The bridge to possible

3 Reasons to Modernize the Data Centre with Innovative Solutions

Matt Foley

Cisco Live!

BRKPAR-2787

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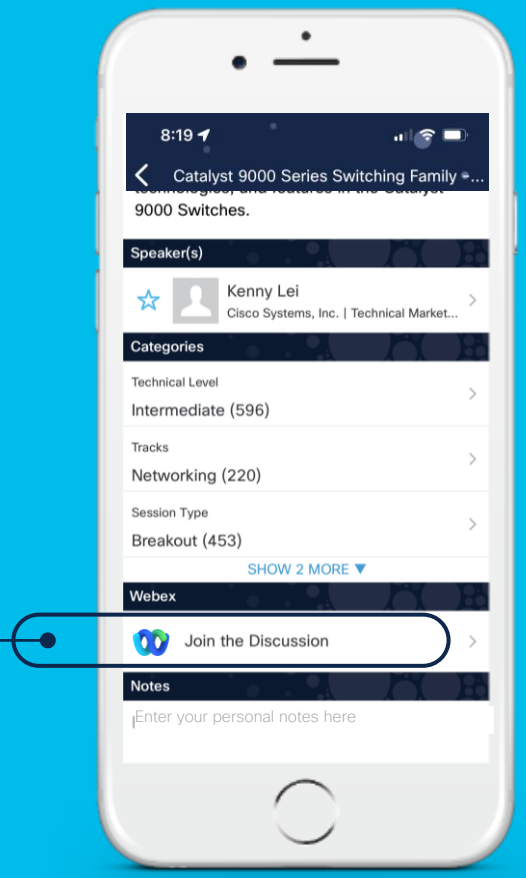


Webex spaces will be moderated until February 24, 2023.

AMD

NOTHING STACKS UP TO EPYC™

3rd Generation AMD EPYC™ Processors:
The New Standard for **Hyperconverged Infrastructure** in the Modern Data Center

IMPROVE YOUR IT

WITH AMD EPYC™ CPU BASED SERVER VIRTUALIZATION SOLUTIONS

PRICE PERFORMANCE

LEADERSHIP SECURITY FEATURES

HELP LOWER POWER COSTS

VALUE

- Reference: https://www.amd.com/en/processors/epyc-world-records
- AMD Infinity Guard features vary by EPYC™ Processor generations. Infinity Guard security features must be enabled by server OEMs and/or Cloud Service Providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at https://www.amd.com/en/technologies/infinity-guard . GD-183
- 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. See https://www.amd.com/en/claims/epyc3x#faq-EPYC-028 for the list. More information about SPEC® is available at http://www.spec.org. SPEC and SPECpower are registered trademarks of the Standard Performance Evaluation Corporation. EPYC-028A

AMD

TECHNOLOGY IS THE MOST CRITICAL ENABLER OF INNOVATION

TECHNOLOGY IS A FORCE FOR GOOD, inspiring creativity and creating value that impacts individuals, organizations, the marketplace and the world

1.8x

Digital leaders achieve earnings growth that is 1.8 times higher than digital laggards[1]

69%

69% of CIOs say creating teams focused on innovation has increased in importance[2]

68%

68% of CIOs say the creation of new revenue-generating initiatives is among their job responsibilities[2]

1 Boston Consulting Group, https://www.bcg.com/publications/2020/increasing-odds-of-success-in-digital-transformation. If Failure is not an option, Why is Success so Rare?

