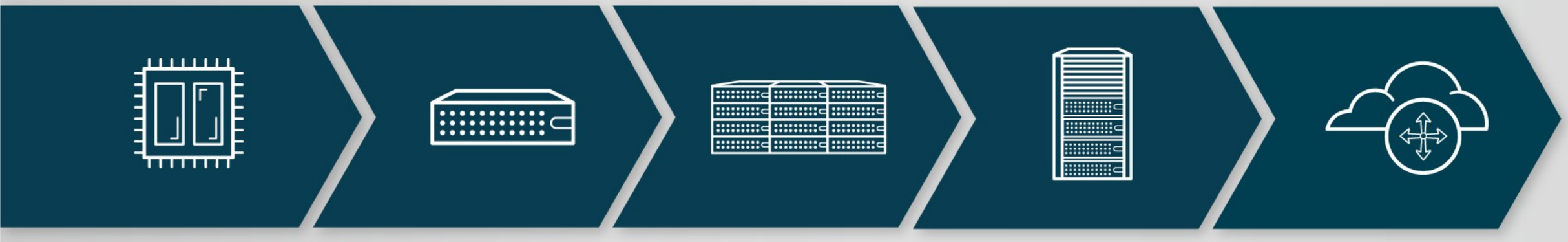
HYPERSCALE COMPUTING



ORDER OF MAGNITUDE HIGHER DENSITY

- Node is a single coherent system
- Thousands of nodes per rack, fail-in-place approach
- Support for multiple architectures (x86, ARM, etc.)
- Robust orchestration mechanisms



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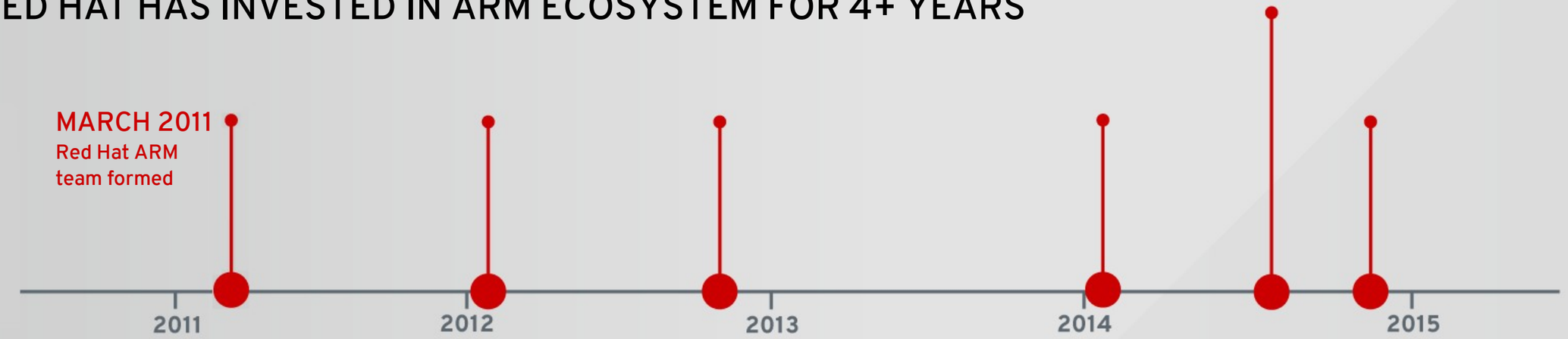
MAJOR MILESTONES

RED HAT HAS INVESTED IN ARM ECOSYSTEM FOR 4+ YEARS



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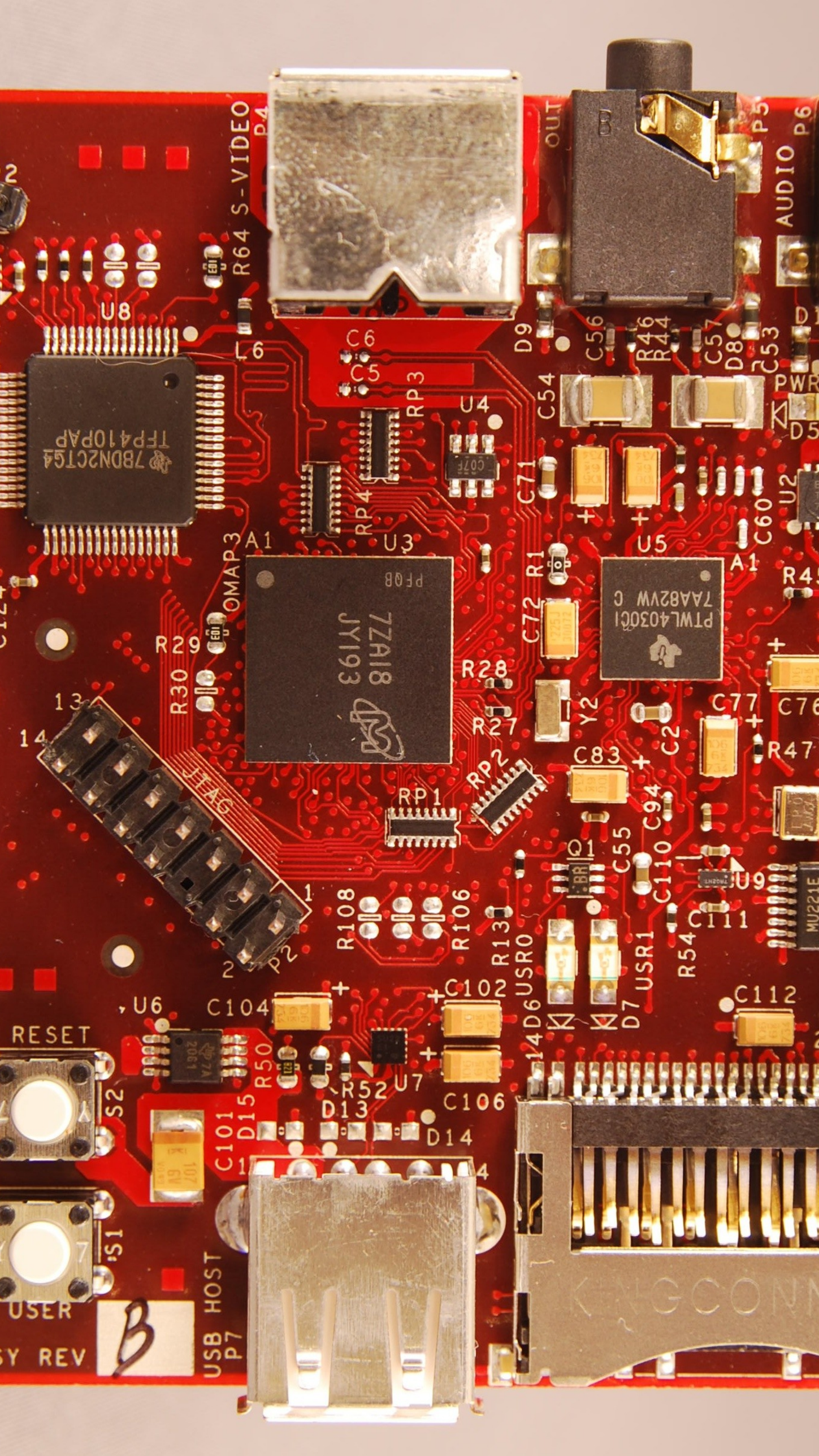

