

The background of the image features a dark blue gradient on the left, transitioning into a large, vibrant, abstract shape on the right. This shape is composed of overlapping curved segments in shades of orange, pink, and purple, creating a dynamic, modern aesthetic.

AWS re:Invent

NOV. 27 – DEC. 1, 2023 | LAS VEGAS, NV

BIZ210-S

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Deploy new workloads efficiently without additional investments

Mike Thompson

Sr. Cloud Product Manager
AMD



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AGENDA

- **AMD Introduction**
 - Cloud processor portfolio & roadmap
 - Explosive growth in the data center
- **Why AMD in the AWS Cloud?**
 - AMD strengths in Amazon EC2
 - Why AMD? Do more with less
 - Leadership performance + efficiency = faster execution @ lower cost

AMD DATA CENTER PRODUCTS TODAY



World's fastest
data center CPU



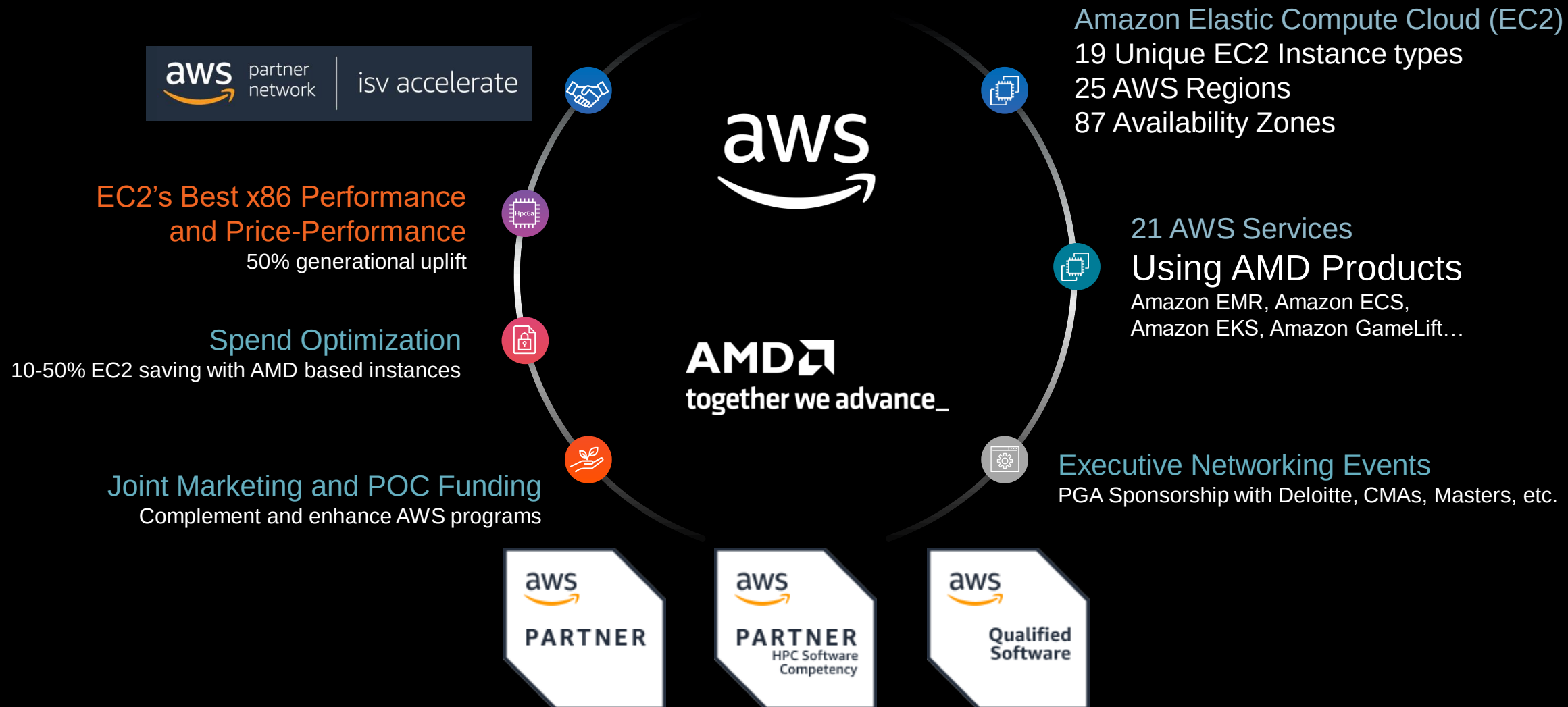
Transformative
energy efficiency



Silicon-powered
confidential
computing

Consistent Execution, Leadership Roadmap

AWS AND AMD PARTNERSHIP HIGHLIGHTS



7TH GEN AMAZON EC2 INSTANCE POWERED BY THE 4TH GEN AMD EPYC™ “GENOA” CLOUD PROCESSOR

“M7a instances are designed to deliver the best x86 performance and price performance within the Amazon EC2 general purpose family”¹

