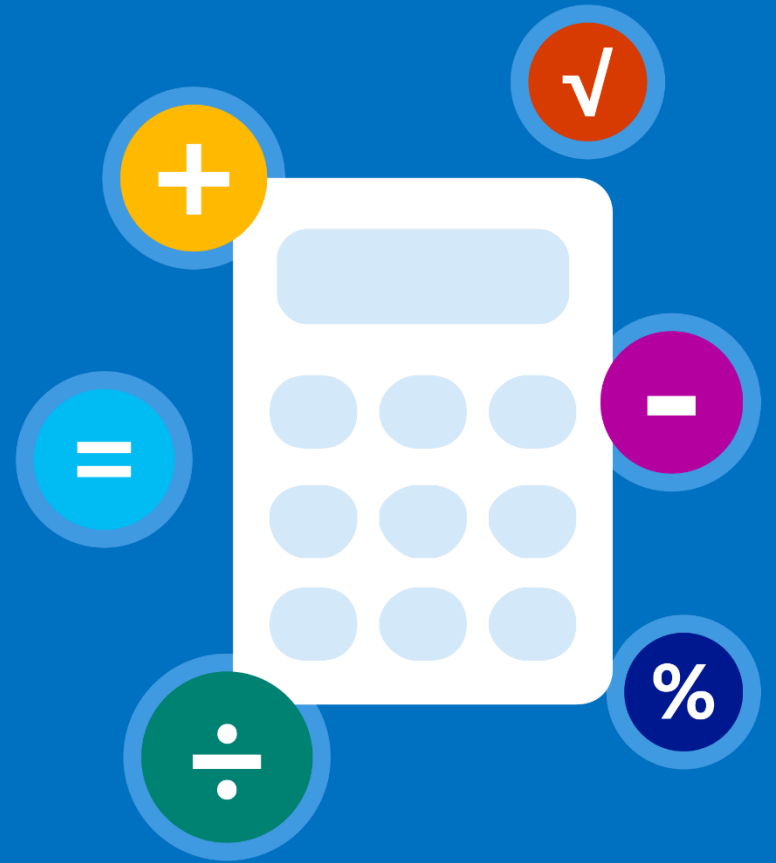# Azure
Total Cost of Ownership (TCO) summary

Cost savings example:
Migrating Windows Server 2008 / R2 workloads
to Azure

Microsoft

Assumptions and inputs

Compute

Virtual machines

# VMs	OS	Virtualization	Core(s)	RAM (GB)	Optimize by
100	Windows	Hyper-V	8	16	CPU

Storage

Storage type	Disk type	Capacity	Backup	Archive
Local disk/SAN	HDD	1 TB	0 TB	0 TB

Networking

Outbound bandwidth (GB)/Month

50

Azure region

East US

Cost savings from migrating to Azure

$306K USD savings from hardware infrastructure ($632K on-premises cost vs. $326K for Azure VMs)
+ $443K USD savings from free Extended Security Updates (ESU) in Azure
$749K USD combined infrastructure and ESU savings
+ $885K USD additional cloud savings (virtualization, datacenter and other categories)
$1.63M USD in overall savings
* $306K and $443K savings are <mark>highlighted</mark> *in the report*

On-premises cost breakdown summary		Azure cost breakdown summary	
Category	**Cost**	**Category**	**Cost**
Compute	$1,491,152	**Compute**	$325,908
Hardware	$632,224		
Software	$640,120		
Electricity	$31,608		
Virtualization	$187,200		
Datacenter	$85,572	**Datacenter**	$0
Networking	$382,063	**Networking**	$141
Storage	$2,662	**Storage**	$829
IT labor	$58,140	**IT labor**	$58,140
Total	**$2,019,590**	**Total**	**$385,019**

Estimated on-premises cost (three years) vs. estimated Azure cost (three years)

Compute cost

Hardware cost

Cost per 4 proc 32 core, 2000 GB RAM virtualization server for Windows	$98,785
Number of servers needed for 100 virtual machine(s) - 8 core, 16 GB RAM	4
Total cost for virtualization servers	$ 395,140
Cost of maintaining virtualization server(s) - 20% of cost of virtualization server(s)	$79,028
Total cost of maintaining servers over 3 years	$237,084
Total hardware cost over 3 years	**$632,224**