S-VIDEO
P4
R64
U8
L6
C6
C5
RP3
U4
RP4
U3
A1
OMAP3
R29
R30
7ZA18
JY193
PFQB
R28
R27
RP2
RP1
JTAG
13
14
1
2
P2
R108
R106
R13
USR0
USR1
D6
D7
C102
C104
U6
RESET
R50
R52
U7
C106
D13
D14
D15
C101
S2
S1
USER
SY REV
USB HOST
P7
OUT
P5
P6
AUDIO
D9
C56
R46
R44
C57
D8
C53
C54
PWR
D5
C71
U2
C60
U5
A1
R1
C72
PTWL4030C1
7AA82VW C
Y2
C2
C77
C76
R47
C83
C94
Q1
C55
C110
U9
C111
R54
C112

The Yosemite Project

MAJOR MILESTONES

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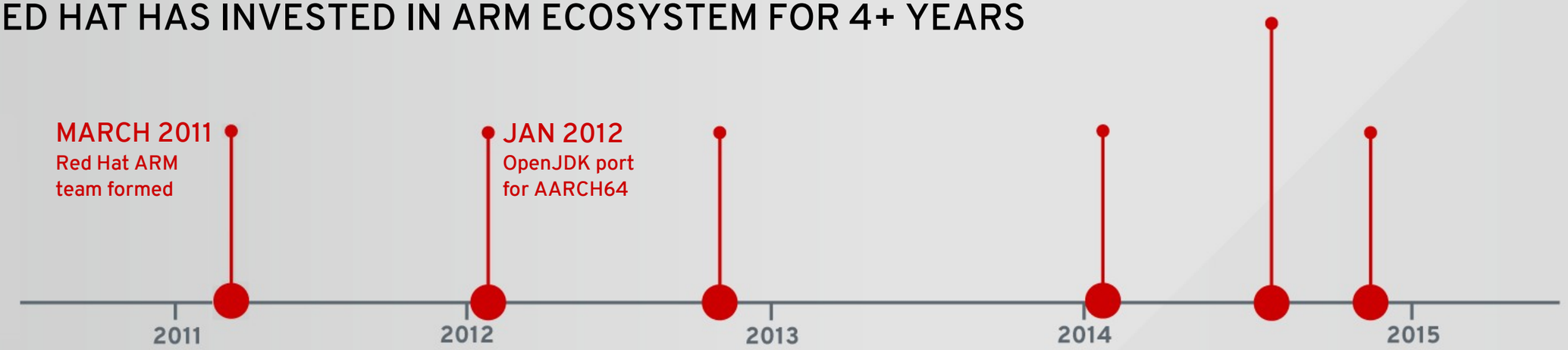

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RED HAT HAS INVESTED IN ARM ECOSYSTEM FOR 4+ YEARS

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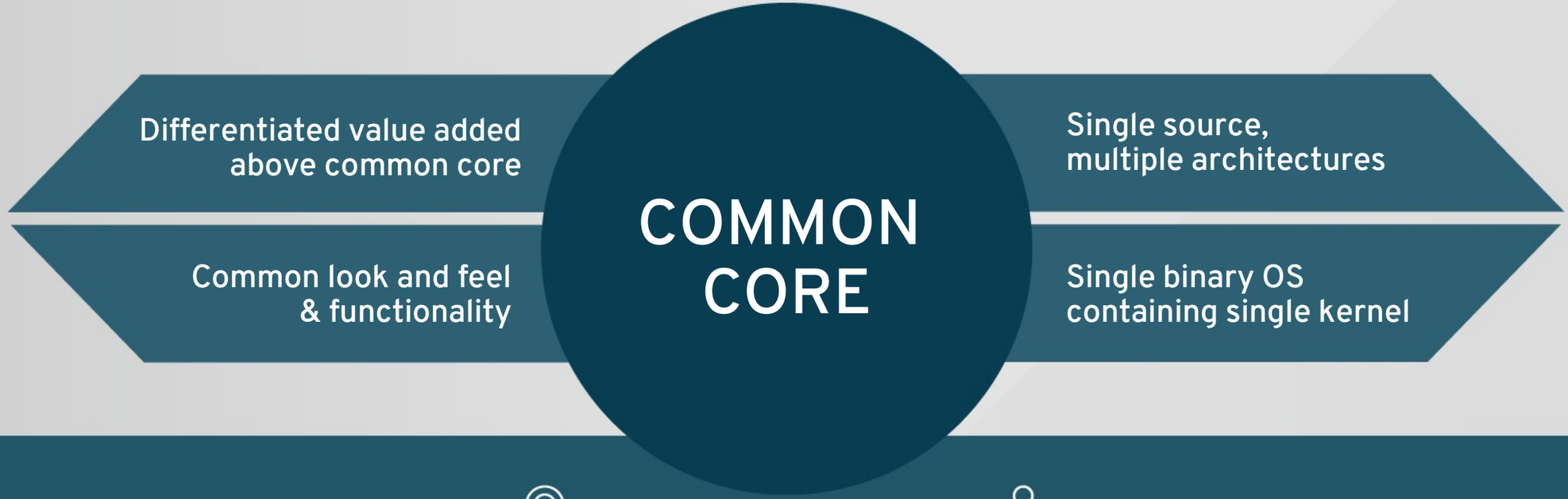
2012 ARM TechCon
Join the community defining the future
Linaro
The Architecture for the Digital World
ARM
UBM
Electronics