- AWS June announcement

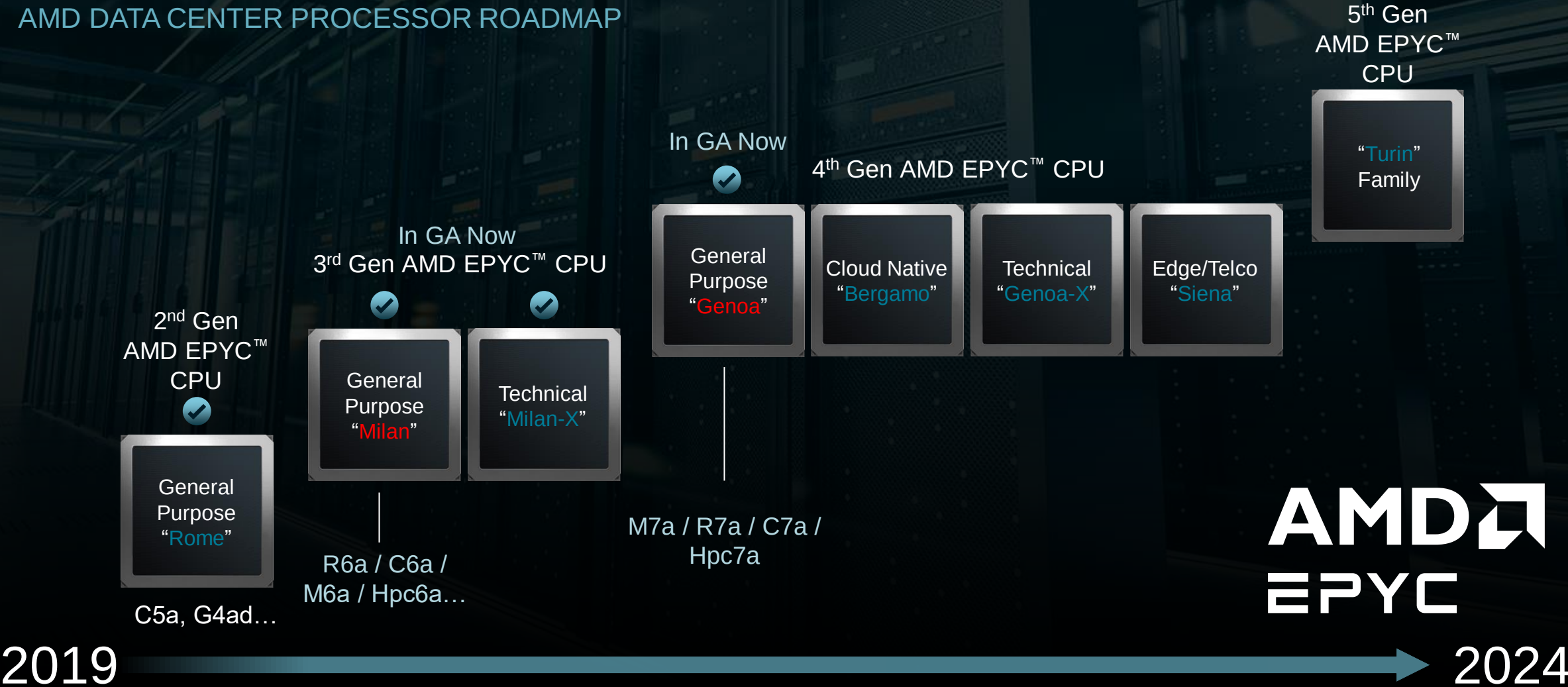
AMD

aws

M7a provides 50% performance uplift vs prior generation M6a (average)¹

SUSTAINED HIGH-PERFORMANCE LEADERSHIP

AMD DATA CENTER PROCESSOR ROADMAP

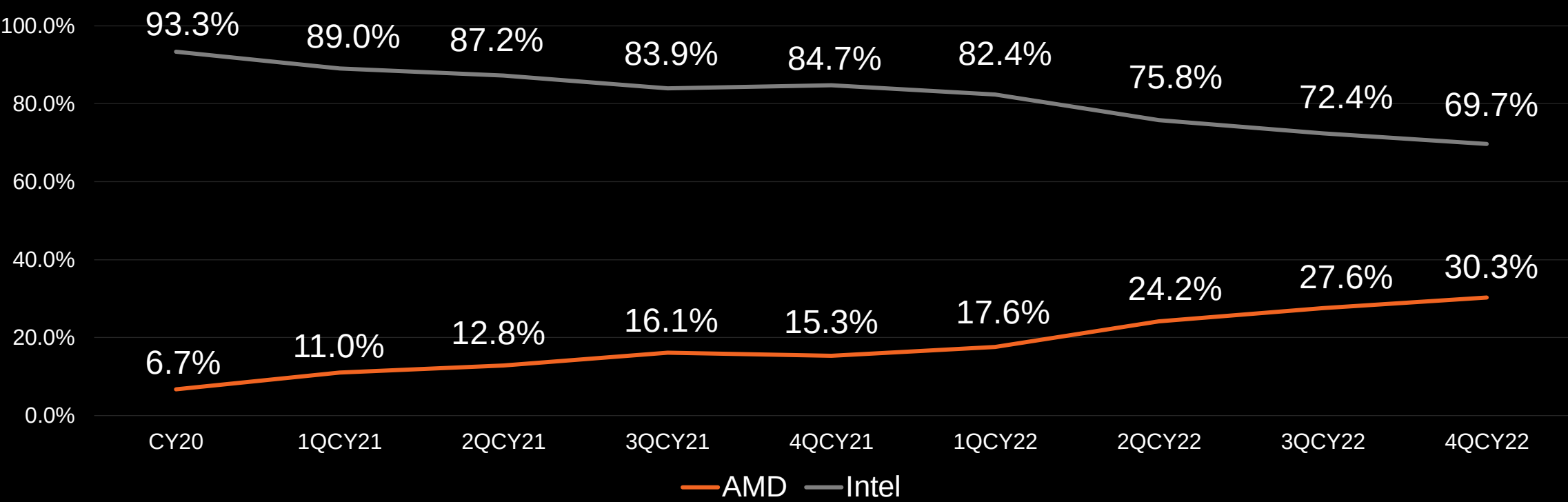


AMD'S EXPLOSIVE MARKET SHARE GROWTH IN DATA CENTER

Architecture and execution matters

Processor choice matters

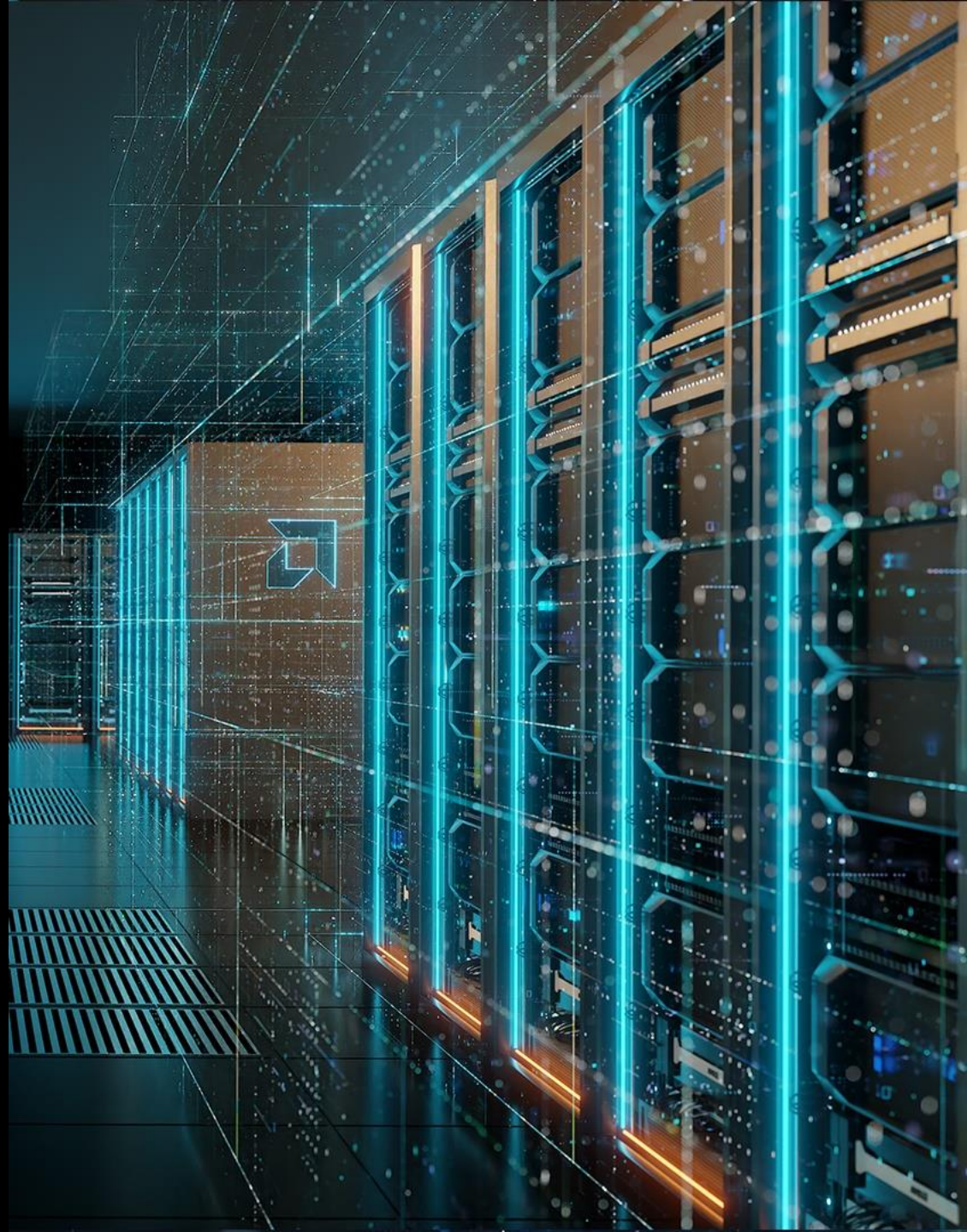
X86 DATA CENTER REVENUE SHARE



Source: Intel and AMD financial reports, strategy analytics (oct 2022)
<https://www.Hardwaretimes.com/amd-will-capture-more-than-30-of-the-server-cpu-market-in-2023-with-4th-gen-epyc-genoa-analysis/>



WHY AMD IN AWS?



AMD STRENGTHS IN AMAZON EC2



Performance

Up to 2x higher performance and faster time to solve using AMD EPYC™ processor-powered Amazon EC2 instances