Software cost

Cost of Windows data center license per 32 core, 2000 GB RAM physical machine	$49,240
Number of license(s) needed	4
Total software license cost	$196,960
Extended Security Updates for Windows Server 2008 and 2008 R2 - (75% of cost of the license annually for 3 years)	$443,160
Total software cost over 3 years	**$640,120**

Azure Virtual Machine cost

Virtual Machines cost

Number of hours per month	730
F8sv2 Standard (8 core, 16 GB RAM) Windows (Azure Hybrid Benefit)	SKU# AAA-57371
Number of virtual machines	100
Total virtual machine cost per month	$9,053
Extended Security Updates for Windows Server 2008 and 2008 R2 *NOTE: Windows Server 2008 and 2008 R2 virtual machines in Azure receive Extended Security Updates until Jan. 2023 at no additional charge.*	$0
Total Azure VM cost over 3 years	**$325,908**

NOTE: For Azure compute costs, one 3-year Reserved VM in use.

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Electricity cost

Price of electricity per KWH	$0.10
Power rating of 32 core, 2000 GB RAM server	3,006.9 Watts
Total electricity cost for 4 server(s) - 32 core, 2000 GB RAM server per month	$878
Total electricity cost over 3 years	**$31,608**

Virtualization cost

Per virtual machine, per month, cost to load balance, backup and patch virtual machines	$52
Number of virtual machines	100
Virtual machine management cost per month	$5,200
Virtual machine management cost per year	$62,400
Total virtualization cost over 3 years	**$187,200**

Total on-premises compute cost over 3 years	**$1,491,152**	**Total Azure compute cost over 3 years**	**$325,908**

Microsoft

Data center cost

Compute cost

Number of rack units per rack	42
Rack units required per 32 core, 2000 GB RAM server	4
Number of 32 core, 2000 GB RAM server	4
Total number of rack units required	16
Total number of rack units required for all server(s)	16
Number of racks required	1
Data center construction cost per rack amortized over 20 years	$14,262
Total data center compute cost over 3 years	**$42,786**

Storage cost

Rack mounting/installation cost	$14,262
Total datacenter storage cost over 3 years	**$42,786**

Total data center cost over 3 years	**$85,572**

Azure data center cost

Azure data center cost	$0

Total Azure data center cost over 3 years	**$0**

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Networking cost

Total hardware + software cost over 3 years	$1,272,344
Network hardware and software cost assumed to be 25% of hardware and software cost over 3 years	$318,086
Network maintenance cost assumed to be 20% of network hardware and software cost over 3 years	$63,617
Service provider cost/GB per month	$0.20
Amount of bandwidth needed (GB) per month	50
Total service provider cost per month	$10
Total networking cost over 3 years	**$382,063**

Azure networking cost

Total outgoing bandwidth needed per month	50 GB
Total outgoing bandwidth cost per month	$3.92
Total Azure networking cost over 3 years	**$141.12**

Storage cost

Hardware	
Local Disk/SAN-HDD	
Cost per GB	$2.00
Storage (RAID 10 configuration) volume in GB	1,024
Total storage procurement cost	$2,048
Storage maintenance	
Storage maintenance cost (10% of storage procurement cost) over 3 years	$614
Total storage cost over 3 years	**$2,662**

Azure storage cost

Page Blob Storage	
Usable storage volume in GB	512
Storage cost per GB/month	$0.045
Annual storage cost per usable volume	$276.48
Total Page Blob LRS storage maintenance cost over 3 years	$829.44
Total Azure storage cost over 3 years	**$829.44**

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IT labor cost		Azure IT labor cost	
Number of IT admin hour(s) needed per year	387.6	Number of IT admin hour(s) needed per year	387.6
Hourly rate for IT administrator	$50	Hourly rate for IT administrator	$50
Total IT labor cost over 3 years	**$58,140**	**Total Azure IT labor cost over 3 years**	**$58,140**

Total on-premises cost over 3 years: **$2,019,590**

Total Azure cost over 3 years: **$385,019**

Microsoft

Learn more about Azure

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