64-BIT ARM SERVER OS DESIGN PRINCIPLES



OPENNESS

SERVER BASE SYSTEM ARCHITECTURE (SBSA)

STANDARDIZATION

SERVER BASE BOOT REQUIREMENTS (SBBR)

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MAJOR MILESTONES

RED HAT HAS INVESTED IN ARM ECOSYSTEM FOR 4+ YEARS

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MAJOR MILESTONES

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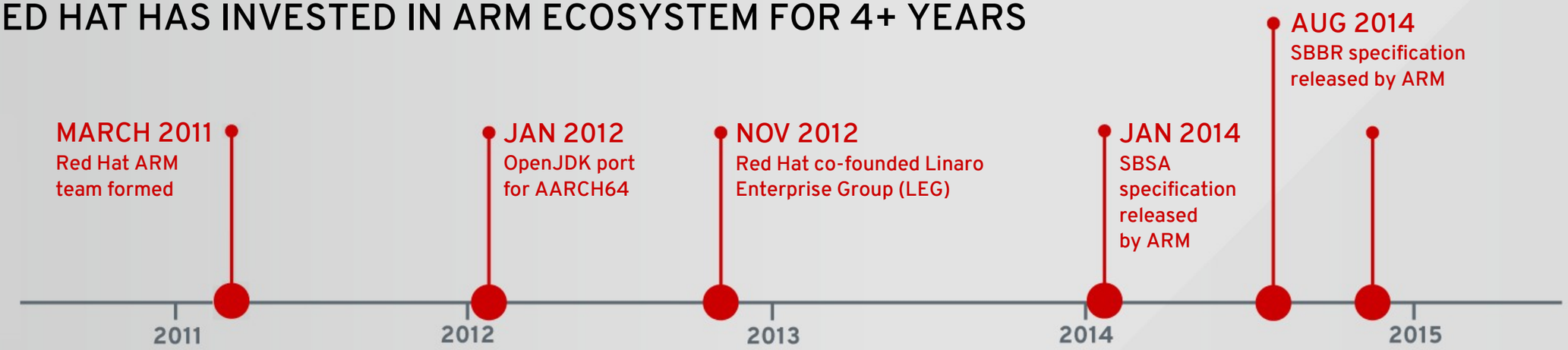

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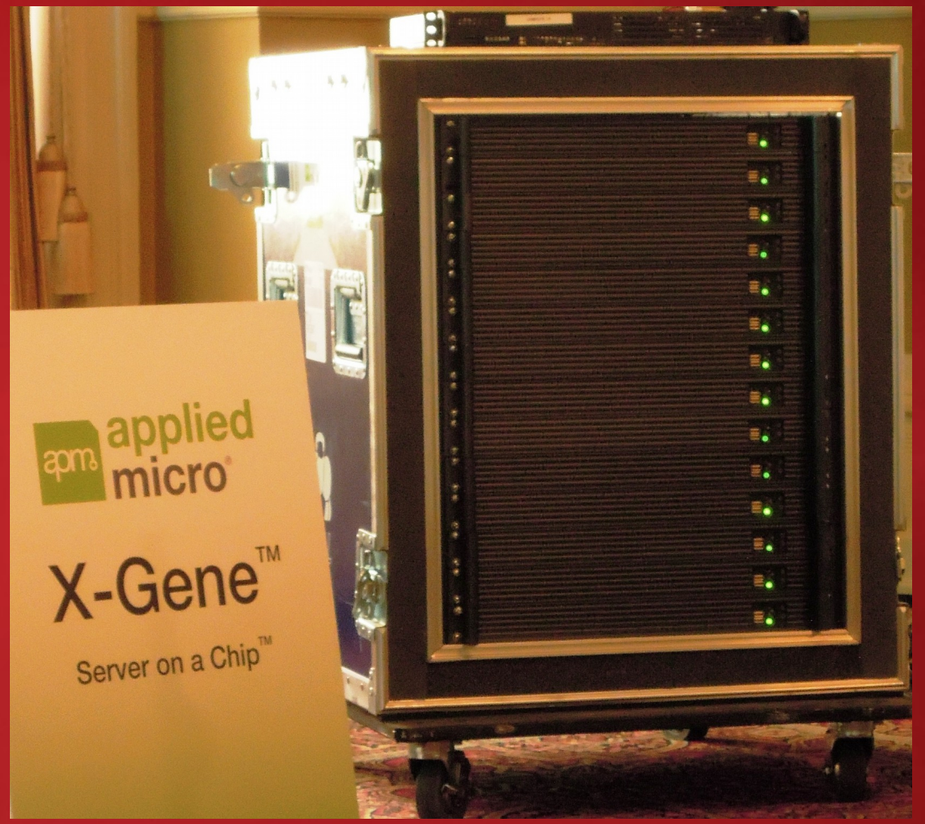
applied micro
X-Gene™
Server on a Chip™