2 CIO Magazine Spring 2021: https://view.ceros.com/idg/spring-issue/p/18

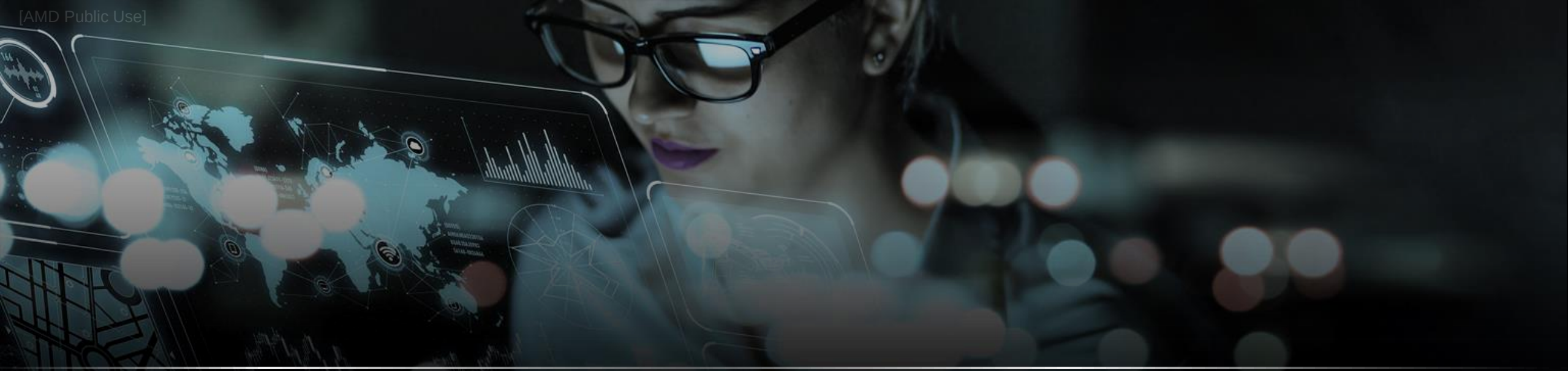
HELPING FUEL THAT INNOVATION IS A REVOLUTION IN IT INFRASTRUCTURE…

55% of organizations have signed on to hybrid cloud and multi-cloud as their preferred approach to enterprise IT[3]

90% of all manual IT operations and data-management tasks will be completely automated by 2025[4]

3 “451 Research: Multicloud and Hybrid Cloud: What is the state of enterprise adoption?”, 451 Research (video), 2019, cited at 0:27. https://mediacenter.ibm.com/media/1_rs0qe7qy

4 Oracle: "Oracle's Top 10 Cloud Predictions, 2020", page 2, December 2019 https://www.oracle.com/a/ocom/docs/cloud/oracle-cloud-predictions-2020.pdf



…AND THE POTENTIAL OF AI, HPC AND ADVANCED DATA ANALYTICS

25% Early adopters report an improvement of almost 25 percent in customer experience, accelerated rates of innovation, higher competitiveness, higher margins, and better employee experience with the roll out of AI solutions.[5]

$49B By 2025, the HPC market size **is** expected to grow from $37.8B in 2020 to $49.4B by 2025[6]

"Business leaders are beginning to understand the importance of using data and analytics to accelerate digital business initiatives. Instead of being a secondary focus — completed by a separate team — **data and analytics is shifting to a core function**"[7]

5 IDC: "IDC Survey Finds Artificial Intelligence Adoption Beign Driven by Improved Customer Experience, Greater Employee Efficiency, and Accelerated Innovation," June 2020, https://www.idc.com/getdoc.jsp?containerId=prUS46534820

6 MarketsandMarkets: https://www.marketsandmarkets.com/Market-Reports/Quantum-High-Performance-Computing-Market-631.html .

7 Gartner®, ""Gartner Top 10 Data and Analytics Trends for 2021" https://www.gartner.com/smarterwithgartner/gartner-top-10-data-and-analytics-trends-for-2021/GARTNER is a registered trademark and service mark of Gartner, Inc. and/or its affiliates in the U.S. and internationally and is used herein with permission

How do you address not only the **cost to change,** but also the **ongoing costs**?

How do you simultaneously increase both **flexibility and efficiency**?

How do you **manage risk** amidst the imperatives of change?