Cost Efficiency

Deliver up to 10–50% lower cost² at same or better performance versus alternative instances



Sustainability

29% less power consumption and 29% lower greenhouse gas emissions³ versus comparable instances



Ease of Migration

Application and instance size compatibility – makes it easier to migrate x86 at reduced risk

¹ AMD EPYC 7763; Results as of 01/28/2021 using SPECrate 2017_int_base – <https://spec.org/cpu2017/results/res2020q2/cpu2017-20200525-22554.pdf>

² <https://aws.amazon.com/ec2/amd/>

³ See Endnote EN-1. Analysis based on AMD EPYC Bare Metal Server and Greenhouse Gas TCO Tool, v4.2, <https://www.amd.com/en/processors/epyc-bare-metal-tco-tool>

CPU CHOICE MATTERS

AMD EPYC™-POWERED INSTANCES BRING YOU:

PRICE-PERFORMANCE LEADERSHIP



Creates cost optimization options

- Faster run time at lower cost
- More compute at same cost
- Smaller footprint at same performance

BEST-IN-CLASS ENERGY EFFICIENCY



Sustainability-optimized hosting

- Lower operational costs
- Less GHG emissions
- 2.6x performance / watt**

ADVANCED SECURITY



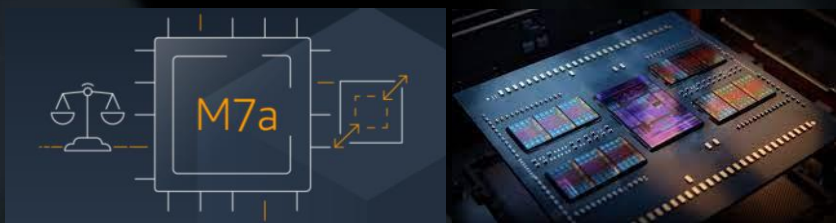
Silicon-powered confidential computing

- Protects data in use
- No proprietary API
- Pushbutton migration

Which AMD EPYC-powered instance is right for your app?

For performance and time-bound workloads

4th gen AMD EPYC “Genoa” CPUs



Run same job faster, smaller, cheaper

Up to **2.2x** higher performance

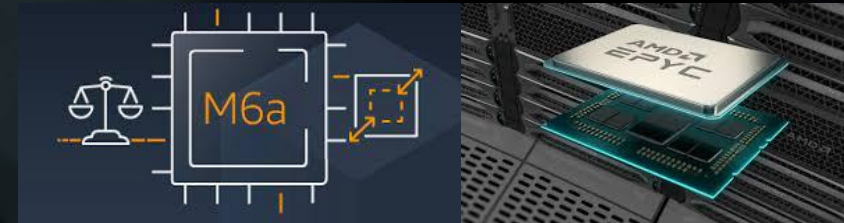
Up to **48%** lower EC2 spend

vs. M7i instances powered by 4th Gen Intel Xeon CPUs
Redis / Bench set + get, 2xl + 4xl