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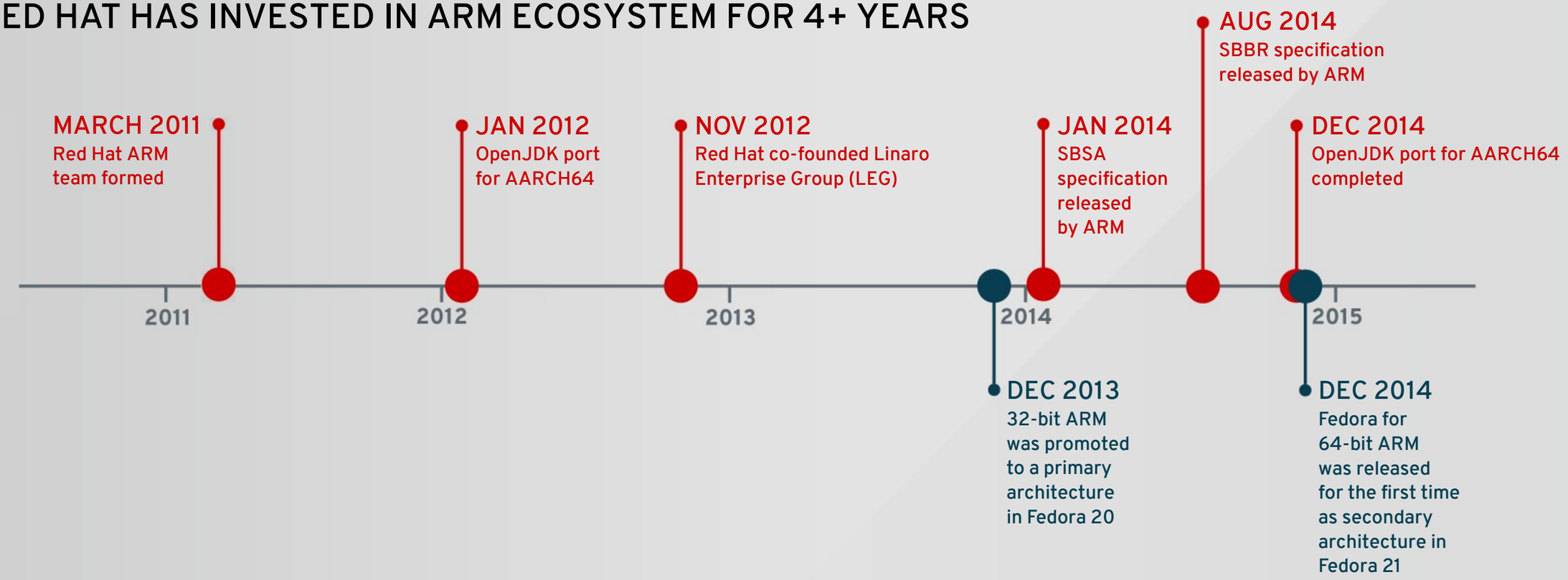
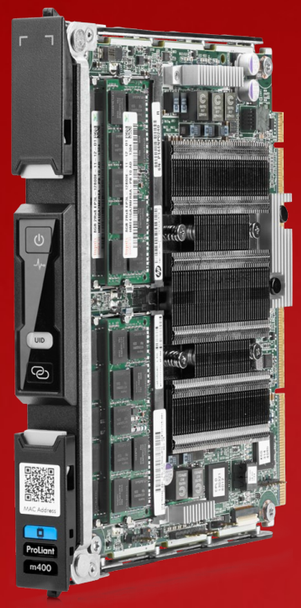
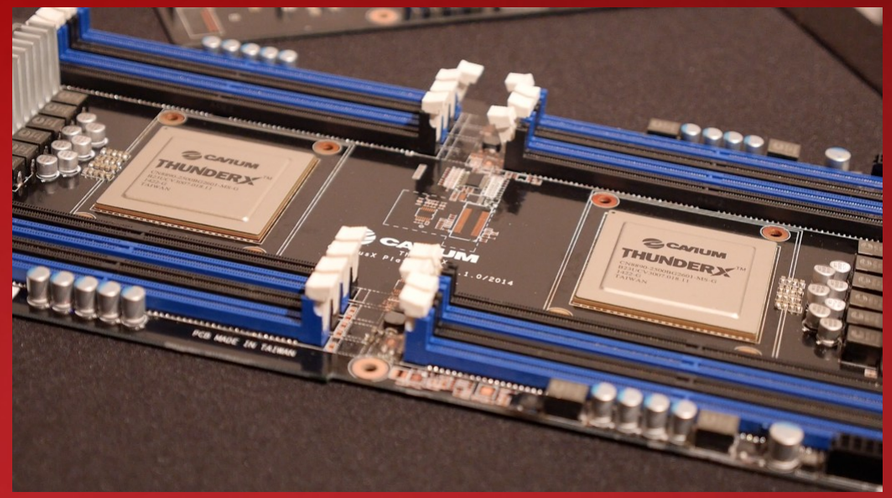


PARTICIPATE
Upstream projects

INTEGRATE
Community platforms

redhat.


