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
Maintenance
Salaries
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
Total power consumption of switches and routers = 1000 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 + 1000 + 6800 = 19,017 kW

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

Energy consumption (kWh) =19,017 * 26.280 = 499.767 kWh

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

Given:
Energy consumption = 499.767 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 (€) = 499.767 kWh * 0.32 €/kWh = 159.926 € for 3 years

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 + 2.000 (might be wrong but just allocating some amount incase of any damage) = 2.200 €

For 3 Year:
2.200 * 3 ≈ 6.600 €

Salaries:
System Administrator:
We take an average salary of 60.000 € per year

Security Specialist:
We take an average salary of 70.000 € per year

Network Administrator:
We take an average salary of 100.000 € per year

Software:
Windows Server 2022 = 56,36 €
Microsoft SQL 2022 = 3.297,90 €
SAP HANA = 5.544,26 €
JBoss Application Server (EAP 7.4) = 11054,46 € per year * 3 = 33.163,38 €

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 = 331,80 €

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

Operational Expenditure (OpEx):

1. Energy Cost: 159.926 € (for 3 years)
2. Maintenance: 6.600 € (for 3 years)
3. Salaries (for 3 years)
    - System Administrator: 60.000 € per year
    - Security Specialist: 70.000 € per year
    - Network Administrator: 100.000 € per year
4. 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 + Salaries = 159.926 + 6.600 + (56,36 + 3.297,90 + 5.544,26 + 33.163,38) + ((60.000+70.000+100.000) * 3) = 159.926 + 6.600 + 41.062,90 + 690.000= 897.589 €

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 = 54.744 €

Now, let's sum up OpEx and CapEx to find the Total Cost of Ownership (TCO):
Total TCO = Total OpEx + Total CapEx = 897.589 + 54.744 = 952.333 €

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