VIRTUALIZATION IS NEW AGAIN

– particularly when delivered as a part of a hyperconverged infrastructure solution – in moves to modernize the data center

28% By 2025, the Hyperconverged Infrastructure market size is expected to grow from $7.8B in 2020 to $27.1B by 2025, a 28.1% CAGR[8]

Hyperconverged infrastructure help support powerful data centers that are easy to manage and adapt:

- Streamline operations, reduce costs and eliminate operational silos
- Manage your entire infrastructure via a single pane of glass
- Support smooth deployment of apps across hybrid and public clouds
- Gain the ability to quickly and seamlessly scale as business needs dictate
- Use generalists instead of specialists

8 MarketsandMarkets: https://www.marketsandmarkets.com/Market-Reports/hyper-converged-infrastructure-market-149796579.html

BUILT FOR SOLUTIONS, NOT JUST SPECS

AMD EPYC™ Processors create the optimal platform for a variety of HCI workloads

Replace aging servers with **modern virtualization solutions** to help you to **consolidate your infrastructure** while addressing your HCI needs for **supporting workloads from Big Data to productivity or containerization and more**.

Working with industry leading software developers and hardware OEMs, AMD can deliver optimized solutions, designed to provide a **great experience "right out of the box"** and continue to provide excellent results for years to come.

ACHIEVE MORE, FASTER

Apply the **ARCHITECTURAL LEADERSHIP** of AMD EPYC processors to help **ACHIEVE MORE, FASTER**, thanks to fast processing and high throughput across a wide spectrum of applications and use cases.

NEW CAPABILITIES

Upgrade to 3rd Generation AMD EPYC processor-based servers and **ENABLE NEW CAPABILITIES** for your business across all your compute-heavy workloads.

BETTER SCALABILITY AND FLEXIBILITY

Take advantage of **AMD's CONSISTENT EXECUTION** of its multi-year x86 server CPU roadmap, gaining scaling capabilities and memory flexibility.

SMOOTH UPGRADES

Tap into a **BROAD ECOSYSTEM OF MAJOR ISVS AND OEM PARTNERS** for smooth upgrades and transformations. AMD has strong technology partnerships with major HCI solution providers.

TOP WORKLOADS FOR HCI

The top workloads and applications being run on HCI deployments today

	BI/BIG DATA/ ANALYTICS	PRODUCTIVITY APPS	VDI	AI / ML	DATA WAREHOUSING	RELATIONAL DB	CONTAINER ORCHESTRATORS
TOP APPS	Microsoft BI	Microsoft Office	VMware Horizon	Python TensorFlow	IBM	Oracle	Kubernetes
	Oracle BI	Microsoft SharePoint	Microsoft	DataBricks	Oracle	Microsoft SQL Server	Docker
	SAP BI	Microsoft Exchange	Citrix	SparkML	Informatica	IBM DB2	Anthos
	IBM Cognos			DataRobot	Cloudera	SAS Analytics	Pivotal
						PostgreSQL	

EASILY ADOPT A NEWLY FLEXIBLE AND EFFICIENT FOUNDATION

AMD EPYC™ Processors can help achieve lower TCO

With a **simple, powerful server choice, drive advanced virtualization and HCI performance** while enhancing value from upgrade, facility and licensing costs, thanks to a platform that's compatible out of the box with your existing x86 applications.

ADVANCED INFRASTRUCTURE

With their "All-In Feature Set," AMD EPYC processor-based solutions help you right-size the computing power for your business and satisfy your workload requirements without compromise in 1- or 2-socket servers.

UP TO **110%**

VIRTUALIZATION:
More "knowledge worker" desktop sessions while meeting Login VSI™ rating of "very good" QoS response times, 2x EPYC™ 7763 vs 2x Xeon® 6258R MLN-004

UP TO **61%**

HYPERCONVERGED INFRASTRUCTURE:
Higher performance on VMmark® 3.1 vSAN™, 4-host, 2x EPYC 7763 vs 4-host 2x Xeon 8380 MLN-129

EFFICIENCY WITHOUT COMPROMISE

High core count, high performance AMD EPYC processors change the TCO equation - helping you experience increased power efficiency, reduced latency, lower infrastructure costs and higher compute density.

