Calculate the TCO:

Total TCO = Operational Expenditure (OpEx) + Capital Expenditure (CapEx)

Before calculating the TCO we have to identify all expenses and split them in a respective expenditure of opEx and capEx. We have the following expenditure:
Energy cost
Salaries
Maintenance
Software
Hardware

Energy cost:
First we calculate power consumption and total hours to calculate the energy cost.

Total power consumption of 3 servers = 600 + 600 + 567 = 1767 W
Total power consumption of 17 clients = 17 * 500 = 8500 W
Total power consumption of 19 laptops = 19 * 50 = 950 W

Considering the 19 inch server rack, We have assumed the room is small and has 2 walls mounted for redundancy a/c's working 24/7 with cooling capacity of 12000 BTU each.

Total power consumption of 2 a/c is = 3400*2 W = 6800 W

Energy consumption (kWh)=Power (kW)×Time (hours)

Power = 1767 + 8500 + 950 + 6800 = 18.017 kW

Time = 8760 hours per year = 8.760 * 3 = 26.280 hours for 3 years

Energy consumption (kWh) =18.017 * 26.280 = 473.486.760 kWh

Now, Energy cost (€) = Energy consumption (kWh) * Cost per kWh (€)

Given:
Energy consumption = 473.486.760 kWh (as calculated earlier) - Cost per kWh = 32 cents = 0.32 euros (used the average rate from 2 companies that provide energy for commercial use)

Energy cost (€) = 473.486.760 kWh * 0.32 €/kWh = 151.515.763 € for 3 years

Hardware:

5th Gen Intel® Xeon® Platinum 8592+ Processor (Cores 64/ Threads 128, 3.9 GHz) 256 DDR5 RAM (Samsung 128GB DDR5 *2) 18 TB HDD (SEAGATE)
For 1 Server Cost: (CapEx)
Server + 256 DDR5 RAM + (Samsung 128GB DDR5 *2) + 18 TB = 10.689,86 + 5.098 + 1.834,79 + 329 = 17.951,65 €

5th Gen Intel® Xeon® Platinum 8592+ Processor (Cores 64/ Threads 128, 3.9 GHz) 256 DDR5 RAM (Samsung 128GB DDR5 *2) 18 TB HDD (SEAGATE) 250GB SSD (WD Blue)
For 2 Server Cost: (CapEx)
17.951,65 (same as above server) + (250GB SSD) 43,31 = 17.994,96 €

Intel Xeon Max- 9480 (Cores 56/ Threads 112, 3.5 GHz) (288) 64 + 64 + 64 + 64 + 32 GB DDR5 RAM 8TB HDD (SEAGATE) 250GB SSD (WD Blue)
For 3 Server Cost: (CapEx)
Server + 288GB DDR5 RAM + 8TB HDD + 250GB SSD = 11.961,59 + 1.736,1 + 136,60 + 43,31 = 13.877,6 €

Firewall:
PFSENSE+ SOFTWARE with 3 years of warranty = 2208,93 €

Hypervisor:
vmware workstation pro with 3 years of warranty = 331,8 €

Raspberry:
Raspberry Pi 5 * 17 = 139,94 * 17 (no of clients) = 2.378,98 €

Maintenance:
Maintenance costs usually consist of hardware, cooling, and miscellaneous items (such as office supplies). We have no hardware costs because all hardware has a minimum 3-year warranty, so we don't have any maintenance costs for this. However, we need to calculate the cooling costs since we are using the previous 2 cooling machines in the 'as is' infrastructure.

For 1 Year:
Maintenance: Hardware + Cooling + Miscellaneous = 0 + 200/year + 2000 (might be wrong but just allocating some amount incase of any damage) = 2200 €

For 3 Year:
2200 * 3 ≈ 6600 €

Software:
Windows Server 2022 = 56,36 €
Microsoft SQL 2022 = 3.297,90 €
SAP HANA = 5544,26 €
JBoss Application Server (EAP 7.4) = 11054,46 € per year * 3 = 33.163,38 €

Salaries:

System Administrator:

We take salaries of “as is infrastructure” but with a 3 year plan so we have to calculate an increment as well 60.000 € per year.

For 2nd year:
60.000 * 10 percent = 66.000 €

For 3rd year:
66.000 * 10 percent = 72.600 €

Security Specialist:
We take salaries of “as is infrastructure” but with a 3 year plan so we have to calculate an increment as well 70.000 € per year.

For 2nd year:
70.000 * 10 percent = 77.000 €

For 3rd year:
77.000 * 10 percent = 84.700 €

Network Administrator:
We take salaries of “as is infrastructure” but with a 3 year plan so we have to calculate an increment as well 100.000 € per year.