AMD
EPYC

For always-on & non-CPU-bound workloads

3rd gen AMD EPYC “Milan” CPUs



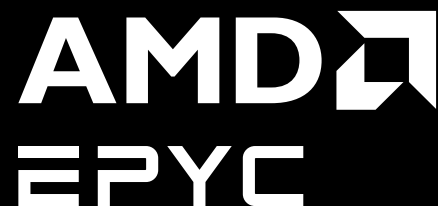
For minimized hourly cost

5% higher performance

14% lower EC2 spend

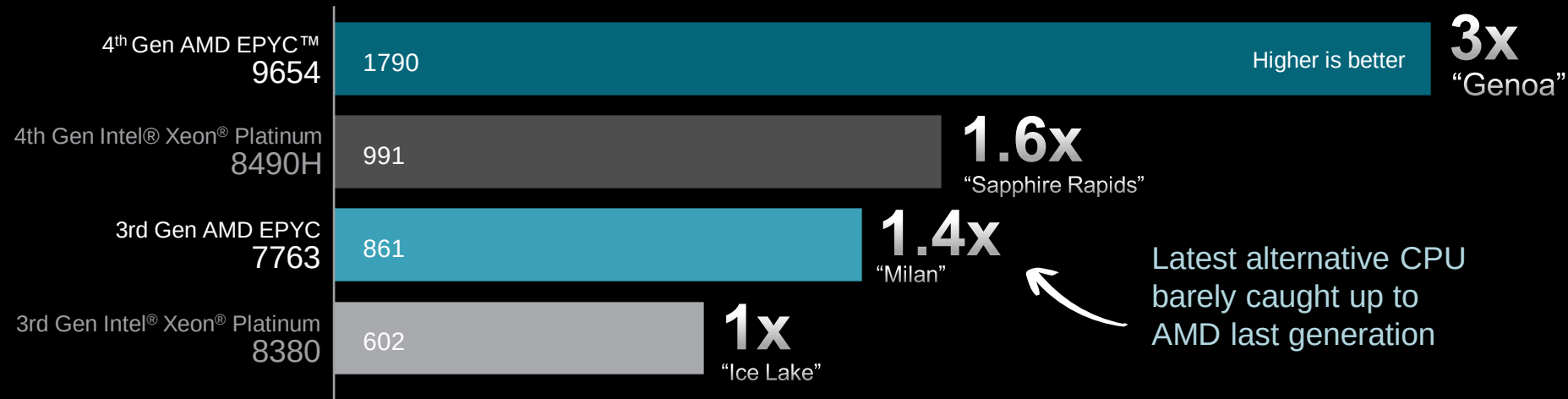
vs. M6i instances powered by 3rd Gen Intel Xeon CPUs
SPECrate® 2017 Integer

WHY AMD? PERFORMANCE MATTERS



CLOUD PERFORMANCE LEADERSHIP*

2P integer throughput (SPECrate 2017_int_base)



300+ AMD EPYC processor world records and counting on premises and in the cloud**

INFRASTRUCTURE

- 23 Cloud and virtualization
- 15 Integer performance
- 11 Cloud/VM/integer efficiency

BUSINESS APPLICATIONS

- 8 ERP business applications
- 48 Java-based performance
- 18 Energy efficiency

ENGINEERING/TECHNICAL

- 72 High-performance computing apps
- 58 Floating point performance
- 12 Floating point energy efficiency

DATA MANAGEMENT

- 22 Structured data and analytics
- 28 Unstructured data and analytics

M7A LEADERSHIP PERFORMANCE REDUCES CLOUD FOOTPRINT AND COST

DO MORE WITH LESS

Web & Application Tiers			Data Tier		
Video Coding	Web Serving	Enterprise Applications	SQL Databases (Transactional)	SQL Databases (Analytics)	NoSQL Databases
FFMPEG	NGINX	Java	MySQL	MS SQL Server	Redis
48% fewer instances on M7a vs M7i ¹	38% fewer instances on M7a vs M7i ¹	29% fewer instances on M7a vs M7i ¹	29% fewer instances on M7a vs M7i ¹	21% fewer instances on M7a vs M7i ¹	55% fewer instances on M7a vs M7i ¹
Save \$380K per \$1M spend on M7a vs. M7i ¹	Save \$280K per \$1M spend ¹	Save \$180K per \$1M spend ¹	Save \$180K per \$1M spend ¹	Save \$90K per \$1M spend ¹	Save \$480K per \$1M spend ¹

Run with **37% fewer instances** and **save \$270K per \$1M cloud spend** versus M7i instances powered by 4th gen Intel® Xeon® CPUs (on average)¹

1 <https://www.amd.com/content/dam/amd/en/documents/epyc-business-docs/performance-briefs/epyc-9004-pb-aws-m7a-vs-m7i.pdf>