ProLiant
m400


CAVIUM
THUNDERX
CAVIUM
THUNDERX

AMD
OPTERON
A

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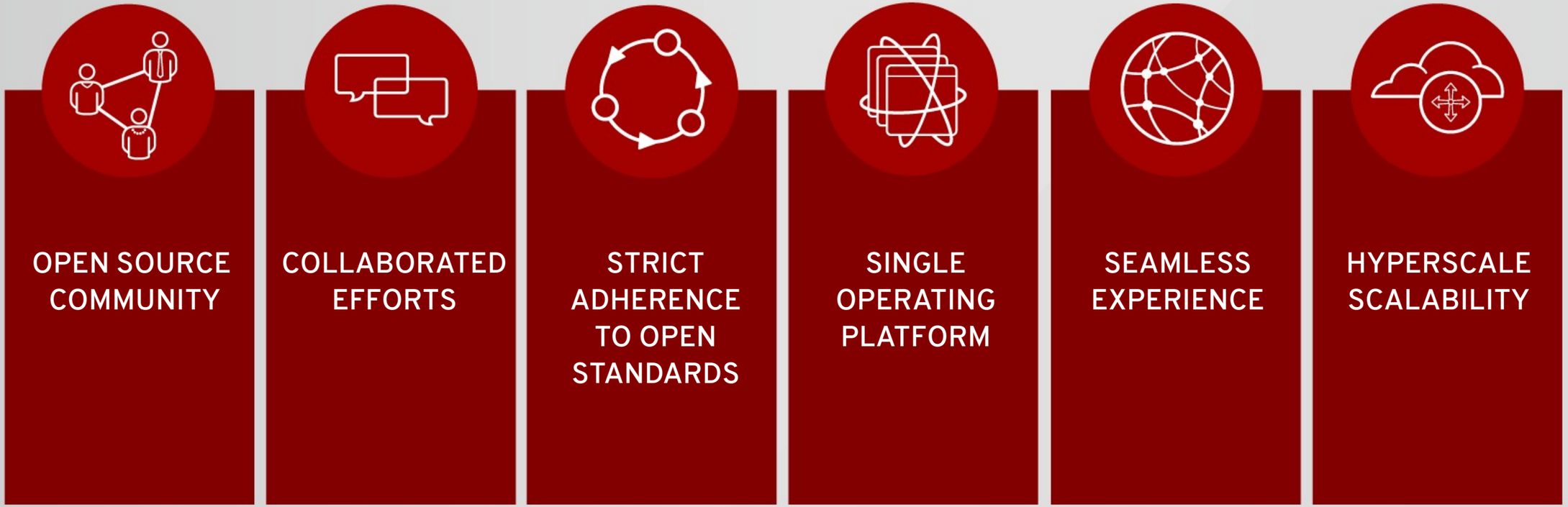
#1 OPEN SOURCE LEADER



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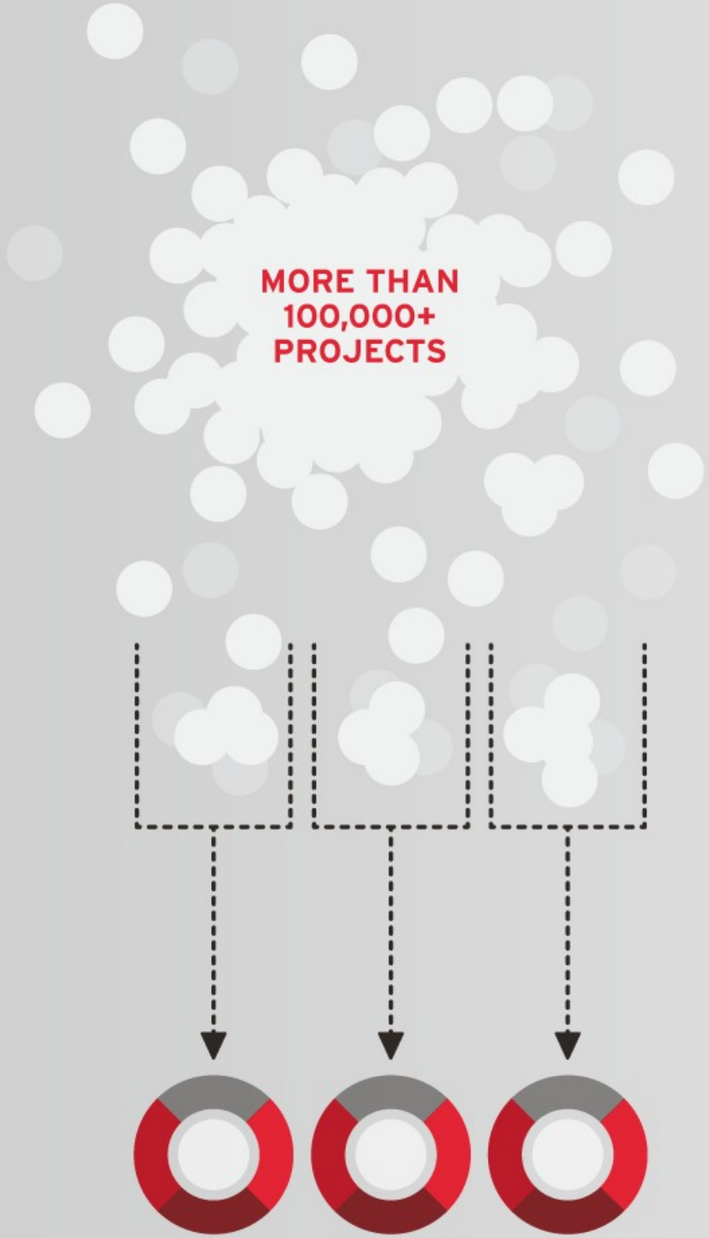

RED HAT PRODUCT PROCESS

PARTICIPATE

We participate in and create community-powered upstream projects.

INTEGRATE

We integrate upstream projects, fostering open community platforms.

STABILIZE

We commercialize these platforms together with a rich ecosystem of services and certifications.