For 2nd year:
100.000 * 10 percent = 110.000 €

For 3rd year:
110.000 * 10 percent = 121.000 €

Operational Expenditure (OpEx):

1. Energy Cost: €151.515.763 (for 3 years)
2. Maintenance: €6.600 (for 3 years)
3. Software:
    - Windows Server 2022: €56,36
    - Microsoft SQL 2022: €3.297,90
    - SAP HANA: €5.544,26
    - JBoss Application Server (EAP 7.4): €33.163,38

Total OpEx:
Energy Cost + Maintenance + Software Costs
= €151.515.763 + €6.600 + (€56,36 + €3.297,90 + €5.544,26 + €33.163,38)
= €151.515.763 + €6.600 + €41.062,90
= €151.563.425,90

Capital Expenditure (CapEx):

1. Hardware Costs:
    - 1 Server: €17.951,65
    - 2 Server: €17.994,96
    - 3 Server: €13.877,60
    - Firewall: €2.208,93
    - Hypervisor: €331,80
    - Raspberry Pi: €2.378,98

Total CapEx:
Sum of all Hardware Costs + Firewall Cost + Hypervisor Cost + Raspberry Pi Cost
= (€17.951,65 + €17.994,96 + €13.877,60) + €2.208,93 + €331,80 + €2.378,98
= €49.153,12 + €2.208,93 + €331,80 + €2.378,98
= €54.072,83

Salaries (OpEx):
System Administrator:

- Year 1: €60.000
- Year 2: €66.000
- Year 3: €72.600

Security Specialist:

- Year 1: €70.000
- Year 2: €77.000
- Year 3: €84.700

Network Administrator:

- Year 1: €100.000
- Year 2: €110.000
- Year 3: €121.000

Total Salaries (OpEx):
Sum of all salary expenses for each year
= (€60.000 + €70.000 + €100.000) + (€66.000 + €77.000 + €110.000) + (€72.600 + €84.700 + €121.000)
= €230.000 + €253.000 + €278.300
= €761.300
Now, let's sum up OpEx and CapEx to find the Total Cost of Ownership (TCO):
Total TCO = Total OpEx + Total CapEx + Total Salaries
= €151.563.425,90 + €54.072,83 + €761.300
= €152.378.798,73
So, the Total Cost of Ownership (TCO) for the specified expenses is approximately €152.378.798,73 or 152.38 million

References:

https://www.intel.com/content/www/us/en/products/sku/237261/intel-xeon-platinum-8592-processor-320m-cache-1-90-ghz/specifications.html (5th Gen Intel® Xeon® Platinum 8592+ Processor)

https://www.wiredzone.com/shop/product/10023809-samsung-m321raga0b20-cwk-memory-128gb-ddr5-4800mhz-rdimm-mem-dr512l-sl01-er48-9881 (Samsung DDR5 128GB)

https://www.intel.com/content/www/us/en/products/sku/232592/intel-xeon-cpu-max-9480-processor-112-5m-cache-1-90-ghz/specifications.html (Intel Xeon Max-9480)

https://www.speicher.de/arbeitsspeicher-64gb-ddr5-cisco-ucs-c240-m7-ram-rdimm-sp510833.html (64gb ram DDR5)

https://www.amazon.de/Seagate-Enterprise-Hyperscale-FastFormat-verbessertem/dp/B08JV6PP9B (SEAGATE Exos 2X18 Hard Drive)

https://www.amazon.co.uk/Seagate-ST8000DM004-Barracuda-internal-Silver/dp/B075WYBQXJ?ref_=ast_sto_dp&psc=1 (Seagate BarraCuda 8TB HDD)

https://www.westerndigital.com/products/internal-drives/wd-blue-sa510-sata-2-5-ssd?sku=WDS250G3B0A (Western Digital 250GB WD Blue)

https://shop.netgate.com/products/pfsense-software-subscription-tac-ent-support?variant=41227198234739 (SW firewall)

https://www.vmware.com/products/workstation-player/workstation-player-evaluation.html.html (Hypervisor)

https://buyzero.de/products/offizielles-raspberry-pi-5-desktop-kit?variant=44632424251659 (Raspberry Pi 5 * 17)

https://www.kaeltebringer.de/en/blogs/ratgeber/preise-und-kosten-klimaanlage#:~:text=The%20annual%20maintenance%20also%20has,between%20150%20and%20200%20euros (Cooling maintenance)

https://www.flipkart.com/microsoft-windows-server-2022-standard-1-user-pc-lifetime-validity/p/itm08ec0085e114e (Windows server 2022)

https://softwarekaufen24.de/sql-2022-user-cal?number=SWK24-101125.4 (MICROSOFT SQL SERVER 2022)

https://swc.saas.ibm.com/en-us/redhat-marketplace/products/red-hat-jboss-enterprise-application-platform/pricing (Red Hat JBoss Enterprise Application Platform)

https://sap.silvertouch.com/blog/sap-hana-pricing-features-and-licensing-option (SAP CRM 7.0)