# STAC-A2 Benchmark Results in AWS

Alket Memushaj
Principal Solutions Architect – Capital Markets
Amazon Web Services

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# Cloud HPC creates value beyond cost savings

## Cost savings (TCO)

**What is it?**

Infrastructure cost savings/avoidance from moving to the cloud

**Examples**

50%+ reduction in TCO (GE)

Typical focus

## Staff productivity

Efficiency improvement by function on a task-by-task basis

Over 500 hours per year of server configuration time saved (Sage)

## Operational resilience

Benefit of improving SLAs and reducing unplanned outages

Critical workloads run in multiple Availability Zones and Regions for robust disaster recovery (Expedia)

## Business agility

Deploying new features/ applications faster and reducing errors

Buildouts and deployments happen 5x faster (Intuit)

Most compelling cloud benefits

Business/value

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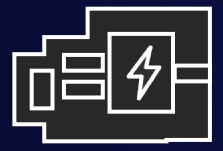
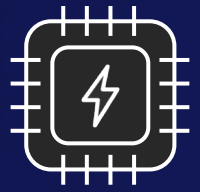
# Nitro is the engine that powers EC2

## Nitro Card



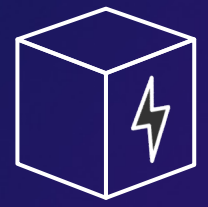
Local NVMe storage
Amazon Elastic Block Storage
Networking, monitoring, and security

## Nitro Security Chip



Integrated into motherboard
Protects hardware resources

## Nitro Hypervisor



Lightweight hypervisor
Memory and CPU allocation
Bare Metal-like performance

Modular building blocks for rapid design and delivery of EC2 instances

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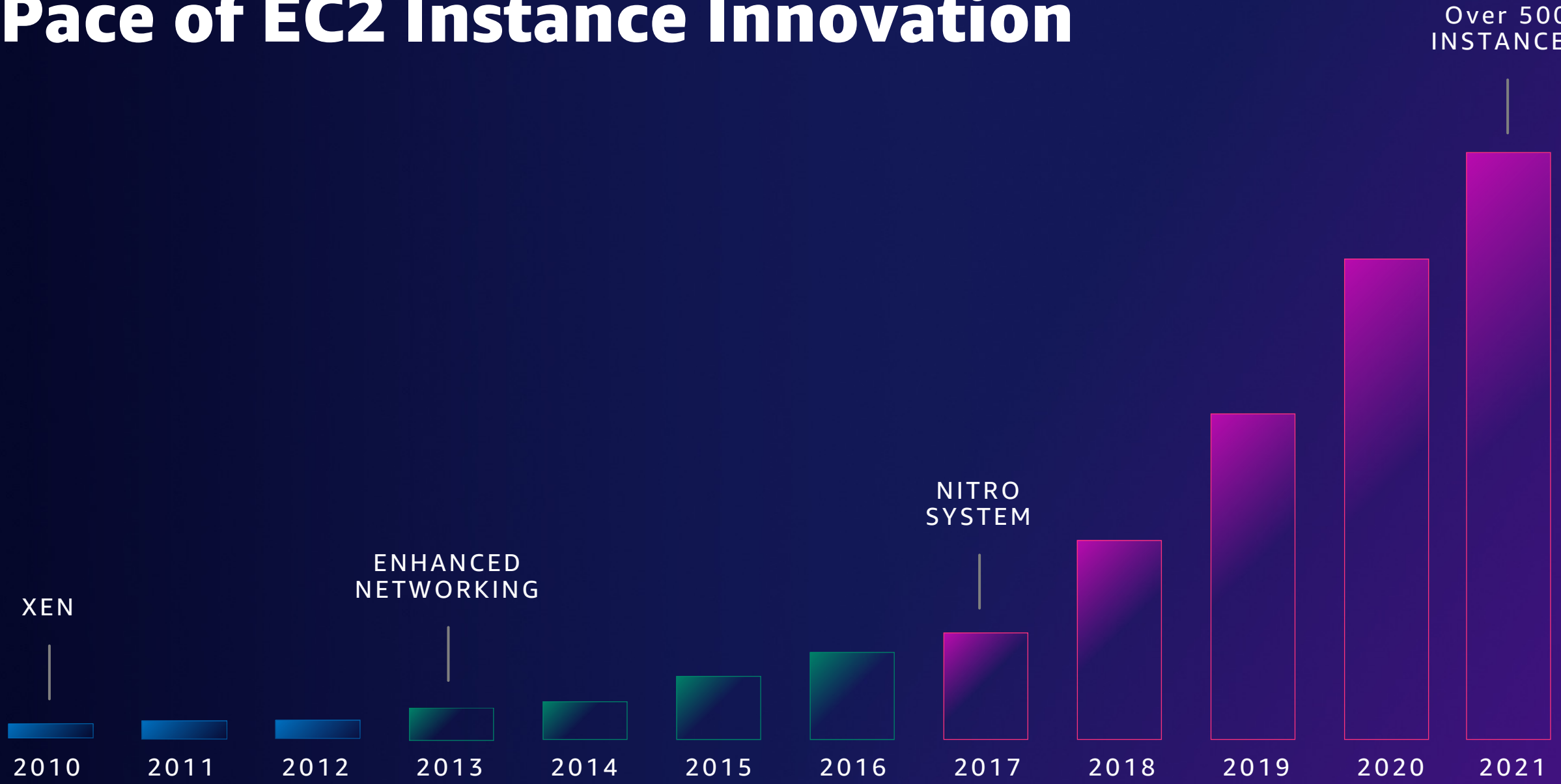
# Pace of EC2 Instance Innovation