IN-MEMORY NON-RELATIONAL DATABASES ON M7A

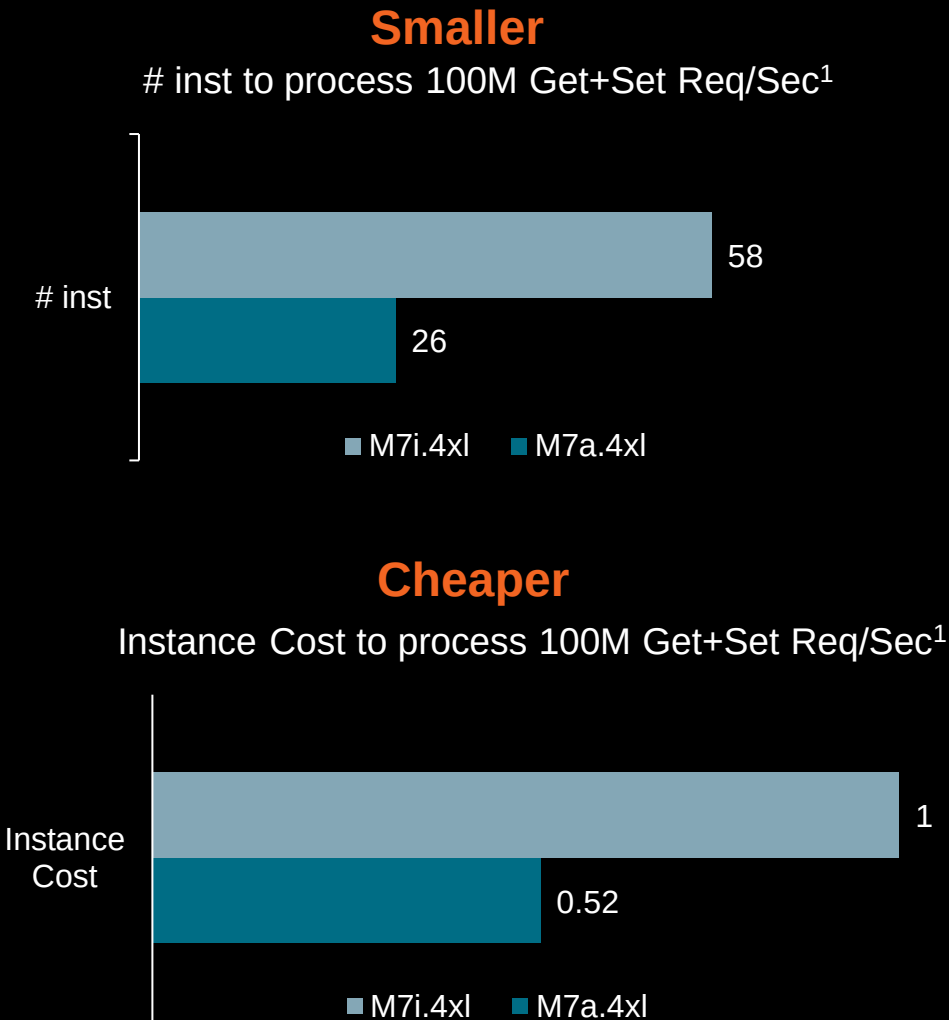
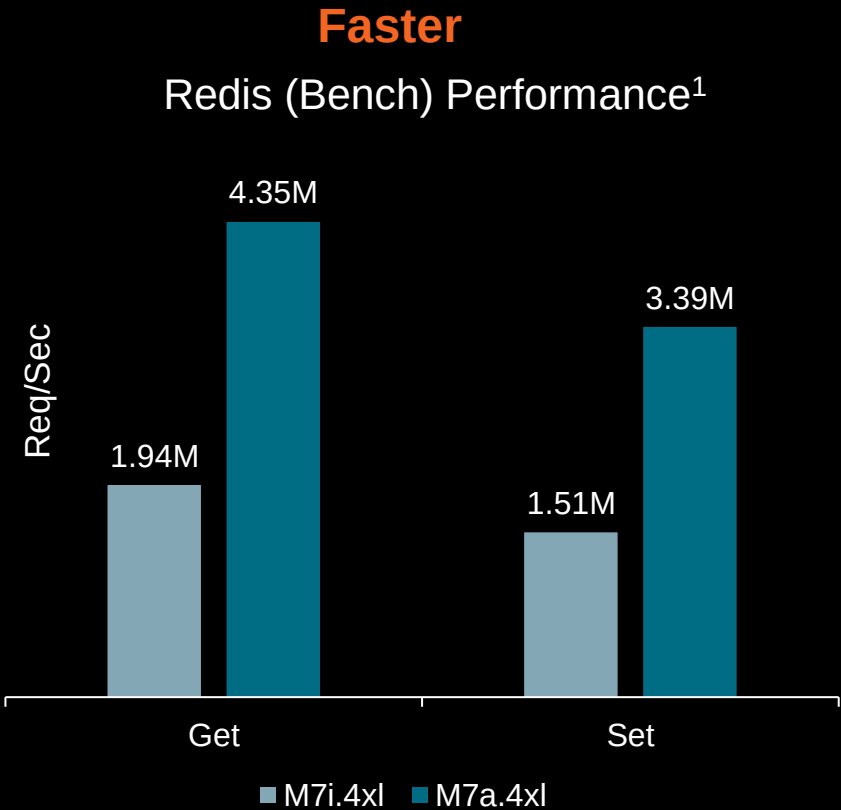
EPYC's leading performance enables smaller deployments that cost less for the same job vs M7i