UP TO **36%**

ESTIMATED LOWER 3 YEAR TCO
to deliver 10K units of Integer performance comparing a 2P AMD EPYC 7763 processor-based server stack vs. a 2P Intel Xeon Platinum 8380 processor-based server stack. MLNTCO-003A

UP TO **28%**

LOWER HARDWARE ACQUISITION COST
to support 320 VMs, comparing 3X 2P AMD EPYC 7713 processor-based servers vs. 4X 2P Intel Platinum 8380 processor-based servers MLNTCO-008

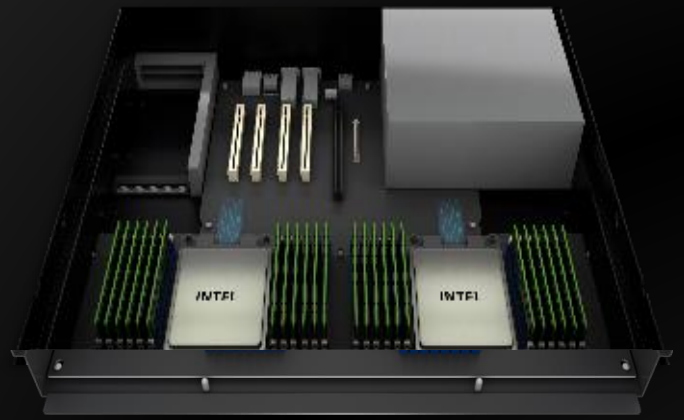
See endnotes

AMD

CHANGING THE TCO EQUATION

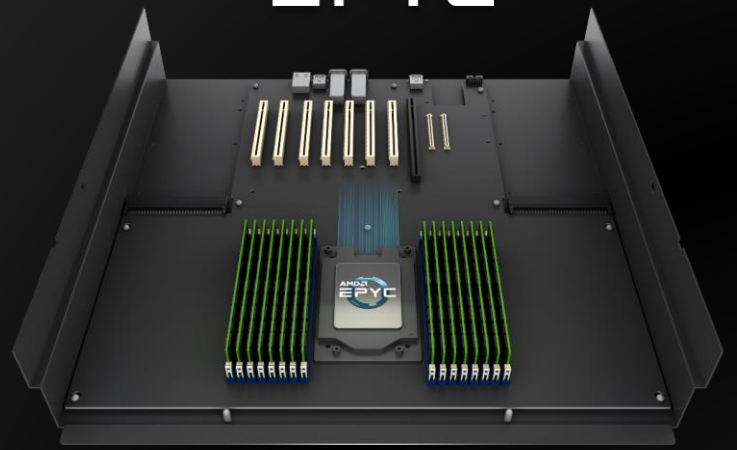
DELIVERING EFFICIENCY WITHOUT COMPROMISE

intel



- 2 CPUs to buy and power
- Larger boards to accommodate 2nd socket and DIMMs
- Additional VRM and socket cost
- Robust cooling solutions

AMD EPYC



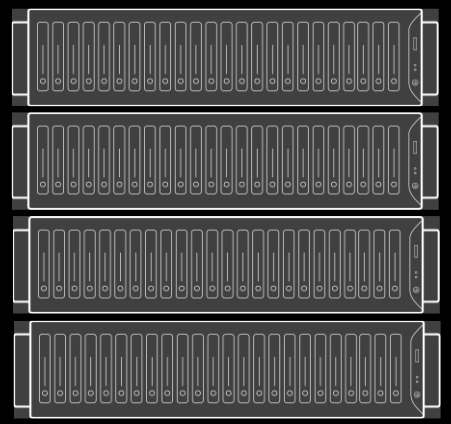
- 1 CPU to buy and power
- Smaller boards
- Smaller power supplies
- Simple cooling solutions
- Fewer electricals
- No compromise on performance or features*

* Performance comparison is dependent on the servers and applications being compared

POWER OF HIGH CORE DENSITY

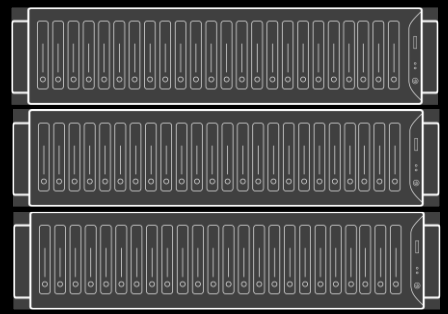
320 VIRTUAL MACHINES (VMs)

INTEL®



4x 2-socket
Platinum 8380
(40 core)

AMD



3x 2-socket
EPYC™ 7713
(64 core)