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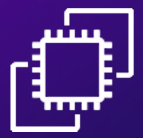
intel®

**15 years** of collaboration and innovation

## KEY HIGHLIGHTS

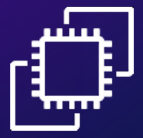
- Deep engineering collaboration across AWS portfolio
- Over 275 EC2 instances are powered by Intel Xeon processors
- Fastest processor in the cloud
- First cloud to launch Ice Lake

## RECENT AMAZON EC2 INSTANCES



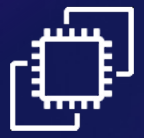
**I4I**

STORAGE OPTMIZED



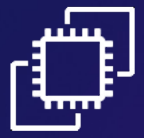
**C6I**

COMPUTE OPTIMIZED



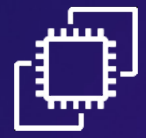
**R6I**

MEMORY OPTIMIZED



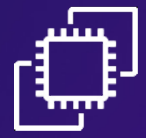
**M6I**

GENERAL PURPOSE



**X2I(E)DN**

MEMORY OPTIMIZED



**X2IEZN**

HIGH FREQUENCY

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# Amazon EC2 C6i, M6i, and R6i instances

NEW!

## C6i, M6i, and R6i Instances

**EC2 instances powered by third-generation Intel Xeon Scalable processors**

Deliver up to 15% better price performance * compared to previous gen C5, M5, and R5 instances

New larger sizes with up to 128 vCPUs and 1 TiB of memory, enabling you to consolidate workloads on fewer instances

Faster networking and higher memory bandwidth

Support for Total Memory Encryption (TME)

* Not a STAC benchmark

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# STAC-A2 Benchmark Results on AWS EC2

| | C5.metal | 8280 Cascade Lake | C6i.metal | 8380 Ice Lake |
|---|---|---|---|---|
| SUT ID | INTC221006a | INTC190402 | INTC221006b | INTC210315 |
| Configuration (Cores/RAM) | 48/192 | 56/768 | 64/256 | 80/512 |
| STAC-A2.β2.HPORTFOLIO.SPEED | 15.5 | 15.1 | 22.4 | 24.1 |
| STAC-A2.β2.GREEKS.TIME (warm) | 0.074 | 0.072 | 0.051 | 0.047 |
| STAC-A2.β2.GREEKS.10-100k-1260.TIME (warm) | 6.9 | 6.5 | 4.8 | 4.4 |
| STAC-A2.β2.GREEKS.MAX_ASSETS | 102 | 105 | 109 | 110 |
| STAC-A2.β2.GREEKS.MAX_PATHS | 5,000,000 | 2,500,000 | 5,000,000 | 10,000,000 |
| STAC-A2.β2.HPORTFOLIO.PRICE_PERF.BURST | 13,635 | | 14,832 | |
| STAC-A2.β2.HPORTFOLIO.PRICE_PERF.CONTINUOUS | 23,205 | | 24,040 | |

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