In-Memory DB

Redis

55% fewer instances on M7a vs M7i¹

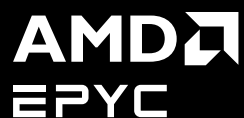
Save \$480K per \$1M spend on M7a vs. M7i¹



1 <https://www.amd.com/content/dam/amd/en/documents/epyc-business-docs/performance-briefs/epyc-9004-pb-aws-m7a-vs-m7i.pdf>

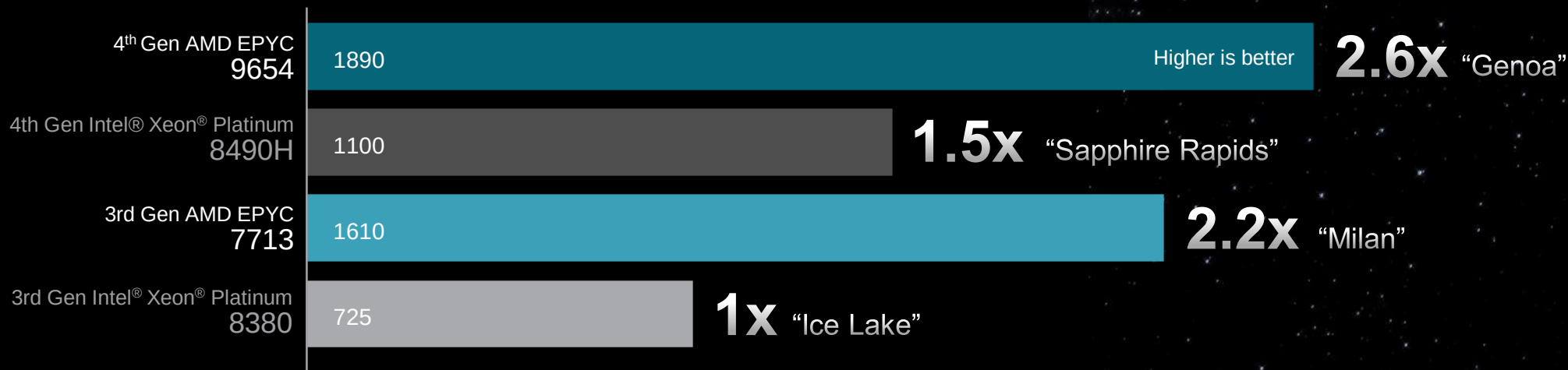
WHY AMD? CLOUD EFFICIENCY MATTERS

AMD EPYC™ processors are the most energy efficient x86 CPU delivering exceptional performance and help reduce energy costs*



CLOUD EFFICIENCY LEADERSHIP**

2P Integer Energy Efficiency, Performance-per-watt Score
SPECrate®2017_int_energy_base



*EPYC-028: As of 2/2/22, of SPECpower_ssj@2008 results published on SPEC's website, the 55 publications with the highest overall efficiency results were all powered by AMD EPYC processors. More information about SPEC® is available at <http://www.spec.org>. SPEC and SPECpower are registered trademarks of the Standard Performance Evaluation Corporation.
**Endnote: SP5-065A