SOLUTION

320 VMs
1 core / VM, with 8GB memory / VM
VMware® vSphere Enterprise Plus w/ Production Support

AMD EPYC CPUs
THE CLEAR WINNER

Estimated MLNTCO-008

28% Lower hardware acquisition cost

12% Lower total 3-year TCO cost

23% Lower power cost

See endnotes

AMD

ENTERPRISE DEPLOYMENT

10,000 UNITS OF INTEGER PERFORMANCE

INTEL®

18- 2x Intel® Xeon® 8380 based servers
2 server racks

AMD EPYC DELIVERS

(MLNTCO-003A)

Estimated

33% fewer servers

50% less space

42% less power

36% lower 3yr TCO

AMD EPYC™

12- 2x AMD EPYC 7763 based servers
1 server rack

Access a variety of tools including the AMD EPYC CPU Processor Selector Tool, the AMD EPYC Server Virtualization TCO Estimation Tool and more at amd.com/en/processors/epyc-tools to assess which AMD EPYC processors are right for you.

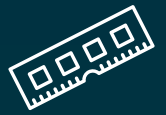
See endnotes

HELP REDUCE RISK EFFORTLESSLY AND CONFIDENTLY

AMD Infinity Guard helps minimize potential attack surfaces as software is booted and executed and processes your critical data.

AMD SECURE PROCESSOR

A hardware root of trust which helps protect confidentiality and integrity of data with minor impact to system performance.



SECURE MEMORY ENCRYPTION

Industry's first full system memory encryption helps defend data against certain cold boot and even physical attacks.

SECURE ENCRYPTED VIRTUALIZATION

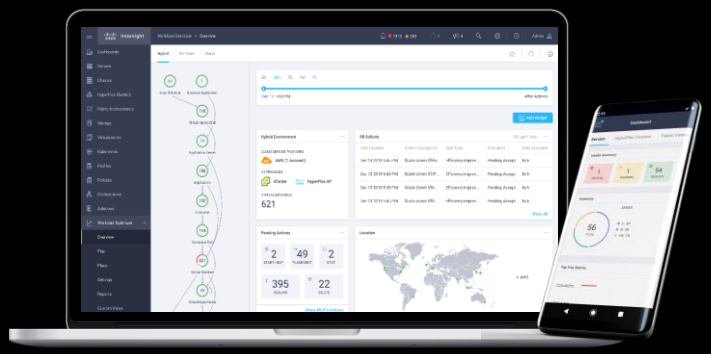
Set of AMD technologies that help protect virtual machines with one of up to 509 unique encryption keys known only to the processor. Only available on AMD processors.

AMD SHADOW STACK

Provides hardware-enforced stack protection capabilities to help guard against malware attacks.

AMD Infinity Guard features vary by EPYC™ Processor generations. Infinity Guard security features must be enabled by server OEMs and/or Cloud Service Providers to operate. Check with your OEM or provider to confirm support of these features. Learn more about Infinity Guard at https://www.amd.com/en/technologies/infinity-guard. GD-183

Leveraging the Power of Intersight



Intersight

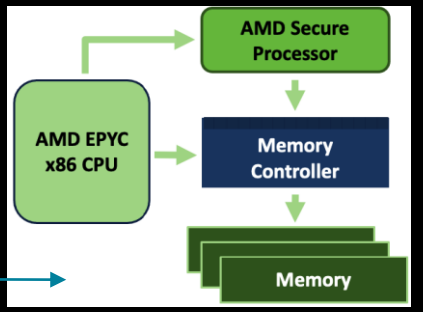
Every AMD CPU feature easily enabled and configured via Intersight!

AMD's Security Resiliency:

- **Secure Memory Encryption (SME)**

Encryption keys managed by AMD Secure Processor

All memory encrypted by a single key



SME enabled via the UCS C225/C245 M6 BIOS

UCS & HX C225 M6

UCS & HX C245 M6

- **Secure Encrypted Virtualization (SEV)**
  - Hypervisor and guest VMs cryptographically isolated from one another

All AMD RAS features exported as UCS faults and System Event Logs

DESIGNED FOR PERFORMANCE THAT REDEFINES YOUR POTENTIAL

Get the **power and flexibility** you need in an environment where every stakeholder now relies on technology to move forward. Gain a competitive advantage and pursue your goals, your company mission and your brand standing in the market more effectively and efficiently.

