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Homework 6

For the problems below, specify answers to three digits of precision.

1. Show if the component qualifies for "IT Power" and calculate Power Utilization Efficiency:

Component	Power Consumption (kw)	IT power? (Y/N)
Routers and switches	20	y
Video monitoring	10	n
Power distribution loss	35	y
Machine power supplies	1500	y
Monitoring and test equipment	18	n
Lighting	7	n
Air conditioning	150	n
Disk arrays	80	y
Fire Detection Sensors	6	n

Power Utilization Efficiency = Power Consumption / IT power.

PUE = 1826 / 1635 = 1.117

2. Disk drives used in a data warehouse have a 1.5M hour MTTF. There are 100,000 servers, each with at least 3 drives in them. There are 10,000 of those which have an extra 10 drives in them. How many disk failures per day can be expected?

90000 * 3 = 270,000

10000 * 13 = 130000

total = 400000

1500000/400000 = 3.75 hours

24/3.75 = 6.4 failures per day

3. Servers in a warehouse are 89% available. The failure of how many servers must be tolerated so that the warehouse has an availability of 99.999%?

Not quite sure about this one. .001%?