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EVOLVING 64-BIT ARM SERVER ECOSYSTEM

ONGOING COLLABORATION WITH PARTNERS ENABLES US TO:

- Evaluate technical features
- Develop feedback-based targeted use cases
- Fulfill the needs of participants
- Address the emerging market

DISCUSSION WITH KEY CUSTOMERS HELPS US TO:

- Conduct market demand assessments
- Tailor any future offering

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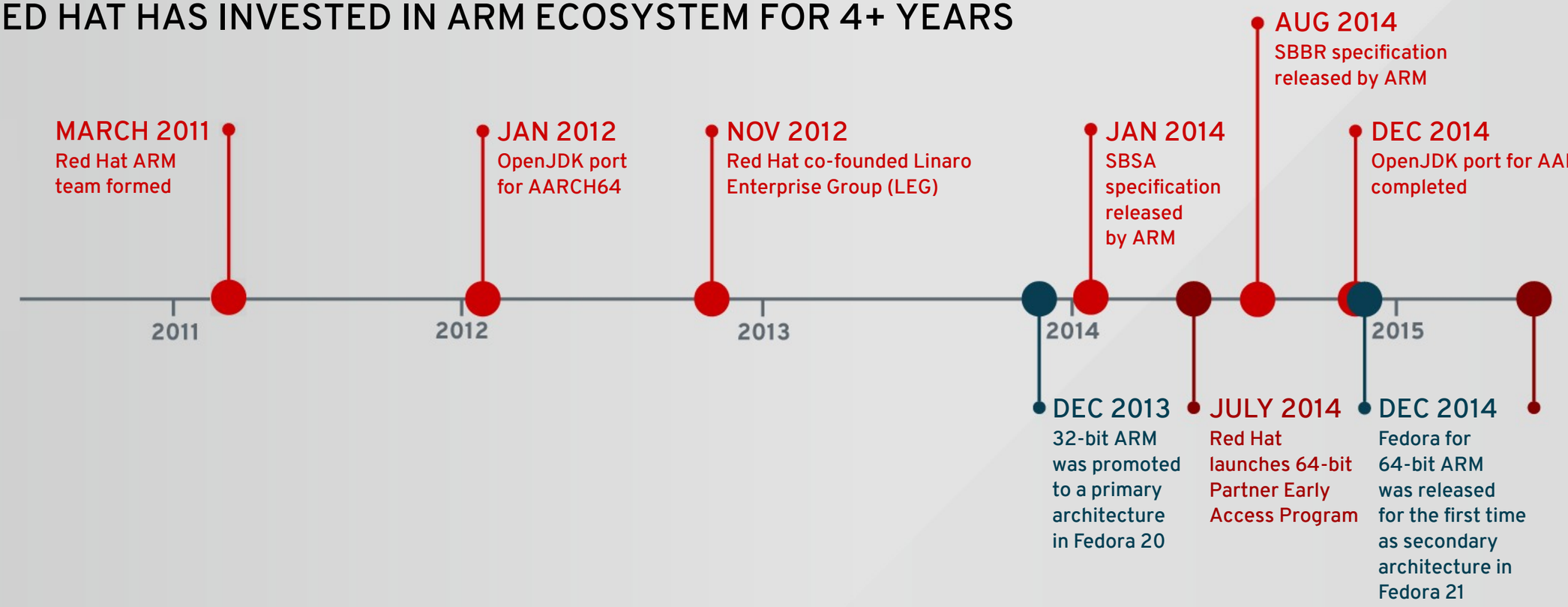

PARTICIPATE
Upstream projects

INTEGRATE
Community platforms

STABILIZE
Products, platforms, and solutions

redhat.

ARM PARTNER EARLY ACCESS PROGRAM

ENABLE 64-BIT ARMV8-A ARCHITECTURE FOR

- Independent hardware vendors (IHVs)
- Silicon vendors
- Original equipment manufacturers (OEMs)
- Original design manufacturers (ODMs)
- Independent software vendors (ISVs)

STABILIZE

Supported projects, platforms, and solutions

EARLY STAGE DEVELOPMENT

SUPPORTS MULTIPLE HARDWARE SOLUTIONS

ADHERES TO COMMON INDUSTRY STANDARDS

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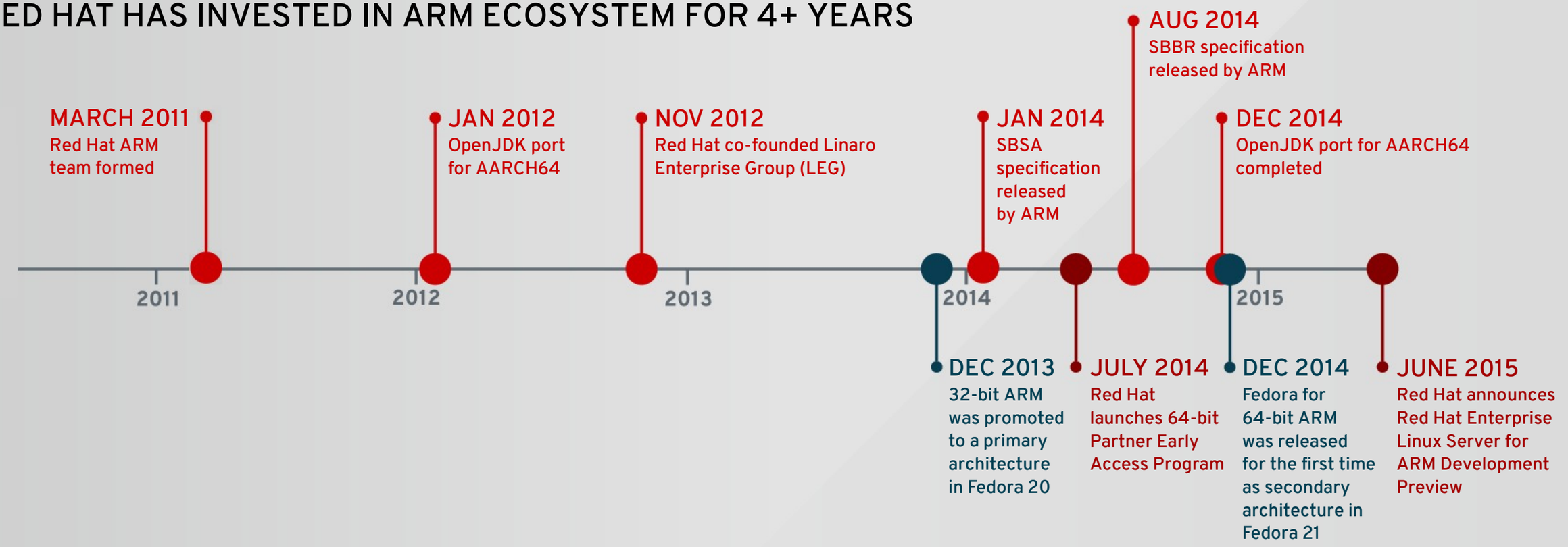
RED HAT ARM PARTNER EARLY ACCESS PROGRAM