WORLD RECORD PERFORMANCE

As of October 26, 2021, AMD has **250+ WORLD RECORD SCORES ACROSS A WIDE RANGE OF WORKLOADS**,* including 21 record-breaking scores in cloud and virtualization benchmarks.

AMD EPYC delivers the **BEST OVERALL vSAN™** score – **37% MORE PERFORMANCE PER CORE** – than the highest posted Intel Xeon score (8-Host 2P AMD EPYC 7713 vs 24-Host 2P Intel Xeon Gold 6140) MLN-128

BETTER SCALABILITY AND FLEXIBILITY

With up to 64 cores per socket, AMD EPYC offers better **SCALABILITY AND FLEXIBILITY** to meet your VM and workload requirements, helping to maximize your HCI investment.

POWER DEMANDING WORKLOADS

Dual-socket servers powered by AMD EPYC can power the most demanding workloads with support for up to 128 cores, 4 TB of memory, and up to 160 PCIe® 4 I/O lanes.

OPTIMIZE INFRASTRUCTURE

Add 3rd Generation AMD EPYC Processors to your IT transformation strategy and create optimized software-defined infrastructures for your unique workload needs. Make the most of your current and future data center investment and keep your IT planning on the path of continuous innovation.

*For a complete list of world records, see www.amd.com/worldrecords See endnotes

AMD

ARE YOU READY TO ACCELERATE VALUE?

Learn more about 3rd Generation AMD EPYC™ Processors for Hyperconverged Infrastructure

Learn more link at amd.com/epyc

ENDNOTES | MLN-004 through MLN-129

MLN-004: Login VSI™ Pro v4.1.40.1 comparison based on AMD internal testing as of 02/01/2021 measuring the maximum “knowledge worker” desktop sessions within VSI Baseline +1000ms response time using VMware ESXi 7.0u1 and VMware Horizon 8 on a server using 2x AMD EPYC 7763 versus a server with 2x Intel Xeon Gold 6258R for ~112% more max [~2.1x the] performance. Results may vary.

MLN-102: VMmark® 3.1 matched pair comparison based on best performing systems published at https://www.vmware.com/products/vmmark/results3x.html as of 6/222021, 2x AMD EPYC™ 7763 scored 21.58 @ 24 tiles (https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-05-04-Lenovo-ThinkSystem-SR665.pdf) which performs 52% better than the top “Ice Lake” 2x Intel® Xeon® Platinum 8380 that scored 14.19 @ 14 tiles (https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-04-20-Fujitsu-PRIMERGY-RX2540M6.pdf). 2x AMD EPYC 7H12 scored 18.23 @ 19 tiles, https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2020-11-17-Lenovo-ThinkSystem-SR665.pdf). VMmark is a registered trademark of VMware in the US or other countries.

MLN-128: VMmark® 3.1 - vSAN™ comparisons based on best performing systems published at https://www.vmware.com/products/vmmark/results3x.0.html?sort=date&storage=vSAN%20Storage as of 7/13/2021. Configurations:8-n, 2x AMD EPYC 7713 (63.01 score @ 64 tiles, https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-05-04-DellEMC-PowerEdge-R6525.pdf) versus 24-n, 2x Intel Xeon Gold 6140 (46.1 @ 48 tiles, https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2019-01-29-HPE-Synergy-480Gen10.pdf). VMmark, vSAN, and Horizon are registered trademarks of VMware in the US or other countries.

MLN-129: VMmark® 3.1 - vSAN™ comparisons based on best performing systems published at https://www.vmware.com/products/vmmark/results3x.0.html?sort=date&storage=vSAN%20Storage as of 8/10/2021. Configurations:4-n, 2x AMD EPYC 7763 (39.01 score @ 40 tiles, https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-08-10-DellEMC-PowerEdge-R6525.pdf) versus 4-n, 2x Intel Xeon Platinum 8380 (24.26 @ 26 tiles, https://www.vmware.com/content/dam/digitalmarketing/vmware/en/pdf/vmmark/2021-06-08-HPE-ProLiant-DL380Gen10Plus.pdf). VMmark, vSAN, and Horizon are registered trademarks of VMware in the US or other countries.

