

Dell Numbers	Number	Unit	Links + comments
Server	1	PowerEdge R640	<a href="https://serverfault.com/questions/64237/power-and-cooling-cost-compared-with-server-hardware-cost">https://serverfault.com/questions/64237/power-and-cooling-cost-compared-with-server-hardware-cost</a>
Lifetime	48	months	<a href="https://i.dell.com/sites/csdocuments/CorpComm_Docs/en/carbon-footprint-poweredge-r640.pdf">https://i.dell.com/sites/csdocuments/CorpComm_Docs/en/carbon-footprint-poweredge-r640.pdf</a>
Yearly energy demand	1760.3	kWh	<a href="https://www.bafu.admin.ch/dam/bafu/de/dokumente/klima/fachinfo-daten/Umweltbilanz-Strommix-Schweiz-2018-v2.01.pdf.download.pdf/Umweltbilanz-Strommix-Schweiz-2018-v2.01.pdf">https://www.bafu.admin.ch/dam/bafu/de/dokumente/klima/fachinfo-daten/Umweltbilanz-Strommix-Schweiz-2018-v2.01.pdf.download.pdf/Umweltbilanz-Strommix-Schweiz-2018-v2.01.pdf</a>
Lifetime Emissions	7730	kgCO2e	<a href="https://www.goclimat.com/blog/the-carbon-footprint-of-servers/">https://www.goclimat.com/blog/the-carbon-footprint-of-servers/</a>
Manufacturing	128318.00%	16.60%	<a href="https://www.idc.com/getdoc.jsp?containerId=US47426420">https://www.idc.com/getdoc.jsp?containerId=US47426420</a>
Use / year	1932.5	83%	<a href="https://www.se.com/wa/en/work/solutions/system/s1/data-center-and-network-systems/trade-off-tools/data-center-server-carbon-and-energy-allocation-calculator/">https://www.se.com/wa/en/work/solutions/system/s1/data-center-and-network-systems/trade-off-tools/data-center-server-carbon-and-energy-allocation-calculator/</a>
Transportation		0.10%	
<b>Emissions</b>			
CheckPoint VFX	900	CO2-eq/kW (g)	US cole-based energy mix
Raumgleiter	400	CO2-eq/kW (g)	Swiss mix
Low-co2 region	90	CO2-eq/kW (g)	Based on live data from electricitymap.org
Low co2 + heat-reuse	13.5	CO2-eq/kW (g)	Heat from operating the servers is used for district heating or growing tomatos (85% savings in emissions as heat is otherwise wasted or even consumes more energy for cooling)
<b>PUE</b>			
Power Usage Effectiveness			
PUE on-premise	2.6		
PUE public cloud	1.2		
PUE	1.05		
<b>Energy + Cooling</b>			
Based on PUE and yearly energy demand per Dell server above			
On-Premise	4577	kWh	
Public Cloud	2112	kWh	
Used	4577	kWh	
<b>Emissions / year / server</b>			
On-prem	1831	Checkpoint	4119
Public cloud	845		1901
Phase 2 "DC"	739		1663
Phase 3 "workload shifting"	166		166
Phase 4 "heat re-usage"	25		25
<b>Savings</b>			
Phase 1 "Move to Cloud"	986	Emissions	2218
Phase 2 "DC"	1091		2456
Phase 3 "workload shifting"	1664		3953
Phase 4 "heat re-usage"	1806		4094
<b>Total Raumgleiter / Checkpoint</b>			
Number of servers	50		100 needed to serve the capacity consumed
On premise emissions	91536		411910 kgCO2e
<b>Phase 1 "Move to Cloud"</b>	<b>49288</b>		<b>221798 kgCO2e</b>
Phase 2 "DC"	54569		245562 kgCO2e
Phase 3 "workload shifting"	83218		395275 kgCO2e
Phase 4 "heat re-usage"	90288		409415 kgCO2e
<b>Impact</b>			
Revenue profile			CHF / year
Revenue 2022			CHF / year
<b>1m revenue</b>			
Saved emissions with Phase 1	1027	Checkpoint	2310 tons of CO2
Saved emissions with Phase 2	1137		2558 tons of CO2
Saved emissions with Phase 3	1734		4117 tons of CO2
Saved emissions with Phase 4	1881		4265 tons of CO2
Expected revenue over 4 years			
Emissions saved in 4 years			
Value of the emissions			
<b>Total market</b>			
On premise market size	213000000000	million CHF	Source: Statista
Co2 savings potential	400652944	tons of CO2	Total savings from moving everything on-prem to cloud per year