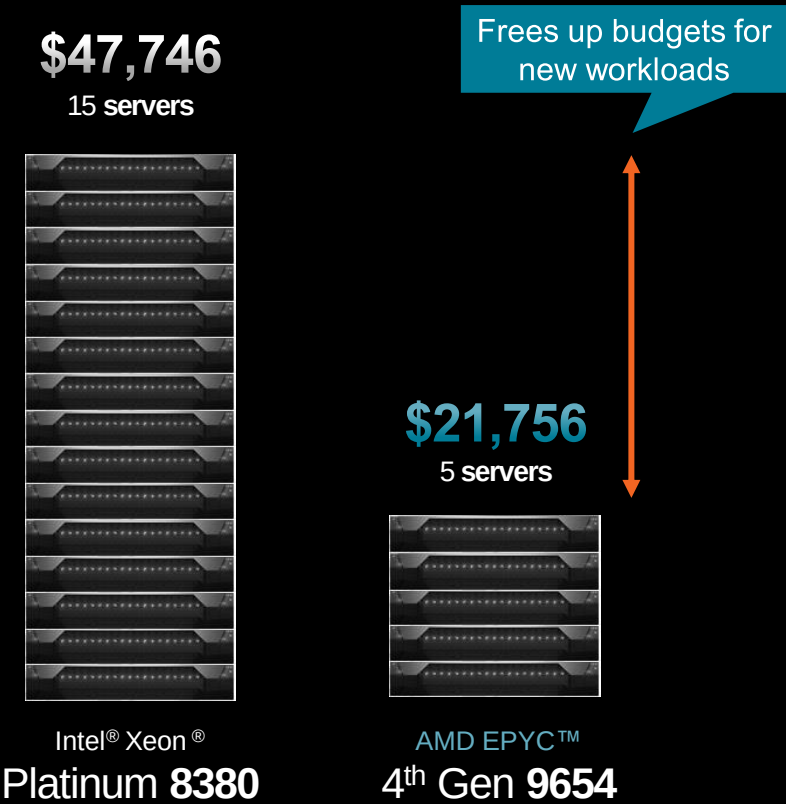
INCREDIBLE IMPACT FROM AMD EPYC™ CPU ENERGY SAVINGS

AMD EPYC
PROCESSORS
SAVE
\$25,990 ANNUALLY



ESTIMATED ANNUAL ENERGY COSTS*

8500 SPECrate® 2017_int_rate (2P)



Calculate \$ & GHG savings with
“AMD Greenhouse Gas
Emissions Tool”

- Emissions avoided equivalent to
- 5 USA passenger cars not driven for 1 year; or
 - 2,865 gallons of gasoline not used; or
 - 28,037 pounds of coal not burned in USA; or

PROTECTING YOUR APPLICATIONS & DATA HOLISTICALLY WITH AMD

Help protect every surface of your environment from unintended access



PROTECT DATA AT REST



PROTECT DATA IN TRANSIT



PROTECT DATA IN USE

Prevalent Security Model

SEV-SNP



Silicon-powered root-of-trust

Comprehensive Security Model

CPU CHOICE MATTERS

Scalable performance for a broad variety of workloads on Amazon EC2 powered by AMD



Performance



Cost Efficiency

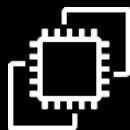


Sustainability



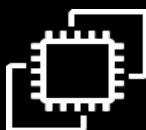
Ease of Migration

AMD-POWERED INSTANCES



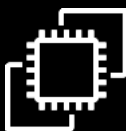
M7A|M6A

GENERAL
PURPOSE



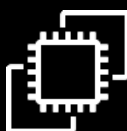
R7A|R6A

MEMORY
OPTIMIZED



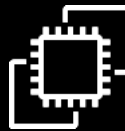
C7A|C6A

COMPUTE
OPTIMIZED



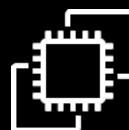
T3A

BURST
OPTIMIZED



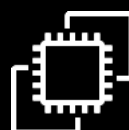
G4AD

GPU
OPTIMIZED



HPC7A|HPC6A

HPC
OPTIMIZED



F1 and VT1

FPGA
ACCELERATOR*

AMD-POWERED AWS SERVICES



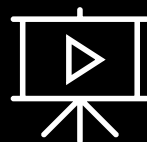
Storage

AWS Snowball



Analytics

Amazon EMR



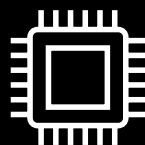
Media
services

Twitch

Amazon
Nimble Studio

AWS Elemental

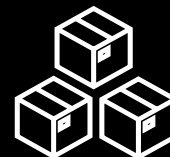
AWS Elastic
Beanstalk



Compute

AWS Batch

AWS
ParallelCluster



Containers

Amazon EKS

Amazon ECS



Gaming

Amazon GameLift



End user
computing

Amazon
AppStream

DO MORE WITH LESS

*by choosing 4th generation
AMD EPYC™-powered
Amazon EC2 instances*



Accelerate cloud workloads
while reducing cost

Run jobs faster or
smaller at lower cost

Grow compute capacity
with no new investment

Get more cloud resources
at flat cost

Protect your cloud
applications and data

With EPYC's unique silicon-
powered confidential computing

Thank you!

Mike Thompson
[linkedin.com/in/miket](https://www.linkedin.com/in/miket)

To learn more:
aws.amazon.com



Please complete the session
survey in the mobile app