ENDNOTES | MLNTCO-003A through MLNTCO-008

MLNTCO-003A "This scenario contains many assumptions and estimates and, while based on AMD internal research and best approximations, should be considered an example for information purposes only, and not used as a basis for decision making over actual testing. This estimate compares the selected AMD EPYC™ and Intel® Xeon® CPU based server solutions required to deliver a TOTAL_PERFORMANCE of 10000 units of integer performance based on the published scores for Intel Xeon and AMD EPYC CPU based servers. This analysis is based on AMD EPYC™ BARE METAL SERVER TCO ESTIMATION TOOL; VERSION: 05/21/2021 1.6 Master4. This estimation reflects a 3 year time frame.This analysis compares a 2P AMD EPYC EPYC_7763 powered server with a SPECrate®2017_int_base score of 839, https://spec.org/cpu2017/results/res2021q1/cpu2017-20210219-24936.pdf; compared to a 2P Intel Xeon Platinum_8380 based server with a SPECrate®2017_int_base score of 565, https://spec.org/cpu2017/results/res2021q2/cpu2017-20210510-26021.pdf. Both AMD EPYC and Intel based servers use the same cost for the following elements of the analysis: server chassis size of 2RU at a cost of $2500 per chassis; internal storage $380; physical servers managed per admin: 30; fully burdened cost per admin $110500; server rack size of 42; space allowance per rack of 27 sq feet; monthly cost of data center space $20 per sq foot; cost per kW for power $0.12; power drop per rack of 8kW; and a PUE (power usage effectiveness) of 2.The EPYC powered solution estimates are: 12 total 2P EPYC_7763 powered servers at a hardware only acquisition cost of $18988 per server, which includes total system memory of 64GB, which is 0.5GB of memory / core and a total system memory cost of $328; internal storage cost of $380. The total estimated AMD EPYC hardware acquisition cost for this solution is $227856. Each server draws ~423kWhr per month. For the 3 years of this EPYC powered solution analysis the: total solution power cost is ~$43857 which includes the PUE factor; the total admin cost is ~$132600, and the total real estate cost is ~$19440. The total 3 TCO estimate for the AMD solution is $423753.The Intel based solution requires 18 total 2P Platinum_8380 powered servers at a hardware only acquisition cost of $19406 per server, which includes total system memory of 64GB, which is 0.8GB of memory / core and a total system memory cost of $328; internal storage cost of $380. The total estimated Intel hardware acquisition cost for this solution is $349308. Each server draws ~484kWhr per month. For the 3 years of this Intel based solution analysis the: total solution power cost is ~$75273 which includes the PUE factor; the total admin cost is ~$198900, and the total real estate cost is ~$38880. The total 3 TCO estimate for the Intel solution is $662361.Delivering 10000 of estimated SPECrate®2017_int_base performance produces the following estimated results: the AMD EPYC solution requires 33% fewer servers [1-(AMD server count / Intel server count)]; 50% less space [1-(AMD rack count / Intel rack count)]; 42% less power [1-(AMD power cost / Intel power cost)]; providing a 36% lower 3 year TCO [1-(AMD TCO / Intel TCO)].AMD processor pricing based on 1KU price as of February 2021. Intel® Xeon® Scalable processor data and pricing from https://ark.intel.com as of September 2020. All pricing is in USD. Product and company names are for informational purposes only and may be trademarks of their respective owners. SPECrate® scores as of 05/12/2021. SPEC®, SPECrate® and SPEC CPU® are registered trademarks of the Standard Performance Evaluation Corporation. See www.spec.org for more information. AMD EPYC performance numbers based on AMD measured internal estimates and are subject to change based on actual results."