Joined by 40+ ARM ecosystem leaders

MAJOR MILESTONES

RED HAT HAS INVESTED IN ARM ECOSYSTEM FOR 4+ YEARS



PARTICIPATE
Upstream projects

INTEGRATE
Community platforms

STABILIZE
Products, platforms, and solutions

redhat.

RED HAT® ENTERPRISE LINUX®
SERVER FOR ARM
Development Preview

Enables existing/new customers to take advantage of 64-bit ARM architecture

Provides ability to standardize on Red Hat Enterprise Linux across multiple architectures

Extends Red Hat Enterprise Linux ecosystem of innovation on ARM

Builds upon Red Hat Enterprise Linux engineering, product, and brand

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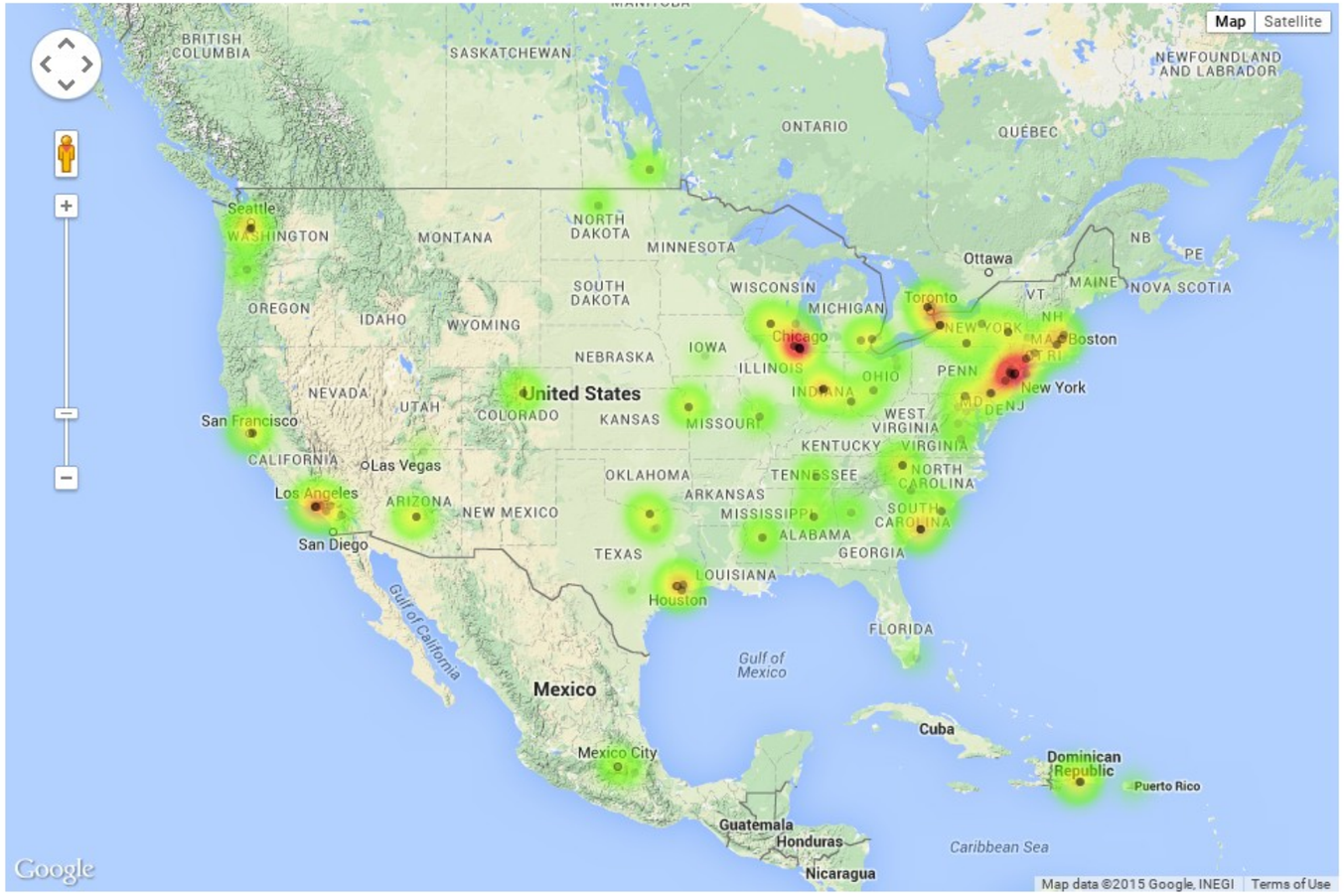
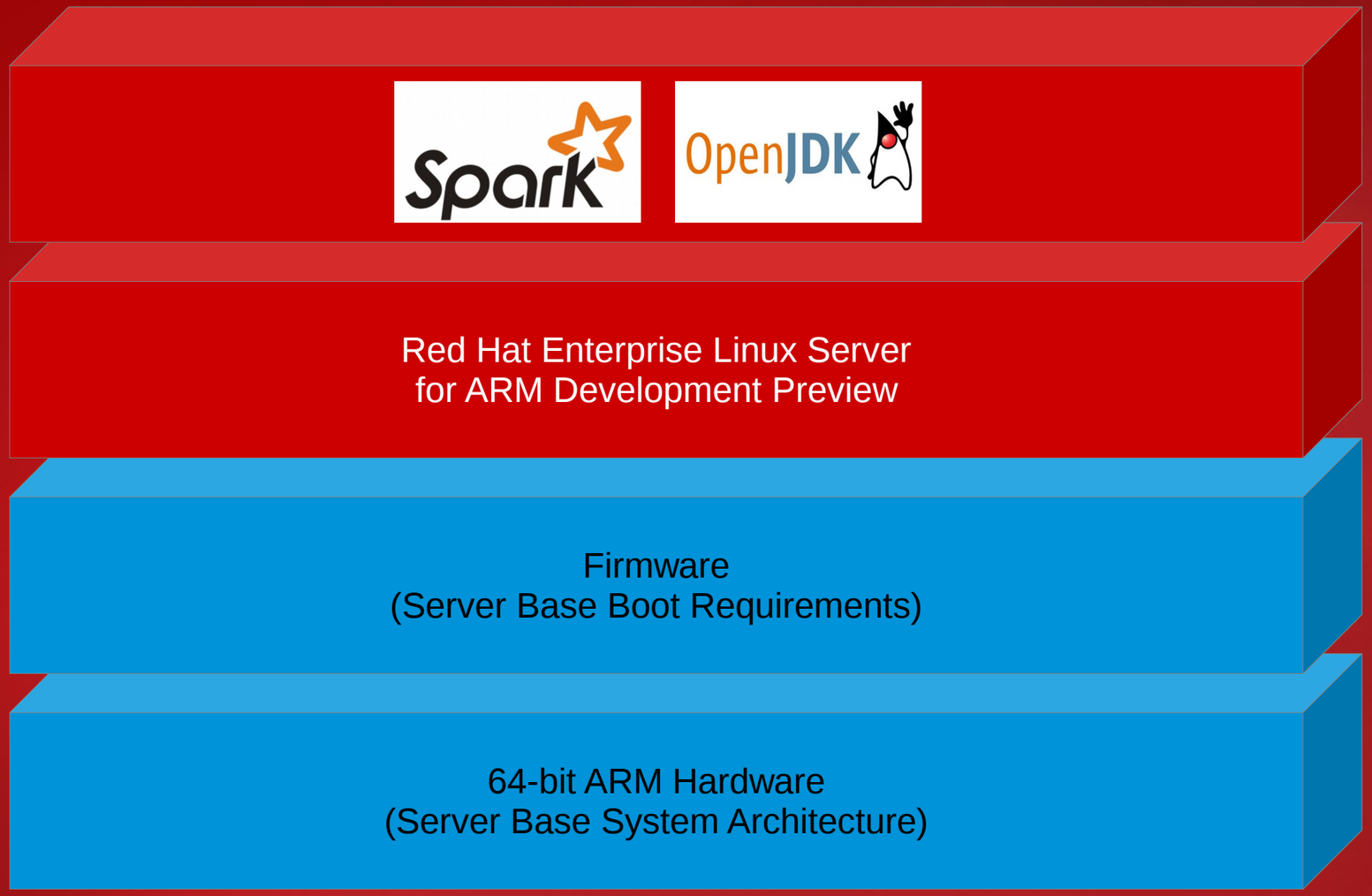
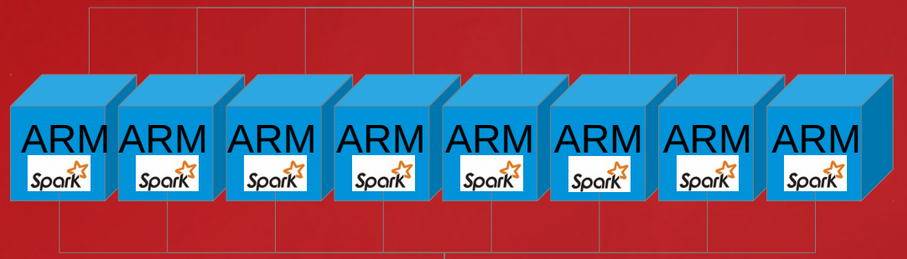
Apache Spark on 64-bit ARM Demo

Apache Spark is a popular emerging technology for real-time Big Data analytics. This demo uses a cluster of **HP**® **Moonshot ProLiant® m400** 64-bit **ARM**® Powered server cartridges (hosted within the HP Discovery Lab) – running **Red Hat**'s **ARM** Development Preview Operating System release – to perform live streaming analysis of public tweets. Each inbound tweet is filtered to find tweets containing associated geographic information, then currently trending hashtags in various geographic regions of the world are identified. The information is plotted on a navigable map:




Spark
OpenJDK
Red Hat Enterprise Linux Server
for ARM Development Preview
Firmware
(Server Base Boot Requirements)
64-bit ARM Hardware
(Server Base System Architecture)



Red Hat Enterprise Linux Server For ARM Development Preview

#coffee and #redhat identified as trending hashtags in Boston, MA

sparkonarm.com

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THANK YOU

LEARN. NETWORK.
EXPERIENCE OPEN SOURCE.

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