MLNTCO-008: This scenario contains many assumptions and estimates and, while based on AMD internal research and best approximations, should be considered an example for information purposes only, and not used as a basis for decision making over actual testing. The AMD Server Virtualization TCO (total cost of ownership) Estimator tool compares the 2P AMD EPYC™ and the 2P Intel® Xeon® server solutions required to deliver 320 total virtual machines (VM), requiring 1 core and 8GB of memory per VM. The analysis includes both hardware and virtualization software components. Hardware costs (CPU + memory + storage + chassis): The 2P AMD 64 core EPYC_7713 processor used in this solution analysis provides 128 total cores per server, each processor cost $7060 and the server uses 32 x 32GB DIMMs to achieve the minimum required memory footprint, in a 1RU server chassis that cost $2200, and requires 1 server racks. The AMD solution has a total estimated hardware acquisition cost of $66612. The 40 core Intel Xeon Platinum_8380 processor used in this solution analysis provides 80 total cores per server. Each processor cost $8099 and the server uses 24 x 32GB DIMMs to achieve the minimum required memory footprint, in a 2RU server chassis that cost $2500 and requires 1 server racks. The Intel solution has a total estimated hardware acquisition cost of $92824.

PROCESSOR COSTS: AMD processor pricing based on 1KU price as of March 2021. Intel® Xeon® Scalable processor data and pricing from https://ark.intel.com as of September 2020.

OPERATING COSTS: AMD has estimated OpEx costs as follows: a hardware admin cost of $33150, a real estate cost of $19440, and a power cost of $17905.453056, for a total estimated 3 year TCO cost (hardware cost and operating expense) of $137107 with AMD. Estimated OpEx costs for Intel are: hardware admin cost of $44200, real estate cost of $19440, and power cost of $23243, for a total estimated 3 year TCO cost (hardware cost and operating expense) of $179707, with Intel. AMD has an estimated 24% lower hardware TCO for this virtualization solution, 1 - ($137107 ÷ $179707) = 24%. The core assumptions for this analysis are as follows: Cost of power @ $0.12 with kwatts (kW) of power to each rack and a PUE (power usage effectiveness) of 2 and a server rack size of 42RU. Each server has 1 hard drives drawing 3 watts each. Server Admin annual salary is $85000 managing 30 physical servers with a salary burden rate of 30%. The VM Admin salary is $85000, with a burden rate of 30% and managing 400 VMs.

VIRTUALIZATION TCO: Analysis is based on the following estimiates: 3 year Virtualization (hardware, operating, and software cost) for the Intel solution is $540401 and $473927 for the AMD solution. This means that the AMD solution is ~12% less expensive over three years. 1 - ($473927 ÷ $540401) = 12%. The AMD solution 1st year TCO per VM of $781.66 where the Intel 1st yr. solution is $955.25. The AMD 1st year TCO per VM is $173.59, or ~18% lower than Intel. The virtualization software used in this analysis is VMware with a VMware® vSphere Enterprise Plus w/ Production support license. This analysis uses license pricing of $5968.36 per Socket + Core with 3 year support. More information on VMware software can be found @ https://store-us.vmware.com/vmware-vsphere-enterprise-plus-284281000.html.

For 320 VMs with 1 core(s) per VM, and 8 GB of memory per VM, the Intel Platinum_8380 processor requires 4 servers, and 16 licenses. The AMD EPYC_7713 solution requires 3 servers and 12 licenses. The AMD solution requires 25% fewer servers than the Intel solution.

The AMD server and virtualization license cost are $138232.32, and the Intel cost are $188317.76. Hardware and virtualization cost are ~$50085 or ~27% Lower w/ AMD. Virtualization software pricing as of 09/14/2021. Third party names are for informational purposes only and may be trademarks of their respective owners. All pricing is in USD.

Results generated by: AMD EPYC™ SERVER VIRTUALIZATION TCO ESTIMATION TOOL VERSION: v9.43of the Standard Performance Evaluation Corporation. See www.spec.org for more information. AMD EPYC performance numbers based on AMD measured internal estimates and are subject to change based on actual results."

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- Complete a minimum of 4 session surveys and the Overall Conference survey (open from Thursday) to receive your Cisco Live t-shirt.

- All surveys can be taken in the Cisco Events Mobile App or by logging in to the Session Catalog and clicking the "Attendee Dashboard" at https://www.ciscolive.com/emea/learn/sessions/session-catalog.html

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